# Refinery Flexibility

An Interim Report
of the
National Petroleum Council

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# Volume II

Statistical Appendices
( C — H )

December 1979

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# APPENDIX C

# FACILITIES DATA

National Petroleum Council
1979 Survey of Refining Capabilities
Part I: Current and Firmly Committed Facilities
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EXHIBIT C.0

## Method Used in Survey For Estimating Refining Complexity

Refining Complexity is a measure of the intensity of refining operations for a given refinery. Each process operation is weighted in terms of its relative complexity to that of the crude distillation unit, which is assigned a value of 1.0. The complexity factor for each process unit is based on relative construction costs.

The complexity for a refinery is computed by summing the arithmetic products obtained when the complexity factor for each refinery process unit is multiplied by the "percent capacity" of that unit ("percent capacity" is defined as a percentage of crude oil distillation capacity). The remainder of this exhibit presents each process unit's capacity factor and provides a sample computation of refinery complexity.

| Process Unit | NPC Code | Complexity Factor |
|---|---|---|
| Atmospheric Distillation | AA | 1.0 |
| Vacuum Distillation | AC | 1.0 |
| Catalytic Reforming | AD | 4.0 |
| BTX Recovery | AH | 65.0 |
| Catalytic Cracking | AJ | 5.5 |
| Alkylation | BK | 9.0 |
| $C_5/C_6$ Isomerization | BT | 3.0 |
| Polymer Gasoline | BX | 9.0 |
| Catalytic Hydrotreating | | |
| Reformer Naphtha | CA | 2.0 |
| Other Naphtha | CB | 2.0 |
| Catalytic Cracking Chargestock | CC | 4.0 |
| Other Heavy Gas Oil | CD | 4.0 |
| Distillate | CE | 2.0 |
| Residual Desulfurization | CF | 5.0 |
| Catalytic Hydrocracking | DA | 10.0 |
| Thermal Processing | | |
| Gas Oil Cracking | DC | 3.0 |
| Visbreaking | DD | 3.0 |
| Fluid Coking | DE | 5.0 |
| Delayed Coking | DG | 5.0 |
| Hydrogen | | |
| Steam Methane Reforming | DI | 1.2 |
| Steam Naphtha Reforming | DJ | 1.2 |
| Partial Oxidation | DK | 2.0 |
| Cryogenic | DL | 0.7 |
| Other | D | 0.7 |
| Sulfur Recovery | DY | 85.0 |

Example: Calculating Complexity of a Hypothetical Refinery

| Process Unit | Process Unit Capacities of Hypothetical Refinery | Designated Process Unit Complexity Factor | Percentage of Atmospheric Distillation Capacity | Unit Complexity*/ Factor Value |
|---|---|---|---|---|
| Atmospheric Distillation | 150 | 1.0 | 100 | 1.00 |
| Vacuum Distillation | 80 | 1.0 | 53 | 0.53 |
| Catalytic Reforming | 30 | 4.0 | 20 | 0.80 |
| Catalytic Cracking | 50 | 5.5 | 33 | 1.82 |
| Alkylation | 10 | 9.0 | 7 | 0.63 |
| Hydrotreating Catalytic Cracking Charge Stock | | | 33 | 1.32 |
| Refinery Complexity | 50 | 4.0 | | 6.10 |

*/ Unit Complexity Value = Percentage of Atmospheric Distillation Capacity multiplied by Process Unit Complexity Factor.

TABLE C.1.1

NUMBER OF REFINERIES RESPONDING
TO SURVEY BY LOCATION AND SIZE CATEGORIES
OPERATIONAL PROJECTIONS AS OF JANUARY 1, 1979

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV | PAD V* | TOTALS |
|---|---|---|---|---|---|---|
| 0-10 | 9 | 11 | 21 | 7 | 9 | 57 |
| 10-30 | 6 | 11 | 21 | 9 | 13 | 60 |
| 30-50 | ** | 10 | 9 | 8 | 7 | 34 |
| 50-100 | 6 | 16 | 11 | ** | 8 | 41 |
| 100-175 | *** | 10 | 7 | | *** | 28 |
| 175+ | *** | 4 | 14 | | *** | 24 |
| Totals | 28 | 62 | 83 | 24 | 47 | 244 |

*Includes Alaska, Hawaii and U.S. Pacific Islands.

**Aggregated in other categories to protect confidentiality.

***Withheld to protect confidentiality.

TABLE C.1.2

NUMBER OF REFINERIES RESPONDING
TO SURVEY BY LOCATION AND SIZE CATEGORIES
OPERATIONAL PROJECTIONS AS OF JANUARY 1, 1980

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV | PAD V* | TOTALS |
|---|---|---|---|---|---|---|
| 0-10 | 8 | 11 | 20 | 7 | 6 | 52 |
| 10-30 | 6 | 11 | 22 | 8 | 14 | 61 |
| 30-50 | ** | 9 | 10 | 9 | 8 | 36 |
| 50-100 | 8 | 17 | 11 | ** | 9 | 45 |
| 100-175 | *** | 9 | 7 | | *** | 27 |
| 175+ | *** | 5 | 14 | | *** | 25 |
| Totals | 29 | 62 | 84 | 24 | 47 | 246 |

*Includes Alaska, Hawaii and U.S. Pacific Islands.

**Aggregated in other categories to protect confidentiality.

***Withheld to protect confidentiality.

TABLE C.1.3

NUMBER OF REFINERIES RESPONDING
TO SURVEY BY LOCATION AND SIZE CATEGORIES
OPERATIONAL PROJECTIONS AS OF JANUARY 1, 1982

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV | PAD V* | TOTALS |
|---|---|---|---|---|---|---|
| 0-10 | 8 | 11 | 17 | 6 | 6 | 48 |
| 10-30 | 6 | 11 | 24 | 9 | 14 | 64 |
| 30-50 | | 9 | 10 | 9 | 6 | 34 |
| 50-100 | 8 | 17 | 10 | | 11 | 46 |
| 100-175 | *** | 9 | 8 | | *** | 28 |
| 175+ | *** | 5 | 15 | | *** | 26 |
| Totals | 29 | 62 | 84 | 24 | 47 | 246 |

*Includes Alaska, Hawaii and U.S. Pacific Islands.
**Aggregated in other categories to protect confidentiality.
***Withheld to protect confidentiality.

TABLE C.2.1

NUMBER OF REFINERIES RESPONDING
TO SURVEY BY LOCATION AND SIZE CATEGORIES
OPERATIONAL PROJECTIONS AS OF JANUARY 1, 1979

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV | PAD V* | TOTALS |
|---|---|---|---|---|---|---|
| 0-10 | 59 | 59 | 121 | 34 | 54 | 327 |
| 10-30 | 99 | 225 | 421 | 173 | 276 | 1193 |
| 30-50 | ** | 460 | 348 | 358 | 289 | 1454 |
| 50-100 | 388 | 1,056 | 853 | ** | 635 | 2932 |
| 100-175 | *** | 1,297 | 878 | | *** | 3605 |
| 175+ | *** | 1,038 | 4,698 | | *** | 7,367 |
| Totals | 1871 | 4,135 | 7317 | 564 | 2990 | 16,878 |

*Includes Alaska, Hawaii and U.S. Pacific Islands.

**Aggregated in other categories to protect confidentiality.

***Withheld to protect confidentiality.

TABLE C.2.2

NUMBER OF REFINERIES RESPONDING
TO SURVEY BY LOCATION AND SIZE CATEGORIES
OPERATIONAL PROJECTIONS AS OF JANUARY 1, 1980

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV | PAD V* | TOTALS |
|---|---|---|---|---|---|---|
| 0-10 | 50 | 64 | 120 | 34 | 46 | 314 |
| 10-30 | 84 | 228 | 423 | 162 | 286 | 1183 |
| 30-50 | ** | 413 | 397 | 394 | 331 | 1534 |
| 50-100 | 468 | 1,117 | 859 | ** | 696 | 3140 |
| 100-175 | *** | 1,167 | 878 | | *** | 3476 |
| 175+ | *** | 1,278 | 4,704 | | *** | 7814 |
| Totals | 1927 | 4267 | 7381 | 590 | 3095 | 17,260 |

*Includes Alaska, Hawaii and U.S. Pacific Islands.

**Aggregated in other categories to protect confidentiality.

***Withheld to protect confidentiality.

TABLE C.2.3

NUMBER OF REFINERIES RESPONDING
TO SURVEY BY LOCATION AND SIZE CATEGORIES
OPERATIONAL PROJECTIONS AS OF JANUARY 1, 1982

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV | PAD V* | TOTALS |
|---|---|---|---|---|---|---|
| 0-10 | 53 | 69 | 98 | 27 | 46 | 292 |
| 10-30 | 92 | 235 | 465 | 174 | 291 | 1257 |
| 30-50 | ** | 421 | 402 | 398 | 255 | 1475 |
| 50-100 | 478 | 1127 | 758 | ** | 818 | 3181 |
| 100-175 | ***. | 1178 | 1060 | | *** | 3674 |
| 175+ | *** | 1318 | 5114 | | *** | 8090 |
| Totals | 1981 | 4348 | 7897 | 598 | 3146 | 17,969 |

*Includes Alaska, Hawaii and U.S. Pacific Islands.

**Aggregated in other categories to protect confidentiality.

***Withheld to protect confidentiality.

TABLE C.2.4

NUMBER OF REFINERIES AND ASSOCIATED CRUDE OIL CAPACITY IN MB/CD

OPERATED BY NON-RESPONDENTS TO THE SURVEY*

JANUARY 1, 1978

| REFINERY SIZE CATEGORY MBPCD | PAD I | PAD II | PAD III | PAD IV | PAD V | TOTAL U.S. |
|---|---|---|---|---|---|---|
| 0-10 | - | 31(9) | 50(13) | 15(6) | 20(4) | 116(32) |
| 10-30 | - | 42(2) | 116(3) | 11(1) | 72(4) | 241(10) |
| 30-50 | - | - | - | - | - | - |
| 50-100 | - | - | 80(1) | - | - | 80(1) |
| 100 & Larger | - | - | - | - | - | - |
| TOTALS | | 73(11) | 246(17) | 26(7) | 92(8) | 437(43) |

*AS REPORTED BY OIL & GAS JOURNAL, MARCH 26, 1979.

**FIGURES IN PARENTHAES SHOWS NUMBER OF REFINERIES.

TABLE C.3.1

NUMBER AND CAPACITIES OF

COMPANIES RESPONDING TO SURVEY

AS OF JANUARY 1, 1979

| Refinery Size Category MBPCD | Number of Respondents | Aggregate Capacity of Respondents MBPCD |
|---|---|---|
| 0-10 | 40 | 233 |
| 10-30 | 38 | 770 |
| 30-50 | 13 | 542 |
| 50-100 | 13 | 838 |
| 100-175 | 7 | 917 |
| 175+ | 21 | 13,578 |
| Total | 132 | 16,878 |

Table C.3.2

NUMBER AND CAPACITIES OF

COMPANIES RESPONDING TO SURVEY

OPERATIONAL AS OF JANUARY 1, 1980

| Refinery Size Category MBPCD | Number of Respondents | Aggregate Capacity of Respondents MBPCD |
|---|---|---|
| 0-10 | 35 | 220 |
| 10-30 | 39 | 753 |
| 30-50 | 16 | 667 |
| 50-100 | 16 | 1,004 |
| 100-175 | 7 | 922 |
| 175+ | 21 | 13,695 |
| Total | 134 | 17,261 |

Table C.3.3

NUMBER AND CAPACITIES OF

COMPANIES RESPONDING TO SURVEY

OPERATIONAL AS OF JANUARY 1, 1982

| Refinery Size Category MBPCD | Number of Respondents | Aggregate Capacity of Respondents MBPCD |
|---|---|---|
| 0-10 | 32 | 201 |
| 10-30 | 41 | 817 |
| 30-50 | 17 | 727 |
| 50-100 | 16 | 1,080 |
| 100-175 | 7 | 922 |
| 175+ | 21 | 14,223 |
| Total | 134 | 17,970 |

Table C.4.1.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/22/79

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | |
| ATMOSPHERIC DISTILLATION | 1,871 | 4,135 | 7,306 | 564 | 2,917 | 16,793 |
| CRUDE CAPACITY | 1,871 | 4,135 | 7,306 | 564 | 2,990 | 16,867 |
| NO OF REFINERIES | 28 | 62 | 81 | 24 | 47 | 242 |
| OTHER CRUDE CHARGE UNITS | | | | | 84 | 84 |
| CRUDE CAPACITY | | | | | 362 | 362 |
| NO OF REFINERIES | | | | | 5 | 5 |
| VACUUM DISTILLATION | 862 | 1,428 | 2,425 | 204 | 1,194 | 6,114 |
| CRUDE CAPACITY | 1,771 | 3,899 | 6,737 | 507 | 2,425 | 15,340 |
| NO OF REFINERIES | 21 | 48 | 49 | 19 | 26 | 163 |
| CAT REFORMER CHARGE CAP | | | | | | |
| AT 90 RONC | 399 | 905 | 1,497 | 107 | 613 | 3,519 |
| CRUDE CAPACITY | 1,750 | 3,985 | 6,920 | 551 | 2,677 | 15,883 |
| NO OF REFINERIES | 18 | 49 | 54 | 20 | 28 | 169 |
| AT 95 RONC | 373 | 814 | 1,303 | 92 | 584 | 3,166 |
| CRUDE CAPACITY | 1,713 | 3,646 | 6,741 | 470 | 2,677 | 15,247 |
| NO OF REFINERIES | 13 | 42 | 46 | 17 | 28 | 146 |
| AT 98 RONC | 331 | 621 | 1,013 | 71 | 493 | 2,528 |
| CRUDE CAPACITY | 1,713 | 3,165 | 5,210 | 385 | 2,533 | 13,006 |
| NO OF REFINERIES | 13 | 33 | 36 | 14 | 25 | 121 |
| AT 100 RONC | 258 | 383 | 857 | 57 | 351 | 1,906 |
| CRUDE CAPACITY | 1,549 | 2,260 | 4,922 | 361 | 2,023 | 11,115 |
| NO OF REFINERIES | 12 | 23 | 29 | 13 | 20 | 97 |
| BTX RECOVERY CAP (AROM P) | 18 | 36 | 159 | | 6 | 218 |
| CRUDE CAPACITY | 670 | 1,243 | 4,512 | | 950 | 7,376 |
| NO OF REFINERIES | 5 | 7 | 26 | | 3 | 41 |

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | |
| FRESH FEED | 569 | 1,440 | 2,030 | 166 | 589 | 4,793 |
| CRUDE CAPACITY | 1,528 | 4,037 | 6,484 | 519 | 2,139 | 14,707 |
| NO OF REFINERIES | 12 | 49 | 41 | 17 | 17 | 136 |
| CONVERSION (VOL PCT) | 68.08 | 74.10 | 72.42 | 75.64 | 71.56 | 72.42 |
| CRUDE CAPACITY | 1,528 | 4,010 | 6,484 | 495 | 2,031 | 14,548 |
| NO OF REFINERIES | 12 | 48 | 41 | 16 | 16 | 133 |
| RONC OF DEBUT CAT NAPHTHA | 88.57 | 90.32 | 89.57 | 90.00 | 91.18 | 89.88 |
| CRUDE CAPACITY | 1,528 | 4,010 | 6,484 | 495 | 2,031 | 14,548 |
| NO OF REFINERIES | 12 | 48 | 41 | 16 | 16 | 133 |
| ALKYLATION | | | | | | |
| D P VOL (BUTYLENE FEED) | 29 | 37 | 33 | | | 100 |
| CRUDE CAPACITY | 730 | 683 | 1,070 | | | 2,483 |
| NO OF REFINERIES | 6 | 6 | 6 | | | 18 |
| D P VOL (MIX FEED) | 33 | 239 | 333 | 27 | 115 | 747 |
| CRUDE CAPACITY | 746 | 3,131 | 5,258 | 409 | 2,139 | 11,684 |
| NO OF REFINERIES | 5 | 39 | 32 | 11 | 17 | 104 |
| RONC OF DEBUTANIZED PROD | 93.74 | 92.83 | 92.52 | 93.32 | 93.00 | 92.80 |
| CRUDE CAPACITY | 1,475 | 3,814 | 6,328 | 409 | 2,139 | 14,166 |
| NO OF REFINERIES | 11 | 45 | 38 | 11 | 17 | 122 |
| C5 AND C6 ISOMERIZATION | | | | | | |
| D P VOL (C5 FEED) | | | 46 | | | 46 |
| CRUDE CAPACITY | | | 854 | | | 854 |
| NO OF REFINERIES | | | 4 | | | 4 |
| D P VOL (C5+C6 FEED) | | 12 | | | | 12 |
| CRUDE CAPACITY | | 136 | | | | 136 |
| NO OF REFINERIES | | 1 | | | | 1 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | | 83.00 | 88.17 | | | 87.10 |
| CRUDE CAPACITY | | 136 | 854 | | | 989 |
| NO OF REFINERIES | | 1 | 4 | | | 5 |
| POLYMER GASOLINE | | | | | | |
| NET DEBUTANIZED VOLUME | 11 | 28 | 5 | 3 | 2 | 49 |
| CRUDE CAPACITY | 387 | 1,211 | 837 | 146 | 270 | 2,851 |
| NO OF REFINERIES | 5 | 16 | 7 | 6 | 3 | 37 |
| RONC OF DEBUTANIZED PROD | 90.80 | 95.35 | 92.99 | 94.50 | 91.82 | 93.91 |
| CRUDE CAPACITY | 387 | 1,211 | 837 | 146 | 270 | 2,851 |
| NO OF REFINERIES | 5 | 16 | 7 | 6 | 3 | 37 |
| CATALYTIC HYDROTREATING | | | | | | |
| REFORMER NAPHTHA | 475 | 925 | 1,436 | 126 | 520 | 3,482 |
| CRUDE CAPACITY | 1,764 | 3,947 | 6,407 | 521 | 2,665 | 15,304 |
| NO OF REFINERIES | 20 | 47 | 50 | 18 | 27 | 162 |
| OTHER NAPHTHA | | 30 | 88 | | 97 | 215 |
| CRUDE CAPACITY | | 604 | 1,234 | | 1,690 | 3,528 |
| NO OF REFINERIES | | 7 | 8 | | 11 | 26 |
| CAT CRACKING CHRGE STOCK | 135 | 242 | 329 | | 187 | 893 |
| CRUDE CAPACITY | 686 | 1,363 | 2,369 | | 1,108 | 5,526 |
| NO OF REFINERIES | 4 | 11 | 10 | | 6 | 31 |
| OTHER HEAVY GAS OIL | 55 | 23 | 112 | | | 189 |
| CRUDE CAPACITY | 525 | 790 | 1,301 | | | 2,616 |
| NO OF REFINERIES | 3 | 3 | 4 | | | 10 |
| DISTILLATE | 385 | 494 | 1,090 | 99 | 383 | 2,450 |
| CRUDE CAPACITY | 1,606 | 2,850 | 5,680 | 388 | 2,318 | 12,842 |
| NO OF REFINERIES | 11 | 27 | 28 | 13 | 19 | 98 |
| RESIDUAL DESULFURIZATION | | | 74 | | 21 | 95 |
| CRUDE CAPACITY | | | 640 | | 405 | 1,045 |
| NO OF REFINERIES | | | 1 | | 1 | 2 |

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| TOTAL ( CA THRU CF) | 1,049 | 1,714 | 3,128 | 225 | 1,208 | 7,325 |
| CRUDE CAPACITY | 1,764 | 3,989 | 6,907 | 521 | 2,709 | 15,890 |
| NO OF REFINERIES | 20 | 48 | 51 | 18 | 28 | 165 |
| CATALYTIC HYDROCRACKING U | | | | | | |
| CAPACITY (DISTLLATE FEED) | | 140 | 151 | 5 | 167 | 463 |
| CRUDE CAPACITY | | 1,049 | 2,602 | 54 | 939 | 4,644 |
| NO OF REFINERIES | | 8 | 7 | 2 | 9 | 26 |
| CAPACITY (HVY GAS O FEED) | 73 | | 106 | | 169 | 348 |
| CRUDE CAPACITY | 499 | | 1,413 | | 1,065 | 2,977 |
| NO OF REFINERIES | 4 | | 6 | | 5 | 15 |
| CONVERSION PCT (430 F EP) | 78.07 | 103.95 | 94.15 | 100.00 | 88.34 | 91.98 |
| CRUDE CAPACITY | 499 | 1,049 | 2,735 | 54 | 2,004 | 6,341 |
| NO OF REFINERIES | 4 | 8 | 11 | 2 | 14 | 39 |
| THERMAL PROCESSING | | | | | | |
| GAS OIL CRACKING | ****** | 20 | 100 | ****** | ****** | 146 |
| CRUDE CAPACITY | ****** | 189 | 914 | ****** | ****** | 1,388 |
| NO OF REFINERIES | 1 | 4 | 5 | 1 | 2 | 13 |
| VISBREAKING | | | 77 | | 102 | 179 |
| CRUDE CAPACITY | | | 1,177 | | 562 | 1,740 |
| NO OF REFINERIES | | | 9 | | 7 | 16 |
| COKING - FEED RATE | 74 | 280 | 277 | 17 | 352 | 1,000 |
| CRUDE CAPACITY | 291 | 2,115 | 3,264 | 111 | 1,429 | 7,209 |
| NO OF REFINERIES | 3 | 19 | 16 | 3 | 11 | 52 |
| COKING - MAKE ST/CD | 3,110 | 12,091 | 12,324 | 725 | 16,570 | 44,820 |
| CRUDE CAPACITY | 291 | 2,115 | 3,264 | 111 | 1,429 | 7,209 |
| NO OF REFINERIES | 3 | 19 | 16 | 3 | 11 | 52 |

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| HYDROGEN (MSCF/CD) | | | | | | |
| STEAM METHANE REFORMING | 111 | 103 | 458 | 15 | 721 | 1,408 |
| CRUDE CAPACITY | 347 | 625 | 2,145 | 58 | 1,863 | 5,038 |
| NO OF REFINERIES | 4 | 5 | 10 | 2 | 13 | 34 |
| OTHER | | ****** | | | ****** | 182 |
| CRUDE CAPACITY | | ****** | | | ****** | 1,139 |
| NO OF REFINERIES | | 3 | | | 4 | 7 |
| SULFUR RECOVERY(LT/CD) | 1,525 | 2,546 | 4,812 | 186 | 3,464 | 12,533 |
| CRUDE CAPACITY | 1,457 | 3,163 | 5,855 | 296 | 2,212 | 12,983 |
| NO OF REFINERIES | 10 | 30 | 32 | 7 | 19 | 98 |

Table C.4.1.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/22/79

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | |
| ATMOSPHERIC DISTILLATION | 1,927 | 4,267 | 7,370 | 589 | 3,022 | 17,175 |
| CRUDE CAPACITY | 1,927 | 4,267 | 7,370 | 589 | 3,095 | 17,249 |
| NO OF REFINERIES | 29 | 62 | 82 | 24 | 47 | 244 |
| OTHER CRUDE CHARGE UNITS | | | | | 84 | 84 |
| CRUDE CAPACITY | | | | | 362 | 362 |
| NO OF REFINERIES | | | | | 5 | 5 |
| VACUUM DISTILLATION | 862 | 1,461 | 2,488 | 213 | 1,228 | 6,253 |
| CRUDE CAPACITY | 1,770 | 4,027 | 6,842 | 532 | 2,521 | 15,692 |
| NO OF REFINERIES | 21 | 48 | 52 | 19 | 28 | 168 |
| CAT REFORMER CHARGE CAP | | | | | | |
| AT 90 RONC | 403 | 997 | 1,636 | 121 | 635 | 3,793 |
| CRUDE CAPACITY | 1,745 | 4,178 | 6,980 | 576 | 2,747 | 16,226 |
| NO OF REFINERIES | 18 | 51 | 56 | 20 | 29 | 174 |
| AT 95 RONC | 383 | 941 | 1,450 | 115 | 615 | 3,505 |
| CRUDE CAPACITY | 1,708 | 4,012 | 6,801 | 576 | 2,747 | 15,844 |
| NO OF REFINERIES | 13 | 47 | 48 | 20 | 29 | 157 |
| AT 98 RONC | 347 | 766 | 1,200 | 85 | 583 | 2,980 |
| CRUDE CAPACITY | 1,708 | 3,688 | 5,751 | 456 | 2,727 | 14,330 |
| NO OF REFINERIES | 13 | 39 | 40 | 16 | 28 | 136 |
| AT 100 RONC | 278 | 556 | 1,034 | 71 | 377 | 2,316 |
| CRUDE CAPACITY | 1,544 | 2,932 | 5,494 | 432 | 2,111 | 12,512 |
| NO OF REFINERIES | 12 | 30 | 34 | 15 | 22 | 113 |
| BTX RECOVERY CAP (AROM P) | 18 | 41 | 166 | | 6 | 231 |
| CRUDE CAPACITY | 670 | 1,348 | 4,507 | | 950 | 7,475 |
| NO OF REFINERIES | 5 | 7 | 26 | | 3 | 41 |

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | |
| FRESH FEED | 551 | 1,455 | 2,180 | 178 | 590 | 4,954 |
| CRUDE CAPACITY | 1,523 | 4,161 | 6,753 | 544 | 2,141 | 15,122 |
| NO OF REFINERIES | 12 | 49 | 43 | 17 | 17 | 138 |
| CONVERSION (VOL PCT) | 69.31 | 74.52 | 73.27 | 77.05 | 71.55 | 73.13 |
| CRUDE CAPACITY | 1,523 | 4,135 | 6,753 | 519 | 2,033 | 14,963 |
| NO OF REFINERIES | 12 | 48 | 43 | 16 | 16 | 135 |
| RONC OF DEBUT CAT NAPHTHA | 89.36 | 90.63 | 89.91 | 90.74 | 91.19 | 90.23 |
| CRUDE CAPACITY | 1,523 | 4,135 | 6,753 | 519 | 2,033 | 14,963 |
| NO OF REFINERIES | 12 | 48 | 43 | 16 | 16 | 135 |
| ALKYLATION | | | | | | |
| D P VOL (BUTYLENE FEED) | 29 | 34 | 39 | | | 102 |
| CRUDE CAPACITY | 725 | 600 | 1,185 | | | 2,509 |
| NO OF REFINERIES | 6 | 6 | 7 | | | 19 |
| D P VOL (MIX FEED) | 33 | 251 | 365 | 28 | 115 | 793 |
| CRUDE CAPACITY | 745 | 3,339 | 5,532 | 417 | 2,141 | 12,175 |
| NO OF REFINERIES | 5 | 39 | 34 | 11 | 17 | 106 |
| RONC OF DEBUTANIZED PROD | 93.74 | 93.03 | 92.61 | 93.36 | 93.01 | 92.90 |
| CRUDE CAPACITY | 1,470 | 3,939 | 6,717 | 417 | 2,141 | 14,684 |
| NO OF REFINERIES | 11 | 45 | 41 | 11 | 17 | 125 |
| C5 AND C6 ISOMERIZATION | | | | | | |
| D P VOL (C5 FEED) | | | 68 | | | 68 |
| CRUDE CAPACITY | | | 1,144 | | | 1,144 |
| NO OF REFINERIES | | | 5 | | | 5 |
| D P VOL (C5+C6 FEED) | | 17 | | | | 17 |
| CRUDE CAPACITY | | 259 | | | | 259 |
| NO OF REFINERIES | | 3 | | | | 3 |

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | | 83.17 | 88.43 | | | 87.36 |
| CRUDE CAPACITY | | 259 | 1,144 | | | 1,402 |
| NO OF REFINERIES | | 3 | 5 | | | 8 |
| POLYMER GASOLINE | | | | | | |
| NET DEBUTANIZED VOLUME | 11 | 28 | 7 | 4 | 2 | 52 |
| CRUDE CAPACITY | 387 | 1,281 | 837 | 204 | 271 | 2,980 |
| NO OF REFINERIES | 5 | 16 | 7 | 8 | 3 | 39 |
| RONC OF DEBUTANIZED PROD | 90.80 | 95.35 | 94.21 | 94.99 | 91.82 | 94.09 |
| CRUDE CAPACITY | 387 | 1,281 | 837 | 204 | 271 | 2,980 |
| NO OF REFINERIES | 5 | 16 | 7 | 8 | 3 | 39 |
| CATALYTIC HYDROTREATING | | | | | | |
| REFORMER NAPHTHA | 488 | 990 | 1,660 | 139 | 530 | 3,806 |
| CRUDE CAPACITY | 1,759 | 4,082 | 6,963 | 563 | 2,735 | 16,102 |
| NO OF REFINERIES | 20 | 48 | 52 | 19 | 28 | 167 |
| OTHER NAPHTHA | | 30 | 91 | | 97 | 218 |
| CRUDE CAPACITY | | 673 | 1,230 | | 1,692 | 3,595 |
| NO OF REFINERIES | | 7 | 8 | | 11 | 26 |
| CAT CRACKING CHRGE STOCK | 135 | 261 | 329 | | 191 | 916 |
| CRUDE CAPACITY | 686 | 1,467 | 2,358 | | 1,108 | 5,619 |
| NO OF REFINERIES | 4 | 11 | 10 | | 6 | 31 |
| OTHER HEAVY GAS OIL | 55 | 23 | 114 | | | 191 |
| CRUDE CAPACITY | 525 | 830 | 1,308 | | | 2,663 |
| NO OF REFINERIES | 3 | 3 | 4 | | | 10 |
| DISTILLATE | 375 | 468 | 1,243 | 99 | 416 | 2,601 |
| CRUDE CAPACITY | 1,601 | 2,971 | 5,791 | 395 | 2,400 | 13,158 |
| NO OF REFINERIES | 11 | 27 | 29 | 13 | 21 | 101 |
| RESIDUAL DESULFURIZATION | | | 74 | | 21 | 95 |
| CRUDE CAPACITY | | | 640 | | 405 | 1,045 |
| NO OF REFINERIES | | | 1 | | 1 | 2 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| TOTAL ( CA THRU CF) | 1,052 | 1,771 | 3,510 | 238 | 1,254 | 7,827 |
| CRUDE CAPACITY | 1,759 | 4,124 | 6,963 | 563 | 2,781 | 16,190 |
| NO OF REFINERIES | 20 | 49 | 52 | 19 | 29 | 169 |
| CATALYTIC HYDROCRACKING U | | | | | | |
| CAPACITY (DISTLLATE FEED) | | 140 | 151 | 5 | 167 | 464 |
| CRUDE CAPACITY | | 1,052 | 2,602 | 54 | 939 | 4,647 |
| NO OF REFINERIES | | 8 | 7 | 2 | 9 | 26 |
| CAPACITY (HVY GAS O FEED) | 73 | | 106 | | 169 | 348 |
| CRUDE CAPACITY | 499 | | 1,413 | | 1,065 | 2,977 |
| NO OF REFINERIES | 4 | | 6 | | 5 | 15 |
| CONVERSION PCT (430 F EP) | 78.07 | 103.95 | 94.15 | 100.00 | 88.34 | 91.99 |
| CRUDE CAPACITY | 499 | 1,052 | 2,735 | 54 | 2,004 | 6,344 |
| NO OF REFINERIES | 4 | 8 | 11 | 2 | 14 | 39 |
| THERMAL PROCESSING | | | | | | |
| GAS OIL CRACKING | ****** | 20 | 155 | ****** | ****** | 201 |
| CRUDE CAPACITY | ****** | 189 | 935 | ****** | ****** | 1,409 |
| NO OF REFINERIES | 1 | 4 | 5 | 1 | 2 | 13 |
| VISBREAKING | | | 81 | | 102 | 183 |
| CRUDE CAPACITY | | | 1,268 | | 567 | 1,835 |
| NO OF REFINERIES | | | 10 | | 7 | 17 |
| COKING - FEED RATE | 74 | 283 | 286 | 30 | 352 | 1,024 |
| CRUDE CAPACITY | 286 | 2,170 | 3,272 | 155 | 1,429 | 7,312 |
| NO OF REFINERIES | 3 | 19 | 16 | 5 | 11 | 54 |
| COKING - MAKE ST/CD | 3,110 | 12,291 | 13,605 | 1,585 | 16,570 | 47,161 |
| CRUDE CAPACITY | 286 | 2,170 | 3,272 | 155 | 1,429 | 7,312 |
| NO OF REFINERIES | 3 | 19 | 16 | 5 | 11 | 54 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| HYDROGEN (MSCF/CD) | | | | | | |
| STEAM METHANE REFORMING | 111 | 103 | 458 | 15 | 723 | 1,409 |
| CRUDE CAPACITY | 348 | 690 | 2,136 | 58 | 1,863 | 5,095 |
| NO OF REFINERIES | 4 | 5 | 9 | 2 | 13 | 33 |
| OTHER | | ****** | | | ****** | 182 |
| CRUDE CAPACITY | | ****** | | | ****** | 1,203 |
| NO OF REFINERIES | | 3 | | | 4 | 7 |
| SULFUR RECOVERY(LT/CD) | 1,621 | 2,559 | 5,088 | 204 | 3,524 | 12,996 |
| CRUDE CAPACITY | 1,451 | 3,333 | 6,194 | 303 | 2,323 | 13,605 |
| NO OF REFINERIES | 10 | 31 | 36 | 7 | 22 | 106 |

Table C.4.1.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/22/79

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | |
| ATMOSPHERIC DISTILLATION | 1,981 | 4,348 | 7,886 | 598 | 3,073 | 17,885 |
| CRUDE CAPACITY | 1,981 | 4,348 | 7,886 | 598 | 3,146 | 17,958 |
| NO OF REFINERIES | 29 | 62 | 82 | 24 | 47 | 244 |
| OTHER CRUDE CHARGE UNITS | | | | | 84 | 84 |
| CRUDE CAPACITY | | | | | 362 | 362 |
| NO OF REFINERIES | | | | | 5 | 5 |
| VACUUM DISTILLATION | 870 | 1,473 | 2,710 | 218 | 1,250 | 6,521 |
| CRUDE CAPACITY | 1,810 | 4,102 | 7,346 | 549 | 2,568 | 16,375 |
| NO OF REFINERIES | 21 | 48 | 54 | 20 | 29 | 172 |
| CAT REFORMER CHARGE CAP | | | | | | |
| AT 90 RONC | 408 | 967 | 1,818 | 121 | 679 | 3,993 |
| CRUDE CAPACITY | 1,785 | 4,053 | 7,532 | 580 | 2,844 | 16,795 |
| NO OF REFINERIES | 18 | 50 | 62 | 20 | 31 | 181 |
| AT 95 RONC | 391 | 994 | 1,625 | 116 | 657 | 3,782 |
| CRUDE CAPACITY | 1,761 | 4,220 | 7,343 | 580 | 2,824 | 16,729 |
| NO OF REFINERIES | 14 | 49 | 51 | 20 | 30 | 164 |
| AT 98 RONC | 350 | 802 | 1,366 | 89 | 631 | 3,238 |
| CRUDE CAPACITY | 1,761 | 3,757 | 6,571 | 503 | 2,804 | 15,396 |
| NO OF REFINERIES | 14 | 39 | 44 | 17 | 29 | 143 |
| AT 100 RONC | 278 | 597 | 1,193 | 71 | 418 | 2,556 |
| CRUDE CAPACITY | 1,576 | 2,990 | 6,278 | 431 | 2,292 | 13,567 |
| NO OF REFINERIES | 12 | 30 | 37 | 15 | 24 | 118 |
| BTX RECOVERY CAP (AROM P) | 18 | 41 | 175 | | 6 | 240 |
| CRUDE CAPACITY | 697 | 1,388 | 4,872 | | 950 | 7,907 |
| NO OF REFINERIES | 5 | 7 | 27 | | 3 | 42 |

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | |
| FRESH FEED | 563 | 1,515 | 2,319 | 190 | 614 | 5,201 |
| CRUDE CAPACITY | 1,561 | 4,253 | 7,204 | 570 | 2,191 | 15,779 |
| NO OF REFINERIES | 12 | 49 | 44 | 17 | 19 | 141 |
| CONVERSION (VOL PCT) | 70.10 | 75.76 | 74.08 | 76.70 | 72.15 | 74.01 |
| CRUDE CAPACITY | 1,561 | 4,199 | 7,204 | 521 | 2,083 | 15,569 |
| NO OF REFINERIES | 12 | 47 | 44 | 15 | 18 | 136 |
| RONC OF DEBUT CAT NAPHTHA | 89.60 | 90.82 | 90.05 | 90.53 | 91.37 | 90.39 |
| CRUDE CAPACITY | 1,561 | 4,199 | 7,204 | 521 | 2,083 | 15,569 |
| NO OF REFINERIES | 12 | 47 | 44 | 15 | 18 | 136 |
| ALKYLATION | | | | | | |
| D P VOL (BUTYLENE FEED) | 29 | 34 | 43 | | | 107 |
| CRUDE CAPACITY | 730 | 611 | 1,393 | | | 2,733 |
| NO OF REFINERIES | 6 | 6 | 8 | | | 20 |
| D P VOL (MIX FEED) | 33 | 254 | 364 | 29 | 115 | 795 |
| CRUDE CAPACITY | 778 | 3,399 | 5,746 | 416 | 2,141 | 12,480 |
| NO OF REFINERIES | 5 | 39 | 33 | 11 | 17 | 105 |
| RONC OF DEBUTANIZED PROD | 93.74 | 93.14 | 92.66 | 93.37 | 93.01 | 92.95 |
| CRUDE CAPACITY | 1,508 | 4,009 | 7,138 | 416 | 2,141 | 15,213 |
| NO OF REFINERIES | 11 | 45 | 41 | 11 | 17 | 125 |
| C5 AND C6 ISOMERIZATION | | | | | | |
| D P VOL (C5 FEED) | | | 68 | | | 68 |
| CRUDE CAPACITY | | | 1,332 | | | 1,332 |
| NO OF REFINERIES | | | 5 | | | 5 |
| D P VOL (C5+C6 FEED) | | 33 | | | | 33 |
| CRUDE CAPACITY | | 380 | | | | 380 |
| NO OF REFINERIES | | 5 | | | | 5 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | | 84.24 | 88.43 | | | 87.06 |
| CRUDE CAPACITY | | 380 | 1,332 | | | 1,711 |
| NO OF REFINERIES | | 5 | 5 | | | 10 |
| POLYMER GASOLINE | | | | | | |
| NET DEBUTANIZED VOLUME | 11 | 31 | 8 | 5 | 2 | 57 |
| CRUDE CAPACITY | 387 | 1,342 | 911 | 213 | 273 | 3,127 |
| NO OF REFINERIES | 5 | 17 | 7 | 8 | 3 | 40 |
| RONC OF DEBUTANIZED PROD | 90.80 | 95.33 | 94.37 | 94.89 | 91.82 | 94.16 |
| CRUDE CAPACITY | 387 | 1,342 | 911 | 213 | 273 | 3,127 |
| NO OF REFINERIES | 5 | 17 | 7 | 8 | 3 | 40 |
| CATALYTIC HYDROTREATING | | | | | | |
| REFORMER NAPHTHA | 490 | 1,016 | 1,910 | 139 | 557 | 4,111 |
| CRUDE CAPACITY | 1,790 | 4,152 | 7,458 | 568 | 2,824 | 16,791 |
| NO OF REFINERIES | 19 | 48 | 54 | 19 | 30 | 170 |
| OTHER NAPHTHA | | 38 | 91 | | 97 | 225 |
| CRUDE CAPACITY | | 746 | 1,318 | | 1,692 | 3,755 |
| NO OF REFINERIES | | 8 | 8 | | 11 | 27 |
| CAT CRACKING CHRGE STOCK | 135 | 261 | 335 | | 191 | 922 |
| CRUDE CAPACITY | 692 | 1,507 | 2,428 | | 1,108 | 5,735 |
| NO OF REFINERIES | 4 | 11 | 10 | | 6 | 31 |
| OTHER HEAVY GAS OIL | 55 | 23 | 131 | | | 208 |
| CRUDE CAPACITY | 525 | 870 | 1,484 | | | 2,879 |
| NO OF REFINERIES | 3 | 3 | 5 | | | 11 |
| DISTILLATE | 375 | 499 | 1,311 | 99 | 460 | 2,744 |
| CRUDE CAPACITY | 1,639 | 3,083 | 6,321 | 399 | 2,482 | 13,924 |
| NO OF REFINERIES | 11 | 28 | 30 | 13 | 23 | 105 |
| RESIDUAL DESULFURIZATION | | | 74 | | 21 | 95 |
| CRUDE CAPACITY | | | 640 | | 405 | 1,045 |
| NO OF REFINERIES | | | 1 | | 1 | 2 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| TOTAL ( CA THRU CF) | 1,054 | 1,836 | 3,851 | 238 | 1,325 | 8,305 |
| CRUDE CAPACITY | 1,790 | 4,194 | 7,458 | 568 | 2,870 | 16,879 |
| NO OF REFINERIES | 19 | 49 | 54 | 19 | 31 | 172 |
| CATALYTIC HYDROCRACKING U | | | | | | |
| CAPACITY (DISTLLATE FEED) | | 140 | 151 | 5 | 147 | 444 |
| CRUDE CAPACITY | | 1,052 | 2,622 | 55 | 813 | 4,541 |
| NO OF REFINERIES | | 8 | . 7 | 2 | 8 | 25 |
| CAPACITY (HVY GAS O FEED) | 73 | | 109 | | 207 | 389 |
| CRUDE CAPACITY | 505 | | 1,484 | | 1,261 | 3,250 |
| NO OF REFINERIES | 4 | | 7 | | 7 | 18 |
| CONVERSION PCT (430 F EP) | 78.19 | 103.95 | 94.10 | 100.00 | 86.51 | 91.15 |
| CRUDE CAPACITY | 505 | 1,052 | 2,826 | 55 | 2,004 | 6,441 |
| NO OF REFINERIES | 4 | 8 | 12 | 2 | 14 | 40 |
| THERMAL PROCESSING | | | | | | |
| GAS OIL CRACKING | ****** | 20 | 155 | ****** | ****** | 191 |
| CRUDE CAPACITY | ****** | 189 | 1,009 | ****** | ****** | 1,305 |
| NO OF REFINERIES | 1 | 4 | 5 | 1 | 1 | 12 |
| VISBREAKING | | | 80 | | 62 | 142 |
| CRUDE CAPACITY | | | 1,378 | | 459 | 1,837 |
| NO OF REFINERIES | | | 9 | | 7 | 16 |
| COKING - FEED RATE | 74 | 286 | 295 | 30 | 363 | 1,048 |
| CRUDE CAPACITY | 291 | 2,231 | 3,516 | 154 | 1,451 | 7,643 |
| NO OF REFINERIES | 3 | 19 | 16 | 5 | 11 | 54 |
| COKING - MAKE ST/CD | 3,110 | 12,471 | 14,155 | 1,645 | 17,190 | 48,571 |
| CRUDE CAPACITY | 291 | 2,231 | 3,516 | 154 | 1,451 | 7,643 |
| NO OF REFINERIES | 3 | 19 | 16 | 5 | 11 | 54 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY LOCATION
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | PAD 1 | PAD 2 | PAD 3 | PAD 4 | PAD 5 | TOTAL |
|---|---|---|---|---|---|---|
| HYDROGEN (MSCF/CD) | | | | | | |
| STEAM METHANE REFORMING | 111 | 103 | 458 | 15 | 723 | 1,409 |
| CRUDE CAPACITY | 350 | 690 | 2,186 | 58 | 1,863 | 5,147 |
| NO OF REFINERIES | 4 | 5 | 9 | 2 | 13 | 33 |
| OTHER | | ****** | | | ****** | 182 |
| CRUDE CAPACITY | | ****** | | | ****** | 1,203 |
| NO OF REFINERIES | | 3 | | | 4 | 7 |
| SULFUR RECOVERY(LT/CD) | 1,711 | 3,095 | 5,749 | 204 | 3,594 | 14,353 |
| CRUDE CAPACITY | 1,489 | 3,564 | 7,052 | 307 | 2,430 | 14,842 |
| NO OF REFINERIES | 10 | 33 | 39 | 7 | 24 | 113 |

# TABLE C.4.2.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 327 | 1,175 | 1,454 | 2,907 | 3,564 | 7,367 | 16,793 |
| CRUDE CAPACITY | 327 | 1,182 | 1,454 | 2,932 | 3,605 | 7,367 | 16,867 |
| NO OF REFINERIES | 56 | 59 | 34 | 41 | 28 | 24 | 242 |
| OTHER CRUDE CHARGE UNITS | | ****** | | ****** | ****** | | 84 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | | 362 |
| NO OF REFINERIES | | 2 | | 1 | 2 | | 5 |
| VACUUM DISTILLATION | 60 | 209 | 477 | 888 | 1,550 | 2,930 | 6,114 |
| CRUDE CAPACITY | 136 | 530 | 1,163 | 2,539 | 3,605 | 7,367 | 15,340 |
| NO OF REFINERIES | 22 | 26 | 27 | 36 | 28 | 24 | 163 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 19 | 147 | 301 | 686 | 850 | 1,516 | 3,519 |
| CRUDE CAPACITY | 81 | 750 | 1,272 | 2,808 | 3,605 | 7,367 | 15,883 |
| NO OF REFINERIES | 13 | 36 | 29 | 39 | 28 | 24 | 169 |
| AT 95 RONC | 9 | 114 | 240 | 612 | 792 | 1,400 | 3,166 |
| CRUDE CAPACITY | 39 | 613 | 1,115 | 2,635 | 3,478 | 7,367 | 15,247 |
| NO OF REFINERIES | 6 | 28 | 25 | 36 | 27 | 24 | 146 |
| AT 98 RONC | 6 | 95 | 175 | 506 | 559 | 1,186 | 2,528 |
| CRUDE CAPACITY | 24 | 535 | 865 | 2,335 | 2,986 | 6,260 | 13,006 |
| NO OF REFINERIES | 3 | 24 | 19 | 31 | 23 | 21 | 121 |
| AT 100 RONC | 2 | 62 | 146 | 374 | 307 | 1,015 | 1,906 |
| CRUDE CAPACITY | 15 | 376 | 775 | 2,029 | 1,840 | 6,080 | 11,115 |
| NO OF REFINERIES | 2 | 18 | 17 | 26 | 14 | 20 | 97 |
| BTX RECOVERY CAP (AROM P) | | ****** | ****** | 31 | 46 | 134 | 218 |
| CRUDE CAPACITY | | ****** | ****** | 774 | 1,337 | 5,122 | 7,376 |
| NO OF REFINERIES | | 2 | 3 | 10 | 10 | 16 | 41 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | 10 | 173 | 347 | 1,046 | 1,180 | 2,037 | 4,793 |
| CRUDE CAPACITY | 20 | 504 | 1,025 | 2,788 | 3,388 | 6,982 | 14,707 |
| NO OF REFINERIES | 3 | 23 | 23 | 39 | 26 | 22 | 136 |
| CONVERSION (VOL PCT) | 81.75 | 76.65 | 74.19 | 72.87 | 73.08 | 71.14 | 72.42 |
| CRUDE CAPACITY | 20 | 453 | 1,025 | 2,788 | 3,280 | 6,982 | 14,548 |
| NO OF REFINERIES | 3 | 21 | 23 | 39 | 25 | 22 | 133 |
| RONC OF DEBUT CAT NAPHTHA | 87.85 | 88.69 | 90.47 | 89.59 | 90.54 | 89.66 | 89.88 |
| CRUDE CAPACITY | 20 | 453 | 1,025 | 2,788 | 3,280 | 6,982 | 14,548 |
| NO OF REFINERIES | 3 | 21 | 23 | 39 | 25 | 22 | 133 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | ****** | 62 | ****** | 100 |
| CRUDE CAPACITY | | | | ****** | 1,324 | ****** | 2,483 |
| NO OF REFINERIES | | | | 6 | 10 | 2 | 18 |
| D P VOL (MIX FEED) | | 30 | 69 | 208 | 128 | 312 | 747 |
| CRUDE CAPACITY | | 356 | 993 | 2,264 | 1,776 | 6,294 | 11,684 |
| NO OF REFINERIES | | 16 | 22 | 32 | 14 | 20 | 104 |
| RONC OF DEBUTANIZED PROD | | 92.08 | 92.75 | 92.39 | 93.32 | 92.87 | 92.80 |
| CRUDE CAPACITY | | 356 | 993 | 2,735 | 3,101 | 6,982 | 14,166 |
| NO OF REFINERIES | | 16 | 22 | 38 | 24 | 22 | 122 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5 FEED) | | | | 21 | | 25 | 46 |
| CRUDE CAPACITY | | | | 194 | | 660 | 854 |
| NO OF REFINERIES | | | | 2 | | 2 | 4 |
| D P VOL (C5+C6 FEED) | | | | | 12 | | 12 |
| CRUDE CAPACITY | | | | | 136 | | 136 |
| NO OF REFINERIES | | | | | 1 | | 1 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | | | | 93.01 | 83.00 | 84.12 | 87.10 |
| CRUDE CAPACITY | | | | 194 | 136 | 660 | 989 |
| NO OF REFINERIES | | | | 2 | 1 | 2 | 5 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | 6 | 4 | ****** | 14 | 19 | ****** | 49 |
| CRUDE CAPACITY | 17 | 181 | ****** | 679 | 1,128 | ****** | 2,851 |
| NO OF REFINERIES | 3 | 9 | 4 | 10 | 9 | 2 | 37 |
| RONC OF DEBUTANIZED PROD | 95.92 | 94.88 | ****** | 92.05 | 94.01 | ****** | 93.91 |
| CRUDE CAPACITY | 17 | 181 | ****** | 679 | 1,128 | ****** | 2,851 |
| NO OF REFINERIES | 3 | 9 | 4 | 10 | 9 | 2 | 37 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | 28 | 165 | 297 | 712 | 870 | 1,410 | 3,482 |
| CRUDE CAPACITY | 81 | 701 | 1,188 | 2,862 | 3,605 | 6,867 | 15,304 |
| NO OF REFINERIES | 12 | 32 | 27 | 40 | 28 | 23 | 162 |
| OTHER NAPHTHA | | | 12 | 51 | 79 | 73 | 215 |
| CRUDE CAPACITY | | | 176 | 472 | 1,097 | 1,783 | 3,528 |
| NO OF REFINERIES | | | 4 | 7 | 9 | 6 | 26 |
| CAT CRACKING CHRGE STOCK | | | 14 | 174 | 272 | 433 | 893 |
| CRUDE CAPACITY | | | 121 | 725 | 974 | 3,706 | 5,526 |
| NO OF REFINERIES | | | 3 | 10 | 7 | 11 | 31 |
| OTHER HEAVY GAS OIL | | | | | 42 | 146 | 189 |
| CRUDE CAPACITY | | | | | 467 | 2,149 | 2,616 |
| NO OF REFINERIES | | | | | 3 | 7 | 10 |
| DISTILLATE | 9 | 28 | 138 | 377 | 541 | 1,357 | 2,450 |
| CRUDE CAPACITY | 19 | 183 | 715 | 1,852 | 2,936 | 7,137 | 12,842 |
| NO OF REFINERIES | 3 | 8 | 16 | 25 | 23 | 23 | 98 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RESIDUAL DESULFURIZATION | | | | | | 95 | 95 |
| CRUDE CAPACITY | | | | | | 1,045 | 1,045 |
| NO OF REFINERIES | | | | | | 2 | 2 |
| TOTAL ( CA THRU CF) | 37 | 194 | 461 | 1,315 | 1,804 | 3,514 | 7,325 |
| CRUDE CAPACITY | 81 | 701 | 1,274 | 2,862 | 3,605 | 7,367 | 15,890 |
| NO OF REFINERIES | 12 | 32 | 29 | 40 | 28 | 24 | 165 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | 1 | | 31 | 65 | 160 | 206 | 463 |
| CRUDE CAPACITY | 9 | | 166 | 372 | 877 | 3,221 | 4,644 |
| NO OF REFINERIES | 1 | | 4 | 5 | 7 | 9 | 26 |
| CAPACITY (HVY GAS O FEED) | 4 | ****** | | ****** | 112 | 214 | 348 |
| CRUDE CAPACITY | 10 | ****** | | ****** | 628 | 2,210 | 2,977 |
| NO OF REFINERIES | 1 | 2 | | 1 | 5 | 6 | 15 |
| CONVERSION PCT (430 F EP) | 22.40 | ****** | 100.20 | ****** | 94.69 | 89.61 | 91.98 |
| CRUDE CAPACITY | 19 | ****** | 166 | ****** | 1,505 | 4,151 | 6,341 |
| NO OF REFINERIES | 2 | 2 | 4 | 6 | 12 | 13 | 39 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | ****** | ****** | 38 | | 91 | 146 |
| CRUDE CAPACITY | ****** | ****** | ****** | 319 | | 918 | 1,388 |
| NO OF REFINERIES | 2 | 2 | 2 | 4 | | 3 | 13 |
| VISBREAKING | | 10 | | 39 | 68 | 62 | 179 |
| CRUDE CAPACITY | | 58 | | 285 | 737 | 660 | 1,740 |
| NO OF REFINERIES | | 3 | | 4 | 6 | 3 | 16 |
| COKING - FEED RATE | | 31 | 56 | 204 | 329 | 379 | 1,000 |
| CRUDE CAPACITY | | 135 | 260 | 1,005 | 1,630 | 4,179 | 7,209 |
| NO OF REFINERIES | | 6 | 6 | 13 | 13 | 14 | 52 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| COKING - MAKE ST/CD | | 669 | 2,320 | 7,608 | 15,229 | 18,994 | 44,820 |
| CRUDE CAPACITY | | 135 | 260 | 1,005 | 1,630 | 4,179 | 7,209 |
| NO OF REFINERIES | | 6 | 6 | 13 | 13 | 14 | 52 |
| HYDROGEN (MMSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | ****** | ****** | 89 | 121 | 532 | 664 | 1,408 |
| CRUDE CAPACITY | ****** | ****** | 206 | 205 | 1,308 | 3,275 | 5,038 |
| NO OF REFINERIES | 2 | 2 | 5 | 3 | 11 | 11 | 34 |
| OTHER | | | | 58 | ****** | ****** | 182 |
| CRUDE CAPACITY | | | | 276 | ****** | ****** | 1,139 |
| NO OF REFINERIES | | | | 3 | 2 | 2 | 7 |
| SULFUR RECOVERY(LT/CD) | | 56 | 389 | 2,017 | 3,414 | 6,657 | 12,533 |
| CRUDE CAPACITY | | 131 | 879 | 1,991 | 2,940 | 7,042 | 12,983 |
| NO OF REFINERIES | | 5 | 20 | 27 | 23 | 23 | 98 |

# TABLE C.4.2.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 313 | 1,165 | 1,534 | 3,115 | 3,435 | 7,614 | 17,175 |
| CRUDE CAPACITY | 313 | 1,172 | 1,534 | 3,140 | 3,476 | 7,614 | 17,249 |
| NO OF REFINERIES | 51 | 60 | 36 | 45 | 27 | 25 | 244 |
| OTHER CRUDE CHARGE UNITS | | ****** | | ****** | ****** | | 84 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | | 362 |
| NO OF REFINERIES | | 2 | | 1 | 2 | | 5 |
| VACUUM DISTILLATION | 58 | 255 | 505 | 922 | 1,495 | 3,018 | 6,253 |
| CRUDE CAPACITY | 132 | 577 | 1,238 | 2,657 | 3,476 | 7,614 | 15,692 |
| NO OF REFINERIES | 21 | 28 | 29 | 38 | 27 | 25 | 168 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 25 | 148 | 329 | 765 | 869 | 1,656 | 3,793 |
| CRUDE CAPACITY | 85 | 757 | 1,310 | 2,985 | 3,476 | 7,614 | 16,226 |
| NO OF REFINERIES | 14 | 36 | 30 | 42 | 27 | 25 | 174 |
| AT 95 RONC | 15 | 120 | 273 | 738 | 820 | 1,539 | 3,505 |
| CRUDE CAPACITY | 43 | 661 | 1,193 | 2,985 | 3,348 | 7,614 | 15,844 |
| NO OF REFINERIES | 7 | 30 | 27 | 42 | 26 | 25 | 157 |
| AT 98 RONC | 10 | 100 | 210 | 631 | 678 | 1,350 | 2,980 |
| CRUDE CAPACITY | 33 | 568 | 951 | 2,679 | 3,229 | 6,870 | 14,330 |
| NO OF REFINERIES | 5 | 25 | 21 | 37 | 25 | 23 | 136 |
| AT 100 RONC | 5 | 76 | 167 | 483 | 408 | 1,177 | 2,316 |
| CRUDE CAPACITY | 24 | 461 | 814 | 2,376 | 2,148 | 6,690 | 12,512 |
| NO OF REFINERIES | 4 | 21 | 18 | 32 | 16 | 22 | 113 |
| BTX RECOVERY CAP (AROM P) | | ****** | ****** | 31 | 41 | 148 | 231 |
| CRUDE CAPACITY | | ****** | ****** | 780 | 1,201 | 5,351 | 7,475 |
| NO OF REFINERIES | | 2 | 3 | 10 | 9 | 17 | 41 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | 10 | 160 | 381 | 1,113 | 1,127 | 2,164 | 4,954 |
| CRUDE CAPACITY | 20 | 464 | 1,101 | 2,850 | 3,259 | 7,429 | 15,122 |
| NO OF REFINERIES | 3 | 21 | 25 | 40 | 25 | 24 | 138 |
| CONVERSION (VOL PCT) | 81.65 | 76.24 | 75.51 | 74.05 | 73.18 | 71.98 | 73.13 |
| CRUDE CAPACITY | 20 | 413 | 1,101 | 2,850 | 3,151 | 7,429 | 14,963 |
| NO OF REFINERIES | 3 | 19 | 25 | 40 | 24 | 24 | 135 |
| RONC OF DEBUT CAT NAPHTHA | 89.98 | 89.09 | 90.80 | 90.16 | 90.88 | 89.93 | 90.23 |
| CRUDE CAPACITY | 20 | 413 | 1,101 | 2,850 | 3,151 | 7,429 | 14,963 |
| NO OF REFINERIES | 3 | 19 | 25 | 40 | 24 | 24 | 135 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | ****** | 62 | ****** | 102 |
| CRUDE CAPACITY | | | | ****** | 1,308 | ****** | 2,509 |
| NO OF REFINERIES | | | | 7 | 10 | 2 | 19 |
| D P VOL (MIX FEED) | | 27 | 76 | 219 | 128 | 342 | 793 |
| CRUDE CAPACITY | | 333 | 1,034 | 2,273 | 1,782 | 6,752 | 12,175 |
| NO OF REFINERIES | | 15 | 23 | 32 | 14 | 22 | 106 |
| RONC OF DEBUTANIZED PROD | | 92.16 | 92.80 | 92.55 | 93.31 | 92.99 | 92.90 |
| CRUDE CAPACITY | | 333 | 1,034 | 2,797 | 3,091 | 7,429 | 14,684 |
| NO OF REFINERIES | | 15 | 23 | 39 | 24 | 24 | 125 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5 FEED) | | | | 21 | | 47 | 68 |
| CRUDE CAPACITY | | | | 194 | | 950 | 1,144 |
| NO OF REFINERIES | | | | 2 | | 3 | 5 |
| D P VOL (C5+C6 FEED) | | | | 5 | | 12 | 17 |
| CRUDE CAPACITY | 5 | | | 54 | | 200 | 259 |
| NO OF REFINERIES | 1 | | | 1 | | 1 | 3 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | 95.00 | | | 91.08 | | 85.68 | 87.36 |
| CRUDE CAPACITY | 5 | | | 248 | | 1,150 | 1,402 |
| NO OF REFINERIES | 1 | | | 3 | | 4 | 8 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | 7 | 4 | 5 | 15 | 15 | 7 | 52 |
| CRUDE CAPACITY | 25 | 163 | 281 | 680 | 998 | 833 | 2,980 |
| NO OF REFINERIES | 4 | 8 | 6 | 10 | 8 | 3 | 39 |
| RONC OF DEBUTANIZED PROD | 95.92 | 95.54 | 95.32 | 92.71 | 93.48 | 95.23 | 94.09 |
| CRUDE CAPACITY | 25 | 163 | 281 | 680 | 998 | 833 | 2,980 |
| NO OF REFINERIES | 4 | 8 | 6 | 10 | 8 | 3 | 39 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | 29 | 168 | 312 | 779 | 870 | 1,648 | 3,806 |
| CRUDE CAPACITY | 81 | 725 | 1,223 | 2,985 | 3,476 | 7,614 | 16,102 |
| NO OF REFINERIES | 12 | 33 | 28 | 42 | 27 | 25 | 167 |
| OTHER NAPHTHA | | | 15 | 51 | 74 | 78 | 218 |
| CRUDE CAPACITY | | | 178 | 484 | 961 | 1,972 | 3,595 |
| NO OF REFINERIES | | | 4 | 7 | 8 | 7 | 26 |
| CAT CRACKING CHRGE STOCK | | | 18 | 178 | 232 | 488 | 916 |
| CRUDE CAPACITY | | | 121 | 725 | 838 | 3,935 | 5,619 |
| NO OF REFINERIES | | | 3 | 10 | 6 | 12 | 31 |
| OTHER HEAVY GAS OIL | | | | | 42 | 149 | 191 |
| CRUDE CAPACITY | | | | | 467 | 2,196 | 2,663 |
| NO OF REFINERIES | | | | | 3 | 7 | 10 |
| DISTILLATE | 9 | 43 | 135 | 441 | 556 | 1,419 | 2,601 |
| CRUDE CAPACITY | 19 | 215 | 666 | 2,067 | 2,806 | 7,384 | 13,158 |
| NO OF REFINERIES | 3 | 9 | 15 | 28 | 22 | 24 | 101 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RESIDUAL DESULFURIZATION | | | | | | 95 | 95 |
| CRUDE CAPACITY | | | | | | 1,045 | 1,045 |
| NO OF REFINERIES | | | | | | 2 | 2 |
| TOTAL ( CA THRU CF) | 37 | 211 | 479 | 1,450 | 1,773 | 3,876 | 7,827 |
| CRUDE CAPACITY | 81 | 725 | 1,311 | 2,985 | 3,476 | 7,614 | 16,190 |
| NO OF REFINERIES | 12 | 33 | 30 | 42 | 27 | 25 | 169 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | 1 | | 31 | 65 | 160 | 206 | 464 |
| CRUDE CAPACITY | 9 | | 169 | 372 | 877 | 3,221 | 4,647 |
| NO OF REFINERIES | 1 | | 4 | 5 | 7 | 9 | 26 |
| CAPACITY (HVY GAS O FEED) | 4 | ****** | | ****** | 112 | 214 | 348 |
| CRUDE CAPACITY | 10 | ****** | | ****** | 628 | 2,210 | 2,977 |
| NO OF REFINERIES | 1 | 2 | | 1 | 5 | 6 | 15 |
| CONVERSION PCT (430 F EP) | 27.47 | ****** | 100.20 | ****** | 94.69 | 89.61 | 91.99 |
| CRUDE CAPACITY | 19 | ****** | 169 | ****** | 1,505 | 4,151 | 6,344 |
| NO OF REFINERIES | 2 | 2 | 4 | 6 | 12 | 13 | 39 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | ****** | 13 | 38 | | 146 | 201 |
| CRUDE CAPACITY | ****** | ****** | 150 | 319 | | 918 | 1,409 |
| NO OF REFINERIES | 2 | 1 | 3 | 4 | | 3 | 13 |
| VISBREAKING | | 14 | | 39 | 64 | 66 | 183 |
| CRUDE CAPACITY | | 82 | | 292 | 601 | 860 | 1,835 |
| NO OF REFINERIES | | 4 | | 4 | 5 | 4 | 17 |
| COKING - FEED RATE | | 32 | 49 | 217 | 329 | 397 | 1,024 |
| CRUDE CAPACITY | | 149 | 261 | 1,058 | 1,636 | 4,209 | 7,312 |
| NO OF REFINERIES | | 7 | 6 | 14 | 13 | 14 | 54 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| COKING - MAKE ST/CD | | 1,399 | 2,081 | 8,058 | 15,229 | 20,394 | 47,161 |
| CRUDE CAPACITY | | 149 | 261 | 1,058 | 1,636 | 4,209 | 7,312 |
| NO OF REFINERIES | | 7 | 6 | 14 | 13 | 14 | 54 |
| HYDROGEN (MMSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | ****** | ****** | 91 | 121 | 512 | 684 | 1,409 |
| CRUDE CAPACITY | ****** | ****** | 206 | 205 | 1,173 | 3,475 | 5,095 |
| NO OF REFINERIES | 1 | 2 | 5 | 3 | 10 | 12 | 33 |
| OTHER | | | | 58 | ****** | ****** | 182 |
| CRUDE CAPACITY | | | | 276 | ****** | ****** | 1,203 |
| NO OF REFINERIES | | | | 3 | 1 | 3 | 7 |
| SULFUR RECOVERY(LT/CD) | | 89 | 405 | 2,090 | 3,359 | 7,053 | 12,996 |
| CRUDE CAPACITY | | 193 | 915 | 2,263 | 2,944 | 7,289 | 13,605 |
| NO OF REFINERIES | | 7 | 21 | 31 | 23 | 24 | 106 |

# TABLE C.4.2.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 292 | 1,239 | 1,475 | 3,156 | 3,633 | 8,090 | 17,885 |
| CRUDE CAPACITY | 292 | 1,246 | 1,475 | 3,181 | 3,674 | 8,090 | 17,958 |
| NO OF REFINERIES | 47 | 63 | 34 | 46 | 28 | 26 | 244 |
| OTHER CRUDE CHARGE UNITS | | ****** | | ****** | ****** | | 84 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | | 362 |
| NO OF REFINERIES | | 2 | | 1 | 2 | | 5 |
| VACUUM DISTILLATION | 59 | 259 | 523 | 943 | 1,548 | 3,189 | 6,521 |
| CRUDE CAPACITY | 137 | 623 | 1,227 | 2,623 | 3,674 | 8,090 | 16,375 |
| NO OF REFINERIES | 21 | 31 | 28 | 38 | 28 | 26 | 172 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 39 | 168 | 327 | 771 | 934 | 1,755 | 3,993 |
| CRUDE CAPACITY | 112 | 829 | 1,265 | 3,019 | 3,674 | 7,895 | 16,795 |
| NO OF REFINERIES | 17 | 39 | 29 | 43 | 28 | 25 | 181 |
| AT 95 RONC | 27 | 131 | 279 | 747 | 897 | 1,701 | 3,782 |
| CRUDE CAPACITY | 55 | 696 | 1,194 | 3,019 | 3,674 | 8,090 | 16,729 |
| NO OF REFINERIES | 8 | 32 | 27 | 43 | 28 | 26 | 164 |
| AT 98 RONC | 20 | 107 | 220 | 653 | 742 | 1,496 | 3,238 |
| CRUDE CAPACITY | 45 | 591 | 995 | 2,701 | 3,427 | 7,637 | 15,396 |
| NO OF REFINERIES | 6 | 26 | 22 | 38 | 26 | 25 | 143 |
| AT 100 RONC | 13 | 79 | 172 | 495 | 474 | 1,323 | 2,556 |
| CRUDE CAPACITY | 36 | 469 | 823 | 2,328 | 2,455 | 7,457 | 13,567 |
| NO OF REFINERIES | 5 | 21 | 18 | 32 | 18 | 24 | 118 |
| BTX RECOVERY CAP (AROM P) | ****** | ****** | ****** | 34 | 45 | 153 | 240 |
| CRUDE CAPACITY | ****** | ****** | ****** | 767 | 1,222 | 5,812 | 7,907 |
| NO OF REFINERIES | 1 | 2 | 2 | 10 | 9 | 18 | 42 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | 213 | 420 | 1,065 | 1,194 | 2,309 | 5,201 |
| CRUDE CAPACITY | | 609 | 1,113 | 2,696 | 3,457 | 7,905 | 15,779 |
| NO OF REFINERIES | | 27 | 25 | 38 | 26 | 25 | 141 |
| CONVERSION (VOL PCT) | | 76.13 | 76.77 | 74.17 | 74.34 | 73.10 | 74.01 |
| CRUDE CAPACITY | | 506 | 1,113 | 2,696 | 3,349 | 7,905 | 15,569 |
| NO OF REFINERIES | | 23 | 25 | 38 | 25 | 25 | 136 |
| RONC OF DEBUT CAT NAPHTHA | | 89.56 | 90.94 | 90.17 | 91.03 | 90.14 | 90.39 |
| CRUDE CAPACITY | | 506 | 1,113 | 2,696 | 3,349 | 7,905 | 15,569 |
| NO OF REFINERIES | | 23 | 25 | 38 | 25 | 25 | 136 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | ****** | 70 | ****** | 107 |
| CRUDE CAPACITY | | | | ****** | 1,600 | ****** | 2,733 |
| NO OF REFINERIES | | | | 6 | 12 | 2 | 20 |
| D P VOL (MIX FEED) | | 27 | 80 | 209 | 124 | 355 | 795 |
| CRUDE CAPACITY | | 335 | 1,041 | 2,187 | 1,689 | 7,228 | 12,480 |
| NO OF REFINERIES | | 15 | 23 | 31 | 13 | 23 | 105 |
| RONC OF DEBUTANIZED PROD | | 92.38 | 92.79 | 92.47 | 93.46 | 93.06 | 92.95 |
| CRUDE CAPACITY | | 335 | 1,041 | 2,643 | 3,289 | 7,905 | 15,213 |
| NO OF REFINERIES | | 15 | 23 | 37 | 25 | 25 | 125 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5 FEED) | | | | 12 | | 56 | 68 |
| CRUDE CAPACITY | | | | 97 | | 1,235 | 1,332 |
| NO OF REFINERIES | | | | 1 | | 4 | 5 |
| D P VOL (C5+C6 FEED) | | | | 21 | | 12 | 33 |
| CRUDE CAPACITY | 5 | | | 175 | | 200 | 380 |
| NO OF REFINERIES | 1 | | | 3 | | 1 | 5 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | 95.00 | | | 87.99 | | 86.58 | 87.06 |
| CRUDE CAPACITY | 5 | | | 272 | | 1,435 | 1,711 |
| NO OF REFINERIES | 1 | | | 4 | | 5 | 10 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | 6 | 4 | 8 | 13 | 19 | 7 | 57 |
| CRUDE CAPACITY | 17 | 178 | 336 | 593 | 1,171 | 833 | 3,127 |
| NO OF REFINERIES | 3 | 9 | 7 | 9 | 9 | 3 | 40 |
| RONC OF DEBUTANIZED PROD | 95.92 | 95.60 | 95.12 | 91.97 | 94.03 | 95.23 | 94.16 |
| CRUDE CAPACITY | 17 | 178 | 336 | 593 | 1,171 | 833 | 3,127 |
| NO OF REFINERIES | 3 | 9 | 7 | 9 | 9 | 3 | 40 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | 39 | 180 | 300 | 778 | 919 | 1,895 | 4,111 |
| CRUDE CAPACITY | 82 | 748 | 1,178 | 3,019 | 3,674 | 8,090 | 16,791 |
| NO OF REFINERIES | 12 | 34 | 27 | 43 | 28 | 26 | 170 |
| OTHER NAPHTHA | | | 7 | 67 | 74 | 78 | 225 |
| CRUDE CAPACITY | | | 140 | 620 | 973 | 2,022 | 3,755 |
| NO OF REFINERIES | | | 3 | 9 | 8 | 7 | 27 |
| CAT CRACKING CHRGE STOCK | | | 18 | 178 | 232 | 494 | 922 |
| CRUDE CAPACITY | | | 121 | 725 | 864 | 4,025 | 5,735 |
| NO OF REFINERIES | | | 3 | 10 | 6 | 12 | 31 |
| OTHER HEAVY GAS OIL | | | | | 59 | 149 | 208 |
| CRUDE CAPACITY | | | | | 628 | 2,251 | 2,879 |
| NO OF REFINERIES | | | | | 4 | 7 | 11 |
| DISTILLATE | 9 | 51 | 147 | 446 | 597 | 1,494 | 2,744 |
| CRUDE CAPACITY | 19 | 245 | 675 | 2,120 | 3,004 | 7,860 | 13,924 |
| NO OF REFINERIES | 3 | 10 | 15 | 29 | 23 | 25 | 105 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RESIDUAL DESULFURIZATION | | | | | | 95 | 95 |
| CRUDE CAPACITY | | | | | | 1,045 | 1,045 |
| NO OF REFINERIES | | | | | | 2 | 2 |
| TOTAL ( CA THRU CF) | 48 | 231 | 472 | 1,469 | 1,880 | 4,205 | 8,305 |
| CRUDE CAPACITY | 82 | 748 | 1,266 | 3,019 | 3,674 | 8,090 | 16,879 |
| NO OF REFINERIES | 12 | 34 | 29 | 43 | 28 | 26 | 172 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | 1 | | 31 | 65 | 140 | 206 | 444 |
| CRUDE CAPACITY | 10 | | 169 | 372 | 751 | 3,241 | 4,541 |
| NO OF REFINERIES | 1 | | 4 | 5 | 6 | 9 | 25 |
| CAPACITY (HVY GAS O FEED) | 7 | ****** | | ****** | 142 | 214 | 389 |
| CRUDE CAPACITY | 19 | ****** | | ****** | 760 | 2,272 | 3,250 |
| NO OF REFINERIES | 2 | 2 | | 2 | 6 | 6 | 18 |
| CONVERSION PCT (430 F EP) | 49.94 | ****** | 100.20 | ****** | 92.22 | 89.62 | 91.15 |
| CRUDE CAPACITY | 28 | ****** | 169 | ****** | 1,511 | 4,233 | 6,441 |
| NO OF REFINERIES | 3 | 2 | 4 | 6 | 12 | 13 | 40 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | ****** | 13 | ****** | ****** | ****** | 191 |
| CRUDE CAPACITY | ****** | ****** | 150 | ****** | ****** | ****** | 1,305 |
| NO OF REFINERIES | 2 | 1 | 3 | 3 | 1 | 2 | 12 |
| VISBREAKING | | 13 | | 29 | 64 | 36 | 142 |
| CRUDE CAPACITY | | 55 | | 278 | 601 | 903 | 1,837 |
| NO OF REFINERIES | | 3 | | 4 | 5 | 4 | 16 |
| COKING - FEED RATE | | 32 | 38 | 235 | 336 | 408 | 1,048 |
| CRUDE CAPACITY | | 149 | 229 | 1,038 | 1,808 | 4,420 | 7,643 |
| NO OF REFINERIES | | 7 | 5 | 14 | 14 | 14 | 54 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| COKING - MAKE ST/CD | | 1,399 | 1,521 | 8,858 | 15,749 | 21,044 | 48,571 |
| CRUDE CAPACITY | | 149 | 229 | 1,038 | 1,808 | 4,420 | 7,643 |
| NO OF REFINERIES | | 7 | 5 | 14 | 14 | 14 | 54 |
| HYDROGEN (MMSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | ****** | ****** | 91 | 121 | 512 | 684 | 1,409 |
| CRUDE CAPACITY | ****** | ****** | 206 | 205 | 1,173 | 3,525 | 5,147 |
| NO OF REFINERIES | 1 | 2 | 5 | 3 | 10 | 12 | 33 |
| OTHER | | | | 58 | ****** | ****** | 182 |
| CRUDE CAPACITY | | | | 276 | ****** | ****** | 1,203 |
| NO OF REFINERIES | | | | 3 | 1 | 3 | 7 |
| SULFUR RECOVERY(LT/CD) | | 108 | 400 | 2,247 | 3,703 | 7,895 | 14,353 |
| CRUDE CAPACITY | | 233 | 939 | 2,317 | 3,263 | 8,090 | 14,842 |
| NO OF REFINERIES | | 9 | 21 | 32 | 25 | 26 | 113 |

Table C.4.3.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 233 | 770 | 542 | 838 | 917 | 13,494 | 16,793 |
| CRUDE CAPACITY | 233 | 770 | 542 | 838 | 917 | 13,567 | 16,867 |
| NO OF REFINERIES | 40 | 46 | 16 | 21 | 10 | 109 | 242 |
| OTHER CRUDE CHARGE UNITS | | | | | | 84 | 84 |
| CRUDE CAPACITY | | | | | | 362 | 362 |
| NO OF REFINERIES | | | | | | 5 | 5 |
| VACUUM DISTILLATION | 35 | 133 | 162 | 245 | 376 | 5,163 | 6,114 |
| CRUDE CAPACITY | 86 | 327 | 400 | 657 | 917 | 12,953 | 15,340 |
| NO OF REFINERIES | 13 | 20 | 10 | 16 | 10 | 94 | 163 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 6 | 73 | 92 | 175 | 194 | 2,978 | 3,519 |
| CRUDE CAPACITY | 34 | 414 | 410 | 827 | 917 | 13,280 | 15,883 |
| NO OF REFINERIES | 6 | 24 | 10 | 19 | 10 | 100 | 169 |
| AT 95 RONC | 4 | 51 | 70 | 141 | 165 | 2,735 | 3,166 |
| CRUDE CAPACITY | 24 | 307 | 372 | 761 | 790 | 12,994 | 15,247 |
| NO OF REFINERIES | 4 | 15 | 9 | 17 | 9 | 92 | 146 |
| AT 98 RONC | 2 | 40 | 47 | 113 | 136 | 2,190 | 2,528 |
| CRUDE CAPACITY | 9 | 246 | 294 | 636 | 733 | 11,088 | 13,006 |
| NO OF REFINERIES | 1 | 12 | 7 | 15 | 8 | 78 | 121 |
| AT 100 RONC | 2 | 23 | 39 | 86 | 92 | 1,666 | 1,906 |
| CRUDE CAPACITY | 9 | 161 | 285 | 519 | 623 | 9,518 | 11,115 |
| NO OF REFINERIES | 1 | 9 | 6 | 12 | 7 | 62 | 97 |
| BTX RECOVERY CAP (AROM P) | | | ++++++ | 5 | ++++++ | 197 | 218 |
| CRUDE CAPACITY | | | ++++++ | 210 | ++++++ | 6,827 | 7,376 |
| NO OF REFINERIES | | | 2 | 3 | 3 | 33 | 41 |

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | 85 | 69 | 258 | 282 | 4,098 | 4,793 |
| CRUDE CAPACITY | | 248 | 250 | 642 | 917 | 12,649 | 14,707 |
| NO OF REFINERIES | | 12 | 5 | 15 | 10 | 94 | 136 |
| CONVERSION (VOL PCT) | | 77.17 | 68.24 | 75.17 | 72.34 | 72.22 | 72.42 |
| CRUDE CAPACITY | | 248 | 250 | 615 | 917 | 12,517 | 14,548 |
| NO OF REFINERIES | | 12 | 5 | 14 | 10 | 92 | 133 |
| RONC OF DEBUT CAT NAPHTHA | | 87.75 | 90.50 | 89.44 | 89.69 | 89.96 | 89.88 |
| CRUDE CAPACITY | | 248 | 250 | 615 | 917 | 12,517 | 14,548 |
| NO OF REFINERIES | | 12 | 5 | 14 | 10 | 92 | 133 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | ****** | ****** | 86 | 100 |
| CRUDE CAPACITY | | | | ****** | ****** | 2,178 | 2,483 |
| NO OF REFINERIES | | | | 1 | 2 | 15 | 18 |
| D P VOL (MIX FEED) | | 15 | 14 | 48 | 35 | 635 | 747 |
| CRUDE CAPACITY | | 162 | 250 | 571 | 557 | 10,142 | 11,684 |
| NO OF REFINERIES | | 7 | 5 | 13 | 7 | 72 | 104 |
| RONC OF DEBUTANIZED PROD | | 91.43 | 92.60 | 91.75 | 92.89 | 92.91 | 92.80 |
| CRUDE CAPACITY | | 162 | 250 | 636 | 797 | 12,320 | 14,166 |
| NO OF REFINERIES | | 7 | 5 | 14 | 9 | 87 | 122 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5 FEED) | | | | | | 46 | 46 |
| CRUDE CAPACITY | | | | | | 854 | 854 |
| NO OF REFINERIES | | | | | | 4 | 4 |
| D P VOL (C5+C6 FEED) | | | | | | 12 | 12 |
| CRUDE CAPACITY | | | | | | 136 | 136 |
| NO OF REFINERIES | | | | | | 1 | 1 |

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | | | | | | 87.10 | 87.10 |
| CRUDE CAPACITY | | | | | | 989 | 989 |
| NO OF REFINERIES | | | | | | 5 | 5 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | ****** | 2 | ****** | 7 | ****** | 37 | 49 |
| CRUDE CAPACITY | ****** | 74 | ****** | 90 | ****** | 2,353 | 2,851 |
| NO OF REFINERIES | 1 | 4 | 1 | 3 | 2 | 26 | 37 |
| RONC OF DEBUTANIZED PROD | ****** | 92.69 | ****** | 96.03 | ****** | 93.50 | 93.91 |
| CRUDE CAPACITY | ****** | 74 | ****** | 90 | ****** | 2,353 | 2,851 |
| NO OF REFINERIES | 1 | 4 | 1 | 3 | 2 | 26 | 37 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | ****** | 76 | ****** | 175 | 187 | 2,913 | 3,482 |
| CRUDE CAPACITY | ****** | 352 | ****** | 748 | 917 | 12,824 | 15,304 |
| NO OF REFINERIES | 5 | 19 | 11 | 18 | 10 | 99 | 162 |
| OTHER NAPHTHA | | | ****** | ****** | ****** | ****** | 215 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 3,528 |
| NO OF REFINERIES | | | 2 | 3 | 1 | 20 | 26 |
| CAT CRACKING CHRGE STOCK | | | ****** | ****** | ****** | 820 | 893 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | 5,217 | 5,526 |
| NO OF REFINERIES | | | 2 | 2 | 1 | 26 | 31 |
| OTHER HEAVY GAS OIL | | | | | ****** | ****** | 189 |
| CRUDE CAPACITY | | | | | ****** | ****** | 2,616 |
| NO OF REFINERIES | | | | | 1 | 9 | 10 |
| DISTILLATE | ****** | 16 | ****** | 40 | 135 | 2,205 | 2,450 |
| CRUDE CAPACITY | ****** | 103 | ****** | 279 | 731 | 11,524 | 12,842 |
| NO OF REFINERIES | 2 | 4 | 4 | 7 | 8 | 73 | 98 |
| RESIDUAL DESULFURIZATION | | | | | | 95 | 95 |
| CRUDE CAPACITY | | | | | | 1,045 | 1,045 |
| NO OF REFINERIES | | | | | | 2 | 2 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| TOTAL ( CA THRU CF) | 19 | 92 | 184 | 253 | 375 | 6,403 | 7,325 |
| CRUDE CAPACITY | 36 | 352 | 426 | 790 | 917 | 13,368 | 15,890 |
| NO OF REFINERIES | 5 | 19 | 11 | 19 | 10 | 101 | 165 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | 1 | | ****** | ****** | ****** | 439 | 463 |
| CRUDE CAPACITY | 9 | | ****** | ****** | ****** | 4,488 | 4,644 |
| NO OF REFINERIES | 1 | | 1 | 1 | 1 | 22 | 26 |
| CAPACITY (HVY GAS O FEED) | | 4 | ****** | | ****** | 323 | 348 |
| CRUDE CAPACITY | | 10 | ****** | | ****** | 2,837 | 2,977 |
| NO OF REFINERIES | | 1 | 1 | | 1 | 12 | 15 |
| CONVERSION PCT (430 F EP) | 100.00 | 3.00 | ****** | ****** | ****** | 91.97 | 91.98 |
| CRUDE CAPACITY | 9 | 10 | ****** | ****** | ****** | 6,045 | 6,341 |
| NO OF REFINERIES | 1 | 1 | 2 | 1 | 2 | 32 | 39 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | ****** | | | ****** | 129 | 146 |
| CRUDE CAPACITY | ****** | ****** | | | ****** | 1,277 | 1,388 |
| NO OF REFINERIES | 2 | 2 | | | 1 | 8 | 13 |
| VISBREAKING | | 10 | | ****** | ****** | 141 | 179 |
| CRUDE CAPACITY | | 58 | | ****** | ****** | 1,387 | 1,740 |
| NO OF REFINERIES | | 3 | | 1 | 2 | 10 | 16 |
| COKING - FEED RATE | | ****** | | ****** | 42 | 904 | 1,000 |
| CRUDE CAPACITY | | ****** | | ****** | 298 | 6,658 | 7,209 |
| NO OF REFINERIES | | 2 | | 3 | 3 | 44 | 52 |
| COKING - MAKE ST/CD | | ****** | | ****** | 2,030 | 41,425 | 44,820 |
| CRUDE CAPACITY | | ****** | | ****** | 298 | 6,658 | 7,209 |
| NO OF REFINERIES | | 2 | | 3 | 3 | 44 | 52 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| HYDROGEN (MMSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | ****** | ****** | ****** | ****** | ****** | 1,331 | 1,408 |
| CRUDE CAPACITY | ****** | ****** | ****** | ****** | ****** | 4,759 | 5,038 |
| NO OF REFINERIES | 1 | 2 | 3 | 1 | 1 | 26 | 34 |
| OTHER | | | | | ****** | ****** | 182 |
| CRUDE CAPACITY | | | | | ****** | ****** | 1,139 |
| NO OF REFINERIES | | | | | 1 | 6 | 7 |
| SULFUR RECOVERY(LT/CD) | | 36 | 123 | 277 | 692 | 11,405 | 12,533 |
| CRUDE CAPACITY | | 79 | 281 | 293 | 917 | 11,414 | 12,983 |
| NO OF REFINERIES | | 3 | 6 | 6 | 10 | 73 | 98 |

Table C.4.3.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 220 | 753 | 667 | 1,004 | 922 | 13,610 | 17,175 |
| CRUDE CAPACITY | 220 | 753 | 667 | 1,004 | 922 | 13,684 | 17,249 |
| NO OF REFINERIES | 35 | 47 | 19 | 24 | 10 | 109 | 244 |
| OTHER CRUDE CHARGE UNITS | | | | | | 84 | 84 |
| CRUDE CAPACITY | | | | | | 362 | 362 |
| NO OF REFINERIES | | | | | | 5 | 5 |
| VACUUM DISTILLATION | 32 | 176 | 203 | 271 | 376 | 5,195 | 6,253 |
| CRUDE CAPACITY | 82 | 367 | 519 | 732 | 922 | 13,069 | 15,692 |
| NO OF REFINERIES | 12 | 22 | 13 | 17 | 10 | 94 | 168 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 12 | 75 | 124 | 211 | 230 | 3,140 | 3,793 |
| CRUDE CAPACITY | 38 | 414 | 495 | 908 | 922 | 13,449 | 16,226 |
| NO OF REFINERIES | 7 | 24 | 12 | 20 | 10 | 101 | 174 |
| AT 95 RONC | 10 | 57 | 100 | 192 | 206 | 2,940 | 3,505 |
| CRUDE CAPACITY | 28 | 349 | 456 | 895 | 795 | 13,321 | 15,844 |
| NO OF REFINERIES | 5 | 17 | 11 | 19 | 9 | 96 | 157 |
| AT 98 RONC | 5 | 44 | 67 | 165 | 188 | 2,511 | 2,980 |
| CRUDE CAPACITY | 18 | 272 | 344 | 763 | 795 | 12,138 | 14,330 |
| NO OF REFINERIES | 3 | 13 | 8 | 17 | 9 | 86 | 136 |
| AT 100 RONC | 5 | 33 | 52 | 128 | 128 | 1,971 | 2,316 |
| CRUDE CAPACITY | 18 | 216 | 335 | 590 | 623 | 10,731 | 12,512 |
| NO OF REFINERIES | 3 | 11 | 7 | 13 | 7 | 72 | 113 |
| BTX RECOVERY CAP (AROM P) | | | ****** | 9 | ****** | 206 | 231 |
| CRUDE CAPACITY | | | ****** | 217 | ****** | 6,920 | 7,475 |
| NO OF REFINERIES | | | 2 | 3 | 3 | 33 | 41 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | 73 | 116 | 276 | 311 | 4,179 | 4,954 |
| CRUDE CAPACITY | | 202 | 371 | 662 | 922 | 12,966 | 15,122 |
| NO OF REFINERIES | | 10 | 8 | 15 | 10 | 95 | 138 |
| CONVERSION (VOL PCT) | | 76.43 | 73.99 | 76.72 | 73.32 | 72.81 | 73.13 |
| CRUDE CAPACITY | | 202 | 371 | 635 | 922 | 12,833 | 14,963 |
| NO OF REFINERIES | | 10 | 8 | 14 | 10 | 93 | 135 |
| RONC OF DEBUT CAT NAPHTHA | | 88.57 | 90.89 | 90.39 | 90.28 | 90.23 | 90.23 |
| CRUDE CAPACITY | | 202 | 371 | 635 | 922 | 12,833 | 14,963 |
| NO OF REFINERIES | | 10 | 8 | 14 | 10 | 93 | 135 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | ****** | ****** | 83 | 102 |
| CRUDE CAPACITY | | | | ****** | ****** | 2,078 | 2,509 |
| NO OF REFINERIES | | | | 1 | 3 | 15 | 19 |
| D P VOL (MIX FEED) | | 12 | 24 | 50 | 42 | 664 | 793 |
| CRUDE CAPACITY | | 133 | 336 | 585 | 562 | 10,559 | 12,175 |
| NO OF REFINERIES | | 6 | 7 | 13 | 7 | 73 | 106 |
| RONC OF DEBUTANIZED PROD | | 91.46 | 92.73 | 91.98 | 93.15 | 92.97 | 92.90 |
| CRUDE CAPACITY | | 133 | 336 | 656 | 922 | 12,637 | 14,684 |
| NO OF REFINERIES | | 6 | 7 | 14 | 10 | 88 | 125 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5 FEED) | | | | | | 68 | 68 |
| CRUDE CAPACITY | | | | | | 1,144 | 1,144 |
| NO OF REFINERIES | | | | | | 5 | 5 |
| D P VOL (C5+C6 FEED) | ****** | | | | | ****** | 17 |
| CRUDE CAPACITY | ****** | | | | | ****** | 259 |
| NO OF REFINERIES | 1 | | | | | 2 | 3 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | ****** | | | | | ****** | 87.36 |
| CRUDE CAPACITY | ****** | | | | | ****** | 1,402 |
| NO OF REFINERIES | 1 | | | | | 7 | 8 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | ****** | 1 | ****** | 7 | ****** | 39 | 52 |
| CRUDE CAPACITY | ****** | 65 | ****** | 90 | ****** | 2,456 | 2,980 |
| NO OF REFINERIES | 1 | 4 | 2 | 3 | 2 | 27 | 39 |
| RONC OF DEBUTANIZED PROD | ****** | 94.48 | ****** | 96.03 | ****** | 93.74 | 94.09 |
| CRUDE CAPACITY | ****** | 65 | ****** | 90 | ****** | 2,456 | 2,980 |
| NO OF REFINERIES | 1 | 4 | 2 | 3 | 2 | 27 | 39 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | ****** | 78 | ****** | 214 | 216 | 3,138 | 3,806 |
| CRUDE CAPACITY | ****** | 370 | ****** | 826 | 922 | 13,438 | 16,102 |
| NO OF REFINERIES | 5 | 20 | 13 | 19 | 10 | 100 | 167 |
| OTHER NAPHTHA | | | ****** | ****** | ****** | ****** | 218 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 3,595 |
| NO OF REFINERIES | | | 2 | 3 | 1 | 20 | 26 |
| CAT CRACKING CHRGE STOCK | | | ****** | ****** | ****** | 839 | 916 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | 5,310 | 5,619 |
| NO OF REFINERIES | | | 2 | 2 | 1 | 26 | 31 |
| OTHER HEAVY GAS OIL | | | | | ****** | ****** | 191 |
| CRUDE CAPACITY | | | | | ****** | ****** | 2,663 |
| NO OF REFINERIES | | | | | 1 | 9 | 10 |
| DISTILLATE | ****** | 31 | ****** | 59 | 136 | 2,322 | 2,601 |
| CRUDE CAPACITY | ****** | 129 | ****** | 351 | 736 | 11,735 | 13,158 |
| NO OF REFINERIES | 2 | 5 | 4 | 8 | 8 | 74 | 101 |
| RESIDUAL DESULFURIZATION | | | | | | 95 | 95 |
| CRUDE CAPACITY | | | | | | 1,045 | 1,045 |
| NO OF REFINERIES | | | | | | 2 | 2 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| TOTAL ( CA THRU CF) | 19 | 109 | 215 | 313 | 405 | 6,766 | 7,827 |
| CRUDE CAPACITY | 36 | 370 | 511 | 868 | 922 | 13,484 | 16,190 |
| NO OF REFINERIES | 5 | 20 | 13 | 20 | 10 | 101 | 169 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | 1 | | ****** | ****** | ****** | 439 | 464 |
| CRUDE CAPACITY | 9 | | ****** | ****** | ****** | 4,488 | 4,647 |
| NO OF REFINERIES | 1 | | 1 | 1 | 1 | 22 | 26 |
| CAPACITY (HVY GAS O FEED) | | 4 | ****** | | ****** | 323 | 348 |
| CRUDE CAPACITY | | 10 | ****** | | ****** | 2,837 | 2,977 |
| NO OF REFINERIES | | 1 | 1 | | 1 | 12 | 15 |
| CONVERSION PCT (430 F EP) | 100.00 | 3.00 | ****** | ****** | ****** | 91.97 | 91.99 |
| CRUDE CAPACITY | 9 | 10 | ****** | ****** | ****** | 6,045 | 6,344 |
| NO OF REFINERIES | 1 | 1 | 2 | 1 | 2 | 32 | 39 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | ****** | ****** | | ****** | 184 | 201 |
| CRUDE CAPACITY | ****** | ****** | ****** | | ****** | 1,277 | 1,409 |
| NO OF REFINERIES | 2 | 1 | 1 | | 1 | 8 | 13 |
| VISBREAKING | | 14 | | ****** | ****** | 141 | 183 |
| CRUDE CAPACITY | | 82 | | ****** | ****** | 1,452 | 1,835 |
| NO OF REFINERIES | | 4 | | 1 | 2 | 10 | 17 |
| COKING - FEED RATE | | ****** | ****** | 48 | 42 | 922 | 1,024 |
| CRUDE CAPACITY | | ****** | ****** | 239 | 303 | 6,688 | 7,312 |
| NO OF REFINERIES | | 2 | 1 | 4 | 3 | 44 | 54 |
| COKING - MAKE ST/CD | | ****** | ****** | 1,775 | 2,030 | 42,875 | 47,161 |
| CRUDE CAPACITY | | ****** | ****** | 239 | 303 | 6,688 | 7,312 |
| NO OF REFINERIES | | 2 | 1 | 4 | 3 | 44 | 54 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| HYDROGEN (MMSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | ****** | ****** | ****** | ****** | 1,331 | 1,409 |
| CRUDE CAPACITY | | ****** | ****** | ****** | ****** | 4,824 | 5,095 |
| NO OF REFINERIES | | 2 | 3 | 1 | 1 | 26 | 33 |
| OTHER | | | | | ****** | ****** | 182 |
| CRUDE CAPACITY | | | | | ****** | ****** | 1,203 |
| NO OF REFINERIES | | | | | 1 | 6 | 7 |
| SULFUR RECOVERY(LT/CD) | | 54 | 141 | 347 | 697 | 11,757 | 12,996 |
| CRUDE CAPACITY | | 134 | 367 | 465 | 922 | 11,717 | 13,605 |
| NO OF REFINERIES | | 5 | 8 | 8 | 10 | 75 | 106 |

Table C.4.3.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 201 | 817 | 727 | 1,080 | 922 | 14,139 | 17,885 |
| CRUDE CAPACITY | 201 | 817 | 727 | 1,080 | 922 | 14,212 | 17,958 |
| NO OF REFINERIES | 32 | 49 | 20 | 24 | 10 | 109 | 244 |
| OTHER CRUDE CHARGE UNITS | | | | | | 84 | 84 |
| CRUDE CAPACITY | | | | | | 362 | 362 |
| NO OF REFINERIES | | | | | | 5 | 5 |
| VACUUM DISTILLATION | 28 | 185 | 248 | 283 | 376 | 5,400 | 6,521 |
| CRUDE CAPACITY | 78 | 421 | 580 | 782 | 922 | 13,592 | 16,375 |
| NO OF REFINERIES | 11 | 26 | 14 | 17 | 10 | 94 | 172 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 24 | 96 | 134 | 227 | 233 | 3,279 | 3,993 |
| CRUDE CAPACITY | 50 | 500 | 539 | 979 | 922 | 13,805 | 16,795 |
| NO OF REFINERIES | 8 | 29 | 13 | 20 | 10 | 101 | 181 |
| AT 95 RONC | 22 | 65 | 110 | 212 | 224 | 3,148 | 3,782 |
| CRUDE CAPACITY | 40 | 369 | 500 | 979 | 922 | 13,919 | 16,729 |
| NO OF REFINERIES | 6 | 18 | 12 | 20 | 10 | 98 | 164 |
| AT 98 RONC | 15 | 47 | 78 | 187 | 188 | 2,723 | 3,238 |
| CRUDE CAPACITY | 30 | 280 | 388 | 834 | 795 | 13,069 | 15,396 |
| NO OF REFINERIES | 4 | 13 | 9 | 18 | 9 | 90 | 143 |
| AT 100 RONC | 13 | 36 | 56 | 138 | 128 | 2,186 | 2,556 |
| CRUDE CAPACITY | 30 | 224 | 342 | 624 | 623 | 11,725 | 13,567 |
| NO OF REFINERIES | 4 | 11 | 7 | 13 | 7 | 76 | 118 |
| BTX RECOVERY CAP (AROM P) | | ****** | ****** | 9 | ****** | 212 | 240 |
| CRUDE CAPACITY | | ****** | ****** | 254 | ****** | 7,305 | 7,907 |
| NO OF REFINERIES | | 1 | 2 | 3 | 3 | 33 | 42 |

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | 116 | 145 | 284 | 316 | 4,339 | 5,201 |
| CRUDE CAPACITY | | 288 | 378 | 707 | 922 | 13,485 | 15,779 |
| NO OF REFINERIES | | 13 | 8 | 15 | 10 | 95 | 141 |
| CONVERSION (VOL PCT) | | 76.07 | 77.52 | 77.14 | 74.63 | 73.59 | 74.01 |
| CRUDE CAPACITY | | 288 | 378 | 653 | 922 | 13,328 | 15,569 |
| NO OF REFINERIES | | 13 | 8 | 13 | 10 | 92 | 136 |
| RONC OF DEBUT CAT NAPHTHA | | 89.55 | 91.20 | 90.40 | 90.46 | 90.38 | 90.39 |
| CRUDE CAPACITY | | 288 | 378 | 653 | 922 | 13,328 | 15,569 |
| NO OF REFINERIES | | 13 | 8 | 13 | 10 | 92 | 136 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | ****** | ****** | 87 | 107 |
| CRUDE CAPACITY | | | | ****** | ****** | 2,288 | 2,733 |
| NO OF REFINERIES | | | | 1 | 3 | 16 | 20 |
| D P VOL (MIX FEED) | | 12 | 26 | 51 | 42 | 664 | 795 |
| CRUDE CAPACITY | | 135 | 343 | 595 | 562 | 10,844 | 12,480 |
| NO OF REFINERIES | | 6 | 7 | 13 | 7 | 72 | 105 |
| RONC OF DEBUTANIZED PROD | | 91.96 | 92.75 | 91.97 | 93.68 | 93.00 | 92.95 |
| CRUDE CAPACITY | | 135 | 343 | 680 | 922 | 13,132 | 15,213 |
| NO OF REFINERIES | | 6 | 7 | 14 | 10 | 88 | 125 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5 FEED) | | | | | | 68 | 68 |
| CRUDE CAPACITY | | | | | | 1,332 | 1,332 |
| NO OF REFINERIES | | | | | | 5 | 5 |
| D P VOL (C5+C6 FEED) | ****** | | | ****** | | 25 | 33 |
| CRUDE CAPACITY | ****** | | | ****** | | 321 | 380 |
| NO OF REFINERIES | 1 | | | 1 | | 3 | 5 |

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | ****** | | | ****** | | 86.96 | 87.06 |
| CRUDE CAPACITY | ****** | | | ****** | | 1,653 | 1,711 |
| NO OF REFINERIES | 1 | | | 1 | | 8 | 10 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | ****** | 1 | 4 | 7 | ****** | 41 | 57 |
| CRUDE CAPACITY | ****** | 71 | 157 | 90 | ****** | 2,547 | 3,127 |
| NO OF REFINERIES | 1 | 4 | 3 | 3 | 2 | 27 | 40 |
| RONC OF DEBUTANIZED PROD | ****** | 94.48 | 94.25 | 96.03 | ****** | 93.83 | 94.16 |
| CRUDE CAPACITY | ****** | 71 | 157 | 90 | ****** | 2,547 | 3,127 |
| NO OF REFINERIES | 1 | 4 | 3 | 3 | 2 | 27 | 40 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | ****** | 90 | ****** | 243 | 219 | 3,380 | 4,111 |
| CRUDE CAPACITY | ****** | 391 | ****** | 897 | 922 | 13,989 | 16,791 |
| NO OF REFINERIES | 5 | 21 | 14 | 19 | 10 | 101 | 170 |
| OTHER NAPHTHA | | | ****** | ****** | ****** | ****** | 225 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 3,755 |
| NO OF REFINERIES | | | 2 | 4 | 1 | 20 | 27 |
| CAT CRACKING CHRGE STOCK | | | ****** | ****** | ****** | 845 | 922 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | 5,426 | 5,735 |
| NO OF REFINERIES | | | 2 | 2 | 1 | 26 | 31 |
| OTHER HEAVY GAS OIL | | | | | ****** | ****** | 208 |
| CRUDE CAPACITY | | | | | ****** | ****** | 2,879 |
| NO OF REFINERIES | | | | | 1 | 10 | 11 |
| DISTILLATE | ****** | 39 | ****** | 59 | 139 | 2,437 | 2,744 |
| CRUDE CAPACITY | ****** | 159 | ****** | 399 | 736 | 12,374 | 13,924 |
| NO OF REFINERIES | 2 | 6 | 5 | 8 | 8 | 76 | 105 |
| RESIDUAL DESULFURIZATION | | | | | | 95 | 95 |
| CRUDE CAPACITY | | | | | | 1,045 | 1,045 |
| NO OF REFINERIES | | | | | | 2 | 2 |

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| TOTAL ( CA THRU CF) | 30 | 129 | 240 | 350 | 411 | 7,145 | 8,305 |
| CRUDE CAPACITY | 38 | 391 | 555 | 939 | 922 | 14,035 | 16,879 |
| NO OF REFINERIES | 5 | 21 | 14 | 20 | 10 | 102 | 172 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | 1 | | ****** | ****** | ****** | 419 | 444 |
| CRUDE CAPACITY | 10 | | ****** | ****** | ****** | 4,382 | 4,541 |
| NO OF REFINERIES | 1 | | 1 | 1 | 1 | 21 | 25 |
| CAPACITY (HVY GAS O FEED) | | 7 | ****** | ****** | ****** | 354 | 389 |
| CRUDE CAPACITY | | 19 | ****** | ****** | ****** | 3,031 | 3,250 |
| NO OF REFINERIES | | 2 | 1 | 1 | 1 | 13 | 18 |
| CONVERSION PCT (430 F EP) | 100.00 | 40.28 | ****** | ****** | ****** | 91.09 | 91.15 |
| CRUDE CAPACITY | 10 | 19 | ****** | ****** | ****** | 6,133 | 6,441 |
| NO OF REFINERIES | 1 | 2 | 2 | 1 | 2 | 32 | 40 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | ****** | ****** | | ****** | 174 | 191 |
| CRUDE CAPACITY | ****** | ****** | ****** | | ****** | 1,171 | 1,305 |
| NO OF REFINERIES | 2 | 1 | 1 | | 1 | 7 | 12 |
| VISBREAKING | | 13 | | ****** | ****** | 101 | 142 |
| CRUDE CAPACITY | | 55 | | ****** | ****** | 1,398 | 1,837 |
| NO OF REFINERIES | | 3 | | 2 | 2 | 9 | 16 |
| COKING - FEED RATE | | ****** | ****** | 48 | 42 | 946 | 1,048 |
| CRUDE CAPACITY | | ****** | ****** | 249 | 303 | 7,009 | 7,643 |
| NO OF REFINERIES | | 2 | 1 | 4 | 3 | 44 | 54 |
| COKING - MAKE ST/CD | | ****** | ****** | 1,775 | 2,030 | 44,285 | 48,571 |
| CRUDE CAPACITY | | ****** | ****** | 249 | 303 | 7,009 | 7,643 |
| NO OF REFINERIES | | 2 | 1 | 4 | 3 | 44 | 54 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

PROCESS FACILITIES CAPACITIES
BY COMPANY SIZE
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| HYDROGEN (MMSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | ****** | ****** | ****** | ****** | 1,331 | 1,409 |
| CRUDE CAPACITY | | ****** | ****** | ****** | ****** | 4,874 | 5,147 |
| NO OF REFINERIES | | 2 | 3 | 1 | 1 | 26 | 33 |
| OTHER | | | | | ****** | ****** | 182 |
| CRUDE CAPACITY | | | | | ****** | ****** | 1,203 |
| NO OF REFINERIES | | | | | 1 | 6 | 7 |
| SULFUR RECOVERY(LT/CD) | | 73 | 141 | 348 | 697 | 13,094 | 14,353 |
| CRUDE CAPACITY | | 174 | 367 | 558 | 922 | 12,821 | 14,842 |
| NO OF REFINERIES | | 7 | 8 | 9 | 10 | 79 | 113 |

Table C.4.4.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/11/79

PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 1,290 | 1,458 | 5,380 | 5,944 | 1,487 | 1,234 | 16,793 |
| CRUDE CAPACITY | 1,297 | 1,458 | 5,380 | 5,959 | 1,487 | 1,285 | 16,867 |
| NO OF REFINERIES | 88 | 37 | 51 | 42 | 13 | 11 | 242 |
| OTHER CRUDE CHARGE UNITS | ****** | | | ****** | | ****** | 84 |
| CRUDE CAPACITY | ****** | | | ****** | | ****** | 362 |
| NO OF REFINERIES | 2 | | | 1 | | 2 | 5 |
| VACUUM DISTILLATION | 189 | 481 | 1,927 | 2,312 | 643 | 562 | 6,114 |
| CRUDE CAPACITY | 390 | 1,305 | 5,224 | 5,754 | 1,487 | 1,179 | 15,340 |
| NO OF REFINERIES | 28 | 29 | 46 | 38 | 13 | 9 | 163 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 89 | 248 | 1,094 | 1,314 | 377 | 398 | 3,519 |
| CRUDE CAPACITY | 555 | 1,349 | 5,323 | 5,889 | 1,487 | 1,279 | 15,883 |
| NO OF REFINERIES | 23 | 33 | 49 | 41 | 13 | 10 | 169 |
| AT 95 RONC | 76 | 212 | 929 | 1,224 | 360 | 365 | 3,166 |
| CRUDE CAPACITY | 509 | 1,217 | 5,073 | 5,720 | 1,487 | 1,241 | 15,247 |
| NO OF REFINERIES | 17 | 26 | 43 | 38 | 13 | 9 | 146 |
| AT 98 RONC | 65 | 171 | 756 | 940 | 260 | 335 | 2,528 |
| CRUDE CAPACITY | 442 | 1,075 | 4,157 | 4,776 | 1,316 | 1,241 | 13,006 |
| NO OF REFINERIES | 13 | 21 | 35 | 32 | 11 | 9 | 121 |
| AT 100 RONC | 52 | 133 | 594 | 699 | 154 | 274 | 1,906 |
| CRUDE CAPACITY | 367 | 902 | 3,558 | 4,273 | 956 | 1,058 | 11,115 |
| NO OF REFINERIES | 11 | 17 | 27 | 27 | 8 | 7 | 97 |
| BTX RECOVERY CAP (AROM P) | ****** | ****** | 14 | 90 | 43 | 68 | 218 |
| CRUDE CAPACITY | ****** | ****** | 1,588 | 3,921 | 964 | 831 | 7,376 |
| NO OF REFINERIES | 1 | 2 | 5 | 20 | 7 | 6 | 41 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | ****** | 270 | 1,562 | 1,923 | ****** | 523 | 4,793 |
| CRUDE CAPACITY | ****** | 982 | 5,195 | 5,810 | ****** | 1,246 | 14,707 |
| NO OF REFINERIES | 2 | 23 | 50 | 39 | 12 | 10 | 136 |
| CONVERSION (VOL PCT) | ****** | 74.67 | 70.86 | 73.73 | ****** | 68.80 | 72.42 |
| CRUDE CAPACITY | ****** | 956 | 5,171 | 5,810 | ****** | 1,246 | 14,548 |
| NO OF REFINERIES | 2 | 22 | 49 | 39 | 11 | 10 | 133 |
| RONC OF DEBUT CAT NAPHTHA | ****** | 89.90 | 89.19 | 89.98 | ****** | 91.64 | 89.88 |
| CRUDE CAPACITY | ****** | 956 | 5,171 | 5,810 | ****** | 1,246 | 14,548 |
| NO OF REFINERIES | 2 | 22 | 49 | 39 | 11 | 10 | 133 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | ****** | 26 | 32 | 23 | ****** | 100 |
| CRUDE CAPACITY | | ****** | 804 | 924 | 409 | ****** | 2,483 |
| NO OF REFINERIES | | 1 | 7 | 4 | 4 | 2 | 18 |
| D P VOL (MIX FEED) | ****** | 32 | 233 | 334 | ****** | 77 | 747 |
| CRUDE CAPACITY | ****** | 623 | 4,203 | 4,833 | ****** | 981 | 11,684 |
| NO OF REFINERIES | 1 | 13 | 41 | 34 | 8 | 7 | 104 |
| RONC OF DEBUTANIZED PROD | ****** | 92.61 | 93.04 | 92.62 | ****** | 92.67 | 92.80 |
| CRUDE CAPACITY | ****** | 710 | 5,006 | 5,757 | ****** | 1,241 | 14,166 |
| NO OF REFINERIES | 1 | 14 | 48 | 38 | 12 | 9 | 122 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5 FEED) | | | | 46 | | | 46 |
| CRUDE CAPACITY | | | | 854 | | | 854 |
| NO OF REFINERIES | | | | 4 | | | 4 |
| D P VOL (C5+C6 FEED) | | | | | 12 | | 12 |
| CRUDE CAPACITY | | | | | 136 | | 136 |
| NO OF REFINERIES | | | | | 1 | | 1 |

PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | | | | 88.17 | 83.00 | | 87.10 |
| CRUDE CAPACITY | | | | 854 | 136 | | 989 |
| NO OF REFINERIES | | | | 4 | 1 | | 5 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | ****** | 4 | 15 | 9 | ****** | 13 | 49 |
| CRUDE CAPACITY | ****** | 231 | 1,319 | 707 | ****** | 266 | 2,851 |
| NO OF REFINERIES | 3 | 8 | 13 | 8 | 2 | 3 | 37 |
| RONC OF DEBUTANIZED PROD | ****** | 95.38 | 94.31 | 94.51 | ****** | 94.54 | 93.91 |
| CRUDE CAPACITY | ****** | 231 | 1,319 | 707 | ****** | 266 | 2,851 |
| NO OF REFINERIES | 3 | 8 | 13 | 8 | 2 | 3 | 37 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | 92 | 289 | 1,033 | 1,355 | 359 | 354 | 3,482 |
| CRUDE CAPACITY | 507 | 1,360 | 4,781 | 5,889 | 1,487 | 1,279 | 15,304 |
| NO OF REFINERIES | 18 | 33 | 47 | 41 | 13 | 10 | 162 |
| OTHER NAPHTHA | | 10 | 36 | 70 | ****** | ****** | 215 |
| CRUDE CAPACITY | | 186 | 875 | 1,529 | ****** | ****** | 3,528 |
| NO OF REFINERIES | | 4 | 7 | 8 | 4 | 3 | 26 |
| CAT CRACKING CHRGE STOCK | | ****** | 277 | 409 | 168 | ****** | 893 |
| CRUDE CAPACITY | | ****** | 1,866 | 2,780 | 605 | ****** | 5,526 |
| NO OF REFINERIES | | 4 | 9 | 13 | 4 | 1 | 31 |
| OTHER HEAVY GAS OIL | | ****** | 66 | 64 | ****** | | 189 |
| CRUDE CAPACITY | | ****** | 806 | 1,325 | ****** | | 2,616 |
| NO OF REFINERIES | | 1 | 3 | 5 | 1 | | 10 |
| DISTILLATE | 33 | 123 | 817 | 998 | 310 | 170 | 2,450 |
| CRUDE CAPACITY | 102 | 855 | 4,414 | 5,183 | 1,351 | 938 | 12,842 |
| NO OF REFINERIES | 3 | 16 | 31 | 31 | 11 | 6 | 98 |

PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RESIDUAL DESULFURIZATION | | | 95 | | | | 95 |
| CRUDE CAPACITY | | | 1,045 | | | | 1,045 |
| NO OF REFINERIES | | | 2 | | | | 2 |
| TOTAL ( CA THRU CF) | 124 | 490 | 2,324 | 2,896 | 897 | 593 | 7,325 |
| CRUDE CAPACITY | 507 | 1,402 | 5,325 | 5,889 | 1,487 | 1,279 | 15,890 |
| NO OF REFINERIES | 18 | 34 | 49 | 41 | 13 | 10 | 165 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | | ****** | 99 | 136 | ****** | 155 | 463 |
| CRUDE CAPACITY | | ****** | 1,998 | 1,247 | ****** | 1,022 | 4,644 |
| NO OF REFINERIES | | 2 | 6 | 7 | 4 | 7 | 26 |
| CAPACITY (HVY GAS O FEED) | ****** | ****** | 74 | 178 | 72 | ****** | 348 |
| CRUDE CAPACITY | ****** | ****** | 1,230 | 1,182 | 324 | ****** | 2,977 |
| NO OF REFINERIES | 1 | 1 | 3 | 6 | 3 | 1 | 15 |
| CONVERSION PCT (430 F EP) | ****** | ****** | 86.89 | 89.50 | 97.47 | 96.02 | 91.98 |
| CRUDE CAPACITY | ****** | ****** | 1,948 | 2,429 | 637 | 1,162 | 6,341 |
| NO OF REFINERIES | 1 | 3 | 7 | 13 | 7 | 8 | 39 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | ****** | ****** | 19 | ****** | ****** | 146 |
| CRUDE CAPACITY | ****** | ****** | ****** | 259 | ****** | ****** | 1,388 |
| NO OF REFINERIES | 2 | 2 | 3 | 3 | 2 | 1 | 13 |
| VISBREAKING | ****** | 16 | 32 | 63 | 51 | ****** | 179 |
| CRUDE CAPACITY | ****** | 165 | 517 | 329 | 594 | ****** | 1,740 |
| NO OF REFINERIES | 1 | 3 | 4 | 3 | 4 | 1 | 16 |
| COKING - FEED RATE | | ****** | 228 | 444 | ****** | 225 | 1,000 |
| CRUDE CAPACITY | | ****** | 1,860 | 3,470 | ****** | 1,061 | 7,209 |
| NO OF REFINERIES | | 2 | 15 | 21 | 7 | 7 | 52 |

NATIONAL PETROLEUM COUNCIL
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PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1979

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| COKING - MAKE ST/CD | | ****** | 10,234 | 20,221 | ****** | 9,210 | 44,820 |
| CRUDE CAPACITY | | ****** | 1,860 | 3,470 | ****** | 1,061 | 7,209 |
| NO OF REFINERIES | | 2 | 15 | 21 | 7 | 7 | 52 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | ****** | ****** | 169 | 512 | 330 | 380 | 1,408 |
| CRUDE CAPACITY | ****** | ****** | 1,425 | 1,737 | 1,058 | 686 | 5,038 |
| NO OF REFINERIES | 2 | 3 | 4 | 9 | 9 | 7 | 34 |
| OTHER | ****** | | 106 | ****** | ****** | ****** | 182 |
| CRUDE CAPACITY | ****** | | 691 | ****** | ****** | ****** | 1,139 |
| NO OF REFINERIES | 1 | | 3 | 1 | 1 | 1 | 7 |
| SULFUR RECOVERY(LT/CD) | ****** | 717 | 3,647 | 4,865 | 1,511 | ****** | 12,533 |
| CRUDE CAPACITY | ****** | 870 | 4,409 | 5,021 | 1,367 | ****** | 12,983 |
| NO OF REFINERIES | 2 | 13 | 29 | 33 | 12 | 9 | 98 |

Table C.4.4.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/11/79

PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 1,386 | 989 | 6,000 | 5,733 | 1,550 | 1,518 | 17,175 |
| CRUDE CAPACITY | 1,393 | 989 | 6,000 | 5,748 | 1,550 | 1,569 | 17,249 |
| NO OF REFINERIES | 85 | 32 | 59 | 42 | 14 | 12 | 244 |
| OTHER CRUDE CHARGE UNITS | ****** | | | ****** | | ****** | 84 |
| CRUDE CAPACITY | ****** | | | ****** | | ****** | 362 |
| NO OF REFINERIES | 2 | | | 1 | | 2 | 5 |
| VACUUM DISTILLATION | 195 | 365 | 2,154 | 2,210 | 653 | 676 | 6,253 |
| CRUDE CAPACITY | 416 | 902 | 5,789 | 5,573 | 1,550 | 1,463 | 15,692 |
| NO OF REFINERIES | 27 | 27 | 51 | 39 | 14 | 10 | 168 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 89 | 176 | 1,269 | 1,353 | 437 | 470 | 3,793 |
| CRUDE CAPACITY | 547 | 896 | 5,992 | 5,678 | 1,550 | 1,563 | 16,226 |
| NO OF REFINERIES | 21 | 29 | 58 | 41 | 14 | 11 | 174 |
| AT 95 RONC | 76 | 149 | 1,160 | 1,253 | 428 | 438 | 3,505 |
| CRUDE CAPACITY | 501 | 805 | 5,954 | 5,509 | 1,550 | 1,525 | 15,844 |
| NO OF REFINERIES | 15 | 24 | 56 | 38 | 14 | 10 | 157 |
| AT 98 RONC | 68 | 105 | 997 | 1,070 | 355 | 385 | 2,980 |
| CRUDE CAPACITY | 481 | 625 | 5,173 | 5,049 | 1,478 | 1,525 | 14,330 |
| NO OF REFINERIES | 14 | 18 | 46 | 35 | 13 | 10 | 136 |
| AT 100 RONC | 56 | 72 | 836 | 806 | 233 | 313 | 2,316 |
| CRUDE CAPACITY | 406 | 476 | 4,628 | 4,512 | 1,148 | 1,343 | 12,512 |
| NO OF REFINERIES | 12 | 15 | 38 | 30 | 10 | 8 | 113 |
| BTX RECOVERY CAP (AROM P) | ****** | ****** | 17 | 87 | 42 | 83 | 231 |
| CRUDE CAPACITY | ****** | ****** | 1,794 | 3,512 | 1,027 | 1,115 | 7,475 |
| NO OF REFINERIES | 1 | 1 | 6 | 18 | 8 | 7 | 41 |

PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | ****** | 212 | 1,753 | 1,842 | ****** | 588 | 4,954 |
| CRUDE CAPACITY | ****** | 713 | 5,810 | 5,599 | ****** | 1,530 | 15,122 |
| NO OF REFINERIES | 1 | 18 | 57 | 39 | 12 | 11 | 138 |
| CONVERSION (VOL PCT) | ****** | 75.22 | 71.59 | 74.60 | ****** | 70.38 | 73.13 |
| CRUDE CAPACITY | ****** | 687 | 5,785 | 5,599 | ****** | 1,530 | 14,963 |
| NO OF REFINERIES | 1 | 17 | 56 | 39 | 11 | 11 | 135 |
| RONC OF DEBUT CAT NAPHTHA | ****** | 90.63 | 89.74 | 90.25 | ****** | 91.15 | 90.23 |
| CRUDE CAPACITY | ****** | 687 | 5,785 | 5,599 | ****** | 1,530 | 14,963 |
| NO OF REFINERIES | 1 | 17 | 56 | 39 | 11 | 11 | 135 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | ****** | 32 | 32 | 17 | ****** | 102 |
| CRUDE CAPACITY | | ****** | 938 | 913 | 280 | ****** | 2,509 |
| NO OF REFINERIES | | 1 | 9 | 4 | 3 | 2 | 19 |
| D P VOL (MIX FEED) | ****** | 25 | 266 | 323 | ****** | 84 | 793 |
| CRUDE CAPACITY | ****** | 435 | 4,651 | 4,633 | ****** | 1,265 | 12,175 |
| NO OF REFINERIES | 1 | 10 | 44 | 34 | 9 | 8 | 106 |
| RONC OF DEBUTANIZED PROD | ****** | 92.67 | 93.09 | 92.71 | ****** | 92.84 | 92.90 |
| CRUDE CAPACITY | ****** | 555 | 5,588 | 5,546 | ****** | 1,525 | 14,684 |
| NO OF REFINERIES | 1 | 11 | 53 | 38 | 12 | 10 | 125 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5 FEED) | | | ****** | ****** | 16 | | 68 |
| CRUDE CAPACITY | | | ****** | ****** | 432 | | 1,144 |
| NO OF REFINERIES | | | 1 | 2 | 2 | | 5 |
| D P VOL (C5+C6 FEED) | | | 5 | 12 | | | 17 |
| CRUDE CAPACITY | | 5 | 54 | 200 | | | 259 |
| NO OF REFINERIES | | 1 | 1 | 1 | | | 3 |

PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | | 95.00 | ****** | ****** | 91.17 | | 87.36 |
| CRUDE CAPACITY | | 5 | ****** | ****** | 432 | | 1,402 |
| NO OF REFINERIES | | 1 | 2 | 3 | 2 | | 8 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | ****** | 3 | 19 | 13 | ****** | 13 | 52 |
| CRUDE CAPACITY | ****** | 142 | 1,492 | 908 | ****** | 266 | 2,980 |
| NO OF REFINERIES | 2 | 6 | 18 | 9 | 1 | 3 | 39 |
| RONC OF DEBUTANIZED PROD | ****** | 95.12 | 94.79 | 94.97 | ****** | 94.54 | 94.09 |
| CRUDE CAPACITY | ****** | 142 | 1,492 | 908 | ****** | 266 | 2,980 |
| NO OF REFINERIES | 2 | 6 | 18 | 9 | 1 | 3 | 39 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | 85 | 211 | 1,291 | 1,353 | 443 | 423 | 3,806 |
| CRUDE CAPACITY | 499 | 908 | 5,905 | 5,678 | 1,550 | 1,563 | 16,102 |
| NO OF REFINERIES | 16 | 29 | 56 | 41 | 14 | 11 | 167 |
| OTHER NAPHTHA | | ****** | ****** | 80 | ****** | 79 | 218 |
| CRUDE CAPACITY | | ****** | ****** | 1,774 | ****** | 634 | 3,595 |
| NO OF REFINERIES | | 2 | 7 | 10 | 3 | 4 | 26 |
| CAT CRACKING CHRGE STOCK | | ****** | 292 | 464 | ****** | ****** | 916 |
| CRUDE CAPACITY | | ****** | 2,006 | 3,009 | ****** | ****** | 5,619 |
| NO OF REFINERIES | | 1 | 12 | 14 | 2 | 2 | 31 |
| OTHER HEAVY GAS OIL | | | ****** | 64 | | ****** | 191 |
| CRUDE CAPACITY | | | ****** | 1,354 | | ****** | 2,663 |
| NO OF REFINERIES | | | 4 | 5 | | 1 | 10 |
| DISTILLATE | 53 | 73 | 902 | 968 | 305 | 300 | 2,601 |
| CRUDE CAPACITY | 155 | 375 | 4,995 | 4,997 | 1,413 | 1,223 | 13,158 |
| NO OF REFINERIES | 4 | 9 | 38 | 31 | 12 | 7 | 101 |

PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RESIDUAL DESULFURIZATION | | | 95 | | | | 95 |
| CRUDE CAPACITY | | | 1,045 | | | | 1,045 |
| NO OF REFINERIES | | | 2 | | | | 2 |
| TOTAL ( CA THRU CF) | 138 | 299 | 2,731 | 2,929 | 855 | 875 | 7,827 |
| CRUDE CAPACITY | 499 | 954 | 5,947 | 5,678 | 1,550 | 1,563 | 16,190 |
| NO OF REFINERIES | 16 | 30 | 57 | 41 | 14 | 11 | 169 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | | 1 | 103 | 136 | 68 | 155 | 464 |
| CRUDE CAPACITY | | 9 | 2,056 | 1,247 | 313 | 1,022 | 4,647 |
| NO OF REFINERIES | | 1 | 7 | 7 | 4 | 7 | 26 |
| CAPACITY (HVY GAS O FEED) | ****** | ****** | 74 | 162 | 88 | ****** | 348 |
| CRUDE CAPACITY | ****** | ****** | 1,230 | 847 | 659 | ****** | 2,977 |
| NO OF REFINERIES | 1 | 1 | 3 | 5 | 4 | 1 | 15 |
| CONVERSION PCT (430 F EP) | ****** | ****** | 87.29 | 88.92 | 97.73 | 96.02 | 91.99 |
| CRUDE CAPACITY | ****** | ****** | 2,006 | 2,095 | 972 | 1,162 | 6,344 |
| NO OF REFINERIES | 1 | 2 | 8 | 12 | 8 | 8 | 39 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | ****** | 39 | 19 | ****** | ****** | 201 |
| CRUDE CAPACITY | ****** | ****** | 679 | 280 | ****** | ****** | 1,409 |
| NO OF REFINERIES | 1 | 1 | 5 | 3 | 1 | 2 | 13 |
| VISBREAKING | ****** | 14 | 20 | 69 | 38 | ****** | 183 |
| CRUDE CAPACITY | ****** | 170 | 377 | 572 | 277 | ****** | 1,835 |
| NO OF REFINERIES | 2 | 3 | 3 | 4 | 3 | 2 | 17 |
| COKING - FEED RATE | | ****** | 263 | 405 | ****** | 228 | 1,024 |
| CRUDE CAPACITY | | ****** | 2,003 | 3,169 | ****** | 1,060 | 7,312 |
| NO OF REFINERIES | | 2 | 17 | 20 | 8 | 7 | 54 |

NATIONAL PETROLEUM COUNCIL
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PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1980

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| COKING - MAKE ST/CD | | ****** | 12,304 | 19,118 | ****** | 9,510 | 47,161 |
| CRUDE CAPACITY | | ****** | 2,003 | 3,169 | ****** | 1,060 | 7,312 |
| NO OF REFINERIES | | 2 | 17 | 20 | 8 | 7 | 54 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | ****** | ****** | 532 | 245 | 445 | 1,409 |
| CRUDE CAPACITY | | ****** | ****** | 1,937 | 637 | 971 | 5,095 |
| NO OF REFINERIES | | 2 | 6 | 10 | 7 | 8 | 33 |
| OTHER | ****** | | 106 | ****** | | ****** | 182 |
| CRUDE CAPACITY | ****** | | 691 | ****** | | ****** | 1,203 |
| NO OF REFINERIES | 1 | | 3 | 2 | | 1 | 7 |
| SULFUR RECOVERY(LT/CD) | 79 | 199 | 4,412 | 4,963 | 1,193 | 2,150 | 12,996 |
| CRUDE CAPACITY | 177 | 519 | 5,078 | 4,939 | 1,385 | 1,507 | 13,605 |
| NO OF REFINERIES | 4 | 10 | 35 | 35 | 12 | 10 | 106 |

Table C.4.4.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/11/79

PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 1,332 | 1,116 | 5,859 | 6,640 | 1,399 | 1,540 | 17,885 |
| CRUDE CAPACITY | 1,339 | 1,116 | 5,859 | 6,655 | 1,399 | 1,591 | 17,958 |
| NO OF REFINERIES | 79 | 32 | 58 | 49 | 14 | 12 | 244 |
| OTHER CRUDE CHARGE UNITS | ****** | | | ****** | | ****** | 84 |
| CRUDE CAPACITY | ****** | | | ****** | | ****** | 362 |
| NO OF REFINERIES | 2 | | | 1 | | 2 | 5 |
| VACUUM DISTILLATION | 231 | 346 | 2,134 | 2,573 | 561 | 676 | 6,521 |
| CRUDE CAPACITY | 474 | 900 | 5,656 | 6,566 | 1,296 | 1,482 | 16,375 |
| NO OF REFINERIES | 29 | 24 | 51 | 46 | 12 | 10 | 172 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 89 | 197 | 1,195 | 1,588 | 426 | 498 | 3,993 |
| CRUDE CAPACITY | 522 | 1,042 | 5,664 | 6,583 | 1,393 | 1,591 | 16,795 |
| NO OF REFINERIES | 22 | 29 | 57 | 48 | 13 | 12 | 181 |
| AT 95 RONC | 78 | 170 | 1,157 | 1,496 | 414 | 467 | 3,782 |
| CRUDE CAPACITY | 471 | 959 | 5,821 | 6,541 | 1,393 | 1,544 | 16,729 |
| NO OF REFINERIES | 15 | 24 | 56 | 46 | 13 | 10 | 164 |
| AT 98 RONC | 68 | 131 | 1,011 | 1,260 | 346 | 422 | 3,238 |
| CRUDE CAPACITY | 439 | 858 | 5,025 | 6,257 | 1,273 | 1,544 | 15,396 |
| NO OF REFINERIES | 13 | 20 | 46 | 42 | 12 | 10 | 143 |
| AT 100 RONC | 54 | 83 | 882 | 960 | 224 | 353 | 2,556 |
| CRUDE CAPACITY | 376 | 607 | 4,603 | 5,549 | 943 | 1,489 | 13,567 |
| NO OF REFINERIES | 11 | 15 | 39 | 35 | 9 | 9 | 118 |
| BTX RECOVERY CAP (AROM P) | ****** | ****** | 12 | 108 | 33 | 86 | 240 |
| CRUDE CAPACITY | ****** | ****** | 1,591 | 4,373 | 773 | 1,143 | 7,907 |
| NO OF REFINERIES | 1 | 1 | 4 | 22 | 6 | 8 | 42 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | ****** | 225 | 1,707 | 2,154 | ****** | 595 | 5,201 |
| CRUDE CAPACITY | ****** | 783 | 5,667 | 6,426 | ****** | 1,544 | 15,779 |
| NO OF REFINERIES | 1 | 17 | 57 | 44 | 12 | 10 | 141 |
| CONVERSION (VOL PCT) | ****** | 76.17 | 72.53 | 75.82 | ****** | 71.20 | 74.01 |
| CRUDE CAPACITY | ****** | 783 | 5,565 | 6,426 | ****** | 1,544 | 15,569 |
| NO OF REFINERIES | 1 | 17 | 53 | 44 | 11 | 10 | 136 |
| RONC OF DEBUT CAT NAPHTHA | ****** | 90.79 | 89.85 | 90.59 | ****** | 91.23 | 90.39 |
| CRUDE CAPACITY | ****** | 783 | 5,565 | 6,426 | ****** | 1,544 | 15,569 |
| NO OF REFINERIES | 1 | 17 | 53 | 44 | 11 | 10 | 136 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | ****** | 22 | 44 | 17 | ****** | 107 |
| CRUDE CAPACITY | | ****** | 637 | 1,228 | 328 | ****** | 2,733 |
| NO OF REFINERIES | | 2 | 6 | 7 | 3 | 2 | 20 |
| D P VOL (MIX FEED) | ****** | 15 | 268 | 327 | ****** | 84 | 795 |
| CRUDE CAPACITY | ****** | 291 | 4,729 | 5,145 | ****** | 1,284 | 12,480 |
| NO OF REFINERIES | 1 | 6 | 45 | 36 | 9 | 8 | 105 |
| RONC OF DEBUTANIZED PROD | ****** | 92.92 | 93.18 | 92.98 | ****** | 92.84 | 92.95 |
| CRUDE CAPACITY | ****** | 572 | 5,365 | 6,373 | ****** | 1,544 | 15,213 |
| NO OF REFINERIES | 1 | 8 | 51 | 43 | 12 | 10 | 125 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5 FEED) | | | ****** | ****** | 12 | | 68 |
| CRUDE CAPACITY | | | ****** | ****** | 97 | | 1,332 |
| NO OF REFINERIES | | | 1 | 3 | 1 | | 5 |
| D P VOL (C5+C6 FEED) | | | ****** | ****** | | | 33 |
| CRUDE CAPACITY | | 5 | ****** | ****** | | | 380 |
| NO OF REFINERIES | | 1 | 2 | 2 | | | 5 |

PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | | 95.00 | 86.73 | 85.82 | 93.40 | | 87.06 |
| CRUDE CAPACITY | | 5 | 411 | 1,199 | 97 | | 1,711 |
| NO OF REFINERIES | | 1 | 3 | 5 | 1 | | 10 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | ****** | 6 | 17 | 15 | 11 | ****** | 57 |
| CRUDE CAPACITY | ****** | 292 | 1,326 | 959 | 213 | ****** | 3,127 |
| NO OF REFINERIES | 2 | 7 | 16 | 10 | 3 | 2 | 40 |
| RONC OF DEBUTANIZED PROD | ****** | 95.57 | 94.77 | 94.87 | 91.84 | ****** | 94.16 |
| CRUDE CAPACITY | ****** | 292 | 1,326 | 959 | 213 | ****** | 3,127 |
| NO OF REFINERIES | 2 | 7 | 16 | 10 | 3 | 2 | 40 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | 88 | 212 | 1,279 | 1,697 | 403 | 433 | 4,111 |
| CRUDE CAPACITY | 459 | 1,003 | 5,772 | 6,583 | 1,393 | 1,582 | 16,791 |
| NO OF REFINERIES | 15 | 27 | 56 | 48 | 13 | 11 | 170 |
| OTHER NAPHTHA | | ****** | 17 | 110 | ****** | 79 | 225 |
| CRUDE CAPACITY | | ****** | 769 | 2,083 | ****** | 634 | 3,755 |
| NO OF REFINERIES | | 1 | 6 | 14 | 2 | 4 | 27 |
| CAT CRACKING CHRGE STOCK | | ****** | 292 | 399 | ****** | ****** | 922 |
| CRUDE CAPACITY | | ****** | 2,006 | 2,830 | ****** | ****** | 5,735 |
| NO OF REFINERIES | | 1 | 12 | 12 | 4 | 2 | 31 |
| OTHER HEAVY GAS OIL | | ****** | 121 | 64 | | ****** | 208 |
| CRUDE CAPACITY | | ****** | 1,039 | 1,394 | | ****** | 2,879 |
| NO OF REFINERIES | | 1 | 4 | 5 | | 1 | 11 |
| DISTILLATE | 54 | 90 | 935 | 1,108 | 257 | 300 | 2,744 |
| CRUDE CAPACITY | 161 | 450 | 5,119 | 5,694 | 1,257 | 1,243 | 13,924 |
| NO OF REFINERIES | 5 | 7 | 41 | 34 | 11 | 7 | 105 |

PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RESIDUAL DESULFURIZATION | | | 95 | | | | 95 |
| CRUDE CAPACITY | | | 1,045 | | | | 1,045 |
| NO OF REFINERIES | | | 2 | | | | 2 |
| TOTAL ( CA THRU CF) | 142 | 330 | 2,738 | 3,379 | 830 | 885 | 8,305 |
| CRUDE CAPACITY | 459 | 1,049 | 5,814 | 6,583 | 1,393 | 1,582 | 16,879 |
| NO OF REFINERIES | 15 | 28 | 57 | 48 | 13 | 11 | 172 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | | 1 | 103 | 136 | 68 | 135 | 444 |
| CRUDE CAPACITY | | 10 | 2,056 | 1,247 | 313 | 916 | 4,541 |
| NO OF REFINERIES | | 1 | 7 | 7 | 4 | 6 | 25 |
| CAPACITY (HVY GAS O FEED) | ****** | ****** | 74 | 178 | 72 | 50 | 389 |
| CRUDE CAPACITY | ****** | ****** | 1,230 | 1,250 | 324 | 275 | 3,250 |
| NO OF REFINERIES | 1 | 2 | 3 | 6 | 3 | 3 | 18 |
| CONVERSION PCT (430 F EP) | ****** | ****** | 87.32 | 89.50 | 97.47 | 92.09 | 91.15 |
| CRUDE CAPACITY | ****** | ****** | 2,006 | 2,497 | 637 | 1,191 | 6,441 |
| NO OF REFINERIES | 1 | 2 | 8 | 13 | 7 | 9 | 40 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | | 8 | 33 | ****** | ****** | ****** | 191 |
| CRUDE CAPACITY | | 180 | 592 | ****** | ****** | ****** | 1,305 |
| NO OF REFINERIES | | 3 | 4 | 2 | 1 | 2 | 12 |
| VISBREAKING | ****** | 15 | ****** | 58 | ****** | ****** | 142 |
| CRUDE CAPACITY | ****** | 224 | ****** | 810 | ****** | ****** | 1,837 |
| NO OF REFINERIES | 1 | 4 | 2 | 6 | 1 | 2 | 16 |
| COKING - FEED RATE | | ****** | 265 | 460 | ****** | 229 | 1,048 |
| CRUDE CAPACITY | | ****** | 1,940 | 3,749 | ****** | 1,079 | 7,643 |
| NO OF REFINERIES | | 2 | 16 | 22 | 7 | 7 | 54 |

PROCESS FACILITIES CAPACITIES
BY REFINERY COMPLEXITY FACTOR
AS OF JANUARY 1, 1982

ALL GEOGRAPHIC REGIONS

| PROCESS | COMPLEXITY FACTOR 0-3 | 3-5 | 5-7 | 7-9 | 9-11 | 11 + | TOTAL |
|---|---|---|---|---|---|---|---|
| COKING - MAKE ST/CD | | ****** | 12,679 | 21,277 | ****** | 9,760 | 48,571 |
| CRUDE CAPACITY | | ****** | 1,940 | 3,749 | ****** | 1,079 | 7,643 |
| NO OF REFINERIES | | 2 | 16 | 22 | 7 | 7 | 54 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | ****** | ****** | 532 | 245 | 445 | 1,409 |
| CRUDE CAPACITY | | ****** | ****** | 1,987 | 637 | 971 | 5,147 |
| NO OF REFINERIES | | 2 | 6 | 10 | 7 | 8 | 33 |
| OTHER | ****** | | 106 | ****** | | ****** | 182 |
| CRUDE CAPACITY | ****** | | 691 | ****** | | ****** | 1,203 |
| NO OF REFINERIES | 1 | | 3 | 2 | | 1 | 7 |
| SULFUR RECOVERY(LT/CD) | 79 | 274 | 4,653 | 5,894 | 1,303 | 2,150 | 14,353 |
| CRUDE CAPACITY | 172 | 655 | 5,132 | 5,963 | 1,393 | 1,527 | 14,842 |
| NO OF REFINERIES | 4 | 10 | 38 | 38 | 13 | 10 | 113 |

TABLE C.4.5.1

ESTIMATED PROCESS FACILITIES

OF REFINERIES THAT DID NOT SUBMIT QUESTIONNAIRE

(CAPACITY AS OF JANUARY 1, 1979)*

PAD I (CAPACITY IN MBPD)

| REFINERY SIZE MBPCD | 0-10 | 10-30 | 30-50 | 50-100 | 100 and LARGER | TOTAL |
|---|---|---|---|---|---|---|
| NUMBER OF REFINERIES | 0 | 0 | 0 | 0 | 0 | 0 |
| Crude Capacity B/CD | 0 | 0 | 0 | 0 | 0 | 0 |

*AS REPORTED BY OIL & GAS JOURNAL MARCH 26, 1979.

TABLE C.4.5.2

ESTIMATED PROCESS FACILITIES

OF REFINERIES THAT DID NOT SUBMIT QUESTIONNAIRE

(CAPACITY AS OF JANUARY 1, 1979)*

PAD II (CAPACITY IN MBPD)

| REFINERY SIZE MBPCD | 0-10 | 10-30 | 30-50 | 50-100 | 100 and LARGER | TOTAL |
|---|---|---|---|---|---|---|
| NUMBER OF REFINERIES | 9 | 2 | - | - | - | 11 |
| Crude Capacity B/CD | 31 | 42 | - | - | - | 73 |
| Vacuum Distillation B/SD | - | 3 | - | - | - | 3 |
| Thermal Operations B/SD | 2 | - | - | - | - | 2 |
| Catalytic Cracking | | | | | | |
| Fresh Feed B/SD | - | 8 | - | - | - | 8 |
| Recycle B/SD | - | 2 | - | - | - | 2 |
| Catalytic Reforming B/SD | 2 | - | - | - | - | 2 |
| Catalytic Hyrdocracking B/SD | - | - | - | - | - | - |
| Catalytic Hydrorefining B/SD | - | - | - | - | - | - |
| Catalytic Hydrotreating B/SD | 2 | - | - | - | - | 2 |
| Alkylation B/SD | - | 2 | - | - | - | 2 |
| Isomerization | | | | | | |
| Aromatic $C_4$, $C_5$, and $C_6$ | - | - | - | - | - | - |
| Lubes | - | - | - | - | - | - |
| Asphalt | - | 2 | - | - | - | 2 |
| Hydrogen (MMCF/D) | - | - | - | - | - | - |
| Coke ST/CD | - | - | - | - | - | - |

*AS REPORTED BY OIL & GAS JOURNAL MARCH 26, 1979.

TABLE C.4.5.3

ESTIMATED PROCESS FACILITIES

OF REFINERIES THAT DID NOT SUBMIT QUESTIONNAIRE

(CAPACITY AS OF JANUARY 1, 1979)*

PAD III (CAPACITY IN MBPD)

| REFINERY SIZE MBPCD | 0-10 | 10-30 | 30-50 | 50-100 | 100 and LARGER | TOTAL |
|---|---|---|---|---|---|---|
| NUMBER OF REFINERIES | 13 | 3 | - | 1 | - | 17 |
| Crude Capacity B/CD | 50 | 116 | - | 80 | - | 246 |
| Vacuum Distillation B/SD | 3 | 32 | - | 60 | - | 95 |
| Thermal Operations B/SD | - | - | - | - | - | - |
| Catalytic Cracking | | | | | | |
| Fresh Feed B/SD | - | - | - | 65 | - | 65 |
| Recycle B/SD | - | - | - | 1 | - | 1 |
| Catalytic Reforming B/SD | 3 | 12 | - | 5 | - | 20 |
| Catalytic Hyrdocracking B/SD | 2 | - | - | - | - | 2 |
| Catalytic Hydrorefining B/SD | - | - | - | - | - | - |
| Catalytic Hydrotreating B/SD | - | 12 | - | 5 | - | 17 |
| Alkylation B/SD | - | - | - | - | - | - |
| Isomerization | | | | | | |
| Aromatic $C_4$, $C_5$, and $C_6$ | - | - | - | 2 | - | 2 |
| Lubes | 2 | 1 | - | - | - | 3 |
| Asphalt | 2 | - | - | - | - | 2 |
| Hydrogen (MMCF/D) | - | - | - | - | - | - |
| Coke ST/CD | - | - | - | - | - | - |

*AS REPORTED BY OIL & GAS JOURNAL MARCH 26, 1979.

TABLE C.4.5.4

ESTIMATED PROCESS FACILITIES

OF REFINERIES THAT DID NOT SUBMIT QUESTIONNAIRE

(CAPACITY AS OF JANUARY 1, 1979)*

PAD IV (CAPACITY IN MBPD)

| REFINERY SIZE MBPCD | 0-10 | 10-30 | 30-50 | 50-100 | 100 and LARGER | TOTAL |
|---|---|---|---|---|---|---|
| NUMBER OF REFINERIES | 6 | 1 | - | - | - | 7 |
| Crude Capacity B/CD | 15 | 11 | - | - | - | 26 |
| Vacuum Distillation B/SD | 1 | - | - | - | - | 1 |
| Thermal Operations B/SD | 2 | - | - | - | - | 2 |
| Catalytic Cracking | | | | | | |
| Fresh Feed B/SD | - | 4 | - | - | - | 4 |
| Recycle B/SD | - | 3 | - | - | - | 3 |
| Catalytic Reforming B/SD | 3 | - | - | - | - | 3 |
| Catalytic Hyrdocracking B/SD | - | - | - | - | - | - |
| Catalytic Hydrorefining B/SD | - | - | - | - | - | - |
| Catalytic Hydrotreating B/SD | 2 | - | - | - | - | 2 |
| Alkylation B/SD | - | 1 | - | - | - | 1 |
| Isomerization | | | | | | |
| Aromatic $C_4$, $C_5$, and $C_6$ | 0.1 | - | - | - | - | 0.1 |
| Lubes | - | - | - | - | - | - |
| Asphalt | - | - | - | - | - | - |
| Hydrogen (MMCF/D) | - | - | - | - | - | - |
| Coke ST/CD | - | - | - | - | - | - |

*AS REPORTED BY OIL & GAS JOURNAL MARCH 26, 1979.

TABLE C.4.5.5

ESTIMATED PROCESS FACILITIES

OF REFINERIES THAT DID NOT SUBMIT QUESTIONNAIRE

(CAPACITY AS OF JANUARY 1, 1979)*

PAD V (CAPACITY IN MBPD)

| REFINERY SIZE MBPCD | 0-10 | 10-30 | 30-50 | 50-100 | 100 and LARGER | TOTAL |
|---|---|---|---|---|---|---|
| NUMBER OF REFINERIES | 4 | 4 | - | - | - | 8 |
| Crude Capacity B/CD | 27 | 65 | - | - | - | 92 |
| Vacuum Distillation B/SD | - | 7 | - | - | - | 7 |
| Thermal Operations B/SD | - | - | - | - | - | - |
| Catalytic Cracking | | | | | | |
| Fresh Feed B/SD | - | - | - | - | - | - |
| Recycle B/SD | - | - | - | - | - | - |
| Catalytic Reforming B/SD | - | 4 | - | - | - | 4 |
| Catalytic Hyrdocracking B/SD | - | - | - | - | - | - |
| Catalytic Hydrorefining B/SD | - | - | - | - | - | - |
| Catalytic Hydrotreating B/SD | - | 5 | - | - | - | 5 |
| Alkylation B/SD | - | - | - | - | - | - |
| Isomerization | | | | | | |
| Aromatic $C_4$, $C_5$, and $C_6$ | - | - | - | - | - | - |
| Lubes | - | - | - | - | - | - |
| Asphalt | - | - | - | - | - | - |
| Hydrogen (MMCF/D) | - | - | - | - | - | - |
| Coke ST/CD | - | - | - | - | - | - |

*AS REPORTED BY OIL & GAS JOURNAL MARCH 26, 1979.

TABLE C.4.5.6

ESTIMATED PROCESS FACILITIES

OF REFINERIES THAT DID NOT SUBMIT QUESTIONNAIRE

(CAPACITY AS OF JANUARY 1, 1979)*

PAD I-V(CAPACITY IN MBPD)

| REFINERY SIZE MBPCD | 0-10 | 10-30 | 30-50 | 50-100 | 100 and LARGER | TOTAL |
|---|---|---|---|---|---|---|
| NUMBER OF REFINERIES | 32 | 10 | - | 1 | - | 43 |
| Crude Capacity B/CD | 123 | 234 | - | 80 | - | 437 |
| Vacuum Distillation B/SD | 4 | 42 | - | 60 | - | 106 |
| Thermal Operations B/SD | 4 | - | - | - | - | 4 |
| Catalytic Cracking | | | | | | |
| Fresh Feed B/SD | - | 12 | - | 65 | - | 77 |
| Recycle B/SD | - | 5 | - | 1 | - | 6 |
| Catalytic Reforming B/SD | 8 | 16 | - | 5 | - | 29 |
| Catalytic Hyrdocracking B/SD | 2 | - | - | - | - | 2 |
| Catalytic Hydrorefining B/SD | - | - | - | - | - | - |
| Catalytic Hydrotreating B/SD | 4 | 17 | - | 5 | - | 26 |
| Alkylation B/SD | - | 3 | - | - | - | 3 |
| Isomerization | | | | | | |
| Aromatic $C_4$, $C_5$, and $C_6$ | 0.1 | - | - | 2 | - | 2.1 |
| Lubes | 2 | 1 | - | - | - | 3 |
| Asphalt | 2 | 2 | - | - | - | 4 |
| Hydrogen (MMCF/D) | - | - | - | - | - | - |
| Coke ST/CD | - | - | - | - | - | - |

*AS REPORTED BY OIL & GAS JOURNAL MARCH 26, 1979.

Table 4.6.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 1
AS OF JANUARY 1, 1979

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 59 | 98 | | 388 | ****** | ****** | 1,871 |
| CRUDE CAPACITY | 59 | 98 | | 388 | ****** | ****** | 1,871 |
| NO OF REFINERIES | 9 | 6 | | 6 | 4 | 3 | 28 |
| VACUUM DISTILLATION | 24 | ****** | | 186 | 324 | ****** | 862 |
| CRUDE CAPACITY | 45 | ****** | | 388 | 644 | ****** | 1,771 |
| NO OF REFINERIES | 7 | 1 | | 6 | 4 | 3 | 21 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | ****** | ****** | | 79 | 168 | 143 | 399 |
| CRUDE CAPACITY | ****** | ****** | | 388 | 644 | 682 | 1,750 |
| NO OF REFINERIES | 4 | 1 | | 6 | 4 | 3 | 18 |
| AT 95 RONC | | | | 75 | 164 | 134 | 373 |
| CRUDE CAPACITY | | | | 388 | 644 | 682 | 1,713 |
| NO OF REFINERIES | | | | 6 | 4 | 3 | 13 |
| AT 98 RONC | | | | 69 | 157 | 105 | 331 |
| CRUDE CAPACITY | | | | 388 | 644 | 682 | 1,713 |
| NO OF REFINERIES | | | | 6 | 4 | 3 | 13 |
| AT 100 RONC | | | | 62 | 107 | 90 | 258 |
| CRUDE CAPACITY | | | | 388 | 480 | 682 | 1,549 |
| NO OF REFINERIES | | | | 6 | 3 | 3 | 12 |
| BTX RECOVERY CAP (AROM P) | | | | ****** | ****** | ****** | 18 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 670 |
| NO OF REFINERIES | | | | 2 | 2 | 1 | 5 |
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | | | ****** | 218 | ****** | 569 |
| CRUDE CAPACITY | | | | ****** | 644 | ****** | 1,528 |
| NO OF REFINERIES | | | | 6 | 4 | 2 | 12 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 1
AS OF JANUARY 1, 1979

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CONVERSION (VOL PCT) | | | | ****** | 73.91 | ****** | 68.08 |
| CRUDE CAPACITY | | | | ****** | 644 | ****** | 1,528 |
| NO OF REFINERIES | | | | 6 | 4 | 2 | 12 |
| RONC OF DEBUT CAT NAPHTHA | | | | ****** | 89.75 | ****** | 88.57 |
| CRUDE CAPACITY | | | | ****** | 644 | ****** | 1,528 |
| NO OF REFINERIES | | | | 6 | 4 | 2 | 12 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | 7 | 22 | | 29 |
| CRUDE CAPACITY | | | | 250 | 480 | | 730 |
| NO OF REFINERIES | | | | 3 | 3 | | 6 |
| D P VOL (MIX FEED) | | | | ****** | ****** | ****** | 33 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 746 |
| NO OF REFINERIES | | | | 2 | 1 | 2 | 5 |
| RONC OF DEBUTANIZED PROD | | | | ****** | 93.64 | ****** | 93.74 |
| CRUDE CAPACITY | | | | ****** | 644 | ****** | 1,475 |
| NO OF REFINERIES | | | | 5 | 4 | 2 | 11 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | | | | ****** | ****** | | 11 |
| CRUDE CAPACITY | | | | ****** | ****** | | 387 |
| NO OF REFINERIES | | | | 4 | 1 | | 5 |
| RONC OF DEBUTANIZED PROD | | | | ****** | ****** | | 90.80 |
| CRUDE CAPACITY | | | | ****** | ****** | | 387 |
| NO OF REFINERIES | | | | 4 | 1 | | 5 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | ****** | ****** | | 88 | 215 | ****** | 475 |
| CRUDE CAPACITY | ****** | ****** | | 388 | 644 | ****** | 1,764 |
| NO OF REFINERIES | 6 | 1 | | 6 | 4 | 3 | 20 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 1
AS OF JANUARY 1, 1979

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CAT CRACKING CHRGE STOCK | | | | ****** | ****** | ****** | 135 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 686 |
| NO OF REFINERIES | | | | 1 | 2 | 1 | 4 |
| OTHER HEAVY GAS OIL | | | | | ****** | ****** | 55 |
| CRUDE CAPACITY | | | | | ****** | ****** | 525 |
| NO OF REFINERIES | | | | | 2 | 1 | 3 |
| DISTILLATE | | | | ****** | ****** | 201 | 385 |
| CRUDE CAPACITY | | | | ****** | ****** | 682 | 1,606 |
| NO OF REFINERIES | | | | 4 | 4 | 3 | 11 |
| TOTAL ( CA THRU CF) | ****** | ****** | | 170 | 437 | ****** | 1,049 |
| CRUDE CAPACITY | ****** | ****** | | 388 | 644 | ****** | 1,764 |
| NO OF REFINERIES | 6 | 1 | | 6 | 4 | 3 | 20 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (HVY GAS O FEED) | 4 | | | | ****** | ****** | 73 |
| CRUDE CAPACITY | 10 | | | | ****** | ****** | 499 |
| NO OF REFINERIES | 1 | | | | 2 | 1 | 4 |
| CONVERSION PCT (430 F EP) | 3.00 | | | | ****** | ****** | 78.07 |
| CRUDE CAPACITY | 10 | | | | ****** | ****** | 499 |
| NO OF REFINERIES | 1 | | | | 2 | 1 | 4 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | | | | ****** | | | ****** |
| NO OF REFINERIES | | | | 1 | | | 1 |
| COKING - FEED RATE | | | | ****** | ****** | | 74 |
| CRUDE CAPACITY | | | | ****** | ****** | | 291 |
| NO OF REFINERIES | | | | 2 | 1 | | 3 |
| COKING - MAKE ST/CD | | | | ****** | ****** | | 3,110 |
| CRUDE CAPACITY | | | | ****** | ****** | | 291 |
| NO OF REFINERIES | | | | 2 | 1 | | 3 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 1
AS OF JANUARY 1, 1979

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | ****** | ****** | | | ****** | ****** | 111 |
| CRUDE CAPACITY | ****** | ****** | | | ****** | ****** | 347 |
| NO OF REFINERIES | 1 | 1 | | | 1 | 1 | 4 |
| SULFUR RECOVERY(LT/CD) | | | | 301 | 680 | 544 | 1,525 |
| CRUDE CAPACITY | | | | 303 | 472 | 682 | 1,457 |
| NO OF REFINERIES | | | | 4 | 3 | 3 | 10 |

Table 4.6.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 2
AS OF JANUARY 1, 1979

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 59 | 225 | 460 | 1,056 | 1,297 | 1,038 | 4,135 |
| CRUDE CAPACITY | 59 | 225 | 460 | 1,056 | 1,297 | 1,038 | 4,135 |
| NO OF REFINERIES | 11 | 11 | 10 | 16 | 10 | 4 | 62 |
| VACUUM DISTILLATION | 8 | 64 | 123 | 329 | 501 | 403 | 1,428 |
| CRUDE CAPACITY | 19 | 172 | 368 | 1,004 | 1,297 | 1,038 | 3,899 |
| NO OF REFINERIES | 3 | 8 | 8 | 15 | 10 | 4 | 48 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | ****** | 30 | 121 | 222 | 279 | ****** | 905 |
| CRUDE CAPACITY | ****** | 179 | 460 | 1,002 | 1,297 | ****** | 3,985 |
| NO OF REFINERIES | 2 | 8 | 10 | 15 | 10 | 4 | 49 |
| AT 95 RONC | ****** | 24 | 106 | 182 | 253 | ****** | 814 |
| CRUDE CAPACITY | ****** | 145 | 460 | 829 | 1,170 | ****** | 3,646 |
| NO OF REFINERIES | 1 | 6 | 10 | 12 | 9 | 4 | 42 |
| AT 98 RONC | | ****** | 81 | 126 | 165 | ****** | 621 |
| CRUDE CAPACITY | | ****** | 366 | 594 | 1,044 | ****** | 3,165 |
| NO OF REFINERIES | | 5 | 8 | 8 | 8 | 4 | 33 |
| AT 100 RONC | | ****** | 67 | 65 | 55 | ****** | 383 |
| CRUDE CAPACITY | | ****** | 324 | 397 | 401 | ****** | 2,260 |
| NO OF REFINERIES | | 4 | 7 | 5 | 3 | 4 | 23 |
| BTX RECOVERY CAP (AROM P) | | | | ****** | ****** | ****** | 36 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 1,243 |
| NO OF REFINERIES | | | | 2 | 3 | 2 | 7 |
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | ****** | ****** | 166 | 391 | 470 | 340 | 1,440 |
| CRUDE CAPACITY | ****** | ****** | 460 | 1,056 | 1,297 | 1,038 | 4,037 |
| NO OF REFINERIES | 1 | 8 | 10 | 16 | 10 | 4 | 49 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 2
AS OF JANUARY 1, 1979

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CONVERSION (VOL PCT) | ****** | ****** | 74.79 | 74.55 | 74.21 | 72.93 | 74.10 |
| CRUDE CAPACITY | ****** | ****** | 460 | 1,056 | 1,297 | 1,038 | 4,010 |
| NO OF REFINERIES | 1 | 7 | 10 | 16 | 10 | 4 | 48 |
| RONC OF DEBUT CAT NAPHTHA | ****** | ****** | 89.97 | 89.23 | 90.99 | 90.96 | 90.32 |
| CRUDE CAPACITY | ****** | ****** | 460 | 1,056 | 1,297 | 1,038 | 4,010 |
| NO OF REFINERIES | 1 | 7 | 10 | 16 | 10 | 4 | 48 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | ****** | ****** | | 37 |
| CRUDE CAPACITY | | | | ****** | ****** | | 683 |
| NO OF REFINERIES | | | | 1 | 5 | | 6 |
| D P VOL (MIX FEED) | | 12 | 34 | 90 | 37 | 67 | 239 |
| CRUDE CAPACITY | | 131 | 460 | 988 | 514 | 1,038 | 3,131 |
| NO OF REFINERIES | | 6 | 10 | 15 | 4 | 4 | 39 |
| RONC OF DEBUTANIZED PROD | | 91.88 | 92.68 | 92.25 | 93.85 | 92.84 | 92.83 |
| CRUDE CAPACITY | | 131 | 460 | 1,056 | 1,129 | 1,038 | 3,814 |
| NO OF REFINERIES | | 6 | 10 | 16 | 9 | 4 | 45 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5+C6 FEED) | | | | | 12 | | 12 |
| CRUDE CAPACITY | | | | | 136 | | 136 |
| NO OF REFINERIES | | | | | 1 | | 1 |
| RONC OF DEBUTANIZED PROD | | | | | 83.00 | | 83.00 |
| CRUDE CAPACITY | | | | | 136 | | 136 |
| NO OF REFINERIES | | | | | 1 | | 1 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | ****** | ****** | ****** | 7 | 12 | | 28 |
| CRUDE CAPACITY | ****** | ****** | ****** | 267 | 748 | | 1,211 |
| NO OF REFINERIES | 1 | 2 | 3 | 4 | 6 | | 16 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 2
AS OF JANUARY 1, 1979

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | ****** | ****** | ****** | 95.43 | 94.63 | | 95.35 |
| CRUDE CAPACITY | ****** | ****** | ****** | 267 | 748 | | 1,211 |
| NO OF REFINERIES | 1 | 2 | 3 | 4 | 6 | | 16 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | ****** | ****** | 98 | 261 | 288 | 242 | 925 |
| CRUDE CAPACITY | ****** | ****** | 376 | 1,056 | 1,297 | 1,038 | 3,947 |
| NO OF REFINERIES | 2 | 7 | 8 | 16 | 10 | 4 | 47 |
| OTHER NAPHTHA | | | ****** | ****** | 20 | | 30 |
| CRUDE CAPACITY | | | ****** | ****** | 396 | | 604 |
| NO OF REFINERIES | | | 1 | 3 | 3 | | 7 |
| CAT CRACKING CHRGE STOCK | | | ****** | 117 | ****** | ****** | 242 |
| CRUDE CAPACITY | | | ****** | 395 | ****** | ****** | 1,363 |
| NO OF REFINERIES | | | 1 | 6 | 2 | 2 | 11 |
| OTHER HEAVY GAS OIL | | | | | ****** | ****** | 23 |
| CRUDE CAPACITY | | | | | ****** | ****** | 790 |
| NO OF REFINERIES | | | | | 1 | 2 | 3 |
| DISTILLATE | ****** | | ****** | ****** | 187 | ****** | 494 |
| CRUDE CAPACITY | ****** | | ****** | ****** | 889 | ****** | 2,850 |
| NO OF REFINERIES | 1 | | 5 | 10 | 7 | 4 | 27 |
| TOTAL ( CA THRU CF) | ****** | ****** | 127 | 498 | 586 | 461 | 1,714 |
| CRUDE CAPACITY | ****** | ****** | 418 | 1,056 | 1,297 | 1,038 | 3,989 |
| NO OF REFINERIES | 2 | 7 | 9 | 16 | 10 | 4 | 48 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | | | ****** | ****** | ****** | ****** | 140 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,049 |
| NO OF REFINERIES | | | 1 | 2 | 3 | 2 | 8 |
| CONVERSION PCT (430 F EP) | | | ****** | ****** | ****** | ****** | 103.95 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,049 |
| NO OF REFINERIES | | | 1 | 2 | 3 | 2 | 8 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 2
AS OF JANUARY 1, 1979

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | | ****** | ****** | | | 20 |
| CRUDE CAPACITY | ****** | | ****** | ****** | | | 189 |
| NO OF REFINERIES | 1 | | 2 | 1 | | | 4 |
| COKING - FEED RATE | | ****** | ****** | 77 | 98 | ****** | 280 |
| CRUDE CAPACITY | | ****** | ****** | 411 | 801 | ****** | 2,115 |
| NO OF REFINERIES | | 2 | 2 | 6 | 6 | 3 | 19 |
| COKING - MAKE ST/CD | | ****** | ****** | 2,388 | 4,789 | ****** | 12,091 |
| CRUDE CAPACITY | | ****** | ****** | 411 | 801 | ****** | 2,115 |
| NO OF REFINERIES | | 2 | 2 | 6 | 6 | 3 | 19 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | | | ****** | 93 | ****** | 103 |
| CRUDE CAPACITY | | | | ****** | 376 | ****** | 625 |
| NO OF REFINERIES | | | | 1 | 3 | 1 | 5 |
| OTHER | | | | | ****** | ****** | ****** |
| NO OF REFINERIES | | | | | 2 | 1 | 3 |
| SULFUR RECOVERY(LT/CD) | | | ****** | 544 | 1,076 | ****** | 2,546 |
| CRUDE CAPACITY | | | ****** | 749 | 1,051 | ****** | 3,163 |
| NO OF REFINERIES | | | 7 | 11 | 8 | 4 | 30 |

Table 4.6.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1979

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 121 | 410 | 347 | 853 | 878 | 4,697 | 7,306 |
| CRUDE CAPACITY | 121 | 410 | 347 | 853 | 878 | 4,697 | 7,306 |
| NO OF REFINERIES | 20 | 20 | 9 | 11 | 7 | 14 | 81 |
| VACUUM DISTILLATION | 16 | 35 | 110 | 230 | 269 | 1,766 | 2,425 |
| CRUDE CAPACITY | 31 | 105 | 270 | 756 | 878 | 4,697 | 6,737 |
| NO OF REFINERIES | 6 | 5 | 7 | 10 | 7 | 14 | 49 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 8 | 61 | 67 | 218 | 190 | 954 | 1,497 |
| CRUDE CAPACITY | 27 | 260 | 275 | 783 | 878 | 4,697 | 6,920 |
| NO OF REFINERIES | 4 | 12 | 7 | 10 | 7 | 14 | 54 |
| AT 95 RONC | ****** | 44 | ****** | 199 | 164 | 860 | 1,303 |
| CRUDE CAPACITY | ****** | 211 | ****** | 783 | 878 | 4,697 | 6,741 |
| NO OF REFINERIES | 2 | 9 | 4 | 10 | 7 | 14 | 46 |
| AT 98 RONC | ****** | 39 | ****** | 167 | 86 | 704 | 1,013 |
| CRUDE CAPACITY | ****** | 194 | ****** | 718 | 619 | 3,590 | 5,210 |
| NO OF REFINERIES | 1 | 8 | 2 | 9 | 5 | 11 | 36 |
| AT 100 RONC | | ****** | ****** | 128 | 59 | 641 | 857 |
| CRUDE CAPACITY | | ****** | ****** | 661 | 509 | 3,590 | 4,922 |
| NO OF REFINERIES | | 4 | 2 | 8 | 4 | 11 | 29 |
| BTX RECOVERY CAP (AROM P) | | ****** | ****** | 21 | ****** | 110 | 159 |
| CRUDE CAPACITY | | ****** | ****** | 449 | ****** | 3,302 | 4,512 |
| NO OF REFINERIES | | 2 | 3 | 6 | 5 | 10 | 26 |
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | ****** | ****** | 339 | 273 | 1,336 | 2,030 |
| CRUDE CAPACITY | | ****** | ****** | 853 | 878 | 4,497 | 6,484 |
| NO OF REFINERIES | | 8 | 2 | 11 | 7 | 13 | 41 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1979

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CONVERSION (VOL PCT) | | ****** | ****** | 75.51 | 69.85 | 71.78 | 72.42 |
| CRUDE CAPACITY | | ****** | ****** | 853 | 878 | 4,497 | 6,484 |
| NO OF REFINERIES | | 8 | 2 | 11 | 7 | 13 | 41 |
| RONC OF DEBUT CAT NAPHTHA | | ****** | ****** | 89.88 | 89.41 | 89.55 | 89.57 |
| CRUDE CAPACITY | | ****** | ****** | 853 | 878 | 4,497 | 6,484 |
| NO OF REFINERIES | | 8 | 2 | 11 | 7 | 13 | 41 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | ****** | ****** | ****** | 33 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 1,070 |
| NO OF REFINERIES | | | | 2 | 2 | 2 | 6 |
| D P VOL (MIX FEED) | | ****** | ****** | 73 | ****** | 202 | 333 |
| CRUDE CAPACITY | | ****** | ****** | 701 | ****** | 3,809 | 5,258 |
| NO OF REFINERIES | | 6 | 2 | 9 | 4 | 11 | 32 |
| RONC OF DEBUTANIZED PROD | | ****** | ****** | 92.11 | 92.51 | 92.71 | 92.52 |
| CRUDE CAPACITY | | ****** | ****** | 853 | 759 | 4,497 | 6,328 |
| NO OF REFINERIES | | 6 | 2 | 11 | 6 | 13 | 38 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5 FEED) | | | | 21 | | 25 | 46 |
| CRUDE CAPACITY | | | | 194 | | 660 | 854 |
| NO OF REFINERIES | | | | 2 | | 2 | 4 |
| RONC OF DEBUTANIZED PROD | | | | 93.01 | | 84.12 | 88.17 |
| CRUDE CAPACITY | | | | 194 | | 660 | 854 |
| NO OF REFINERIES | | | | 2 | | 2 | 4 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | | ****** | | ****** | ****** | ****** | 5 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | ****** | 837 |
| NO OF REFINERIES | | 3 | | 1 | 2 | 1 | 7 |

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1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1979

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | | ****** | | ****** | ****** | ****** | 92.99 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | ****** | 837 |
| NO OF REFINERIES | | 3 | | 1 | 2 | 1 | 7 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | ****** | ****** | 81 | 230 | 190 | 857 | 1,436 |
| CRUDE CAPACITY | ****** | ****** | 275 | 783 | 878 | 4,197 | 6,407 |
| NO OF REFINERIES | 1 | 12 | 7 | 10 | 7 | 13 | 50 |
| OTHER NAPHTHA | | | ****** | ****** | ****** | ****** | 88 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,234 |
| NO OF REFINERIES | | | 1 | 2 | 2 | 3 | 8 |
| CAT CRACKING CHRGE STOCK | | | ****** | ****** | ****** | ****** | 329 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 2,369 |
| NO OF REFINERIES | | | 1 | 1 | 2 | 6 | 10 |
| OTHER HEAVY GAS OIL | | | | | | 112 | 112 |
| CRUDE CAPACITY | | | | | | 1,301 | 1,301 |
| NO OF REFINERIES | | | | | | 4 | 4 |
| DISTILLATE | | ****** | ****** | 86 | ****** | 879 | 1,090 |
| CRUDE CAPACITY | | ****** | ****** | 391 | ****** | 4,467 | 5,680 |
| NO OF REFINERIES | | 2 | 3 | 5 | 5 | 13 | 28 |
| RESIDUAL DESULFURIZATION | | | | | | 74 | 74 |
| CRUDE CAPACITY | | | | | | 640 | 640 |
| NO OF REFINERIES | | | | | | 1 | 1 |
| TOTAL ( CA THRU CF) | ****** | ****** | 107 | 342 | 383 | 2,209 | 3,128 |
| CRUDE CAPACITY | ****** | ****** | 275 | 783 | 878 | 4,697 | 6,907 |
| NO OF REFINERIES | 1 | 12 | 7 | 10 | 7 | 14 | 51 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1979

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | | | ****** | | | ****** | 151 |
| CRUDE CAPACITY | | | ****** | | | ****** | 2,602 |
| NO OF REFINERIES | | | 1 | | | 6 | 7 |
| CAPACITY (HVY GAS O FEED) | | ****** | | | ****** | 74 | 106 |
| CRUDE CAPACITY | | ****** | | | ****** | 1,255 | 1,413 |
| NO OF REFINERIES | | 2 | | | 1 | 3 | 6 |
| CONVERSION PCT (430 F EP) | | ****** | ****** | | ****** | 94.62 | 94.15 |
| CRUDE CAPACITY | | ****** | ****** | | ****** | 2,538 | 2,735 |
| NO OF REFINERIES | | 2 | 1 | | 1 | 7 | 11 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | | ****** | | ****** | | ****** | 100 |
| CRUDE CAPACITY | | ****** | | ****** | | ****** | 914 |
| NO OF REFINERIES | | 1 | | 2 | | 2 | 5 |
| VISBREAKING | | ****** | | ****** | ****** | ****** | 77 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | ****** | 1,177 |
| NO OF REFINERIES | | 1 | | 2 | 4 | 2 | 9 |
| COKING - FEED RATE | | ****** | | 24 | ****** | 226 | 277 |
| CRUDE CAPACITY | | ****** | | 244 | ****** | 2,839 | 3,264 |
| NO OF REFINERIES | | 3 | | 3 | 1 | 9 | 16 |
| COKING - MAKE ST/CD | | ****** | | 1,020 | ****** | 10,694 | 12,324 |
| CRUDE CAPACITY | | ****** | | 244 | ****** | 2,839 | 3,264 |
| NO OF REFINERIES | | 3 | | 3 | 1 | 9 | 16 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | ****** | | ****** | | ****** | 390 | 458 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | 1,945 | 2,145 |
| NO OF REFINERIES | 1 | | 2 | | 1 | 6 | 10 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1979

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| SULFUR RECOVERY(LT/CD) | | 33 | 62 | 525 | 437 | 3,755 | 4,812 |
| CRUDE CAPACITY | | 85 | 121 | 539 | 738 | 4,372 | 5,855 |
| NO OF REFINERIES | | 3 | 3 | 7 | 6 | 13 | 32 |

Table C.4.6.4

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 4
AS OF JANUARY 1, 1979

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 34 | 173 | 358 | | | | 564 |
| CRUDE CAPACITY | 34 | 173 | 358 | | | | 564 |
| NO OF REFINERIES | 7 | 9 | 8 | | | | 24 |
| VACUUM DISTILLATION | 4 | 64 | 136 | | | | 204 |
| CRUDE CAPACITY | 16 | 173 | 319 | | | | 507 |
| NO OF REFINERIES | 3 | 9 | 7 | | | | 19 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 4 | 30 | 73 | | | | 107 |
| CRUDE CAPACITY | 20 | 173 | 358 | | | | 551 |
| NO OF REFINERIES | 3 | 9 | 8 | | | | 20 |
| AT 95 RONC | 4 | 25 | 64 | | | | 92 |
| CRUDE CAPACITY | 20 | 131 | 319 | | | | 470 |
| NO OF REFINERIES | 3 | 7 | 7 | | | | 17 |
| AT 98 RONC | ****** | ****** | 46 | | | | 71 |
| CRUDE CAPACITY | ****** | ****** | 239 | | | | 385 |
| NO OF REFINERIES | 2 | 7 | 5 | | | | 14 |
| AT 100 RONC | 2 | 15 | 40 | | | | 57 |
| CRUDE CAPACITY | 15 | 107 | 239 | | | | 361 |
| NO OF REFINERIES | 2 | 6 | 5 | | | | 13 |
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | ****** | ****** | 113 | | | | 166 |
| CRUDE CAPACITY | ****** | ****** | 358 | | | | 519 |
| NO OF REFINERIES | 2 | 7 | 8 | | | | 17 |
| CONVERSION (VOL PCT) | ****** | ****** | 74.55 | | | | 75.64 |
| CRUDE CAPACITY | ****** | ****** | 358 | | | | 495 |
| NO OF REFINERIES | 2 | 6 | 8 | | | | 16 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 4
AS OF JANUARY 1, 1979

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUT CAT NAPHTHA | ****** | ****** | 90.86 | | | | 90.00 |
| CRUDE CAPACITY | ****** | ****** | 358 | | | | 495 |
| NO OF REFINERIES | 2 | 6 | 8 | | | | 16 |
| ALKYLATION | | | | | | | |
| D P VOL (MIX FEED) | | ****** | ****** | | | | 27 |
| CRUDE CAPACITY | | ****** | ****** | | | | 409 |
| NO OF REFINERIES | | 4 | 7 | | | | 11 |
| RONC OF DEBUTANIZED PROD | | ****** | ****** | | | | 93.32 |
| CRUDE CAPACITY | | ****** | ****** | | | | 409 |
| NO OF REFINERIES | | 4 | 7 | | | | 11 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | ****** | 2 | ****** | | | | 3 |
| CRUDE CAPACITY | ****** | 63 | ****** | | | | 146 |
| NO OF REFINERIES | 2 | 3 | 1 | | | | 6 |
| RONC OF DEBUTANIZED PROD | ****** | 94.08 | ****** | | | | 94.50 |
| CRUDE CAPACITY | ****** | 63 | ****** | | | | 146 |
| NO OF REFINERIES | 2 | 3 | 1 | | | | 6 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | 7 | 35 | 84 | | | | 126 |
| CRUDE CAPACITY | 20 | 143 | 358 | | | | 521 |
| NO OF REFINERIES | 3 | 7 | 8 | | | | 18 |
| DISTILLATE | ****** | ****** | 82 | | | | 99 |
| CRUDE CAPACITY | ****** | ****** | 272 | | | | 388 |
| NO OF REFINERIES | 2 | 5 | 6 | | | | 13 |
| TOTAL ( CA THRU CF) | ****** | ****** | 166 | | | | 225 |
| CRUDE CAPACITY | ****** | ****** | 358 | | | | 521 |
| NO OF REFINERIES | 3 | 7 | 8 | | | | 18 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 4
AS OF JANUARY 1, 1979

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | 1 | | 4 | | | | 5 |
| CRUDE CAPACITY | 9 | | 45 | | | | 54 |
| NO OF REFINERIES | 1 | | 1 | | | | 2 |
| CONVERSION PCT (430 F EP) | 100.00 | | 100.00 | | | | 100.00 |
| CRUDE CAPACITY | 9 | | 45 | | | | 54 |
| NO OF REFINERIES | 1 | | 1 | | | | 2 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | | | | | | ****** |
| NO OF REFINERIES | 1 | | | | | | 1 |
| COKING - FEED RATE | | ****** | ****** | | | | 17 |
| CRUDE CAPACITY | | ****** | ****** | | | | 111 |
| NO OF REFINERIES | | 1 | 2 | | | | 3 |
| COKING - MAKE ST/CD | | ****** | ****** | | | | 725 |
| CRUDE CAPACITY | | ****** | ****** | | | | 111 |
| NO OF REFINERIES | | 1 | 2 | | | | 3 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | ****** | ****** | | | | 15 |
| CRUDE CAPACITY | | ****** | ****** | | | | 58 |
| NO OF REFINERIES | | 1 | 1 | | | | 2 |
| SULFUR RECOVERY(LT/CD) | | ****** | ****** | | | | 186 |
| CRUDE CAPACITY | | ****** | ****** | | | | 296 |
| NO OF REFINERIES | | 1 | 6 | | | | 7 |

Table C.4.6.5

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 5
AS OF JANUARY 1, 1979

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 54 | 269 | 289 | 610 | ****** | ****** | 2,917 |
| CRUDE CAPACITY | 54 | 276 | 289 | 635 | ****** | ****** | 2,990 |
| NO OF REFINERIES | 9 | 13 | 7 | 8 | 7 | 3 | 47 |
| OTHER CRUDE CHARGE UNITS | | ****** | | ****** | ****** | | 84 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | | 362 |
| NO OF REFINERIES | | 2 | | 1 | 2 | | 5 |
| VACUUM DISTILLATION | 8 | ****** | 108 | 143 | 456 | ****** | 1,194 |
| CRUDE CAPACITY | 25 | ****** | 205 | 391 | 787 | ****** | 2,425 |
| NO OF REFINERIES | 3 | 3 | 5 | 5 | 7 | 3 | 26 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | | ****** | 41 | 168 | 214 | ****** | 613 |
| CRUDE CAPACITY | | ****** | 179 | 635 | 787 | ****** | 2,677 |
| NO OF REFINERIES | | 6 | 4 | 8 | 7 | 3 | 28 |
| AT 95 RONC | | 21 | ****** | 155 | 211 | ****** | 584 |
| CRUDE CAPACITY | | 126 | ****** | 635 | 787 | ****** | 2,677 |
| NO OF REFINERIES | | 6 | 4 | 8 | 7 | 3 | 28 |
| AT 98 RONC | | 15 | ****** | 145 | 150 | ****** | 493 |
| CRUDE CAPACITY | | 88 | ****** | 635 | 681 | ****** | 2,533 |
| NO OF REFINERIES | | 4 | 4 | 8 | 6 | 3 | 25 |
| AT 100 RONC | | 15 | ****** | 119 | 87 | ****** | 351 |
| CRUDE CAPACITY | | 88 | ****** | 584 | 451 | ****** | 2,023 |
| NO OF REFINERIES | | 4 | 3 | 7 | 4 | 2 | 20 |
| BTX RECOVERY CAP (AROM P) | | | | | | 6 | 6 |
| CRUDE CAPACITY | | | | | | 950 | 950 |
| NO OF REFINERIES | | | | | | 3 | 3 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 5
AS OF JANUARY 1, 1979

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | | ****** | ****** | 219 | ****** | 589 |
| CRUDE CAPACITY | | | ****** | ****** | 570 | ****** | 2,139 |
| NO OF REFINERIES | | | 3 | 6 | 5 | 3 | 17 |
| CONVERSION (VOL PCT) | | | ****** | ****** | 74.04 | ****** | 71.56 |
| CRUDE CAPACITY | | | ****** | ****** | 462 | ****** | 2,031 |
| NO OF REFINERIES | | | 3 | 6 | 4 | 3 | 16 |
| RONC OF DEBUT CAT NAPHTHA | | | ****** | ****** | 92.00 | ****** | 91.18 |
| CRUDE CAPACITY | | | ****** | ****** | 462 | ****** | 2,031 |
| NO OF REFINERIES | | | 3 | 6 | 4 | 3 | 16 |
| ALKYLATION | | | | | | | |
| D P VOL (MIX FEED) | | | ****** | ****** | 45 | ****** | 115 |
| CRUDE CAPACITY | | | ****** | ****** | 570 | ****** | 2,139 |
| NO OF REFINERIES | | | 3 | 6 | 5 | 3 | 17 |
| RONC OF DEBUTANIZED PROD | | | 91.39 | ****** | 93.13 | ****** | 93.00 |
| CRUDE CAPACITY | | | 128 | ****** | 570 | ****** | 2,139 |
| NO OF REFINERIES | | | 3 | 6 | 5 | 3 | 17 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | | ****** | | ****** | | ****** | 2 |
| CRUDE CAPACITY | | ****** | | ****** | | ****** | 270 |
| NO OF REFINERIES | | 1 | | 1 | | 1 | 3 |
| RONC OF DEBUTANIZED PROD | | ****** | | ****** | | ****** | 91.82 |
| CRUDE CAPACITY | | ****** | | ****** | | ****** | 270 |
| NO OF REFINERIES | | 1 | | 1 | | 1 | 3 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | | ****** | 33 | 133 | 177 | ****** | 520 |
| CRUDE CAPACITY | | ****** | 179 | 635 | 787 | ****** | 2,665 |
| NO OF REFINERIES | | 5 | 4 | 8 | 7 | 3 | 27 |

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PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 5
AS OF JANUARY 1. 1979

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| OTHER NAPHTHA | | | ****** | ****** | ****** | ****** | 97 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,690 |
| NO OF REFINERIES | | | 2 | 2 | 4 | 3 | 11 |
| CAT CRACKING CHRGE STOCK | | | ****** | ****** | ****** | ****** | 187 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,108 |
| NO OF REFINERIES | | | 1 | 2 | 1 | 2 | 6 |
| DISTILLATE | | ****** | ****** | 109 | 136 | ****** | 383 |
| CRUDE CAPACITY | | ****** | ****** | 491 | 765 | ****** | 2,318 |
| NO OF REFINERIES | | 1 | 2 | 6 | 7 | 3 | 19 |
| RESIDUAL DESULFURIZATION | | | | | | 21 | 21 |
| CRUDE CAPACITY | | | | | | 405 | 405 |
| NO OF REFINERIES | | | | | | 1 | 1 |
| TOTAL ( CA THRU CF) | | ****** | 62 | 305 | 398 | ****** | 1,208 |
| CRUDE CAPACITY | | ****** | 223 | 635 | 787 | ****** | 2,709 |
| NO OF REFINERIES | | 5 | 5 | 8 | 7 | 3 | 28 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | | | ****** | ****** | ****** | ****** | 167 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 939 |
| NO OF REFINERIES | | | 1 | 3 | 4 | 1 | 9 |
| CAPACITY (HVY GAS O FEED) | | | | ****** | ****** | ****** | 169 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 1,065 |
| NO OF REFINERIES | | | | 1 | 2 | 2 | 5 |
| CONVERSION PCT (430 F EP) | | | ****** | ****** | 97.44 | ****** | 88.34 |
| CRUDE CAPACITY | | | ****** | ****** | 679 | ****** | 2,004 |
| NO OF REFINERIES | | | 1 | 4 | 6 | 3 | 14 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 5
AS OF JANUARY 1, 1979

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | | ****** | | | | ****** | ****** |
| NO OF REFINERIES | | 1 | | | | 1 | 2 |
| VISBREAKING | | ****** | | ****** | ****** | ****** | 102 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | ****** | 562 |
| NO OF REFINERIES | | 2 | | 2 | 2 | 1 | 7 |
| COKING - FEED RATE | | | ****** | ****** | 184 | ****** | 352 |
| CRUDE CAPACITY | | | ****** | ****** | 575 | ****** | 1,429 |
| NO OF REFINERIES | | | 2 | 2 | 5 | 2 | 11 |
| COKING - MAKE ST/CD | | | ****** | ****** | 8,700 | ****** | 16,570 |
| CRUDE CAPACITY | | | ****** | ****** | 575 | ****** | 1,429 |
| NO OF REFINERIES | | | 2 | 2 | 5 | 2 | 11 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | | ****** | ****** | 353 | ****** | 721 |
| CRUDE CAPACITY | | | ****** | ****** | 679 | ****** | 1,863 |
| NO OF REFINERIES | | | 2 | 2 | 6 | 3 | 13 |
| OTHER | | | | 58 | | ****** | ****** |
| NO OF REFINERIES | | | | 3 | | 1 | 4 |
| SULFUR RECOVERY(LT/CD) | | ****** | ****** | 647 | 1,221 | ****** | 3,464 |
| CRUDE CAPACITY | | ****** | ****** | 400 | 679 | ****** | 2,212 |
| NO OF REFINERIES | | 1 | 4 | 5 | 6 | 3 | 19 |

Table C.4.7.1

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10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 1
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 50 | 84 | | 468 | ****** | ****** | 1,927 |
| CRUDE CAPACITY | 50 | 84 | | 468 | ****** | ****** | 1,927 |
| NO OF REFINERIES | 8 | 6 | | 8 | 4 | 3 | 29 |
| VACUUM DISTILLATION | 19 | ****** | | 185 | 324 | ****** | 862 |
| CRUDE CAPACITY | 36 | ****** | | 383 | 644 | ****** | 1,770 |
| NO OF REFINERIES | 6 | 2 | | 6 | 4 | 3 | 21 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | ****** | ****** | | 83 | 168 | 144 | 403 |
| CRUDE CAPACITY | ****** | ****** | | 383 | 644 | 681 | 1,745 |
| NO OF REFINERIES | 4 | 1 | | 6 | 4 | 3 | 18 |
| AT 95 RONC | | | | 81 | 164 | 138 | 383 |
| CRUDE CAPACITY | | | | 383 | 644 | 681 | 1,708 |
| NO OF REFINERIES | | | | 6 | 4 | 3 | 13 |
| AT 98 RONC | | | | 78 | 157 | 112 | 347 |
| CRUDE CAPACITY | | | | 383 | 644 | 681 | 1,708 |
| NO OF REFINERIES | | | | 6 | 4 | 3 | 13 |
| AT 100 RONC | | | | 71 | 107 | 100 | 278 |
| CRUDE CAPACITY | | | | 383 | 480 | 681 | 1,544 |
| NO OF REFINERIES | | | | 6 | 3 | 3 | 12 |
| BTX RECOVERY CAP (AROM P) | | | | ****** | ****** | ****** | 18 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 670 |
| NO OF REFINERIES | | | | 2 | 2 | 1 | 5 |
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | | | ****** | 213 | ****** | 551 |
| CRUDE CAPACITY | | | | ****** | 644 | ****** | 1,523 |
| NO OF REFINERIES | | | | 6 | 4 | 2 | 12 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 1
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CONVERSION (VOL PCT) | | | | ****** | 75.67 | ****** | 69.31 |
| CRUDE CAPACITY | | | | ****** | 644 | ****** | 1,523 |
| NO OF REFINERIES | | | | 6 | 4 | 2 | 12 |
| RONC OF DEBUT CAT NAPHTHA | | | | ****** | 90.87 | ****** | 89.36 |
| CRUDE CAPACITY | | | | ****** | 644 | ****** | 1,523 |
| NO OF REFINERIES | | | | 6 | 4 | 2 | 12 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | 7 | 22 | | 29 |
| CRUDE CAPACITY | | | | 245 | 480 | | 725 |
| NO OF REFINERIES | | | | 3 | 3 | | 6 |
| D P VOL (MIX FEED) | | | | ****** | ****** | ****** | 33 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 745 |
| NO OF REFINERIES | | | | 2 | 1 | 2 | 5 |
| RONC OF DEBUTANIZED PROD | | | | ****** | 93.64 | ****** | 93.74 |
| CRUDE CAPACITY | | | | ****** | 644 | ****** | 1,470 |
| NO OF REFINERIES | | | | 5 | 4 | 2 | 11 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | | | | ****** | ****** | | 11 |
| CRUDE CAPACITY | | | | ****** | ****** | | 387 |
| NO OF REFINERIES | | | | 4 | 1 | | 5 |
| RONC OF DEBUTANIZED PROD | | | | ****** | ****** | | 90.80 |
| CRUDE CAPACITY | | | | ****** | ****** | | 387 |
| NO OF REFINERIES | | | | 4 | 1 | | 5 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | ****** | ****** | | 92 | 215 | ****** | 488 |
| CRUDE CAPACITY | ****** | ****** | | 383 | 644 | ****** | 1,759 |
| NO OF REFINERIES | 6 | 1 | | 6 | 4 | 3 | 20 |

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PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 1
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CAT CRACKING CHRGE STOCK | | | | ****** | ****** | ****** | 135 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 686 |
| NO OF REFINERIES | | | | 1 | 2 | 1 | 4 |
| OTHER HEAVY GAS OIL | | | | | ****** | ****** | 55 |
| CRUDE CAPACITY | | | | | ****** | ****** | 525 |
| NO OF REFINERIES | | | | | 2 | 1 | 3 |
| DISTILLATE | | | | ****** | ****** | 191 | 375 |
| CRUDE CAPACITY | | | | ****** | ****** | 681 | 1,601 |
| NO OF REFINERIES | | | | 4 | 4 | 3 | 11 |
| TOTAL ( CA THRU CF) | ****** | ****** | | 174 | 437 | ****** | 1,052 |
| CRUDE CAPACITY | ****** | ****** | | 383 | 644 | ****** | 1,759 |
| NO OF REFINERIES | 6 | 1 | | 6 | 4 | 3 | 20 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (HVY GAS O FEED) | 4 | | | | ****** | ****** | 73 |
| CRUDE CAPACITY | 10 | | | | ****** | ****** | 499 |
| NO OF REFINERIES | 1 | | | | 2 | 1 | 4 |
| CONVERSION PCT (430 F EP) | 3.00 | | | | ****** | ****** | 78.07 |
| CRUDE CAPACITY | 10 | | | | ****** | ****** | 499 |
| NO OF REFINERIES | 1 | | | | 2 | 1 | 4 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | | | | ****** | | | ****** |
| NO OF REFINERIES | | | | 1 | | | 1 |
| COKING - FEED RATE | | | | ****** | ****** | | 74 |
| CRUDE CAPACITY | | | | ****** | ****** | | 286 |
| NO OF REFINERIES | | | | 2 | 1 | | 3 |
| COKING - MAKE ST/CD | | | | ****** | ****** | | 3,110 |
| CRUDE CAPACITY | | | | ****** | ****** | | 286 |
| NO OF REFINERIES | | | | 2 | 1 | | 3 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 1
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | ****** | ****** | | | ****** | ****** | 111 |
| CRUDE CAPACITY | ****** | ****** | | | ****** | ****** | 348 |
| NO OF REFINERIES | 1 | 1 | | | 1 | 1 | 4 |
| SULFUR RECOVERY(LT/CD) | | | | 301 | 680 | 640 | 1,621 |
| CRUDE CAPACITY | | | | 298 | 472 | 681 | 1,451 |
| NO OF REFINERIES | | | | 4 | 3 | 3 | 10 |

Table C.4.7.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAO 2
AS OF JANUARY 1, 1980

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 64 | 228 | 413 | 1,117 | 1,167 | 1,278 | 4,267 |
| CRUDE CAPACITY | 64 | 228 | 413 | 1,117 | 1,167 | 1,278 | 4,267 |
| NO OF REFINERIES | 11 | 11 | 9 | 17 | 9 | 5 | 62 |
| VACUUM DISTILLATION | 9 | 65 | 110 | 348 | 446 | 483 | 1,461 |
| CRUDE CAPACITY | 23 | 173 | 321 | 1,065 | 1,167 | 1,278 | 4,027 |
| NO OF REFINERIES | 3 | 8 | 7 | 16 | 9 | 5 | 48 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | ****** | ****** | 115 | 267 | 257 | ****** | 997 |
| CRUDE CAPACITY | ****** | ****** | 413 | 1,117 | 1,167 | ****** | 4,178 |
| NO OF REFINERIES | 2 | 9 | 9 | 17 | 9 | 5 | 51 |
| AT 95 RONC | ****** | 25 | 102 | 257 | 237 | ****** | 941 |
| CRUDE CAPACITY | ****** | 159 | 413 | 1,117 | 1,040 | ****** | 4,012 |
| NO OF REFINERIES | 1 | 7 | 9 | 17 | 8 | 5 | 47 |
| AT 98 RONC | | ****** | 86 | 191 | 173 | ****** | 766 |
| CRUDE CAPACITY | | ****** | 363 | 884 | 1,040 | ****** | 3,688 |
| NO OF REFINERIES | | 5 | 8 | 13 | 8 | 5 | 39 |
| AT 100 RONC | | ****** | 65 | 121 | 112 | ****** | 556 |
| CRUDE CAPACITY | | ****** | 275 | 688 | 569 | ****** | 2,932 |
| NO OF REFINERIES | | 5 | 6 | 10 | 4 | 5 | 30 |
| BTX RECOVERY CAP (ARDM P) | | | | ****** | ****** | ****** | 41 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 1,348 |
| NO OF REFINERIES | | | | 2 | 2 | 3 | 7 |
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | ****** | ****** | 152 | 414 | 418 | 398 | 1,455 |
| CRUDE CAPACITY | ****** | ****** | 413 | 1,117 | 1,167 | 1,278 | 4,161 |
| NO OF REFINERIES | 1 | 8 | 9 | 17 | 9 | 5 | 49 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 2
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CONVERSION (VOL PCT) | ****** | ****** | 75.61 | 74.94 | 73.74 | 74.40 | 74.52 |
| CRUDE CAPACITY | ****** | ****** | 413 | 1,117 | 1,167 | 1,278 | 4,135 |
| NO OF REFINERIES | 1 | 7 | 9 | 17 | 9 | 5 | 48 |
| RONC OF DEBUT CAT NAPHTHA | ****** | ****** | 90.45 | 89.75 | 91.12 | 91.26 | 90.63 |
| CRUDE CAPACITY | ****** | ****** | 413 | 1,117 | 1,167 | 1,278 | 4,135 |
| NO OF REFINERIES | 1 | 7 | 9 | 17 | 9 | 5 | 48 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | ****** | ****** | | 34 |
| CRUDE CAPACITY | | | | ****** | ****** | | 600 |
| NO OF REFINERIES | | | | 2 | 4 | | 6 |
| D P VOL (MIX FEED) | | 12 | 31 | 93 | 37 | 78 | 251 |
| CRUDE CAPACITY | | 131 | 413 | 997 | 520 | 1,278 | 3,339 |
| NO OF REFINERIES | | 6 | 9 | 15 | 4 | 5 | 39 |
| RONC OF DEBUTANIZED PROD | | 91.88 | 92.72 | 92.40 | 93.84 | 93.47 | 93.03 |
| CRUDE CAPACITY | | 131 | 413 | 1,117 | 999 | 1,278 | 3,939 |
| NO OF REFINERIES | | 6 | 9 | 17 | 8 | 5 | 45 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5+C6 FEED) | | | | 5 | | 12 | 17 |
| CRUDE CAPACITY | 5 | | | 54 | | 200 | 259 |
| NO OF REFINERIES | 1 | | | 1 | | 1 | 3 |
| RONC OF DEBUTANIZED PROD | 95.00 | | | 83.00 | | 83.00 | 83.17 |
| CRUDE CAPACITY | 5 | | | 54 | | 200 | 259 |
| NO OF REFINERIES | 1 | | | 1 | | 1 | 3 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | ****** | ****** | 3 | 7 | 8 | ****** | 28 |
| CRUDE CAPACITY | ****** | ****** | 142 | 267 | 618 | ****** | 1,281 |
| NO OF REFINERIES | 1 | 2 | 3 | 4 | 5 | 1 | 16 |

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PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 2
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | ****** | ****** | 96.01 | 95.43 | 93.93 | ****** | 95.35 |
| CRUDE CAPACITY | ****** | ****** | 142 | 267 | 618 | ****** | 1,281 |
| NO OF REFINERIES | 1 | 2 | 3 | 4 | 5 | 1 | 16 |
| CATALYTIC HYDROTREATING REFORMER NAPHTHA | ****** | ****** | 80 | 299 | 261 | 313 | 990 |
| CRUDE CAPACITY | ****** | ****** | 326 | 1,117 | 1,167 | 1,278 | 4,082 |
| NO OF REFINERIES | 2 | 8 | 7 | 17 | 9 | 5 | 48 |
| OTHER NAPHTHA | | | ****** | ****** | ****** | ****** | 30 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 673 |
| NO OF REFINERIES | | | 1 | 3 | 2 | 1 | 7 |
| CAT CRACKING CHRGE STOCK | | | ****** | 121 | ****** | 99 | 261 |
| CRUDE CAPACITY | | | ****** | 395 | ****** | 903 | 1,467 |
| NO OF REFINERIES | | | 1 | 6 | 1 | 3 | 11 |
| OTHER HEAVY GAS OIL | | | | | ****** | ****** | 23 |
| CRUDE CAPACITY | | | | | ****** | ****** | 830 |
| NO OF REFINERIES | | | | | 1 | 2 | 3 |
| DISTILLATE | ****** | | ****** | ****** | 147 | ****** | 468 |
| CRUDE CAPACITY | ****** | | ****** | ****** | 759 | ****** | 2,971 |
| NO OF REFINERIES | 1 | | 4 | 11 | 6 | 5 | 27 |
| TOTAL ( CA THRU CF) | ****** | ****** | 106 | 537 | 474 | 612 | 1,771 |
| CRUDE CAPACITY | ****** | ****** | 368 | 1,117 | 1,167 | 1,278 | 4,124 |
| NO OF REFINERIES | 2 | 8 | 8 | 17 | 9 | 5 | 49 |
| CATALYTIC HYDROCRACKING U CAPACITY (DISTLLATE FEED) | | | ****** | ****** | ****** | ****** | 140 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,052 |
| NO OF REFINERIES | | | 1 | 2 | 3 | 2 | 8 |
| CONVERSION PCT (430 F EP) | | | ****** | ****** | ****** | ****** | 103.95 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,052 |
| NO OF REFINERIES | | | 1 | 2 | 3 | 2 | 8 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 2
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | | ****** | ****** | | | 20 |
| CRUDE CAPACITY | ****** | | ****** | ****** | | | 189 |
| NO OF REFINERIES | 1 | | 2 | 1 | | | 4 |
| COKING - FEED RATE | | ****** | ****** | 90 | 98 | ****** | 283 |
| CRUDE CAPACITY | | ****** | ****** | 470 | 807 | ****** | 2,170 |
| NO OF REFINERIES | | 2 | 1 | 7 | 6 | 3 | 19 |
| COKING - MAKE ST/CD | | ****** | ****** | 2,838 | 4,789 | ****** | 12,291 |
| CRUDE CAPACITY | | ****** | ****** | 470 | 807 | ****** | 2,170 |
| NO OF REFINERIES | | 2 | 1 | 7 | 6 | 3 | 19 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | | | ****** | ****** | ****** | 103 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 690 |
| NO OF REFINERIES | | | | 1 | 2 | 2 | 5 |
| OTHER | | | | | ****** | ****** | ****** |
| NO OF REFINERIES | | | | | 1 | 2 | 3 |
| SULFUR RECOVERY(LT/CD) | | | ****** | 562 | 876 | ****** | 2,559 |
| CRUDE CAPACITY | | | ****** | 864 | 915 | ****** | 3,333 |
| NO OF REFINERIES | | | 6 | 13 | 7 | 5 | 31 |

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PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 120 | 412 | 397 | 859 | 878 | 4,704 | 7,370 |
| CRUDE CAPACITY | 120 | 412 | 397 | 859 | 878 | 4,704 | 7,370 |
| NO OF REFINERIES | 19 | 21 | 10 | 11 | 7 | 14 | 82 |
| VACUUM DISTILLATION | 17 | 75 | 124 | 230 | 269 | 1,774 | 2,488 |
| CRUDE CAPACITY | 33 | 145 | 320 | 762 | 878 | 4,704 | 6,842 |
| NO OF REFINERIES | 6 | 7 | 8 | 10 | 7 | 14 | 52 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 11 | 58 | 87 | 238 | 223 | 1,020 | 1,636 |
| CRUDE CAPACITY | 31 | 254 | 324 | 789 | 878 | 4,704 | 6,980 |
| NO OF REFINERIES | 5 | 12 | 8 | 10 | 7 | 14 | 56 |
| AT 95 RONC | ****** | ****** | 51 | 226 | 200 | 925 | 1,450 |
| CRUDE CAPACITY | ****** | ****** | 207 | 789 | 878 | 4,704 | 6,801 |
| NO OF REFINERIES | 3 | 9 | 5 | 10 | 7 | 14 | 48 |
| AT 98 RONC | ****** | ****** | 32 | 192 | 140 | 795 | 1,200 |
| CRUDE CAPACITY | ****** | ****** | 130 | 717 | 759 | 3,960 | 5,751 |
| NO OF REFINERIES | 3 | 7 | 3 | 9 | 6 | 12 | 40 |
| AT 100 RONC | ****** | ****** | 25 | 156 | 102 | 732 | 1,034 |
| CRUDE CAPACITY | ****** | ****** | 130 | 661 | 649 | 3,960 | 5,494 |
| NO OF REFINERIES | 2 | 4 | 3 | 8 | 5 | 12 | 34 |
| BTX RECOVERY CAP (AROM P) | | ****** | ****** | 21 | 21 | 113 | 166 |
| CRUDE CAPACITY | | ****** | ****** | 455 | 619 | 3,291 | 4,507 |
| NO OF REFINERIES | | 2 | 3 | 6 | 5 | 10 | 26 |
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | 45 | 58 | 381 | 277 | 1,418 | 2,180 |
| CRUDE CAPACITY | | 147 | 165 | 859 | 878 | 4,704 | 6,753 |
| NO OF REFINERIES | | 7 | 4 | 11 | 7 | 14 | 43 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CONVERSION (VOL PCT) | | 77.56 | 78.72 | 78.19 | 69.85 | 72.26 | 73.27 |
| CRUDE CAPACITY | | 147 | 165 | 859 | 878 | 4,704 | 6,753 |
| NO OF REFINERIES | | 7 | 4 | 11 | 7 | 14 | 43 |
| RONC OF DEBUT CAT NAPHTHA | | 88.24 | 90.37 | 90.87 | 89.79 | 89.70 | 89.91 |
| CRUDE CAPACITY | | 147 | 165 | 859 | 878 | 4,704 | 6,753 |
| NO OF REFINERIES | | 7 | 4 | 11 | 7 | 14 | 43 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | ****** | ****** | ****** | 39 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 1,185 |
| NO OF REFINERIES | | | | 2 | 3 | 2 | 7 |
| D P VOL (MIX FEED) | | ****** | ****** | 81 | ****** | 221 | 365 |
| CRUDE CAPACITY | | ****** | ****** | 700 | ****** | 4,027 | 5,532 |
| NO OF REFINERIES | | 5 | 4 | 9 | 4 | 12 | 34 |
| RONC OF DEBUTANIZED PROD | | ****** | ****** | 92.39 | 92.60 | 92.71 | 92.61 |
| CRUDE CAPACITY | | ****** | ****** | 859 | 878 | 4,704 | 6,717 |
| NO OF REFINERIES | | 5 | 4 | 11 | 7 | 14 | 41 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5 FEED) | | | | 21 | | 47 | 68 |
| CRUDE CAPACITY | | | | 194 | | 950 | 1,144 |
| NO OF REFINERIES | | | | 2 | | 3 | 5 |
| RONC OF DEBUTANIZED PROD | | | | 93.01 | | 86.37 | 88.43 |
| CRUDE CAPACITY | | | | 194 | | 950 | 1,144 |
| NO OF REFINERIES | | | | 2 | | 3 | 5 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | | ****** | | ****** | ****** | ****** | 7 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | ****** | 837 |
| NO OF REFINERIES | | 3 | | 1 | 2 | 1 | 7 |

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PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | | ****** | | ****** | ****** | ****** | 94.21 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | ****** | 837 |
| NO OF REFINERIES | | 3 | | 1 | 2 | 1 | 7 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | ****** | ****** | 104 | 246 | 217 | 1,015 | 1,660 |
| CRUDE CAPACITY | ****** | ****** | 324 | 789 | 878 | 4,704 | 6,963 |
| NO OF REFINERIES | 1 | 12 | 8 | 10 | 7 | 14 | 52 |
| OTHER NAPHTHA | | | ****** | ****** | ****** | 52 | 91 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | 822 | 1,230 |
| NO OF REFINERIES | | | 1 | 2 | 2 | 3 | 8 |
| CAT CRACKING CHRGE STOCK | | | ****** | ****** | ****** | 236 | 329 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | 1,972 | 2,358 |
| NO OF REFINERIES | | | 1 | 1 | 2 | 6 | 10 |
| OTHER HEAVY GAS OIL | | | | | | 114 | 114 |
| CRUDE CAPACITY | | | | | | 1,308 | 1,308 |
| NO OF REFINERIES | | | | | | 4 | 4 |
| DISTILLATE | | ****** | ****** | 134 | ****** | 931 | 1,243 |
| CRUDE CAPACITY | | ****** | ****** | 494 | ****** | 4,474 | 5,791 |
| NO OF REFINERIES | | 2 | 3 | 6 | 5 | 13 | 29 |
| RESIDUAL DESULFURIZATION | | | | | | 74 | 74 |
| CRUDE CAPACITY | | | | | | 640 | 640 |
| NO OF REFINERIES | | | | | | 1 | 1 |
| TOTAL ( CA THRU CF) | ****** | ****** | 132 | 406 | 465 | 2,421 | 3,510 |
| CRUDE CAPACITY | ****** | ****** | 324 | 789 | 878 | 4,704 | 6,963 |
| NO OF REFINERIES | 1 | 12 | 8 | 10 | 7 | 14 | 52 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | | | ****** | | | ****** | 151 |
| CRUDE CAPACITY | | | ****** | | | ****** | 2,602 |
| NO OF REFINERIES | | | 1 | | | 6 | 7 |
| CAPACITY (HVY GAS O FEED) | | ****** | | | ****** | 74 | 106 |
| CRUDE CAPACITY | | ****** | | | ****** | 1,255 | 1,413 |
| NO OF REFINERIES | | 2 | | | 1 | 3 | 6 |
| CONVERSION PCT (430 F EP) | | ****** | ****** | | ****** | 94.62 | 94.15 |
| CRUDE CAPACITY | | ****** | ****** | | ****** | 2,538 | 2,735 |
| NO OF REFINERIES | | 2 | 1 | | 1 | 7 | 11 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | | | ****** | ****** | | ****** | 155 |
| CRUDE CAPACITY | | | ****** | ****** | | ****** | 935 |
| NO OF REFINERIES | | | 1 | 2 | | 2 | 5 |
| VISBREAKING | | ****** | | ****** | ****** | ****** | 81 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | ****** | 1,268 |
| NO OF REFINERIES | | 2 | | 2 | 3 | 3 | 10 |
| COKING - FEED RATE | | ****** | ****** | 24 | ****** | 242 | 286 |
| CRUDE CAPACITY | | ****** | ****** | 243 | ****** | 2,828 | 3,272 |
| NO OF REFINERIES | | 2 | 1 | 3 | 1 | 9 | 16 |
| COKING - MAKE ST/CD | | ****** | ****** | 1,020 | ****** | 11,894 | 13,605 |
| CRUDE CAPACITY | | ****** | ****** | 243 | ****** | 2,828 | 3,272 |
| NO OF REFINERIES | | 2 | 1 | 3 | 1 | 9 | 16 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | | ****** | | ****** | 390 | 458 |
| CRUDE CAPACITY | | | ****** | | ****** | 1,945 | 2,136 |
| NO OF REFINERIES | | | 2 | | 1 | 6 | 9 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 4
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUT CAT NAPHTHA | ****** | ****** | 91.28 | | | | 90.74 |
| CRUDE CAPACITY | ****** | ****** | 394 | | | | 519 |
| NO OF REFINERIES | 2 | 5 | 9 | | | | 16 |
| ALKYLATION | | | | | | | |
| D P VOL (MIX FEED) | | ****** | ****** | | | | 28 |
| CRUDE CAPACITY | | ****** | ****** | | | | 417 |
| NO OF REFINERIES | | 4 | 7 | | | | 11 |
| RONC OF DEBUTANIZED PROD | | ****** | ****** | | | | 93.36 |
| CRUDE CAPACITY | | ****** | ****** | | | | 417 |
| NO OF REFINERIES | | 4 | 7 | | | | 11 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | ****** | ****** | 2 | | | | 4 |
| CRUDE CAPACITY | ****** | ****** | 140 | | | | 204 |
| NO OF REFINERIES | 3 | 2 | 3 | | | | 8 |
| RONC OF DEBUTANIZED PROD | ****** | ****** | 94.47 | | | | 94.99 |
| CRUDE CAPACITY | ****** | ****** | 140 | | | | 204 |
| NO OF REFINERIES | 3 | 2 | 3 | | | | 8 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | 7 | 38 | 94 | | | | 139 |
| CRUDE CAPACITY | 20 | 149 | 394 | | | | 563 |
| NO OF REFINERIES | 3 | 7 | 9 | | | | 19 |
| DISTILLATE | ****** | ****** | 82 | | | | 99 |
| CRUDE CAPACITY | ****** | ****** | 273 | | | | 395 |
| NO OF REFINERIES | 2 | 5 | 6 | | | | 13 |
| TOTAL ( CA THRU CF) | ****** | ****** | 176 | | | | 238 |
| CRUDE CAPACITY | ****** | ****** | 394 | | | | 563 |
| NO OF REFINERIES | 3 | 7 | 9 | | | | 19 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 4
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | 1 | | 4 | | | | 5 |
| CRUDE CAPACITY | 9 | | 45 | | | | 54 |
| NO OF REFINERIES | 1 | | 1 | | | | 2 |
| CONVERSION PCT (430 F EP) | 100.00 | | 100.00 | | | | 100.00 |
| CRUDE CAPACITY | 9 | | 45 | | | | 54 |
| NO OF REFINERIES | 1 | | 1 | | | | 2 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | | | | | | ****** |
| NO OF REFINERIES | 1 | | | | | | 1 |
| COKING - FEED RATE | | ****** | ****** | | | | 30 |
| CRUDE CAPACITY | | ****** | ****** | | | | 155 |
| NO OF REFINERIES | | 3 | 2 | | | | 5 |
| COKING - MAKE ST/CD | | ****** | ****** | | | | 1,585 |
| CRUDE CAPACITY | | ****** | ****** | | | | 155 |
| NO OF REFINERIES | | 3 | 2 | | | | 5 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | ****** | ****** | | | | 15 |
| CRUDE CAPACITY | | ****** | ****** | | | | 58 |
| NO OF REFINERIES | | 1 | 1 | | | | 2 |
| SULFUR RECOVERY(LT/CD) | | ****** | ****** | | | | 204 |
| CRUDE CAPACITY | | ****** | ****** | | | | 303 |
| NO OF REFINERIES | | 1 | 6 | | | | 7 |

Table C.4.7.5

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PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 5
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 46 | 279 | 331 | 671 | ****** | ****** | 3,022 |
| CRUDE CAPACITY | 46 | 286 | 331 | 696 | ****** | ****** | 3,095 |
| NO OF REFINERIES | 6 | 14 | 8 | 9 | 7 | 3 | 47 |
| OTHER CRUDE CHARGE UNITS | | ****** | | ****** | ****** | | 84 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | | 362 |
| NO OF REFINERIES | | 2 | | 1 | 2 | | 5 |
| VACUUM DISTILLATION | 9 | ****** | 123 | 159 | 456 | ****** | 1,228 |
| CRUDE CAPACITY | 25 | ****** | 242 | 447 | 787 | ****** | 2,521 |
| NO OF REFINERIES | 3 | 3 | 6 | 6 | 7 | 3 | 28 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | | ****** | 43 | 177 | 222 | ****** | 635 |
| CRUDE CAPACITY | | ****** | 179 | 696 | 787 | ****** | 2,747 |
| NO OF REFINERIES | | 6 | 4 | 9 | 7 | 3 | 29 |
| AT 95 RONC | | ****** | 42 | 173 | 219 | ****** | 615 |
| CRUDE CAPACITY | | ****** | 179 | 696 | 787 | ****** | 2,747 |
| NO OF REFINERIES | | 6 | 4 | 9 | 7 | 3 | 29 |
| AT 98 RONC | | ****** | 38 | 170 | 208 | ****** | 583 |
| CRUDE CAPACITY | | ****** | 179 | 696 | 787 | ****** | 2,727 |
| NO OF REFINERIES | | 5 | 4 | 9 | 7 | 3 | 28 |
| AT 100 RONC | | ****** | 30 | 136 | 89 | ****** | 377 |
| CRUDE CAPACITY | | ****** | 131 | 644 | 451 | ****** | 2,111 |
| NO OF REFINERIES | | 5 | 3 | 8 | 4 | 2 | 22 |
| BTX RECOVERY CAP (AROM P) | | | | | | 6 | 6 |
| CRUDE CAPACITY | | | | | | 950 | 950 |
| NO OF REFINERIES | | | | | | 3 | 3 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 5
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | | 45 | ****** | 219 | ****** | 590 |
| CRUDE CAPACITY | | | 130 | ****** | 570 | ****** | 2,141 |
| NO OF REFINERIES | | | 3 | 6 | 5 | 3 | 17 |
| CONVERSION (VOL PCT) | | | 67.43 | ****** | 74.04 | ****** | 71.55 |
| CRUDE CAPACITY | | | 130 | ****** | 462 | ****** | 2,033 |
| NO OF REFINERIES | | | 3 | 6 | 4 | 3 | 16 |
| RONC OF DEBUT CAT NAPHTHA | | | 91.25 | ****** | 92.00 | ****** | 91.19 |
| CRUDE CAPACITY | | | 130 | ****** | 462 | ****** | 2,033 |
| NO OF REFINERIES | | | 3 | 6 | 4 | 3 | 16 |
| ALKYLATION | | | | | | | |
| D P VOL (MIX FEED) | | | ****** | ****** | ****** | ****** | 115 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 2,141 |
| NO OF REFINERIES | | | 3 | 6 | 5 | 3 | 17 |
| RONC OF DEBUTANIZED PROD | | | ****** | ****** | 93.13 | ****** | 93.01 |
| CRUDE CAPACITY | | | ****** | ****** | 570 | ****** | 2,141 |
| NO OF REFINERIES | | | 3 | 6 | 5 | 3 | 17 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | | ****** | | ****** | | ****** | 2 |
| CRUDE CAPACITY | | ****** | | ****** | | ****** | 271 |
| NO OF REFINERIES | | 1 | | 1 | | 1 | 3 |
| RONC OF DEBUTANIZED PROD | | ****** | | ****** | | ****** | 91.82 |
| CRUDE CAPACITY | | ****** | | ****** | | ****** | 271 |
| NO OF REFINERIES | | 1 | | 1 | | 1 | 3 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | | ****** | 33 | 143 | 177 | ****** | 530 |
| CRUDE CAPACITY | | ****** | 179 | 696 | 787 | ****** | 2,735 |
| NO OF REFINERIES | | 5 | 4 | 9 | 7 | 3 | 28 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 5
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| OTHER NAPHTHA | | | ****** | ****** | ****** | ****** | 97 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,692 |
| NO OF REFINERIES | | | 2 | 2 | 4 | 3 | 11 |
| CAT CRACKING CHRGE STOCK | | | ****** | ****** | ****** | ****** | 191 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,108 |
| NO OF REFINERIES | | | 1 | 2 | 1 | 2 | 6 |
| DISTILLATE | | ****** | ****** | 128 | 136 | ****** | 416 |
| CRUDE CAPACITY | | ****** | ****** | 547 | 765 | ****** | 2,400 |
| NO OF REFINERIES | | 2 | 2 | 7 | 7 | 3 | 21 |
| RESIDUAL DESULFURIZATION | | | | | | 21 | 21 |
| CRUDE CAPACITY | | | | | | 405 | 405 |
| NO OF REFINERIES | | | | | | 1 | 1 |
| TOTAL ( CA THRU CF) | | ****** | 66 | 334 | 398 | ****** | 1,254 |
| CRUDE CAPACITY | | ****** | 225 | 696 | 787 | ****** | 2,781 |
| NO OF REFINERIES | | 5 | 5 | 9 | 7 | 3 | 29 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | | | ****** | ****** | ****** | ****** | 167 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 939 |
| NO OF REFINERIES | | | 1 | 3 | 4 | 1 | 9 |
| CAPACITY (HVY GAS O FEED) | | | | ****** | ****** | ****** | 169 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 1,065 |
| NO OF REFINERIES | | | | 1 | 2 | 2 | 5 |
| CONVERSION PCT (430 F EP) | | | ****** | ****** | 97.44 | ****** | 88.34 |
| CRUDE CAPACITY | | | ****** | ****** | 679 | ****** | 2,004 |
| NO OF REFINERIES | | | 1 | 4 | 6 | 3 | 14 |

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PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 5
AS OF JANUARY 1, 1980

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | | ****** | | | | ****** | ****** |
| NO OF REFINERIES | | 1 | | | | 1 | 2 |
| VISBREAKING | | ****** | | ****** | ****** | ****** | 102 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | ****** | 567 |
| NO OF REFINERIES | | 2 | | 2 | 2 | 1 | 7 |
| COKING - FEED RATE | | | ****** | ****** | 184 | ****** | 352 |
| CRUDE CAPACITY | | | ****** | ****** | 575 | ****** | 1,429 |
| NO OF REFINERIES | | | 2 | 2 | 5 | 2 | 11 |
| COKING - MAKE ST/CD | | | ****** | ****** | 8,700 | ****** | 16,570 |
| CRUDE CAPACITY | | | ****** | ****** | 575 | ****** | 1,429 |
| NO OF REFINERIES | | | 2 | 2 | 5 | 2 | 11 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | | ****** | ****** | 353 | ****** | 723 |
| CRUDE CAPACITY | | | ****** | ****** | 679 | ****** | 1,863 |
| NO OF REFINERIES | | | 2 | 2 | 6 | 3 | 13 |
| OTHER | | | | 58 | | ****** | ****** |
| NO OF REFINERIES | | | | 3 | | 1 | 4 |
| SULFUR RECOVERY(LT/CD) | | ****** | ****** | 687 | 1,221 | ****** | 3,524 |
| CRUDE CAPACITY | | ****** | ****** | 456 | 679 | ****** | 2,323 |
| NO OF REFINERIES | | 3 | 4 | 6 | 6 | 3 | 22 |

Table C.4.8.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 1
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 53 | 92 | | 478 | ****** | ****** | 1,981 |
| CRUDE CAPACITY | 53 | 92 | | 478 | ****** | ****** | 1,981 |
| NO OF REFINERIES | 8 | 6 | | 8 | 4 | 3 | 29 |
| VACUUM DISTILLATION | 19 | ****** | | 185 | 324 | ****** | 870 |
| CRUDE CAPACITY | 36 | ****** | | 388 | 650 | ****** | 1,810 |
| NO OF REFINERIES | 6 | 2 | | 6 | 4 | 3 | 21 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | ****** | ****** | | 83 | 168 | ****** | 408 |
| CRUDE CAPACITY | ****** | ****** | | 388 | 650 | ****** | 1,785 |
| NO OF REFINERIES | 4 | 1 | | 6 | 4 | 3 | 18 |
| AT 95 RONC | | ****** | | 81 | 164 | ****** | 391 |
| CRUDE CAPACITY | | ****** | | 388 | 650 | ****** | 1,761 |
| NO OF REFINERIES | | 1 | | 6 | 4 | 3 | 14 |
| AT 98 RONC | | ****** | | 78 | 157 | ****** | 350 |
| CRUDE CAPACITY | | ****** | | 388 | 650 | ****** | 1,761 |
| NO OF REFINERIES | | 1 | | 6 | 4 | 3 | 14 |
| AT 100 RONC | | | | 71 | 107 | 100 | 278 |
| CRUDE CAPACITY | | | | 388 | 480 | 708 | 1,576 |
| NO OF REFINERIES | | | | 6 | 3 | 3 | 12 |
| BTX RECOVERY CAP (AROM P) | | | | ****** | ****** | ****** | 18 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 697 |
| NO OF REFINERIES | | | | 2 | 2 | 1 | 5 |
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | | | ****** | 213 | ****** | 563 |
| CRUDE CAPACITY | | | | ****** | 650 | ****** | 1,561 |
| NO OF REFINERIES | | | | 6 | 4 | 2 | 12 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 1
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CONVERSION (VOL PCT) | | | | ****** | 75.67 | ****** | 70.10 |
| CRUDE CAPACITY | | | | ****** | 650 | ****** | 1,561 |
| NO OF REFINERIES | | | | 6 | 4 | 2 | 12 |
| RONC OF DEBUT CAT NAPHTHA | | | | ****** | 90.87 | ****** | 89.60 |
| CRUDE CAPACITY | | | | ****** | 650 | ****** | 1,561 |
| NO OF REFINERIES | | | | 6 | 4 | 2 | 12 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | 7 | 22 | | 29 |
| CRUDE CAPACITY | | | | 250 | 480 | | 730 |
| NO OF REFINERIES | | | | 3 | 3 | | 6 |
| D P VOL (MIX FEED) | | | | ****** | ****** | ****** | 33 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 778 |
| NO OF REFINERIES | | | | 2 | 1 | 2 | 5 |
| RONC OF DEBUTANIZED PROD | | | | ****** | 93.64 | ****** | 93.74 |
| CRUDE CAPACITY | | | | ****** | 650 | ****** | 1,508 |
| NO OF REFINERIES | | | | 5 | 4 | 2 | 11 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | | | | ****** | ****** | | 11 |
| CRUDE CAPACITY | | | | ****** | ****** | | 387 |
| NO OF REFINERIES | | | | 4 | 1 | | 5 |
| RONC OF DEBUTANIZED PROD | | | | ****** | ****** | | 90.80 |
| CRUDE CAPACITY | | | | ****** | ****** | | 387 |
| NO OF REFINERIES | | | | 4 | 1 | | 5 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | ****** | ****** | | 92 | 215 | ****** | 490 |
| CRUDE CAPACITY | ****** | ****** | | 388 | 650 | ****** | 1,790 |
| NO OF REFINERIES | 5 | 1 | | 6 | 4 | 3 | 19 |

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PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 1
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CAT CRACKING CHRGE STOCK | | | | ****** | ****** | ****** | 135 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 692 |
| NO OF REFINERIES | | | | 1 | 2 | 1 | 4 |
| OTHER HEAVY GAS OIL | | | | | ****** | ****** | 55 |
| CRUDE CAPACITY | | | | | ****** | ****** | 525 |
| NO OF REFINERIES | | | | | 2 | 1 | 3 |
| DISTILLATE | | | | ****** | ****** | 191 | 375 |
| CRUDE CAPACITY | | | | ****** | ****** | 708 | 1,639 |
| NO OF REFINERIES | | | | 4 | 4 | 3 | 11 |
| TOTAL ( CA THRU CF) | ****** | ****** | | 174 | 437 | ****** | 1,054 |
| CRUDE CAPACITY | ****** | ****** | | 388 | 650 | ****** | 1,790 |
| NO OF REFINERIES | 5 | 1 | | 6 | 4 | 3 | 19 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (HVY GAS O FEED) | ****** | | | | ****** | ****** | 73 |
| CRUDE CAPACITY | ****** | | | | ****** | ****** | 505 |
| NO OF REFINERIES | 1 | | | | 2 | 1 | 4 |
| CONVERSION PCT (430 F EP) | ****** | | | | ****** | ****** | 78.19 |
| CRUDE CAPACITY | ****** | | | | ****** | ****** | 505 |
| NO OF REFINERIES | 1 | | | | 2 | 1 | 4 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | | | | ****** | | | ****** |
| NO OF REFINERIES | | | | 1 | | | 1 |
| COKING - FEED RATE | | | | ****** | ****** | | 74 |
| CRUDE CAPACITY | | | | ****** | ****** | | 291 |
| NO OF REFINERIES | | | | 2 | 1 | | 3 |
| COKING - MAKE ST/CD | | | | ****** | ****** | | 3,110 |
| CRUDE CAPACITY | | | | ****** | ****** | | 291 |
| NO OF REFINERIES | | | | 2 | 1 | | 3 |

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1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 1
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | ****** | ****** | | | ****** | ****** | 111 |
| CRUDE CAPACITY | ****** | ****** | | | ****** | ****** | 350 |
| NO OF REFINERIES | 1 | 1 | | | 1 | 1 | 4 |
| SULFUR RECOVERY(LT/CD) | | | | 391 | 680 | 640 | 1,711 |
| CRUDE CAPACITY | | | | 303 | 478 | 708 | 1,489 |
| NO OF REFINERIES | | | | 4 | 3 | 3 | 10 |

Table C.4.8.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 2
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 69 | 235 | 421 | 1,127 | 1,178 | 1,318 | 4,348 |
| CRUDE CAPACITY | 69 | 235 | 421 | 1,127 | 1,178 | 1,318 | 4,348 |
| NO OF REFINERIES | 11 | 11 | 9 | 17 | 9 | 5 | 62 |
| VACUUM DISTILLATION | 10 | 65 | 110 | 351 | 447 | 489 | 1,473 |
| CRUDE CAPACITY | 28 | 174 | 329 | 1,075 | 1,178 | 1,318 | 4,102 |
| NO OF REFINERIES | 3 | 8 | 7 | 16 | 9 | 5 | 48 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | ****** | ****** | 117 | 277 | 260 | 279 | 967 |
| CRUDE CAPACITY | ****** | ****** | 421 | 1,127 | 1,178 | 1,123 | 4,053 |
| NO OF REFINERIES | 2 | 9 | 9 | 17 | 9 | 4 | 50 |
| AT 95 RONC | ****** | ****** | 105 | 269 | 255 | 336 | 994 |
| CRUDE CAPACITY | ****** | ****** | 421 | 1,127 | 1,178 | 1,318 | 4,220 |
| NO OF REFINERIES | 1 | 8 | 9 | 17 | 9 | 5 | 49 |
| AT 98 RONC | | 19 | 90 | 204 | 173 | 315 | 802 |
| CRUDE CAPACITY | | 123 | 371 | 894 | 1,051 | 1,318 | 3,757 |
| NO OF REFINERIES | | 5 | 8 | 13 | 8 | 5 | 39 |
| AT 100 RONC | | ****** | 69 | 131 | 112 | ****** | 597 |
| CRUDE CAPACITY | | ****** | 282 | 698 | 569 | ****** | 2,990 |
| NO OF REFINERIES | | 5 | 6 | 10 | 4 | 5 | 30 |
| BTX RECOVERY CAP (AROM P) | | | | ****** | ****** | ****** | 41 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 1,388 |
| NO OF REFINERIES | | | | 2 | 2 | 3 | 7 |
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | ****** | 180 | ****** | 421 | 415 | 1,515 |
| CRUDE CAPACITY | | ****** | 421 | ****** | 1,178 | 1,318 | 4,253 |
| NO OF REFINERIES | | 9 | 9 | 17 | 9 | 5 | 49 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 2
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CONVERSION (VOL PCT) | | ****** | 78.47 | ****** | 75.12 | 75.70 | 75.76 |
| CRUDE CAPACITY | | ****** | 421 | ****** | 1,178 | 1,318 | 4,199 |
| NO OF REFINERIES | | 7 | 9 | 17 | 9 | 5 | 47 |
| RONC OF DEBUT CAT NAPHTHA | | ****** | 91.04 | ****** | 91.28 | 91.51 | 90.82 |
| CRUDE CAPACITY | | ****** | 421 | ****** | 1,178 | 1,318 | 4,199 |
| NO OF REFINERIES | | 7 | 9 | 17 | 9 | 5 | 47 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | ****** | ****** | | 34 |
| CRUDE CAPACITY | | | | ****** | ****** | | 611 |
| NO OF REFINERIES | | | | 2 | 4 | | 6 |
| D P VOL (MIX FEED) | | 12 | 34 | 93 | 37 | 78 | 254 |
| CRUDE CAPACITY | | 133 | 421 | 1,007 | 520 | 1,318 | 3,399 |
| NO OF REFINERIES | | 6 | 9 | 15 | 4 | 5 | 39 |
| RONC OF DEBUTANIZED PROD | | 91.88 | 92.69 | 92.50 | 94.19 | 93.47 | 93.14 |
| CRUDE CAPACITY | | 133 | 421 | 1,127 | 1,010 | 1,318 | 4,009 |
| NO OF REFINERIES | | 6 | 9 | 17 | 8 | 5 | 45 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5+C6 FEED) | | | | 21 | | 12 | 33 |
| CRUDE CAPACITY | 5 | | | 175 | | 200 | 380 |
| NO OF REFINERIES | 1 | | | 3 | | 1 | 5 |
| RONC OF DEBUTANIZED PROD | 95.00 | | | 84.84 | | 83.00 | 84.24 |
| CRUDE CAPACITY | 5 | | | 175 | | 200 | 380 |
| NO OF REFINERIES | 1 | | | 3 | | 1 | 5 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | ****** | ****** | 5 | 7 | 8 | ****** | 31 |
| CRUDE CAPACITY | ****** | ****** | 192 | 267 | 629 | ****** | 1,342 |
| NO OF REFINERIES | 1 | 2 | 4 | 4 | 5 | 1 | 17 |

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1979 REFINERY SURVEY - PART I

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 2
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | ****** | ****** | 95.54 | 95.43 | 93.93 | ****** | 95.33 |
| CRUDE CAPACITY | ****** | ****** | 192 | 267 | 629 | ****** | 1,342 |
| NO OF REFINERIES | 1 | 2 | 4 | 4 | 5 | 1 | 17 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | ****** | ****** | 83 | 293 | 264 | 339 | 1,016 |
| CRUDE CAPACITY | ****** | ****** | 334 | 1,127 | 1,178 | 1,318 | 4,152 |
| NO OF REFINERIES | 2 | 8 | 7 | 17 | 9 | 5 | 48 |
| OTHER NAPHTHA | | | ****** | ****** | ****** | ****** | 38 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 746 |
| NO OF REFINERIES | | | 1 | 4 | 2 | 1 | 8 |
| CAT CRACKING CHRGE STOCK | | | ****** | 121 | ****** | 99 | 261 |
| CRUDE CAPACITY | | | ****** | 395 | ****** | 943 | 1,507 |
| NO OF REFINERIES | | | 1 | 6 | 1 | 3 | 11 |
| OTHER HEAVY GAS OIL | | | | | ****** | ****** | 23 |
| CRUDE CAPACITY | | | | | ****** | ****** | 870 |
| NO OF REFINERIES | | | | | 1 | 2 | 3 |
| DISTILLATE | ****** | | 37 | ****** | 147 | ****** | 499 |
| CRUDE CAPACITY | ****** | | 226 | ****** | 770 | ****** | 3,083 |
| NO OF REFINERIES | 1 | | 5 | 11 | 6 | 5 | 28 |
| TOTAL ( CA THRU CF) | ****** | ****** | 124 | 552 | 477 | 640 | 1,836 |
| CRUDE CAPACITY | ****** | ****** | 376 | 1,127 | 1,178 | 1,318 | 4,194 |
| NO OF REFINERIES | 2 | 8 | 8 | 17 | 9 | 5 | 49 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | | | ****** | ****** | ****** | ****** | 140 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,052 |
| NO OF REFINERIES | | | 1 | 2 | 3 | 2 | 8 |
| CONVERSION PCT (430 F EP) | | | ****** | ****** | ****** | ****** | 103.95 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,052 |
| NO OF REFINERIES | | | 1 | 2 | 3 | 2 | 8 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 2
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | | ****** | ****** | | | 20 |
| CRUDE CAPACITY | ****** | | ****** | ****** | | | 189 |
| NO OF REFINERIES | 1 | | 2 | 1 | | | 4 |
| COKING - FEED RATE | | ****** | ****** | 91 | 98 | ****** | 286 |
| CRUDE CAPACITY | | ****** | ****** | 480 | 818 | ****** | 2,231 |
| NO OF REFINERIES | | 2 | 1 | 7 | 6 | 3 | 19 |
| COKING - MAKE ST/CD | | ****** | ****** | 2,918 | 4,789 | ****** | 12,471 |
| CRUDE CAPACITY | | ****** | ****** | 480 | 818 | ****** | 2,231 |
| NO OF REFINERIES | | 2 | 1 | 7 | 6 | 3 | 19 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | | | ****** | ****** | ****** | 103 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 690 |
| NO OF REFINERIES | | | | 1 | 2 | 2 | 5 |
| OTHER | | | | | ****** | ****** | ****** |
| NO OF REFINERIES | | | | | 1 | 2 | 3 |
| SULFUR RECOVERY(LT/CD) | | | ****** | 602 | 1,100 | ****** | 3,095 |
| CRUDE CAPACITY | | | ****** | 874 | 1,046 | ****** | 3,564 |
| NO OF REFINERIES | | | 7 | 13 | 8 | 5 | 33 |

Table C.4.8.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1982

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 98 | 454 | 402 | 758 | 1,060 | 5,114 | 7,886 |
| CRUDE CAPACITY | 98 | 454 | 402 | 758 | 1,060 | 5,114 | 7,886 |
| NO OF REFINERIES | 16 | 23 | 10 | 10 | 8 | 15 | 82 |
| VACUUM DISTILLATION | 17 | 66 | 156 | 219 | 321 | 1,932 | 2,710 |
| CRUDE CAPACITY | 33 | 154 | 325 | 661 | 1,060 | 5,114 | 7,346 |
| NO OF REFINERIES | 6 | 8 | 8 | 9 | 8 | 15 | 54 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 24 | 70 | 89 | 207 | 269 | 1,159 | 1,818 |
| CRUDE CAPACITY | 57 | 299 | 316 | 686 | 1,060 | 5,114 | 7,532 |
| NO OF REFINERIES | 8 | 14 | 8 | 9 | 8 | 15 | 62 |
| AT 95 RONC | 20 | 44 | 59 | 196 | 241 | 1,065 | 1,625 |
| CRUDE CAPACITY | 29 | 209 | 245 | 686 | 1,060 | 5,114 | 7,343 |
| NO OF REFINERIES | 4 | 9 | 6 | 9 | 8 | 15 | 51 |
| AT 98 RONC | ****** | ****** | 41 | 173 | 181 | 921 | 1,366 |
| CRUDE CAPACITY | ****** | ****** | 168 | 601 | 940 | 4,661 | 6,571 |
| NO OF REFINERIES | 4 | 7 | 4 | 8 | 7 | 14 | 44 |
| AT 100 RONC | ****** | ****** | 26 | 144 | 142 | 851 | 1,193 |
| CRUDE CAPACITY | ****** | ****** | 132 | 546 | 830 | 4,661 | 6,278 |
| NO OF REFINERIES | 3 | 4 | 3 | 7 | 6 | 14 | 37 |
| BTX RECOVERY CAP (AROM P) | ****** | ****** | ****** | 23 | 25 | 118 | 175 |
| CRUDE CAPACITY | ****** | ****** | ****** | 441 | 639 | 3,686 | 4,872 |
| NO OF REFINERIES | 1 | 2 | 2 | 6 | 5 | 11 | 27 |
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | 68 | 58 | 317 | 336 | 1,540 | 2,319 |
| CRUDE CAPACITY | | 177 | 165 | 689 | 1,060 | 5,114 | 7,204 |
| NO OF REFINERIES | | 8 | 4 | 9 | 8 | 15 | 44 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1982

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CONVERSION (VOL PCT) | | 76.78 | 78.72 | 77.64 | 71.68 | 73.57 | 74.08 |
| CRUDE CAPACITY | | 177 | 165 | 689 | 1,060 | 5,114 | 7,204 |
| NO OF REFINERIES | | 8 | 4 | 9 | 8 | 15 | 44 |
| RONC OF DEBUT CAT NAPHTHA | | 89.64 | 90.37 | 90.65 | 90.27 | 89.88 | 90.05 |
| CRUDE CAPACITY | | 177 | 165 | 689 | 1,060 | 5,114 | 7,204 |
| NO OF REFINERIES | | 8 | 4 | 9 | 8 | 15 | 44 |
| ALKYLATION | | | | | | | |
| D P VOL (BUTYLENE FEED) | | | | ****** | ****** | ****** | 43 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 1,393 |
| NO OF REFINERIES | | | | 1 | 5 | 2 | 8 |
| D P VOL (MIX FEED) | | ****** | ****** | 71 | ****** | 234 | 364 |
| CRUDE CAPACITY | | ****** | ****** | 604 | ****** | 4,437 | 5,746 |
| NO OF REFINERIES | | 5 | 4 | 8 | 3 | 13 | 33 |
| RONC OF DEBUTANIZED PROD | | ****** | ****** | 92.01 | 92.78 | 92.83 | 92.66 |
| CRUDE CAPACITY | | ****** | ****** | 689 | 1,060 | 5,114 | 7,138 |
| NO OF REFINERIES | | 5 | 4 | 9 | 8 | 15 | 41 |
| C5 AND C6 ISOMERIZATION | | | | | | | |
| D P VOL (C5 FEED) | | | | 12 | | 56 | 68 |
| CRUDE CAPACITY | | | | 97 | | 1,235 | 1,332 |
| NO OF REFINERIES | | | | 1 | | 4 | 5 |
| RONC OF DEBUTANIZED PROD | | | | 93.40 | | 87.36 | 88.43 |
| CRUDE CAPACITY | | | | 97 | | 1,235 | 1,332 |
| NO OF REFINERIES | | | | 1 | | 4 | 5 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | | ****** | | | ****** | ****** | 8 |
| CRUDE CAPACITY | | ****** | | | ****** | ****** | 911 |
| NO OF REFINERIES | | 3 | | | 3 | 1 | 7 |

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PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUTANIZED PROD | | ****** | | | ****** | ****** | 94.37 |
| CRUDE CAPACITY | | ****** | | | ****** | ****** | 911 |
| NO OF REFINERIES | | 3 | | | 3 | 1 | 7 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | ****** | ****** | 96 | 223 | 263 | 1,232 | 1,910 |
| CRUDE CAPACITY | ****** | ****** | 316 | 686 | 1,060 | 5,114 | 7,458 |
| NO OF REFINERIES | 2 | 12 | 8 | 9 | 8 | 15 | 54 |
| OTHER NAPHTHA | | | | ****** | ****** | ****** | 91 |
| CRUDE CAPACITY | | | | ****** | ****** | ****** | 1,318 |
| NO OF REFINERIES | | | | 3 | 2 | 3 | 8 |
| CAT CRACKING CHRGE STOCK | | | ****** | ****** | ****** | 242 | 335 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | 2,022 | 2,428 |
| NO OF REFINERIES | | | 1 | 1 | 2 | 6 | 10 |
| OTHER HEAVY GAS OIL | | | | | ****** | ****** | 131 |
| CRUDE CAPACITY | | | | | ****** | ****** | 1,484 |
| NO OF REFINERIES | | | | | 1 | 4 | 5 |
| DISTILLATE | | ****** | ****** | 90 | ****** | 1,005 | 1,311 |
| CRUDE CAPACITY | | ****** | ****** | 480 | ****** | 4,884 | 6,321 |
| NO OF REFINERIES | | 2 | 2 | 6 | 6 | 14 | 30 |
| RESIDUAL DESULFURIZATION | | | | | | 74 | 74 |
| CRUDE CAPACITY | | | | | | 640 | 640 |
| NO OF REFINERIES | | | | | | 1 | 1 |
| TOTAL ( CA THRU CF) | ****** | ****** | 112 | 346 | 569 | 2,718 | 3,851 |
| CRUDE CAPACITY | ****** | ****** | 316 | 686 | 1,060 | 5,114 | 7,458 |
| NO OF REFINERIES | 2 | 12 | 8 | 9 | 8 | 15 | 54 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | | | ****** | | | ****** | 151 |
| CRUDE CAPACITY | | | ****** | | | ****** | 2,622 |
| NO OF REFINERIES | | | 1 | | | 6 | 7 |
| CAPACITY (HVY GAS O FEED) | ****** | ****** | | | ****** | 74 | 109 |
| CRUDE CAPACITY | ****** | ****** | | | ****** | 1,317 | 1,484 |
| NO OF REFINERIES | 1 | 2 | | | 1 | 3 | 7 |
| CONVERSION PCT (430 F EP) | ****** | ****** | ****** | | ****** | 94.62 | 94.10 |
| CRUDE CAPACITY | ****** | ****** | ****** | | ****** | 2,620 | 2,826 |
| NO OF REFINERIES | 1 | 2 | 1 | | 1 | 7 | 12 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | | | ****** | ****** | ****** | ****** | 155 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,009 |
| NO OF REFINERIES | | | 1 | 1 | 1 | 2 | 5 |
| VISBREAKING | | ****** | | ****** | ****** | 36 | 80 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | 903 | 1,378 |
| NO OF REFINERIES | | 1 | | 1 | 3 | 4 | 9 |
| COKING - FEED RATE | | ****** | ****** | ****** | ****** | 251 | 295 |
| CRUDE CAPACITY | | ****** | ****** | ****** | ****** | 3,000 | 3,516 |
| NO OF REFINERIES | | 2 | 1 | 2 | 2 | 9 | 16 |
| COKING - MAKE ST/CD | | ****** | ****** | ****** | ****** | 12,444 | 14,155 |
| CRUDE CAPACITY | | ****** | ****** | ****** | ****** | 3,000 | 3,516 |
| NO OF REFINERIES | | 2 | 1 | 2 | 2 | 9 | 16 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | | ****** | | ****** | 390 | 458 |
| CRUDE CAPACITY | | | ****** | | ****** | 1,995 | 2,186 |
| NO OF REFINERIES | | | 2 | | 1 | 6 | 9 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 3
AS OF JANUARY 1, 1982

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| SULFUR RECOVERY(LT/CD) | | 44 | 78 | 490 | 702 | 4,435 | 5,749 |
| CRUDE CAPACITY | | 110 | 206 | 562 | 1,060 | 5,114 | 7,052 |
| NO OF REFINERIES | | 4 | 5 | 7 | 8 | 15 | 39 |

Table C.4.8.4

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 4
AS OF JANUARY 1, 1982

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 27 | 174 | 398 | | | | 598 |
| CRUDE CAPACITY | 27 | 174 | 398 | | | | 598 |
| NO OF REFINERIES | 6 | 9 | 9 | | | | 24 |
| VACUUM DISTILLATION | 5 | 66 | 148 | | | | 218 |
| CRUDE CAPACITY | 16 | 174 | 359 | | | | 549 |
| NO OF REFINERIES | 3 | 9 | 8 | | | | 20 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | 6 | 32 | 83 | | | | 121 |
| CRUDE CAPACITY | 21 | 162 | 398 | | | | 580 |
| NO OF REFINERIES | 3 | 8 | 9 | | | | 20 |
| AT 95 RONC | ****** | ****** | 80 | | | | 116 |
| CRUDE CAPACITY | ****** | ****** | 398 | | | | 580 |
| NO OF REFINERIES | 3 | 8 | 9 | | | | 20 |
| AT 98 RONC | ****** | ****** | 58 | | | | 89 |
| CRUDE CAPACITY | ****** | ****** | 325 | | | | 503 |
| NO OF REFINERIES | 2 | 8 | 7 | | | | 17 |
| AT 100 RONC | ****** | ****** | 47 | | | | 71 |
| CRUDE CAPACITY | ****** | ****** | 278 | | | | 431 |
| NO OF REFINERIES | 2 | 7 | 6 | | | | 15 |
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | 53 | 138 | | | | 190 |
| CRUDE CAPACITY | | 173 | 398 | | | | 570 |
| NO OF REFINERIES | | 8 | 9 | | | | 17 |
| CONVERSION (VOL PCT) | | 76.44 | 76.78 | | | | 76.70 |
| CRUDE CAPACITY | | 124 | 398 | | | | 521 |
| NO OF REFINERIES | | 6 | 9 | | | | 15 |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 4
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| RONC OF DEBUT CAT NAPHTHA | | 89.11 | 90.98 | | | | 90.53 |
| CRUDE CAPACITY | | 124 | 398 | | | | 521 |
| NO OF REFINERIES | | 6 | 9 | | | | 15 |
| ALKYLATION | | | | | | | |
| D P VOL (MIX FEED) | | ****** | ****** | | | | 29 |
| CRUDE CAPACITY | | ****** | ****** | | | | 416 |
| NO OF REFINERIES | | 4 | 7 | | | | 11 |
| RONC OF DEBUTANIZED PROD | | ****** | ****** | | | | 93.37 |
| CRUDE CAPACITY | | ****** | ****** | | | | 416 |
| NO OF REFINERIES | | 4 | 7 | | | | 11 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | ****** | ****** | 3 | | | | 5 |
| CRUDE CAPACITY | ****** | ****** | 144 | | | | 213 |
| NO OF REFINERIES | 2 | 3 | 3 | | | | 8 |
| RONC OF DEBUTANIZED PROD | ****** | ****** | 94.50 | | | | 94.89 |
| CRUDE CAPACITY | ****** | ****** | 144 | | | | 213 |
| NO OF REFINERIES | 2 | 3 | 3 | | | | 8 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | 7 | 38 | 94 | | | | 139 |
| CRUDE CAPACITY | 21 | 149 | 398 | | | | 568 |
| NO OF REFINERIES | 3 | 7 | 9 | | | | 19 |
| DISTILLATE | ****** | ****** | 82 | | | | 99 |
| CRUDE CAPACITY | ****** | ****** | 277 | | | | 399 |
| NO OF REFINERIES | 2 | 5 | 6 | | | | 13 |
| TOTAL ( CA THRU CF) | ****** | ****** | 176 | | | | 238 |
| CRUDE CAPACITY | ****** | ****** | 398 | | | | 568 |
| NO OF REFINERIES | 3 | 7 | 9 | | | | 19 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 4
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | 1 | | 4 | | | | 5 |
| CRUDE CAPACITY | 10 | | 45 | | | | 55 |
| NO OF REFINERIES | 1 | | 1 | | | | 2 |
| CONVERSION PCT (430 F EP) | 100.00 | | 100.00 | | | | 100.00 |
| CRUDE CAPACITY | 10 | | 45 | | | | 55 |
| NO OF REFINERIES | 1 | | 1 | | | | 2 |
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | ****** | | | | | | ****** |
| NO OF REFINERIES | 1 | | | | | | 1 |
| COKING - FEED RATE | | ****** | ****** | | | | 30 |
| CRUDE CAPACITY | | ****** | ****** | | | | 154 |
| NO OF REFINERIES | | 3 | 2 | | | | 5 |
| COKING - MAKE ST/CD | | ****** | ****** | | | | 1,645 |
| CRUDE CAPACITY | | ****** | ****** | | | | 154 |
| NO OF REFINERIES | | 3 | 2 | | | | 5 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | ****** | ****** | | | | 15 |
| CRUDE CAPACITY | | ****** | ****** | | | | 58 |
| NO OF REFINERIES | | 1 | 1 | | | | 2 |
| SULFUR RECOVERY(LT/CD) | | ****** | ****** | | | | 204 |
| CRUDE CAPACITY | | ****** | ****** | | | | 307 |
| NO OF REFINERIES | | 1 | 6 | | | | 7 |

Table C.4.8.5

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 5
AS OF JANUARY 1, 1982

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CRUDE OIL CHARGE | | | | | | | |
| ATMOSPHERIC DISTILLATION | 46 | 284 | 255 | 793 | ****** | ****** | 3,073 |
| CRUDE CAPACITY | 46 | 291 | 255 | 818 | ****** | ****** | 3,146 |
| NO OF REFINERIES | 6 | 14 | 6 | 11 | 7 | 3 | 47 |
| OTHER CRUDE CHARGE UNITS | | ****** | | ****** | ****** | | 84 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | | 362 |
| NO OF REFINERIES | | 2 | | 1 | 2 | | 5 |
| VACUUM DISTILLATION | 9 | ****** | 110 | 188 | 456 | ****** | 1,250 |
| CRUDE CAPACITY | 25 | ****** | 215 | 499 | 787 | ****** | 2,568 |
| NO OF REFINERIES | 3 | 4 | 5 | 7 | 7 | 3 | 29 |
| CAT REFORMER CHARGE CAP | | | | | | | |
| AT 90 RONC | | ****** | 37 | 205 | 237 | ****** | 679 |
| CRUDE CAPACITY | | ****** | 131 | 818 | 787 | ****** | 2,844 |
| NO OF REFINERIES | | 7 | 3 | 11 | 7 | 3 | 31 |
| AT 95 RONC | | ****** | 36 | 201 | 237 | ****** | 657 |
| CRUDE CAPACITY | | ****** | 131 | 818 | 787 | ****** | 2,824 |
| NO OF REFINERIES | | 6 | 3 | 11 | 7 | 3 | 30 |
| AT 98 RONC | | ****** | 32 | 197 | 232 | ****** | 631 |
| CRUDE CAPACITY | | ****** | 131 | 818 | 787 | ****** | 2,804 |
| NO OF REFINERIES | | 5 | 3 | 11 | 7 | 3 | 29 |
| AT 100 RONC | | ****** | 30 | 149 | 114 | ****** | 418 |
| CRUDE CAPACITY | | ****** | 131 | 697 | 577 | ****** | 2,292 |
| NO OF REFINERIES | | 5 | 3 | 9 | 5 | 2 | 24 |
| BTX RECOVERY CAP (AROM P) | | | | | | 6 | 6 |
| CRUDE CAPACITY | | | | | | 950 | 950 |
| NO OF REFINERIES | | | | | | 3 | 3 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 5
AS OF JANUARY 1, 1982

| PROCESS | ********** REFINERY SIZE (MBPCD) ********** 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| CATALYTIC CRACKING | | | | | | | |
| FRESH FEED | | ****** | 45 | ****** | 224 | ****** | 614 |
| CRUDE CAPACITY | | ****** | 130 | ****** | 570 | ****** | 2,191 |
| NO OF REFINERIES | | 2 | 3 | 6 | 5 | 3 | 19 |
| CONVERSION (VOL PCT) | | ****** | 67.43 | ****** | 75.87 | ****** | 72.15 |
| CRUDE CAPACITY | | ****** | 130 | ****** | 462 | ****** | 2,083 |
| NO OF REFINERIES | | 2 | 3 | 6 | 4 | 3 | 18 |
| RONC OF DEBUT CAT NAPHTHA | | ****** | 91.25 | ****** | 92.03 | ****** | 91.37 |
| CRUDE CAPACITY | | ****** | 130 | ****** | 462 | ****** | 2,083 |
| NO OF REFINERIES | | 2 | 3 | 6 | 4 | 3 | 18 |
| ALKYLATION | | | | | | | |
| D P VOL (MIX FEED) | | | 8 | ****** | ****** | ****** | 115 |
| CRUDE CAPACITY | | | 130 | ****** | ****** | ****** | 2,141 |
| NO OF REFINERIES | | | 3 | 6 | 5 | 3 | 17 |
| RONC OF DEBUTANIZED PROD | | | 91.49 | ****** | 93.13 | ****** | 93.01 |
| CRUDE CAPACITY | | | 130 | ****** | 570 | ****** | 2,141 |
| NO OF REFINERIES | | | 3 | 6 | 5 | 3 | 17 |
| POLYMER GASOLINE | | | | | | | |
| NET DEBUTANIZED VOLUME | | ****** | | ****** | | ****** | 2 |
| CRUDE CAPACITY | | ****** | | ****** | | ****** | 273 |
| NO OF REFINERIES | | 1 | | 1 | | 1 | 3 |
| RONC OF DEBUTANIZED PROD | | ****** | | ****** | | ****** | 91.82 |
| CRUDE CAPACITY | | ****** | | ****** | | ****** | 273 |
| NO OF REFINERIES | | 1 | | 1 | | 1 | 3 |
| CATALYTIC HYDROTREATING | | | | | | | |
| REFORMER NAPHTHA | | ****** | 27 | 171 | 177 | ****** | 557 |
| CRUDE CAPACITY | | ****** | 131 | 818 | 787 | ****** | 2,824 |
| NO OF REFINERIES | | 6 | 3 | 11 | 7 | 3 | 30 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 5
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| OTHER NAPHTHA | | | ****** | ****** | ****** | ****** | 97 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,692 |
| NO OF REFINERIES | | | 2 | 2 | 4 | 3 | 11 |
| CAT CRACKING CHRGE STOCK | | | ****** | ****** | ****** | ****** | 191 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 1,108 |
| NO OF REFINERIES | | | 1 | 2 | 1 | 2 | 6 |
| DISTILLATE | | ****** | ****** | 163 | 136 | ****** | 460 |
| CRUDE CAPACITY | | ****** | ****** | 599 | 765 | ****** | 2,482 |
| NO OF REFINERIES | | 3 | 2 | 8 | 7 | 3 | 23 |
| RESIDUAL DESULFURIZATION | | | | | | 21 | 21 |
| CRUDE CAPACITY | | | | | | 405 | 405 |
| NO OF REFINERIES | | | | | | 1 | 1 |
| TOTAL ( CA THRU CF) | | ****** | 60 | 397 | 398 | ****** | 1,325 |
| CRUDE CAPACITY | | ****** | 177 | 818 | 787 | ****** | 2,870 |
| NO OF REFINERIES | | 6 | 4 | 11 | 7 | 3 | 31 |
| CATALYTIC HYDROCRACKING U | | | | | | | |
| CAPACITY (DISTLLATE FEED) | | | ****** | ****** | ****** | ****** | 147 |
| CRUDE CAPACITY | | | ****** | ****** | ****** | ****** | 813 |
| NO OF REFINERIES | | | 1 | 3 | 3 | 1 | 8 |
| CAPACITY (HVY GAS O FEED) | | | | ****** | 84 | ****** | 207 |
| CRUDE CAPACITY | | | | ****** | 336 | ****** | 1,261 |
| NO OF REFINERIES | | | | 2 | 3 | 2 | 7 |
| CONVERSION PCT (430 F EP) | | | ****** | ****** | 92.59 | ****** | 86.51 |
| CRUDE CAPACITY | | | ****** | ****** | 679 | ****** | 2,004 |
| NO OF REFINERIES | | | 1 | 4 | 6 | 3 | 14 |

PROCESS FACILITIES CAPACITIES
BY REFINERY SIZE WITHIN PAD 5
AS OF JANUARY 1, 1982

| PROCESS | REFINERY SIZE (MBPCD) 0-10 | 10-30 | 30-50 | 50-100 | 100-175 | 175 + | TOTAL |
|---|---|---|---|---|---|---|---|
| THERMAL PROCESSING | | | | | | | |
| GAS OIL CRACKING | | ****** | | | | | ****** |
| NO OF REFINERIES | | 1 | | | | | 1 |
| VISBREAKING | | ****** | | ****** | ****** | | 62 |
| CRUDE CAPACITY | | ****** | | ****** | ****** | | 459 |
| NO OF REFINERIES | | 2 | | 3 | 2 | | 7 |
| COKING - FEED RATE | | | ****** | ****** | 184 | ****** | 363 |
| CRUDE CAPACITY | | | ****** | ****** | 575 | ****** | 1,451 |
| NO OF REFINERIES | | | 1 | 3 | 5 | 2 | 11 |
| COKING - MAKE ST/CD | | | ****** | ****** | 8,700 | ****** | 17,190 |
| CRUDE CAPACITY | | | ****** | ****** | 575 | ****** | 1,451 |
| NO OF REFINERIES | | | 1 | 3 | 5 | 2 | 11 |
| HYDROGEN (MSCF/CD) | | | | | | | |
| STEAM METHANE REFORMING | | | ****** | ****** | 353 | ****** | 723 |
| CRUDE CAPACITY | | | ****** | ****** | 679 | ****** | 1,863 |
| NO OF REFINERIES | | | 2 | 2 | 6 | 3 | 13 |
| OTHER | | | | 58 | | ****** | ****** |
| NO OF REFINERIES | | | | 3 | | 1 | 4 |
| SULFUR RECOVERY(LT/CD) | | ****** | ****** | 764 | 1,221 | ****** | 3,594 |
| CRUDE CAPACITY | | ****** | ****** | 578 | 679 | ****** | 2,430 |
| NO OF REFINERIES | | 4 | 3 | 8 | 6 | 3 | 24 |

Table C.5.1.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/22/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY LOCATION
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | |
| SWEET CRUDE OIL | 883 | 46.9 | 2,388 | 58.9 | 3,610 | 51.1 | 258 | 50.9 | 744 | 29.4 | 7,883 | 49.2 |
| CRUDE CAPACITY | 1,793 | | 3,967 | | 7,015 | | 462 | | 2,349 | | 15,586 | |
| NO OF REFINERIES | 23 | | 56 | | 66 | | 20 | | 25 | | 190 | |
| LT MED SULFUR CRUDE OIL | 37 | 1.9 | 231 | 5.7 | 346 | 4.9 | 84 | 16.5 | 136 | 5.4 | 834 | 5.2 |
| CRUDE CAPACITY | 1,316 | | 2,189 | | 4,710 | | 201 | | 664 | | 9,081 | |
| NO OF REFINERIES | 9 | | 22 | | 22 | | 8 | | 11 | | 72 | |
| HVY MED SULFUR CRUDE OIL | 101 | 5.4 | 75 | 1.8 | 167 | 2.4 | | | 822 | 32.5 | 1,164 | 7.3 |
| CRUDE CAPACITY | 1,028 | | 1,165 | | 3,536 | | | | 2,232 | | 7,961 | |
| NO OF REFINERIES | 7 | | 12 | | 13 | | | | 23 | | 55 | |
| LT HIGH SULFUR CRUDE OIL | 308 | 16.4 | 587 | 14.5 | 1,543 | 21.9 | | | 53 | 2.1 | 2,491 | 15.5 |
| CRUDE CAPACITY | 896 | | 2,064 | | 5,044 | | | | 558 | | 8,562 | |
| NO OF REFINERIES | 7 | | 19 | | 24 | | | | 7 | | 57 | |
| HVY HIGH SULFUR CRUDE OIL | 416 | 22.1 | 488 | 12.0 | 587 | 8.3 | 125 | 24.7 | 579 | 22.9 | 2,196 | 13.7 |
| CRUDE CAPACITY | 1,335 | | 2,277 | | 3,941 | | 376 | | 2,133 | | 10,063 | |
| NO OF REFINERIES | 15 | | 21 | | 22 | | 12 | | 27 | | 97 | |
| FIELD CONDENSATE | | | 15 | .4 | 58 | .8 | 14 | 2.8 | | | 87 | .5 |
| CRUDE CAPACITY | | | 331 | | 2,385 | | 157 | | | | 2,874 | |
| NO OF REFINERIES | | | 9 | | 18 | | 7 | | | | 34 | |
| FIELD NATURAL GASOLINE | | | 58 | 1.4 | 285 | 4.0 | 4 | .8 | 10 | .4 | 358 | 2.2 |
| CRUDE CAPACITY | | | 2,441 | | 5,116 | | 213 | | 1,377 | | 9,147 | |
| NO OF REFINERIES | | | 28 | | 40 | | 8 | | 14 | | 90 | |
| BUTANES | 13 | .7 | 116 | 2.9 | 120 | 1.7 | 10 | 2.1 | 20 | .8 | 280 | 1.7 |
| CRUDE CAPACITY | 1,166 | | 3,875 | | 6,215 | | 441 | | 1,424 | | 13,121 | |
| NO OF REFINERIES | 8 | | 46 | | 40 | | 14 | | 19 | | 127 | |
| OTHER FEED STOCKS | 101 | 5.4 | 67 | 1.6 | 260 | 3.7 | 8 | 1.5 | 110 | 4.4 | 546 | 3.4 |
| CRUDE CAPACITY | 1,485 | | 2,674 | | 5,923 | | 363 | | 2,508 | | 12,952 | |
| NO OF REFINERIES | 18 | | 25 | | 42 | | 11 | | 26 | | 122 | |

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY LOCATION
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER BLENDING STOCKS | 22 | 1.2 | 29 | .7 | 81 | 1.2 | 3 | .7 | 55 | 2.2 | 190 | 1.2 |
| CRUDE CAPACITY | 1,177 | | 1,727 | | 3,761 | | 186 | | 1,351 | | 8,201 | |
| NO OF REFINERIES | 14 | | 17 | | 25 | | 6 | | 13 | | 75 | |
| TOTAL FEED STOCKS | 1,882 | 100.0 | 4,054 | 100.0 | 7,058 | 100.0 | 507 | 100.0 | 2,529 | 100.0 | 16,029 | 100.0 |
| CRUDE CAPACITY | 1,871 | | 4,135 | | 7,317 | | 564 | | 2,990 | | 16,878 | |
| NO OF REFINERIES | 28 | | 62 | | 83 | | 24 | | 47 | | 244 | |

Table C.5.1.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/22/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY LOCATION
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | |
| SWEET CRUDE OIL | 910 | 46.9 | 2,520 | 59.2 | 3,640 | 47.6 | 268 | 49.2 | 666 | 23.8 | 8,003 | 46.6 |
| CRUDE CAPACITY | 1,702 | | 3,704 | | 7,067 | | 487 | | 2,102 | | 15,062 | |
| NO OF REFINERIES | 23 | | 53 | | 67 | | 20 | | 22 | | 185 | |
| LT MED SULFUR CRUDE OIL | 21 | 1.1 | 178 | 4.2 | 363 | 4.7 | 95 | 17.5 | 181 | 6.5 | 838 | 4.9 |
| CRUDE CAPACITY | 344 | | 996 | | 3,365 | | 238 | | 549 | | 5,492 | |
| NO OF REFINERIES | 4 | | 14 | | 19 | | 9 | | 9 | | 55 | |
| HVY MED SULFUR CRUDE OIL | 51 | 2.6 | 97 | 2.3 | 234 | 3.1 | | | 1,000 | 35.8 | 1,382 | 8.0 |
| CRUDE CAPACITY | 396 | | 727 | | 2,380 | | | | 2,239 | | 5,741 | |
| NO OF REFINERIES | 4 | | 10 | | 10 | | | | 23 | | 47 | |
| LT HIGH SULFUR CRUDE OIL | 491 | 25.3 | 702 | 16.5 | 1,958 | 25.6 | | | 41 | 1.5 | 3,192 | 18.6 |
| CRUDE CAPACITY | 1,231 | | 2,123 | | 5,156 | | | | 64 | | 8,574 | |
| NO OF REFINERIES | 9 | | 18 | | 25 | | | | 3 | | 55 | |
| HVY HIGH SULFUR CRUDE OIL | 379 | 19.5 | 505 | 11.9 | 587 | 7.7 | 140 | 25.7 | 720 | 25.8 | 2,331 | 13.6 |
| CRUDE CAPACITY | 934 | | 2,282 | | 3,596 | | 383 | | 1,757 | | 8,952 | |
| NO OF REFINERIES | 11 | | 19 | | 21 | | 12 | | 25 | | 88 | |
| FIELD CONDENSATE | | | 12 | .3 | 89 | 1.2 | 14 | 2.5 | | | 115 | .7 |
| CRUDE CAPACITY | | | 679 | | 2,861 | | 175 | | | | 3,715 | |
| NO OF REFINERIES | | | 6 | | 20 | | 7 | | | | 33 | |
| FIELD NATURAL GASOLINE | | | 42 | 1.0 | 277 | 3.6 | 5 | .8 | 8 | .3 | 332 | 1.9 |
| CRUDE CAPACITY | | | 2,115 | | 4,262 | | 194 | | 451 | | 7,022 | |
| NO OF REFINERIES | | | 22 | | 31 | | 8 | | 10 | | 71 | |
| BUTANES | 16 | .8 | 117 | 2.7 | 104 | 1.4 | 13 | 2.3 | 20 | .7 | 268 | 1.6 |
| CRUDE CAPACITY | 648 | | 3,877 | | 4,797 | | 430 | | 1,005 | | 10,758 | |
| NO OF REFINERIES | 5 | | 44 | | 33 | | 12 | | 13 | | 107 | |
| OTHER FEED STOCKS | 61 | 3.1 | 54 | 1.3 | 308 | 4.0 | 6 | 1.0 | 106 | 3.8 | 535 | 3.1 |
| CRUDE CAPACITY | 1,170 | | 2,156 | | 5,436 | | 241 | | 1,289 | | 10,291 | |
| NO OF REFINERIES | 15 | | 22 | | 35 | | 7 | | 18 | | 97 | |

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY LOCATION
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER BLENDING STOCKS | 13 | .7 | 27 | .6 | 89 | 1.2 | 5 | .9 | 50 | 1.8 | 185 | 1.1 |
| CRUDE CAPACITY | 843 | | 1,406 | | 3,550 | | 138 | | 1,373 | | 7,309 | |
| NO OF REFINERIES | 11 | | 14 | | 19 | | 5 | | 12 | | 61 | |
| TOTAL FEED STOCKS | 1,941 | 100.0 | 4,255 | 100.0 | 7,649 | 100.0 | 545 | 100.0 | 2,791 | 100.0 | 17,182 | 100.0 |
| CRUDE CAPACITY | 1,927 | | 4,267 | | 7,381 | | 589 | | 3,095 | | 17,260 | |
| NO OF REFINERIES | 29 | | 62 | | 84 | | 24 | | 47 | | 246 | |

Table C.5.1.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/22/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY LOCATION
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | |
| SWEET CRUDE OIL | 944 | 46.7 | 2,534 | 58.1 | 3,652 | 45.1 | 273 | 48.9 | 687 | 23.4 | 8,091 | 45.0 |
| CRUDE CAPACITY | 1,742 | | 3,665 | | 7,560 | | 495 | | 2,126 | | 15,588 | |
| NO OF REFINERIES | 23 | | 52 | | 67 | | 20 | | 22 | | 184 | |
| LT MED SULFUR CRUDE OIL | 50 | 2.5 | 187 | 4.3 | 386 | 4.8 | 96 | 17.2 | 219 | 7.4 | 937 | 5.2 |
| CRUDE CAPACITY | 471 | | 1,121 | | 3,691 | | 249 | | 657 | | 6,189 | |
| NO OF REFINERIES | 5 | | 15 | | 21 | | 10 | | 10 | | 61 | |
| HVY MED SULFUR CRUDE OIL | | | 176 | 4.0 | 270 | 3.3 | | | 1,016 | 34.5 | 1,462 | 8.1 |
| CRUDE CAPACITY | | | 1,314 | | 2,334 | | | | 2,137 | | 5,785 | |
| NO OF REFINERIES | | | 12 | | 9 | | | | 22 | | 43 | |
| LT HIGH SULFUR CRUDE OIL | 481 | 23.8 | 762 | 17.5 | 2,288 | 28.3 | | | 41 | 1.4 | 3,572 | 19.9 |
| CRUDE CAPACITY | 1,242 | | 2,336 | | 5,532 | | | | 64 | | 9,173 | |
| NO OF REFINERIES | 9 | | 20 | | 26 | | | | 3 | | 58 | |
| HVY HIGH SULFUR CRUDE OIL | 443 | 21.9 | 474 | 10.9 | 698 | 8.6 | 152 | 27.2 | 802 | 27.3 | 2,568 | 14.3 |
| CRUDE CAPACITY | 947 | | 2,180 | | 3,710 | | 388 | | 2,149 | | 9,375 | |
| NO OF REFINERIES | 11 | | 17 | | 21 | | 12 | | 26 | | 87 | |
| FIELD CONDENSATE | | | 10 | .2 | 91 | 1.1 | 9 | 1.7 | | | 110 | .6 |
| CRUDE CAPACITY | | | 719 | | 2,293 | | 177 | | | | 3,189 | |
| NO OF REFINERIES | | | 6 | | 19 | | 7 | | | | 32 | |
| FIELD NATURAL GASOLINE | | | 38 | .9 | 260 | 3.2 | 6 | 1.1 | 8 | .3 | 311 | 1.7 |
| CRUDE CAPACITY | | | 2,164 | | 4,959 | | 237 | | 457 | | 7,817 | |
| NO OF REFINERIES | | | 22 | | 32 | | 9 | | 10 | | 73 | |
| BUTANES | 18 | .9 | 121 | 2.8 | 112 | 1.4 | 13 | 2.3 | 21 | .7 | 285 | 1.6 |
| CRUDE CAPACITY | 681 | | 3,948 | | 5,092 | | 430 | | 996 | | 11,147 | |
| NO OF REFINERIES | 5 | | 44 | | 33 | | 12 | | 12 | | 106 | |
| OTHER FEED STOCKS | 68 | 3.3 | 42 | 1.0 | 263 | 3.2 | 5 | .9 | 111 | 3.8 | 488 | 2.7 |
| CRUDE CAPACITY | 977 | | 2,106 | | 4,975 | | 240 | | 1,292 | | 9,590 | |
| NO OF REFINERIES | 14 | | 21 | | 32 | | 7 | | 18 | | 92 | |

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY LOCATION
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER BLENDING STOCKS | 19 | .9 | 19 | .4 | 80 | 1.0 | 5 | .8 | 37 | 1.3 | 160 | .9 |
| CRUDE CAPACITY | 854 | | 1,459 | | 2,816 | | 95 | | 1,076 | | 6,299 | |
| NO OF REFINERIES | 11 | | 14 | | 17 | | 4 | | 12 | | 58 | |
| TOTAL FEED STOCKS | 2,022 | 100.0 | 4,362 | 100.0 | 8,099 | 100.0 | 560 | 100.0 | 2,942 | 100.0 | 17,984 | 100.0 |
| CRUDE CAPACITY | 1,981 | | 4,348 | | 7,897 | | 598 | | 3,146 | | 17,969 | |
| NO OF REFINERIES | 29 | | 62 | | 84 | | 24 | | 47 | | 246 | |

# TABLE C.5.2.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 117 | 43.0 | 528 | 53.4 | 718 | 53.7 | 1,743 | 56.8 | 1,726 | 50.0 | 3,052 | 44.1 | 7,883 | 49.2 |
| CRUDE CAPACITY | 202 | | 809 | | 1,173 | | 2,768 | | 3,266 | | 7,367 | | 15,586 | |
| NO OF REFINERIES | 35 | | 40 | | 27 | | 39 | | 25 | | 24 | | 190 | |
| LT MED SULFUR CRUDE OIL | 20 | 7.5 | 52 | 5.2 | 162 | 12.1 | 209 | 6.8 | 139 | 4.0 | 253 | 3.7 | 834 | 5.2 |
| CRUDE CAPACITY | 40 | | 178 | | 421 | | 1,065 | | 1,781 | | 5,596 | | 9,081 | |
| NO OF REFINERIES | 8 | | 8 | | 10 | | 16 | | 13 | | 17 | | 72 | |
| HVY MED SULFUR CRUDE OIL | | | 100 | 10.1 | 50 | 3.8 | 175 | 5.7 | 302 | 8.8 | 538 | 7.8 | 1,164 | 7.3 |
| CRUDE CAPACITY | | | 207 | | 269 | | 798 | | 1,515 | | 5,172 | | 7,961 | |
| NO OF REFINERIES | | | 10 | | 6 | | 11 | | 12 | | 16 | | 55 | |
| LT HIGH SULFUR CRUDE OIL | 25 | 9.2 | 36 | 3.7 | 60 | 4.5 | 358 | 11.7 | 296 | 8.6 | 1,716 | 24.8 | 2,491 | 15.5 |
| CRUDE CAPACITY | 32 | | 143 | | 261 | | 879 | | 1,294 | | 5,955 | | 8,562 | |
| NO OF REFINERIES | 4 | | 6 | | 6 | | 13 | | 10 | | 18 | | 57 | |
| HVY HIGH SULFUR CRUDE OIL | 66 | 24.2 | 188 | 19.1 | 254 | 19.0 | 177 | 5.8 | 716 | 20.7 | 796 | 11.5 | 2,196 | 13.7 |
| CRUDE CAPACITY | 98 | | 351 | | 678 | | 826 | | 2,476 | | 5,634 | | 10,063 | |
| NO OF REFINERIES | 15 | | 18 | | 16 | | 12 | | 19 | | 17 | | 97 | |
| FIELD CONDENSATE | 21 | 7.8 | 18 | 1.8 | 15 | 1.1 | ****** | *** | ****** | *** | 23 | .3 | 87 | .5 |
| CRUDE CAPACITY | 39 | | 216 | | 207 | | ****** | | ****** | | 1,973 | | 2,874 | |
| NO OF REFINERIES | 7 | | 12 | | 5 | | 4 | | 1 | | 5 | | 34 | |
| FIELD NATURAL GASOLINE | 11 | 4.2 | 23 | 2.4 | 21 | 1.5 | 173 | 5.6 | 14 | .4 | 116 | 1.7 | 358 | 2.2 |
| CRUDE CAPACITY | 45 | | 584 | | 503 | | 1,382 | | 1,128 | | 5,505 | | 9,147 | |
| NO OF REFINERIES | 7 | | 28 | | 11 | | 19 | | 9 | | 16 | | 90 | |
| BUTANES | | | 13 | 1.3 | 25 | 1.9 | 66 | 2.2 | 59 | 1.7 | 116 | 1.7 | 280 | 1.7 |
| CRUDE CAPACITY | | | 587 | | 903 | | 2,518 | | 2,980 | | 6,132 | | 13,121 | |
| NO OF REFINERIES | | | 29 | | 20 | | 35 | | 23 | | 20 | | 127 | |

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER FEED STOCKS | 3 | .9 | 23 | 2.4 | 30 | 2.2 | 134 | 4.4 | 133 | 3.9 | 223 | 3.2 | 546 | 3.4 |
| CRUDE CAPACITY | 46 | | 469 | | 811 | | 2,239 | | 2,519 | | 6,867 | | 12,952 | |
| NO OF REFINERIES | 7 | | 25 | | 18 | | 30 | | 19 | | 23 | | 122 | |
| OTHER BLENDING STOCKS | 9 | 3.2 | 6 | .6 | 3 | .2 | ****** | *** | ****** | *** | 85 | 1.2 | 190 | 1.2 |
| CRUDE CAPACITY | 62 | | 249 | | 305 | | ****** | | ****** | | 4,819 | | 8,201 | |
| NO OF REFINERIES | 10 | | 13 | | 7 | | 16 | | 13 | | 16 | | 75 | |
| TOTAL FEED STOCKS | 271 | 100.0 | 987 | 100.0 | 1,336 | 100.0 | 3,070 | 100.0 | 3,448 | 100.0 | 6,917 | 100.0 | 16,029 | 100.0 |
| CRUDE CAPACITY | 327 | | 1,193 | | 1,454 | | 2,932 | | 3,605 | | 7,367 | | 16,878 | |
| NO OF REFINERIES | 57 | | 60 | | 34 | | 41 | | 28 | | 24 | | 244 | |

# TABLE C.5.2.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 141 | 46.4 | 535 | 50.7 | 745 | 51.1 | 1,817 | 52.7 | 1,558 | 45.6 | 3,207 | 42.8 | 8,003 | 46.6 |
| CRUDE CAPACITY | 190 | | 787 | | 1,219 | | 2,817 | | 2,616 | | 7,434 | | 15,062 | |
| NO OF REFINERIES | 33 | | 40 | | 28 | | 40 | | 20 | | 24 | | 185 | |
| LT MED SULFUR CRUDE OIL | 19 | 6.3 | 64 | 6.0 | 182 | 12.5 | 257 | 7.5 | 77 | 2.3 | 239 | 3.2 | 838 | 4.9 |
| CRUDE CAPACITY | 36 | | 170 | | 493 | | 889 | | 828 | | 3,076 | | 5,492 | |
| NO OF REFINERIES | 7 | | 8 | | 12 | | 13 | | 6 | | 9 | | 55 | |
| HVY MED SULFUR CRUDE OIL | | | 109 | 10.3 | 65 | 4.5 | 219 | 6.3 | 329 | 9.6 | 659 | 8.8 | 1,382 | 8.0 |
| CRUDE CAPACITY | | | 194 | | 271 | | 809 | | 1,250 | | 3,218 | | 5,741 | |
| NO OF REFINERIES | | | 9 | | 6 | | 12 | | 10 | | 10 | | 47 | |
| LT HIGH SULFUR CRUDE OIL | 22 | 7.1 | 53 | 5.0 | 62 | 4.3 | 531 | 15.4 | 466 | 13.6 | 2,058 | 27.4 | 3,192 | 18.6 |
| CRUDE CAPACITY | 27 | | 157 | | 125 | | 931 | | 1,498 | | 5,837 | | 8,574 | |
| NO OF REFINERIES | 3 | | 7 | | 3 | | 13 | | 11 | | 18 | | 55 | |
| HVY HIGH SULFUR CRUDE OIL | 71 | 23.2 | 206 | 19.5 | 307 | 21.0 | 186 | 5.4 | 749 | 21.9 | 812 | 10.8 | 2,331 | 13.6 |
| CRUDE CAPACITY | 91 | | 326 | | 627 | | 740 | | 2,005 | | 5,164 | | 8,952 | |
| NO OF REFINERIES | 13 | | 17 | | 15 | | 11 | | 16 | | 16 | | 88 | |
| FIELD CONDENSATE | 28 | 9.2 | 18 | 1.7 | 18 | 1.3 | ****** | *** | ****** | *** | 37 | .5 | 115 | .7 |
| CRUDE CAPACITY | 44 | | 175 | | 205 | | ****** | | ****** | | 2,797 | | 3,715 | |
| NO OF REFINERIES | 7 | | 10 | | 5 | | 1 | | 3 | | 7 | | 33 | |
| FIELD NATURAL GASOLINE | 13 | 4.4 | 20 | 1.9 | 9 | .6 | 195 | 5.7 | 8 | .2 | 86 | 1.1 | 332 | 1.9 |
| CRUDE CAPACITY | 55 | | 435 | | 369 | | 1,262 | | 621 | | 4,281 | | 7,022 | |
| NO OF REFINERIES | 8 | | 21 | | 8 | | 17 | | 5 | | 12 | | 71 | |
| BUTANES | | | 12 | 1.1 | 28 | 1.9 | 80 | 2.3 | 58 | 1.7 | 90 | 1.2 | 268 | 1.6 |
| CRUDE CAPACITY | | | 416 | | 886 | | 2,154 | | 2,571 | | 4,732 | | 10,758 | |
| NO OF REFINERIES | | | 20 | | 20 | | 31 | | 20 | | 16 | | 107 | |

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER FEED STOCKS | 3 | .9 | 33 | 3.1 | 38 | 2.6 | 140 | 4.1 | 109 | 3.2 | 213 | 2.8 | 535 | 3.1 |
| CRUDE CAPACITY | 43 | | 357 | | 628 | | 2,135 | | 1,609 | | 5,519 | | 10,291 | |
| NO OF REFINERIES | 6 | | 19 | | 14 | | 28 | | 12 | | 18 | | 97 | |
| OTHER BLENDING STOCKS | 8 | 2.6 | 6 | .5 | 3 | .2 | ****** | *** | ****** | *** | 97 | 1.3 | 185 | 1.1 |
| CRUDE CAPACITY | 68 | | 184 | | 232 | | ****** | | ****** | | 4,662 | | 7,309 | |
| NO OF REFINERIES | 10 | | 10 | | 5 | | 12 | | 10 | | 14 | | 61 | |
| TOTAL FEED STOCKS | 305 | 100.0 | 1,055 | 100.0 | 1,458 | 100.0 | 3,450 | 100.0 | 3,416 | 100.0 | 7,499 | 100.0 | 17,182 | 100.0 |
| CRUDE CAPACITY | 313 | | 1,183 | | 1,534 | | 3,140 | | 3,476 | | 7,614 | | 17,260 | |
| NO OF REFINERIES | 52 | | 61 | | 36 | | 45 | | 27 | | 25 | | 246 | |

# TABLE C.5.2.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 122 | 41.0 | 572 | 50.5 | 709 | 49.6 | 1,820 | 54.2 | 1,661 | 44.9 | 3,208 | 39.7 | 8,091 | 45.0 |
| CRUDE CAPACITY | 169 | | 840 | | 1,187 | | 2,788 | | 2,694 | | 7,910 | | 15,588 | |
| NO OF REFINERIES | 30 | | 42 | | 27 | | 40 | | 20 | | 25 | | 184 | |
| LT MED SULFUR CRUDE OIL | 20 | 6.6 | 75 | 6.6 | 181 | 12.6 | 273 | 8.1 | 203 | 5.5 | 186 | 2.3 | 937 | 5.2 |
| CRUDE CAPACITY | 36 | | 202 | | 492 | | 876 | | 1,336 | | 3,247 | | 6,189 | |
| NO OF REFINERIES | 7 | | 10 | | 12 | | 13 | | 10 | | 9 | | 61 | |
| HVY MED SULFUR CRUDE OIL | | | 118 | 10.5 | 56 | 3.9 | 222 | 6.6 | 292 | 7.9 | 773 | 9.6 | 1,462 | 8.1 |
| CRUDE CAPACITY | | | 196 | | 230 | | 773 | | 799 | | 3,787 | | 5,785 | |
| NO OF REFINERIES | | | 9 | | 5 | | 11 | | 7 | | 11 | | 43 | |
| LT HIGH SULFUR CRUDE OIL | 24 | 8.0 | 53 | 4.7 | 132 | 9.2 | 450 | 13.4 | 441 | 11.9 | 2,472 | 30.6 | 3,572 | 19.9 |
| CRUDE CAPACITY | 29 | | 157 | | 225 | | 852 | | 1,625 | | 6,286 | | 9,173 | |
| NO OF REFINERIES | 3 | | 7 | | 5 | | 12 | | 12 | | 19 | | 58 | |
| HVY HIGH SULFUR CRUDE OIL | 68 | 23.1 | 221 | 19.5 | 271 | 19.0 | 241 | 7.2 | 827 | 22.4 | 939 | 11.6 | 2,568 | 14.3 |
| CRUDE CAPACITY | 90 | | 346 | | 561 | | 797 | | 1,926 | | 5,654 | | 9,375 | |
| NO OF REFINERIES | 12 | | 18 | | 13 | | 12 | | 15 | | 17 | | 87 | |
| FIELD CONDENSATE | 29 | 9.8 | 23 | 2.0 | 8 | .6 | ****** | *** | ****** | *** | 26 | .3 | 110 | .6 |
| CRUDE CAPACITY | 45 | | 200 | | 162 | | ****** | | ****** | | 2,267 | | 3,189 | |
| NO OF REFINERIES | 7 | | 11 | | 4 | | 1 | | 3 | | 6 | | 32 | |
| FIELD NATURAL GASOLINE | 10 | 3.5 | 19 | 1.7 | 7 | .5 | 129 | 3.8 | 10 | .3 | 136 | 1.7 | 311 | 1.7 |
| CRUDE CAPACITY | 49 | | 424 | | 366 | | 1,241 | | 783 | | 4,956 | | 7,817 | |
| NO OF REFINERIES | 7 | | 21 | | 8 | | 17 | | 6 | | 14 | | 73 | |
| BUTANES | | | 12 | 1.1 | 31 | 2.2 | 77 | 2.3 | 64 | 1.7 | 102 | 1.3 | 285 | 1.6 |
| CRUDE CAPACITY | | | 406 | | 897 | | 2,091 | | 2,769 | | 4,985 | | 11,147 | |
| NO OF REFINERIES | | | 19 | | 20 | | 30 | | 21 | | 16 | | 106 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER FEED STOCKS | 15 | 5.1 | 32 | 2.9 | 32 | 2.3 | 126 | 3.7 | 119 | 3.2 | 164 | 2.0 | 488 | 2.7 |
| CRUDE CAPACITY | 43 | | 350 | | 585 | | 2,050 | | 1,760 | | 4,802 | | 9,590 | |
| NO OF REFINERIES | 6 | | 18 | | 13 | | 27 | | 13 | | 15 | | 92 | |
| OTHER BLENDING STOCKS | 8 | 2.8 | 7 | .6 | 3 | .2 | ****** | *** | ****** | *** | 66 | .8 | 160 | .9 |
| CRUDE CAPACITY | 60 | | 197 | | 186 | | ****** | | ****** | | 3,468 | | 6,299 | |
| NO OF REFINERIES | 9 | | 11 | | 4 | | 11 | | 12 | | 11 | | 58 | |
| TOTAL FEED STOCKS | 296 | 100.0 | 1,131 | 100.0 | 1,430 | 100.0 | 3,358 | 100.0 | 3,698 | 100.0 | 8,071 | 100.0 | 17,984 | 100.0 |
| CRUDE CAPACITY | 292 | | 1,257 | | 1,475 | | 3,181 | | 3,674 | | 8,090 | | 17,969 | |
| NO OF REFINERIES | 48 | | 64 | | 34 | | 46 | | 28 | | 26 | | 246 | |

Table C.5.3.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY COMPANY SIZE
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 64 | 34.1 | 311 | 48.6 | 204 | 44.6 | 605 | 73.3 | 392 | 49.6 | 6,307 | 48.0 | 7,883 | 49.2 |
| CRUDE CAPACITY | 127 | | 510 | | 405 | | 756 | | 790 | | 12,997 | | 15,586 | |
| NO OF REFINERIES | 23 | | 32 | | 11 | | 18 | | 9 | | 97 | | 190 | |
| LT MED SULFUR CRUDE OIL | 13 | 6.9 | 41 | 6.4 | 71 | 15.4 | 10 | 1.2 | 32 | 4.0 | 667 | 5.1 | 834 | 5.2 |
| CRUDE CAPACITY | 25 | | 107 | | 173 | | 74 | | 317 | | 8,385 | | 9,081 | |
| NO OF REFINERIES | 5 | | 5 | | 5 | | 3 | | 4 | | 50 | | 72 | |
| HVY MED SULFUR CRUDE OIL | | | 79 | 12.3 | ****** | *** | 21 | 2.5 | ****** | *** | 1,027 | 7.8 | 1,164 | 7.3 |
| CRUDE CAPACITY | | | 181 | | ****** | | 168 | | ****** | | 7,288 | | 7,961 | |
| NO OF REFINERIES | | | 9 | | 2 | | 3 | | 2 | | 39 | | 55 | |
| LT HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | 42 | 9.1 | ****** | *** | 148 | 18.7 | 2,180 | 16.6 | 2,491 | 15.5 |
| CRUDE CAPACITY | ****** | | ****** | | 120 | | ****** | | 471 | | 7,780 | | 8,562 | |
| NO OF REFINERIES | 4 | | 2 | | 3 | | 2 | | 5 | | 41 | | 57 | |
| HVY HIGH SULFUR CRUDE OIL | 50 | 26.6 | 141 | 22.0 | 101 | 22.0 | 46 | 5.6 | 130 | 16.4 | 1,729 | 13.2 | 2,196 | 13.7 |
| CRUDE CAPACITY | 78 | | 211 | | 239 | | 237 | | 528 | | 8,769 | | 10,063 | |
| NO OF REFINERIES | 11 | | 12 | | 6 | | 5 | | 6 | | 57 | | 97 | |
| FIELD CONDENSATE | 21 | 11.4 | 6 | .9 | ****** | *** | ****** | *** | ****** | *** | 49 | .4 | 87 | .5 |
| CRUDE CAPACITY | 39 | | 138 | | ****** | | ****** | | ****** | | 2,548 | | 2,874 | |
| NO OF REFINERIES | 7 | | 8 | | 1 | | 2 | | 1 | | 15 | | 34 | |
| FIELD NATURAL GASOLINE | 8 | 4.4 | 12 | 1.9 | 11 | 2.4 | 14 | 1.7 | 14 | 1.7 | 299 | 2.3 | 358 | 2.2 |
| CRUDE CAPACITY | 20 | | 341 | | 133 | | 444 | | 710 | | 7,499 | | 9,147 | |
| NO OF REFINERIES | 3 | | 18 | | 4 | | 12 | | 7 | | 46 | | 90 | |
| BUTANES | | | 7 | 1.0 | 7 | 1.5 | 24 | 2.9 | 17 | 2.1 | 225 | 1.7 | 280 | 1.7 |
| CRUDE CAPACITY | | | 346 | | 266 | | 593 | | 917 | | 10,999 | | 13,121 | |
| NO OF REFINERIES | | | 17 | | 6 | | 13 | | 10 | | 81 | | 127 | |

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1979 REFINERY SURVEY - PART I

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY COMPANY SIZE
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER FEED STOCKS | ****** | *** | ****** | *** | 10 | 2.2 | 30 | 3.6 | 16 | 2.1 | 479 | 3.6 | 546 | 3.4 |
| CRUDE CAPACITY | ****** | | ****** | | 207 | | 427 | | 680 | | 11,368 | | 12,952 | |
| NO OF REFINERIES | 2 | | 17 | | 5 | | 10 | | 8 | | 80 | | 122 | |
| OTHER BLENDING STOCKS | 5 | 2.8 | 8 | 1.3 | ****** | *** | 5 | .6 | ****** | *** | 166 | 1.3 | 190 | 1.2 |
| CRUDE CAPACITY | 18 | | 184 | | ****** | | 278 | | ****** | | 7,293 | | 8,201 | |
| NO OF REFINERIES | 3 | | 12 | | 2 | | 8 | | 4 | | 46 | | 75 | |
| TOTAL FEED STOCKS | 187 | 100.0 | 641 | 100.0 | 458 | 100.0 | 826 | 100.0 | 791 | 100.0 | 13,128 | 100.0 | 16,029 | 100.0 |
| CRUDE CAPACITY | 233 | | 770 | | 542 | | 838 | | 917 | | 13,578 | | 16,878 | |
| NO OF REFINERIES | 41 | | 46 | | 16 | | 21 | | 10 | | 110 | | 244 | |

Table C.5.3.2

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CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY COMPANY SIZE
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 80 | 38.0 | 331 | 46.9 | 270 | 45.2 | 670 | 66.2 | 476 | 53.2 | 6,176 | 44.9 | 8,003 | 46.6 |
| CRUDE CAPACITY | 116 | | 481 | | 494 | | 825 | | 733 | | 12,413 | | 15,062 | |
| NO OF REFINERIES | 21 | | 32 | | 13 | | 19 | | 8 | | 92 | | 185 | |
| LT MED SULFUR CRUDE OIL | 12 | 5.5 | 51 | 7.2 | 97 | 16.3 | ****** | *** | ****** | *** | 614 | 4.5 | 838 | 4.9 |
| CRUDE CAPACITY | 21 | | 99 | | 244 | | ****** | | ****** | | 4,867 | | 5,492 | |
| NO OF REFINERIES | 4 | | 5 | | 7 | | 4 | | 2 | | 33 | | 55 | |
| HVY MED SULFUR CRUDE OIL | | | 86 | 12.2 | ****** | *** | 37 | 3.6 | ****** | *** | 1,196 | 8.7 | 1,382 | 8.0 |
| CRUDE CAPACITY | | | 168 | | ****** | | 208 | | ****** | | 5,042 | | 5,741 | |
| NO OF REFINERIES | | | 8 | | 2 | | 4 | | 2 | | 31 | | 47 | |
| LT HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 184 | 20.6 | 2,829 | 20.6 | 3,192 | 18.6 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | 476 | | 7,815 | | 8,574 | |
| NO OF REFINERIES | 3 | | 3 | | 2 | | 2 | | 5 | | 40 | | 55 | |
| HVY HIGH SULFUR CRUDE OIL | 55 | 26.0 | 146 | 20.7 | 143 | 23.9 | 76 | 7.5 | 122 | 13.6 | 1,790 | 13.0 | 2,331 | 13.6 |
| CRUDE CAPACITY | 71 | | 179 | | 274 | | 236 | | 471 | | 7,720 | | 8,952 | |
| NO OF REFINERIES | 9 | | 11 | | 7 | | 5 | | 5 | | 51 | | 88 | |
| FIELD CONDENSATE | 28 | 13.3 | 5 | .7 | ****** | *** | ****** | *** | | | 66 | .5 | 115 | .7 |
| CRUDE CAPACITY | 44 | | 120 | | ****** | | ****** | | | | 3,403 | | 3,715 | |
| NO OF REFINERIES | 7 | | 7 | | 2 | | 2 | | | | 15 | | 33 | |
| FIELD NATURAL GASOLINE | 9 | 4.1 | 12 | 1.8 | ****** | *** | 16 | 1.6 | ****** | *** | 283 | 2.1 | 332 | 1.9 |
| CRUDE CAPACITY | 25 | | 251 | | ****** | | 397 | | ****** | | 5,976 | | 7,022 | |
| NO OF REFINERIES | 4 | | 13 | | 5 | | 11 | | 2 | | 36 | | 71 | |
| BUTANES | | | 6 | .8 | 11 | 1.8 | 28 | 2.7 | 25 | 2.7 | 199 | 1.4 | 268 | 1.6 |
| CRUDE CAPACITY | | | 226 | | 386 | | 669 | | 922 | | 8,555 | | 10,758 | |
| NO OF REFINERIES | | | 11 | | 9 | | 14 | | 10 | | 63 | | 107 | |

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1979 REFINERY SURVEY - PART I

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY COMPANY SIZE
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER FEED STOCKS | ****** | *** | ****** | *** | 12 | 2.1 | 50 | 5.0 | 8 | .9 | 442 | 3.2 | 535 | 3.1 |
| CRUDE CAPACITY | ****** | | ****** | | 241 | | 402 | | 321 | | 9,102 | | 10,291 | |
| NO OF REFINERIES | 2 | | 13 | | 6 | | 8 | | 5 | | 63 | | 97 | |
| OTHER BLENDING STOCKS | 5 | 2.4 | 7 | 1.0 | ****** | *** | 5 | .5 | ****** | *** | 166 | 1.2 | 185 | 1.1 |
| CRUDE CAPACITY | 25 | | 147 | | ****** | | 184 | | ****** | | 6,877 | | 7,309 | |
| NO OF REFINERIES | 3 | | 11 | | 1 | | 6 | | 1 | | 39 | | 61 | |
| TOTAL FEED STOCKS | 211 | 100.0 | 705 | 100.0 | 598 | 100.0 | 1,012 | 100.0 | 894 | 100.0 | 13,762 | 100.0 | 17,182 | 100.0 |
| CRUDE CAPACITY | 220 | | 753 | | 667 | | 1,004 | | 922 | | 13,695 | | 17,260 | |
| NO OF REFINERIES | 36 | | 47 | | 19 | | 24 | | 10 | | 110 | | 246 | |

Table C.5.3.3

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1979 REFINERY SURVEY - PART I

9/20/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY COMPANY SIZE
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 65 | 31.8 | 364 | 46.5 | 292 | 42.3 | 757 | 68.7 | 474 | 52.9 | 6,140 | 42.9 | 8,091 | 45.0 |
| CRUDE CAPACITY | 101 | | 526 | | 552 | | 883 | | 733 | | 12,794 | | 15,588 | |
| NO OF REFINERIES | 19 | | 33 | | 14 | | 19 | | 8 | | 91 | | 184 | |
| LT MED SULFUR CRUDE OIL | 12 | 6.0 | 62 | 7.9 | 106 | 15.4 | ****** | *** | ****** | *** | 672 | 4.7 | 937 | 5.2 |
| CRUDE CAPACITY | 21 | | 131 | | 244 | | ****** | | ****** | | 5,493 | | 6,189 | |
| NO OF REFINERIES | 4 | | 7 | | 7 | | 5 | | 2 | | 36 | | 61 | |
| HVY MED SULFUR CRUDE OIL | | | 95 | 12.2 | ****** | *** | ****** | *** | ****** | *** | 1,260 | 8.8 | 1,462 | 8.1 |
| CRUDE CAPACITY | | | 170 | | ****** | | ****** | | ****** | | 5,159 | | 5,785 | |
| NO OF REFINERIES | | | 8 | | 2 | | 2 | | 2 | | 29 | | 43 | |
| LT HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | 112 | 16.2 | ****** | *** | 184 | 20.5 | 3,124 | 21.8 | 3,572 | 19.9 |
| CRUDE CAPACITY | ****** | | ****** | | 175 | | ****** | | 476 | | 8,300 | | 9,173 | |
| NO OF REFINERIES | 3 | | 3 | | 4 | | 2 | | 5 | | 41 | | 58 | |
| HVY HIGH SULFUR CRUDE OIL | 48 | 23.8 | 163 | 20.9 | 131 | 19.0 | 81 | 7.3 | 93 | 10.4 | 2,052 | 14.3 | 2,568 | 14.3 |
| CRUDE CAPACITY | 66 | | 198 | | 234 | | 241 | | 471 | | 8,164 | | 9,375 | |
| NO OF REFINERIES | 8 | | 12 | | 6 | | 5 | | 5 | | 51 | | 87 | |
| FIELD CONDENSATE | 29 | 14.3 | 10 | 1.3 | ****** | *** | ****** | *** | | | 60 | .4 | 110 | .6 |
| CRUDE CAPACITY | 45 | | 145 | | ****** | | ****** | | | | 2,896 | | 3,189 | |
| NO OF REFINERIES | 7 | | 8 | | 2 | | 1 | | | | 14 | | 32 | |
| FIELD NATURAL GASOLINE | 6 | 2.8 | 13 | 1.6 | ****** | *** | 15 | 1.4 | ****** | *** | 266 | 1.9 | 311 | 1.7 |
| CRUDE CAPACITY | 25 | | 259 | | ****** | | 436 | | ****** | | 6,721 | | 7,817 | |
| NO OF REFINERIES | 4 | | 13 | | 5 | | 10 | | 2 | | 39 | | 73 | |
| BUTANES | | | 6 | .8 | 14 | 2.0 | 28 | 2.5 | 26 | 2.9 | 211 | 1.5 | 285 | 1.6 |
| CRUDE CAPACITY | | | 216 | | 396 | | 692 | | 922 | | 8,921 | | 11,147 | |
| NO OF REFINERIES | | | 10 | | 9 | | 14 | | 10 | | 63 | | 106 | |

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY COMPANY SIZE
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER FEED STOCKS | ****** | *** | ****** | *** | 13 | 1.9 | 49 | 4.4 | 8 | .9 | 383 | 2.7 | 488 | 2.7 |
| CRUDE CAPACITY | ****** | | ****** | | 244 | | 451 | | 321 | | 8,363 | | 9,590 | |
| NO OF REFINERIES | 2 | | 12 | | 6 | | 8 | | 5 | | 59 | | 92 | |
| OTHER BLENDING STOCKS | 6 | 3.0 | 7 | .9 | ****** | *** | 4 | .4 | ****** | *** | 141 | 1.0 | 160 | .9 |
| CRUDE CAPACITY | 25 | | 153 | | ****** | | 184 | | ****** | | 5,861 | | 6,299 | |
| NO OF REFINERIES | 3 | | 11 | | 1 | | 6 | | 1 | | 36 | | 58 | |
| TOTAL FEED STOCKS | 203 | 100.0 | 781 | 100.0 | 690 | 100.0 | 1,102 | 100.0 | 897 | 100.0 | 14,310 | 100.0 | 17,984 | 100.0 |
| CRUDE CAPACITY | 201 | | 817 | | 727 | | 1,080 | | 922 | | 14,223 | | 17,969 | |
| NO OF REFINERIES | 33 | | 49 | | 20 | | 24 | | 10 | | 110 | | 246 | |

Table C.5.4.1

NATIONAL PETROLEUM COUNCIL
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10/11/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY COMPLEXITY FACTOR
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | ********** COMPLEXITY FACTOR ********** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-3 ** | | ** 3-5 ** | | ** 5-7 ** | | ** 7-9 ** | | ** 9-11 ** | | ** 11 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 508 | 50.6 | 699 | 54.0 | 2,556 | 51.8 | 2,898 | 48.3 | 638 | 41.1 | 584 | 47.0 | 7,883 | 49.2 |
| CRUDE CAPACITY | 884 | | 1,237 | | 5,328 | | 5,724 | | 1,233 | | 1,180 | | 15,586 | |
| NO OF REFINERIES | 54 | | 29 | | 49 | | 40 | | 9 | | 9 | | 190 | |
| LT MED SULFUR CRUDE OIL | 53 | 5.3 | 78 | 6.0 | 279 | 5.7 | 350 | 5.8 | 49 | 3.2 | 25 | 2.0 | 834 | 5.2 |
| CRUDE CAPACITY | 163 | | 380 | | 2,918 | | 4,324 | | 610 | | 687 | | 9,081 | |
| NO OF REFINERIES | 11 | | 8 | | 18 | | 26 | | 5 | | 4 | | 72 | |
| HVY MED SULFUR CRUDE OIL | 86 | 8.6 | 19 | 1.5 | 282 | 5.7 | 455 | 7.6 | 166 | 10.7 | 156 | 12.6 | 1,164 | 7.3 |
| CRUDE CAPACITY | 321 | | 103 | | 2,694 | | 3,166 | | 899 | | 778 | | 7,961 | |
| NO OF REFINERIES | 9 | | 3 | | 15 | | 17 | | 7 | | 4 | | 55 | |
| LT HIGH SULFUR CRUDE OIL | 48 | 4.8 | 88 | 6.8 | 1,006 | 20.4 | 964 | 16.1 | 300 | 19.4 | 83 | 6.7 | 2,491 | 15.5 |
| CRUDE CAPACITY | 67 | | 337 | | 3,106 | | 3,738 | | 720 | | 595 | | 8,562 | |
| NO OF REFINERIES | 5 | | 5 | | 20 | | 19 | | 5 | | 3 | | 57 | |
| HVY HIGH SULFUR CRUDE OIL | 236 | 23.5 | 304 | 23.5 | 531 | 10.8 | 638 | 10.6 | 206 | 13.3 | 282 | 22.7 | 2,196 | 13.7 |
| CRUDE CAPACITY | 384 | | 701 | | 3,307 | | 3,674 | | 1,032 | | 965 | | 10,063 | |
| NO OF REFINERIES | 27 | | 13 | | 20 | | 22 | | 9 | | 6 | | 97 | |
| FIELD CONDENSATE | 23 | 2.3 | 17 | 1.3 | 20 | .4 | ****** | *** | ****** | *** | | | 87 | .5 |
| CRUDE CAPACITY | 91 | | 218 | | 1,399 | | ****** | | ****** | | | | 2,874 | |
| NO OF REFINERIES | 11 | | 9 | | 7 | | 5 | | 2 | | | | 34 | |
| FIELD NATURAL GASOLINE | 18 | 1.8 | 19 | 1.5 | 68 | 1.4 | 202 | 3.4 | 27 | 1.7 | 23 | 1.9 | 358 | 2.2 |
| CRUDE CAPACITY | 342 | | 626 | | 3,323 | | 3,372 | | 720 | | 764 | | 9,147 | |
| NO OF REFINERIES | 16 | | 16 | | 26 | | 20 | | 6 | | 6 | | 90 | |
| BUTANES | 2 | .2 | 15 | 1.2 | 75 | 1.5 | 142 | 2.4 | 30 | 2.0 | 16 | 1.3 | 280 | 1.7 |
| CRUDE CAPACITY | 192 | | 1,119 | | 4,196 | | 5,112 | | 1,381 | | 1,121 | | 13,121 | |
| NO OF REFINERIES | 8 | | 21 | | 42 | | 36 | | 12 | | 8 | | 127 | |

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CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY COMPLEXITY FACTOR
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| | ** 0-3 ** | | ** 3-5 ** | | ** 5-7 ** | | ** 7-9 ** | | ** 9-11 ** | | ** 11 + ** | | ** TOTAL ** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER FEED STOCKS | 18 | 1.8 | 32 | 2.5 | 87 | 1.8 | 254 | 4.2 | 106 | 6.8 | 48 | 3.9 | 546 | 3.4 |
| CRUDE CAPACITY | 435 | | 950 | | 3,695 | | 5,331 | | 1,381 | | 1,159 | | 12,952 | |
| NO OF REFINERIES | 19 | | 19 | | 29 | | 34 | | 12 | | 9 | | 122 | |
| OTHER BLENDING STOCKS | 10 | 1.0 | 24 | 1.9 | 29 | .6 | ****** | *** | ****** | *** | 24 | 2.0 | 190 | 1.2 |
| CRUDE CAPACITY | 150 | | 751 | | 2,257 | | ****** | | ****** | | 778 | | 8,201 | |
| NO OF REFINERIES | 12 | | 14 | | 19 | | 17 | | 7 | | 6 | | 75 | |
| TOTAL FEED STOCKS | 1,004 | 100.0 | 1,295 | 100.0 | 4,935 | 100.0 | 6,004 | 100.0 | 1,551 | 100.0 | 1,241 | 100.0 | 16,029 | 100.0 |
| CRUDE CAPACITY | 1,308 | | 1,458 | | 5,380 | | 5,959 | | 1,487 | | 1,285 | | 16,878 | |
| NO OF REFINERIES | 90 | | 37 | | 51 | | 42 | | 13 | | 11 | | 244 | |

Table C.5.4.2

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10/11/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY COMPLEXITY FACTOR
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-3 | | 3-5 | | 5-7 | | 7-9 | | 9-11 | | 11 + | | TOTAL | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 585 | 48.2 | 511 | 55.7 | 2,885 | 49.7 | 2,697 | 45.2 | 768 | 44.3 | 557 | 35.9 | 8,003 | 46.6 |
| CRUDE CAPACITY | 855 | | 761 | | 5,942 | | 5,120 | | 1,183 | | 1,201 | | 15,062 | |
| NO OF REFINERIES | 50 | | 25 | | 56 | | 37 | | 9 | | 8 | | 185 | |
| LT MED SULFUR CRUDE OIL | 93 | 7.6 | 70 | 7.6 | 321 | 5.5 | 258 | 4.3 | 37 | 2.1 | 60 | 3.8 | 838 | 4.9 |
| CRUDE CAPACITY | 192 | | 165 | | 2,313 | | 1,855 | | 420 | | 547 | | 5,492 | |
| NO OF REFINERIES | 10 | | 6 | | 19 | | 14 | | 3 | | 3 | | 55 | |
| HVY MED SULFUR CRUDE OIL | 98 | 8.1 | 62 | 6.7 | 294 | 5.1 | 582 | 9.8 | 165 | 9.5 | 181 | 11.7 | 1,382 | 8.0 |
| CRUDE CAPACITY | 316 | | 136 | | 1,567 | | 2,586 | | 358 | | 778 | | 5,741 | |
| NO OF REFINERIES | 8 | | 4 | | 12 | | 15 | | 4 | | 4 | | 47 | |
| LT HIGH SULFUR CRUDE OIL | 58 | 4.8 | 43 | 4.6 | 1,251 | 21.6 | 1,286 | 21.6 | 344 | 19.8 | 211 | 13.6 | 3,192 | 18.6 |
| CRUDE CAPACITY | 81 | | 90 | | 3,253 | | 3,533 | | 737 | | 880 | | 8,574 | |
| NO OF REFINERIES | 5 | | 3 | | 19 | | 19 | | 5 | | 4 | | 55 | |
| HVY HIGH SULFUR CRUDE OIL | 301 | 24.8 | 158 | 17.2 | 725 | 12.5 | 581 | 9.7 | 151 | 8.7 | 416 | 26.8 | 2,331 | 13.6 |
| CRUDE CAPACITY | 415 | | 390 | | 3,526 | | 2,760 | | 612 | | 1,250 | | 8,952 | |
| NO OF REFINERIES | 26 | | 9 | | 21 | | 18 | | 7 | | 7 | | 88 | |
| FIELD CONDENSATE | 30 | 2.5 | 15 | 1.6 | 22 | .4 | 31 | .5 | ****** | *** | ****** | *** | 115 | .7 |
| CRUDE CAPACITY | 82 | | 119 | | 1,524 | | 1,199 | | ****** | | ****** | | 3,715 | |
| NO OF REFINERIES | 10 | | 6 | | 7 | | 6 | | 2 | | 2 | | 33 | |
| FIELD NATURAL GASOLINE | 16 | 1.3 | 10 | 1.0 | 51 | .9 | 142 | 2.4 | 93 | 5.4 | 20 | 1.3 | 332 | 1.9 |
| CRUDE CAPACITY | 284 | | 223 | | 2,779 | | 2,038 | | 711 | | 988 | | 7,022 | |
| NO OF REFINERIES | 11 | | 11 | | 24 | | 13 | | 6 | | 6 | | 71 | |
| BUTANES | 2 | .2 | 9 | 1.0 | 90 | 1.6 | 115 | 1.9 | 38 | 2.2 | 14 | .9 | 268 | 1.6 |
| CRUDE CAPACITY | 198 | | 604 | | 3,888 | | 3,730 | | 1,174 | | 1,165 | | 10,758 | |
| NO OF REFINERIES | 6 | | 14 | | 42 | | 29 | | 9 | | 7 | | 107 | |

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY COMPLEXITY FACTOR
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-3 ** | | ** 3-5 ** | | ** 5-7 ** | | ** 7-9 ** | | ** 9-11 ** | | ** 11 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER FEED STOCKS | 20 | 1.7 | 26 | 2.9 | 107 | 1.8 | 191 | 3.2 | 128 | 7.4 | 63 | 4.1 | 535 | 3.1 |
| CRUDE CAPACITY | 394 | | 298 | | 3,595 | | 3,525 | | 1,285 | | 1,194 | | 10,291 | |
| NO OF REFINERIES | 14 | | 12 | | 25 | | 27 | | 11 | | 8 | | 97 | |
| OTHER BLENDING STOCKS | 12 | 1.0 | 14 | 1.6 | 56 | 1.0 | 77 | 1.3 | ****** | *** | ****** | *** | 185 | 1.1 |
| CRUDE CAPACITY | 185 | | 276 | | 2,553 | | 3,020 | | ****** | | ****** | | 7,309 | |
| NO OF REFINERIES | 12 | | 8 | | 17 | | 16 | | 4 | | 4 | | 61 | |
| TOTAL FEED STOCKS | 1,214 | 100.0 | 918 | 100.0 | 5,803 | 100.0 | 5,960 | 100.0 | 1,736 | 100.0 | 1,551 | 100.0 | 17,182 | 100.0 |
| CRUDE CAPACITY | 1,404 | | 989 | | 6,000 | | 5,748 | | 1,550 | | 1,569 | | 17,260 | |
| NO OF REFINERIES | 87 | | 32 | | 59 | | 42 | | 14 | | 12 | | 246 | |

Table C.5.4.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/11/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY COMPLEXITY FACTOR
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR 0-3 | | 3-5 | | 5-7 | | 7-9 | | 9-11 | | 11 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 540 | 46.5 | 737 | 67.5 | 2,735 | 47.0 | 2,921 | 43.1 | 661 | 42.5 | 498 | 31.6 | 8,091 | 45.0 |
| CRUDE CAPACITY | 823 | | 946 | | 5,551 | | 5,941 | | 1,098 | | 1,229 | | 15,588 | |
| NO OF REFINERIES | 46 | | 26 | | 51 | | 43 | | 9 | | 9 | | 184 | |
| LT MED SULFUR CRUDE OIL | 84 | 7.3 | 110 | 10.0 | 283 | 4.9 | 261 | 3.8 | 169 | 10.9 | 30 | 1.9 | 937 | 5.2 |
| CRUDE CAPACITY | 228 | | 171 | | 2,342 | | 2,156 | | 590 | | 701 | | 6,189 | |
| NO OF REFINERIES | 12 | | 6 | | 20 | | 13 | | 7 | | 3 | | 61 | |
| HVY MED SULFUR CRUDE OIL | 77 | 6.7 | 69 | 6.3 | 304 | 5.2 | 678 | 10.0 | 165 | 10.6 | 169 | 10.7 | 1,462 | 8.1 |
| CRUDE CAPACITY | 220 | | 109 | | 1,439 | | 3,002 | | 358 | | 658 | | 5,785 | |
| NO OF REFINERIES | 5 | | 4 | | 11 | | 16 | | 4 | | 3 | | 43 | |
| LT HIGH SULFUR CRUDE OIL | 90 | 7.7 | 26 | 2.4 | 1,308 | 22.5 | 1,741 | 25.7 | 85 | 5.5 | 322 | 20.4 | 3,572 | 19.9 |
| CRUDE CAPACITY | 133 | | 170 | | 3,181 | | 4,458 | | 331 | | 900 | | 9,173 | |
| NO OF REFINERIES | 6 | | 3 | | 18 | | 24 | | 3 | | 4 | | 58 | |
| HVY HIGH SULFUR CRUDE OIL | 308 | 26.5 | 70 | 6.4 | 937 | 16.1 | 577 | 8.5 | 229 | 14.7 | 448 | 28.4 | 2,568 | 14.3 |
| CRUDE CAPACITY | 428 | | 142 | | 3,689 | | 3,060 | | 787 | | 1,270 | | 9,375 | |
| NO OF REFINERIES | 26 | | 4 | | 24 | | 18 | | 8 | | 7 | | 87 | |
| FIELD CONDENSATE | 29 | 2.5 | 15 | 1.3 | 9 | .2 | 49 | .7 | ****** | *** | ****** | *** | 110 | .6 |
| CRUDE CAPACITY | 98 | | 137 | | 794 | | 1,265 | | ****** | | ****** | | 3,189 | |
| NO OF REFINERIES | 10 | | 6 | | 6 | | 7 | | 1 | | 2 | | 32 | |
| FIELD NATURAL GASOLINE | 5 | .5 | 13 | 1.2 | 46 | .8 | 127 | 1.9 | 107 | 6.9 | 14 | .9 | 311 | 1.7 |
| CRUDE CAPACITY | 201 | | 494 | | 2,656 | | 3,119 | | 337 | | 1,010 | | 7,817 | |
| NO OF REFINERIES | 6 | | 14 | | 23 | | 19 | | 5 | | 6 | | 73 | |
| BUTANES | 2 | .2 | 6 | .5 | 92 | 1.6 | 132 | 1.9 | 42 | 2.7 | 11 | .7 | 285 | 1.6 |
| CRUDE CAPACITY | 189 | | 621 | | 3,781 | | 4,214 | | 1,159 | | 1,184 | | 11,147 | |
| NO OF REFINERIES | 5 | | 11 | | 41 | | 32 | | 10 | | 7 | | 106 | |

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY COMPLEXITY FACTOR
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR 0-3 | | 3-5 | | 5-7 | | 7-9 | | 9-11 | | 11 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER FEED STOCKS | 18 | 1.6 | 33 | 3.0 | 90 | 1.6 | 201 | 3.0 | 83 | 5.4 | 62 | 3.9 | 488 | 2.7 |
| CRUDE CAPACITY | 348 | | 524 | | 3,213 | | 3,718 | | 1,008 | | 778 | | 9,590 | |
| NO OF REFINERIES | 11 | | 13 | | 24 | | 28 | | 9 | | 7 | | 92 | |
| OTHER BLENDING STOCKS | 7 | .6 | 15 | 1.4 | 15 | .3 | 94 | 1.4 | ****** | *** | ****** | *** | 160 | .9 |
| CRUDE CAPACITY | 145 | | 433 | | 1,324 | | 3,153 | | ****** | | ****** | | 6,299 | |
| NO OF REFINERIES | 10 | | 10 | | 12 | | 17 | | 6 | | 3 | | 58 | |
| TOTAL FEED STOCKS | 1,160 | 100.0 | 1,092 | 100.0 | 5,820 | 100.0 | 6,781 | 100.0 | 1,555 | 100.0 | 1,577 | 100.0 | 17,984 | 100.0 |
| CRUDE CAPACITY | 1,350 | | 1,116 | | 5,859 | | 6,655 | | 1,399 | | 1,591 | | 17,969 | |
| NO OF REFINERIES | 81 | | 32 | | 58 | | 49 | | 14 | | 12 | | 246 | |

Table C.5.5.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 1
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | ****** | *** | ****** | *** | | | 249 | 60.6 | 252 | *** | ****** | *** | 883 | 46.9 |
| CRUDE CAPACITY | ****** | | ****** | | | | 388 | | 644 | | ****** | | 1,793 | |
| NO OF REFINERIES | 8 | | 2 | | | | 6 | | 4 | | 3 | | 23 | |
| LT MED SULFUR CRUDE OIL | | | | | | | 11 | 2.6 | 13 | *** | 13 | *** | 37 | 1.9 |
| CRUDE CAPACITY | | | | | | | 159 | | 476 | | 682 | | 1,316 | |
| NO OF REFINERIES | | | | | | | 3 | | 3 | | 3 | | 9 | |
| HVY MED SULFUR CRUDE OIL | | | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 101 | 5.4 |
| CRUDE CAPACITY | | | ****** | | | | ****** | | ****** | | ****** | | 1,028 | |
| NO OF REFINERIES | | | 1 | | | | 1 | | 3 | | 2 | | 7 | |
| LT HIGH SULFUR CRUDE OIL | | | | | | | 100 | 24.5 | ****** | *** | ****** | *** | 308 | 16.4 |
| CRUDE CAPACITY | | | | | | | 257 | | ****** | | ****** | | 896 | |
| NO OF REFINERIES | | | | | | | 4 | | 1 | | 2 | | 7 | |
| HVY HIGH SULFUR CRUDE OIL | ****** | *** | 45 | 58.7 | | | ****** | *** | ****** | *** | ****** | *** | 416 | 22.1 |
| CRUDE CAPACITY | ****** | | 86 | | | | ****** | | ****** | | ****** | | 1,335 | |
| NO OF REFINERIES | 2 | | 5 | | | | 2 | | 4 | | 2 | | 15 | |
| BUTANES | | | | | | | ****** | *** | 6 | *** | ****** | *** | 13 | .7 |
| CRUDE CAPACITY | | | | | | | ****** | | 476 | | ****** | | 1,166 | |
| NO OF REFINERIES | | | | | | | 3 | | 3 | | 2 | | 8 | |
| OTHER FEED STOCKS | ****** | *** | ****** | *** | | | 17 | 4.3 | 47 | *** | ****** | *** | 101 | 5.4 |
| CRUDE CAPACITY | ****** | | ****** | | | | 248 | | 480 | | ****** | | 1,485 | |
| NO OF REFINERIES | 5 | | 3 | | | | 4 | | 3 | | 3 | | 18 | |
| OTHER BLENDING STOCKS | ****** | *** | | | | | ****** | *** | ****** | *** | ****** | *** | 22 | 1.2 |
| CRUDE CAPACITY | ****** | | | | | | ****** | | ****** | | ****** | | 1,177 | |
| NO OF REFINERIES | 5 | | | | | | 4 | | 3 | | 2 | | 14 | |
| TOTAL FEED STOCKS | 49 | 100.0 | 76 | 100.0 | | | 410 | 100.0 | ****** | *** | ****** | *** | 1,882 | 100.0 |
| CRUDE CAPACITY | 59 | | 98 | | | | 388 | | ****** | | ****** | | 1,871 | |
| NO OF REFINERIES | 9 | | 6 | | | | 6 | | 4 | | 3 | | 28 | |

Table C.5.5.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 2
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 16 | 39.7 | 165 | 76.7 | 325 | 72.3 | 668 | 63.3 | 703 | 55.8 | 510 | 49.4 | 2,388 | 58.9 |
| CRUDE CAPACITY | 38 | | 205 | | 460 | | 1,056 | | 1,170 | | 1,038 | | 3,967 | |
| NO OF REFINERIES | 7 | | 10 | | 10 | | 16 | | 9 | | 4 | | 56 | |
| LT MED SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | 121 | 11.4 | 30 | 2.4 | 32 | 3.1 | 231 | 5.7 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 496 | | 692 | | 843 | | 2,189 | |
| NO OF REFINERIES | 2 | | 1 | | 3 | | 8 | | 5 | | 3 | | 22 | |
| HVY MED SULFUR CRUDE OIL | | | ****** | *** | ****** | *** | ****** | *** | 25 | 2.0 | ****** | *** | 75 | 1.8 |
| CRUDE CAPACITY | | | ****** | | ****** | | ****** | | 383 | | ****** | | 1,165 | |
| NO OF REFINERIES | | | 2 | | 2 | | 3 | | 3 | | 2 | | 12 | |
| LT HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 235 | 18.7 | 242 | 23.4 | 587 | 14.5 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | 766 | | 843 | | 2,064 | |
| NO OF REFINERIES | 1 | | 3 | | 2 | | 4 | | 6 | | 3 | | 19 | |
| HVY HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | 89 | 8.5 | 201 | 16.0 | 154 | 14.9 | 488 | 12.0 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 397 | | 883 | | 843 | | 2,277 | |
| NO OF REFINERIES | 1 | | 1 | | 3 | | 6 | | 7 | | 3 | | 21 | |
| FIELD CONDENSATE | ****** | *** | 1 | .5 | ****** | *** | ****** | *** | | | | | 15 | .4 |
| CRUDE CAPACITY | ****** | | 64 | | ****** | | ****** | | | | | | 331 | |
| NO OF REFINERIES | 1 | | 3 | | 3 | | 2 | | | | | | 9 | |
| FIELD NATURAL GASOLINE | ****** | *** | 10 | 4.7 | 4 | .9 | ****** | *** | 8 | .6 | ****** | *** | 58 | 1.4 |
| CRUDE CAPACITY | ****** | | 110 | | 233 | | ****** | | 628 | | ****** | | 2,441 | |
| NO OF REFINERIES | 1 | | 5 | | 5 | | 9 | | 5 | | 3 | | 28 | |
| BUTANES | | | 5 | 2.4 | 13 | 2.9 | 40 | 3.7 | 23 | 1.8 | 35 | 3.4 | 116 | 2.9 |
| CRUDE CAPACITY | | | 144 | | 460 | | 1,056 | | 1,177 | | 1,038 | | 3,875 | |
| NO OF REFINERIES | | | 7 | | 10 | | 16 | | 9 | | 4 | | 46 | |
| OTHER FEED STOCKS | | | 2 | .9 | 4 | .9 | 13 | 1.2 | 17 | 1.3 | 31 | 3.0 | 67 | 1.6 |
| CRUDE CAPACITY | | | 53 | | 189 | | 562 | | 831 | | 1,038 | | 2,674 | |
| NO OF REFINERIES | | | 3 | | 4 | | 8 | | 6 | | 4 | | 25 | |

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 2
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER BLENDING STOCKS | ****** | *** | ****** | *** | ****** | *** | 1 | .1 | 17 | 1.3 | ****** | *** | 29 | .7 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 264 | | 633 | | ****** | | 1,727 | |
| NO OF REFINERIES | 1 | | 2 | | 3 | | 4 | | 5 | | 2 | | 17 | |
| TOTAL FEED STOCKS | 40 | 100.0 | 215 | 100.0 | 449 | 100.0 | 1,055 | 100.0 | 1,260 | 100.0 | 1,034 | 100.0 | 4,054 | 100.0 |
| CRUDE CAPACITY | 59 | | 225 | | 460 | | 1,056 | | 1,297 | | 1,038 | | 4,135 | |
| NO OF REFINERIES | 11 | | 11 | | 10 | | 16 | | 10 | | 4 | | 62 | |

Table C.5.5.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 3
ACTUAL 1978

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 46 | 41.2 | 217 | 67.5 | 142 | 49.9 | 580 | 54.7 | 586 | 75.1 | 2,039 | 45.3 | 3,610 | 51.1 |
| CRUDE CAPACITY | 75 | | 353 | | 224 | | 788 | | 878 | | 4,697 | | 7,015 | |
| NO OF REFINERIES | 12 | | 17 | | 6 | | 10 | | 7 | | 14 | | 66 | |
| LT MED SULFUR CRUDE OIL | ****** | *** | ****** | *** | 46 | 16.1 | ****** | *** | ****** | *** | 208 | 4.6 | 346 | 4.9 |
| CRUDE CAPACITY | ****** | | ****** | | 109 | | ****** | | ****** | | 4,072 | | 4,710 | |
| NO OF REFINERIES | 2 | | 2 | | 3 | | 2 | | 2 | | 11 | | 22 | |
| HVY MED SULFUR CRUDE OIL | | | ****** | *** | | | ****** | *** | ****** | *** | 151 | 3.4 | 167 | 2.4 |
| CRUDE CAPACITY | | | ****** | | | | ****** | | ****** | | 3,284 | | 3,536 | |
| NO OF REFINERIES | | | 2 | | | | 1 | | 1 | | 9 | | 13 | |
| LT HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | 172 | 16.2 | ****** | *** | 1,263 | 28.1 | 1,543 | 21.9 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 298 | | ****** | | 4,272 | | 5,044 | |
| NO OF REFINERIES | 1 | | 3 | | 1 | | 4 | | 3 | | 12 | | 24 | |
| HVY HIGH SULFUR CRUDE OIL | 21 | 19.2 | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 443 | 9.9 | 587 | 8.3 |
| CRUDE CAPACITY | 26 | | ****** | | ****** | | ****** | | ****** | | 3,366 | | 3,941 | |
| NO OF REFINERIES | 5 | | 2 | | 2 | | 2 | | 2 | | 9 | | 22 | |
| FIELD CONDENSATE | 16 | 14.1 | 16 | 5.1 | | | ****** | *** | ****** | *** | 23 | .5 | 58 | .8 |
| CRUDE CAPACITY | 24 | | 85 | | | | ****** | | ****** | | 1,973 | | 2,385 | |
| NO OF REFINERIES | 5 | | 5 | | | | 2 | | 1 | | 5 | | 18 | |
| FIELD NATURAL GASOLINE | ****** | *** | 9 | 2.7 | 11 | 4.0 | 150 | 14.2 | ****** | *** | 99 | 2.2 | 285 | 4.0 |
| CRUDE CAPACITY | ****** | | 227 | | 113 | | 677 | | ****** | | 3,697 | | 5,116 | |
| NO OF REFINERIES | 4 | | 11 | | 3 | | 9 | | 3 | | 10 | | 40 | |
| BUTANES | | | 5 | 1.5 | ****** | *** | ****** | *** | 19 | 2.4 | 75 | 1.7 | 120 | 1.7 |
| CRUDE CAPACITY | | | 184 | | ****** | | ****** | | 758 | | 4,417 | | 6,215 | |
| NO OF REFINERIES | | | 9 | | 2 | | 10 | | 6 | | 13 | | 40 | |
| OTHER FEED STOCKS | ****** | *** | ****** | *** | 13 | 4.5 | 80 | 7.5 | 10 | 1.3 | 148 | 3.3 | 260 | 3.7 |
| CRUDE CAPACITY | ****** | | ****** | | 199 | | 853 | | 529 | | 4,197 | | 5,923 | |
| NO OF REFINERIES | 2 | | 7 | | 5 | | 11 | | 4 | | 13 | | 42 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 3
ACTUAL 1978

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER BLENDING STOCKS | ****** | *** | ****** | *** | | | 10 | .9 | 14 | 1.8 | 51 | 1.1 | 81 | 1.2 |
| CRUDE CAPACITY | ****** | | ****** | | | | 390 | | 464 | | 2,814 | | 3,761 | |
| NO OF REFINERIES | 2 | | 4 | | | | 6 | | 4 | | 9 | | 25 | |
| TOTAL FEED STOCKS | 111 | 100.0 | 321 | 100.0 | 285 | 100.0 | 1,059 | 100.0 | 781 | 100.0 | 4,500 | 100.0 | 7,058 | 100.0 |
| CRUDE CAPACITY | 121 | | 421 | | 347 | | 853 | | 878 | | 4,697 | | 7,317 | |
| NO OF REFINERIES | 21 | | 21 | | 9 | | 11 | | 7 | | 14 | | 83 | |

Table C.5.5.4

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 4
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 16 | 61.0 | 95 | 62.9 | 148 | 44.7 | | | | | | | 258 | 50.9 |
| CRUDE CAPACITY | 29 | | 162 | | 271 | | | | | | | | 462 | |
| NO OF REFINERIES | 6 | | 8 | | 6 | | | | | | | | 20 | |
| LT MED SULFUR CRUDE OIL | ****** | *** | ****** | *** | 64 | 19.4 | | | | | | | 84 | 16.5 |
| CRUDE CAPACITY | ****** | | ****** | | 132 | | | | | | | | 201 | |
| NO OF REFINERIES | 2 | | 3 | | 3 | | | | | | | | 8 | |
| HVY HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | 91 | 27.5 | | | | | | | 125 | 24.7 |
| CRUDE CAPACITY | ****** | | ****** | | 266 | | | | | | | | 376 | |
| NO OF REFINERIES | 1 | | 5 | | 6 | | | | | | | | 12 | |
| FIELD CONDENSATE | ****** | *** | 1 | .5 | ****** | *** | | | | | | | 14 | 2.8 |
| CRUDE CAPACITY | ****** | | 68 | | ****** | | | | | | | | 157 | |
| NO OF REFINERIES | 1 | | 4 | | 2 | | | | | | | | 7 | |
| FIELD NATURAL GASOLINE | ****** | *** | 2 | 1.0 | ****** | *** | | | | | | | 4 | .8 |
| CRUDE CAPACITY | ****** | | 91 | | ****** | | | | | | | | 213 | |
| NO OF REFINERIES | 1 | | 5 | | 2 | | | | | | | | 8 | |
| BUTANES | | | 2 | 1.6 | 8 | 2.4 | | | | | | | 10 | 2.1 |
| CRUDE CAPACITY | | | 160 | | 280 | | | | | | | | 441 | |
| NO OF REFINERIES | | | 8 | | 6 | | | | | | | | 14 | |
| OTHER FEED STOCKS | | | 4 | 2.6 | 4 | 1.1 | | | | | | | 8 | 1.5 |
| CRUDE CAPACITY | | | 115 | | 248 | | | | | | | | 363 | |
| NO OF REFINERIES | | | 6 | | 5 | | | | | | | | 11 | |
| OTHER BLENDING STOCKS | | | ****** | *** | ****** | *** | | | | | | | 3 | .7 |
| CRUDE CAPACITY | | | ****** | | ****** | | | | | | | | 186 | |
| NO OF REFINERIES | | | 3 | | 3 | | | | | | | | 6 | |
| TOTAL FEED STOCKS | 26 | 100.0 | 151 | 100.0 | 330 | 100.0 | | | | | | | 507 | 100.0 |
| CRUDE CAPACITY | 34 | | 173 | | 358 | | | | | | | | 564 | |
| NO OF REFINERIES | 7 | | 9 | | 8 | | | | | | | | 24 | |

Table C.5.5.5

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 5
ACTUAL 1978

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | ****** | *** | ****** | *** | 103 | 38.0 | 246 | 45.2 | 185 | *** | ****** | *** | 744 | 29.4 |
| CRUDE CAPACITY | ****** | | ****** | | 218 | | 536 | | 575 | | ****** | | 2,349 | |
| NO OF REFINERIES | 2 | | 3 | | 5 | | 7 | | 5 | | 3 | | 25 | |
| LT MED SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | | *** | 136 | 5.4 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | ****** | | | | 664 | |
| NO OF REFINERIES | 2 | | 2 | | 1 | | 3 | | 3 | | | | 11 | |
| HVY MED SULFUR CRUDE OIL | | | 75 | 33.7 | ****** | *** | 156 | 28.6 | 193 | *** | ****** | *** | 822 | 32.5 |
| CRUDE CAPACITY | | | 99 | | ****** | | 457 | | 550 | | ****** | | 2,232 | |
| NO OF REFINERIES | | | 5 | | 4 | | 6 | | 5 | | 3 | | 23 | |
| LT HIGH SULFUR CRUDE OIL | ****** | *** | | | 30 | 10.9 | ****** | *** | | *** | ****** | *** | 53 | 2.1 |
| CRUDE CAPACITY | ****** | | | | 126 | | ****** | | | | ****** | | 558 | |
| NO OF REFINERIES | 2 | | | | 3 | | 1 | | | | 1 | | 7 | |
| HVY HIGH SULFUR CRUDE OIL | 25 | 56.8 | 76 | 34.0 | 85 | 31.4 | ****** | *** | 239 | *** | ****** | *** | 579 | 22.9 |
| CRUDE CAPACITY | 43 | | 103 | | 205 | | ****** | | 681 | | ****** | | 2,133 | |
| NO OF REFINERIES | 6 | | 5 | | 5 | | 2 | | 6 | | 3 | | 27 | |
| FIELD NATURAL GASOLINE | ****** | *** | 3 | 1.4 | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 10 | .4 |
| CRUDE CAPACITY | ****** | | 156 | | ****** | | ****** | | ****** | | ****** | | 1,377 | |
| NO OF REFINERIES | 1 | | 7 | | 1 | | 1 | | 1 | | 3 | | 14 | |
| BUTANES | | | | .1 | ****** | *** | 7 | 1.3 | 11 | *** | ****** | *** | 20 | .8 |
| CRUDE CAPACITY | | | 100 | | ****** | | 491 | | 570 | | ****** | | 1,424 | |
| NO OF REFINERIES | | | 5 | | 2 | | 6 | | 5 | | 1 | | 19 | |
| OTHER FEED STOCKS | | | ****** | *** | 9 | 3.4 | 24 | 4.3 | 59 | *** | ****** | *** | 110 | 4.4 |
| CRUDE CAPACITY | | | ****** | | 175 | | 576 | | 681 | | ****** | | 2,508 | |
| NO OF REFINERIES | | | 6 | | 4 | | 7 | | 6 | | 3 | | 26 | |
| OTHER BLENDING STOCKS | ****** | *** | 2 | 1.0 | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 55 | 2.2 |
| CRUDE CAPACITY | ****** | | 87 | | ****** | | ****** | | ****** | | ****** | | 1,351 | |
| NO OF REFINERIES | 2 | | 4 | | 1 | | 2 | | 1 | | 3 | | 13 | |

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 5
ACTUAL 1978

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| TOTAL FEED STOCKS | 45 | 100.0 | 224 | 100.0 | 272 | 100.0 | 544 | 100.0 | ****** | *** | ****** | *** | 2,529 | 100.0 |
| CRUDE CAPACITY | 54 | | 276 | | 289 | | 635 | | ****** | | ****** | | 2,990 | |
| NO OF REFINERIES | 9 | | 13 | | 7 | | 8 | | 7 | | 3 | | 47 | |

Table C.5.6.1

NATIONAL PETROLEUM COUNCIL
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CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 1
PROJECTED 1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | ****** | *** | ****** | *** | | | 281 | 59.5 | ****** | *** | ****** | *** | 910 | 46.9 |
| CRUDE CAPACITY | ****** | | ****** | | | | 433 | | ****** | | ****** | | 1,702 | |
| NO OF REFINERIES | 7 | | 3 | | | | 7 | | 3 | | 3 | | 23 | |
| LT MED SULFUR CRUDE OIL | | | | | | | ****** | *** | | *** | ****** | *** | 21 | 1.1 |
| CRUDE CAPACITY | | | | | | | ****** | | | | ****** | | 344 | |
| NO OF REFINERIES | | | | | | | 3 | | | | 1 | | 4 | |
| HVY MED SULFUR CRUDE OIL | | | | | | | ****** | *** | ****** | *** | | *** | 51 | 2.6 |
| CRUDE CAPACITY | | | | | | | ****** | | ****** | | | | 396 | |
| NO OF REFINERIES | | | | | | | 2 | | 2 | | | | 4 | |
| LT HIGH SULFUR CRUDE OIL | | | | | | | 120 | 25.4 | ****** | *** | ****** | *** | 491 | 25.3 |
| CRUDE CAPACITY | | | | | | | 252 | | ****** | | ****** | | 1,231 | |
| NO OF REFINERIES | | | | | | | 4 | | 3 | | 2 | | 9 | |
| HVY HIGH SULFUR CRUDE OIL | ****** | *** | 45 | 59.0 | | | ****** | *** | ****** | *** | ****** | *** | 379 | 19.5 |
| CRUDE CAPACITY | ****** | | 58 | | | | ****** | | ****** | | ****** | | 934 | |
| NO OF REFINERIES | 1 | | 4 | | | | 2 | | 2 | | 2 | | 11 | |
| BUTANES | | | | | | | ****** | *** | ****** | *** | ****** | *** | 16 | .8 |
| CRUDE CAPACITY | | | | | | | ****** | | ****** | | ****** | | 648 | |
| NO OF REFINERIES | | | | | | | 2 | | 2 | | 1 | | 5 | |
| OTHER FEED STOCKS | ****** | *** | ****** | *** | | | 8 | 1.6 | ****** | *** | ****** | *** | 61 | 3.1 |
| CRUDE CAPACITY | ****** | | ****** | | | | 298 | | ****** | | ****** | | 1,170 | |
| NO OF REFINERIES | 5 | | 2 | | | | 4 | | 2 | | 2 | | 15 | |
| OTHER BLENDING STOCKS | ****** | *** | | | | | ****** | *** | ****** | *** | ****** | *** | 13 | .7 |
| CRUDE CAPACITY | ****** | | | | | | ****** | | ****** | | ****** | | 843 | |
| NO OF REFINERIES | 5 | | | | | | 3 | | 2 | | 1 | | 11 | |
| TOTAL FEED STOCKS | 46 | 100.0 | 77 | 100.0 | | | 472 | 100.0 | ****** | *** | ****** | *** | 1,941 | 100.0 |
| CRUDE CAPACITY | 50 | | 84 | | | | 468 | | ****** | | ****** | | 1,927 | |
| NO OF REFINERIES | 8 | | 6 | | | | 8 | | 4 | | 3 | | 29 | |

Table C.5.6.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 2
PROJECTED 1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 27 | 49.5 | 165 | 77.1 | 270 | 67.1 | 765 | 65.8 | 658 | 58.1 | 635 | 49.2 | 2,520 | 59.2 |
| CRUDE CAPACITY | 42 | | 208 | | 413 | | 1,055 | | 889 | | 1,098 | | 3,704 | |
| NO OF REFINERIES | 7 | | 10 | | 9 | | 16 | | 7 | | 4 | | 53 | |
| LT MED SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | 93 | 8.0 | ****** | *** | ****** | *** | 178 | 4.2 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 316 | | ****** | | ****** | | 996 | |
| NO OF REFINERIES | 2 | | 1 | | 3 | | 5 | | 2 | | 1 | | 14 | |
| HVY MED SULFUR CRUDE OIL | | | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 97 | 2.3 |
| CRUDE CAPACITY | | | ****** | | ****** | | ****** | | ****** | | ****** | | 727 | |
| NO OF REFINERIES | | | 2 | | 2 | | 4 | | 1 | | 1 | | 10 | |
| LT HIGH SULFUR CRUDE OIL | ****** | *** | 9 | 4.4 | ****** | *** | 103 | 8.9 | 172 | 15.2 | ****** | *** | 702 | 16.5 |
| CRUDE CAPACITY | ****** | | 76 | | ****** | | 277 | | 630 | | ****** | | 2,123 | |
| NO OF REFINERIES | 1 | | 3 | | 1 | | 4 | | 5 | | 4 | | 18 | |
| HVY HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | 96 | 8.3 | 197 | 17.4 | 168 | 13.0 | 505 | 11.9 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 340 | | 747 | | 1,083 | | 2,282 | |
| NO OF REFINERIES | 1 | | 1 | | 2 | | 5 | | 6 | | 4 | | 19 | |
| FIELD CONDENSATE | ****** | *** | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | 12 | .3 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | | | ****** | | ****** | | 679 | |
| NO OF REFINERIES | 1 | | 2 | | 1 | | | | 1 | | 1 | | 6 | |
| FIELD NATURAL GASOLINE | ****** | *** | 7 | 3.3 | 1 | .2 | ****** | *** | ****** | *** | 10 | .8 | 42 | 1.0 |
| CRUDE CAPACITY | ****** | | 69 | | 142 | | ****** | | ****** | | 1,098 | | 2,115 | |
| NO OF REFINERIES | 2 | | 3 | | 3 | | 8 | | 2 | | 4 | | 22 | |
| BUTANES | | | 6 | 2.6 | 11 | 2.6 | 46 | 4.0 | 28 | 2.4 | 27 | 2.1 | 117 | 2.7 |
| CRUDE CAPACITY | | | 144 | | 363 | | 1,045 | | 1,047 | | 1,278 | | 3,877 | |
| NO OF REFINERIES | | | 7 | | 8 | | 16 | | 8 | | 5 | | 44 | |
| OTHER FEED STOCKS | | | 3 | 1.2 | 7 | 1.7 | 12 | 1.1 | 2 | .2 | 30 | 2.3 | 54 | 1.3 |
| CRUDE CAPACITY | | | 69 | | 140 | | 561 | | 571 | | 815 | | 2,156 | |
| NO OF REFINERIES | | | 4 | | 3 | | 8 | | 4 | | 3 | | 22 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 2
PROJECTED 1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175+ | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER BLENDING STOCKS | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 27 | .6 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | ****** | | ****** | | 1,406 | |
| NO OF REFINERIES | 1 | | 2 | | 2 | | 3 | | 5 | | 1 | | 14 | |
| TOTAL FEED STOCKS | 54 | 100.0 | 213 | 100.0 | 402 | 100.0 | 1,164 | 100.0 | 1,133 | 100.0 | 1,290 | 100.0 | 4,255 | 100.0 |
| CRUDE CAPACITY | 64 | | 228 | | 413 | | 1,117 | | 1,167 | | 1,278 | | 4,267 | |
| NO OF REFINERIES | 11 | | 11 | | 9 | | 17 | | 9 | | 5 | | 62 | |

Table C.5.6.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 3
PROJECTED 1980

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 55 | 41.3 | 248 | 66.3 | 211 | 57.4 | 527 | 44.6 | 533 | 63.3 | 2,065 | 43.5 | 3,640 | 47.6 |
| CRUDE CAPACITY | 69 | | 355 | | 274 | | 787 | | 878 | | 4,704 | | 7,067 | |
| NO OF REFINERIES | 11 | | 18 | | 7 | | 10 | | 7 | | 14 | | 67 | |
| LT MED SULFUR CRUDE OIL | ****** | *** | ****** | *** | 52 | 14.2 | ****** | *** | ****** | *** | 217 | 4.6 | 363 | 4.7 |
| CRUDE CAPACITY | ****** | | ****** | | 145 | | ****** | | ****** | | 2,691 | | 3,365 | |
| NO OF REFINERIES | 2 | | 2 | | 4 | | 2 | | 2 | | 7 | | 19 | |
| HVY MED SULFUR CRUDE OIL | | | ****** | *** | | | | | ****** | *** | 202 | 4.3 | 234 | 3.1 |
| CRUDE CAPACITY | | | ****** | | | | | | ****** | | 2,068 | | 2,380 | |
| NO OF REFINERIES | | | 2 | | | | | | 2 | | 6 | | 10 | |
| LT HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | 308 | 26.1 | ****** | *** | 1,428 | 30.1 | 1,958 | 25.6 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 402 | | ****** | | 4,279 | | 5,156 | |
| NO OF REFINERIES | 1 | | 3 | | 1 | | 5 | | 3 | | 12 | | 25 | |
| HVY HIGH SULFUR CRUDE OIL | 26 | 19.5 | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 438 | 9.2 | 587 | 7.7 |
| CRUDE CAPACITY | 27 | | ****** | | ****** | | ****** | | ****** | | 3,021 | | 3,596 | |
| NO OF REFINERIES | 5 | | 2 | | 2 | | 2 | | 2 | | 8 | | 21 | |
| FIELD CONDENSATE | 21 | 15.6 | 16 | 4.4 | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 89 | 1.2 |
| CRUDE CAPACITY | 28 | | 85 | | ****** | | ****** | | ****** | | ****** | | 2,861 | |
| NO OF REFINERIES | 5 | | 5 | | 1 | | 1 | | 2 | | 6 | | 20 | |
| FIELD NATURAL GASOLINE | 12 | 9.1 | 10 | 2.5 | ****** | *** | 171 | 14.4 | ****** | *** | 76 | 1.6 | 277 | 3.6 |
| CRUDE CAPACITY | 27 | | 203 | | ****** | | 551 | | ****** | | 3,183 | | 4,262 | |
| NO OF REFINERIES | 3 | | 10 | | 1 | | 7 | | 2 | | 8 | | 31 | |
| BUTANES | | | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 104 | 1.4 |
| CRUDE CAPACITY | | | ****** | | ****** | | ****** | | ****** | | ****** | | 4,797 | |
| NO OF REFINERIES | | | 6 | | 3 | | 9 | | 5 | | 10 | | 33 | |
| OTHER FEED STOCKS | ****** | *** | 20 | 5.2 | 15 | 4.0 | 101 | 8.6 | ****** | *** | 164 | 3.4 | 308 | 4.0 |
| CRUDE CAPACITY | ****** | | 114 | | 131 | | 859 | | ****** | | 4,027 | | 5,436 | |
| NO OF REFINERIES | 1 | | 6 | | 3 | | 11 | | 2 | | 12 | | 35 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 3
PROJECTED 1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER BLENDING STOCKS | ****** | *** | 3 | .8 | | | ****** | *** | ****** | *** | 67 | 1.4 | 89 | 1.2 |
| CRUDE CAPACITY | ****** | | 66 | | | | ****** | | ****** | | 3,001 | | 3,550 | |
| NO OF REFINERIES | 1 | | 4 | | | | 3 | | 2 | | 9 | | 19 | |
| TOTAL FEED STOCKS | 133 | 100.0 | 374 | 100.0 | 367 | 100.0 | 1,183 | 100.0 | 843 | 100.0 | 4,749 | 100.0 | 7,649 | 100.0 |
| CRUDE CAPACITY | 120 | | 423 | | 397 | | 859 | | 878 | | 4,704 | | 7,381 | |
| NO OF REFINERIES | 20 | | 22 | | 10 | | 11 | | 7 | | 14 | | 84 | |

Table C.5.6.4

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 4
PROJECTED 1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 18 | 61.0 | 73 | 51.5 | 177 | 47.3 | | | | | | | 268 | 49.2 |
| CRUDE CAPACITY | 29 | | 151 | | 307 | | | | | | | | 487 | |
| NO OF REFINERIES | 6 | | 7 | | 7 | | | | | | | | 20 | |
| LT MED SULFUR CRUDE OIL | ****** | *** | ****** | *** | 71 | 19.0 | | | | | | | 95 | 17.5 |
| CRUDE CAPACITY | ****** | | ****** | | 168 | | | | | | | | 238 | |
| NO OF REFINERIES | 2 | | 3 | | 4 | | | | | | | | 9 | |
| HVY HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | 96 | 25.9 | | | | | | | 140 | 25.7 |
| CRUDE CAPACITY | ****** | | ****** | | 266 | | | | | | | | 383 | |
| NO OF REFINERIES | 1 | | 5 | | 6 | | | | | | | | 12 | |
| FIELD CONDENSATE | ****** | *** | ****** | *** | 12 | 3.2 | | | | | | | 14 | 2.5 |
| CRUDE CAPACITY | ****** | | ****** | | 116 | | | | | | | | 175 | |
| NO OF REFINERIES | 1 | | 3 | | 3 | | | | | | | | 7 | |
| FIELD NATURAL GASOLINE | ****** | *** | 2 | 1.2 | ****** | *** | | | | | | | 5 | .8 |
| CRUDE CAPACITY | ****** | | 74 | | ****** | | | | | | | | 194 | |
| NO OF REFINERIES | 2 | | 4 | | 2 | | | | | | | | 8 | |
| BUTANES | | | 3 | 2.1 | 10 | 2.6 | | | | | | | 13 | 2.3 |
| CRUDE CAPACITY | | | 115 | | 315 | | | | | | | | 430 | |
| NO OF REFINERIES | | | 5 | | 7 | | | | | | | | 12 | |
| OTHER FEED STOCKS | | | 3 | 1.8 | 3 | .8 | | | | | | | 6 | 1.0 |
| CRUDE CAPACITY | | | 49 | | 192 | | | | | | | | 241 | |
| NO OF REFINERIES | | | 3 | | 4 | | | | | | | | 7 | |
| OTHER BLENDING STOCKS | ****** | *** | ****** | *** | ****** | *** | | | | | | | 5 | .9 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | | | | | | | 138 | |
| NO OF REFINERIES | 1 | | 2 | | 2 | | | | | | | | 5 | |
| TOTAL FEED STOCKS | 30 | 100.0 | 142 | 100.0 | 373 | 100.0 | | | | | | | 545 | 100.0 |
| CRUDE CAPACITY | 34 | | 162 | | 394 | | | | | | | | 589 | |
| NO OF REFINERIES | 7 | | 8 | | 9 | | | | | | | | 24 | |

Table C.5.6.5

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 5
PROJECTED 1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | ****** | *** | ****** | *** | 88 | 27.9 | 243 | 38.5 | ****** | *** | ****** | *** | 666 | 23.8 |
| CRUDE CAPACITY | ****** | | ****** | | 225 | | 541 | | ****** | | ****** | | 2,102 | |
| NO OF REFINERIES | 2 | | 2 | | 5 | | 7 | | 3 | | 3 | | 22 | |
| LT MED SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | | *** | 181 | 6.5 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | ****** | | | | 549 | |
| NO OF REFINERIES | 1 | | 2 | | 1 | | 3 | | 2 | | | | 9 | |
| HVY MED SULFUR CRUDE OIL | | | 93 | 37.5 | ****** | *** | 177 | 28.1 | 230 | *** | ****** | *** | 1,000 | 35.8 |
| CRUDE CAPACITY | | | 111 | | ****** | | 449 | | 550 | | ****** | | 2,239 | |
| NO OF REFINERIES | | | 5 | | 4 | | 6 | | 5 | | 3 | | 23 | |
| LT HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | | | | *** | | *** | 41 | 1.5 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | | | | | | | 64 | |
| NO OF REFINERIES | 1 | | 1 | | 1 | | | | | | | | 3 | |
| HVY HIGH SULFUR CRUDE OIL | 30 | 72.7 | 81 | 32.5 | 128 | 40.6 | ****** | *** | 324 | *** | ****** | *** | 720 | 25.8 |
| CRUDE CAPACITY | 45 | | 99 | | 196 | | ****** | | 681 | | ****** | | 1,757 | |
| NO OF REFINERIES | 5 | | 5 | | 5 | | 2 | | 6 | | 2 | | 25 | |
| FIELD NATURAL GASOLINE | ****** | *** | 1 | .6 | ****** | *** | ****** | *** | ****** | *** | | *** | 8 | .3 |
| CRUDE CAPACITY | ****** | | 90 | | ****** | | ****** | | ****** | | | | 451 | |
| NO OF REFINERIES | 1 | | 4 | | 2 | | 2 | | 1 | | | | 10 | |
| BUTANES | | | ****** | *** | ****** | *** | 6 | .9 | 12 | *** | | *** | 20 | .7 |
| CRUDE CAPACITY | | | ****** | | ****** | | 317 | | 570 | | | | 1,005 | |
| NO OF REFINERIES | | | 2 | | 2 | | 4 | | 5 | | | | 13 | |
| OTHER FEED STOCKS | | | ****** | *** | 13 | 4.2 | 18 | 2.9 | ****** | *** | ****** | *** | 106 | 3.8 |
| CRUDE CAPACITY | | | ****** | | 166 | | 418 | | ****** | | ****** | | 1,289 | |
| NO OF REFINERIES | | | 4 | | 4 | | 5 | | 4 | | 1 | | 18 | |
| OTHER BLENDING STOCKS | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 50 | 1.8 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | ****** | | ****** | | 1,373 | |
| NO OF REFINERIES | 2 | | 2 | | 1 | | 3 | | 1 | | 3 | | 12 | |

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CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 5
PROJECTED 1980

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| TOTAL FEED STOCKS | 42 | 100.0 | 249 | 100.0 | 316 | 100.0 | 631 | 100.0 | ****** | *** | ****** | *** | 2,791 | 100.0 |
| CRUDE CAPACITY | 46 | | 286 | | 331 | | 696 | | ****** | | ****** | | 3,095 | |
| NO OF REFINERIES | 6 | | 14 | | 8 | | 9 | | 7 | | 3 | | 47 | |

Table C.5.7.1

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CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 1
PROJECTED 1982

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | ****** | *** | ****** | *** | | | 274 | 55.6 | ****** | *** | ****** | *** | 944 | 46.7 |
| CRUDE CAPACITY | ****** | | ****** | | | | 438 | | ****** | | ****** | | 1,742 | |
| NO OF REFINERIES | 7 | | 3 | | | | 7 | | 3 | | 3 | | 23 | |
| LT MED SULFUR CRUDE OIL | | | | | | | 25 | 5.0 | ****** | *** | ****** | *** | 50 | 2.5 |
| CRUDE CAPACITY | | | | | | | 146 | | ****** | | ****** | | 471 | |
| NO OF REFINERIES | | | | | | | 3 | | 1 | | 1 | | 5 | |
| HVY MED SULFUR CRUDE OIL | | | | | | | | | | *** | | *** | | |
| NO OF REFINERIES | | | | | | | | | | | | | | |
| LT HIGH SULFUR CRUDE OIL | | | | | | | 133 | 27.0 | ****** | *** | ****** | *** | 481 | 23.8 |
| CRUDE CAPACITY | | | | | | | 257 | | ****** | | ****** | | 1,242 | |
| NO OF REFINERIES | | | | | | | 4 | | 3 | | 2 | | 9 | |
| HVY HIGH SULFUR CRUDE OIL | ****** | *** | 46 | 58.9 | | | ****** | *** | ****** | *** | ****** | *** | 443 | 21.9 |
| CRUDE CAPACITY | ****** | | 64 | | | | ****** | | ****** | | ****** | | 947 | |
| NO OF REFINERIES | 1 | | 4 | | | | 2 | | 2 | | 2 | | 11 | |
| BUTANES | | | | | | | ****** | *** | ****** | *** | ****** | *** | 18 | .9 |
| CRUDE CAPACITY | | | | | | | ****** | | ****** | | ****** | | 681 | |
| NO OF REFINERIES | | | | | | | 2 | | 2 | | 1 | | 5 | |
| OTHER FEED STOCKS | ****** | *** | ****** | *** | | | 12 | 2.4 | ****** | *** | ****** | *** | 68 | 3.3 |
| CRUDE CAPACITY | ****** | | ****** | | | | 303 | | ****** | | ****** | | 977 | |
| NO OF REFINERIES | 5 | | 2 | | | | 4 | | 2 | | 1 | | 14 | |
| OTHER BLENDING STOCKS | ****** | *** | | | | | 13 | 2.5 | ****** | *** | ****** | *** | 19 | .9 |
| CRUDE CAPACITY | ****** | | | | | | 193 | | ****** | | ****** | | 854 | |
| NO OF REFINERIES | 5 | | | | | | 3 | | 2 | | 1 | | 11 | |
| TOTAL FEED STOCKS | 49 | 100.0 | 79 | 100.0 | | | 493 | 100.0 | ****** | *** | ****** | *** | 2,022 | 100.0 |
| CRUDE CAPACITY | 53 | | 92 | | | | 478 | | ****** | | ****** | | 1,981 | |
| NO OF REFINERIES | 8 | | 6 | | | | 8 | | 4 | | 3 | | 29 | |

Table C.5.7.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 2
PROJECTED 1982

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 29 | 49.9 | 176 | 78.5 | 269 | 63.2 | 772 | 65.3 | 692 | 58.1 | 596 | 46.5 | 2,534 | 58.1 |
| CRUDE CAPACITY | 46 | | 214 | | 421 | | 1,065 | | 780 | | 1,138 | | 3,665 | |
| NO OF REFINERIES | 7 | | 10 | | 9 | | 16 | | 6 | | 4 | | 52 | |
| LT MED SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | 93 | 7.9 | 21 | 1.8 | ****** | *** | 187 | 4.3 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 316 | | 439 | | ****** | | 1,121 | |
| NO OF REFINERIES | 2 | | 1 | | 3 | | 5 | | 3 | | 1 | | 15 | |
| HVY MED SULFUR CRUDE OIL | | | ****** | *** | ****** | *** | 22 | 1.9 | ****** | *** | ****** | *** | 176 | 4.0 |
| CRUDE CAPACITY | | | ****** | | ****** | | 271 | | ****** | | ****** | | 1,314 | |
| NO OF REFINERIES | | | 2 | | 2 | | 4 | | 2 | | 2 | | 12 | |
| LT HIGH SULFUR CRUDE OIL | ****** | *** | 10 | 4.3 | ****** | *** | 104 | 8.8 | 174 | 14.6 | ****** | *** | 762 | 17.5 |
| CRUDE CAPACITY | ****** | | 76 | | ****** | | 277 | | 751 | | ****** | | 2,336 | |
| NO OF REFINERIES | 1 | | 3 | | 2 | | 4 | | 6 | | 4 | | 20 | |
| HVY HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | 111 | 9.4 | 179 | 15.0 | 158 | 12.3 | 474 | 10.9 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 340 | | 648 | | 1,123 | | 2,180 | |
| NO OF REFINERIES | 1 | | 1 | | 1 | | 5 | | 5 | | 4 | | 17 | |
| FIELD CONDENSATE | ****** | *** | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | 10 | .2 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | | | ****** | | ****** | | 719 | |
| NO OF REFINERIES | 1 | | 2 | | 1 | | | | 1 | | 1 | | 6 | |
| FIELD NATURAL GASOLINE | ****** | *** | 7 | 3.1 | 1 | .1 | ****** | *** | ****** | *** | 5 | .4 | 38 | .9 |
| CRUDE CAPACITY | ****** | | 69 | | 142 | | ****** | | ****** | | 1,138 | | 2,164 | |
| NO OF REFINERIES | 2 | | 3 | | 3 | | 8 | | 2 | | 4 | | 22 | |
| BUTANES | | | 6 | 2.5 | 13 | 3.0 | 44 | 3.7 | 30 | 2.5 | 29 | 2.2 | 121 | 2.8 |
| CRUDE CAPACITY | | | 146 | | 371 | | 1,055 | | 1,058 | | 1,318 | | 3,948 | |
| NO OF REFINERIES | | | 7 | | 8 | | 16 | | 8 | | 5 | | 44 | |
| OTHER FEED STOCKS | | | 2 | .8 | ****** | *** | 11 | .9 | 4 | .4 | ****** | *** | 42 | 1.0 |
| CRUDE CAPACITY | | | 54 | | ****** | | 571 | | 681 | | ****** | | 2,106 | |
| NO OF REFINERIES | | | 3 | | 3 | | 8 | | 5 | | 2 | | 21 | |

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 2
PROJECTED 1982

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER BLENDING STOCKS | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 19 | .4 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | ****** | | ****** | | 1,459 | |
| NO OF REFINERIES | 1 | | 2 | | 2 | | 3 | | 5 | | 1 | | 14 | |
| TOTAL FEED STOCKS | 58 | 100.0 | 224 | 100.0 | 426 | 100.0 | 1,182 | 100.0 | 1,191 | 100.0 | 1,281 | 100.0 | 4,362 | 100.0 |
| CRUDE CAPACITY | 69 | | 235 | | 421 | | 1,127 | | 1,178 | | 1,318 | | 4,348 | |
| NO OF REFINERIES | 11 | | 11 | | 9 | | 17 | | 9 | | 5 | | 62 | |

Table C.5.7.3

NATIONAL PETROLEUM COUNCIL
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CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 3
PROJECTED 1982

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 38 | 30.5 | 269 | 64.9 | 207 | 54.7 | 461 | 49.4 | 625 | 59.8 | 2,053 | 39.4 | 3,652 | 45.1 |
| CRUDE CAPACITY | 50 | | 385 | | 279 | | 673 | | 1,060 | | 5,114 | | 7,560 | |
| NO OF REFINERIES | 9 | | 19 | | 7 | | 9 | | 8 | | 15 | | 67 | |
| LT MED SULFUR CRUDE OIL | ****** | *** | 13 | 3.2 | 52 | 13.8 | ****** | *** | 115 | 11.0 | 164 | 3.1 | 386 | 4.8 |
| CRUDE CAPACITY | ****** | | 71 | | 145 | | ****** | | 415 | | 2,862 | | 3,691 | |
| NO OF REFINERIES | 2 | | 3 | | 4 | | 2 | | 3 | | 7 | | 21 | |
| HVY MED SULFUR CRUDE OIL | | | ****** | *** | | | | | ****** | *** | 247 | 4.7 | 270 | 3.3 |
| CRUDE CAPACITY | | | ****** | | | | | | ****** | | 2,177 | | 2,334 | |
| NO OF REFINERIES | | | 2 | | | | | | 1 | | 6 | | 9 | |
| LT HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | 213 | 22.8 | ****** | *** | 1,838 | 35.3 | 2,288 | 28.3 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 318 | | ****** | | 4,688 | | 5,532 | |
| NO OF REFINERIES | 1 | | 3 | | 2 | | 4 | | 3 | | 13 | | 26 | |
| HVY HIGH SULFUR CRUDE OIL | 22 | 17.6 | 42 | 10.0 | ****** | *** | ****** | *** | ****** | *** | 505 | 9.7 | 698 | 8.6 |
| CRUDE CAPACITY | 23 | | 50 | | ****** | | ****** | | ****** | | 3,106 | | 3,710 | |
| NO OF REFINERIES | 4 | | 3 | | 2 | | 2 | | 2 | | 8 | | 21 | |
| FIELD CONDENSATE | 22 | 17.4 | 22 | 5.2 | | | ****** | *** | ****** | *** | ****** | *** | 91 | 1.1 |
| CRUDE CAPACITY | 29 | | 110 | | | | ****** | | ****** | | ****** | | 2,293 | |
| NO OF REFINERIES | 5 | | 6 | | | | 1 | | 2 | | 5 | | 19 | |
| FIELD NATURAL GASOLINE | 10 | 7.8 | 8 | 2.0 | | | 105 | 11.2 | 5 | .5 | 131 | 2.5 | 260 | 3.2 |
| CRUDE CAPACITY | 28 | | 177 | | | | 522 | | 415 | | 3,818 | | 4,959 | |
| NO OF REFINERIES | 3 | | 9 | | | | 7 | | 3 | | 10 | | 32 | |
| BUTANES | | | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 112 | 1.4 |
| CRUDE CAPACITY | | | ****** | | ****** | | ****** | | ****** | | ****** | | 5,092 | |
| NO OF REFINERIES | | | 6 | | 3 | | 8 | | 6 | | 10 | | 33 | |
| OTHER FEED STOCKS | ****** | *** | 19 | 4.6 | ****** | *** | 85 | 9.1 | ****** | *** | 125 | 2.4 | 263 | 3.2 |
| CRUDE CAPACITY | ****** | | 114 | | ****** | | 758 | | ****** | | 3,672 | | 4,975 | |
| NO OF REFINERIES | 1 | | 6 | | 2 | | 10 | | 2 | | 11 | | 32 | |

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 3
PROJECTED 1982

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| OTHER BLENDING STOCKS | ****** | *** | 3 | .7 | | | ****** | *** | ****** | *** | 52 | 1.0 | 80 | 1.0 |
| CRUDE CAPACITY | ****** | | 66 | | | | ****** | | ****** | | 2,173 | | 2,816 | |
| NO OF REFINERIES | 1 | | 4 | | | | 2 | | 3 | | 7 | | 17 | |
| TOTAL FEED STOCKS | 125 | 100.0 | 414 | 100.0 | 378 | 100.0 | 932 | 100.0 | 1,045 | 100.0 | 5,205 | 100.0 | 8,099 | 100.0 |
| CRUDE CAPACITY | 98 | | 465 | | 402 | | 758 | | 1,060 | | 5,114 | | 7,897 | |
| NO OF REFINERIES | 17 | | 24 | | 10 | | 10 | | 8 | | 15 | | 84 | |

Table C.5.7.4

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10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 4
PROJECTED 1982

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | 11 | 51.1 | 78 | 50.4 | 184 | 48.1 | | | | | | | 273 | 48.9 |
| CRUDE CAPACITY | 21 | | 163 | | 311 | | | | | | | | 495 | |
| NO OF REFINERIES | 5 | | 8 | | 7 | | | | | | | | 20 | |
| LT MED SULFUR CRUDE OIL | ****** | *** | ****** | *** | 66 | 17.2 | | | | | | | 96 | 17.2 |
| CRUDE CAPACITY | ****** | | ****** | | 167 | | | | | | | | 249 | |
| NO OF REFINERIES | 2 | | 4 | | 4 | | | | | | | | 10 | |
| HVY HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | 107 | 28.0 | | | | | | | 152 | 27.2 |
| CRUDE CAPACITY | ****** | | ****** | | 271 | | | | | | | | 388 | |
| NO OF REFINERIES | 1 | | 5 | | 6 | | | | | | | | 12 | |
| FIELD CONDENSATE | ****** | *** | ****** | *** | ****** | *** | | | | | | | 9 | 1.7 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | | | | | | | 177 | |
| NO OF REFINERIES | 1 | | 3 | | 3 | | | | | | | | 7 | |
| FIELD NATURAL GASOLINE | ****** | *** | 2 | 1.3 | ****** | *** | | | | | | | 6 | 1.1 |
| CRUDE CAPACITY | ****** | | 86 | | ****** | | | | | | | | 237 | |
| NO OF REFINERIES | 1 | | 5 | | 3 | | | | | | | | 9 | |
| BUTANES | | | 3 | 1.9 | 10 | 2.6 | | | | | | | 13 | 2.3 |
| CRUDE CAPACITY | | | 115 | | 315 | | | | | | | | 430 | |
| NO OF REFINERIES | | | 5 | | 7 | | | | | | | | 12 | |
| OTHER FEED STOCKS | | | 2 | 1.5 | 3 | .7 | | | | | | | 5 | .9 |
| CRUDE CAPACITY | | | 49 | | 191 | | | | | | | | 240 | |
| NO OF REFINERIES | | | 3 | | 4 | | | | | | | | 7 | |
| OTHER BLENDING STOCKS | | | ****** | *** | ****** | *** | | | | | | | 5 | .8 |
| CRUDE CAPACITY | | | ****** | | ****** | | | | | | | | 95 | |
| NO OF REFINERIES | | | 3 | | 1 | | | | | | | | 4 | |
| TOTAL FEED STOCKS | 22 | 100.0 | 155 | 100.0 | 383 | 100.0 | | | | | | | 560 | 100.0 |
| CRUDE CAPACITY | 27 | | 174 | | 398 | | | | | | | | 598 | |
| NO OF REFINERIES | 6 | | 9 | | 9 | | | | | | | | 24 | |

Table C.5.7.5

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 5
PROJECTED 1982

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| CRUDE OIL + OTH FEEDSTOCK | | | | | | | | | | | | | | |
| SWEET CRUDE OIL | ****** | *** | ****** | *** | 49 | 20.1 | 313 | 41.7 | ****** | *** | ****** | *** | 687 | 23.4 |
| CRUDE CAPACITY | ****** | | ****** | | 177 | | 611 | | ****** | | ****** | | 2,126 | |
| NO OF REFINERIES | 2 | | 2 | | 4 | | 8 | | 3 | | 3 | | 22 | |
| LT MED SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | | *** | 219 | 7.4 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | ****** | | | | 657 | |
| NO OF REFINERIES | 1 | | 2 | | 1 | | 3 | | 3 | | | | 10 | |
| HVY MED SULFUR CRUDE OIL | | | 103 | 39.6 | ****** | *** | 200 | 26.6 | 196 | *** | ****** | *** | 1,016 | 34.5 |
| CRUDE CAPACITY | | | 114 | | ****** | | 502 | | 442 | | ****** | | 2,137 | |
| NO OF REFINERIES | | | 5 | | 3 | | 7 | | 4 | | 3 | | 22 | |
| LT HIGH SULFUR CRUDE OIL | ****** | *** | ****** | *** | ****** | *** | | | | *** | | *** | 41 | 1.4 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | | | | | | | 64 | |
| NO OF REFINERIES | 1 | | 1 | | 1 | | | | | | | | 3 | |
| HVY HIGH SULFUR CRUDE OIL | 30 | 72.7 | 81 | 31.4 | 101 | 41.4 | ****** | *** | 348 | *** | ****** | *** | 802 | 27.3 |
| CRUDE CAPACITY | 45 | | 101 | | 169 | | ****** | | 681 | | ****** | | 2,149 | |
| NO OF REFINERIES | 5 | | 5 | | 4 | | 3 | | 6 | | 3 | | 26 | |
| FIELD NATURAL GASOLINE | ****** | *** | 1 | .5 | ****** | *** | ****** | *** | ****** | *** | | *** | 8 | .3 |
| CRUDE CAPACITY | ****** | | 93 | | ****** | | ****** | | ****** | | | | 457 | |
| NO OF REFINERIES | 1 | | 4 | | 2 | | 2 | | 1 | | | | 10 | |
| BUTANES | | | ****** | *** | ****** | *** | 6 | .8 | 13 | *** | | *** | 21 | .7 |
| CRUDE CAPACITY | | | ****** | | ****** | | 317 | | 570 | | | | 996 | |
| NO OF REFINERIES | | | 1 | | 2 | | 4 | | 5 | | | | 12 | |
| OTHER FEED STOCKS | | | ****** | *** | 14 | 5.8 | 17 | 2.3 | ****** | *** | ****** | *** | 111 | 3.8 |
| CRUDE CAPACITY | | | ****** | . | 169 | | 418 | | ****** | | ****** | | 1,292 | |
| NO OF REFINERIES | | | 4 | | 4 | | 5 | | 4 | | 1 | | 18 | |
| OTHER BLENDING STOCKS | ****** | *** | ****** | *** | ****** | *** | 3 | .4 | ****** | *** | ****** | *** | 37 | 1.3 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 207 | | ****** | | ****** | | 1,076 | |
| NO OF REFINERIES | 2 | | 2 | | 1 | | 3 | | 2 | | 2 | | 12 | |

CRUDE OIL AND OTHER FEEDSTOCK SLATES
BY REFINERY SIZE WITHIN PAD 5
PROJECTED 1982

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| TOTAL FEED STOCKS | 42 | 100.0 | 259 | 100.0 | 243 | 100.0 | 751 | 100.0 | ****** | *** | ****** | *** | 2,942 | 100.0 |
| CRUDE CAPACITY | 46 | | 291 | | 255 | | 818 | | ****** | | ****** | | 3,146 | |
| NO OF REFINERIES | 6 | | 14 | | 6 | | 11 | | 7 | | 3 | | 47 | |

Table C.6.1.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/22/79

PRODUCT SLATES
BY LOCATION
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | |
| LPG | 32 | 1.7 | 63 | 1.5 | 159 | 2.3 | 6 | 1.1 | 42 | 1.7 | 302 | 1.9 |
| CRUDE CAPACITY | 1,607 | | 3,752 | | 5,174 | | 452 | | 2,411 | | 13,397 | |
| NO OF REFINERIES | 11 | | 45 | | 48 | | 17 | | 23 | | 144 | |
| MOTOR GASOLINE | 797 | 42.4 | 2,161 | 53.3 | 2,996 | 42.5 | 244 | 48.1 | 1,039 | 41.1 | 7,237 | 45.1 |
| CRUDE CAPACITY | 1,771 | | 4,060 | | 6,977 | | 559 | | 2,779 | | 16,146 | |
| NO OF REFINERIES | 21 | | 53 | | 60 | | 22 | | 33 | | 189 | |
| JET FUEL - NAPHTHA BASE | 16 | .8 | 35 | .9 | 85 | 1.2 | 10 | 1.9 | 76 | 3.0 | 222 | 1.4 |
| CRUDE CAPACITY | 391 | | 1,246 | | 3,224 | | 240 | | 1,873 | | 6,975 | |
| NO OF REFINERIES | 5 | | 21 | | 33 | | 8 | | 17 | | 84 | |
| JET FUEL - KEROSENE BASE | 51 | 2.7 | 143 | 3.5 | 390 | 5.5 | 16 | 3.1 | 190 | 7.5 | 789 | 4.9 |
| CRUDE CAPACITY | 747 | | 2,390 | | 5,255 | | 386 | | 2,304 | | 11,082 | |
| NO OF REFINERIES | 6 | | 21 | | 29 | | 10 | | 23 | | 89 | |
| KEROSENE & #1 HEATING OIL | 21 | 1.1 | 88 | 2.2 | 117 | 1.7 | 8 | 1.6 | 27 | 1.1 | 262 | 1.6 |
| CRUDE CAPACITY | 1,114 | | 3,319 | | 4,145 | | 489 | | 1,722 | | 10,789 | |
| NO OF REFINERIES | 14 | | 47 | | 34 | | 17 | | 18 | | 130 | |
| DIESEL | 63 | 3.3 | 174 | 4.3 | 473 | 6.7 | 76 | 15.1 | 256 | 10.1 | 1,043 | 6.5 |
| CRUDE CAPACITY | 975 | | 2,538 | | 5,074 | | 524 | | 2,603 | | 11,715 | |
| NO OF REFINERIES | 13 | | 36 | | 59 | | 20 | | 31 | | 159 | |
| DISTILLATE #2 | 379 | 20.2 | 647 | 16.0 | 831 | 11.8 | 37 | 7.3 | 46 | 1.8 | 1,940 | 12.1 |
| CRUDE CAPACITY | 1,670 | | 3,900 | | 5,954 | | 378 | | 1,314 | | 13,216 | |
| NO OF REFINERIES | 25 | | 55 | | 43 | | 13 | | 16 | | 152 | |
| HVY FUEL OILS (4,5,6,ETC) | 218 | 11.6 | 195 | 4.8 | 700 | 9.9 | 24 | 4.8 | 487 | 19.3 | 1,623 | 10.1 |
| CRUDE CAPACITY | 1,668 | | 3,980 | | 7,148 | | 497 | | 2,809 | | 16,101 | |
| NO OF REFINERIES | 21 | | 58 | | 76 | | 21 | | 43 | | 219 | |
| ASPHALT | 94 | 5.0 | 167 | 4.1 | 103 | 1.5 | 29 | 5.7 | 60 | 2.4 | 453 | 2.8 |
| CRUDE CAPACITY | 817 | | 2,675 | | 3,278 | | 376 | | 1,359 | | 8,505 | |
| NO OF REFINERIES | 12 | | 35 | | 27 | | 12 | | 19 | | 105 | |

PRODUCT SLATES
BY LOCATION
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | PAD 1 | INPUT | PAD 2 | INPUT | PAD 3 | INPUT | PAD 4 | INPUT | PAD 5 | INPUT | TOTAL | INPUT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | PCT | MBPCD | PCT | MBPCD | PCT | MBPCD | PCT | MBPCD | PCT | MBPCD | PCT |
| FINISHED LUBRICANTS | 37 | 1.9 | 34 | .8 | 111 | 1.6 | 1 | .3 | 12 | .5 | 196 | 1.2 |
| CRUDE CAPACITY | 491 | | 1,388 | | 3,081 | | 47 | | 580 | | 5,587 | |
| NO OF REFINERIES | 11 | | 11 | | 12 | | 1 | | 3 | | 38 | |
| BTX | ****** | *** | 21 | .5 | 83 | 1.2 | | | ****** | *** | 115 | .7 |
| CRUDE CAPACITY | ****** | | 1,257 | | 3,235 | | | | ****** | | 5,540 | |
| NO OF REFINERIES | 4 | | 8 | | 19 | | | | 2 | | 33 | |
| OTHER SPECS + PETROCHM IM | 25 | 1.3 | 41 | 1.0 | 155 | 2.2 | 1 | .2 | 32 | 1.3 | 253 | 1.6 |
| CRUDE CAPACITY | 497 | | 2,328 | | 5,032 | | 87 | | 1,391 | | 9,334 | |
| NO OF REFINERIES | 8 | | 18 | | 29 | | 3 | | 10 | | 68 | |
| FEED STOCKS SOLD | 27 | 1.4 | 45 | 1.1 | 480 | 6.8 | 18 | 3.6 | 37 | 1.5 | 608 | 3.8 |
| CRUDE CAPACITY | 852 | | 1,829 | | 4,910 | | 175 | | 1,034 | | 8,800 | |
| NO OF REFINERIES | 10 | | 18 | | 43 | | 6 | | 15 | | 92 | |
| MISCELLANEOUS | ****** | *** | 17 | .4 | 90 | 1.3 | 6 | 1.3 | ****** | *** | 167 | 1.0 |
| CRUDE CAPACITY | ****** | | 1,123 | | 4,065 | | 162 | | ****** | | 7,600 | |
| NO OF REFINERIES | 13 | | 15 | | 21 | | 8 | | 12 | | 69 | |
| BLENDING STOCKS TO OTHERS | 3 | .2 | 21 | .5 | 50 | .7 | | | 75 | 3.0 | 150 | .9 |
| CRUDE CAPACITY | 106 | | 1,060 | | 1,810 | | | | 731 | | 3,706 | |
| NO OF REFINERIES | 7 | | 8 | | 14 | | | | 9 | | 38 | |
| REFINERY FUEL PRODUCED | 120 | 6.4 | 258 | 6.4 | 312 | 4.4 | 32 | 6.4 | 148 | 5.8 | 870 | 5.4 |
| CRUDE CAPACITY | 1,828 | | 4,095 | | 7,045 | | 557 | | 2,900 | | 16,426 | |
| NO OF REFINERIES | 26 | | 54 | | 62 | | 21 | | 37 | | 200 | |
| TOTAL (EX WAX,SULFR,COKE) | 1,913 | 101.7 | 4,109 | 101.3 | 7,135 | 101.1 | 509 | 100.4 | 2,563 | 101.3 | 16,228 | 101.2 |
| CRUDE CAPACITY | 1,871 | | 4,135 | | 7,317 | | 564 | | 2,990 | | 16,878 | |
| NO OF REFINERIES | 28 | | 62 | | 83 | | 24 | | 47 | | 244 | |
| SULFUR (LT/CD) | 812 | | 1,287 | | 2,572 | | 117 | | 1,459 | | 6,247 | |
| CRUDE CAPACITY | 1,369 | | 2,949 | | 5,379 | | 272 | | 2,411 | | 12,380 | |
| NO OF REFINERIES | 9 | | 27 | | 26 | | 6 | | 21 | | 89 | |

PRODUCT SLATES
BY LOCATION
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | 1,826 | | 10,258 | | 11,221 | | 741 | | 14,889 | | 38,935 | |
| CRUDE CAPACITY | 291 | | 2,115 | | 3,329 | | 111 | | 1,429 | | 7,274 | |
| NO OF REFINERIES | 3 | | 19 | | 17 | | 3 | | 11 | | 53 | |
| WAX (ST/CD) | 466 | | 378 | | 1,076 | | ****** | | ****** | | 3,891 | |
| CRUDE CAPACITY | 224 | | 1,146 | | 2,059 | | ****** | | ****** | | 3,952 | |
| NO OF REFINERIES | 8 | | 7 | | 7 | | 1 | | 2 | | 25 | |

Table C.6.1.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/22/79

PRODUCT SLATES
BY LOCATION
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | |
| LPG | 36 | 1.8 | 71 | 1.7 | 201 | 2.6 | 7 | 1.2 | 45 | 1.6 | 359 | 2.1 |
| CRUDE CAPACITY | 1,602 | | 3,957 | | 6,257 | | 490 | | 2,444 | | 14,749 | |
| NO OF REFINERIES | 11 | | 46 | | 52 | | 18 | | 24 | | 151 | |
| MOTOR GASOLINE | 784 | 40.4 | 2,258 | 53.1 | 3,194 | 41.8 | 263 | 48.2 | 1,090 | 39.0 | 7,588 | 44.2 |
| CRUDE CAPACITY | 1,766 | | 4,184 | | 7,024 | | 585 | | 2,867 | | 16,426 | |
| NO OF REFINERIES | 21 | | 53 | | 61 | | 22 | | 34 | | 191 | |
| JET FUEL - NAPHTHA BASE | 18 | 1.0 | 36 | .9 | 88 | 1.1 | 9 | 1.6 | 85 | 3.0 | 236 | 1.4 |
| CRUDE CAPACITY | 395 | | 1,317 | | 2,811 | | 218 | | 1,839 | | 6,580 | |
| NO OF REFINERIES | 5 | | 19 | | 28 | | 7 | | 17 | | 76 | |
| JET FUEL - KEROSENE BASE | 57 | 2.9 | 163 | 3.8 | 430 | 5.6 | 18 | 3.2 | 235 | 8.4 | 903 | 5.3 |
| CRUDE CAPACITY | 742 | | 2,473 | | 4,913 | | 387 | | 2,318 | | 10,834 | |
| NO OF REFINERIES | 6 | | 21 | | 29 | | 10 | | 23 | | 89 | |
| KEROSENE & #1 HEATING OIL | 12 | .6 | 83 | 2.0 | 164 | 2.1 | 11 | 2.1 | 26 | .9 | 296 | 1.7 |
| CRUDE CAPACITY | 777 | | 3,249 | | 3,780 | | 501 | | 1,663 | | 9,969 | |
| NO OF REFINERIES | 12 | | 45 | | 32 | | 16 | | 16 | | 121 | |
| DIESEL | 71 | 3.6 | 191 | 4.5 | 516 | 6.7 | 84 | 15.4 | 285 | 10.2 | 1,146 | 6.7 |
| CRUDE CAPACITY | 975 | | 2,563 | | 4,296 | | 549 | | 2,643 | | 11,026 | |
| NO OF REFINERIES | 13 | | 35 | | 55 | | 20 | | 32 | | 155 | |
| DISTILLATE #2 | 377 | 19.4 | 657 | 15.5 | 820 | 10.7 | 40 | 7.3 | 51 | 1.8 | 1,945 | 11.3 |
| CRUDE CAPACITY | 1,726 | | 3,860 | | 5,452 | | 410 | | 952 | | 12,400 | |
| NO OF REFINERIES | 26 | | 54 | | 39 | | 14 | | 15 | | 148 | |
| HVY FUEL OILS (4,5,6,ETC) | 246 | 12.7 | 203 | 4.8 | 629 | 8.2 | 17 | 3.2 | 581 | 20.8 | 1,676 | 9.8 |
| CRUDE CAPACITY | 1,721 | | 3,960 | | 7,006 | | 377 | | 2,814 | | 15,877 | |
| NO OF REFINERIES | 21 | | 55 | | 75 | | 16 | | 41 | | 208 | |
| ASPHALT | 106 | 5.4 | 169 | 4.0 | 102 | 1.3 | 28 | 5.2 | 59 | 2.1 | 465 | 2.7 |
| CRUDE CAPACITY | 821 | | 2,746 | | 3,277 | | 388 | | 1,273 | | 8,505 | |
| NO OF REFINERIES | 12 | | 34 | | 27 | | 12 | | 18 | | 103 | |

PRODUCT SLATES
BY LOCATION
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | 38 | 1.9 | 37 | .9 | 114 | 1.5 | 1 | .3 | 14 | .5 | 205 | 1.2 |
| CRUDE CAPACITY | 487 | | 1,635 | | 3,024 | | 47 | | 603 | | 5,796 | |
| NO OF REFINERIES | 11 | | 12 | | 11 | | 1 | | 4 | | 39 | |
| BTX | ****** | *** | 26 | .6 | 90 | 1.2 | | | ****** | *** | 129 | .8 |
| CRUDE CAPACITY | ****** | | 1,281 | | 3,230 | | | | ****** | | 5,559 | |
| NO OF REFINERIES | 4 | | 7 | | 19 | | | | 2 | | 32 | |
| OTHER SPECS + PETROCHM IM | 40 | 2.0 | 39 | .9 | 169 | 2.2 | 1 | .2 | 29 | 1.0 | 277 | 1.6 |
| CRUDE CAPACITY | 497 | | 2,438 | | 5,116 | | 87 | | 1,354 | | 9,492 | |
| NO OF REFINERIES | 8 | | 18 | | 32 | | 3 | | 8 | | 69 | |
| FEED STOCKS SOLD | 31 | 1.6 | 54 | 1.3 | 660 | 8.6 | 24 | 4.5 | 31 | 1.1 | 801 | 4.7 |
| CRUDE CAPACITY | 823 | | 1,823 | | 4,703 | | 130 | | 1,122 | | 8,601 | |
| NO OF REFINERIES | 10 | | 16 | | 43 | | 5 | | 17 | | 91 | |
| MISCELLANEOUS | ****** | *** | 16 | .4 | 78 | 1.0 | 2 | .3 | ****** | *** | 145 | .8 |
| CRUDE CAPACITY | ****** | | 901 | | 3,152 | | 56 | | ****** | | 5,990 | |
| NO OF REFINERIES | 14 | | 13 | | 13 | | 4 | | 8 | | 52 | |
| BLENDING STOCKS TO OTHERS | 13 | .6 | 20 | .5 | 82 | 1.1 | | | 85 | 3.0 | 200 | 1.2 |
| CRUDE CAPACITY | 255 | | 1,031 | | 1,918 | | | | 614 | | 3,818 | |
| NO OF REFINERIES | 10 | | 10 | | 14 | | | | 8 | | 42 | |
| REFINERY FUEL PRODUCED | 121 | 6.2 | 284 | 6.7 | 366 | 4.8 | 36 | 6.5 | 164 | 5.9 | 970 | 5.6 |
| CRUDE CAPACITY | 1,877 | | 4,222 | | 7,092 | | 582 | | 2,963 | | 16,736 | |
| NO OF REFINERIES | 27 | | 54 | | 62 | | 21 | | 37 | | 201 | |
| TOTAL (EX WAX,SULFR,COKE) | 1,983 | 102.2 | 4,307 | 101.2 | 7,705 | 100.7 | 540 | 99.2 | 2,808 | 100.6 | 17,343 | 100.9 |
| CRUDE CAPACITY | 1,927 | | 4,267 | | 7,381 | | 589 | | 3,094 | | 17,259 | |
| NO OF REFINERIES | 29 | | 62 | | 84 | | 24 | | 46 | | 245 | |
| SULFUR (LT/CD) | 951 | | 1,486 | | 3,544 | | 148 | | 1,702 | | 7,831 | |
| CRUDE CAPACITY | 1,363 | | 3,275 | | 6,331 | | 338 | | 2,522 | | 13,830 | |
| NO OF REFINERIES | 9 | | 30 | | 34 | | 8 | | 24 | | 105 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PRODUCT SLATES
BY LOCATION
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | 1,854 | | 10,932 | | 12,127 | | 1,313 | | 15,474 | | 41,700 | |
| CRUDE CAPACITY | 286 | | 2,170 | | 3,344 | | 155 | | 1,429 | | 7,383 | |
| NO OF REFINERIES | 3 | | 19 | | 17 | | 5 | | 11 | | 55 | |
| WAX (ST/CD) | 487 | | 853 | | 1,179 | | ****** | | ****** | | 4,684 | |
| CRUDE CAPACITY | 225 | | 1,262 | | 2,048 | | ****** | | ****** | | 4,058 | |
| NO OF REFINERIES | 8 | | 7 | | 7 | | 1 | | 2 | | 25 | |

Table C.6.1.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/22/79

PRODUCT SLATES
BY LOCATION
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | |
| LPG | 38 | 1.9 | 82 | 1.9 | 200 | 2.5 | 7 | 1.3 | 47 | 1.6 | 374 | 2.1 |
| CRUDE CAPACITY | 1,640 | | 4,029 | | 6,636 | | 498 | | 2,468 | | 15,271 | |
| NO OF REFINERIES | 11 | | 46 | | 53 | | 18 | | 24 | | 152 | |
| MOTOR GASOLINE | 812 | 40.2 | 2,270 | 52.0 | 3,359 | 41.5 | 277 | 49.5 | 1,128 | 38.3 | 7,846 | 43.6 |
| CRUDE CAPACITY | 1,797 | | 4,255 | | 7,543 | | 593 | | 2,947 | | 17,135 | |
| NO OF REFINERIES | 20 | | 53 | | 63 | | 22 | | 35 | | 193 | |
| JET FUEL - NAPHTHA BASE | 18 | .9 | 41 | .9 | 82 | 1.0 | 9 | 1.6 | 84 | 2.9 | 235 | 1.3 |
| CRUDE CAPACITY | 395 | | 1,399 | | 2,963 | | 221 | | 1,794 | | 6,772 | |
| NO OF REFINERIES | 5 | | 20 | | 28 | | 7 | | 16 | | 76 | |
| JET FUEL - KEROSENE BASE | 60 | 3.0 | 165 | 3.8 | 444 | 5.5 | 18 | 3.2 | 284 | 9.7 | 972 | 5.4 |
| CRUDE CAPACITY | 753 | | 2,633 | | 5,334 | | 391 | | 2,318 | | 11,429 | |
| NO OF REFINERIES | 6 | | 22 | | 30 | | 10 | | 24 | | 92 | |
| KEROSENE & #1 HEATING OIL | 12 | .6 | 94 | 2.2 | 174 | 2.1 | 12 | 2.1 | 20 | .7 | 311 | 1.7 |
| CRUDE CAPACITY | 784 | | 3,437 | | 3,588 | | 460 | | 1,619 | | 9,888 | |
| NO OF REFINERIES | 12 | | 46 | | 30 | | 15 | | 15 | | 118 | |
| DIESEL | 70 | 3.5 | 219 | 5.0 | 519 | 6.4 | 90 | 16.1 | 281 | 9.5 | 1,179 | 6.6 |
| CRUDE CAPACITY | 984 | | 2,745 | | 4,418 | | 557 | | 2,648 | | 11,352 | |
| NO OF REFINERIES | 13 | | 36 | | 55 | | 20 | | 32 | | 156 | |
| DISTILLATE #2 | 388 | 19.2 | 683 | 15.7 | 839 | 10.4 | 41 | 7.4 | 57 | 1.9 | 2,008 | 11.2 |
| CRUDE CAPACITY | 1,774 | | 3,935 | | 5,908 | | 419 | | 1,007 | | 13,043 | |
| NO OF REFINERIES | 26 | | 54 | | 39 | | 14 | | 15 | | 148 | |
| HVY FUEL OILS (4,5,6,ETC) | 265 | 13.1 | 206 | 4.7 | 689 | 8.5 | 17 | 3.1 | 665 | 22.6 | 1,843 | 10.2 |
| CRUDE CAPACITY | 1,768 | | 3,921 | | 7,522 | | 394 | | 2,896 | | 16,500 | |
| NO OF REFINERIES | 21 | | 53 | | 75 | | 17 | | 42 | | 208 | |
| ASPHALT | 111 | 5.5 | 171 | 3.9 | 110 | 1.4 | 32 | 5.8 | 63 | 2.1 | 488 | 2.7 |
| CRUDE CAPACITY | 830 | | 2,757 | | 3,515 | | 405 | | 1,278 | | 8,785 | |
| NO OF REFINERIES | 12 | | 33 | | 28 | | 13 | | 18 | | 104 | |

PRODUCT SLATES
BY LOCATION
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | 37 | 1.8 | 44 | 1.0 | 123 | 1.5 | 1 | .2 | 15 | .5 | 220 | 1.2 |
| CRUDE CAPACITY | 500 | | 1,633 | | 3,156 | | 47 | | 605 | | 5,941 | |
| NO OF REFINERIES | 11 | | 11 | | 12 | | 1 | | 4 | | 39 | |
| BTX | ****** | *** | 36 | .8 | 105 | 1.3 | | | ****** | *** | 155 | .9 |
| CRUDE CAPACITY | ****** | | 1,321 | | 3,754 | | | | ****** | | 6,123 | |
| NO OF REFINERIES | 4 | | 7 | | 20 | | | | 2 | | 33 | |
| OTHER SPECS + PETROCHM IM | 39 | 2.0 | 38 | .9 | 183 | 2.3 | 1 | .2 | 26 | .9 | 287 | 1.6 |
| CRUDE CAPACITY | 499 | | 2,478 | | 5,110 | | 87 | | 1,356 | | 9,531 | |
| NO OF REFINERIES | 8 | | 18 | | 31 | | 3 | | 8 | | 68 | |
| FEED STOCKS SOLD | 41 | 2.0 | 64 | 1.5 | 776 | 9.6 | 12 | 2.1 | 35 | 1.2 | 928 | 5.2 |
| CRUDE CAPACITY | 856 | | 1,877 | | 5,031 | | 97 | | 1,122 | | 8,983 | |
| NO OF REFINERIES | 10 | | 16 | | 43 | | 4 | | 17 | | 90 | |
| MISCELLANEOUS | ****** | *** | 17 | .4 | 76 | .9 | 1 | .2 | ****** | *** | 145 | .8 |
| CRUDE CAPACITY | ****** | | 1,026 | | 2,803 | | 24 | | ****** | | 5,682 | |
| NO OF REFINERIES | 14 | | 14 | | 12 | | 3 | | 7 | | 50 | |
| BLENDING STOCKS TO OTHERS | 10 | .5 | 11 | .2 | 79 | 1.0 | | | 64 | 2.2 | 164 | .9 |
| CRUDE CAPACITY | 207 | | 410 | | 1,356 | | | | 403 | | 2,376 | |
| NO OF REFINERIES | 9 | | 7 | | 13 | | | | 6 | | 35 | |
| REFINERY FUEL PRODUCED | 122 | 6.0 | 286 | 6.6 | 402 | 5.0 | 38 | 6.7 | 171 | 5.8 | 1,018 | 5.7 |
| CRUDE CAPACITY | 1,926 | | 4,298 | | 7,498 | | 591 | | 3,011 | | 17,323 | |
| NO OF REFINERIES | 27 | | 54 | | 62 | | 21 | | 37 | | 201 | |
| TOTAL (EX WAX,SULFR,COKE) | 2,060 | 101.9 | 4,427 | 101.5 | 8,163 | 100.8 | 556 | 99.4 | 2,968 | 100.9 | 18,174 | 101.1 |
| CRUDE CAPACITY | 1,981 | | 4,348 | | 7,897 | | 598 | | 3,145 | | 17,968 | |
| NO OF REFINERIES | 29 | | 62 | | 84 | | 24 | | 46 | | 245 | |
| SULFUR (LT/CD) | 1,033 | | 1,669 | | 4,096 | | 147 | | 1,769 | | 8,714 | |
| CRUDE CAPACITY | 1,401 | | 3,337 | | 6,797 | | 342 | | 2,614 | | 14,491 | |
| NO OF REFINERIES | 9 | | 30 | | 35 | | 8 | | 25 | | 107 | |

PRODUCT SLATES
BY LOCATION
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | 1,811 | | 11,420 | | 13,691 | | 1,327 | | 15,983 | | 44,232 | |
| CRUDE CAPACITY | 291 | | 2,231 | | 3,601 | | 154 | | 1,451 | | 7,728 | |
| NO OF REFINERIES | 3 | | 19 | | 17 | | 5 | | 11 | | 55 | |
| WAX (ST/CD) | 494 | | 1,039 | | 1,440 | | ****** | | ****** | | 5,128 | |
| CRUDE CAPACITY | 227 | | 1,313 | | 2,180 | | ****** | | ****** | | 4,242 | |
| NO OF REFINERIES | 8 | | 7 | | 8 | | 1 | | 2 | | 26 | |

# TABLE C.6.2.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

PRODUCT SLATES
BY REFINERY SIZE
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | 2 | .7 | 17 | 1.7 | 17 | 1.3 | 114 | 3.7 | 56 | 1.6 | 96 | 1.4 | 302 | 1.9 |
| CRUDE CAPACITY | 46 | | 589 | | 1,146 | | 2,753 | | 3,261 | | 5,602 | | 13,397 | |
| NO OF REFINERIES | 7 | | 28 | | 27 | | 38 | | 25 | | 19 | | 144 | |
| MOTOR GASOLINE | 49 | 18.2 | 332 | 33.7 | 561 | 42.0 | 1,501 | 48.9 | 1,742 | 50.5 | 3,051 | 44.1 | 7,237 | 45.1 |
| CRUDE CAPACITY | 148 | | 858 | | 1,236 | | 2,932 | | 3,605 | | 7,367 | | 16,146 | |
| NO OF REFINERIES | 26 | | 42 | | 28 | | 41 | | 28 | | 24 | | 189 | |
| JET FUEL - NAPHTHA BASE | 20 | 7.3 | 40 | 4.1 | 41 | 3.1 | 20 | .7 | 56 | 1.6 | 44 | .6 | 222 | 1.4 |
| CRUDE CAPACITY | 135 | | 374 | | 662 | | 532 | | 1,357 | | 3,914 | | 6,975 | |
| NO OF REFINERIES | 21 | | 17 | | 16 | | 8 | | 11 | | 11 | | 84 | |
| JET FUEL - KEROSENE BASE | | | 9 | .9 | 48 | 3.6 | 105 | 3.4 | 144 | 4.2 | 484 | 7.0 | 789 | 4.9 |
| CRUDE CAPACITY | | | 279 | | 737 | | 1,723 | | 2,177 | | 6,165 | | 11,082 | |
| NO OF REFINERIES | | | 13 | | 17 | | 23 | | 17 | | 19 | | 89 | |
| KEROSENE & #1 HEATING OIL | 3 | 1.1 | 13 | 1.3 | 39 | 2.9 | 50 | 1.6 | 59 | 1.7 | 97 | 1.4 | 262 | 1.6 |
| CRUDE CAPACITY | 92 | | 601 | | 1,040 | | 1,891 | | 2,555 | | 4,609 | | 10,789 | |
| NO OF REFINERIES | 16 | | 30 | | 24 | | 27 | | 19 | | 14 | | 130 | |
| DIESEL | 29 | 10.7 | 106 | 10.7 | 123 | 9.2 | 164 | 5.4 | 300 | 8.7 | 320 | 4.6 | 1,043 | 6.5 |
| CRUDE CAPACITY | 211 | | 745 | | 1,036 | | 2,055 | | 2,781 | | 4,887 | | 11,715 | |
| NO OF REFINERIES | 34 | | 37 | | 24 | | 29 | | 22 | | 13 | | 159 | |
| DISTILLATE #2 | 19 | 6.9 | 98 | 9.9 | 141 | 10.5 | 460 | 15.0 | 363 | 10.5 | 860 | 12.4 | 1,940 | 12.1 |
| CRUDE CAPACITY | 134 | | 679 | | 936 | | 2,400 | | 2,380 | | 6,687 | | 13,216 | |
| NO OF REFINERIES | 24 | | 33 | | 21 | | 34 | | 18 | | 22 | | 152 | |
| HVY FUEL OILS (4,5,6,ETC) | 68 | 25.2 | 179 | 18.2 | 154 | 11.5 | 237 | 7.7 | 233 | 6.8 | 752 | 10.9 | 1,623 | 10.1 |
| CRUDE CAPACITY | 263 | | 1,045 | | 1,327 | | 2,742 | | 3,357 | | 7,367 | | 16,101 | |
| NO OF REFINERIES | 47 | | 52 | | 31 | | 39 | | 26 | | 24 | | 219 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

PRODUCT SLATES
BY REFINERY SIZE
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| ASPHALT | 24 | 8.7 | 69 | 7.0 | 62 | 4.6 | 59 | 1.9 | 86 | 2.5 | 153 | 2.2 | 453 | 2.8 |
| CRUDE CAPACITY | 128 | | 455 | | 878 | | 1,083 | | 1,510 | | 4,451 | | 8,505 | |
| NO OF REFINERIES | 21 | | 22 | | 20 | | 17 | | 12 | | 13 | | 105 | |
| FINISHED LUBRICANTS | 17 | 6.4 | ****** | *** | ****** | *** | 18 | .6 | 34 | 1.0 | 120 | 1.7 | 196 | 1.2 |
| CRUDE CAPACITY | 66 | | ****** | | ****** | | 323 | | 1,100 | | 3,929 | | 5,587 | |
| NO OF REFINERIES | 11 | | 2 | | 3 | | 4 | | 8 | | 10 | | 38 | |
| BTX | | | ****** | *** | ****** | *** | 15 | .5 | 29 | .8 | 65 | .9 | 115 | .7 |
| CRUDE CAPACITY | | | ****** | | ****** | | 674 | | 1,217 | | 3,520 | | 5,540 | |
| NO OF REFINERIES | | | 1 | | 3 | | 9 | | 9 | | 11 | | 33 | |
| OTHER SPECS + PETROCHM IM | 4 | 1.3 | 3 | .3 | 7 | .5 | 56 | 1.8 | 53 | 1.6 | 130 | 1.9 | 253 | 1.6 |
| CRUDE CAPACITY | 36 | | 54 | | 284 | | 1,061 | | 2,571 | | 5,330 | | 9,334 | |
| NO OF REFINERIES | 7 | | 4 | | 7 | | 14 | | 20 | | 16 | | 68 | |
| FEED STOCKS SOLD | 14 | 5.1 | 30 | 3.0 | 27 | 2.0 | 95 | 3.1 | 58 | 1.7 | 384 | 5.6 | 608 | 3.8 |
| CRUDE CAPACITY | 119 | | 250 | | 408 | | 1,547 | | 1,502 | | 4,974 | | 8,800 | |
| NO OF REFINERIES | 19 | | 14 | | 10 | | 21 | | 12 | | 16 | | 92 | |
| MISCELLANEOUS | 2 | .7 | 33 | 3.3 | 2 | .2 | 32 | 1.0 | 25 | .7 | 73 | 1.1 | 167 | 1.0 |
| CRUDE CAPACITY | 53 | | 270 | | 245 | | 1,173 | | 1,530 | | 4,329 | | 7,600 | |
| NO OF REFINERIES | 9 | | 14 | | 6 | | 15 | | 12 | | 13 | | 69 | |
| BLENDING STOCKS TO OTHERS | 3 | 1.3 | 18 | 1.8 | 48 | 3.6 | 13 | .4 | 38 | 1.1 | 29 | .4 | 150 | .9 |
| CRUDE CAPACITY | 64 | | 95 | | 155 | | 279 | | 699 | | 2,413 | | 3,706 | |
| NO OF REFINERIES | 12 | | 5 | | 4 | | 4 | | 6 | | 7 | | 38 | |
| REFINERY FUEL PRODUCED | 6 | 2.1 | 37 | 3.8 | 67 | 5.0 | 171 | 5.6 | 225 | 6.5 | 365 | 5.3 | 870 | 5.4 |
| CRUDE CAPACITY | 155 | | 1,036 | | 1,418 | | 2,845 | | 3,605 | | 7,367 | | 16,426 | |
| NO OF REFINERIES | 23 | | 52 | | 33 | | 40 | | 28 | | 24 | | 200 | |
| TOTAL (EX WAX,SULFR,COKE) | 260 | 95.9 | 988 | 100.1 | 1,346 | 100.7 | 3,110 | 101.3 | 3,502 | 101.6 | 7,023 | 101.5 | 16,228 | 101.2 |
| CRUDE CAPACITY | 327 | | 1,193 | | 1,454 | | 2,932 | | 3,605 | | 7,367 | | 16,878 | |
| NO OF REFINERIES | 57 | | 60 | | 34 | | 41 | | 28 | | 24 | | 244 | |

PRODUCT SLATES
BY REFINERY SIZE
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| SULFUR (LT/CD) | | | 11 | | 251 | | 660 | | 1,837 | | 3,488 | | 6,247 | |
| CRUDE CAPACITY | | | 77 | | 840 | | 1,601 | | 2,819 | | 7,042 | | 12,380 | |
| NO OF REFINERIES | | | 3 | | 19 | | 22 | | 22 | | 23 | | 89 | |
| COKE (ST/CD) | | | 626 | | 1,999 | | 6,971 | | 12,567 | | 16,772 | | 38,935 | |
| CRUDE CAPACITY | | | 135 | | 260 | | 1,070 | | 1,630 | | 4,179 | | 7,274 | |
| NO OF REFINERIES | | | 6 | | 6 | | 14 | | 13 | | 14 | | 53 | |
| WAX (ST/CD) | 438 | | ****** | | ****** | | ****** | | 526 | | 2,686 | | 3,891 | |
| CRUDE CAPACITY | 44 | | ****** | | ****** | | ****** | | 664 | | 2,964 | | 3,952 | |
| NO OF REFINERIES | 7 | | 1 | | 2 | | 2 | | 5 | | 8 | | 25 | |

# TABLE C.6.2.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

PRODUCT SLATES
BY REFINERY SIZE
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | 3 | .9 | 21 | 2.0 | 21 | 1.4 | 140 | 4.1 | 55 | 1.6 | 119 | 1.6 | 359 | 2.1 |
| CRUDE CAPACITY | 52 | | 614 | | 1,191 | | 2,767 | | 3,262 | | 6,864 | | 14,749 | |
| NO OF REFINERIES | 8 | | 29 | | 28 | | 38 | | 25 | | 23 | | 151 | |
| MOTOR GASOLINE | 62 | 20.2 | 323 | 30.6 | 598 | 41.0 | 1,643 | 47.6 | 1,748 | 51.2 | 3,215 | 42.9 | 7,588 | 44.2 |
| CRUDE CAPACITY | 153 | | 818 | | 1,311 | | 3,055 | | 3,476 | | 7,614 | | 16,426 | |
| NO OF REFINERIES | 26 | | 40 | | 30 | | 43 | | 27 | | 25 | | 191 | |
| JET FUEL - NAPHTHA BASE | 19 | 6.1 | 32 | 3.0 | 55 | 3.8 | 19 | .5 | 62 | 1.8 | 50 | .7 | 236 | 1.4 |
| CRUDE CAPACITY | 96 | | 338 | | 663 | | 465 | | 1,228 | | 3,791 | | 6,580 | |
| NO OF REFINERIES | 16 | | 16 | | 16 | | 7 | | 10 | | 11 | | 76 | |
| JET FUEL - KEROSENE BASE | | | 13 | 1.2 | 54 | 3.7 | 132 | 3.8 | 159 | 4.6 | 545 | 7.3 | 903 | 5.3 |
| CRUDE CAPACITY | | | 302 | | 744 | | 1,812 | | 1,933 | | 6,043 | | 10,834 | |
| NO OF REFINERIES | | | 14 | | 17 | | 24 | | 15 | | 19 | | 89 | |
| KEROSENE & #1 HEATING OIL | 10 | 3.2 | 12 | 1.1 | 46 | 3.2 | 45 | 1.3 | 34 | 1.0 | 149 | 2.0 | 296 | 1.7 |
| CRUDE CAPACITY | 121 | | 493 | | 1,119 | | 1,809 | | 1,589 | | 4,838 | | 9,969 | |
| NO OF REFINERIES | 18 | | 24 | | 26 | | 26 | | 12 | | 15 | | 121 | |
| DIESEL | 33 | 10.9 | 124 | 11.8 | 131 | 9.0 | 197 | 5.7 | 317 | 9.3 | 344 | 4.6 | 1,146 | 6.7 |
| CRUDE CAPACITY | 196 | | 777 | | 1,027 | | 2,131 | | 2,422 | | 4,473 | | 11,026 | |
| NO OF REFINERIES | 31 | | 39 | | 24 | | 30 | | 19 | | 12 | | 155 | |
| DISTILLATE #2 | 19 | 6.2 | 94 | 8.9 | 150 | 10.3 | 471 | 13.7 | 319 | 9.3 | 891 | 11.9 | 1,945 | 11.3 |
| CRUDE CAPACITY | 128 | | 607 | | 1,020 | | 2,552 | | 1,848 | | 6,244 | | 12,400 | |
| NO OF REFINERIES | 22 | | 31 | | 23 | | 37 | | 14 | | 21 | | 148 | |
| HVY FUEL OILS (4,5,6,ETC) | 69 | 22.8 | 198 | 18.8 | 143 | 9.8 | 297 | 8.6 | 250 | 7.3 | 719 | 9.6 | 1,676 | 9.8 |
| CRUDE CAPACITY | 236 | | 971 | | 1,283 | | 2,742 | | 3,228 | | 7,418 | | 15,877 | |
| NO OF REFINERIES | 39 | | 50 | | 30 | | 40 | | 25 | | 24 | | 208 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

PRODUCT SLATES
BY REFINERY SIZE
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| ASPHALT | 25 | 8.2 | 72 | 6.8 | 74 | 5.1 | 55 | 1.6 | 80 | 2.3 | 159 | 2.1 | 465 | 2.7 |
| CRUDE CAPACITY | 131 | | 420 | | 961 | | 1,021 | | 1,263 | | 4,709 | | 8,505 | |
| NO OF REFINERIES | 20 | | 21 | | 22 | | 16 | | 10 | | 14 | | 103 | |
| FINISHED LUBRICANTS | 18 | 5.8 | ****** | *** | ****** | *** | 19 | .6 | 32 | .9 | 131 | 1.7 | 205 | 1.2 |
| CRUDE CAPACITY | 67 | | ****** | | ****** | | 374 | | 1,101 | | 4,158 | | 5,796 | |
| NO OF REFINERIES | 11 | | 3 | | 1 | | 5 | | 8 | | 11 | | 39 | |
| BTX | | | ****** | *** | ****** | *** | 16 | .5 | 31 | .9 | 73 | 1.0 | 129 | .8 |
| CRUDE CAPACITY | | | ****** | | ****** | | 600 | | 1,082 | | 3,749 | | 5,559 | |
| NO OF REFINERIES | | | 1 | | 3 | | 8 | | 8 | | 12 | | 32 | |
| OTHER SPECS PETROCHM IM | 3 | .9 | 4 | .4 | 10 | .7 | 73 | 2.1 | 66 | 1.9 | 121 | 1.6 | 277 | 1.6 |
| CRUDE CAPACITY | 28 | | 92 | | 284 | | 1,090 | | 2,441 | | 5,559 | | 9,492 | |
| NO OF REFINERIES | 5 | | 6 | | 7 | | 15 | | 19 | | 17 | | 69 | |
| FEED STOCKS SOLD | 23 | 7.4 | 65 | 6.1 | 44 | 3.0 | 108 | 3.1 | 41 | 1.2 | 521 | 7.0 | 801 | 4.7 |
| CRUDE CAPACITY | 119 | | 330 | | 357 | | 1,489 | | 1,304 | | 5,003 | | 8,601 | |
| NO OF REFINERIES | 16 | | 19 | | 9 | | 21 | | 10 | | 16 | | 91 | |
| MISCELLANEOUS | 3 | .8 | 25 | 2.3 | 5 | .3 | 48 | 1.4 | 12 | .3 | 53 | .7 | 145 | .8 |
| CRUDE CAPACITY | 55 | | 159 | | 175 | | 1,017 | | 942 | | 3,643 | | 5,990 | |
| NO OF REFINERIES | 8 | | 9 | | 4 | | 14 | | 7 | | 10 | | 52 | |
| BLENDING STOCKS TO OTHERS | 6 | 1.8 | 23 | 2.1 | 52 | 3.6 | 30 | .9 | 41 | 1.2 | 49 | .6 | 200 | 1.2 |
| CRUDE CAPACITY | 71 | | 108 | | 205 | | 466 | | 702 | | 2,265 | | 3,818 | |
| NO OF REFINERIES | 12 | | 6 | | 5 | | 7 | | 6 | | 6 | | 42 | |
| REFINERY FUEL PRODUCED | 6 | 2.1 | 41 | 3.9 | 71 | 4.8 | 199 | 5.8 | 221 | 6.5 | 433 | 5.8 | 970 | 5.6 |
| CRUDE CAPACITY | 139 | | 1,027 | | 1,463 | | 3,018 | | 3,476 | | 7,614 | | 16,736 | |
| NO OF REFINERIES | 21 | | 51 | | 34 | | 43 | | 27 | | 25 | | 201 | |
| TOTAL (EX WAX,SULFR,COKE) | 297 | 97.4 | 1,050 | 99.5 | 1,467 | 100.6 | 3,491 | 101.2 | 3,465 | 101.4 | 7,573 | 101.0 | 17,343 | 100.9 |
| CRUDE CAPACITY | 312 | | 1,183 | | 1,534 | | 3,140 | | 3,476 | | 7,614 | | 17,259 | |
| NO OF REFINERIES | 51 | | 61 | | 36 | | 45 | | 27 | | 25 | | 245 | |

PRODUCT SLATES
BY REFINERY SIZE
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| SULFUR (LT/CD) | | | 66 | | 285 | | 1,088 | | 2,108 | | 4,284 | | 7,831 | |
| CRUDE CAPACITY | | | 163 | | 912 | | 2,199 | | 2,942 | | 7,614 | | 13,830 | |
| NO OF REFINERIES | | | 6 | | 21 | | 30 | | 23 | | 25 | | 105 | |
| COKE (ST/CD) | | | 1,065 | | 1,993 | | 7,455 | | 13,050 | | 18,137 | | 41,700 | |
| CRUDE CAPACITY | | | 149 | | 261 | | 1,130 | | 1,636 | | 4,209 | | 7,383 | |
| NO OF REFINERIES | | | 7 | | 6 | | 15 | | 13 | | 14 | | 55 | |
| WAX (ST/CD) | 472 | | ****** | | ****** | | 231 | | 497 | | 3,389 | | 4,684 | |
| CRUDE CAPACITY | 44 | | ****** | | ****** | | 227 | | 535 | | 3,193 | | 4,058 | |
| NO OF REFINERIES | 7 | | 1 | | 1 | | 3 | | 4 | | 9 | | 25 | |

# TABLE C.6.2.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

PRODUCT SLATES
BY REFINERY SIZE
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | 4 | 1.5 | 25 | 2.2 | 20 | 1.4 | 115 | 3.4 | 62 | 1.7 | 148 | 1.8 | 374 | 2.1 |
| CRUDE CAPACITY | 57 | | 635 | | 1,109 | | 2,751 | | 3,460 | | 7,258 | | 15,271 | |
| NO OF REFINERIES | 8 | | 30 | | 26 | | 38 | | 26 | | 24 | | 152 | |
| MOTOR GASOLINE | 62 | 20.7 | 353 | 31.2 | 620 | 43.3 | 1,582 | 47.1 | 1,829 | 49.5 | 3,401 | 42.1 | 7,846 | 43.6 |
| CRUDE CAPACITY | 139 | | 871 | | 1,269 | | 3,091 | | 3,674 | | 8,090 | | 17,135 | |
| NO OF REFINERIES | 24 | | 42 | | 29 | | 44 | | 28 | | 26 | | 193 | |
| JET FUEL - NAPHTHA BASE | 19 | 6.3 | 32 | 2.9 | 42 | 3.0 | 22 | .7 | 63 | 1.7 | 56 | .7 | 235 | 1.3 |
| CRUDE CAPACITY | 106 | | 341 | | 634 | | 533 | | 1,239 | | 3,920 | | 6,772 | |
| NO OF REFINERIES | 16 | | 16 | | 15 | | 8 | | 10 | | 11 | | 76 | |
| JET FUEL - KEROSENE BASE | | | 15 | 1.3 | 58 | 4.0 | 149 | 4.4 | 162 | 4.4 | 588 | 7.3 | 972 | 5.4 |
| CRUDE CAPACITY | | | 305 | | 785 | | 1,769 | | 2,114 | | 6,457 | | 11,429 | |
| NO OF REFINERIES | | | 14 | | 18 | | 24 | | 16 | | 20 | | 92 | |
| KEROSENE & #1 HEATING OIL | 10 | 3.3 | 14 | 1.2 | 39 | 2.8 | 49 | 1.5 | 40 | 1.1 | 159 | 2.0 | 311 | 1.7 |
| CRUDE CAPACITY | 116 | | 519 | | 1,037 | | 1,753 | | 1,710 | | 4,752 | | 9,888 | |
| NO OF REFINERIES | 17 | | 25 | | 24 | | 25 | | 13 | | 14 | | 118 | |
| DIESEL | 28 | 9.5 | 141 | 12.5 | 129 | 9.0 | 207 | 6.2 | 319 | 8.6 | 355 | 4.4 | 1,179 | 6.6 |
| CRUDE CAPACITY | 172 | | 833 | | 1,043 | | 2,227 | | 2,543 | | 4,533 | | 11,352 | |
| NO OF REFINERIES | 27 | | 42 | | 24 | | 31 | | 20 | | 12 | | 156 | |
| DISTILLATE #2 | 20 | 6.7 | 89 | 7.9 | 161 | 11.2 | 424 | 12.6 | 327 | 8.8 | 988 | 12.2 | 2,008 | 11.2 |
| CRUDE CAPACITY | 125 | | 590 | | 1,036 | | 2,525 | | 2,046 | | 6,720 | | 13,043 | |
| NO OF REFINERIES | 21 | | 30 | | 23 | | 37 | | 15 | | 22 | | 148 | |
| HVY FUEL OILS (4,5,6,ETC) | 61 | 20.5 | 205 | 18.1 | 136 | 9.5 | 340 | 10.1 | 271 | 7.3 | 830 | 10.3 | 1,843 | 10.2 |
| CRUDE CAPACITY | 221 | | 1,039 | | 1,254 | | 2,667 | | 3,426 | | 7,894 | | 16,500 | |
| NO OF REFINERIES | 36 | | 53 | | 29 | | 39 | | 26 | | 25 | | 208 | |

PRODUCT SLATES
BY REFINERY SIZE
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| ASPHALT | 25 | 8.3 | 78 | 6.9 | 77 | 5.4 | 56 | 1.7 | 90 | 2.4 | 162 | 2.0 | 488 | 2.7 |
| CRUDE CAPACITY | 135 | | 455 | | 931 | | 1,036 | | 1,415 | | 4,814 | | 8,785 | |
| NO OF REFINERIES | 19 | | 23 | | 21 | | 16 | | 11 | | 14 | | 104 | |
| FINISHED LUBRICANTS | 19 | 6.3 | ****** | *** | ****** | *** | 27 | .8 | 30 | .8 | 138 | 1.7 | 220 | 1.2 |
| CRUDE CAPACITY | 69 | | ****** | | ****** | | 405 | | 1,107 | | 4,260 | | 5,941 | |
| NO OF REFINERIES | 11 | | 3 | | 1 | | 5 | | 8 | | 11 | | 39 | |
| BTX | | | ****** | *** | ****** | *** | 20 | .6 | 40 | 1.1 | 88 | 1.1 | 155 | .9 |
| CRUDE CAPACITY | | | ****** | | ****** | | 586 | | 1,102 | | 4,351 | | 6,123 | |
| NO OF REFINERIES | | | 1 | | 2 | | 8 | | 8 | | 14 | | 33 | |
| OTHER SPECS + PETROCHM IM | 5 | 1.6 | 4 | .4 | 7 | .5 | 63 | 1.9 | 75 | 2.0 | 134 | 1.7 | 287 | 1.6 |
| CRUDE CAPACITY | 29 | | 96 | | 239 | | 987 | | 2,622 | | 5,558 | | 9,531 | |
| NO OF REFINERIES | 5 | | 6 | | 6 | | 14 | | 20 | | 17 | | 68 | |
| FEED STOCKS SOLD | 19 | 6.4 | 78 | 6.9 | 30 | 2.1 | 79 | 2.3 | 174 | 4.7 | 548 | 6.8 | 928 | 5.2 |
| CRUDE CAPACITY | 102 | | 369 | | 280 | | 1,388 | | 1,616 | | 5,229 | | 8,983 | |
| NO OF REFINERIES | 14 | | 21 | | 7 | | 20 | | 12 | | 16 | | 90 | |
| MISCELLANEOUS | 3 | .9 | 27 | 2.4 | 4 | .3 | 29 | .9 | 11 | .3 | 72 | .9 | 145 | .8 |
| CRUDE CAPACITY | 58 | | 164 | | 134 | | 934 | | 942 | | 3,451 | | 5,682 | |
| NO OF REFINERIES | 8 | | 9 | | 3 | | 13 | | 7 | | 10 | | 50 | |
| BLENDING STOCKS TO OTHERS | 7 | 2.3 | 18 | 1.6 | 37 | 2.6 | 29 | .9 | 40 | 1.1 | 33 | .4 | 164 | .9 |
| CRUDE CAPACITY | 78 | | 88 | | 180 | | 502 | | 483 | | 1,045 | | 2,376 | |
| NO OF REFINERIES | 12 | | 5 | | 4 | | 7 | | 4 | | 3 | | 35 | |
| REFINERY FUEL PRODUCED | 7 | 2.2 | 42 | 3.7 | 72 | 5.1 | 204 | 6.1 | 226 | 6.1 | 467 | 5.8 | 1,018 | 5.7 |
| CRUDE CAPACITY | 134 | | 1,043 | | 1,401 | | 3,141 | | 3,513 | | 8,090 | | 17,323 | |
| NO OF REFINERIES | 20 | | 51 | | 32 | | 45 | | 27 | | 26 | | 201 | |
| TOTAL (EX WAX,SULFR,COKE) | 286 | 96.6 | 1,126 | 99.5 | 1,439 | 100.6 | 3,396 | 101.1 | 3,760 | 101.7 | 8,167 | 101.2 | 18,174 | 101.1 |
| CRUDE CAPACITY | 291 | | 1,257 | | 1,475 | | 3,181 | | 3,674 | | 8,090 | | 17,968 | |
| NO OF REFINERIES | 47 | | 64 | | 34 | | 46 | | 28 | | 26 | | 245 | |

PRODUCT SLATES
BY REFINERY SIZE
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| SULFUR (LT/CD) | | | 73 | | 276 | | 1,009 | | 2,233 | | 5,123 | | 8,714 | |
| CRUDE CAPACITY | | | 163 | | 885 | | 2,253 | | 3,100 | | 8,090 | | 14,491 | |
| NO OF REFINERIES | | | 6 | | 20 | | 31 | | 24 | | 26 | | 107 | |
| COKE (ST/CD) | | | 1,053 | | 1,393 | | 8,353 | | 13,816 | | 19,617 | | 44,232 | |
| CRUDE CAPACITY | | | 149 | | 229 | | 1,123 | | 1,808 | | 4,420 | | 7,728 | |
| NO OF REFINERIES | | | 7 | | 5 | | 15 | | 14 | | 14 | | 55 | |
| WAX (ST/CD) | 479 | | ****** | | ****** | | 498 | | 499 | | 3,569 | | 5,128 | |
| CRUDE CAPACITY | 44 | | ****** | | ****** | | 307 | | 535 | | 3,295 | | 4,242 | |
| NO OF REFINERIES | 7 | | 1 | | 1 | | 4 | | 4 | | 9 | | 26 | |

Table C.6.3.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

PRODUCT SLATES
BY COMPANY SIZE
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | | .2 | 5 | .8 | 7 | 1.5 | 15 | 1.8 | 9 | 1.2 | 266 | 2.0 | 302 | 1.9 |
| CRUDE CAPACITY | 18 | | 296 | | 352 | | 752 | | 787 | | 11,192 | | 13,397 | |
| NO OF REFINERIES | 3 | | 15 | | 10 | | 17 | | 9 | | 90 | | 144 | |
| MOTOR GASOLINE | 27 | 14.7 | 171 | 26.6 | 133 | 29.0 | 399 | 48.4 | 381 | 48.2 | 6,126 | 46.7 | 7,237 | 45.1 |
| CRUDE CAPACITY | 69 | | 521 | | 346 | | 838 | | 917 | | 13,455 | | 16,146 | |
| NO OF REFINERIES | 13 | | 32 | | 9 | | 21 | | 10 | | 104 | | 189 | |
| JET FUEL - NAPHTHA BASE | 14 | 7.7 | 35 | 5.5 | 24 | 5.3 | 16 | 1.9 | | | 132 | 1.0 | 222 | 1.4 |
| CRUDE CAPACITY | 94 | | 244 | | 247 | | 287 | | | | 6,103 | | 6,975 | |
| NO OF REFINERIES | 14 | | 13 | | 9 | | 7 | | | | 41 | | 84 | |
| JET FUEL - KEROSENE BASE | | | 4 | .5 | 14 | 3.0 | 20 | 2.4 | | | 752 | 5.7 | 789 | 4.9 |
| CRUDE CAPACITY | | | 139 | | 226 | | 319 | | | | 10,398 | | 11,082 | |
| NO OF REFINERIES | | | 6 | | 5 | | 5 | | | | 73 | | 89 | |
| KEROSENE & #1 HEATING OIL | 2 | .9 | 8 | 1.3 | 18 | 3.9 | 22 | 2.7 | 33 | 4.2 | 179 | 1.4 | 262 | 1.6 |
| CRUDE CAPACITY | 46 | | 329 | | 368 | | 611 | | 623 | | 8,811 | | 10,789 | |
| NO OF REFINERIES | 8 | | 20 | | 10 | | 16 | | 6 | | 70 | | 130 | |
| DIESEL | 21 | 11.5 | 66 | 10.3 | 48 | 10.5 | 61 | 7.3 | 47 | 5.9 | 800 | 6.1 | 1,043 | 6.5 |
| CRUDE CAPACITY | 163 | | 466 | | 403 | | 656 | | 643 | | 9,383 | | 11,715 | |
| NO OF REFINERIES | 26 | | 26 | | 12 | | 16 | | 6 | | 73 | | 159 | |
| DISTILLATE #2 | 7 | 3.8 | 71 | 11.0 | 49 | 10.8 | 116 | 14.0 | 134 | 17.0 | 1,562 | 11.9 | 1,940 | 12.1 |
| CRUDE CAPACITY | 76 | | 458 | | 291 | | 705 | | 857 | | 10,829 | | 13,216 | |
| NO OF REFINERIES | 14 | | 28 | | 7 | | 17 | | 9 | | 77 | | 152 | |
| HVY FUEL OILS (4,5,6,ETC) | 63 | 34.0 | 165 | 25.7 | 85 | 18.5 | 89 | 10.8 | 61 | 7.8 | 1,160 | 8.8 | 1,623 | 10.1 |
| CRUDE CAPACITY | 216 | | 729 | | 530 | | 832 | | 917 | | 12,878 | | 16,101 | |
| NO OF REFINERIES | 38 | | 41 | | 14 | | 20 | | 10 | | 96 | | 219 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PRODUCT SLATES
BY COMPANY SIZE
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| ASPHALT | 18 | 9.4 | 37 | 5.7 | 23 | 5.0 | 19 | 2.3 | 29 | 3.7 | 327 | 2.5 | 453 | 2.8 |
| CRUDE CAPACITY | 87 | | 244 | | 324 | | 364 | | 357 | | 7,129 | | 8,505 | |
| NO OF REFINERIES | 14 | | 15 | | 8 | | 9 | | 4 | | 55 | | 105 | |
| FINISHED LUBRICANTS | 7 | 3.5 | ****** | *** | | | ****** | *** | | | 174 | 1.3 | 196 | 1.2 |
| CRUDE CAPACITY | 30 | | ****** | | | | ****** | | | | 5,452 | | 5,587 | |
| NO OF REFINERIES | 5 | | 5 | | | | 3 | | | | 25 | | 38 | |
| BTX | | | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 98 | .8 | 115 | .7 |
| CRUDE CAPACITY | | | ****** | | ****** | | ****** | | ****** | | 5,094 | | 5,540 | |
| NO OF REFINERIES | | | 1 | | 1 | | 2 | | 3 | | 26 | | 33 | |
| OTHER SPECS + PETROCHM IM | 3 | 1.6 | ****** | *** | 5 | 1.0 | ****** | *** | 4 | .5 | 231 | 1.8 | 253 | 1.6 |
| CRUDE CAPACITY | 24 | | ****** | | 87 | | ****** | | 534 | | 8,537 | | 9,334 | |
| NO OF REFINERIES | 5 | | 2 | | 3 | | 4 | | 5 | | 49 | | 68 | |
| FEED STOCKS SOLD | 10 | 5.2 | 20 | 3.1 | 11 | 2.5 | 16 | 1.9 | 39 | 5.0 | 512 | 3.9 | 608 | 3.8 |
| CRUDE CAPACITY | 78 | | 182 | | 124 | | 363 | | 640 | | 7,414 | | 8,800 | |
| NO OF REFINERIES | 12 | | 14 | | 5 | | 6 | | 7 | | 48 | | 92 | |
| MISCELLANEOUS | 2 | .8 | ****** | *** | ****** | *** | 8 | 1.0 | ****** | *** | 137 | 1.0 | 167 | 1.0 |
| CRUDE CAPACITY | 47 | | ****** | | ****** | | 245 | | ****** | | 7,031 | | 7,600 | |
| NO OF REFINERIES | 8 | | 7 | | 1 | | 7 | | 1 | | 45 | | 69 | |
| BLENDING STOCKS TO OTHERS | 3 | 1.5 | 7 | 1.1 | ****** | *** | ****** | *** | | | 119 | .9 | 150 | .9 |
| CRUDE CAPACITY | 36 | | 79 | | ****** | | ****** | | | | 3,463 | | 3,706 | |
| NO OF REFINERIES | 7 | | 7 | | 3 | | 1 | | | | 20 | | 38 | |
| REFINERY FUEL PRODUCED | 2 | 1.0 | 20 | 3.2 | 16 | 3.5 | 38 | 4.5 | 42 | 5.3 | 753 | 5.7 | 870 | 5.4 |
| CRUDE CAPACITY | 82 | | 651 | | 490 | | 838 | | 917 | | 13,448 | | 16,426 | |
| NO OF REFINERIES | 11 | | 38 | | 14 | | 21 | | 10 | | 106 | | 200 | |
| TOTAL (EX WAX,SULFR,COKE) | 179 | 95.9 | 638 | 99.6 | 457 | 99.8 | 837 | 101.3 | 789 | 99.8 | 13,329 | 101.5 | 16,228 | 101.2 |
| CRUDE CAPACITY | 233 | | 770 | | 542 | | 838 | | 917 | | 13,578 | | 16,878 | |
| NO OF REFINERIES | 41 | | 46 | | 16 | | 21 | | 10 | | 110 | | 244 | |

PRODUCT SLATES
BY COMPANY SIZE
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 MBPCD | 0-10 INPUT PCT | 10-30 MBPCD | 10-30 INPUT PCT | 30-50 MBPCD | 30-50 INPUT PCT | 50-100 MBPCD | 50-100 INPUT PCT | 100-175 MBPCD | 100-175 INPUT PCT | 175 + MBPCD | 175 + INPUT PCT | TOTAL MBPCD | TOTAL INPUT PCT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SULFUR (LT/CD) | | | ****** | | ****** | | 66 | | 308 | | 5,811 | | 6,247 | |
| CRUDE CAPACITY | | | ****** | | ****** | | 268 | | 705 | | 11,115 | | 12,380 | |
| NO OF REFINERIES | | | 2 | | 5 | | 5 | | 8 | | 69 | | 89 | |
| COKE (ST/CD) | | | ****** | | | | ****** | | 1,561 | | 35,943 | | 38,935 | |
| CRUDE CAPACITY | | | ****** | | | | ****** | | 298 | | 6,658 | | 7,274 | |
| NO OF REFINERIES | | | 2 | | | | 4 | | 3 | | 44 | | 53 | |
| WAX (ST/CD) | ****** | | ****** | | ****** | | ****** | | | | 3,470 | | 3,891 | |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | | | 3,853 | | 3,952 | |
| NO OF REFINERIES | 1 | | 3 | | 1 | | 3 | | | | 17 | | 25 | |

Table C.6.3.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

PRODUCT SLATES
BY COMPANY SIZE
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | 1 | .6 | 7 | .9 | 8 | 1.4 | 14 | 1.4 | 15 | 1.6 | 314 | 2.3 | 359 | 2.1 |
| CRUDE CAPACITY | 23 | | 315 | | 442 | | 777 | | 922 | | 12,271 | | 14,749 | |
| NO OF REFINERIES | 4 | | 16 | | 12 | | 17 | | 10 | | 92 | | 151 | |
| MOTOR GASOLINE | 33 | 15.8 | 163 | 23.1 | 196 | 32.8 | 441 | 43.5 | 442 | 49.5 | 6,313 | 45.9 | 7,588 | 44.2 |
| CRUDE CAPACITY | 74 | | 474 | | 466 | | 919 | | 922 | | 13,572 | | 16,426 | |
| NO OF REFINERIES | 13 | | 30 | | 12 | | 22 | | 10 | | 104 | | 191 | |
| JET FUEL - NAPHTHA BASE | 12 | 5.7 | 28 | 4.0 | 37 | 6.2 | 17 | 1.7 | | | 142 | 1.0 | 236 | 1.4 |
| CRUDE CAPACITY | 61 | | 235 | | 278 | | 226 | | | | 5,781 | | 6,580 | |
| NO OF REFINERIES | 9 | | 14 | | 9 | | 5 | | | | 39 | | 76 | |
| JET FUEL - KEROSENE BASE | | | 6 | .8 | 16 | 2.7 | ****** | *** | ****** | *** | 852 | 6.2 | 903 | 5.3 |
| CRUDE CAPACITY | | | 161 | | 231 | | ****** | | ****** | | 9,997 | | 10,834 | |
| NO OF REFINERIES | | | 7 | | 5 | | 5 | | 1 | | 71 | | 89 | |
| KEROSENE & #1 HEATING OIL | 8 | 3.7 | 8 | 1.1 | 24 | 4.0 | 22 | 2.1 | 29 | 3.3 | 206 | 1.5 | 296 | 1.7 |
| CRUDE CAPACITY | 77 | | 247 | | 435 | | 547 | | 509 | | 8,155 | | 9,969 | |
| NO OF REFINERIES | 10 | | 16 | | 11 | | 14 | | 5 | | 65 | | 121 | |
| DIESEL | 26 | 12.4 | 82 | 11.6 | 58 | 9.8 | 82 | 8.1 | 50 | 5.6 | 848 | 6.2 | 1,146 | 6.7 |
| CRUDE CAPACITY | 148 | | 492 | | 438 | | 737 | | 524 | | 8,688 | | 11,026 | |
| NO OF REFINERIES | 23 | | 28 | | 13 | | 17 | | 5 | | 69 | | 155 | |
| DISTILLATE #2 | 6 | 3.0 | 66 | 9.4 | 65 | 10.9 | 135 | 13.3 | 156 | 17.4 | 1,517 | 11.0 | 1,945 | 11.3 |
| CRUDE CAPACITY | 62 | | 395 | | 374 | | 816 | | 748 | | 10,006 | | 12,400 | |
| NO OF REFINERIES | 11 | | 27 | | 9 | | 19 | | 8 | | 74 | | 148 | |
| HVY FUEL OILS (4,5,6,ETC) | 64 | 30.3 | 186 | 26.4 | 78 | 13.1 | 150 | 14.8 | 74 | 8.2 | 1,124 | 8.2 | 1,676 | 9.8 |
| CRUDE CAPACITY | 192 | | 695 | | 654 | | 968 | | 922 | | 12,445 | | 15,877 | |
| NO OF REFINERIES | 31 | | 40 | | 17 | | 22 | | 10 | | 88 | | 208 | |

PRODUCT SLATES
BY COMPANY SIZE
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| ASPHALT | 19 | 8.8 | 38 | 5.5 | 34 | 5.6 | 18 | 1.7 | 29 | 3.2 | 327 | 2.4 | 465 | 2.7 |
| CRUDE CAPACITY | 90 | | 233 | | 399 | | 281 | | 357 | | 7,145 | | 8,505 | |
| NO OF REFINERIES | 13 | | 15 | | 10 | | 7 | | 4 | | 54 | | 103 | |
| FINISHED LUBRICANTS | 8 | 3.8 | 8 | 1.1 | | | ****** | *** | ****** | *** | 181 | 1.3 | 205 | 1.2 |
| CRUDE CAPACITY | 31 | | 61 | | | | ****** | | ****** | | 5,502 | | 5,796 | |
| NO OF REFINERIES | 5 | | 6 | | | | 3 | | 1 | | 24 | | 39 | |
| BTX | | | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 107 | .8 | 129 | .8 |
| CRUDE CAPACITY | | | ****** | | ****** | | ****** | | ****** | | 5,107 | | 5,559 | |
| NO OF REFINERIES | | | 1 | | 1 | | 2 | | 3 | | 25 | | 32 | |
| OTHER SPECS + PETROCHM IM | 2 | 1.0 | ****** | *** | | .8 | ****** | *** | 8 | .9 | 244 | 1.8 | 277 | 1.6 |
| CRUDE CAPACITY | 16 | | ****** | | | | ****** | | 534 | | 8,644 | | 9,492 | |
| NO OF REFINERIES | 3 | | 2 | | 3 | | 5 | | 5 | | 51 | | 69 | |
| FEED STOCKS SOLD | 19 | 8.8 | 54 | 7.6 | 25 | 4.2 | 30 | 2.9 | 24 | 2.7 | 650 | 4.7 | 801 | 4.7 |
| CRUDE CAPACITY | 84 | | 256 | | 160 | | 437 | | 319 | | 7,345 | | 8,601 | |
| NO OF REFINERIES | 11 | | 17 | | 6 | | 7 | | 4 | | 46 | | 91 | |
| MISCELLANEOUS | 2 | 1.0 | 18 | 2.5 | | | 10 | 1.0 | | | 115 | .8 | 145 | .8 |
| CRUDE CAPACITY | 49 | | 79 | | | | 290 | | | | 5,572 | | 5,990 | |
| NO OF REFINERIES | 7 | | 5 | | | | 8 | | | | 32 | | 52 | |
| BLENDING STOCKS TO OTHERS | 4 | 1.8 | 13 | 1.8 | 23 | 3.8 | 5 | .5 | | | 155 | 1.1 | 200 | 1.2 |
| CRUDE CAPACITY | 43 | | 92 | | 83 | | 152 | | | | 3,448 | | 3,818 | |
| NO OF REFINERIES | 7 | | 8 | | 3 | | 3 | | | | 21 | | 42 | |
| REFINERY FUEL PRODUCED | 2 | .8 | 21 | 2.9 | 23 | 3.9 | 43 | 4.2 | 49 | 5.5 | 833 | 6.0 | 970 | 5.6 |
| CRUDE CAPACITY | 66 | | 635 | | 580 | | 969 | | 922 | | 13,565 | | 16,736 | |
| NO OF REFINERIES | 9 | | 37 | | 16 | | 23 | | 10 | | 106 | | 201 | |
| TOTAL (EX WAX,SULFR,COKE) | 205 | 97.4 | 698 | 99.0 | 600 | 100.3 | 1,014 | 100.1 | 898 | 100.5 | 13,928 | 101.2 | 17,343 | 100.9 |
| CRUDE CAPACITY | 219 | | 753 | | 667 | | 1,004 | | 922 | | 13,695 | | 17,259 | |
| NO OF REFINERIES | 35 | | 47 | | 19 | | 24 | | 10 | | 110 | | 245 | |

PRODUCT SLATES
BY COMPANY SIZE
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| SULFUR (LT/CD) | | | 38 | | 78 | | 172 | | 396 | | 7,147 | | 7,831 | |
| CRUDE CAPACITY | | | 104 | | 363 | | 465 | | 922 | | 11,976 | | 13,830 | |
| NO OF REFINERIES | | | 4 | | 8 | | 8 | | 10 | | 75 | | 105 | |
| COKE (ST/CD) | | | ****** | | ****** | | 1,554 | | 1,643 | | 38,045 | | 41,700 | |
| CRUDE CAPACITY | | | ****** | | ****** | | 310 | | 303 | | 6,688 | | 7,383 | |
| NO OF REFINERIES | | | 2 | | 1 | | 5 | | 3 | | 44 | | 55 | |
| WAX (ST/CD) | ****** | | ****** | | ****** | | ****** | | | | 4,239 | | 4,684 | |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | | | 3,954 | | 4,058 | |
| NO OF REFINERIES | 1 | | 3 | | 1 | | 3 | | | | 17 | | 25 | |

Table C.6.3.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

PRODUCT SLATES
BY COMPANY SIZE
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | 4 | 1.8 | 8 | 1.1 | 9 | 1.3 | 16 | 1.4 | 16 | 1.8 | 321 | 2.2 | 374 | 2.1 |
| CRUDE CAPACITY | 36 | | 328 | | 449 | | 846 | | 922 | | 12,689 | | 15,271 | |
| NO OF REFINERIES | 5 | | 16 | | 12 | | 17 | | 10 | | 92 | | 152 | |
| MOTOR GASOLINE | 38 | 18.6 | 190 | 24.4 | 224 | 32.5 | 475 | 43.1 | 449 | 50.1 | 6,470 | 45.2 | 7,846 | 43.6 |
| CRUDE CAPACITY | 57 | | 529 | | 513 | | 990 | | 922 | | 14,125 | | 17,135 | |
| NO OF REFINERIES | 11 | | 32 | | 13 | | 22 | | 10 | | 105 | | 193 | |
| JET FUEL - NAPHTHA BASE | 13 | 6.3 | 28 | 3.5 | 31 | 4.6 | 13 | 1.2 | | | 150 | 1.0 | 235 | 1.3 |
| CRUDE CAPACITY | 67 | | 242 | | 338 | | 201 | | | | 5,924 | | 6,772 | |
| NO OF REFINERIES | 9 | | 14 | | 10 | | 4 | | | | 39 | | 76 | |
| JET FUEL - KEROSENE BASE | | | 9 | 1.1 | 18 | 2.6 | ****** | *** | ****** | *** | 889 | 6.2 | 972 | 5.4 |
| CRUDE CAPACITY | | | 164 | | 267 | | ****** | | ****** | | 10,470 | | 11,429 | |
| NO OF REFINERIES | | | 7 | | 6 | | 6 | | 1 | | 72 | | 92 | |
| KEROSENE & #1 HEATING OIL | 8 | 3.8 | 10 | 1.2 | 24 | 3.5 | 15 | 1.4 | 31 | 3.4 | 223 | 1.6 | 311 | 1.7 |
| CRUDE CAPACITY | 70 | | 272 | | 442 | | 439 | | 509 | | 8,155 | | 9,888 | |
| NO OF REFINERIES | 9 | | 17 | | 11 | | 12 | | 5 | | 64 | | 118 | |
| DIESEL | 21 | 10.2 | 97 | 12.5 | 62 | 9.0 | 88 | 8.0 | 50 | 5.6 | 860 | 6.0 | 1,179 | 6.6 |
| CRUDE CAPACITY | 128 | | 542 | | 495 | | 787 | | 524 | | 8,877 | | 11,352 | |
| NO OF REFINERIES | 20 | | 30 | | 14 | | 17 | | 5 | | 70 | | 156 | |
| DISTILLATE #2 | 7 | 3.5 | 63 | 8.0 | 78 | 11.4 | 140 | 12.7 | 150 | 16.8 | 1,570 | 11.0 | 2,008 | 11.2 |
| CRUDE CAPACITY | 65 | | 392 | | 434 | | 868 | | 748 | | 10,536 | | 13,043 | |
| NO OF REFINERIES | 11 | | 26 | | 10 | | 19 | | 8 | | 74 | | 148 | |
| HVY FUEL OILS (4,5,6,ETC) | 53 | 26.2 | 194 | 24.8 | 99 | 14.3 | 162 | 14.7 | 74 | 8.3 | 1,260 | 9.8 | 1,843 | 10.2 |
| CRUDE CAPACITY | 172 | | 767 | | 715 | | 979 | | 922 | | 12,946 | | 16,500 | |
| NO OF REFINERIES | 28 | | 43 | | 18 | | 21 | | 10 | | 88 | | 208 | |

PRODUCT SLATES
BY COMPANY SIZE
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| ASPHALT | 16 | 8.1 | 46 | 5.9 | 37 | 5.3 | 18 | 1.6 | 29 | 3.2 | 342 | 2.4 | 488 | 2.7 |
| CRUDE CAPACITY | 90 | | 265 | | 409 | | 305 | | 357 | | 7,358 | | 8,785 | |
| NO OF REFINERIES | 12 | | 17 | | 10 | | 7 | | 4 | | 54 | | 104 | |
| FINISHED LUBRICANTS | 9 | 4.4 | 8 | 1.1 | | | ****** | *** | ****** | *** | 190 | 1.3 | 220 | 1.2 |
| CRUDE CAPACITY | 33 | | 63 | | | | ****** | | ****** | | 5,562 | | 5,941 | |
| NO OF REFINERIES | 5 | | 6 | | | | 4 | | 1 | | 23 | | 39 | |
| BTX | | | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 130 | .9 | 155 | .9 |
| CRUDE CAPACITY | | | ****** | | ****** | | ****** | | ****** | | 5,633 | | 6,123 | |
| NO OF REFINERIES | | | 1 | | 1 | | 2 | | 3 | | 26 | | 33 | |
| OTHER SPECS + PETROCHM IM | 4 | 2.0 | ****** | *** | 5 | .7 | ****** | *** | 10 | 1.1 | 251 | 1.8 | 287 | 1.6 |
| CRUDE CAPACITY | 17 | | ****** | | 87 | | ****** | | 534 | | 8,639 | | 9,531 | |
| NO OF REFINERIES | 3 | | 2 | | 3 | | 5 | | 5 | | 50 | | 68 | |
| FEED STOCKS SOLD | 15 | 7.3 | 67 | 8.6 | 27 | 3.9 | 28 | 2.5 | 24 | 2.7 | 767 | 5.4 | 928 | 5.2 |
| CRUDE CAPACITY | 67 | | 289 | | 160 | | 475 | | 319 | | 7,674 | | 8,983 | |
| NO OF REFINERIES | 9 | | 19 | | 6 | | 7 | | 4 | | 45 | | 90 | |
| MISCELLANEOUS | 2 | 1.1 | ****** | *** | ****** | *** | 10 | .9 | | | 111 | .8 | 145 | .8 |
| CRUDE CAPACITY | 52 | | ****** | | ****** | | 255 | | | | 5,254 | | 5,682 | |
| NO OF REFINERIES | 7 | | 5 | | 1 | | 7 | | | | 30 | | 50 | |
| BLENDING STOCKS TO OTHERS | 5 | 2.6 | 7 | .9 | 37 | 5.4 | 6 | .6 | | | 108 | .8 | 164 | .9 |
| CRUDE CAPACITY | 50 | | 72 | | 133 | | 241 | | | | 1,880 | | 2,376 | |
| NO OF REFINERIES | 7 | | 7 | | 4 | | 4 | | | | 13 | | 35 | |
| REFINERY FUEL PRODUCED | 2 | 1.2 | 21 | 2.7 | 26 | 3.8 | 49 | 4.5 | 50 | 5.5 | 869 | 6.1 | 1,018 | 5.7 |
| CRUDE CAPACITY | 69 | | 636 | | 637 | | 1,040 | | 922 | | 14,019 | | 17,323 | |
| NO OF REFINERIES | 9 | | 36 | | 17 | | 23 | | 10 | | 106 | | 201 | |
| TOTAL (EX WAX,SULFR,COKE) | 197 | 97.0 | 772 | 98.8 | 685 | 99.3 | 1,102 | 100.0 | 905 | 100.9 | 14,513 | 101.4 | 18,174 | 101.1 |
| CRUDE CAPACITY | 200 | | 817 | | 727 | | 1,080 | | 922 | | 14,223 | | 17,968 | |
| NO OF REFINERIES | 32 | | 49 | | 20 | | 24 | | 10 | | 110 | | 245 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

PRODUCT SLATES
BY COMPANY SIZE
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| SULFUR (LT/CD) | | | 45 | | 85 | | 190 | | 402 | | 7,992 | | 8,714 | |
| CRUDE CAPACITY | | | 104 | | 363 | | 558 | | 922 | | 12,544 | | 14,491 | |
| NO OF REFINERIES | | | 4 | | 8 | | 9 | | 10 | | 76 | | 107 | |
| COKE (ST/CD) | | | ****** | | ****** | | 1,744 | | 1,643 | | 40,387 | | 44,232 | |
| CRUDE CAPACITY | | | ****** | | ****** | | 334 | | 303 | | 7,009 | | 7,728 | |
| NO OF REFINERIES | | | 2 | | 1 | | 5 | | 3 | | 44 | | 55 | |
| WAX (ST/CD) | ****** | | ****** | | ****** | | ****** | | | | 4,583 | | 5,128 | |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | | | 4,057 | | 4,242 | |
| NO OF REFINERIES | 1 | | 3 | | 1 | | 4 | | | | 17 | | 26 | |

Table C.6.4.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/11/79

PRODUCT SLATES
BY REFINERY COMPLEXITY FACTOR
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR 0-3 | | 3-5 | | 5-7 | | 7-9 | | 9-11 | | 11 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | 9 | .9 | 15 | 1.1 | 77 | 1.6 | 156 | 2.6 | 17 | 1.1 | 28 | 2.2 | 302 | 1.9 |
| CRUDE CAPACITY | 460 | | 1,072 | | 4,724 | | 5,036 | | 1,273 | | 831 | | 13,397 | |
| NO OF REFINERIES | 16 | | 27 | | 46 | | 35 | | 11 | | 9 | | 144 | |
| MOTOR GASOLINE | 159 | 15.9 | 496 | 38.3 | 2,214 | 44.9 | 2,933 | 48.9 | 774 | 49.9 | 660 | 53.2 | 7,237 | 45.1 |
| CRUDE CAPACITY | 687 | | 1,386 | | 5,380 | | 5,959 | | 1,487 | | 1,246 | | 16,146 | |
| NO OF REFINERIES | 38 | | 35 | | 51 | | 42 | | 13 | | 10 | | 189 | |
| JET FUEL - NAPHTHA BASE | 77 | 7.7 | 19 | 1.5 | 33 | .7 | 70 | 1.2 | 7 | .5 | 16 | 1.3 | 222 | 1.4 |
| CRUDE CAPACITY | 583 | | 444 | | 2,252 | | 2,882 | | 395 | | 420 | | 6,975 | |
| NO OF REFINERIES | 36 | | 12 | | 15 | | 13 | | 4 | | 4 | | 84 | |
| JET FUEL - KEROSENE BASE | 21 | 2.1 | 23 | 1.8 | 309 | 6.3 | 321 | 5.3 | 99 | 6.4 | 16 | 1.3 | 789 | 4.9 |
| CRUDE CAPACITY | 320 | | 447 | | 4,071 | | 4,604 | | 1,253 | | 387 | | 11,082 | |
| NO OF REFINERIES | 10 | | 9 | | 31 | | 25 | | 10 | | 4 | | 89 | |
| KEROSENE & #1 HEATING OIL | 26 | 2.6 | 37 | 2.8 | 105 | 2.1 | 68 | 1.1 | 14 | .9 | 12 | .9 | 262 | 1.6 |
| CRUDE CAPACITY | 512 | | 814 | | 4,059 | | 3,893 | | 546 | | 964 | | 10,789 | |
| NO OF REFINERIES | 26 | | 24 | | 41 | | 26 | | 6 | | 7 | | 130 | |
| DIESEL | 105 | 10.5 | 96 | 7.4 | 425 | 8.6 | 244 | 4.1 | 78 | 5.0 | 93 | 7.5 | 1,043 | 6.5 |
| CRUDE CAPACITY | 845 | | 973 | | 4,558 | | 3,350 | | 862 | | 1,126 | | 11,715 | |
| NO OF REFINERIES | 54 | | 25 | | 40 | | 22 | | 9 | | 9 | | 159 | |
| DISTILLATE #2 | 81 | 8.1 | 196 | 15.1 | 561 | 11.4 | 812 | 13.5 | 156 | 10.1 | 134 | 10.8 | 1,940 | 12.1 |
| CRUDE CAPACITY | 699 | | 1,078 | | 4,321 | | 5,257 | | 1,084 | | 776 | | 13,216 | |
| NO OF REFINERIES | 39 | | 24 | | 39 | | 36 | | 8 | | 6 | | 152 | |
| HVY FUEL OILS (4,5,6,ETC) | 315 | 31.4 | 189 | 14.6 | 486 | 9.8 | 433 | 7.2 | 139 | 9.0 | 61 | 4.9 | 1,623 | 10.1 |
| CRUDE CAPACITY | 1,184 | | 1,357 | | 5,360 | | 5,573 | | 1,487 | | 1,139 | | 16,101 | |
| NO OF REFINERIES | 79 | | 32 | | 50 | | 36 | | 13 | | 9 | | 219 | |

PRODUCT SLATES
BY REFINERY COMPLEXITY FACTOR
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR 0-3 | | 3-5 | | 5-7 | | 7-9 | | 9-11 | | 11 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| ASPHALT | 69 | 6.9 | 59 | 4.5 | 175 | 3.5 | 112 | 1.9 | ****** | *** | ****** | *** | 453 | 2.8 |
| CRUDE CAPACITY | 402 | | 834 | | 4,002 | | 2,332 | | ****** | | ****** | | 8,505 | |
| NO OF REFINERIES | 30 | | 18 | | 33 | | 16 | | 6 | | 2 | | 105 | |
| FINISHED LUBRICANTS | 10 | 1.0 | ****** | *** | 77 | 1.6 | 82 | 1.4 | ****** | *** | | | 196 | 1.2 |
| CRUDE CAPACITY | 46 | | ****** | | 2,172 | | 2,728 | | ****** | | | | 5,587 | |
| NO OF REFINERIES | 8 | | 5 | | 9 | | 13 | | 3 | | | | 38 | |
| BTX | | | ****** | *** | 7 | .1 | 43 | .7 | 27 | 1.7 | ****** | *** | 115 | .7 |
| CRUDE CAPACITY | | | ****** | | 1,101 | | 2,795 | | 768 | | ****** | | 5,540 | |
| NO OF REFINERIES | | | 1 | | 5 | | 15 | | 6 | | 6 | | 33 | |
| OTHER SPECS + PETROCHM IM | 8 | .8 | 7 | .6 | 68 | 1.4 | 121 | 2.0 | 33 | 2.1 | 17 | 1.3 | 253 | 1.6 |
| CRUDE CAPACITY | 84 | | 527 | | 2,593 | | 4,138 | | 1,100 | | 892 | | 9,334 | |
| NO OF REFINERIES | 9 | | 9 | | 13 | | 22 | | 9 | | 6 | | 68 | |
| FEED STOCKS SOLD | 40 | 4.0 | 48 | 3.7 | 143 | 2.9 | 240 | 4.0 | 77 | 4.9 | 60 | 4.8 | 608 | 3.8 |
| CRUDE CAPACITY | 353 | | 688 | | 2,367 | | 3,482 | | 894 | | 1,016 | | 8,800 | |
| NO OF REFINERIES | 28 | | 14 | | 13 | | 22 | | 7 | | 8 | | 92 | |
| MISCELLANEOUS | 28 | 2.7 | 7 | .6 | 42 | .9 | 70 | 1.2 | 11 | .7 | 9 | .7 | 167 | 1.0 |
| CRUDE CAPACITY | 207 | | 277 | | 3,078 | | 2,536 | | 718 | | 784 | | 7,600 | |
| NO OF REFINERIES | 15 | | 7 | | 20 | | 16 | | 6 | | 5 | | 69 | |
| BLENDING STOCKS TO OTHERS | 21 | 2.1 | 51 | 3.9 | 17 | .3 | 33 | .6 | 14 | .9 | 15 | 1.2 | 150 | .9 |
| CRUDE CAPACITY | 140 | | 237 | | 809 | | 1,395 | | 615 | | 511 | | 3,706 | |
| NO OF REFINERIES | 14 | | 6 | | 3 | | 8 | | 4 | | 3 | | 38 | |
| REFINERY FUEL PRODUCED | 18 | 1.8 | 52 | 4.0 | 261 | 5.3 | 351 | 5.8 | 91 | 5.9 | 97 | 7.8 | 870 | 5.4 |
| CRUDE CAPACITY | 965 | | 1,350 | | 5,380 | | 5,959 | | 1,487 | | 1,285 | | 16,426 | |
| NO OF REFINERIES | 49 | | 34 | | 51 | | 42 | | 13 | | 11 | | 200 | |
| TOTAL (EX WAX,SULFR,COKE) | 989 | 98.5 | 1,305 | 100.7 | 4,999 | 101.3 | 6,090 | 101.4 | 1,583 | 102.1 | 1,262 | 101.7 | 16,228 | 101.2 |
| CRUDE CAPACITY | 1,308 | | 1,458 | | 5,380 | | 5,959 | | 1,487 | | 1,285 | | 16,878 | |
| NO OF REFINERIES | 90 | | 37 | | 51 | | 42 | | 13 | | 11 | | 244 | |

PRODUCT SLATES
BY REFINERY COMPLEXITY FACTOR
ACTUAL 1978
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR 0-3 | | 3-5 | | 5-7 | | 7-9 | | 9-11 | | 11 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| SULFUR (LT/CD) | ****** | | ****** | | 1,807 | | 2,618 | | 762 | | 841 | | 6,247 | |
| CRUDE CAPACITY | ****** | | ****** | | 4,249 | | 4,936 | | 1,399 | | 1,184 | | 12,380 | |
| NO OF REFINERIES | 2 | | 9 | | 26 | | 32 | | 12 | | 8 | | 89 | |
| COKE (ST/CD) | | | ****** | | 9,354 | | 16,895 | | ****** | | 7,501 | | 38,935 | |
| CRUDE CAPACITY | | | ****** | | 1,860 | | 3,470 | | ****** | | 1,061 | | 7,274 | |
| NO OF REFINERIES | | | 2 | | 15 | | 21 | | 8 | | 7 | | 53 | |
| WAX (ST/CD) | ****** | | 142 | | 575 | | 2,563 | | ****** | | | | 3,891 | |
| CRUDE CAPACITY | ****** | | 69 | | 1,199 | | 2,239 | | ****** | | | | 3,952 | |
| NO OF REFINERIES | 4 | | 4 | | 4 | | 11 | | 2 | | | | 25 | |

Table C.6.4.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/11/79

PRODUCT SLATES
BY REFINERY COMPLEXITY FACTOR
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | ** 0-3 ** | | ** 3-5 ** | | ** 5-7 ** | | ** 7-9 ** | | ** 9-11 ** | | ** 11 + ** | | ** TOTAL ** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| **COMPLEXITY FACTOR** | | | | | | | | | | | | | | |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | 10 | .9 | 14 | 1.6 | 99 | 1.7 | 162 | 2.7 | 41 | 2.4 | 32 | 2.1 | 359 | 2.1 |
| CRUDE CAPACITY | 454 | | 791 | | 5,836 | | 5,553 | | 1,001 | | 1,115 | | 14,749 | |
| NO OF REFINERIES | 15 | | 23 | | 54 | | 38 | | 11 | | 10 | | 151 | |
| MOTOR GASOLINE | 163 | 13.4 | 352 | 38.4 | 2,570 | 44.3 | 2,879 | 48.3 | 874 | 50.4 | 750 | 48.4 | 7,588 | 44.2 |
| CRUDE CAPACITY | 681 | | 917 | | 6,000 | | 5,748 | | 1,550 | | 1,530 | | 16,426 | |
| NO OF REFINERIES | 35 | | 30 | | 59 | | 42 | | 14 | | 11 | | 191 | |
| JET FUEL - NAPHTHA BASE | 83 | 6.8 | 13 | 1.4 | 37 | .6 | 76 | 1.3 | 9 | .5 | 19 | 1.2 | 236 | 1.4 |
| CRUDE CAPACITY | 585 | | 326 | | 2,188 | | 2,759 | | 304 | | 419 | | 6,580 | |
| NO OF REFINERIES | 33 | | 8 | | 14 | | 13 | | 4 | | 4 | | 76 | |
| JET FUEL - KEROSENE BASE | 25 | 2.1 | 24 | 2.6 | 336 | 5.8 | 365 | 6.1 | 129 | 7.4 | 24 | 1.5 | 903 | 5.3 |
| CRUDE CAPACITY | 332 | | 357 | | 3,765 | | 4,242 | | 1,465 | | 672 | | 10,834 | |
| NO OF REFINERIES | 10 | | 8 | | 29 | | 25 | | 12 | | 5 | | 89 | |
| KEROSENE & #1 HEATING OIL | 31 | 2.6 | 25 | 2.7 | 139 | 2.4 | 87 | 1.5 | 1 | .1 | 13 | .8 | 296 | 1.7 |
| CRUDE CAPACITY | 427 | | 776 | | 3,945 | | 3,636 | | 223 | | 963 | | 9,969 | |
| NO OF REFINERIES | 24 | | 22 | | 42 | | 23 | | 3 | | 7 | | 121 | |
| DIESEL | 119 | 9.8 | 86 | 9.4 | 478 | 8.2 | 272 | 4.6 | 86 | 5.0 | 104 | 6.7 | 1,146 | 6.7 |
| CRUDE CAPACITY | 856 | | 713 | | 4,515 | | 3,119 | | 698 | | 1,125 | | 11,026 | |
| NO OF REFINERIES | 51 | | 22 | | 43 | | 22 | | 8 | | 9 | | 155 | |
| DISTILLATE #2 | 109 | 9.0 | 121 | 13.1 | 672 | 11.6 | 709 | 11.9 | 204 | 11.8 | 130 | 8.4 | 1,945 | 11.3 |
| CRUDE CAPACITY | 774 | | 719 | | 4,179 | | 4,966 | | 988 | | 775 | | 12,400 | |
| NO OF REFINERIES | 39 | | 21 | | 41 | | 34 | | 7 | | 6 | | 148 | |
| HVY FUEL OILS (4,5,6,ETC) | 386 | 31.8 | 94 | 10.2 | 531 | 9.2 | 458 | 7.7 | 112 | 6.4 | 96 | 6.2 | 1,676 | 9.8 |
| CRUDE CAPACITY | 1,270 | | 879 | | 5,799 | | 5,297 | | 1,309 | | 1,324 | | 15,877 | |
| NO.OF REFINERIES | 74 | | 26 | | 53 | | 34 | | 12 | | 9 | | 208 | |

PRODUCT SLATES
BY REFINERY COMPLEXITY FACTOR
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR 0-3 | | 3-5 | | 5-7 | | 7-9 | | 9-11 | | 11 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| ASPHALT | 84 | 6.9 | 47 | 5.2 | 189 | 3.3 | 117 | 2.0 | 17 | 1.0 | 10 | .6 | 465 | 2.7 |
| CRUDE CAPACITY | 434 | | 550 | | 4,227 | | 2,515 | | 314 | | 465 | | 8,505 | |
| NO OF REFINERIES | 30 | | 15 | | 34 | | 17 | | 4 | | 3 | | 103 | |
| FINISHED LUBRICANTS | 12 | 1.0 | 8 | .8 | 90 | 1.5 | 72 | 1.2 | ****** | *** | ****** | *** | 205 | 1.2 |
| CRUDE CAPACITY | 71 | | 70 | | 2,358 | | 2,574 | | ****** | | ****** | | 5,796 | |
| NO OF REFINERIES | 9 | | 4 | | 11 | | 12 | | 2 | | 1 | | 39 | |
| BTX | | | | | 10 | .2 | 52 | .9 | 13 | .7 | 55 | 3.5 | 129 | .8 |
| CRUDE CAPACITY | | | | | 1,102 | | 2,928 | | 416 | | 1,115 | | 5,559 | |
| NO OF REFINERIES | | | | | 5 | | 15 | | 5 | | 7 | | 32 | |
| OTHER SPECS + PETROCHM IM | 8 | .6 | 6 | .6 | 71 | 1.2 | 116 | 1.9 | 44 | 2.5 | 33 | 2.1 | 277 | 1.6 |
| CRUDE CAPACITY | 76 | | 341 | | 2,710 | | 4,127 | | 1,163 | | 1,076 | | 9,492 | |
| NO OF REFINERIES | 7 | | 6 | | 17 | | 23 | | 10 | | 6 | | 69 | |
| FEED STOCKS SOLD | 84 | 6.9 | 48 | 5.2 | 199 | 3.4 | 221 | 3.7 | 92 | 5.3 | 158 | 10.2 | 801 | 4.7 |
| CRUDE CAPACITY | 513 | | 350 | | 2,583 | | 2,966 | | 890 | | 1,300 | | 8,601 | |
| NO OF REFINERIES | 31 | | 10 | | 14 | | 20 | | 7 | | 9 | | 91 | |
| MISCELLANEOUS | 31 | 2.5 | 4 | .5 | 33 | .6 | 48 | .8 | ****** | *** | ****** | *** | 145 | .8 |
| CRUDE CAPACITY | 247 | | 115 | | 2,711 | | 1,848 | | ****** | | ****** | | 5,990 | |
| NO OF REFINERIES | 14 | | 4 | | 14 | | 11 | | 3 | | 6 | | 52 | |
| BLENDING STOCKS TO OTHERS | 29 | 2.4 | 49 | 5.3 | 34 | .6 | 40 | .7 | 10 | .6 | 38 | 2.4 | 200 | 1.2 |
| CRUDE CAPACITY | 224 | | 192 | | 1,078 | | 1,317 | | 269 | | 739 | | 3,818 | |
| NO OF REFINERIES | 16 | | 5 | | 7 | | 8 | | 3 | | 3 | | 42 | |
| REFINERY FUEL PRODUCED | 20 | 1.7 | 41 | 4.5 | 332 | 5.7 | 353 | 5.9 | 104 | 6.0 | 119 | 7.6 | 970 | 5.6 |
| CRUDE CAPACITY | 1,030 | | 968 | | 5,872 | | 5,748 | | 1,550 | | 1,569 | | 16,736 | |
| NO OF REFINERIES | 47 | | 30 | | 56 | | 42 | | 14 | | 12 | | 201 | |
| TOTAL (EX WAX,SULFR,COKE) | 1,196 | 98.5 | 932 | 101.6 | 5,821 | 100.3 | 6,024 | 101.1 | 1,773 | 102.1 | 1,597 | 103.0 | 17,343 | 100.9 |
| CRUDE CAPACITY | 1,403 | | 989 | | 6,000 | | 5,748 | | 1,550 | | 1,569 | | 17,259 | |
| NO OF REFINERIES | 86 | | 32 | | 59 | | 42 | | 14 | | 12 | | 245 | |

PRODUCT SLATES
BY REFINERY COMPLEXITY FACTOR
PROJECTED 1980
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR 0-3 | | 3-5 | | 5-7 | | 7-9 | | 9-11 | | 11 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| SULFUR (LT/CD) | 66 | | 99 | | 2,617 | | 3,045 | | 1,010 | | 994 | | 7,831 | |
| CRUDE CAPACITY | 177 | | 414 | | 5,102 | | 5,252 | | 1,417 | | 1,469 | | 13,830 | |
| NO OF REFINERIES | 4 | | 9 | | 35 | | 36 | | 12 | | 9 | | 105 | |
| COKE (ST/CD) | | | ****** | | 11,067 | | 17,504 | | ****** | | 6,912 | | 41,700 | |
| CRUDE CAPACITY | | | ****** | | 2,003 | | 3,169 | | ****** | | 1,060 | | 7,383 | |
| NO OF REFINERIES | | | 2 | | 17 | | 20 | | 9 | | 7 | | 55 | |
| WAX (ST/CD) | 337 | | 150 | | 716 | | 3,267 | | ****** | | ****** | | 4,684 | |
| CRUDE CAPACITY | 24 | | 70 | | 1,259 | | 2,085 | | ****** | | ****** | | 4,058 | |
| NO OF REFINERIES | 4 | | 4 | | 5 | | 10 | | 1 | | 1 | | 25 | |

Table C.6.4.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/11/79

PRODUCT SLATES
BY REFINERY COMPLEXITY FACTOR
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | ********** COMPLEXITY FACTOR ********** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-3 ** | | ** 3-5 ** | | ** 5-7 ** | | ** 7-9 ** | | ** 9-11 ** | | ** 11 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | 10 | .9 | 19 | 1.7 | 98 | 1.7 | 137 | 2.0 | 78 | 5.0 | 32 | 2.1 | 374 | 2.1 |
| CRUDE CAPACITY | 377 | | 922 | | 5,616 | | 6,063 | | 1,185 | | 1,109 | | 15,271 | |
| NO OF REFINERIES | 13 | | 23 | | 51 | | 44 | | 12 | | 9 | | 152 | |
| MOTOR GASOLINE | 134 | 11.6 | 392 | 35.9 | 2,477 | 42.6 | 3,287 | 48.5 | 763 | 49.1 | 792 | 50.2 | 7,846 | 43.6 |
| CRUDE CAPACITY | 596 | | 1,075 | | 5,859 | | 6,655 | | 1,399 | | 1,553 | | 17,135 | |
| NO OF REFINERIES | 30 | | 31 | | 58 | | 49 | | 14 | | 11 | | 193 | |
| JET FUEL - NAPHTHA BASE | 73 | 6.3 | 8 | .8 | 42 | .7 | 76 | 1.1 | 16 | 1.0 | 19 | 1.2 | 235 | 1.3 |
| CRUDE CAPACITY | 575 | | 235 | | 2,279 | | 2,887 | | 379 | | 418 | | 6,772 | |
| NO OF REFINERIES | 32 | | 5 | | 17 | | 14 | | 4 | | 4 | | 76 | |
| JET FUEL - KEROSENE BASE | 35 | 3.1 | 45 | 4.1 | 356 | 6.1 | 390 | 5.7 | 120 | 7.7 | 26 | 1.6 | 972 | 5.4 |
| CRUDE CAPACITY | 327 | | 571 | | 3,922 | | 4,830 | | 1,233 | | 546 | | 11,429 | |
| NO OF REFINERIES | 9 | | 10 | | 32 | | 26 | | 11 | | 4 | | 92 | |
| KEROSENE & #1 HEATING OIL | 22 | 1.9 | 24 | 2.2 | 151 | 2.6 | 99 | 1.5 | 3 | .2 | 13 | .8 | 311 | 1.7 |
| CRUDE CAPACITY | 368 | | 611 | | 4,001 | | 3,670 | | 254 | | 985 | | 9,888 | |
| NO OF REFINERIES | 21 | | 17 | | 44 | | 25 | | 4 | | 7 | | 118 | |
| DIESEL | 107 | 9.2 | 90 | 8.2 | 479 | 8.2 | 310 | 4.6 | 101 | 6.5 | 92 | 5.9 | 1,179 | 6.6 |
| CRUDE CAPACITY | 838 | | 643 | | 4,607 | | 3,419 | | 706 | | 1,139 | | 11,352 | |
| NO OF REFINERIES | 47 | | 22 | | 45 | | 26 | | 8 | | 8 | | 156 | |
| DISTILLATE #2 | 113 | 9.7 | 119 | 10.9 | 666 | 11.4 | 851 | 12.5 | 149 | 9.6 | 111 | 7.0 | 2,008 | 11.2 |
| CRUDE CAPACITY | 752 | | 811 | | 4,128 | | 5,793 | | 762 | | 798 | | 13,043 | |
| NO OF REFINERIES | 37 | | 19 | | 40 | | 39 | | 7 | | 6 | | 148 | |
| HVY FUEL OILS (4,5,6,ETC) | 354 | 30.5 | 161 | 14.8 | 595 | 10.2 | 538 | 7.9 | 94 | 6.0 | 101 | 6.4 | 1,843 | 10.2 |
| CRUDE CAPACITY | 1,217 | | 1,037 | | 5,549 | | 6,290 | | 1,055 | | 1,352 | | 16,500 | |
| NO OF REFINERIES | 69 | | 27 | | 51 | | 41 | | 10 | | 10 | | 208 | |

PRODUCT SLATES
BY REFINERY COMPLEXITY FACTOR
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR 0-3 | | 3-5 | | 5-7 | | 7-9 | | 9-11 | | 11 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| ASPHALT | 91 | 7.8 | 35 | 3.2 | 208 | 3.6 | 120 | 1.8 | 23 | 1.5 | 10 | .6 | 488 | 2.7 |
| CRUDE CAPACITY | 467 | | 379 | | 4,220 | | 2,690 | | 564 | | 465 | | 8,785 | |
| NO OF REFINERIES | 31 | | 10 | | 36 | | 19 | | 5 | | 3 | | 104 | |
| FINISHED LUBRICANTS | 13 | 1.2 | 7 | .7 | 88 | 1.5 | 99 | 1.5 | ****** | *** | ****** | *** | 220 | 1.2 |
| CRUDE CAPACITY | 74 | | 72 | | 2,199 | | 3,207 | | ****** | | ****** | | 5,941 | |
| NO OF REFINERIES | 9 | | 4 | | 9 | | 15 | | 1 | | 1 | | 39 | |
| BTX | | | | | 4 | .1 | 79 | 1.2 | 17 | 1.1 | 54 | 3.4 | 155 | .9 |
| CRUDE CAPACITY | | | | | 872 | | 3,741 | | 377 | | 1,134 | | 6,123 | |
| NO OF REFINERIES | | | | | 3 | | 20 | | 3 | | 7 | | 33 | |
| OTHER SPECS + PETROCHM IM | 9 | .8 | 7 | .7 | 69 | 1.2 | 129 | 1.9 | 42 | 2.7 | 31 | 1.9 | 287 | 1.6 |
| CRUDE CAPACITY | 65 | | 518 | | 2,393 | | 4,889 | | 1,006 | | 660 | | 9,531 | |
| NO OF REFINERIES | 6 | | 8 | | 14 | | 26 | | 9 | | 5 | | 68 | |
| FEED STOCKS SOLD | 83 | 7.2 | 132 | 12.0 | 196 | 3.4 | 279 | 4.1 | 66 | 4.3 | 173 | 11.0 | 928 | 5.2 |
| CRUDE CAPACITY | 525 | | 478 | | 2,534 | | 3,514 | | 614 | | 1,319 | | 8,983 | |
| NO OF REFINERIES | 30 | | 10 | | 13 | | 23 | | 5 | | 9 | | 90 | |
| MISCELLANEOUS | 34 | 2.9 | ****** | *** | 36 | .6 | 53 | .8 | ****** | *** | ****** | *** | 145 | .8 |
| CRUDE CAPACITY | 232 | | ****** | | 2,789 | | 2,043 | | ****** | | ****** | | 5,682 | |
| NO OF REFINERIES | 14 | | 1 | | 16 | | 12 | | 3 | | 4 | | 50 | |
| BLENDING STOCKS TO OTHERS | 41 | 3.5 | ****** | *** | 23 | .4 | 42 | .6 | ****** | *** | 32 | 2.0 | 164 | .9 |
| CRUDE CAPACITY | 261 | | ****** | | 347 | | 735 | | ****** | | 759 | | 2,376 | |
| NO OF REFINERIES | 16 | | 3 | | 5 | | 6 | | 2 | | 3 | | 35 | |
| REFINERY FUEL PRODUCED | 20 | 1.8 | 37 | 3.4 | 353 | 6.1 | 404 | 6.0 | 84 | 5.4 | 119 | 7.5 | 1,018 | 5.7 |
| CRUDE CAPACITY | 986 | | 884 | | 5,818 | | 6,655 | | 1,399 | | 1,582 | | 17,323 | |
| NO OF REFINERIES | 44 | | 27 | | 56 | | 49 | | 14 | | 11 | | 201 | |
| TOTAL (EX WAX,SULFR,COKE) | 1,140 | 98.3 | 1,096 | 100.4 | 5,842 | 100.4 | 6,893 | 101.7 | 1,587 | 102.1 | 1,616 | 102.5 | 18,174 | 101.1 |
| CRUDE CAPACITY | 1,349 | | 1,116 | | 5,859 | | 6,655 | | 1,399 | | 1,591 | | 17,968 | |
| NO OF REFINERIES | 80 | | 32 | | 58 | | 49 | | 14 | | 12 | | 245 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

PRODUCT SLATES
BY REFINERY COMPLEXITY FACTOR
PROJECTED 1982
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR 0-3 | | 3-5 | | 5-7 | | 7-9 | | 9-11 | | 11 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| SULFUR (LT/CD) | 61 | | 77 | | 2,796 | | 3,774 | | 961 | | 1,045 | | 8,714 | |
| CRUDE CAPACITY | 147 | | 404 | | 5,076 | | 6,071 | | 1,305 | | 1,489 | | 14,491 | |
| NO OF REFINERIES | 3 | | 8 | | 36 | | 39 | | 12 | | 9 | | 107 | |
| COKE (ST/CD) | | | ****** | | 11,704 | | 19,960 | | ****** | | 8,098 | | 44,232 | |
| CRUDE CAPACITY | | | ****** | | 1,940 | | 3,834 | | ****** | | 1,079 | | 7,728 | |
| NO OF REFINERIES | | | 2 | | 16 | | 23 | | 7 | | 7 | | 55 | |
| WAX (ST/CD) | ****** | | 138 | | 560 | | 3,911 | | | | ****** | | 5,128 | |
| CRUDE CAPACITY | ****** | | 72 | | 1,150 | | 2,712 | | | | ****** | | 4,242 | |
| NO OF REFINERIES | 4 | | 4 | | 4 | | 13 | | | | 1 | | 26 | |

Table C.6.5.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 1
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | | | | | | | 7 | 1.6 | 13 | *** | 13 | *** | 32 | 1.7 |
| CRUDE CAPACITY | | | | | | | 282 | | 644 | | 682 | | 1,607 | |
| NO OF REFINERIES | | | | | | | 4 | | 4 | | 3 | | 11 | |
| MOTOR GASOLINE | ****** | *** | ****** | *** | | | 164 | 40.0 | 310 | *** | ****** | *** | 797 | 42.4 |
| CRUDE CAPACITY | ****** | | ****** | | | | 388 | | 644 | | ****** | | 1,771 | |
| NO OF REFINERIES | 7 | | 1 | | | | 6 | | 4 | | 3 | | 21 | |
| JET FUEL - NAPHTHA BASE | ****** | *** | | | | | ****** | *** | ****** | *** | | *** | 16 | .8 |
| CRUDE CAPACITY | ****** | | | | | | ****** | | ****** | | | | 391 | |
| NO OF REFINERIES | 2 | | | | | | 1 | | 2 | | | | 5 | |
| JET FUEL - KEROSENE BASE | | | | | | | 13 | 3.1 | ****** | *** | ****** | *** | 51 | 2.7 |
| CRUDE CAPACITY | | | | | | | 293 | | ****** | | ****** | | 747 | |
| NO OF REFINERIES | | | | | | | 4 | | 1 | | 1 | | 6 | |
| KEROSENE & #1 HEATING OIL | 1 | 1.6 | ****** | *** | | | 3 | .7 | 14 | *** | ****** | *** | 21 | 1.1 |
| CRUDE CAPACITY | 26 | | ****** | | | | 247 | | 644 | | ****** | | 1,114 | |
| NO OF REFINERIES | 4 | | 1 | | | | 4 | | 4 | | 1 | | 14 | |
| DIESEL | 1 | 2.8 | ****** | *** | | | 14 | 3.5 | ****** | *** | ****** | *** | 63 | 3.3 |
| CRUDE CAPACITY | 30 | | ****** | | | | 335 | | ****** | | ****** | | 975 | |
| NO OF REFINERIES | 4 | | 1 | | | | 5 | | 2 | | 1 | | 13 | |
| DISTILLATE #2 | ****** | *** | 12 | 15.2 | | | 106 | 25.8 | 85 | *** | ****** | *** | 379 | 20.2 |
| CRUDE CAPACITY | ****** | | 65 | | | | 388 | | 476 | | ****** | | 1,670 | |
| NO OF REFINERIES | 9 | | 4 | | | | 6 | | 3 | | 3 | | 25 | |
| HVY FUEL OILS (4,5,6,ETC) | ****** | *** | 26 | 34.1 | | | 43 | 10.5 | 55 | *** | ****** | *** | 218 | 11.6 |
| CRUDE CAPACITY | ****** | | 65 | | | | 388 | | 504 | | ****** | | 1,668 | |
| NO OF REFINERIES | 5 | | 4 | | | | 6 | | 3 | | 3 | | 21 | |
| ASPHALT | 4 | 8.3 | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 94 | 5.0 |
| CRUDE CAPACITY | 35 | | ****** | | | | ****** | | ****** | | ****** | | 817 | |
| NO OF REFINERIES | 5 | | 2 | | | | 2 | | 1 | | 2 | | 12 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 1
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | 12 | 25.2 | ****** | *** | | | ****** | *** | ****** | *** | | *** | 37 | 1.9 |
| CRUDE CAPACITY | 45 | | ****** | | | | ****** | | ****** | | | | 491 | |
| NO OF REFINERIES | 7 | | 1 | | | | 1 | | 2 | | | | 11 | |
| BTX | | | | | | | ****** | *** | ****** | *** | | *** | ****** | *** |
| NO OF REFINERIES | | | | | | | 2 | | 2 | | | | 4 | |
| OTHER SPECS + PETROCHM IM | 2 | 3.9 | ****** | *** | | | ****** | *** | ****** | *** | | *** | 25 | 1.3 |
| CRUDE CAPACITY | 21 | | ****** | | | | ****** | | ****** | | | | 497 | |
| NO OF REFINERIES | 3 | | 1 | | | | 2 | | 2 | | | | 8 | |
| FEED STOCKS SOLD | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 27 | 1.4 |
| CRUDE CAPACITY | ****** | | ****** | | | | ****** | | ****** | | ****** | | 852 | |
| NO OF REFINERIES | 4 | | 1 | | | | 2 | | 1 | | 2 | | 10 | |
| MISCELLANEOUS | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | ****** | *** |
| NO OF REFINERIES | 2 | | 3 | | | | 3 | | 3 | | 2 | | 13 | |
| BLENDING STOCKS TO OTHERS | ****** | *** | ****** | *** | | | ****** | *** | | *** | | *** | 3 | .2 |
| CRUDE CAPACITY | ****** | | ****** | | | | ****** | | | | | | 106 | |
| NO OF REFINERIES | 4 | | 2 | | | | 1 | | | | | | 7 | |
| REFINERY FUEL PRODUCED | ****** | *** | 1 | 1.4 | | | 31 | 7.6 | 47 | *** | ****** | *** | 120 | 6.4 |
| CRUDE CAPACITY | ****** | | 56 | | | | 388 | | 644 | | ****** | | 1,828 | |
| NO OF REFINERIES | 9 | | 4 | | | | 6 | | 4 | | 3 | | 26 | |
| TOTAL (EX WAX,SULFR,COKE) | 48 | 96.1 | 75 | 98.9 | | | 414 | 100.9 | ****** | *** | ****** | *** | 1,913 | 101.7 |
| CRUDE CAPACITY | 59 | | 98 | | | | 388 | | ****** | | ****** | | 1,871 | |
| NO OF REFINERIES | 9 | | 6 | | | | 6 | | 4 | | 3 | | 28 | |
| SULFUR (LT/CD) | | | | | | | ****** | | 377 | | ****** | | 812 | |
| CRUDE CAPACITY | | | | | | | ****** | | 472 | | ****** | | 1,369 | |
| NO OF REFINERIES | | | | | | | 3 | | 3 | | 3 | | 9 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 1
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 MBPCD | 0-10 INPUT PCT | 10-30 MBPCD | 10-30 INPUT PCT | 30-50 MBPCD | 30-50 INPUT PCT | 50-100 MBPCD | 50-100 INPUT PCT | 100-175 MBPCD | 100-175 INPUT PCT | 175 + MBPCD | 175 + INPUT PCT | TOTAL MBPCD | TOTAL INPUT PCT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COKE (ST/CD) | | | | | | | ****** | | ****** | | | | 1,826 | |
| CRUDE CAPACITY | | | | | | | ****** | | ****** | | | | 291 | |
| NO OF REFINERIES | | | | | | | 2 | | 1 | | | | 3 | |
| WAX (ST/CD) | ****** | | ****** | | | | | | ****** | | | | 466 | |
| CRUDE CAPACITY | ****** | | ****** | | | | | | ****** | | | | 224 | |
| NO OF REFINERIES | 6 | | 1 | | | | | | 1 | | | | 8 | |

Table C.6.5.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 2
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | ****** | *** | ****** | *** | ****** | *** | 17 | 1.7 | 20 | 1.6 | ****** | *** | 63 | 1.5 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 984 | | 1,167 | | ****** | | 3,752 | |
| NO OF REFINERIES | 2 | | 6 | | 9 | | 15 | | 9 | | 4 | | 45 | |
| MOTOR GASOLINE | 5 | 13.1 | 107 | 49.5 | 251 | 55.8 | 591 | 56.0 | 677 | 53.7 | 530 | 51.3 | 2,161 | 53.3 |
| CRUDE CAPACITY | 16 | | 192 | | 460 | | 1,056 | | 1,297 | | 1,038 | | 4,060 | |
| NO OF REFINERIES | 4 | | 9 | | 10 | | 16 | | 10 | | 4 | | 53 | |
| JET FUEL - NAPHTHA BASE | 6 | 16.1 | 7 | 3.3 | 5 | 1.2 | ****** | *** | 10 | .8 | ****** | *** | 35 | .9 |
| CRUDE CAPACITY | 35 | | 69 | | 176 | | ****** | | 481 | | ****** | | 1,246 | |
| NO OF REFINERIES | 6 | | 4 | | 4 | | 2 | | 4 | | 1 | | 21 | |
| JET FUEL - KEROSENE BASE | | | ****** | *** | ****** | *** | 25 | 2.4 | 42 | 3.3 | 67 | 6.5 | 143 | 3.5 |
| CRUDE CAPACITY | | | ****** | | ****** | | 458 | | 920 | | 843 | | 2,390 | |
| NO OF REFINERIES | | | 1 | | 3 | | 7 | | 7 | | 3 | | 21 | |
| KEROSENE & #1 HEATING OIL | 1 | 2.4 | 7 | 3.4 | 10 | 2.3 | 30 | 2.8 | 22 | 1.8 | 17 | 1.6 | 88 | 2.2 |
| CRUDE CAPACITY | 22 | | 202 | | 410 | | 878 | | 1,051 | | 755 | | 3,319 | |
| NO OF REFINERIES | 4 | | 10 | | 9 | | 13 | | 8 | | 3 | | 47 | |
| DIESEL | ****** | *** | 8 | 3.8 | 13 | 2.9 | 34 | 3.2 | 98 | 7.8 | ****** | *** | 174 | 4.3 |
| CRUDE CAPACITY | ****** | | 120 | | 234 | | 583 | | 1,177 | | ****** | | 2,538 | |
| NO OF REFINERIES | 7 | | 5 | | 5 | | 9 | | 9 | | 1 | | 36 | |
| DISTILLATE #2 | 3 | 6.9 | 38 | 17.8 | 85 | 19.0 | 190 | 18.0 | 155 | 12.3 | 175 | 17.0 | 647 | 16.0 |
| CRUDE CAPACITY | 30 | | 225 | | 460 | | 1,002 | | 1,146 | | 1,038 | | 3,900 | |
| NO OF REFINERIES | 6 | | 11 | | 10 | | 15 | | 9 | | 4 | | 55 | |
| HVY FUEL OILS (4,5,6,ETC) | 10 | 25.2 | 21 | 9.7 | 21 | 4.7 | 50 | 4.7 | 40 | 3.2 | 52 | 5.0 | 195 | 4.8 |
| CRUDE CAPACITY | 46 | | 225 | | 410 | | 963 | | 1,297 | | 1,038 | | 3,980 | |
| NO OF REFINERIES | 9 | | 11 | | 9 | | 15 | | 10 | | 4 | | 58 | |
| ASPHALT | ****** | *** | ****** | *** | 23 | 5.1 | 40 | 3.8 | 50 | 3.9 | ****** | *** | 167 | 4.1 |
| CRUDE CAPACITY | ****** | | ****** | | 360 | | 673 | | 852 | | ****** | | 2,675 | |
| NO OF REFINERIES | 3 | | 5 | | 8 | | 10 | | 7 | | 2 | | 35 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 2
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 9 | .7 | ****** | *** | 34 | .8 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | 430 | | ****** | | 1,388 | |
| NO OF REFINERIES | 1 | | 1 | | 1 | | 3 | | 3 | | 2 | | 11 | |
| BTX | | | ****** | *** | | | ****** | *** | 15 | 1.2 | ****** | *** | 21 | .5 |
| CRUDE CAPACITY | | | ****** | | | | ****** | | 407 | | ****** | | 1,257 | |
| NO OF REFINERIES | | | 1 | | | | 2 | | 3 | | 2 | | 8 | |
| OTHER SPECS + PETROCHM IM | | | ****** | *** | ****** | *** | 8 | .8 | 13 | 1.1 | ****** | *** | 41 | 1.0 |
| CRUDE CAPACITY | | | ****** | | ****** | | 346 | | 1,061 | | ****** | | 2,328 | |
| NO OF REFINERIES | | | 1 | | 1 | | 5 | | 8 | | 3 | | 18 | |
| FEED STOCKS SOLD | 3 | 6.5 | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 8 | .8 | 45 | 1.1 |
| CRUDE CAPACITY | 17 | | ****** | | ****** | | ****** | | ****** | | 858 | | 1,829 | |
| NO OF REFINERIES | 3 | | 2 | | 1 | | 4 | | 5 | | 3 | | 18 | |
| MISCELLANEOUS | ****** | *** | 2 | 1.1 | ****** | *** | 1 | .1 | ****** | *** | ****** | *** | 17 | .4 |
| CRUDE CAPACITY | ****** | | 73 | | ****** | | 281 | | ****** | | ****** | | 1,123 | |
| NO OF REFINERIES | 2 | | 4 | | 1 | | 4 | | 2 | | 2 | | 15 | |
| BLENDING STOCKS TO OTHERS | 1 | 2.5 | | | | | | | ****** | *** | ****** | *** | 21 | .5 |
| CRUDE CAPACITY | 16 | | | | | | | | ****** | | ****** | | 1,060 | |
| NO OF REFINERIES | 3 | | | | | | | | 3 | | 2 | | 8 | |
| REFINERY FUEL PRODUCED | 1 | 1.7 | 11 | 5.3 | 24 | 5.4 | 59 | 5.6 | 85 | 6.8 | 77 | 7.5 | 258 | 6.4 |
| CRUDE CAPACITY | 19 | | 225 | | 460 | | 1,056 | | 1,297 | | 1,038 | | 4,095 | |
| NO OF REFINERIES | 3 | | 11 | | 10 | | 16 | | 10 | | 4 | | 54 | |
| TOTAL (EX WAX,SULFR,COKE) | 40 | 99.8 | 220 | 102.0 | 453 | 100.8 | 1,067 | 101.1 | 1,281 | 101.6 | 1,049 | 101.4 | 4,109 | 101.3 |
| CRUDE CAPACITY | 59 | | 225 | | 460 | | 1,056 | | 1,297 | | 1,038 | | 4,135 | |
| NO OF REFINERIES | 11 | | 11 | | 10 | | 16 | | 10 | | 4 | | 62 | |
| SULFUR (LT/CD) | | | | | 57 | | 177 | | 482 | | 571 | | 1,287 | |
| CRUDE CAPACITY | | | | | 325 | | 525 | | 1,061 | | 1,038 | | 2,949 | |
| NO OF REFINERIES | | | | | 7 | | 8 | | 8 | | 4 | | 27 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 2
ACTUAL 1978

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | | | ****** | | ****** | | 2,037 | | 4,143 | | ****** | | 10,258 | |
| CRUDE CAPACITY | | | ****** | | ****** | | 411 | | 801 | | ****** | | 2,115 | |
| NO OF REFINERIES | | | 2 | | 2 | | 6 | | 6 | | 3 | | 19 | |
| WAX (ST/CD) | | | | | ****** | | ****** | | ****** | | ****** | | 378 | |
| CRUDE CAPACITY | | | | | ****** | | ****** | | ****** | | ****** | | 1,146 | |
| NO OF REFINERIES | | | | | 1 | | 2 | | 2 | | 2 | | 7 | |

Table C.6.5.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 3
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | ****** | *** | 12 | 3.7 | ****** | *** | 78 | 7.4 | 10 | 1.2 | 54 | 1.2 | 159 | 2.3 |
| CRUDE CAPACITY | ****** | | 260 | | ****** | | 853 | | 878 | | 2,932 | | 5,174 | |
| NO OF REFINERIES | 2 | | 13 | | 6 | | 11 | | 7 | | 9 | | 48 | |
| MOTOR GASOLINE | 25 | 22.4 | 118 | 36.9 | 68 | 23.8 | 489 | 46.1 | 344 | 44.0 | 1,953 | 43.4 | 2,996 | 42.5 |
| CRUDE CAPACITY | 47 | | 307 | | 195 | | 853 | | 878 | | 4,697 | | 6,977 | |
| NO OF REFINERIES | 8 | | 15 | | 5 | | 11 | | 7 | | 14 | | 60 | |
| JET FUEL - NAPHTHA BASE | 11 | 10.0 | 23 | 7.3 | 11 | 3.9 | ****** | *** | ****** | *** | 25 | .6 | 85 | 1.2 |
| CRUDE CAPACITY | 78 | | 156 | | 153 | | ****** | | ****** | | 2,584 | | 3,224 | |
| NO OF REFINERIES | 12 | | 7 | | 4 | | 2 | | 1 | | 7 | | 33 | |
| JET FUEL - KEROSENE BASE | | | ****** | *** | ****** | *** | 33 | 3.1 | ****** | *** | 315 | 7.0 | 390 | 5.5 |
| CRUDE CAPACITY | | | ****** | | ****** | | 574 | | ****** | | 4,082 | | 5,255 | |
| NO OF REFINERIES | | | 4 | | 3 | | 7 | | 3 | | 12 | | 29 | |
| KEROSENE & #1 HEATING OIL | ****** | *** | 1 | .2 | 8 | 2.7 | 14 | 1.3 | ****** | *** | 73 | 1.6 | 117 | 1.7 |
| CRUDE CAPACITY | ****** | | 175 | | 144 | | 457 | | ****** | | 2,719 | | 4,145 | |
| NO OF REFINERIES | 4 | | 8 | | 4 | | 6 | | 5 | | 7 | | 34 | |
| DIESEL | 18 | 16.4 | 43 | 13.4 | 51 | 17.8 | 58 | 5.5 | 86 | 10.9 | 217 | 4.8 | 473 | 6.7 |
| CRUDE CAPACITY | 105 | | 278 | | 309 | | 502 | | 613 | | 3,267 | | 5,074 | |
| NO OF REFINERIES | 17 | | 14 | | 8 | | 7 | | 5 | | 8 | | 59 | |
| DISTILLATE #2 | 2 | 1.6 | 27 | 8.5 | 18 | 6.2 | 147 | 13.9 | 123 | 15.7 | 515 | 11.4 | 831 | 11.8 |
| CRUDE CAPACITY | 16 | | 208 | | 110 | | 665 | | 759 | | 4,197 | | 5,954 | |
| NO OF REFINERIES | 4 | | 9 | | 3 | | 8 | | 6 | | 13 | | 43 | |
| HVY FUEL OILS (4,5,6,ETC) | 20 | 18.3 | 45 | 14.1 | 58 | 20.4 | 45 | 4.3 | 77 | 9.8 | 454 | 10.1 | 700 | 9.9 |
| CRUDE CAPACITY | 108 | | 361 | | 347 | | 756 | | 878 | | 4,697 | | 7,148 | |
| NO OF REFINERIES | 18 | | 18 | | 9 | | 10 | | 7 | | 14 | | 76 | |
| ASPHALT | 11 | 9.9 | 14 | 4.3 | ****** | *** | 12 | 1.2 | ****** | *** | 52 | 1.1 | 103 | 1.5 |
| CRUDE CAPACITY | 40 | | 85 | | ****** | | 253 | | ****** | | 2,543 | | 3,278 | |
| NO OF REFINERIES | 8 | | 4 | | 2 | | 4 | | 2 | | 7 | | 27 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 3
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | ****** | *** | | | ****** | *** | | | ****** | *** | 104 | 2.3 | 111 | 1.6 |
| CRUDE CAPACITY | ****** | | | | ****** | | | | ****** | | 2,901 | | 3,081 | |
| NO OF REFINERIES | 3 | | | | 1 | | | | 1 | | 7 | | 12 | |
| BTX | | | | | ****** | *** | 10 | .9 | ****** | *** | 58 | 1.3 | 83 | 1.2 |
| CRUDE CAPACITY | | | | | ****** | | 349 | | ****** | | 2,272 | | 3,235 | |
| NO OF REFINERIES | | | | | 3 | | 5 | | 4 | | 7 | | 19 | |
| OTHER SPECS + PETROCHM IM | ****** | *** | ****** | *** | ****** | *** | 34 | 3.2 | 23 | 3.0 | 91 | 2.0 | 155 | 2.2 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 463 | | 878 | | 3,522 | | 5,032 | |
| NO OF REFINERIES | 1 | | 1 | | 4 | | 6 | | 7 | | 10 | | 29 | |
| FEED STOCKS SOLD | 8 | 7.5 | 18 | 5.5 | 10 | 3.3 | 75 | 7.1 | 12 | 1.5 | 358 | 7.9 | 480 | 6.8 |
| CRUDE CAPACITY | 54 | | 132 | | 155 | | 777 | | 353 | | 3,439 | | 4,910 | |
| NO OF REFINERIES | 9 | | 7 | | 4 | | 10 | | 3 | | 10 | | 43 | |
| MISCELLANEOUS | ****** | *** | ****** | *** | ****** | *** | 28 | 2.6 | 5 | .6 | 57 | 1.3 | 90 | 1.3 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 380 | | 359 | | 3,211 | | 4,065 | |
| NO OF REFINERIES | 2 | | 1 | | 2 | | 5 | | 3 | | 8 | | 21 | |
| BLENDING STOCKS TO OTHERS | 1 | 1.2 | ****** | *** | ****** | *** | ****** | *** | | | 22 | .5 | 50 | .7 |
| CRUDE CAPACITY | 17 | | ****** | | ****** | | ****** | | | | 1,570 | | 1,810 | |
| NO OF REFINERIES | 4 | | 2 | | 3 | | 1 | | | | 4 | | 14 | |
| REFINERY FUEL PRODUCED | 1 | .9 | 12 | 3.8 | 8 | 2.8 | 44 | 4.1 | 32 | 4.2 | 215 | 4.8 | 312 | 4.4 |
| CRUDE CAPACITY | 40 | | 353 | | 311 | | 766 | | 878 | | 4,697 | | 7,045 | |
| NO OF REFINERIES | 6 | | 17 | | 8 | | 10 | | 7 | | 14 | | 62 | |
| TOTAL (EX WAX,SULFR,COKE) | 103 | 92.7 | 323 | 100.6 | 287 | 100.7 | 1,072 | 101.2 | 790 | 101.1 | 4,560 | 101.3 | 7,135 | 101.1 |
| CRUDE CAPACITY | 121 | | 421 | | 347 | | 853 | | 878 | | 4,697 | | 7,317 | |
| NO OF REFINERIES | 21 | | 21 | | 9 | | 11 | | 7 | | 14 | | 83 | |
| SULFUR (LT/CD) | | | ****** | | ****** | | ****** | | 226 | | 2,162 | | 2,572 | |
| CRUDE CAPACITY | | | ****** | | ****** | | ****** | | 499 | | 4,372 | | 5,379 | |
| NO OF REFINERIES | | | 2 | | 2 | | 5 | | 4 | | 13 | | 26 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 3
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | | | ****** | | | | 1,260 | | ****** | | 9,661 | | 11,221 | |
| CRUDE CAPACITY | | | ****** | | | | 309 | | ****** | | 2,839 | | 3,329 | |
| NO OF REFINERIES | | | 3 | | | | 4 | | 1 | | 9 | | 17 | |
| WAX (ST/CD) | ****** | | | | | | | | ****** | | ****** | | 1,076 | |
| CRUDE CAPACITY | ****** | | | | | | | | ****** | | ****** | | 2,059 | |
| NO OF REFINERIES | 1 | | | | | | | | 1 | | 5 | | 7 | |

Table C.6.5.4

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 4
ACTUAL 1978

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | 1 | 4.0 | 2 | 1.4 | 2 | .7 | | | | | | | 6 | 1.1 |
| CRUDE CAPACITY | 19 | | 147 | | 286 | | | | | | | | 452 | |
| NO OF REFINERIES | 3 | | 7 | | 7 | | | | | | | | 17 | |
| MOTOR GASOLINE | 11 | 41.1 | 70 | 46.3 | 163 | 49.4 | | | | | | | 244 | 48.1 |
| CRUDE CAPACITY | 29 | | 173 | | 358 | | | | | | | | 559 | |
| NO OF REFINERIES | 5 | | 9 | | 8 | | | | | | | | 22 | |
| JET FUEL - NAPHTHA BASE | ****** | *** | 2 | 1.4 | ****** | *** | | | | | | | 10 | 1.9 |
| CRUDE CAPACITY | ****** | | 73 | | ****** | | | | | | | | 240 | |
| NO OF REFINERIES | 1 | | 3 | | 4 | | | | | | | | 8 | |
| JET FUEL - KEROSENE BASE | | | 2 | 1.3 | 14 | 4.1 | | | | | | | 16 | 3.1 |
| CRUDE CAPACITY | | | 70 | | 316 | | | | | | | | 386 | |
| NO OF REFINERIES | | | 3 | | 7 | | | | | | | | 10 | |
| KEROSENE & #1 HEATING OIL | | 1.8 | 1 | .7 | 7 | 2.1 | | | | | | | 8 | 1.6 |
| CRUDE CAPACITY | 20 | | 111 | | 358 | | | | | | | | 489 | |
| NO OF REFINERIES | 3 | | 6 | | 8 | | | | | | | | 17 | |
| DIESEL | 4 | 14.0 | 24 | 15.7 | 49 | 14.8 | | | | | | | 76 | 15.1 |
| CRUDE CAPACITY | 18 | | 149 | | 358 | | | | | | | | 524 | |
| NO OF REFINERIES | 4 | | 8 | | 8 | | | | | | | | 20 | |
| DISTILLATE #2 | ****** | *** | 10 | 6.5 | ****** | *** | | | | | | | 37 | 7.3 |
| CRUDE CAPACITY | ****** | | 91 | | ****** | | | | | | | | 378 | |
| NO OF REFINERIES | 2 | | 5 | | 6 | | | | | | | | 13 | |
| HVY FUEL OILS (4,5,6,ETC) | 4 | 16.9 | 10 | 6.6 | 10 | 2.9 | | | | | | | 24 | 4.8 |
| CRUDE CAPACITY | 26 | | 160 | | 311 | | | | | | | | 497 | |
| NO OF REFINERIES | 6 | | 8 | | 7 | | | | | | | | 21 | |
| ASPHALT | ****** | *** | 12 | 7.6 | ****** | *** | | | | | | | 29 | 5.7 |
| CRUDE CAPACITY | ****** | | 105 | | ****** | | | | | | | | 376 | |
| NO OF REFINERIES | 1 | | 5 | | 6 | | | | | | | | 12 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 4
ACTUAL 1978

| | REFINERY SIZE (MBPCD) ** 0-10 ** MBPCD | INPUT PCT | ** 10-30 ** MBPCD | INPUT PCT | ** 30-50 ** MBPCD | INPUT PCT | * 50-100 ** MBPCD | INPUT PCT | * 100-175 * MBPCD | INPUT PCT | ** 175 + ** MBPCD | INPUT PCT | ** TOTAL ** MBPCD | INPUT PCT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FINISHED LUBRICANTS | | | | | 1 | .4 | | | | | | | 1 | .3 |
| CRUDE CAPACITY | | | | | 47 | | | | | | | | 47 | |
| NO OF REFINERIES | | | | | 1 | | | | | | | | 1 | |
| OTHER SPECS + PETROCHM IM | | .4 | | | 1 | .3 | | | | | | | 1 | .2 |
| CRUDE CAPACITY | 1 | | | | 86 | | | | | | | | 87 | |
| NO OF REFINERIES | 1 | | | | 2 | | | | | | | | 3 | |
| FEED STOCKS SOLD | | | 4 | 2.3 | 15 | 4.5 | | | | | | | 18 | 3.6 |
| CRUDE CAPACITY | | | 50 | | 125 | | | | | | | | 175 | |
| NO OF REFINERIES | | | 3 | | 3 | | | | | | | | 6 | |
| MISCELLANEOUS | ****** | *** | 5 | 3.5 | ****** | *** | | | | | | | 6 | 1.3 |
| CRUDE CAPACITY | ****** | | 77 | | ****** | | | | | | | | 162 | |
| NO OF REFINERIES | 2 | | 4 | | 2 | | | | | | | | 8 | |
| REFINERY FUEL PRODUCED | 1 | 2.0 | 8 | 5.3 | 24 | 7.2 | | | | | | | 32 | 6.4 |
| CRUDE CAPACITY | 27 | | 173 | | 358 | | | | | | | | 557 | |
| NO OF REFINERIES | 4 | | 9 | | 8 | | | | | | | | 21 | |
| TOTAL (EX WAX,SULFR,COKE) | 25 | 98.7 | 149 | 98.8 | 334 | 101.2 | | | | | | | 509 | 100.4 |
| CRUDE CAPACITY | 34 | | 173 | | 358 | | | | | | | | 564 | |
| NO OF REFINERIES | 7 | | 9 | | 8 | | | | | | | | 24 | |
| SULFUR (LT/CD) | | | | | 117 | | | | | | | | 117 | |
| CRUDE CAPACITY | | | | | 272 | | | | | | | | 272 | |
| NO OF REFINERIES | | | | | 6 | | | | | | | | 6 | |
| COKE (ST/CD) | | | ****** | | ****** | | | | | | | | 741 | |
| CRUDE CAPACITY | | | ****** | | ****** | | | | | | | | 111 | |
| NO OF REFINERIES | | | 1 | | 2 | | | | | | | | 3 | |
| WAX (ST/CD) | | | | | ****** | | | | | | | | ****** | |
| NO OF REFINERIES | | | | | 1 | | | | | | | | 1 | |

Table C.6.5.5

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 5
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | | | ****** | *** | ****** | *** | 11 | 2.1 | 13 | *** | ****** | *** | 42 | 1.7 |
| CRUDE CAPACITY | | | ****** | | ****** | | 635 | | 573 | | ****** | | 2,411 | |
| NO OF REFINERIES | | | 2 | | 5 | | 8 | | 5 | | 3 | | 23 | |
| MOTOR GASOLINE | ****** | *** | ****** | *** | 79 | 29.1 | 257 | 47.2 | 410 | *** | ****** | *** | 1,039 | 41.1 |
| CRUDE CAPACITY | ****** | | ****** | | 223 | | 635 | | 787 | | ****** | | 2,779 | |
| NO OF REFINERIES | 2 | | 8 | | 5 | | 8 | | 7 | | 3 | | 33 | |
| JET FUEL - NAPHTHA BASE | | | 8 | 3.5 | ****** | *** | 11 | 2.1 | 23 | *** | ****** | *** | 76 | 3.0 |
| CRUDE CAPACITY | | | 77 | | ****** | | 230 | | 446 | | ****** | | 1,873 | |
| NO OF REFINERIES | | | 3 | | 4 | | 3 | | 4 | | 3 | | 17 | |
| JET FUEL - KEROSENE BASE | | | 4 | 1.7 | ****** | *** | 34 | 6.2 | 57 | *** | ****** | *** | 190 | 7.5 |
| CRUDE CAPACITY | | | 107 | | ****** | | 399 | | 679 | | ****** | | 2,304 | |
| NO OF REFINERIES | | | 5 | | 4 | | 5 | | 6 | | 3 | | 23 | |
| KEROSENE & #1 HEATING OIL | ****** | *** | ****** | *** | 14 | 5.3 | 3 | .6 | ****** | *** | ****** | *** | 27 | 1.1 |
| CRUDE CAPACITY | ****** | | ****** | | 128 | | 309 | | ****** | | ****** | | 1,722 | |
| NO OF REFINERIES | 1 | | 5 | | 3 | | 4 | | 2 | | 3 | | 18 | |
| DIESEL | ****** | *** | ****** | *** | 10 | 3.8 | 58 | 10.6 | ****** | *** | ****** | *** | 256 | 10.1 |
| CRUDE CAPACITY | ****** | | ****** | | 135 | | 635 | | ****** | | ****** | | 2,603 | |
| NO OF REFINERIES | 2 | | 9 | | 3 | | 8 | | 6 | | 3 | | 31 | |
| DISTILLATE #2 | ****** | *** | 11 | 4.7 | ****** | *** | 17 | 3.2 | | *** | ****** | *** | 46 | 1.8 |
| CRUDE CAPACITY | ****** | | 89 | | ****** | | 345 | | | | ****** | | 1,314 | |
| NO OF REFINERIES | 3 | | 4 | | 2 | | 5 | | | | 2 | | 16 | |
| HVY FUEL OILS (4,5,6,ETC) | ****** | *** | 77 | 34.5 | 65 | 23.9 | 98 | 18.0 | 62 | *** | ****** | *** | 487 | 19.3 |
| CRUDE CAPACITY | ****** | | 233 | | 258 | | 635 | | 679 | | ****** | | 2,809 | |
| NO OF REFINERIES | 9 | | 11 | | 6 | | 8 | | 6 | | 3 | | 43 | |
| ASPHALT | 4 | 10.0 | 18 | 8.1 | 10 | 3.7 | ****** | *** | ****** | *** | ****** | *** | 60 | 2.4 |
| CRUDE CAPACITY | 28 | | 125 | | 170 | | ****** | | ****** | | ****** | | 1,359 | |
| NO OF REFINERIES | 4 | | 6 | | 4 | | 1 | | 2 | | 2 | | 19 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 5
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | | | | | | | | | ****** | *** | ****** | *** | 12 | .5 |
| CRUDE CAPACITY | | | | | | | | | ****** | | ****** | | 580 | |
| NO OF REFINERIES | | | | | | | | | 2 | | 1 | | 3 | |
| BTX | | | | | | | | | | *** | ****** | *** | ****** | *** |
| NO OF REFINERIES | | | | | | | | | | | 2 | | 2 | |
| OTHER SPECS + PETROCHM IM | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 32 | 1.3 |
| CRUDE CAPACITY | ****** | | ****** | | | | ****** | | ****** | | ****** | | 1,391 | |
| NO OF REFINERIES | 2 | | 1 | | | | 1 | | 3 | | 3 | | 10 | |
| FEED STOCKS SOLD | ****** | *** | ****** | *** | ****** | *** | 12 | 2.2 | 12 | *** | ****** | *** | 37 | 1.5 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 388 | | 340 | | ****** | | 1,034 | |
| NO OF REFINERIES | 3 | | 1 | | 2 | | 5 | | 3 | | 1 | | 15 | |
| MISCELLANEOUS | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** |
| NO OF REFINERIES | 1 | | 2 | | 1 | | 3 | | 4 | | 1 | | 12 | |
| BLENDING STOCKS TO OTHERS | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 75 | 3.0 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | ****** | | ****** | | 731 | |
| NO OF REFINERIES | 1 | | 1 | | 1 | | 2 | | 3 | | 1 | | 9 | |
| REFINERY FUEL PRODUCED | ****** | *** | 5 | 2.0 | 10 | 3.8 | 37 | 6.8 | 61 | *** | ****** | *** | 148 | 5.8 |
| CRUDE CAPACITY | ****** | | 230 | | 289 | | 635 | | 787 | | ****** | | 2,900 | |
| NO OF REFINERIES | 1 | | 11 | | 7 | | 8 | | 7 | | 3 | | 37 | |
| TOTAL (EX WAX,SULFR,COKE) | 44 | 98.5 | 221 | 98.9 | 272 | 99.9 | 557 | 102.2 | ****** | *** | ****** | *** | 2,563 | 101.3 |
| CRUDE CAPACITY | 54 | | 276 | | 289 | | 635 | | ****** | | ****** | | 2,990 | |
| NO OF REFINERIES | 9 | | 13 | | 7 | | 8 | | 7 | | 3 | | 47 | |
| SULFUR (LT/CD) | | | ****** | | ****** | | 217 | | 752 | | ****** | | 1,459 | |
| CRUDE CAPACITY | | | ****** | | ****** | | 491 | | 787 | | ****** | | 2,411 | |
| NO OF REFINERIES | | | 1 | | 4 | | 6 | | 7 | | 3 | | 21 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 5
ACTUAL 1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | | | | | ****** | | ****** | | 7,909 | | ****** | | 14,889 | |
| CRUDE CAPACITY | | | | | ****** | | ****** | | 575 | | ****** | | 1,429 | |
| NO OF REFINERIES | | | | | 2 | | 2 | | 5 | | 2 | | 11 | |
| WAX (ST/CD) | | | | | | | | | ****** | | ****** | | ****** | |
| NO OF REFINERIES | | | | | | | | | 1 | | 1 | | 2 | |

Table C.6.6.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 1
PROJECTED 1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | | | | | | | 7 | 1.5 | 14 | *** | 15 | *** | 36 | 1.8 |
| CRUDE CAPACITY | | | | | | | 277 | | 644 | | 681 | | 1,602 | |
| NO OF REFINERIES | | | | | | | 4 | | 4 | | 3 | | 11 | |
| MOTOR GASOLINE | ****** | *** | ****** | *** | | | 155 | 32.9 | 321 | *** | ****** | *** | 784 | 40.4 |
| CRUDE CAPACITY | ****** | | ****** | | | | 383 | | 644 | | ****** | | 1,766 | |
| NO OF REFINERIES | 7 | | 1 | | | | 6 | | 4 | | 3 | | 21 | |
| JET FUEL - NAPHTHA BASE | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | | *** | 18 | 1.0 |
| CRUDE CAPACITY | ****** | | ****** | | | | ****** | | ****** | | | | 395 | |
| NO OF REFINERIES | 1 | | 1 | | | | 1 | | 2 | | | | 5 | |
| JET FUEL - KEROSENE BASE | | | | | | | 15 | 3.1 | ****** | *** | ****** | *** | 57 | 2.9 |
| CRUDE CAPACITY | | | | | | | 288 | | ****** | | ****** | | 742 | |
| NO OF REFINERIES | | | | | | | 4 | | 1 | | 1 | | 6 | |
| KEROSENE & #1 HEATING OIL | 1 | 2.0 | ****** | *** | | | 3 | .7 | ****** | *** | ****** | *** | 12 | .6 |
| CRUDE CAPACITY | 26 | | ****** | | | | 242 | | ****** | | ****** | | 777 | |
| NO OF REFINERIES | 4 | | 1 | | | | 4 | | 2 | | 1 | | 12 | |
| DIESEL | 2 | 3.4 | ****** | *** | | | 13 | 2.7 | ****** | *** | ****** | *** | 71 | 3.6 |
| CRUDE CAPACITY | 21 | | ****** | | | | 330 | | ****** | | ****** | | 975 | |
| NO OF REFINERIES | 3 | | 2 | | | | 5 | | 2 | | 1 | | 13 | |
| DISTILLATE #2 | ****** | *** | 8 | 10.9 | | | 112 | 23.7 | 71 | *** | ****** | *** | 377 | 19.4 |
| CRUDE CAPACITY | ****** | | 51 | | | | 468 | | 476 | | ****** | | 1,726 | |
| NO OF REFINERIES | 8 | | 4 | | | | 8 | | 3 | | 3 | | 26 | |
| HVY FUEL OILS (4,5,6,ETC) | ****** | *** | 18 | 22.9 | | | 85 | 18.0 | 60 | *** | ****** | *** | 246 | 12.7 |
| CRUDE CAPACITY | ****** | | 51 | | | | 468 | | 504 | | ****** | | 1,721 | |
| NO OF REFINERIES | 3 | | 4 | | | | 8 | | 3 | | 3 | | 21 | |
| ASPHALT | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 106 | 5.4 |
| CRUDE CAPACITY | ****** | | ****** | | | | ****** | | ****** | | ****** | | 821 | |
| NO OF REFINERIES | 4 | | 3 | | | | 2 | | 1 | | 2 | | 12 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 1
PROJECTED 1980

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | 12 | 26.1 | ****** | *** | | | ****** | *** | ****** | *** | | *** | 38 | 1.9 |
| CRUDE CAPACITY | 45 | | ****** | | | | ****** | | ****** | | | | 487 | |
| NO OF REFINERIES | 7 | | 1 | | | | 1 | | 2 | | | | 11 | |
| BTX | | | | | | | ****** | *** | ****** | *** | | *** | ****** | *** |
| NO OF REFINERIES | | | | | | | 2 | | 2 | | | | 4 | |
| OTHER SPECS + PETROCHM IM | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | | *** | 40 | 2.0 |
| CRUDE CAPACITY | ****** | | ****** | | | | ****** | | ****** | | | | 497 | |
| NO OF REFINERIES | 3 | | 1 | | | | 2 | | 2 | | | | 8 | |
| FEED STOCKS SOLD | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 31 | 1.6 |
| CRUDE CAPACITY | ****** | | ****** | | | | ****** | | ****** | | ****** | | 823 | |
| NO OF REFINERIES | 3 | | 2 | | | | 2 | | 1 | | 2 | | 10 | |
| MISCELLANEOUS | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | ****** | *** |
| NO OF REFINERIES | 2 | | 2 | | | | 5 | | 3 | | 2 | | 14 | |
| BLENDING STOCKS TO OTHERS | ****** | *** | 5 | 6.7 | | | ****** | *** | | *** | | *** | 13 | .6 |
| CRUDE CAPACITY | ****** | | 41 | | | | ****** | | | | | | 255 | |
| NO OF REFINERIES | 4 | | 3 | | | | 3 | | | | | | 10 | |
| REFINERY FUEL PRODUCED | ****** | *** | 1 | 1.9 | | | 31 | 6.5 | 46 | *** | ****** | *** | 121 | 6.2 |
| CRUDE CAPACITY | ****** | | 69 | | | | 433 | | 644 | | ****** | | 1,877 | |
| NO OF REFINERIES | 8 | | 5 | | | | 7 | | 4 | | 3 | | 27 | |
| TOTAL (EX WAX,SULFR,COKE) | 44 | 95.5 | 75 | 98.2 | | | 479 | 101.5 | ****** | *** | ****** | *** | 1,983 | 102.2 |
| CRUDE CAPACITY | 50 | | 84 | | | | 468 | | ****** | | ****** | | 1,927 | |
| NO OF REFINERIES | 8 | | 6 | | | | 8 | | 4 | | 3 | | 29 | |
| SULFUR (LT/CD) | | | | | | | ****** | | 410 | | ****** | | 951 | |
| CRUDE CAPACITY | | | | | | | ****** | | 472 | | ****** | | 1,363 | |
| NO OF REFINERIES | | | | | | | 3 | | 3 | | 3 | | 9 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 1
PROJECTED 1980

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | | | | | | | ****** | | ****** | | | | 1,854 | |
| CRUDE CAPACITY | | | | | | | ****** | | ****** | | | | 286 | |
| NO OF REFINERIES | | | | | | | 2 | | 1 | | | | 3 | |
| WAX (ST/CD) | ****** | | ****** | | | | | | ****** | | | | 487 | |
| CRUDE CAPACITY | ****** | | ****** | | | | | | ****** | | | | 225 | |
| NO OF REFINERIES | 6 | | 1 | | | | | | 1 | | | | 8 | |

Table C.6.6.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 2
PROJECTED 1980

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | ****** | *** | 3 | 1.2 | 6 | 1.5 | 22 | 1.9 | 17 | 1.5 | ****** | *** | 71 | 1.7 |
| CRUDE CAPACITY | ****** | | 140 | | 363 | | 991 | | 1,167 | | ****** | | 3,957 | |
| NO OF REFINERIES | 3 | | 6 | | 8 | | 15 | | 9 | | 5 | | 46 | |
| MOTOR GASOLINE | 6 | 11.5 | 102 | 47.6 | 227 | 56.5 | 645 | 55.4 | 617 | 54.5 | 661 | 51.2 | 2,258 | 53.1 |
| CRUDE CAPACITY | 16 | | 193 | | 413 | | 1,117 | | 1,167 | | 1,278 | | 4,184 | |
| NO OF REFINERIES | 4 | | 9 | | 9 | | 17 | | 9 | | 5 | | 53 | |
| JET FUEL - NAPHTHA BASE | 7 | 13.9 | 8 | 3.6 | 6 | 1.5 | ****** | *** | ****** | *** | ****** | *** | 36 | .9 |
| CRUDE CAPACITY | 35 | | 71 | | 134 | | ****** | | ****** | | ****** | | 1,317 | |
| NO OF REFINERIES | 5 | | 4 | | 3 | | 2 | | 3 | | 2 | | 19 | |
| JET FUEL - KEROSENE BASE | | | ****** | *** | 10 | 2.5 | 36 | 3.1 | ****** | *** | 76 | 5.9 | 163 | 3.8 |
| CRUDE CAPACITY | | | ****** | | 144 | | 540 | | ****** | | 1,083 | | 2,473 | |
| NO OF REFINERIES | | | 1 | | 3 | | 8 | | 5 | | 4 | | 21 | |
| KEROSENE & #1 HEATING OIL | 2 | 4.5 | 7 | 3.4 | 9 | 2.1 | 25 | 2.1 | 18 | 1.6 | 22 | 1.7 | 83 | 2.0 |
| CRUDE CAPACITY | 26 | | 206 | | 363 | | 854 | | 806 | | 995 | | 3,249 | |
| NO OF REFINERIES | 4 | | 10 | | 8 | | 13 | | 6 | | 4 | | 45 | |
| DIESEL | ****** | *** | 8 | 3.8 | 7 | 1.7 | 50 | 4.3 | 93 | 8.2 | ****** | *** | 191 | 4.5 |
| CRUDE CAPACITY | ****** | | 120 | | 188 | | 649 | | 938 | | ****** | | 2,563 | |
| NO OF REFINERIES | 7 | | 5 | | 4 | | 10 | | 7 | | 2 | | 35 | |
| DISTILLATE #2 | 3 | 5.1 | 40 | 18.6 | 78 | 19.4 | 199 | 17.1 | 125 | 11.0 | 214 | 16.6 | 657 | 15.5 |
| CRUDE CAPACITY | 30 | | 228 | | 413 | | 1,063 | | 848 | | 1,278 | | 3,860 | |
| NO OF REFINERIES | 6 | | 11 | | 9 | | 16 | | 7 | | 5 | | 54 | |
| HVY FUEL OILS (4,5,6,ETC) | 13 | 24.6 | 21 | 9.8 | 17 | 4.3 | 49 | 4.2 | 41 | 3.7 | 61 | 4.7 | 203 | 4.8 |
| CRUDE CAPACITY | 51 | | 228 | | 320 | | 916 | | 1,167 | | 1,278 | | 3,960 | |
| NO OF REFINERIES | 9 | | 11 | | 7 | | 14 | | 9 | | 5 | | 55 | |
| ASPHALT | ****** | *** | ****** | *** | 22 | 5.6 | 37 | 3.2 | 41 | 3.6 | 55 | 4.3 | 169 | 4.0 |
| CRUDE CAPACITY | ****** | | ****** | | 321 | | 676 | | 716 | | 903 | | 2,746 | |
| NO OF REFINERIES | 3 | | 5 | | 7 | | 10 | | 6 | | 3 | | 34 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 2
PROJECTED 1980

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | ****** | *** | ****** | *** | | | ****** | *** | 5 | .5 | ****** | *** | 37 | .9 |
| CRUDE CAPACITY | ****** | | ****** | | | | ****** | | 430 | | ****** | | 1,635 | |
| NO OF REFINERIES | 1 | | 1 | | | | 4 | | 3 | | 3 | | 12 | |
| BTX | | | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 26 | .6 |
| CRUDE CAPACITY | | | ****** | | | | ****** | | ****** | | ****** | | 1,281 | |
| NO OF REFINERIES | | | 1 | | | | 1 | | 2 | | 3 | | 7 | |
| OTHER SPECS + PETROCHM IM | | | ****** | *** | ****** | *** | 9 | .8 | 12 | 1.1 | ****** | *** | 39 | .9 |
| CRUDE CAPACITY | | | ****** | | ****** | | 346 | | 931 | | ****** | | 2,438 | |
| NO OF REFINERIES | | | 1 | | 1 | | 5 | | 7 | | 4 | | 18 | |
| FEED STOCKS SOLD | 4 | 6.7 | ****** | *** | | | ****** | *** | 24 | 2.1 | 17 | 1.3 | 54 | 1.3 |
| CRUDE CAPACITY | 21 | | ****** | | | | ****** | | 637 | | 898 | | 1,823 | |
| NO OF REFINERIES | 3 | | 1 | | | | 4 | | 5 | | 3 | | 16 | |
| MISCELLANEOUS | ****** | *** | 3 | 1.2 | ****** | *** | 1 | .1 | | | ****** | *** | 16 | .4 |
| CRUDE CAPACITY | ****** | | 76 | | ****** | | 280 | | | | ****** | | 901 | |
| NO OF REFINERIES | 2 | | 4 | | 1 | | 4 | | | | 2 | | 13 | |
| BLENDING STOCKS TO OTHERS | 1 | 2.1 | | | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 20 | .5 |
| CRUDE CAPACITY | 19 | | | | ****** | | ****** | | ****** | | ****** | | 1,031 | |
| NO OF REFINERIES | 3 | | | | 1 | | 1 | | 4 | | 1 | | 10 | |
| REFINERY FUEL PRODUCED | 1 | 1.2 | 12 | 5.6 | 24 | 5.9 | 78 | 6.7 | 76 | 6.7 | 94 | 7.3 | 284 | 6.7 |
| CRUDE CAPACITY | 19 | | 228 | | 413 | | 1,117 | | 1,167 | | 1,278 | | 4,222 | |
| NO OF REFINERIES | 3 | | 11 | | 9 | | 17 | | 9 | | 5 | | 54 | |
| TOTAL (EX WAX,SULFR,COKE) | 54 | 99.8 | 216 | 101.4 | 407 | 101.4 | 1,178 | 101.2 | 1,144 | 101.0 | 1,308 | 101.4 | 4,307 | 101.2 |
| CRUDE CAPACITY | 64 | | 228 | | 413 | | 1,117 | | 1,167 | | 1,278 | | 4,267 | |
| NO OF REFINERIES | 11 | | 11 | | 9 | | 17 | | 9 | | 5 | | 62 | |
| SULFUR (LT/CD) | | | | | 63 | | 241 | | 454 | | 728 | | 1,486 | |
| CRUDE CAPACITY | | | | | 275 | | 797 | | 925 | | 1,278 | | 3,275 | |
| NO OF REFINERIES | | | | | 6 | | 12 | | 7 | | 5 | | 30 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

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PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 2
PROJECTED 1980

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | | | ****** | | ****** | | 2,556 | | 4,152 | | ****** | | 10,932 | |
| CRUDE CAPACITY | | | ****** | | ****** | | 470 | | 807 | | ****** | | 2,170 | |
| NO OF REFINERIES | | | 2 | | 1 | | 7 | | 6 | | 3 | | 19 | |
| WAX (ST/CD) | | | | | | | 231 | | ****** | | ****** | | 853 | |
| CRUDE CAPACITY | | | | | | | 227 | | ****** | | ****** | | 1,262 | |
| NO OF REFINERIES | | | | | | | 3 | | 1 | | 3 | | 7 | |

Table C.6.6.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 3
PROJECTED 1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | ****** | *** | 16 | 4.2 | ****** | *** | 98 | 8.3 | 11 | 1.3 | 67 | 1.4 | 201 | 2.6 |
| CRUDE CAPACITY | ****** | | 263 | | ****** | | 859 | | 878 | | 3,955 | | 6,257 | |
| NO OF REFINERIES | 2 | | 13 | | 7 | | 11 | | 7 | | 12 | | 52 | |
| MOTOR GASOLINE | 34 | 25.2 | 113 | 30.1 | 107 | 29.1 | 555 | 47.0 | 387 | 46.0 | 1,998 | 42.1 | 3,194 | 41.8 |
| CRUDE CAPACITY | 58 | | 281 | | 245 | | 859 | | 878 | | 4,704 | | 7,024 | |
| NO OF REFINERIES | 9 | | 14 | | 6 | | 11 | | 7 | | 14 | | 61 | |
| JET FUEL - NAPHTHA BASE | 9 | 6.9 | 17 | 4.4 | 19 | 5.2 | ****** | *** | ****** | *** | 27 | .6 | 88 | 1.1 |
| CRUDE CAPACITY | 49 | | 137 | | 153 | | ****** | | ****** | | 2,221 | | 2,811 | |
| NO OF REFINERIES | 9 | | 6 | | 4 | | 2 | | 1 | | 6 | | 28 | |
| JET FUEL - KEROSENE BASE | | | 3 | .8 | 7 | 1.8 | 37 | 3.1 | 44 | 5.2 | 339 | 7.1 | 430 | 5.6 |
| CRUDE CAPACITY | | | 98 | | 107 | | 580 | | 409 | | 3,719 | | 4,913 | |
| NO OF REFINERIES | | | 5 | | 3 | | 7 | | 3 | | 11 | | 29 | |
| KEROSENE & #1 HEATING OIL | ****** | *** | ****** | *** | 14 | 3.9 | ****** | *** | ****** | *** | 117 | 2.5 | 164 | 2.1 |
| CRUDE CAPACITY | ****** | | ****** | | 227 | | ****** | | ****** | | 2,708 | | 3,780 | |
| NO OF REFINERIES | 6 | | 5 | | 6 | | 6 | | 2 | | 7 | | 32 | |
| DIESEL | 19 | 14.0 | 60 | 16.0 | 53 | 14.6 | 60 | 5.0 | 98 | 11.7 | 226 | 4.8 | 516 | 6.7 |
| CRUDE CAPACITY | 94 | | 279 | | 309 | | 508 | | 494 | | 2,613 | | 4,296 | |
| NO OF REFINERIES | 15 | | 15 | | 8 | | 7 | | 4 | | 6 | | 55 | |
| DISTILLATE #2 | 2 | 1.6 | 27 | 7.1 | 25 | 6.9 | 143 | 12.1 | 123 | 14.6 | 500 | 10.5 | 820 | 10.7 |
| CRUDE CAPACITY | 16 | | 151 | | 170 | | 671 | | 525 | | 3,919 | | 5,452 | |
| NO OF REFINERIES | 4 | | 7 | | 4 | | 8 | | 4 | | 12 | | 39 | |
| HVY FUEL OILS (4,5,6,ETC) | 24 | 18.1 | 56 | 15.0 | 39 | 10.6 | 49 | 4.2 | 85 | 10.1 | 376 | 7.9 | 629 | 8.2 |
| CRUDE CAPACITY | 97 | | 363 | | 397 | | 762 | | 878 | | 4,509 | | 7,006 | |
| NO OF REFINERIES | 16 | | 19 | | 10 | | 10 | | 7 | | 13 | | 75 | |
| ASPHALT | 13 | 9.7 | 14 | 3.8 | ****** | *** | 12 | 1.0 | ****** | *** | 48 | 1.0 | 102 | 1.3 |
| CRUDE CAPACITY | 41 | | 85 | | ****** | | 188 | | ****** | | 2,561 | | 3,277 | |
| NO OF REFINERIES | 8 | | 4 | | 3 | | 3 | | 2 | | 7 | | 27 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 3
PROJECTED 1980

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | ****** | *** | | | | | | | ****** | *** | 107 | 2.2 | 114 | 1.5 |
| CRUDE CAPACITY | ****** | | | | | | | | ****** | | 2,890 | | 3,024 | |
| NO OF REFINERIES | 3 | | | | | | | | 1 | | 7 | | 11 | |
| BTX | | | | | ****** | *** | ****** | *** | 13 | 1.6 | 57 | 1.2 | 90 | 1.2 |
| CRUDE CAPACITY | | | | | ****** | | ****** | | 499 | | 2,261 | | 3,230 | |
| NO OF REFINERIES | | | | | 3 | | 5 | | 4 | | 7 | | 19 | |
| OTHER SPECS + PETROCHM IM | ****** | *** | ****** | *** | ****** | *** | 45 | 3.8 | 33 | 3.9 | 81 | 1.7 | 169 | 2.2 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 520 | | 878 | | 3,511 | | 5,116 | |
| NO OF REFINERIES | 1 | | 3 | | 4 | | 7 | | 7 | | 10 | | 32 | |
| FEED STOCKS SOLD | ****** | *** | 47 | 12.6 | 25 | 6.9 | 78 | 6.6 | ****** | *** | 486 | 10.2 | 660 | 8.6 |
| CRUDE CAPACITY | ****** | | 181 | | 191 | | 690 | | ****** | | 3,428 | | 4,703 | |
| NO OF REFINERIES | 8 | | 10 | | 5 | | 9 | | 1 | | 10 | | 43 | |
| MISCELLANEOUS | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 36 | .8 | 78 | 1.0 |
| CRUDE CAPACITY | ****** | | | | ****** | | ****** | | ****** | | 2,685 | | 3,152 | |
| NO OF REFINERIES | 1 | | | | 2 | | 3 | | 1 | | 6 | | 13 | |
| BLENDING STOCKS TO OTHERS | 2 | 1.6 | ****** | *** | 25 | 6.7 | ****** | *** | | | 45 | .9 | 82 | 1.1 |
| CRUDE CAPACITY | 17 | | ****** | | 125 | | ****** | | | | 1,665 | | 1,918 | |
| NO OF REFINERIES | 4 | | 2 | | 3 | | 1 | | | | 4 | | 14 | |
| REFINERY FUEL PRODUCED | 1 | .9 | 12 | 3.3 | 12 | 3.3 | 42 | 3.6 | 36 | 4.3 | 261 | 5.5 | 366 | 4.8 |
| CRUDE CAPACITY | 34 | | 343 | | 361 | | 772 | | 878 | | 4,704 | | 7,092 | |
| NO OF REFINERIES | 5 | | 17 | | 9 | | 10 | | 7 | | 14 | | 62 | |
| TOTAL (EX WAX,SULFR,COKE) | 130 | 97.5 | 376 | 100.4 | 369 | 100.6 | 1,187 | 100.4 | 870 | 103.2 | 4,772 | 100.5 | 7,705 | 100.7 |
| CRUDE CAPACITY | 120 | | 423 | | 397 | | 859 | | 878 | | 4,704 | | 7,381 | |
| NO OF REFINERIES | 20 | | 22 | | 10 | | 11 | | 7 | | 14 | | 84 | |
| SULFUR (LT/CD) | | | ****** | | ****** | | 418 | | 442 | | 2,621 | | 3,544 | |
| CRUDE CAPACITY | | | ****** | | ****** | | 646 | | 759 | | 4,704 | | 6,331 | |
| NO OF REFINERIES | | | 2 | | 4 | | 8 | | 6 | | 14 | | 34 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 3
PROJECTED 1980

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | | | ****** | | ****** | | 1,241 | | ****** | | 10,527 | | 12,127 | |
| CRUDE CAPACITY | | | ****** | | ****** | | 315 | | ****** | | 2,828 | | 3,344 | |
| NO OF REFINERIES | | | 2 | | 1 | | 4 | | 1 | | 9 | | 17 | |
| WAX (ST/CD) | ****** | | | | | | | | ****** | | 797 | | 1,179 | |
| CRUDE CAPACITY | ****** | | | | | | | | ****** | | 1,925 | | 2,048 | |
| NO OF REFINERIES | 1 | | | | | | | | 1 | | 5 | | 7 | |

Table C.6.6.4

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 4
PROJECTED 1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | 1 | 3.8 | 2 | 1.3 | 4 | 1.0 | | | | | | | 7 | 1.2 |
| CRUDE CAPACITY | 19 | | 149 | | 322 | | | | | | | | 490 | |
| NO OF REFINERIES | 3 | | 7 | | 8 | | | | | | | | 18 | |
| MOTOR GASOLINE | 14 | 46.7 | 66 | 46.3 | 183 | 49.0 | | | | | | | 263 | 48.2 |
| CRUDE CAPACITY | 29 | | 162 | | 394 | | | | | | | | 585 | |
| NO OF REFINERIES | 5 | | 8 | | 9 | | | | | | | | 22 | |
| JET FUEL - NAPHTHA BASE | ****** | *** | ****** | *** | 6 | 1.7 | | | | | | | 9 | 1.6 |
| CRUDE CAPACITY | ****** | | ****** | | 163 | | | | | | | | 218 | |
| NO OF REFINERIES | 1 | | 2 | | 4 | | | | | | | | 7 | |
| JET FUEL - KEROSENE BASE | | | 2 | 1.6 | 15 | 4.1 | | | | | | | 18 | 3.2 |
| CRUDE CAPACITY | | | 70 | | 317 | | | | | | | | 387 | |
| NO OF REFINERIES | | | 3 | | 7 | | | | | | | | 10 | |
| KEROSENE & #1 HEATING OIL | 1 | 3.3 | 2 | 1.3 | 8 | 2.3 | | | | | | | 11 | 2.1 |
| CRUDE CAPACITY | 20 | | 87 | | 394 | | | | | | | | 501 | |
| NO OF REFINERIES | 3 | | 4 | | 9 | | | | | | | | 16 | |
| DIESEL | 3 | 10.0 | 24 | 16.9 | 57 | 15.2 | | | | | | | 84 | 15.4 |
| CRUDE CAPACITY | 18 | | 137 | | 394 | | | | | | | | 549 | |
| NO OF REFINERIES | 4 | | 7 | | 9 | | | | | | | | 20 | |
| DISTILLATE #2 | 3 | 11.5 | 9 | 6.6 | 27 | 7.3 | | | | | | | 40 | 7.3 |
| CRUDE CAPACITY | 23 | | 80 | | 307 | | | | | | | | 410 | |
| NO OF REFINERIES | 3 | | 4 | | 7 | | | | | | | | 14 | |
| HVY FUEL OILS (4,5,6,ETC) | 4 | 13.2 | 3 | 2.2 | 10 | 2.8 | | | | | | | 17 | 3.2 |
| CRUDE CAPACITY | 26 | | 85 | | 266 | | | | | | | | 377 | |
| NO OF REFINERIES | 6 | | 4 | | 6 | | | | | | | | 16 | |
| ASPHALT | ****** | *** | 10 | 7.1 | ****** | *** | | | | | | | 28 | 5.2 |
| CRUDE CAPACITY | ****** | | 81 | | ****** | | | | | | | | 388 | |
| NO OF REFINERIES | 1 | | 4 | | 7 | | | | | | | | 12 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 4
PROJECTED 1980

| | REFINERY SIZE (MBPCD) 0-10 MBPCD | 0-10 INPUT PCT | 10-30 MBPCD | 10-30 INPUT PCT | 30-50 MBPCD | 30-50 INPUT PCT | 50-100 MBPCD | 50-100 INPUT PCT | 100-175 MBPCD | 100-175 INPUT PCT | 175 + MBPCD | 175 + INPUT PCT | TOTAL MBPCD | TOTAL INPUT PCT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FINISHED LUBRICANTS | | | | | 1 | .4 | | | | | | | 1 | .3 |
| CRUDE CAPACITY | | | | | 47 | | | | | | | | 47 | |
| NO OF REFINERIES | | | | | 1 | | | | | | | | 1 | |
| OTHER SPECS + PETROCHM IM | | .3 | | | 1 | .2 | | | | | | | 1 | .2 |
| CRUDE CAPACITY | 1 | | | | 86 | | | | | | | | 87 | |
| NO OF REFINERIES | 1 | | | | 2 | | | | | | | | 3 | |
| FEED STOCKS SOLD | | | ****** | *** | ****** | *** | | | | | | | 24 | 4.5 |
| CRUDE CAPACITY | | | ****** | | ****** | | | | | | | | 130 | |
| NO OF REFINERIES | | | 3 | | 2 | | | | | | | | 5 | |
| MISCELLANEOUS | ****** | *** | ****** | *** | ****** | *** | | | | | | | 2 | .3 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | | | | | | | 56 | |
| NO OF REFINERIES | 2 | | 1 | | 1 | | | | | | | | 4 | |
| REFINERY FUEL PRODUCED | 1 | 3.5 | 10 | 7.3 | 24 | 6.5 | | | | | | | 36 | 6.5 |
| CRUDE CAPACITY | 27 | | 162 | | 394 | | | | | | | | 582 | |
| NO OF REFINERIES | 4 | | 8 | | 9 | | | | | | | | 21 | |
| TOTAL (EX WAX,SULFR,COKE) | 30 | 100.2 | 138 | 96.7 | 373 | 100.0 | | | | | | | 540 | 99.2 |
| CRUDE CAPACITY | 34 | | 162 | | 394 | | | | | | | | 589 | |
| NO OF REFINERIES | 7 | | 8 | | 9 | | | | | | | | 24 | |
| SULFUR (LT/CD) | | | ****** | | ****** | | | | | | | | 148 | |
| CRUDE CAPACITY | | | ****** | | ****** | | | | | | | | 338 | |
| NO OF REFINERIES | | | 1 | | 7 | | | | | | | | 8 | |
| COKE (ST/CD) | | | ****** | | ****** | | | | | | | | 1,313 | |
| CRUDE CAPACITY | | | ****** | | ****** | | | | | | | | 155 | |
| NO OF REFINERIES | | | 3 | | 2 | | | | | | | | 5 | |
| WAX (ST/CD) | | | | | ****** | | | | | | | | ****** | |
| NO OF REFINERIES | | | | | 1 | | | | | | | | 1 | |

Table C.6.6.5

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 5
PROJECTED 1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | | | 1 | .5 | ****** | *** | 13 | 2.0 | 12 | *** | ****** | *** | 45 | 1.6 |
| CRUDE CAPACITY | | | 62 | | ****** | | 640 | | 573 | | ****** | | 2,444 | |
| NO OF REFINERIES | | | 3 | | 5 | | 8 | | 5 | | 3 | | 24 | |
| MOTOR GASOLINE | ****** | *** | ****** | *** | 82 | 25.9 | 287 | 45.4 | 422 | *** | ****** | *** | 1,090 | 39.0 |
| CRUDE CAPACITY | ****** | | ****** | | 260 | | 696 | | 787 | | ****** | | 2,867 | |
| NO OF REFINERIES | 1 | | 8 | | 6 | | 9 | | 7 | | 3 | | 34 | |
| JET FUEL - NAPHTHA BASE | | | 6 | 2.4 | 24 | 7.6 | ****** | *** | 25 | *** | ****** | *** | 85 | 3.0 |
| CRUDE CAPACITY | | | 67 | | 214 | | ****** | | 446 | | ****** | | 1,839 | |
| NO OF REFINERIES | | | 3 | | 5 | | 2 | | 4 | | 3 | | 17 | |
| JET FUEL - KEROSENE BASE | | | ****** | *** | 22 | 7.1 | 43 | 6.9 | 61 | *** | ****** | *** | 235 | 8.4 |
| CRUDE CAPACITY | | | ****** | | 177 | | 404 | | 679 | | ****** | | 2,318 | |
| NO OF REFINERIES | | | 5 | | 4 | | 5 | | 6 | | 3 | | 23 | |
| KEROSENE & #1 HEATING OIL | ****** | *** | 2 | .6 | 15 | 4.7 | ****** | *** | ****** | *** | ****** | *** | 26 | .9 |
| CRUDE CAPACITY | ****** | | 86 | | 135 | | ****** | | ****** | | ****** | | 1,663 | |
| NO OF REFINERIES | 1 | | 4 | | 3 | | 3 | | 2 | | 3 | | 16 | |
| DIESEL | ****** | *** | ****** | *** | 14 | 4.3 | 74 | 11.7 | ****** | *** | ****** | *** | 285 | 10.2 |
| CRUDE CAPACITY | ****** | | ****** | | 137 | | 644 | | ****** | | ****** | | 2,643 | |
| NO OF REFINERIES | 2 | | 10 | | 3 | | 8 | | 6 | | 3 | | 32 | |
| DISTILLATE #2 | ****** | *** | 10 | 4.1 | 20 | 6.4 | 19 | 2.9 | | *** | ****** | *** | 51 | 1.8 |
| CRUDE CAPACITY | ****** | | 97 | | 130 | | 350 | | | | ****** | | 952 | |
| NO OF REFINERIES | 1 | | 5 | | 3 | | 5 | | | | 1 | | 15 | |
| HVY FUEL OILS (4,5,6,ETC) | ****** | *** | 100 | 40.3 | 76 | 24.2 | 114 | 18.1 | 64 | *** | ****** | *** | 581 | 20.8 |
| CRUDE CAPACITY | ****** | | 243 | | 300 | | 597 | | 679 | | ****** | | 2,814 | |
| NO OF REFINERIES | 5 | | 12 | | 7 | | 8 | | 6 | | 3 | | 41 | |
| ASPHALT | 5 | 11.4 | 14 | 5.7 | 21 | 6.6 | ****** | *** | ****** | *** | ****** | *** | 59 | 2.1 |
| CRUDE CAPACITY | 35 | | 101 | | 212 | | ****** | | ****** | | ****** | | 1,273 | |
| NO OF REFINERIES | 4 | | 5 | | 5 | | 1 | | 1 | | 2 | | 18 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 5
PROJECTED 1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | | | ****** | *** | | | | | ****** | *** | ****** | *** | 14 | .5 |
| CRUDE CAPACITY | | | ****** | | | | | | ****** | | ****** | | 603 | |
| NO OF REFINERIES | | | 1 | | | | | | 2 | | 1 | | 4 | |
| BTX | | | | | | | | | | *** | ****** | *** | ****** | *** |
| NO OF REFINERIES | | | | | | | | | | | 2 | | 2 | |
| OTHER SPECS + PETROCHM IM | | | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 29 | 1.0 |
| CRUDE CAPACITY | | | ****** | | | | ****** | | ****** | | ****** | | 1,354 | |
| NO OF REFINERIES | | | 1 | | | | 1 | | 3 | | 3 | | 8 | |
| FEED STOCKS SOLD | ****** | *** | 3 | 1.4 | ****** | *** | 12 | 1.9 | 5 | *** | ****** | *** | 31 | 1.1 |
| CRUDE CAPACITY | ****** | | 47 | | ****** | | 448 | | 340 | | ****** | | 1,122 | |
| NO OF REFINERIES | 2 | | 3 | | 2 | | 6 | | 3 | | 1 | | 17 | |
| MISCELLANEOUS | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | | *** | ****** | *** |
| NO OF REFINERIES | 1 | | 2 | | | | 2 | | 3 | | | | 8 | |
| BLENDING STOCKS TO OTHERS | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 85 | 3.0 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | ****** | | ****** | | 614 | |
| NO OF REFINERIES | 1 | | 1 | | 1 | | 2 | | 2 | | 1 | | 8 | |
| REFINERY FUEL PRODUCED | ****** | *** | 5 | 1.9 | 11 | 3.4 | 48 | 7.6 | 62 | *** | ****** | *** | 164 | 5.9 |
| CRUDE CAPACITY | ****** | | 225 | | 296 | | 696 | | 787 | | ****** | | 2,963 | |
| NO OF REFINERIES | 1 | | 10 | | 7 | | 9 | | 7 | | 3 | | 37 | |
| TOTAL (EX WAX,SULFR,COKE) | 39 | 94.1 | 245 | 98.5 | 317 | 100.3 | 647 | 102.5 | ****** | *** | ****** | *** | 2,808 | 100.6 |
| CRUDE CAPACITY | 45 | | 286 | | 331 | | 696 | | ****** | | ****** | | 3,094 | |
| NO OF REFINERIES | 5 | | 14 | | 8 | | 9 | | 7 | | 3 | | 46 | |
| SULFUR (LT/CD) | | | 26 | | 51 | | ****** | | 802 | | ****** | | 1,702 | |
| CRUDE CAPACITY | | | 78 | | 161 | | ****** | | 787 | | ****** | | 2,522 | |
| NO OF REFINERIES | | | 3 | | 4 | | 7 | | 7 | | 3 | | 24 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 5
PROJECTED 1980

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | | | | | ****** | | ****** | | 8,346 | | ****** | | 15,474 | |
| CRUDE CAPACITY | | | | | ****** | | ****** | | 575 | | ****** | | 1,429 | |
| NO OF REFINERIES | | | | | 2 | | 2 | | 5 | | 2 | | 11 | |
| WAX (ST/CD) | | | | | | | | | ****** | | ****** | | ****** | |
| NO OF REFINERIES | | | | | | | | | 1 | | 1 | | 2 | |

Table C.6.7.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 1
PROJECTED 1982

| | REFINERY SIZE (MBPCD) ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | | | | | | | 9 | 1.8 | .14 | *** | 15 | *** | 38 | 1.9 |
| CRUDE CAPACITY | | | | | | | 282 | | 650 | | 708 | | 1,640 | |
| NO OF REFINERIES | | | | | | | 4 | | 4 | | 3 | | 11 | |
| MOTOR GASOLINE | ****** | *** | ****** | *** | | | 177 | 35.9 | 322 | *** | ****** | *** | 812 | 40.2 |
| CRUDE CAPACITY | ****** | | ****** | | | | 388 | | 650 | | ****** | | 1,797 | |
| NO OF REFINERIES | 6 | | 1 | | | | 6 | | 4 | | 3 | | 20 | |
| JET FUEL - NAPHTHA BASE | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | | *** | 18 | .9 |
| CRUDE CAPACITY | ****** | | ****** | | | | ****** | | ****** | | | | 395 | |
| NO OF REFINERIES | 1 | | 1 | | | | 1 | | 2 | | | | 5 | |
| JET FUEL - KEROSENE BASE | | | | | | | 16 | 3.3 | ****** | *** | ****** | *** | 60 | 3.0 |
| CRUDE CAPACITY | | | | | | | 293 | | ****** | | ****** | | 753 | |
| NO OF REFINERIES | | | | | | | 4 | | 1 | | 1 | | 6 | |
| KEROSENE & #1 HEATING OIL | 1 | 1.9 | ****** | *** | | | 3 | .7 | ****** | *** | ****** | *** | 12 | .6 |
| CRUDE CAPACITY | 26 | | ****** | | | | 247 | | ****** | | ****** | | 784 | |
| NO OF REFINERIES | 4 | | 1 | | | | 4 | | 2 | | 1 | | 12 | |
| DIESEL | 2 | 4.0 | ****** | *** | | | 12 | 2.4 | ****** | *** | ****** | *** | 70 | 3.5 |
| CRUDE CAPACITY | 23 | | ****** | | | | 335 | | ****** | | ****** | | 984 | |
| NO OF REFINERIES | 3 | | 2 | | | | 5 | | 2 | | 1 | | 13 | |
| DISTILLATE #2 | ****** | *** | 9 | 11.2 | | | 113 | 22.8 | 71 | *** | ****** | *** | 388 | 19.2 |
| CRUDE CAPACITY | ****** | | 53 | | | | 478 | | 482 | | ****** | | 1,774 | |
| NO OF REFINERIES | 8 | | 4 | | | | 8 | | 3 | | 3 | | 26 | |
| HVY FUEL OILS (4,5,6,ETC) | ****** | *** | 17 | 22.0 | | | 84 | 17.0 | 66 | *** | ****** | *** | 265 | 13.1 |
| CRUDE CAPACITY | ****** | | 53 | | | | 478 | | 510 | | ****** | | 1,768 | |
| NO OF REFINERIES | 3 | | 4 | | | | 8 | | 3 | | 3 | | 21 | |
| ASPHALT | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 111 | 5.5 |
| CRUDE CAPACITY | ****** | | ****** | | | | ****** | | ****** | | ****** | | 830 | |
| NO OF REFINERIES | 4 | | 3 | | | | 2 | | 1 | | 2 | | 12 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 1
PROJECTED 1982

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | 13 | 25.5 | ****** | *** | | | ****** | *** | ****** | *** | | *** | 37 | 1.8 |
| CRUDE CAPACITY | 45 | | ****** | | | | ****** | | ****** | | | | 500 | |
| NO OF REFINERIES | 7 | | 1 | | | | 1 | | 2 | | | | 11 | |
| BTX | | | | | | | ****** | *** | ****** | *** | | *** | ****** | *** |
| NO OF REFINERIES | | | | | | | 2 | | 2 | | | | 4 | |
| OTHER SPECS + PETROCHM IM | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | | *** | 39 | 2.0 |
| CRUDE CAPACITY | ****** | | ****** | | | | ****** | | ****** | | | | 499 | |
| NO OF REFINERIES | 3 | | 1 | | | | 2 | | 2 | | | | 8 | |
| FEED STOCKS SOLD | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 41 | 2.0 |
| CRUDE CAPACITY | ****** | | ****** | | | | ****** | | ****** | | ****** | | 856 | |
| NO OF REFINERIES | 3 | | 2 | | | | 2 | | 1 | | 2 | | 10 | |
| MISCELLANEOUS | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | ****** | *** |
| NO OF REFINERIES | 2 | | 2 | | | | 5 | | 3 | | 2 | | 14 | |
| BLENDING STOCKS TO OTHERS | ****** | *** | 5 | 6.6 | | | ****** | *** | | *** | | *** | 10 | .5 |
| CRUDE CAPACITY | ****** | | 41 | | | | ****** | | | | | | 207 | |
| NO OF REFINERIES | 4 | | 3 | | | | 2 | | | | | | 9 | |
| REFINERY FUEL PRODUCED | ****** | *** | 2 | 2.2 | | | 32 | 6.4 | 46 | *** | ****** | *** | 122 | 6.0 |
| CRUDE CAPACITY | ****** | | 77 | | | | 438 | | 650 | | ****** | | 1,926 | |
| NO OF REFINERIES | 8 | | 5 | | | | 7 | | 4 | | 3 | | 27 | |
| TOTAL (EX WAX,SULFR,COKE) | 47 | 94.5 | 77 | 98.2 | | | 501 | 101.5 | ****** | *** | ****** | *** | 2,060 | 101.9 |
| CRUDE CAPACITY | 53 | | 92 | | | | 478 | | ****** | | ****** | | 1,981 | |
| NO OF REFINERIES | 8 | | 6 | | | | 8 | | 4 | | 3 | | 29 | |
| SULFUR (LT/CD) | | | | | | | ****** | | 418 | | ****** | | 1,033 | |
| CRUDE CAPACITY | | | | | | | ****** | | 478 | | ****** | | 1,401 | |
| NO OF REFINERIES | | | | | | | 3 | | 3 | | 3 | | 9 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 1
PROJECTED 1982

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | | | | | | | ****** | | ****** | | | | 1,811 | |
| CRUDE CAPACITY | | | | | | | ****** | | ****** | | | | 291 | |
| NO OF REFINERIES | | | | | | | 2 | | 1 | | | | 3 | |
| WAX (ST/CD) | ****** | | ****** | | | | | | ****** | | | | 494 | |
| CRUDE CAPACITY | ****** | | ****** | | | | | | ****** | | | | 227 | |
| NO OF REFINERIES | 6 | | 1 | | | | | | 1 | | | | 8 | |

Table C.6.7.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 2
PROJECTED 1982

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | ****** | *** | 3 | 1.2 | 7 | 1.6 | 23 | 1.9 | 19 | 1.6 | ****** | *** | 82 | 1.9 |
| CRUDE CAPACITY | ****** | | 142 | | 371 | | 1,001 | | 1,178 | | ****** | | 4,029 | |
| NO OF REFINERIES | 3 | | 6 | | 8 | | 15 | | 9 | | 5 | | 46 | |
| MOTOR GASOLINE | 6 | 10.6 | 105 | 46.9 | 247 | 58.0 | 649 | 54.9 | 635 | 53.3 | 627 | 49.0 | 2,270 | 52.0 |
| CRUDE CAPACITY | 16 | | 194 | | 421 | | 1,127 | | 1,178 | | 1,318 | | 4,255 | |
| NO OF REFINERIES | 4 | | 9 | | 9 | | 17 | | 9 | | 5 | | 53 | |
| JET FUEL - NAPHTHA BASE | 8 | 14.0 | 11 | 4.9 | 7 | 1.6 | ****** | *** | ****** | *** | ****** | *** | 41 | .9 |
| CRUDE CAPACITY | 39 | | 90 | | 142 | | ****** | | ****** | | ****** | | 1,399 | |
| NO OF REFINERIES | 5 | | 5 | | 3 | | 2 | | 3 | | 2 | | 20 | |
| JET FUEL - KEROSENE BASE | | | ****** | *** | 11 | 2.7 | 36 | 3.1 | ****** | *** | 73 | 5.7 | 165 | 3.8 |
| CRUDE CAPACITY | | | ****** | | 144 | | 540 | | ****** | | 1,123 | | 2,633 | |
| NO OF REFINERIES | | | 1 | | 3 | | 8 | | 6 | | 4 | | 22 | |
| KEROSENE & #1 HEATING OIL | 3 | 4.7 | 8 | 3.6 | 9 | 2.1 | 28 | 2.4 | 23 | 1.9 | 24 | 1.8 | 94 | 2.2 |
| CRUDE CAPACITY | 29 | | 212 | | 371 | | 864 | | 926 | | 1,035 | | 3,437 | |
| NO OF REFINERIES | 4 | | 10 | | 8 | | 13 | | 7 | | 4 | | 46 | |
| DIESEL | ****** | *** | 8 | 3.7 | 7 | 1.7 | 57 | 4.8 | 108 | 9.1 | ****** | *** | 219 | 5.0 |
| CRUDE CAPACITY | ****** | | 120 | | 195 | | 659 | | 1,058 | | ****** | | 2,745 | |
| NO OF REFINERIES | 7 | | 5 | | 4 | | 10 | | 8 | | 2 | | 36 | |
| DISTILLATE #2 | 3 | 4.7 | 40 | 17.7 | 77 | 18.0 | 192 | 16.3 | 136 | 11.4 | 236 | 18.4 | 683 | 15.7 |
| CRUDE CAPACITY | 30 | | 235 | | 421 | | 1,073 | | 859 | | 1,318 | | 3,935 | |
| NO OF REFINERIES | 6 | | 11 | | 9 | | 16 | | 7 | | 5 | | 54 | |
| HVY FUEL OILS (4,5,6,ETC) | 14 | 23.2 | 23 | 10.3 | 16 | 3.8 | 50 | 4.2 | 42 | 3.5 | 62 | 4.8 | 206 | 4.7 |
| CRUDE CAPACITY | 54 | | 235 | | 327 | | 809 | | 1,178 | | 1,318 | | 3,921 | |
| NO OF REFINERIES | 9 | | 11 | | 7 | | 12 | | 9 | | 5 | | 53 | |
| ASPHALT | 5 | 9.2 | 10 | 4.3 | 22 | 5.1 | 38 | 3.2 | 43 | 3.6 | 54 | 4.2 | 171 | 3.9 |
| CRUDE CAPACITY | 28 | | 109 | | 329 | | 622 | | 727 | | 943 | | 2,757 | |
| NO OF REFINERIES | 3 | | 5 | | 7 | | 9 | | 6 | | 3 | | 33 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 2
PROJECTED 1982

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | ****** | *** | ****** | *** | | | 16 | 1.4 | 5 | .5 | ****** | *** | 44 | 1.0 |
| CRUDE CAPACITY | ****** | | ****** | | | | 238 | | 430 | | ****** | | 1,633 | |
| NO OF REFINERIES | 1 | | 1 | | | | 3 | | 3 | | 3 | | 11 | |
| BTX | | | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 36 | .8 |
| CRUDE CAPACITY | | | ****** | | | | ****** | | ****** | | ****** | | 1,321 | |
| NO OF REFINERIES | | | 1 | | | | 1 | | 2 | | 3 | | 7 | |
| OTHER SPECS + PETROCHM IM | | | ****** | *** | ****** | *** | 10 | .8 | 11 | 1.0 | ****** | *** | 38 | .9 |
| CRUDE CAPACITY | | | ****** | | ****** | | 346 | | 931 | | ****** | | 2,478 | |
| NO OF REFINERIES | | | 1 | | 1 | | 5 | | 7 | | 4 | | 18 | |
| FEED STOCKS SOLD | 4 | 7.4 | ****** | *** | | | ****** | *** | 35 | 2.9 | 16 | 1.2 | 64 | 1.5 |
| CRUDE CAPACITY | 24 | | ****** | | | | ****** | | 648 | | 938 | | 1,877 | |
| NO OF REFINERIES | 3 | | 1 | | | | 4 | | 5 | | 3 | | 16 | |
| MISCELLANEOUS | ****** | *** | 3 | 1.3 | ****** | *** | 1 | .1 | ****** | *** | ****** | *** | 17 | .4 |
| CRUDE CAPACITY | ****** | | 81 | | ****** | | 280 | | ****** | | ****** | | 1,026 | |
| NO OF REFINERIES | 2 | | 4 | | 1 | | 4 | | 1 | | 2 | | 14 | |
| BLENDING STOCKS TO OTHERS | 1 | 2.4 | | | ****** | *** | ****** | *** | ****** | *** | | | 11 | .2 |
| CRUDE CAPACITY | 24 | | | | ****** | | ****** | | ****** | | | | 410 | |
| NO OF REFINERIES | 3 | | | | 1 | | 1 | | 2 | | | | 7 | |
| REFINERY FUEL PRODUCED | 1 | 1.1 | 12 | 5.4 | 25 | 5.8 | 83 | 7.0 | 78 | 6.5 | 88 | 6.9 | 286 | 6.6 |
| CRUDE CAPACITY | 19 | | 235 | | 421 | | 1,127 | | 1,178 | | 1,318 | | 4,298 | |
| NO OF REFINERIES | 3 | | 11 | | 9 | | 17 | | 9 | | 5 | | 54 | |
| TOTAL (EX WAX,SULFR,COKE) | 58 | 99.6 | 227 | 101.4 | 429 | 100.7 | 1,196 | 101.2 | 1,207 | 101.4 | 1,309 | 102.2 | 4,427 | 101.5 |
| CRUDE CAPACITY | 69 | | 235 | | 421 | | 1,127 | | 1,178 | | 1,318 | | 4,348 | |
| NO OF REFINERIES | 11 | | 11 | | 9 | | 17 | | 9 | | 5 | | 62 | |
| SULFUR (LT/CD) | | | | | 70 | | 261 | | 476 | | 862 | | 1,669 | |
| CRUDE CAPACITY | | | | | 276 | | 807 | | 936 | | 1,318 | | 3,337 | |
| NO OF REFINERIES | | | | | 6 | | 12 | | 7 | | 5 | | 30 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

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PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 2
PROJECTED 1982

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | | | ****** | | ****** | | 2,764 | | 4,362 | | ****** | | 11,420 | |
| CRUDE CAPACITY | | | ****** | | ****** | | 480 | | 818 | | ****** | | 2,231 | |
| NO OF REFINERIES | | | 2 | | 1 | | 7 | | 6 | | 3 | | 19 | |
| WAX (ST/CD) | | | | | | | ****** | | ****** | | ****** | | 1,039 | |
| CRUDE CAPACITY | | | | | | | ****** | | ****** | | ****** | | 1,313 | |
| NO OF REFINERIES | | | | | | | 3 | | 1 | | 3 | | 7 | |

Table C.6.7.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 3
PROJECTED 1982

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | 3 | 2.4 | 17 | 4.2 | 6 | 1.7 | 70 | 7.6 | 15 | 1.4 | 88 | 1.7 | 200 | 2.5 |
| CRUDE CAPACITY | 26 | | 267 | | 242 | | 758 | | 1,060 | | 4,282 | | 6,636 | |
| NO OF REFINERIES | 3 | | 13 | | 6 | | 10 | | 8 | | 13 | | 53 | |
| MOTOR GASOLINE | 41 | 32.6 | 128 | 31.0 | 103 | 27.1 | 443 | 47.5 | 434 | 41.6 | 2,210 | 42.5 | 3,359 | 41.5 |
| CRUDE CAPACITY | 60 | | 315 | | 236 | | 758 | | 1,060 | | 5,114 | | 7,543 | |
| NO OF REFINERIES | 9 | | 15 | | 6 | | 10 | | 8 | | 15 | | 63 | |
| JET FUEL - NAPHTHA BASE | 9 | 6.8 | 13 | 3.2 | 9 | 2.3 | ****** | *** | ****** | *** | 32 | .6 | 82 | 1.0 |
| CRUDE CAPACITY | 54 | | 122 | | 158 | | ****** | | ****** | | 2,310 | | 2,963 | |
| NO OF REFINERIES | 9 | | 5 | | 4 | | 3 | | 1 | | 6 | | 28 | |
| JET FUEL - KEROSENE BASE | | | 4 | 1.0 | 8 | 2.2 | 22 | 2.4 | 45 | 4.3 | 365 | 7.0 | 444 | 5.5 |
| CRUDE CAPACITY | | | 98 | | 143 | | 410 | | 590 | | 4,094 | | 5,334 | |
| NO OF REFINERIES | | | 5 | | 4 | | 5 | | 4 | | 12 | | 30 | |
| KEROSENE & #1 HEATING OIL | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 125 | 2.4 | 174 | 2.1 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | ****** | | ****** | | 2,582 | | 3,588 | |
| NO OF REFINERIES | 5 | | 6 | | 6 | | 5 | | 2 | | 6 | | 30 | |
| DIESEL | 13 | 10.5 | 72 | 17.4 | 47 | 12.3 | 69 | 7.4 | 93 | 8.9 | 226 | 4.3 | 519 | 6.4 |
| CRUDE CAPACITY | 71 | | 316 | | 314 | | 589 | | 494 | | 2,633 | | 4,418 | |
| NO OF REFINERIES | 12 | | 17 | | 8 | | 8 | | 4 | | 6 | | 55 | |
| DISTILLATE #2 | 3 | 2.6 | 22 | 5.2 | 39 | 10.3 | 91 | 9.8 | 120 | 11.5 | 565 | 10.9 | 839 | 10.4 |
| CRUDE CAPACITY | 17 | | 136 | | 220 | | 502 | | 706 | | 4,329 | | 5,908 | |
| NO OF REFINERIES | 4 | | 6 | | 5 | | 6 | | 5 | | 13 | | 39 | |
| HVY FUEL OILS (4,5,6,ETC) | 15 | 12.0 | 63 | 15.1 | 53 | 14.1 | 47 | 5.1 | 97 | 9.3 | 414 | 8.0 | 689 | 8.5 |
| CRUDE CAPACITY | 76 | | 405 | | 402 | | 661 | | 1,060 | | 4,918 | | 7,522 | |
| NO OF REFINERIES | 13 | | 21 | | 10 | | 9 | | 8 | | 14 | | 75 | |
| ASPHALT | 11 | 8.9 | ****** | *** | ****** | *** | 12 | 1.3 | 6 | .6 | 50 | 1.0 | 110 | 1.4 |
| CRUDE CAPACITY | 38 | | ****** | | ****** | | 257 | | 415 | | 2,626 | | 3,515 | |
| NO OF REFINERIES | 7 | | 5 | | 2 | | 4 | | 3 | | 7 | | 28 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 3
PROJECTED 1982

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | ****** | *** | | | | | ****** | *** | ****** | *** | 112 | 2.1 | 123 | 1.5 |
| CRUDE CAPACITY | ****** | | | | | | ****** | | ****** | | 2,952 | | 3,156 | |
| NO OF REFINERIES | 3 | | | | | | 1 | | 1 | | 7 | | 12 | |
| BTX | | | | | ****** | *** | ****** | *** | 22 | 2.1 | 62 | 1.2 | 105 | 1.3 |
| CRUDE CAPACITY | | | | | ****** | | ****** | | 520 | | 2,823 | | 3,754 | |
| NO OF REFINERIES | | | | | 2 | | 5 | | 4 | | 9 | | 20 | |
| OTHER SPECS + PETROCHM IM | ****** | *** | ****** | *** | ****** | *** | 37 | 4.0 | 42 | 4.0 | 97 | 1.9 | 183 | 2.3 |
| CRUDE CAPACITY | ****** | | ****** | | ****** | | 418 | | 1,060 | | 3,470 | | 5,110 | |
| NO OF REFINERIES | 1 | | 3 | | 3 | | 6 | | 8 | | 10 | | 31 | |
| FEED STOCKS SOLD | 12 | 9.4 | 61 | 14.7 | 24 | 6.3 | 48 | 5.2 | 124 | 11.8 | 508 | 9.8 | 776 | 9.6 |
| CRUDE CAPACITY | 38 | | 214 | | 146 | | 590 | | 457 | | 3,588 | | 5,031 | |
| NO OF REFINERIES | 6 | | 12 | | 4 | | 8 | | 3 | | 10 | | 43 | |
| MISCELLANEOUS | ****** | *** | | | ****** | *** | 19 | 2.0 | | | 55 | 1.1 | 76 | .9 |
| CRUDE CAPACITY | ****** | | | | ****** | | 221 | | | | 2,493 | | 2,803 | |
| NO OF REFINERIES | 1 | | | | 2 | | 3 | | | | 6 | | 12 | |
| BLENDING STOCKS TO OTHERS | 2 | 1.8 | ****** | *** | ****** | *** | ****** | *** | | | 33 | .6 | 79 | 1.0 |
| CRUDE CAPACITY | 20 | | ****** | | ****** | | ****** | | | | 1,045 | | 1,356 | |
| NO OF REFINERIES | 4 | | 1 | | 3 | | 2 | | | | 3 | | 13 | |
| REFINERY FUEL PRODUCED | 2 | 1.5 | 12 | 3.0 | 13 | 3.3 | 36 | 3.9 | 38 | 3.6 | 301 | 5.8 | 402 | 5.0 |
| CRUDE CAPACITY | 34 | | 328 | | 366 | | 758 | | 899 | | 5,114 | | 7,498 | |
| NO OF REFINERIES | 5 | | 16 | | 9 | | 10 | | 7 | | 15 | | 62 | |
| TOTAL (EX WAX,SULFR,COKE) | 120 | 95.8 | 417 | 100.6 | 380 | 100.4 | 938 | 100.7 | 1,065 | 101.9 | 5,243 | 100.7 | 8,163 | 100.8 |
| CRUDE CAPACITY | 98 | | 465 | | 402 | | 758 | | 1,060 | | 5,114 | | 7,897 | |
| NO OF REFINERIES | 17 | | 24 | | 10 | | 10 | | 8 | | 15 | | 84 | |
| SULFUR (LT/CD) | | | ****** | | ****** | | 213 | | 569 | | 3,251 | | 4,096 | |
| CRUDE CAPACITY | | | ****** | | ****** | | 562 | | 899 | | 5,114 | | 6,797 | |
| NO OF REFINERIES | | | 2 | | 4 | | 7 | | 7 | | 15 | | 35 | |

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PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 3
PROJECTED 1982

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | | | ****** | | ****** | | ****** | | ****** | | 12,097 | | 13,691 | |
| CRUDE CAPACITY | | | ****** | | ****** | | ****** | | ****** | | 3,000 | | 3,601 | |
| NO OF REFINERIES | | | 2 | | 1 | | 3 | | 2 | | 9 | | 17 | |
| WAX (ST/CD) | ****** | | | | | | ****** | | ****** | | 977 | | 1,440 | |
| CRUDE CAPACITY | ****** | | | | | | ****** | | ****** | | 1,987 | | 2,180 | |
| NO OF REFINERIES | 1 | | | | | | 1 | | 1 | | 5 | | 8 | |

Table C.6.7.4

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 4
PROJECTED 1982

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | ****** | *** | ****** | *** | 4 | 1.0 | | | | | | | 7 | 1.3 |
| CRUDE CAPACITY | ****** | | ****** | | 326 | | | | | | | | 498 | |
| NO OF REFINERIES | 2 | | 8 | | 8 | | | | | | | | 18 | |
| MOTOR GASOLINE | 8 | 35.3 | 73 | 47.0 | 196 | 51.3 | | | | | | | 277 | 49.5 |
| CRUDE CAPACITY | 22 | | 174 | | 398 | | | | | | | | 593 | |
| NO OF REFINERIES | 4 | | 9 | | 9 | | | | | | | | 22 | |
| JET FUEL - NAPHTHA BASE | ****** | *** | ****** | *** | 7 | 1.7 | | | | | | | 9 | 1.6 |
| CRUDE CAPACITY | ****** | | ****** | | 166 | | | | | | | | 221 | |
| NO OF REFINERIES | 1 | | 2 | | 4 | | | | | | | | 7 | |
| JET FUEL - KEROSENE BASE | | | 2 | 1.5 | 16 | 4.1 | | | | | | | 18 | 3.2 |
| CRUDE CAPACITY | | | 70 | | 321 | | | | | | | | 391 | |
| NO OF REFINERIES | | | 3 | | 7 | | | | | | | | 10 | |
| KEROSENE & #1 HEATING OIL | 1 | 4.5 | 2 | 1.2 | 9 | 2.3 | | | | | | | 12 | 2.1 |
| CRUDE CAPACITY | 21 | | 87 | | 353 | | | | | | | | 460 | |
| NO OF REFINERIES | 3 | | 4 | | 8 | | | | | | | | 15 | |
| DIESEL | 2 | 10.5 | 26 | 17.1 | 61 | 16.0 | | | | | | | 90 | 16.1 |
| CRUDE CAPACITY | 10 | | 149 | | 398 | | | | | | | | 557 | |
| NO OF REFINERIES | 3 | | 8 | | 9 | | | | | | | | 20 | |
| DISTILLATE #2 | ****** | *** | 10 | 6.4 | ****** | *** | | | | | | | 41 | 7.4 |
| CRUDE CAPACITY | ****** | | 92 | | ****** | | | | | | | | 419 | |
| NO OF REFINERIES | 2 | | 5 | | 7 | | | | | | | | 14 | |
| HVY FUEL OILS (4,5,6,ETC) | 4 | 18.4 | 4 | 2.3 | 10 | 2.6 | | | | | | | 17 | 3.1 |
| CRUDE CAPACITY | 27 | | 97 | | 270 | | | | | | | | 394 | |
| NO OF REFINERIES | 6 | | 5 | | 6 | | | | | | | | 17 | |
| ASPHALT | ****** | *** | 11 | 7.2 | ****** | *** | | | | | | | 32 | 5.8 |
| CRUDE CAPACITY | ****** | | 93 | | ****** | | | | | | | | 405 | |
| NO OF REFINERIES | 1 | | 5 | | 7 | | | | | | | | 13 | |

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 4
PROJECTED 1982

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | | | | | 1 | .3 | | | | | | | 1 | .2 |
| CRUDE CAPACITY | | | | | 47 | | | | | | | | 47 | |
| NO OF REFINERIES | | | | | 1 | | | | | | | | 1 | |
| OTHER SPECS + PETROCHM IM | | .5 | | | 1 | .2 | | | | | | | 1 | .2 |
| CRUDE CAPACITY | 1 | | | | 86 | | | | | | | | 87 | |
| NO OF REFINERIES | 1 | | | | 2 | | | | | | | | 3 | |
| FEED STOCKS SOLD | | | ****** | *** | ****** | *** | | | | | | | 12 | 2.1 |
| CRUDE CAPACITY | | | ****** | | ****** | | | | | | | | 97 | |
| NO OF REFINERIES | | | 3 | | 1 | | | | | | | | 4 | |
| MISCELLANEOUS | ****** | *** | ****** | *** | | | | | | | | | 1 | .2 |
| CRUDE CAPACITY | ****** | | ****** | | | | | | | | | | 24 | |
| NO OF REFINERIES | 2 | | 1 | | | | | | | | | | 3 | |
| REFINERY FUEL PRODUCED | | 2.2 | 11 | 7.2 | 26 | 6.8 | | | | | | | 38 | 6.7 |
| CRUDE CAPACITY | 19 | | 174 | | 398 | | | | | | | | 591 | |
| NO OF REFINERIES | 3 | | 9 | | 9 | | | | | | | | 21 | |
| TOTAL (EX WAX,SULFR,COKE) | 22 | 98.5 | 151 | 97.3 | 384 | 100.3 | | | | | | | 556 | 99.4 |
| CRUDE CAPACITY | 27 | | 174 | | 398 | | | | | | | | 598 | |
| NO OF REFINERIES | 6 | | 9 | | 9 | | | | | | | | 24 | |
| SULFUR (LT/CD) | | | ****** | | ****** | | | | | | | | 147 | |
| CRUDE CAPACITY | | | ****** | | ****** | | | | | | | | 342 | |
| NO OF REFINERIES | | | 1 | | 7 | | | | | | | | 8 | |
| COKE (ST/CD) | | | ****** | | ****** | | | | | | | | 1,327 | |
| CRUDE CAPACITY | | | ****** | | ****** | | | | | | | | 154 | |
| NO OF REFINERIES | | | 3 | | 2 | | | | | | | | 5 | |
| WAX (ST/CD) | | | | | ****** | | | | | | | | ****** | |
| NO OF REFINERIES | | | | | 1 | | | | | | | | 1 | |

Table C.6.7.5

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 5
PROJECTED 1982

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| PRODUCT YIELDS | | | | | | | | | | | | | | |
| LPG | | | ****** | *** | 3 | 1.3 | 14 | 1.8 | 14 | *** | ****** | *** | 47 | 1.6 |
| CRUDE CAPACITY | | | ****** | | 170 | | 710 | | 573 | | ****** | | 2,468 | |
| NO OF REFINERIES | | | 3 | | 4 | | 9 | | 5 | | 3 | | 24 | |
| MOTOR GASOLINE | ****** | *** | ****** | *** | 74 | 30.3 | 313 | 41.7 | 438 | *** | ****** | *** | 1,128 | 38.3 |
| CRUDE CAPACITY | ****** | | ****** | | 215 | | 818 | | 787 | | ****** | | 2,947 | |
| NO OF REFINERIES | 1 | | 8 | | 5 | | 11 | | 7 | | 3 | | 35 | |
| JET FUEL - NAPHTHA BASE | | | 6 | 2.4 | 20 | 8.3 | ****** | *** | 27 | *** | ****** | *** | 84 | 2.9 |
| CRUDE CAPACITY | | | 67 | | 168 | | ****** | | 446 | | ****** | | 1,794 | |
| NO OF REFINERIES | | | 3 | | 4 | | 2 | | 4 | | 3 | | 16 | |
| JET FUEL - KEROSENE BASE | | | ****** | *** | 22 | 9.2 | 74 | 9.9 | 60 | *** | ****** | *** | 284 | 9.7 |
| CRUDE CAPACITY | | | ****** | | 177 | | 526 | | 553 | | ****** | | 2,318 | |
| NO OF REFINERIES | | | 5 | | 4 | | 7 | | 5 | | 3 | | 24 | |
| KEROSENE & #1 HEATING OIL | ****** | *** | 2 | .8 | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 20 | .7 |
| CRUDE CAPACITY | ****** | | 91 | | ****** | | ****** | | ****** | | ****** | | 1,619 | |
| NO OF REFINERIES | 1 | | 4 | | 2 | | 3 | | 2 | | 3 | | 15 | |
| DIESEL | ****** | *** | ****** | *** | 14 | 5.6 | 69 | 9.2 | ****** | *** | ****** | *** | 281 | 9.5 |
| CRUDE CAPACITY | ****** | | ****** | | 137 | | 644 | | ****** | | ****** | | 2,648 | |
| NO OF REFINERIES | 2 | | 10 | | 3 | | 8 | | 6 | | 3 | | 32 | |
| DISTILLATE #2 | ****** | *** | 9 | 3.4 | ****** | *** | 29 | 3.8 | | *** | ****** | *** | 57 | 1.9 |
| CRUDE CAPACITY | ****** | | 75 | | ****** | | 473 | | | | ****** | | 1,007 | |
| NO OF REFINERIES | 1 | | 4 | | 2 | | 7 | | | | 1 | | 15 | |
| HVY FUEL OILS (4,5,6,ETC) | ****** | *** | 98 | 37.9 | 57 | 23.4 | 159 | 21.2 | 66 | *** | ****** | *** | 665 | 22.6 |
| CRUDE CAPACITY | ****** | | 248 | | 255 | | 719 | | 679 | | ****** | | 2,896 | |
| NO OF REFINERIES | 5 | | 12 | | 6 | | 10 | | 6 | | 3 | | 42 | |
| ASPHALT | 5 | 11.7 | 14 | 5.5 | 22 | 8.9 | ****** | *** | ****** | *** | ****** | *** | 63 | 2.1 |
| CRUDE CAPACITY | 35 | | 103 | | 215 | | ****** | | ****** | | ****** | | 1,278 | |
| NO OF REFINERIES | 4 | | 5 | | 5 | | 1 | | 1 | | 2 | | 18 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 5
PROJECTED 1982

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| FINISHED LUBRICANTS | | | ****** | *** | | | | | ****** | *** | ****** | *** | 15 | .5 |
| CRUDE CAPACITY | | | ****** | | | | | | ****** | | ****** | | 605 | |
| NO OF REFINERIES | | | 1 | | | | | | 2 | | 1 | | 4 | |
| BTX | | | | | | | | | | *** | ****** | *** | ****** | *** |
| NO OF REFINERIES | | | | | | | | | | | 2 | | 2 | |
| OTHER SPECS + PETROCHM IM | | | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 26 | .9 |
| CRUDE CAPACITY | | | ****** | | | | ****** | | ****** | | ****** | | 1,356 | |
| NO OF REFINERIES | | | 1 | | | | 1 | | 3 | | 3 | | 8 | |
| FEED STOCKS SOLD | ****** | *** | 3 | 1.2 | ****** | *** | 13 | 1.7 | ****** | *** | ****** | *** | 35 | 1.2 |
| CRUDE CAPACITY | ****** | | 47 | | ****** | | 448 | | ****** | | ****** | | 1,122 | |
| NO OF REFINERIES | 2 | | 3 | | 2 | | 6 | | 3 | | 1 | | 17 | |
| MISCELLANEOUS | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | | *** | ****** | *** |
| NO OF REFINERIES | 1 | | 2 | | | | 1 | | 3 | | | | 7 | |
| BLENDING STOCKS TO OTHERS | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | | *** | 64 | 2.2 |
| CRUDE CAPACITY | ****** | | ****** | | | | ****** | | ****** | | | | 403 | |
| NO OF REFINERIES | 1 | | 1 | | | | 2 | | 2 | | | | 6 | |
| REFINERY FUEL PRODUCED | ****** | *** | 5 | 1.8 | 9 | 3.8 | 53 | 7.1 | 64 | *** | ****** | *** | 171 | 5.8 |
| CRUDE CAPACITY | ****** | | 230 | | 217 | | 818 | | 787 | | ****** | | 3,011 | |
| NO OF REFINERIES | 1 | | 10 | | 5 | | 11 | | 7 | | 3 | | 37 | |
| TOTAL (EX WAX,SULFR,COKE) | 40 | 96.5 | 254 | 98.0 | 246 | 101.3 | 761 | 101.3 | ****** | *** | ****** | *** | 2,968 | 100.9 |
| CRUDE CAPACITY | 45 | | 291 | | 255 | | 818 | | ****** | | ****** | | 3,145 | |
| NO OF REFINERIES | 5 | | 14 | | 6 | | 11 | | 7 | | 3 | | 46 | |
| SULFUR (LT/CD) | | | 33 | | 36 | | ****** | | 770 | | ****** | | 1,769 | |
| CRUDE CAPACITY | | | 78 | | 131 | | ****** | | 787 | | ****** | | 2,614 | |
| NO OF REFINERIES | | | 3 | | 3 | | 9 | | 7 | | 3 | | 25 | |

PRODUCT SLATES
BY REFINERY SIZE WITHIN PAD 5
PROJECTED 1982

| | ********** REFINERY SIZE (MBPCD) ********** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-10 ** | | ** 10-30 ** | | ** 30-50 ** | | * 50-100 ** | | * 100-175 * | | ** 175 + ** | | ** TOTAL ** | |
| | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT | MBPCD | INPUT PCT |
| COKE (ST/CD) | | | | | ****** | | 3,377 | | 8,566 | | ****** | | 15,983 | |
| CRUDE CAPACITY | | | | | ****** | | 252 | | 575 | | ****** | | 1,451 | |
| NO OF REFINERIES | | | | | 1 | | 3 | | 5 | | 2 | | 11 | |
| WAX (ST/CD) | | | | | | | | | ****** | | ****** | | ****** | |
| NO OF REFINERIES | | | | | | | | | 1 | | 1 | | 2 | |

TABLE C.7.1.1

1/1/79 CAPACITY (MBPCD) OF REFINERIES RESPONDING TO SURVEY THAT PROJECT 100% SWEET CRUDE OIL PROCESSING IN 1980 BY LOCATION AND SIZE CATEGORIES

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV&V [1] | TOTAL |
|---|---|---|---|---|---|
| 0-10 | 45 | 31 | 70 | 24 | 170 |
| 10-30 | [2] | 104 | 245 | 125 | 474 |
| 30-50 | 0 | 186 | 157 | [3] | 343 |
| 50-100 | 144 | 588 | 362 | 0 | 1,094 |
| 100+ | 0 | [2] | 665 | 0 | 665 |
| Total | 189 | 909 | 1,499 | 149 | 2,746 |

[1] PADs IV and V are merged to protect the confidentiality of PAD V Sweet Crude refiners.

[2] Merged into 50-100 class.

[3] Merged into 10-30 class.

TABLE C.7.1.2

1/1/80 CAPACITY (MBPCD) OF REFINERIES RESPONDING TO SURVEY THAT PROJECT 100% SWEET CRUDE OIL PROCESSING IN 1982 BY LOCATION AND SIZE CATEGORIES

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV&V [1] | TOTAL |
|---|---|---|---|---|---|
| 0-10 | 45 | 34 | 64 | 24 | 167 |
| 10-30 | [4] | 104 | 246 | 107 | 457 |
| 30-50 | 0 | 181 | 170 | [3] | 351 |
| 50-100 | 181 | 773 | 265 | 0 | 1,219 |
| 100+ | 232 | [2] | 665 | 0 | 897 |
| Total | 458 | 1,092 | 1,410 | 131 | 3,091 |

[1] PADs IV and V are merged to protect the confidentiality of PAD V Sweet Crude refiners.

[2] Merged into 50-100 class.

[3] Merged into 10-30 class.

[4] Merged into 100+ class.

TABLE C.7.1.3

1/1/82 CAPACITY (MBPCD) OF REFINERIES RESPONDING TO SURVEY THAT PROJECT 100% SWEET CRUDE OIL PROCESSING IN 1982 BY LOCATION AND SIZE CATEGORIES

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV&V [1] | TOTAL |
|---|---|---|---|---|---|
| 0-10 | 45 | 37 | 45 | 16 | 143 |
| 10-30 | [4] | 106 | 260 | 177 | 543 |
| 30-50 [5] | 0 | 181 | 125 | [3] | 306 |
| 50-100 | 181 | 783 | 248 | [3] | 1,212 |
| 100+ | 261 | [2] | 707 | 0 | 968 |
| Total | 487 | 1,107 | 1,385 | 193 | 3,172 |

[1] PADs IV and V are merged to protect the confidentiality of PAD V Sweet Crude refiners.

[2] Merged into 50-100 class.

[3] Merged into 10-30 class.

[4] Merged into 100+ class

[5] All have complexities greater than 2.5.

TABLE C.7.2.1

NUMBER OF REFINERIES RESPONDING TO SURVEY
THAT PROCESSED 100% SWEET CRUDE OIL PROCESSING IN 1978
BY LOCATION AND SIZE CATEGORIES

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV&V [1] | TOTAL |
|---|---|---|---|---|---|
| 0-10 | 7 | 6 | 10 | 6 | 29 |
| 10-30 | [2] | 5 | 12 | 5 | 22 |
| 30-50 | 0 | 4 | 4 | [3] | 8 |
| 50-100 | 3 | 6 | 5 | 0 | 14 |
| 100+ | 0 | [2] | 4 | 0 | 4 |
| Total | 10 | 21 | 35 | 11 | 77 |

[1] PADs IV and V are merged to protect the confidentiality of PAD V Sweet Crude refiners.

[2] Merged into 50-100 class.

[3] Merged into 10-30 class.

TABLE C.7.2.2

NUMBER OF REFINERIES RESPONDING TO SURVEY

THAT PROJECT 100% SWEET CRUDE OIL PROCESSING IN 1980

BY LOCATION AND SIZE CATEGORIES

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV&V [1] | TOTAL |
|---|---|---|---|---|---|
| 0-10 | 7 | 6 | 9 | 6 | 28 |
| 10-30 | [4] | 5 | 13 | 4 | 22 |
| 30-50 | 0 | 4 | 4 | [3] | 8 |
| 50-100 | 3 | 9 | 4 | 0 | 16 |
| 100+ | 3 | [2] | 4 | 0 | 7 |
| Total | 13 | 24 | 34 | 10 | 81 |

[1] PADs IV and V are merged to protect the confidentiality of PAD V Sweet Crude refiners.

[2] Merged into 50-100 class.

[3] Merged into 10-30 class.

[4] Merged into 100+ class.

TABLE C.7.2.3

NUMBER OF REFINERIES RESPONDING TO SURVEY
THAT PROJECT 100% SWEET CRUDE OIL PROCESSING IN 1982
BY LOCATION AND SIZE CATEGORIES

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV&V [1] | TOTAL |
|---|---|---|---|---|---|
| 0-10 | 7 | 6 | 7 | 5 | 25 |
| 10-30 | [4] | 5 | 13 | 5 | 23 |
| 30-50 [5] | 0 | 4 | 3 | [3] | 7 |
| 50-100 | 3 | 9 | 4 | [3] | 16 |
| 100+ | 3 | [2] | 4 | 0 | 7 |
| Total | 13 | 24 | 31 | 10 | 78 |

[1] PADs IV and V are merged to protect the confidentiality of PAD V Sweet Crude refiners.

[2] Merged into 50-100 class.

[3] Merged into 10-30 class.

[4] Merged into 100+ class.

[5] All have complexities greater than 2.5.

TABLE C.8.1.1

1/1/79 CAPACITY (MBPCD) OF REFINERIES RESPONDING TO SURVEY

THAT PROCESSED 100% LIGHT HIGH AND HEAVY HIGH SULFUR CRUDE OIL PROCESSING IN 1978
BY LOCATION AND SIZE CATEGORIES

| Refinery Size Category MBPCD | PAD I &II[1/] | PAD III | PAD IV & V[1/] | TOTAL |
|---|---|---|---|---|
| 0-10 | [2/] | [3/] | 34 | 65 |
| 10-30 | 79 | [3/] | 145 | 224 |
| 30-50 | 0 | 158 | [2/] | 158 |
| 50-100 | 0 | [3/] | 0 | [3/] |
| 100+ | 0 | 0 | 0 | 0 |
| Total | 79 | 189 | 179 | 447 |

[1/] PADs I and II and PADs IV and V are merged to protect the confidentiality of PAD II and PAD IV Sour Crude refiners.

[2/] Merged into 10-30 class.

[3/] Merged into 30-50 class.

TABLE C .8.1.2

1/1/80 CAPACITY (MBPCD) OF REFINERIES RESPONDING TO SURVEY
THAT PROJECT 100% LIGHT HIGH AND HEAVY HIGH SULFUR CRUDE OIL PROCESSING IN 1980
BY LOCATION AND SIZE CATEGORIES

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV&V [1] | TOTAL |
|---|---|---|---|---|---|
| 0-10 | [2] | [3] | 33 | 30 | 63 |
| 10-30 | 50 | [3] | [4] | 190 | 240 |
| 30-50 | 0 | 0 | 165 | [3] | 165 |
| 50-100 | 0 | [3] | [4] | 0 | [3],[4] |
| 100+ | 0 | 271 | 0 | 0 | 271 |
| Total | 50 | 271 | 198 | 220 | 739 |

[1] PADs IV and V are merged to protect the confidentiality of PAD IV Sour Crude refiners.

[2] Merged into 10-30 class.

[3] Merged into 100+ class.

[4] Merged into 30-50 class.

TABLE C.8.1.3

1/1/82 CAPACITY (MBPCD) OF REFINERIES RESPONDING TO SURVEY

THAT PROJECT 100% LIGHT HIGH AND HEAVY HIGH SULFUR CRUDE OIL PROCESSING IN 1982
BY LOCATION AND SIZE CATEGORIES

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV&V [1] | TOTAL |
|---|---|---|---|---|---|
| 0-10 | [2] | [3] | 29 | 30 | 59 |
| 10-30 | 58 | [3] | [4] | 164 | 222 |
| 30-50 | 0 | 0 | 191 | [2] | 191 |
| 50-100 | 0 | [3] | [4] | 0 | [3],[4] |
| 100+ | 0 | 271 | 0 | 0 | 271 |
| Total | 58 | 271 | 220 | 194 | 743 |

[1] PADs IV and V are merged to protect the confidentiality of PAD IV Sour Crude refiners.

[2] Merged into 10-30 class.

[3] Merged into 100+ class.

[4] Merged into 30-50 class.

TABLE C.8.2.1

NUMBER OF REFINERIES RESPONDING TO SURVEY
THAT PROCESSED 100% LIGHT HIGH AND HEAVY HIGH SULFUR CRUDE OIL PROCESSING IN 1976
BY LOCATION AND SIZE CATEGORIES

| Refinery Size Category MBPCD | PAD I & II[1/] | PAD III | PAD IV & V[1/] | TOTAL |
|---|---|---|---|---|
| 0-10 | [2/] | 5 | 5 | 10 |
| 10-30 | 6 | [3/] | 7 | 13 |
| 30-50 | 0 | 4 | [2/] | 4 |
| 50-100 | 0 | [3/] | 0 | [3/] |
| 100+ | 0 | 0 | 0 | 0 |
| Total | 6 | 9 | 12 | 27 |



1/ PADs I and II and PADs IV and V are merged to protect the confidentiality of PAD II and PAD IV Sour Crude refiners.

2/ Merged into 10-30 class.

3/ Merged into 30-50 class.

TABLE C.8.2.2

NUMBER OF REFINERIES RESPONDING TO SURVEY
THAT PROJECT 100% LIGHT HIGH AND HEAVY HIGH SULFUR CRUDE OIL PROCESSING IN 1980
BY LOCATION AND SIZE CATEGORIES

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV&V [1] | TOTAL |
|---|---|---|---|---|---|
| 0-10 | [2] | [3] | 5 | 3 | 8 |
| 10-30 | 4 | [3] | [4] | 9 | 13 |
| 30-50 | 0 | 0 | 4 | [2] | 4 |
| 50-100 | 0 | [3] | [4] | 0 | [3],[4] |
| 100+ | 0 | 4 | 0 | 0 | 4 |
| Total | 4 | 4 | 9 | 12 | 29 |

[1] PADs IV and V are merged to protect the confidentiality of PAD IV Sour Crude refiners.

[2] Merged into 10-30 class.

[3] Merged into 100+ class

[4] Merged into 30-50 class.

TABLE C.8.2.3

NUMBER OF REFINERIES RESPONDING TO SURVEY

THAT PROJECT 100% LIGHT HIGH AND HEAVY HIGH SULFUR CRUDE OIL PROCESSING IN 1982

BY LOCATION AND SIZE CATEGORIES

| Refinery Size Category MBPCD | PAD I | PAD II | PAD III | PAD IV&V [1] | TOTAL |
|---|---|---|---|---|---|
| 0-10 | [2] | [3] | 4 | 3 | 7 |
| 10-30 | 4 | [3] | [4] | 8 | 12 |
| 30-50 | 0 | 0 | 5 | [2] | 5 |
| 50-100 | 0 | [3] | [4] | 0 | [3],[4] |
| 100+ | 0 | 4 | 0 | 0 | 4 |
| Total | 4 | 4 | 9 | 11 | 28 |

[1] PADs IV and V are merged to protect the confidentiality of PAD IV Sour Crude refiners.

[2] Merged into 10-30 class.

[3] Merged into 100+ class.

[4] Merged into 30-50 class.

TABLE C.9.1.1.

CAPABILITY TO SUBSTITUTE CRUDE OIL OVER 0.5 WT. % SULFUR FOR CRUDE OIL OF 0.5% WT. % OR LESS UNDER PRESENTLY KNOWN ENVIRONMENTAL RESTRAINTS

U.S. Total by Location

| | | 1980 | | | 1982 | | |
|---|---|---|---|---|---|---|---|
| PAD | Type of Crude Oil | MBPCD Substitute for Sweet Crude | MBPCD Sweet Crude Dropped Out | Wt. % of Sulfur in Substitute Crude | MBPCD Substitute for Sweet Crude | MBPCD Sweet Crude Dropped Out | Wt. % of Sulfur in Substitute Crude |
| 01 | Light Medium Sulfur | 171 | 171 | .97 | 174 | 174 | .97 |
| | Heavy Medium Sulfur | 165 | 171 | .98 | 161 | 171 | .98 |
| | Light High Sulfur | 155 | 155 | 1.61 | 158 | 158 | 1.60 |
| | Heavy High Sulfur | 71 | 134 | 2.25 | 71 | 136 | 2.25 |
| 02 | Light Medium Sulfur | 183 | 192 | .83 | 191 | 191 | .83 |
| | Heavy Medium Sulfur | 77 | 105 | .91 | 57 | 74 | .89 |
| | Light High Sulfur | 78 | 115 | 1.58 | 61 | 94 | 1.59 |
| | Heavy High Sulfur | 50 | 87 | 2.37 | 17 | 50 | 1.82 |
| 03 | Light Medium Sulfur | 418 | 447 | .82 | 404 | 425 | .83 |
| | Heavy Medium Sulfur | 266 | 320 | .94 | 264 | 293 | .93 |
| | Light High Sulfur | 301 | 339 | 1.73 | 284 | 317 | 1.79 |
| | Heavy High Sulfur | 208 | 258 | 2.27 | 208 | 248 | 2.21 |
| 04 | Light Medium Sulfur | 112 | 117 | .79 | 118 | 126 | .78 |
| | Heavy Medium Sulfur | 19 | 25 | .94 | 20 | 29 | .93 |
| | Light High Sulfur | 45 | 51 | 1.62 | 51 | 60 | 1.65 |
| | Heavy High Sulfur | 25 | 34 | 2.60 | 26 | 39 | 2.51 |
| 05-08 | Light Medium Sulfur | 84 | 84 | .77 | 71 | 76 | .78 |
| | Heavy Medium Sulfur | 63 | 70 | .97 | 38 | 52 | .97 |
| | Light High Sulfur | 55 | 57 | 1.70 | 23 | 35 | 1.66 |
| | Heavy High Sulfur | 43 | 53 | 2.58 | 17 | 32 | 2.11 |
| TOTAL (01-08) | Light Medium Sulfur | 968 | 1010 | .84 | 957 | 991 | .84 |
| | Heavy Medium Sulfur | 590 | 691 | .95 | 540 | 619 | .94 |
| | Light High Sulfur | 634 | 717 | 1.67 | 577 | 664 | 1.70 |
| | Heavy High Sulfur | 397 | 566 | 2.33 | 339 | 504 | 2.21 |

Table C.9.1.2

CAPABILITY TO SUBSTITUTE CRUDE OIL OVER 0.5 WT.% SULFUR FOR CRUDE OIL OF 0.5 WT.% OR LESS UNDER PRESENTLY KNOWN ENVIRONMENTAL RESTRAINTS

U.S. Totals By Refinery Size Category

| Refinery Size | Type of Crude Oil | 1980 MBPCD Subsitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | 3 | 3 | .79 | 4 | 4 | .79 |
| | Heavy Medium Sulfur | 2 | 2 | .93 | 3 | 3 | .93 |
| | Light High Sulfur | 2 | 2 | 1.50 | 2 | 2 | 1.50 |
| | Heavy High Sulfur | 1 | 1 | 1.50 | 1 | 1 | 1.50 |
| 10-30 | Light Medium Sulfur | 46 | 46 | .78 | 50 | 50 | .78 |
| | Heavy Medium Sulfur | 25 | 27 | .87 | 25 | 27 | .87 |
| | Light High Sulfur | 21 | 21 | 1.88 | 22 | 22 | 1.87 |
| | Heavy High Sulfur | 24 | 24 | 2.09 | 24 | 24 | 2.08 |
| 30-50 | Light Medium Sulfur | 144 | 149 | .79 | 158 | 166 | .79 |
| | Heavy Medium Sulfur | 48 | 54 | .84 | 51 | 60 | .84 |
| | Light High Sulfur | 71 | 80 | 1.50 | 87 | 99 | 1.60 |
| | Heavy High Sulfur | 34 | 43 | 2.15 | 36 | 48 | 2.09 |
| 50-100 | Light Meduim Sulfur | 294 | 302 | .78 | 258 | 258 | .80 |
| | Heavy Medium Sulfur | 151 | 194 | .94 | 97 | 114 | .90 |
| | Light High Sulfur | 164 | 200 | 1.62 | 92 | 125 | 1.51 |
| | Heavy High Sulfur | 98 | 149 | 2.10 | 35 | 68 | 2.17 |
| 100-175 | Light Medium Sulfur | 226 | 246 | .96 | 223 | 248 | .95 |
| | Heavy Medium Sulfur | 129 | 151 | .97 | 118 | 150 | .98 |
| | Light High Sulfur | 156 | 179 | 1.54 | 144 | 176 | 1.53 |
| | Heavy High Sulfur | 62 | 143 | 2.04 | 52 | 139 | 1.99 |
| 175+ | Light Medium Sulfur | 254 | 263 | .84 | 264 | 266 | .84 |
| | Heavy Medium Sulfur | 235 | 263 | .98 | 246 | 266 | .97 |
| | Light High Sulfur | 221 | 235 | 1.84 | 232 | 241 | 1.91 |
| | Heavy High Sulfur | 180 | 206 | 2.63 | 192 | 224 | 2.33 |
| TOTAL | Light Medium Sulfur | 967 | 1,010 | .84 | 957 | 991 | .84 |
| | Heavy Medium Sulfur | 590 | 691 | .95 | 540 | 619 | .94 |
| | Light High Sulfur | 634 | 717 | 1.67 | 577 | 663 | 1.70 |
| | Heavy High Sulfur | 397 | 566 | 2.33 | 339 | 504 | 2.21 |

TABLE C.9.1.3
CAPABILITY TO SUBSTITUTE CRUDE OIL OVER 0.5 WT.% SULFUR FOR CRUDE OIL OF 0.5 WT.% OR LESS
UNDER PRESENTLY KNOWN ENVIRONMENTAL RESTRAINTS
U.S. TOTALS BY COMPANY SIZE

| Company Size (MBPCD) | Type of Crude Oil | 1980 MBPCD Substitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | 2 | 2 | .85 | 2 | 2 | .85 |
| | Heavy Medium Sulfur | 2 | 2 | 1.00 | 2 | 2 | 1.00 |
| | Light High Sulfur | 1 | 1 | 1.50 | 1 | 1 | 1.50 |
| | Heavy High Sulfur | 1 | 1 | 1.50 | 1 | 1 | 1.50 |
| 10-30 | Light Medium Sulfur | 28 | 28 | .80 | 32 | 32 | .80 |
| | Heavy Medium Sulfur | 22 | 24 | .86 | 23 | 25 | .86 |
| | Light High Sulfur | * | * | * | 20 | 20 | 1.86 |
| | Heavy High Sulfur | * | * | * | 18 | 18 | 1.94 |
| 30-50 | Light Medium Sulfur | 35 | 40 | .76 | 44 | 52 | .76 |
| | Heavy Medium Sulfur | 20 | 26 | .78 | 24 | 33 | .79 |
| | Light High Sulfur | * | * | * | 40 | 52 | 1.69 |
| | Heavy High Sulfur | * | * | * | 15 | 25 | 1.45 |
| 50-100 | Light Medium Sulfur | 79 | 79 | .79 | 111 | 111 | .79 |
| | Heavy Medium Sulfur | 26 | 29 | .83 | 34 | 37 | .87 |
| | Light High Sulfur | 25 | 25 | 1.56 | 32 | 32 | 1.54 |
| | Heavy High Sulfur | 13 | 14 | 2.10 | 14 | 15 | 2.07 |
| 100-175 | Light Medium Sulfur | 61 | 81 | .81 | 60 | 80 | .81 |
| | Heavy Medium Sulfur | 44 | 44 | .78 | 43 | 43 | .79 |
| | Light High Sulfur | 47 | 67 | 1.38 | 46 | 66 | 1.38 |
| | Heavy High Sulfur | 18 | 18 | 2.00 | 18 | 18 | 2.00 |
| 175+ | Light Medium Sulfur | 763 | 781 | .85 | 708 | 714 | .86 |
| | Heavy Medium Sulfur | 475 | 566 | .98 | 414 | 479 | .98 |
| | Light High Sulfur | 526 | 579 | 1.71 | 439 | 493 | 1.74 |
| | Heavy High Sulfur | 335 | 496 | 2.42 | 274 | 427 | 2.30 |
| TOTAL | Light Medium Sulfur | 967 | 1010 | .84 | 957 | 991 | .84 |
| | Heavy Medium Sulfur | 590 | 691 | .95 | 540 | 619 | .94 |
| | Light High Sulfur | 634 | 717 | 1.67 | 577 | 663 | 1.70 |
| | Heavy High Sulfur | 397 | 566 | 2.33 | 339 | 504 | 2.21 |

Table C.9.1.4
CAPABILITY TO SUBSTITUTE CRUDE OIL OVER 0.5 WT.% SULFUR FOR CRUDE OIL OF 0.5 WT.% OR LESS
UNDER PRESENTLY KNOWN ENVIRONMENTAL RESTRAINTS

By Refinery Size Within PAD I

| Refinery Size (MBPCD) | Type of Crude Oil | 1980 MBPCD Substitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| 10-30 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 30-50 | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| 50-100 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 100-175 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 175+ | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | | | | | | |
| TOTAL | Light Medium Sulfur | 171 | 171 | .97 | 174 | 174 | .97 |
| | Heavy Medium Sulfur | 165 | 171 | .98 | 161 | 171 | .98 |
| | Light High Sulfur | 155 | 155 | 1.61 | 158 | 158 | 1.60 |
| | Heavy High Sulfur | 71 | 134 | 2.25 | 71 | 136 | 2.25 |

Table C.9.1.5
CAPABILITY TO SUBSTITUTE CRUDE OIL OVER 0.5 WT.% SULFUR FOR CRUDE OIL OF 0.5 WT.% OR LESS
UNDER PRESENTLY KNOWN ENVIRONMENTAL RESTRAINTS

By Refinery Size Within PAD II

| Refinery Size (MBPCD) | Type of Crude Oil | 1980 MBPCD Substitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| 10-30 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 30-50 | Light Medium Sulfur | 34 | 34 | .81 | 42 | 42 | .81 |
| | Heavy Medium Sulfur | 24 | 24 | .80 | 25 | 25 | .82 |
| | Light High Sulfur | 21 | 21 | 1.38 | 30 | 30 | 1.63 |
| | Heavy High Sulfur | 10 | 10 | 1.69 | 10 | 10 | 1.66 |
| 50-100 | Light Medium Sulfur | 110 | 118 | .87 | 129 | 129 | .85 |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | 27 | 63 | 1.64 | 25 | 57 | 1.51 |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 100-175 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 175+ | Light Medium Sulfur | * | * | * | | | |
| | Heavy Medium Sulfur | * | * | * | | | |
| | Light High Sulfur | * | * | * | | | |
| | Heavy High Sulfur | * | * | * | | | |
| TOTAL | Light Medium Sulfur | 183 | 192 | .83 | 191 | 191 | .83 |
| | Heavy Medium Sulfur | 77 | 105 | .91 | 57 | 74 | .89 |
| | Light High Sulfur | 78 | 115 | 1.58 | 61 | 94 | 1.59 |
| | Heavy High Sulfur | 50 | 87 | 2.37 | 17 | 50 | 1.82 |

Table C.9.1.6
CAPABILITY TO SUBSTITUTE CRUDE OIL OVER 0.5 WT.% SULFUR FOR CRUDE OIL OF 0.5 WT.% OR LESS
UNDER PRESENTLY KNOWN ENVIRONMENTAL RESTRAINTS

By Refinery Size Within PAD III

| Refinery Size (MBPCD) | Type of Crude Oil | 1980 MBPCD Substitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| 10-30 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 30-50 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 50-100 | Light Medium Sulfur | 118 | 118 | .72 | 55 | 55 | .76 |
| | Heavy Medium Sulfur | 80 | 97 | .92 | 31 | 34 | .80 |
| | Light High Sulfur | 104 | 104 | 1.60 | 40 | 40 | 1.44 |
| | Heavy High Sulfur | 62 | 77 | 1.98 | 12 | 14 | 1.92 |
| 100-175 | Light Medium Sulfur | 121 | 141 | .95 | 115 | 135 | .95 |
| | Heavy Medium Sulfur | 37 | 46 | .93 | 31 | 39 | .92 |
| | Light High Sulfur | 54 | 74 | 1.56 | 48 | 68 | 1.57 |
| | Heavy High Sulfur | 30 | 38 | 1.76 | 25 | 33 | 1.77 |
| 175+ | Light Medium Sulfur | 158 | 168 | .81 | 210 | 211 | .80 |
| | Heavy Medium Sulfur | 139 | 168 | .97 | 192 | 211 | .97 |
| | Light High Sulfur | 133 | 148 | 1.91 | 185 | 195 | 1.93 |
| | Heavy High Sulfur | 110 | 137 | 2.58 | 164 | 195 | 2.30 |
| TOTAL | Light Medium Sulfur | 418 | 447 | .82 | 403 | 425 | .83 |
| | Heavy Medium Sulfur | 266 | 320 | .94 | 264 | 293 | .93 |
| | Light High Sulfur | 301 | 339 | 1.73 | 284 | 317 | 1.79 |
| | Heavy High Sulfur | 208 | 258 | 2.27 | 208 | 248 | 2.21 |

Table C.9.1.7
CAPABILITY TO SUBSTITUTE CRUDE OIL OVER 0.5 WT.% SULFUR FOR CRUDE OIL OF 0.5 WT.% OR LESS
UNDER PRESENTLY KNOWN ENVIRONMENTAL RESTRAINTS

By Refinery Size Within PAD IV

| Refinery Size (MBPCD) | Type of Crude Oil | 1980 MBPCD Substitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 10-30 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 30-50 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 50-100 | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| 100-175 | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| 175+ | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| TOTAL | Light Medium Sulfur | 183 | 192 | .83 | 191 | 191 | .83 |
| | Heavy Medium Sulfur | 77 | 105 | .91 | 57 | 74 | .89 |
| | Light High Sulfur | 78 | 115 | 1.58 | 61 | 94 | 1.59 |
| | Heavy High Sulfur | | 87 | 2.37 | 17 | 50 | 1.82 |

Table C.9.1.8
CAPABILITY TO SUBSTITUTE CRUDE OIL OVER 0.5 WT.% SULFUR FOR CRUDE OIL OF 0.5 WT.% OR LESS
UNDER PRESENTLY KNOWN ENVIRONMENTAL RESTRAINTS

By Refinery Size Within PAD V

| Refinery Size (MBPCD) | Type of Crude Oil | 1980 MBPCD Substitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| 10-30 | Light Medium Sulfur | | | | * | * | * |
| | Heavy Medium Sulfur | | | | * | * | * |
| | Light High Sulfur | | | | * | * | * |
| | Heavy High Sulfur | | | | * | * | * |
| 30-50 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 50-100 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | 33 | 33 | 1.00 | 30 | 30 | .99 |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 100-175 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 175+ | Light Medium Sulfur | * | * | * | | | |
| | Heavy Medium Sulfur | * | * | * | | | |
| | Light High Sulfur | * | * | * | | | |
| | Heavy High Sulfur | * | * | * | | | |
| TOTAL | Light Medium Sulfur | 84 | 84 | .77 | 71 | 76 | .78 |
| | Heavy Medium Sulfur | 63 | 70 | .97 | 38 | 52 | .97 |
| | Light High Sulfur | 55 | 57 | 1.70 | 23 | 35 | 1.66 |
| | Heavy High Sulfur | 43 | 53 | 2.58 | 17 | 32 | 2.11 |

# TABLE C.9.2.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

## ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL BY REFINERY SIZE

1978
ALL GEOGRAPHIC REGIONS

| REFINERY CAPACITY | * 0-10 ** CRUDE CAP MBPCD | NO OF REF | * 10-30 * CRUDE CAP MBPCD | NO OF REF | * 30-50 * CRUDE CAP MBPCD | NO OF REF | * 50-100 * CRUDE CAP MBPCD | NO OF REF | **100-175* CRUDE CAP MBPCD | NO OF REF | * 175 + * CRUDE CAP MBPCD | NO OF REF | * TOTAL * CRUDE CAP MBPCD | NO OF REF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 171 | 31 | 726 | 38 | 1,020 | 23 | 2,586 | 35 | 2,391 | 19 | 5,929 | 20 | 12,823 | 166 |
| SULFUR CNTENT OF REF FUEL | 97 | 17 | 456 | 23 | 678 | 16 | 1,743 | 24 | 1,715 | 13 | 3,397 | 11 | 8,085 | 104 |
| AIR EMISSIONS | 96 | 16 | 509 | 25 | 815 | 18 | 2,023 | 28 | 2,182 | 17 | 3,854 | 13 | 9,478 | 117 |
| EFFLUENT WATER QUALITY | 67 | 11 | 245 | 12 | 166 | 4 | 352 | 6 | 111 | 1 | | | 941 | 34 |
| SULFUR RECOVERY CAPACITY | | | | | | | 97 | 1 | ****** | *** | ****** | *** | 610 | 5 |
| METALLURGY | 61 | 11 | 371 | 19 | 416 | 10 | 1,224 | 18 | 977 | 8 | 3,884 | 12 | 6,933 | 78 |
| SULFUR PLANT LIMITATION | | | | | ****** | *** | ****** | *** | | | ****** | *** | 681 | 4 |

# TABLE C.9.2.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

## ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL BY REFINERY SIZE

1980
ALL GEOGRAPHIC REGIONS

| REFINERY CAPACITY | * 0-10 ** CRUDE CAP MBPCD | NO OF REF | * 10-30 * CRUDE CAP MBPCD | NO OF REF | * 30-50 * CRUDE CAP MBPCD | NO OF REF | * 50-100 * CRUDE CAP MBPCD | NO OF REF | **100-175* CRUDE CAP MBPCD | NO OF REF | * 175 + * CRUDE CAP MBPCD | NO OF REF | * TOTAL * CRUDE CAP MBPCD | NO OF REF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 182 | 28 | 701 | 38 | 1,095 | 25 | 2,752 | 38 | 2,515 | 20 | 5,991 | 20 | 13,236 | 169 |
| SULFUR CNTENT OF REF FUEL | 104 | 16 | 520 | 26 | 765 | 18 | 1,673 | 24 | 1,559 | 12 | 3,452 | 11 | 8,073 | 107 |
| AIR EMISSIONS | 105 | 16 | 562 | 28 | 937 | 21 | 2,003 | 28 | 1,906 | 15 | 3,456 | 12 | 8,968 | 120 |
| EFFLUENT WATER QUALITY | 71 | 11 | 234 | 12 | 216 | 5 | 351 | 6 | 111 | 1 | 453 | 1 | 1,436 | 36 |
| SULFUR RECOVERY CAPACITY | | | | | | | ****** | *** | ****** | *** | | | 425 | 4 |
| METALLURGY | 61 | 11 | 376 | 19 | 369 | 9 | 1,272 | 19 | 983 | 8 | 3,924 | 12 | 6,984 | 78 |
| SULFUR PLANT LIMITATION | | | | | ****** | *** | ****** | *** | | | ****** | *** | 680 | 4 |

# TABLE C.9.2.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

## ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL BY REFINERY SIZE

1982
ALL GEOGRAPHIC REGIONS

| REFINERY CAPACITY | * 0-10 ** | | * 10-30 * | | * 30-50 * | | * 50-100 * | | **100-175* | | * 175 + * | | * TOTAL * | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 164 | 25 | 765 | 41 | 1,062 | 24 | 2,723 | 38 | 2,697 | 21 | 6,467 | 21 | 13,877 | 170 |
| SULFUR CNTENT OF REF FUEL | 92 | 14 | 551 | 28 | 729 | 17 | 1,699 | 25 | 1,626 | 12 | 3,816 | 12 | 8,513 | 108 |
| AIR EMISSIONS | 93 | 14 | 588 | 30 | 900 | 20 | 2,124 | 30 | 2,088 | 16 | 4,370 | 14 | 10,162 | 124 |
| EFFLUENT WATER QUALITY | 77 | 11 | 234 | 12 | 172 | 4 | 467 | 8 | 272 | 2 | | | 1,222 | 37 |
| SULFUR RECOVERY CAPACITY | | | | | | | | | ****** | *** | ****** | *** | 551 | 4 |
| METALLURGY | 47 | 9 | 380 | 19 | 375 | 9 | 1,076 | 17 | 1,145 | 9 | 4,309 | 13 | 7,332 | 76 |
| SULFUR PLANT LIMITATION | | | | | ****** | *** | ****** | *** | | | ****** | *** | 707 | 4 |

Table C.9.3.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/22/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY LOCATION

1978
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 1,387 | 14 | 3,000 | 45 | 5,476 | 59 | 326 | 15 | 2,634 | 33 | 12,823 | 166 |
| SULFUR CNTENT OF REF FUEL | 1,085 | 11 | 1,947 | 25 | 2,591 | 34 | 281 | 13 | 2,181 | 21 | 8,085 | 104 |
| AIR EMISSIONS | 1,063 | 9 | 2,486 | 34 | 3,968 | 40 | 331 | 13 | 1,629 | 21 | 9,478 | 117 |
| EFFLUENT WATER QUALITY | 42 | 1 | 129 | 6 | 508 | 18 | 53 | 5 | 209 | 4 | 941 | 34 |
| SULFUR RECOVERY CAPACITY | ****** | *** | | | ****** | *** | | | ****** | *** | 610 | 5 |
| METALLURGY | 368 | 4 | 1,820 | 26 | 4,195 | 34 | 96 | 6 | 453 | 8 | 6,933 | 78 |
| SULFUR PLANT LIMITATION | ****** | *** | ****** | *** | ****** | *** | | | ****** | *** | 681 | 4 |

Table C.9.3.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/22/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY LOCATION

1980
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 1,251 | 13 | 3,121 | 45 | 5,799 | 62 | 353 | 16 | 2,712 | 33 | 13,236 | 169 |
| SULFUR CNTENT OF REF FUEL | 809 | 9 | 2,081 | 26 | 2,565 | 33 | 338 | 15 | 2,281 | 24 | 8,073 | 107 |
| AIR EMISSIONS | 882 | 8 | 2,619 | 35 | 3,339 | 38 | 406 | 16 | 1,723 | 23 | 8,968 | 120 |
| EFFLUENT WATER QUALITY | 42 | 1 | 132 | 6 | 990 | 19 | 53 | 5 | 219 | 5 | 1,436 | 36 |
| SULFUR RECOVERY CAPACITY | | | | | ****** | *** | | | ****** | *** | 425 | 4 |
| METALLURGY | 363 | 4 | 1,875 | 26 | 4,197 | 34 | 96 | 6 | 453 | 8 | 6,984 | 78 |
| SULFUR PLANT LIMITATION | ****** | *** | ****** | *** | ****** | *** | | | ****** | *** | 680 | 4 |

Table C.9.3.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/22/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY LOCATION

1982
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 1,285 | 13 | 3,184 | 45 | 6,279 | 62 | 388 | 17 | 2,741 | 33 | 13,877 | 170 |
| SULFUR CNTENT OF REF FUEL | 820 | 9 | 2,080 | 26 | 2,951 | 33 | 343 | 15 | 2,319 | 25 | 8,513 | 108 |
| AIR EMISSIONS | 909 | 8 | 2,688 | 35 | 4,247 | 39 | 410 | 16 | 1,908 | 26 | 10,162 | 124 |
| EFFLUENT WATER QUALITY | 42 | 1 | 202 | 7 | 670 | 18 | 54 | 5 | 255 | 6 | 1,222 | 37 |
| SULFUR RECOVERY CAPACITY | | | | | ****** | *** | | | ****** | *** | 551 | 4 |
| METALLURGY | 270 | 3 | 1,933 | 26 | 4,559 | 34 | 93 | 5 | 477 | 8 | 7,332 | 76 |
| SULFUR PLANT LIMITATION | ****** | *** | ****** | *** | ****** | *** | | | ****** | *** | 707 | 4 |

TABLE C.9.4.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY COMPANY SIZE

1978
ALL GEOGRAPHIC REGIONS

| CAPACITY | * 0-10 ** CRUDE CAP MBPCD | NO OF REF | * 10-30 * CRUDE CAP MBPCD | NO OF REF | * 30-50 * CRUDE CAP MBPCD | NO OF REF | * 50-100 * CRUDE CAP MBPCD | NO OF REF | **100-175* CRUDE CAP MBPCD | NO OF REF | * 175 + * CRUDE CAP MBPCD | NO OF REF | * TOTAL * CRUDE CAP MBPCD | NO OF REF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 113 | 22 | 529 | 31 | 427 | 12 | 609 | 14 | 730 | 8 | 10,416 | 79 | 12,823 | 166 |
| SULFUR CNTENT OF REF FUEL | 52 | 10 | 326 | 20 | ****** | *** | 562 | 13 | ****** | *** | 6,679 | 50 | 8,085 | 104 |
| AIR EMISSIONS | 50 | 9 | 368 | 22 | 370 | 9 | 354 | 10 | 543 | 6 | 7,793 | 61 | 9,478 | 117 |
| EFFLUENT WATER QUALITY | 29 | 5 | 185 | 12 | ****** | *** | 265 | 7 | ****** | *** | 316 | 5 | 941 | 34 |
| SULFUR RECOVERY CAPACITY | | | | | | | | | ****** | *** | ****** | *** | 610 | 5 |
| METALLURGY | 37 | 7 | 248 | 16 | ****** | *** | 556 | 13 | ****** | *** | 5,902 | 39 | 6,933 | 78 |
| SULFUR PLANT LIMITATION | | | | | | | | | | | 681 | 4 | 681 | 4 |

TABLE C.9.4.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY COMPANY SIZE

1980
ALL GEOGRAPHIC REGIONS

| CAPACITY | 0-10 CRUDE CAP MBPCD | 0-10 NO OF REF | 10-30 CRUDE CAP MBPCD | 10-30 NO OF REF | 30-50 CRUDE CAP MBPCD | 30-50 NO OF REF | 50-100 CRUDE CAP MBPCD | 50-100 NO OF REF | 100-175 CRUDE CAP MBPCD | 100-175 NO OF REF | 175 + CRUDE CAP MBPCD | 175 + NO OF REF | TOTAL CRUDE CAP MBPCD | TOTAL NO OF REF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 124 | 19 | 503 | 31 | 547 | 15 | 727 | 16 | 735 | 8 | 10,600 | 80 | 13,236 | 169 |
| SULFUR CNTENT OF REF FUEL | 58 | 9 | 360 | 22 | ****** | *** | 605 | 15 | ****** | *** | 6,499 | 48 | 8,073 | 107 |
| AIR EMISSIONS | 58 | 9 | 391 | 24 | 490 | 12 | 442 | 12 | 543 | 6 | 7,044 | 57 | 8,968 | 120 |
| EFFLUENT WATER QUALITY | 33 | 5 | 174 | 12 | ****** | *** | 265 | 7 | ****** | *** | 768 | 6 | 1,436 | 36 |
| SULFUR RECOVERY CAPACITY | | | | | | | | | ****** | *** | ****** | *** | 425 | 4 |
| METALLURGY | 37 | 7 | 253 | 16 | ****** | *** | 564 | 13 | ****** | *** | 5,942 | 39 | 6,984 | 78 |
| SULFUR PLANT LIMITATION | | | | | | | | | | | 680 | 4 | 680 | 4 |

TABLE C.9.4.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY COMPANY SIZE

1982
ALL GEOGRAPHIC REGIONS

| REFINERY CAPACITY | * 0-10 ** CRUDE CAP MBPCD | NO OF REF | * 10-30 * CRUDE CAP MBPCD | NO OF REF | * 30-50 * CRUDE CAP MBPCD | NO OF REF | * 50-100 * CRUDE CAP MBPCD | NO OF REF | **100-175* CRUDE CAP MBPCD | NO OF REF | * 175 + * CRUDE CAP MBPCD | NO OF REF | * TOTAL * CRUDE CAP MBPCD | NO OF REF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 108 | 17 | 535 | 32 | 607 | 16 | 813 | 17 | 735 | 8 | 11,080 | 80 | 13,877 | 170 |
| SULFUR CNTENT OF REF FUEL | 49 | 8 | 388 | 23 | ****** | *** | 715 | 16 | ****** | *** | 6,753 | 47 | 8,513 | 108 |
| AIR EMISSIONS | 49 | 8 | 414 | 25 | 550 | 13 | 553 | 13 | 543 | 6 | 8,053 | 59 | 10,162 | 124 |
| EFFLUENT WATER QUALITY | 34 | 5 | 180 | 12 | ****** | *** | 375 | 8 | ****** | *** | 388 | 5 | 1,222 | 37 |
| SULFUR RECOVERY CAPACITY | | | | | | | | | ****** | *** | ****** | *** | 551 | 4 |
| METALLURGY | 27 | 6 | 253 | 15 | ****** | *** | 596 | 13 | ****** | *** | 6,217 | 38 | 7,332 | 76 |
| SULFUR PLANT LIMITATION | | | | | | | | | | | 707 | 4 | 707 | 4 |

Table C.9.5.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/11/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY COMPLEXITY FACTOR

1978
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-3 | | 3-5 | | 5-7 | | 7-9 | | 9-11 | | 11 + | | TOTAL | |
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 861 | 53 | 1,124 | 24 | 3,860 | 38 | 4,961 | 34 | 932 | 8 | 1,085 | 9 | 12,823 | 166 |
| SULFUR CNTENT OF REF FUEL | 414 | 28 | 674 | 19 | 2,301 | 23 | 3,520 | 22 | 619 | 6 | 558 | 6 | 8,085 | 104 |
| AIR EMISSIONS | 611 | 31 | 755 | 18 | 2,816 | 29 | 3,523 | 24 | 897 | 8 | 875 | 7 | 9,478 | 117 |
| EFFLUENT WATER QUALITY | 305 | 19 | 262 | 8 | 116 | 3 | ****** | *** | | | ****** | *** | 941 | 34 |
| SULFUR RECOVERY CAPACITY | | | | | ****** | *** | ****** | *** | ****** | *** | | | 610 | 5 |
| METALLURGY | 301 | 20 | 476 | 13 | 2,618 | 22 | 2,099 | 13 | 703 | 4 | 735 | 6 | 6,933 | 78 |
| SULFUR PLANT LIMITATION | | | | | ****** | *** | ****** | *** | | | ****** | *** | 681 | 4 |

Table C.9.5.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/11/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY COMPLEXITY FACTOR

1980
ALL GEOGRAPHIC REGIONS

| | ********** COMPLEXITY FACTOR ********** | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ** 0-3 ** | | ** 3-5 ** | | ** 5-7 ** | | ** 7-9 ** | | ** 9-11 ** | | ** 11 + ** | | * TOTAL * | |
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 944 | 50 | 644 | 19 | 4,452 | 47 | 4,840 | 34 | 1,273 | 10 | 1,084 | 9 | 13,236 | 169 |
| SULFUR CNTENT OF REF FUEL | 597 | 32 | 333 | 13 | 2,315 | 26 | 3,452 | 23 | 960 | 8 | 417 | 5 | 8,073 | 107 |
| AIR EMISSIONS | 668 | 32 | 450 | 14 | 2,510 | 33 | 3,229 | 24 | 1,237 | 10 | 874 | 7 | 8,968 | 120 |
| EFFLUENT WATER QUALITY | 292 | 19 | 76 | 5 | 695 | 6 | ****** | *** | ****** | *** | ****** | *** | 1,436 | 36 |
| SULFUR RECOVERY CAPACITY | | | | | | | ****** | *** | ****** | *** | | | 425 | 4 |
| METALLURGY | 261 | 17 | 299 | 10 | 2,847 | 28 | 1,709 | 11 | 849 | 5 | 1,019 | 7 | 6,984 | 78 |
| SULFUR PLANT LIMITATION | | | | | ****** | *** | ****** | *** | | | ****** | *** | 680 | 4 |

Table C.9.5.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/11/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY COMPLEXITY FACTOR

1982
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-3 | | 3-5 | | 5-7 | | 7-9 | | 9-11 | | 11 + | | TOTAL | |
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 912 | 47 | 827 | 20 | 4,218 | 44 | 5,621 | 39 | 1,194 | 11 | 1,106 | 9 | 13,877 | 170 |
| SULFUR CNTENT OF REF FUEL | 563 | 30 | 518 | 14 | 2,324 | 26 | 4,026 | 26 | 658 | 6 | 425 | 6 | 8,513 | 108 |
| AIR EMISSIONS | 612 | 29 | 731 | 18 | 2,707 | 31 | 4,077 | 28 | 1,039 | 10 | 997 | 8 | 10,162 | 124 |
| EFFLUENT WATER QUALITY | 251 | 17 | 319 | 7 | 224 | 5 | ****** | *** | | | ****** | *** | 1,222 | 37 |
| SULFUR RECOVERY CAPACITY | | | | | | | ****** | *** | ****** | *** | | | 551 | 4 |
| METALLURGY | 234 | 14 | 488 | 11 | 2,536 | 24 | 2,617 | 17 | 424 | 4 | 1,033 | 6 | 7,332 | 76 |
| SULFUR PLANT LIMITATION | | | | | ****** | *** | ****** | *** | | | ****** | *** | 707 | 4 |

Table C.9.6.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 1

1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 21 | 4 | | | | | 345 | 5 | ****** | *** | ****** | *** | 1,387 | 14 |
| SULFUR CNTENT OF REF FUEL | ****** | *** | | | | | 247 | 4 | ****** | *** | ****** | *** | 1,085 | 11 |
| AIR EMISSIONS | ****** | *** | | | | | ****** | *** | 480 | 3 | ****** | *** | 1,063 | 9 |
| EFFLUENT WATER QUALITY | | | | | | | 42 | 1 | | | | | 42 | 1 |
| SULFUR RECOVERY CAPACITY | | | | | | | | | | | ****** | *** | ****** | *** |
| METALLURGY | | | | | | | ****** | *** | | | ****** | *** | 368 | 4 |
| SULFUR PLANT LIMITATION | | | | | | | | | | | ****** | *** | ****** | *** |

Table C.9.6.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 2

1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 29 | 5 | 160 | 8 | 460 | 10 | 950 | 14 | 647 | 5 | 755 | 3 | 3,000 | 45 |
| SULFUR CNTENT OF REF FUEL | ****** | *** | 99 | 5 | 260 | 6 | 465 | 7 | ****** | *** | 858 | 3 | 1,947 | 25 |
| AIR EMISSIONS | 15 | 3 | 109 | 6 | 360 | 8 | 736 | 11 | 407 | 3 | 858 | 3 | 2,486 | 34 |
| EFFLUENT WATER QUALITY | ****** | *** | 61 | 3 | | | ****** | *** | | | | | 129 | 6 |
| METALLURGY | ****** | *** | 126 | 6 | 228 | 5 | 352 | 6 | 524 | 4 | ****** | *** | 1,820 | 26 |
| SULFUR PLANT LIMITATION | | | | | ****** | *** | | | | | | | ****** | *** |

Table C.9.6.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 3

1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 69 | 12 | 295 | 16 | 224 | 6 | 728 | 9 | 619 | 5 | 3,542 | 11 | 5,476 | 59 |
| SULFUR CNTENT OF REF FUEL | 48 | 7 | 202 | 10 | ****** | *** | 631 | 8 | ****** | *** | 1,404 | 4 | 2,591 | 34 |
| AIR EMISSIONS | ****** | *** | 194 | 10 | ****** | *** | 628 | 8 | 759 | 6 | 2,199 | 7 | 3,968 | 40 |
| EFFLUENT WATER QUALITY | ****** | *** | 97 | 5 | ****** | *** | ****** | *** | | | | | 508 | 18 |
| SULFUR RECOVERY CAPACITY | | | | | | | ****** | *** | ****** | *** | | | ****** | *** |
| METALLURGY | ****** | *** | 162 | 9 | 107 | 3 | 538 | 7 | ****** | *** | 3,124 | 9 | 4,195 | 34 |
| SULFUR PLANT LIMITATION | | | | | | | | | | | ****** | *** | ****** | *** |

Table C.9.6.4

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 4

1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 24 | 5 | 102 | 6 | 200 | 4 | | | | | | | 326 | 15 |
| SULFUR CNTENT OF REF FUEL | 19 | 4 | 90 | 5 | 173 | 4 | | | | | | | 281 | 13 |
| AIR EMISSIONS | 19 | 4 | 107 | 5 | 206 | 4 | | | | | | | 331 | 13 |
| EFFLUENT WATER QUALITY | ****** | *** | ****** | *** | | | | | | | | | 53 | 5 |
| METALLURGY | 14 | 3 | ****** | *** | ****** | *** | | | | | | | 96 | 6 |

Table C.9.6.5

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 5

1978

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 29 | 5 | 169 | 8 | 137 | 3 | 564 | 7 | ****** | *** | ****** | *** | 2,634 | 33 |
| SULFUR CNTENT OF REF FUEL | ****** | *** | 65 | 3 | ****** | *** | 401 | 5 | 661 | 6 | ****** | *** | 2,181 | 21 |
| AIR EMISSIONS | ****** | *** | 99 | 4 | ****** | *** | 476 | 6 | 537 | 5 | ****** | *** | 1,629 | 21 |
| EFFLUENT WATER QUALITY | | | ****** | *** | ****** | *** | | | ****** | *** | | | 209 | 4 |
| SULFUR RECOVERY CAPACITY | | | | | | | | | ****** | *** | | | ****** | *** |
| METALLURGY | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | | | 453 | 8 |
| SULFUR PLANT LIMITATION | | | | | | | ****** | *** | | | | | ****** | *** |

Table C.9.7.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 1

1980

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | ****** | *** | ****** | *** | | | 390 | 6 | ****** | *** | ****** | *** | 1,251 | 13 |
| SULFUR CNTENT OF REF FUEL | | | ****** | *** | | | 292 | 5 | ****** | *** | | | 809 | 9 |
| AIR EMISSIONS | | | ****** | *** | | | 183 | 3 | ****** | *** | ****** | *** | 882 | 8 |
| EFFLUENT WATER QUALITY | | | | | | | 42 | 1 | | | | | 42 | 1 |
| SULFUR RECOVERY CAPACITY | | | | | | | | | | | | | | |
| METALLURGY | | | | | | | ****** | *** | | | ****** | *** | 363 | 4 |
| SULFUR PLANT LIMITATION | | | | | | | | | | | ****** | *** | ****** | *** |

Table C.9.7.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 2

1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 29 | 5 | 163 | 8 | 413 | 9 | 1,011 | 15 | 511 | 4 | 995 | 4 | 3,121 | 45 |
| SULFUR CNTENT OF REF FUEL | ****** | *** | 123 | 6 | 263 | 6 | 467 | 7 | ****** | *** | 1,098 | 4 | 2,081 | 26 |
| AIR EMISSIONS | 15 | 3 | ****** | *** | 363 | 8 | 738 | 11 | ****** | *** | 1,098 | 4 | 2,619 | 35 |
| EFFLUENT WATER QUALITY | ****** | *** | 64 | 3 | | | ****** | *** | | | | | 132 | 6 |
| METALLURGY | ****** | *** | 128 | 6 | 181 | 4 | 406 | 7 | 530 | 4 | ****** | *** | 1,875 | 26 |
| SULFUR PLANT LIMITATION | | | | | ****** | *** | | | | | | | ****** | *** |

Table C.9.7.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 3

1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 74 | 11 | 297 | 17 | 274 | 7 | 727 | 9 | 878 | 7 | 3,549 | 11 | 5,799 | 62 |
| SULFUR CNTENT OF REF FUEL | ****** | *** | 189 | 10 | ****** | *** | 454 | 6 | ****** | *** | ****** | *** | 2,565 | 33 |
| AIR EMISSIONS | 37 | 5 | 180 | 10 | 206 | 5 | 551 | 7 | 619 | 5 | 1,746 | 6 | 3,339 | 38 |
| EFFLUENT WATER QUALITY | 32 | 5 | 84 | 5 | ****** | *** | ****** | *** | | | 453 | 1 | 990 | 19 |
| SULFUR RECOVERY CAPACITY | | | | | | | ****** | *** | ****** | *** | | | ****** | *** |
| METALLURGY | ****** | *** | 164 | 9 | 107 | 3 | 538 | 7 | ****** | *** | 3,124 | 9 | 4,197 | 34 |
| SULFUR PLANT LIMITATION | | | | | | | | | | | ****** | *** | ****** | *** |

Table C.9.7.4

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 4

1980

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 33 | 6 | 86 | 5 | 235 | 5 | | | | | | | 353 | 16 |
| SULFUR CNTENT OF REF FUEL | 28 | 5 | 103 | 5 | 208 | 5 | | | | | | | 338 | 15 |
| AIR EMISSIONS | 28 | 5 | 138 | 6 | 241 | 5 | | | | | | | 406 | 16 |
| EFFLUENT WATER QUALITY | ****** | *** | ****** | *** | | | | | | | | | 53 | 5 |
| METALLURGY | 14 | 3 | ****** | *** | ****** | *** | | | | | | | 96 | 6 |

Table C.9.7.5

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 5

1980

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | ****** | *** | ****** | *** | 174 | 4 | 624 | 8 | ****** | *** | ****** | *** | 2,712 | 33 |
| SULFUR CNTENT OF REF FUEL | 25 | 3 | ****** | *** | ****** | *** | 461 | 6 | 661 | 6 | ****** | *** | 2,281 | 24 |
| AIR EMISSIONS | 25 | 3 | ****** | *** | 128 | 3 | 532 | 7 | 537 | 5 | ****** | *** | 1,723 | 23 |
| EFFLUENT WATER QUALITY | ****** | *** | ****** | *** | ****** | *** | | | ****** | *** | | | 219 | 5 |
| SULFUR RECOVERY CAPACITY | | | | | | | | | ****** | *** | | | ****** | *** |
| METALLURGY | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | | | 453 | 8 |
| SULFUR PLANT LIMITATION | | | | | | | ****** | *** | | | | | ****** | *** |

Table C.9.8.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 1

1982

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | ****** | *** | ****** | *** | | | 395 | 6 | ****** | *** | ****** | *** | 1,285 | 13 |
| SULFUR CNTENT OF REF FUEL | | | ****** | *** | | | 297 | 5 | ****** | *** | | | 820 | 9 |
| AIR EMISSIONS | | | ****** | *** | | | 183 | 3 | ****** | *** | ****** | *** | 909 | 8 |
| EFFLUENT WATER QUALITY | | | | | | | 42 | 1 | | | | | 42 | 1 |
| SULFUR RECOVERY CAPACITY | | | | | | | | | | | | | | |
| METALLURGY | | | | | | | ****** | *** | | | ****** | *** | 270 | 3 |
| SULFUR PLANT LIMITATION | | | | | | | | | | | ****** | *** | ****** | *** |

Table C.9.8.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 2

1982

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 29 | 5 | 168 | 8 | 421 | 9 | 1,021 | 15 | 511 | 4 | 1,035 | 4 | 3,184 | 45 |
| SULFUR CNTENT OF REF FUEL | ****** | *** | ****** | *** | 271 | 6 | 531 | 8 | | | 1,138 | 4 | 2,080 | 26 |
| AIR EMISSIONS | 15 | 3 | ****** | *** | 321 | 7 | 802 | 12 | ****** | *** | 1,138 | 4 | 2,688 | 35 |
| EFFLUENT WATER QUALITY | ****** | *** | 69 | 3 | | | ****** | *** | | | | | 202 | 7 |
| METALLURGY | ****** | *** | 135 | 6 | ****** | *** | 416 | 7 | 530 | 4 | ****** | *** | 1,933 | 26 |
| SULFUR PLANT LIMITATION | | | | | ****** | *** | | | | | | | ****** | *** |

Table C.9.8.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 3

1982

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 60 | 9 | 309 | 18 | 279 | 7 | 613 | 8 | 1,060 | 8 | 3,959 | 12 | 6,279 | 62 |
| SULFUR CNTENT OF REF FUEL | ****** | *** | 184 | 10 | ****** | *** | 340 | 5 | 456 | 3 | ****** | *** | 2,951 | 33 |
| AIR EMISSIONS | 32 | 4 | 173 | 10 | 211 | 5 | 437 | 6 | 800 | 6 | 2,594 | 8 | 4,247 | 39 |
| EFFLUENT WATER QUALITY | 37 | 5 | 64 | 4 | 172 | 4 | ****** | *** | ****** | *** | | | 670 | 18 |
| SULFUR RECOVERY CAPACITY | | | | | | | | | ****** | *** | ****** | *** | ****** | *** |
| METALLURGY | ****** | *** | 159 | 9 | 157 | 4 | 355 | 5 | ****** | *** | 3,469 | 10 | 4,559 | 34 |
| SULFUR PLANT LIMITATION | | | | | | | | | | | ****** | *** | ****** | *** |

Table C.9.8.4

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 4

1982

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | 26 | 5 | 128 | 7 | 235 | 5 | | | | | | | 388 | 17 |
| SULFUR CNTENT OF REF FUEL | 20 | 4 | 115 | 6 | 208 | 5 | | | | | | | 343 | 15 |
| AIR EMISSIONS | 20 | 4 | 150 | 7 | 241 | 5 | | | | | | | 410 | 16 |
| EFFLUENT WATER QUALITY | ****** | *** | ****** | *** | | | | | | | | | 54 | 5 |
| METALLURGY | ****** | *** | ****** | *** | ****** | *** | | | | | | | 93 | 5 |

Table C.9.8.5

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

ENVIRONMENTAL CONSTRAINTS RESTRICTING THE PROCESSING OF HIGHER SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 5

1982

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| ENVRN CNSTRNTS - HS CRUDE | | | | | | | | | | | | | | |
| SULFUR CNTENT OF PRODUCTS | ****** | *** | ****** | *** | 128 | 3 | 694 | 9 | ****** | *** | ****** | *** | 2,741 | 33 |
| SULFUR CNTENT OF REF FUEL | ****** | *** | ****** | *** | ****** | *** | 531 | 7 | 661 | 6 | ****** | *** | 2,319 | 25 |
| AIR EMISSIONS | 25 | 3 | ****** | *** | 128 | 3 | 702 | 9 | 537 | 5 | ****** | *** | 1,908 | 26 |
| EFFLUENT WATER QUALITY | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | | | 255 | 6 |
| SULFUR RECOVERY CAPACITY | | | | | | | | | ****** | *** | | | ****** | *** |
| METALLURGY | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | | | 477 | 8 |
| SULFUR PLANT LIMITATION | | | | | | | ****** | *** | | | | | ****** | *** |

TABLE C.9.9.1

If, in the event of a national emergency, environmental restraints on product qualities and refinery fuels were suspended, how much crude oil of 0.5 wt. % or more sulfur content could this refinery process yielding products marketable in areas now served? (Report maximum substitution of each grade of crude oil for 0.5 wt. % sulfur or less, independent of the other three grades. In other words, the quantitites for the four grades are not additive.)

U.S. Total by Location

| | | 1980 | | | 1982 | | |
|---|---|---|---|---|---|---|---|
| PAD | Type of Crude Oil | MBPCD Substitute for Sweet Crude | MBPCD Sweet Crude Dropped Out | Wt. % of Sulfur in Substitute Crude | MBPCD Substitute for Sweet Crude | MBPCD Sweet Crude Dropped Out | Wt. % of Sulfur in Substitute Crude |
| 01 | Light Medium Sulfur | 634 | 655 | .92 | 661 | 674 | .92 |
| | Heavy Medium Sulfur | 568 | 645 | .93 | 591 | 660 | .94 |
| | Light High Sulfur | 591 | 643 | 1.62 | 633 | 662 | 1.64 |
| | Heavy High Sulfur | 476 | 570 | 2.16 | 507 | 585 | 2.21 |
| 02 | Light Medium Sulfur | 838 | 846 | .81 | 804 | 804 | .81 |
| | Heavy Medium Sulfur | 533 | 662 | .91 | 481 | 597 | .90 |
| | Light High Sulfur | 602 | 634 | 1.54 | 563 | 586 | 1.52 |
| | Heavy High Sulfur | 383 | 525 | 2.11 | 323 | 414 | 2.01 |
| 03 | Light Medium Sulfur | 1230 | 1244 | .79 | 1083 | 1088 | .82 |
| | Heavy Medium Sulfur | 758 | 864 | .87 | 650 | 722 | .85 |
| | Light High Sulfur | 808 | 831 | 1.74 | 668 | 681 | 1.75 |
| | Heavy High Sulfur | 569 | 691 | 2.30 | 461 | 526 | 2.28 |
| 04 | Light Medium Sulfur | 155 | 159 | .78 | 156 | 160 | .78 |
| | Heavy Medium Sulfur | 38 | 42 | .87 | 38 | 42 | .86 |
| | Light High Sulfur | 92 | 101 | 1.62 | 110 | 119 | 1.66 |
| | Heavy High Sulfur | 50 | 62 | 2.58 | 50 | 62 | 2.55 |
| 05-08 | Light Medium Sulfur | 325 | 325 | .70 | 375 | 375 | .70 |
| | Heavy Medium Sulfur | 329 | 348 | 1.00 | 350 | 384 | 1.00 |
| | Light High Sulfur | 246 | 252 | 1.63 | 273 | 283 | 1.63 |
| | Heavy High Sulfur | 291 | 296 | 2.53 | 314 | 327 | 2.52 |
| TOTAL (01-08) | Light Medium Sulfur | 3182 | 3230 | .81 | 3079 | 3100 | .82 |
| | Heavy Medium Sulfur | 2226 | 2560 | .91 | 2109 | 2405 | .91 |
| | Light High Sulfur | 2339 | 2461 | 1.64 | 2246 | 2330 | 1.64 |
| | Heavy High Sulfur | 1769 | 2144 | 2.27 | 1653 | 1914 | 2.26 |

Table C.9.9.2

If, in the event of a national emergency, environmental restraints on product qualities and refinery fuels were suspended, how much crude oil of 0.5 wt. % or more sulfur content could this refinery process yield products marketable in areas now served? (Report maxium substitution of each grade of crude oil for 0.5 wt.% sulfur or less, independent of the other three grades. In other words, the quantities for the four grades are not additive.)

U.S. Totals By Refinery Size Category

| Refinery Size | Type of Crude Oil | 1980 MBPCD Substitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | 8 | 8 | .67 | 9 | 9 | .66 |
| | Heavy Medium Sulfur | 13 | 16 | 1.39 | 13 | 16 | 1.39 |
| | Light High Sulfur | 3 | 3 | 1.50 | 3 | 3 | 1.50 |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 10-30 | Light Medium Sulfur | 121 | 121 | .85 | 132 | 132 | .86 |
| | Heavy Medium Sulfur | 57 | 61 | .98 | 64 | 68 | .98 |
| | Light High Sulfur | 60 | 61 | 1.57 | 67 | 68 | 1.56 |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 30-50 | Light Medium Sulfur | 398 | 402 | .78 | 345 | 349 | .82 |
| | Heavy Medium Sulfur | 157 | 200 | .93 | 143 | 186 | .94 |
| | Light High Sulfur | 215 | 228 | 1.64 | 223 | 235 | 1.63 |
| | Heavy High Sulfur | 127 | 173 | 2.19 | 119 | 145 | 2.18 |
| 50-100 | Light Medium Sulfur | 797 | 825 | .79 | 819 | 830 | .77 |
| | Heavy Medium Sulfur | 551 | 694 | .91 | 503 | 626 | .90 |
| | Light High Sulfur | 542 | 599 | 1.57 | 510 | 545 | 1.56 |
| | Heavy High Sulfur | 377 | 527 | 2.07 | 319 | 425 | 1.99 |
| 100-175 | Light Medium Sulfur | 575 | 580 | .84 | 529 | 534 | .81 |
| | Heavy Medium Sulfur | 486 | 531 | .84 | 431 | 482 | .83 |
| | Light High Sulfur | 441 | 467 | 1.57 | 395 | 416 | 1.51 |
| | Heavy High Sulfur | 263 | 334 | 2.00 | 224 | 283 | 2.07 |
| 175+ | Light Medium Sulfur | 1,283 | 1,294 | .82 | 1,245 | 1,246 | .85 |
| | Heavy Medium Sulfur | 962 | 1,058 | .94 | 956 | 1,026 | .94 |
| | Light High Sulfur | 1,078 | 1,103 | 1.72 | 1,048 | 1,063 | 1.74 |
| | Heavy High Sulfur | 920 | 1,042 | 2.42 | 903 | 984 | 2.40 |
| TOTAL | Light Medium Sulfur | 3,182 | 3,230 | .81 | 3,079 | 3,100 | .82 |
| | Heavy Medium Sulfur | 2,226 | 2,560 | .91 | 2,110 | 2,405 | .91 |
| | Light High Sulfur | 2,339 | 2,461 | 1.64 | 2,246 | 2,331 | 1.64 |
| | Heavy High Sulfur | 1,769 | 2,144 | 2.27 | 1,653 | 1,914 | 2.26 |

Table C.9.9.3

If, in the event of a national emergency, environmental restraints on product qualities and refinery fuels were suspended, how much crude oil of 0.5 wt. % or more sulfur content could this refinery process yield products marketable in areas now served? (Report maxium substitution of each grade of crude oil for 0.5 wt.% sulfur or less, independent of the other three grades. In other words, the quantities for the four grades are not additive.)

U.S. Totals By Company Size

| COMPANY SIZE (MBPCD) | Type of Crude Oil | 1980 MBPCD Substitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | 12 | 15 | 1.43 | 12 | 15 | 1.43 |
| | Light High Sulfur | 2 | 2 | 1.50 | 2 | 2 | 1.50 |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 10-30 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | 29 | 31 | .93 | 34 | 36 | .94 |
| | Light High Sulfur | 26 | 26 | 1.58 | 31 | 31 | 1.54 |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 30-50 | Light Medium Sulfur | 117 | 121 | .86 | 112 | 116 | .87 |
| | Heavy Medium Sulfur | 70 | 92 | .91 | 65 | 87 | .93 |
| | Light High Sulfur | 66 | 75 | 1.61 | 89 | 98 | 1.58 |
| | Heavy High Sulfur | 53 | 73 | 1.54 | 46 | 66 | 1.44 |
| 50-100 | Light Medium Sulfur | 282 | 282 | .79 | 319 | 319 | .78 |
| | Heavy Medium Sulfur | 138 | 143 | .91 | 144 | 149 | .91 |
| | Light High Sulfur | 133 | 133 | 1.34 | 158 | 158 | 1.38 |
| | Heavy High Sulfur | 96 | 99 | 1.44 | 97 | 100 | 1.44 |
| 100-175 | Light Medium Sulfur | 352 | 360 | .75 | 350 | 355 | .75 |
| | Heavy Medium Sulfur | 314 | 324 | .75 | 312 | 322 | .75 |
| | Light High Sulfur | 211 | 216 | 1.33 | 208 | 213 | 1.33 |
| | Heavy High Sulfur | 119 | 129 | 2.27 | 118 | 128 | 2.27 |
| 175+ | Light Medium Sulfur | 2,373 | 2412 | .82 | 2229 | 2242 | .83 |
| | Heavy Medium Sulfur | 1,663 | 1955 | .94 | 1542 | 1796 | .94 |
| | Light High Sulfur | 1901 | 2009 | 1.70 | 1758 | 1828 | 1.71 |
| | Heavy High Sulfur | 1,451 | 1810 | 2.34 | 1336 | 1582 | 2.34 |
| TOTAL | Light Medium Sulfur | 3182 | 3230 | .81 | 3079 | 3100 | .82 |
| | Heavy Medium Sulfur | 2256 | 2560 | .91 | 2109 | 2405 | .91 |
| | Light High Sulfur | 2339 | 2461 | 1.65 | 2246 | 2331 | 1.64 |
| | Heavy High Sulfur | 1769 | 2144 | 2.27 | 1653 | 1914 | 2.26 |

TABLE C.9.9.4

**If, in the event of a national emergency, environmental restraints on product qualities and refinery fuels were suspended, how much crude oil of 0.5 wt. % or more sulfur content could this refinery process yield products marketable in areas now served? (Report maximum substitution of each grade of crude oil for 0.5 wt. % sulfur or less, independent of the other three grades. In other words, the quantities for the four grades are not additive.)**

By Refinery Size Within PAD I

| Refinery Size (MBPCD) | Type of Crude Oil | 1980 MBPCD Substitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| 10-30 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 30-50 | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| 50-100 | Light Medium Sulfur | 197 | 216 | .84 | 196 | 207 | .84 |
| | Heavy Medium Sulfur | 159 | 204 | .92 | 155 | 192 | .92 |
| | Light High Sulfur | 172 | 204 | 1.48 | 184 | 195 | 1.50 |
| | Heavy High Sulfur | 145 | 194 | 2.09 | 143 | 184 | 2.08 |
| 100-175 | Light Medium Sulfur | 167 | 167 | .96 | 173 | 173 | .93 |
| | Heavy Medium Sulfur | 152 | 167 | .89 | 155 | 173 | .90 |
| | Light High Sulfur | 149 | 167 | 1.62 | 158 | 173 | 1.62 |
| | Heavy High Sulfur | 76 | 104 | 1.65 | 84 | 108 | 1.91 |
| 175+ | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| TOTAL | Light Medium Sulfur | 634 | 655 | .92 | 661 | 674 | .92 |
| | Heavy Medium Sulfur | 568 | 645 | .93 | 591 | 660 | .94 |
| | Light High Sulfur | 591 | 643 | 1.62 | 633 | 662 | 1.64 |
| | Heavy High Sulfur | 476 | 570 | 2.16 | 506 | 585 | 2.21 |

TABLE C.9.9.5

If, in the event of a national emergency, environmental restraints on product qualities and refinery fuels were suspended, how much crude oil of 0.5 wt. % or more sulfur content could this refinery process yield products marketable in areas now served? (Report maximum substitution of each grade of crude oil for 0.5 wt. % sulfur or less, independent of the other three grades. In other words, the quantities for the four grades are not additive.)

By Refinery Size Within PAD II

| Refinery Size (MBPCD) | Type of Crude Oil | 1980 MBPCD Substitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| 10-30 | Light Medium Sulfur | 49 | 49 | .79 | 51 | 51 | .79 |
| | Heavy Medium Sulfur | 25 | 29 | .97 | 26 | 31 | .97 |
| | Light High Sulfur | 28 | 29 | 1.63 | 30 | 31 | 1.63 |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 30-50 | Light Medium Sulfur | 126 | 126 | .79 | 125 | 125 | .81 |
| | Heavy Medium Sulfur | 60 | 81 | .89 | 56 | 76 | .93 |
| | Light High Sulfur | 76 | 76 | 1.75 | 70 | 70 | 1.67 |
| | Heavy High Sulfur | 47 | 67 | 2.27 | 39 | 39 | 2.30 |
| 50-100 | Light Medium Sulfur | 313 | 321 | .81 | 326 | 326 | .80 |
| | Heavy Medium Sulfur | 123 | 202 | .93 | 123 | 190 | .93 |
| | Light High Sulfur | 185 | 210 | 1.71 | 204 | 221 | 1.69 |
| | Heavy High Sulfur | 91 | 174 | 2.03 | 91 | 142 | 2.03 |
| 100-175 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 175+ | Light Medium Sulfur | 247 | 247 | .83 | 197 | 197 | .84 |
| | Heavy Medium Sulfur | 222 | 247 | .94 | 172 | 197 | .93 |
| | Light High Sulfur | 208 | 213 | 1.47 | 156 | 161 | 1.42 |
| | Heavy High Sulfur | 178 | 213 | 2.00 | 126 | 161 | 1.70 |
| TOTAL | Light Medium Sulfur | 838 | 846 | .81 | 804 | 804 | .81 |
| | Heavy Medium Sulfur | 533 | 662 | .91 | 481 | 597 | .90 |
| | Light High Sulfur | 603 | 634 | 1.54 | 563 | 586 | 1.52 |
| | Heavy High Sulfur | 303 | 525 | 2.11 | 323 | 414 | 2.01 |

TABLE C.9.9.6

**If, in the event of a national emergency, environmental restraints on product qualities and refinery fuels were suspended, how much crude oil of 0.5 wt. % or more sulfur content could this refinery process yield products marketable in areas now served? (Report maximum substitution of each grade of crude oil for 0.5 wt. % sulfur or less, independent of the other three grades. In other words, the quantities for the four grades are not additive.)**

By Refinery Size Within PAD III

| Refinery Size (MBPCD) | Type of Crude Oil | 1980 MBPCD Substitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| 10-30 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 30-50 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 50-100 | Light Medium Sulfur | 211 | 211 | .75 | 165 | 165 | .77 |
| | Heavy Medium Sulfur | 181 | 196 | .84 | 134 | 139 | .78 |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 100-175 | Light Medium Sulfur | 278 | 283 | .76 | 214 | 219 | .70 |
| | Heavy Medium Sulfur | 215 | 233 | .82 | 152 | 170 | .75 |
| | Light High Sulfur | 159 | 164 | 1.74 | 96 | 101 | 1.59 |
| | Heavy High Sulfur | 123 | 151 | 2.02 | 70 | 88 | 2.05 |
| 175+ | Light Medium Sulfur | 635 | 645 | .80 | 608 | 607 | .87 |
| | Heavy Medium Sulfur | 329 | 384 | .92 | 332 | 362 | .92 |
| | Light High Sulfur | 469 | 488 | 1.83 | 452 | 460 | 1.88 |
| | Heavy High Sulfur | 331 | 401 | 2.49 | 325 | 359 | 2.44 |
| TOTAL | Light Medium Sulfur | 1,230 | 1,245 | .79 | 1,083 | 1,088 | .82 |
| | Heavy Medium Sulfur | 758 | 864 | .87 | 650 | 722 | .85 |
| | Light High Sulfur | 808 | 831 | 1.74 | 668 | 681 | 1.75 |
| | Heavy High Sulfur | 569 | 691 | 2.30 | 461 | 526 | 2.28 |

TABLE C.9.9.7

If, in the event of a national emergency, environmental restraints on product qualities and refinery fuels were suspended, how much crude oil of 0.5 wt. % or more sulfur content could this refinery process yield products marketable in areas now served? (Report maximum substitution of each grade of crude oil for 0.5 wt. % sulfur or less, independent of the other three grades. In other words, the quantities for the four grades are not additive.)

By Refinery Size Within PAD IV

| Refinery Size (MBPCD) | Type of Crude Oil | 1980 MBPCD Substitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 10-30 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 30-50 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 50-100 | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| 100-175 | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| 175+ | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | | | | | | |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | | | | | | |
| TOTAL | Light Medium Sulfur | 155 | 159 | .78 | 156 | 160 | .78 |
| | Heavy Medium Sulfur | 38 | 42 | .87 | 38 | 42 | .86 |
| | Light High Sulfur | 92 | 101 | 1.62 | 110 | 119 | 1.66 |
| | Heavy High Sulfur | 50 | 62 | 2.58 | 50 | 62 | 2.55 |

TABLE C.9.9.8

If, in tne event of a national emergency, environmental restraints on product qualities and refinery fuels were suspended, how much crude oil of 0.5 wt. % or more sulfur content could this refinery process yield products marketable in areas now served? (Report maximum substitution of each grade of crude oil for 0.5 wt. % sulfur or less, independent of the other three grades. In other words, the quantities for the four grades are not additive.)

By Refinery Size Within PAD V

| Refinery Size (MBPCD) | Type of Crude Oil | 1980 MBPCD Substitute for Sweet Crude | 1980 MBPCD Sweet Crude Dropped Out | 1980 Wt. % of Sulfur in Substitute Crude | 1982 MBPCD Substitute for Sweet Crude | 1982 MBPCD Sweet Crude Dropped Out | 1982 Wt. % of Sulfur in Substitute Crude |
|---|---|---|---|---|---|---|---|
| 0-10 | Light Medium Sulfur | | | | | | |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | | | | | | |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 10-30 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 30-50 | Light Medium Sulfur | 74 | 74 | .74 | 37 | 37 | .99 |
| | Heavy Medium Sulfur | 46 | 46 | 1.10 | 37 | 37 | 1.13 |
| | Light High Sulfur | 34 | 37 | 1.46 | 34 | 37 | 1.46 |
| | Heavy High Sulfur | 34 | 37 | 1.92 | 34 | 37 | 1.92 |
| 50-100 | Light Medium Sulfur | 76 | 76 | .70 | 132 | 132 | .61 |
| | Heavy Medium Sulfur | 87 | 92 | 1.00 | 91 | 106 | 1.00 |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 100-175 | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| 175+ | Light Medium Sulfur | * | * | * | * | * | * |
| | Heavy Medium Sulfur | * | * | * | * | * | * |
| | Light High Sulfur | * | * | * | * | * | * |
| | Heavy High Sulfur | * | * | * | * | * | * |
| TOTAL | Light Medium Sulfur | 325 | 325 | .70 | 375 | 375 | .70 |
| | Heavy Medium Sulfur | 329 | 348 | 1.00 | 350 | 384 | 1.00 |
| | Light High Sulfur | 246 | 252 | 1.63 | 273 | 283 | 1.63 |
| | Heavy High Sulfur | 291 | 296 | 2.53 | 314 | 327 | 2.52 |

Table C.9.10.1

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/22/79

REGULATORY AND PHYSICAL CONSTRAINTS UPON A 20 % SUBSTITUTION USING HIGH SULFUR CRUDE OIL
BY LOCATION
ALL GEOGRAPHIC REGIONS

| | PAD 1 | | PAD 2 | | PAD 3 | | PAD 4 | | PAD 5 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| SULFUR REG CHANGES REQD | | | | | | | | | | | | |
| PCT S IN LIGHT PRODUCTS | 623 | 6 | 1,545 | 20 | 3,289 | 19 | 199 | 7 | 592 | 9 | 6,248 | 61 |
| PCT S IN HVY FUEL OILS | 216 | 3 | 1,190 | 16 | 1,575 | 11 | 180 | 5 | 1,214 | 14 | 4,374 | 49 |
| PCT S IN AIR EMISSIONS | 670 | 5 | 1,191 | 17 | 2,264 | 24 | 215 | 10 | 592 | 9 | 4,933 | 65 |
| PCT S IN COKE | | | ****** | *** | ****** | *** | | | ****** | *** | 544 | 4 |
| (SWEET NOT OVER 0.5% S) | ****** | *** | 83 | 3 | ****** | *** | | | | | 237 | 7 |
| (HIGH S CRUDE ONLY) | ****** | *** | 407 | 5 | ****** | *** | | | 238 | 8 | 759 | 18 |
| (CONDENSATE ONLY) | ****** | *** | | | 22 | 3 | ****** | *** | | | 46 | 6 |
| (NONE OR NO COMMENT) | 455 | 12 | 1,170 | 16 | 1,516 | 31 | 179 | 8 | 843 | 12 | 4,162 | 79 |
| NON ENVIRON PHYSICAL RSTR | | | | | | | | | | | | |
| CRUDE UNIT METALLURGY | 534 | 10 | 1,841 | 27 | 3,856 | 38 | 108 | 8 | 307 | 7 | 6,646 | 90 |
| SULFUR RECOVERY CAP | ****** | *** | ****** | *** | 1,141 | 4 | 96 | 5 | ****** | *** | 1,589 | 14 |
| DESULFURIZATION CAP | | | 183 | 6 | 523 | 9 | ****** | *** | ****** | *** | 894 | 18 |
| RESID STORE,SEG,HANDLING | ****** | *** | 413 | 5 | 2,604 | 12 | ****** | *** | 442 | 9 | 3,943 | 33 |
| LIMITED COKING CAP | ****** | *** | ****** | *** | ****** | *** | | | ****** | *** | 850 | 8 |
| DOWNSTREAM UNITS | | | ****** | *** | ****** | *** | ****** | *** | | | 431 | 6 |
| CRUDE UNIT OVERHEAD CAP | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | 329 | 4 |
| (NONE OR NO COMMENT) | 576 | 10 | 1,199 | 18 | 1,179 | 25 | 103 | 3 | 1,692 | 24 | 4,749 | 80 |

# TABLE C.9.10.2

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/17/79

REGULATORY AND PHYSICAL CONSTRAINTS UPON A 20 % SUBSTITUTION USING HIGH SULFUR CRUDE OIL
BY REFINERY SIZE
ALL GEOGRAPHIC REGIONS

| REFINERY CAPACITY | * 0-10 ** CRUDE CAP MBPCD | NO OF REF | * 10-30 * CRUDE CAP MBPCD | NO OF REF | * 30-50 * CRUDE CAP MBPCD | NO OF REF | * 50-100 * CRUDE CAP MBPCD | NO OF REF | **100-175* CRUDE CAP MBPCD | NO OF REF | * 175 + * CRUDE CAP MBPCD | NO OF REF | * TOTAL * CRUDE CAP MBPCD | NO OF REF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SULFUR REG CHANGES REQD | | | | | | | | | | | | | | |
| PCT S IN LIGHT PRODUCTS | 47 | 8 | 176 | 9 | 418 | 9 | 1,180 | 16 | 1,319 | 10 | 3,108 | 9 | 6,248 | 61 |
| PCT S IN HVY FUEL OILS | 28 | 5 | 173 | 9 | 507 | 11 | 728 | 10 | 840 | 7 | 2,099 | 7 | 4,374 | 49 |
| PCT S IN AIR EMISSIONS | 53 | 8 | 370 | 17 | 488 | 11 | 814 | 11 | 1,560 | 12 | 1,649 | 6 | 4,933 | 65 |
| PCT S IN COKE | | | ****** | *** | | | | | ****** | *** | ****** | *** | 544 | 4 |
| (SWEET NOT OVER 0.5% S) | ****** | *** | ****** | *** | ****** | *** | ****** | *** | | | | | 237 | 7 |
| (HIGH S CRUDE ONLY) | 27 | 4 | 168 | 8 | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 759 | 18 |
| (CONDENSATE ONLY) | ****** | *** | ****** | *** | | | | | | | | | 46 | 6 |
| (NONE OR NO COMMENT) | 173 | 32 | 282 | 15 | 414 | 11 | 525 | 8 | 1,073 | 8 | 1,695 | 5 | 4,162 | 79 |
| NON ENVIRON PHYSICAL RSTR | | | | | | | | | | | | | | |
| CRUDE UNIT METALLURGY | 110 | 21 | 534 | 26 | 329 | 8 | 939 | 14 | 1,565 | 12 | 3,168 | 9 | 6,646 | 90 |
| SULFUR RECOVERY CAP | ****** | *** | ****** | *** | 122 | 3 | ****** | *** | ****** | *** | 1,021 | 3 | 1,589 | 14 |
| DESULFURIZATION CAP | 28 | 5 | 93 | 5 | 246 | 5 | ****** | *** | ****** | *** | ****** | *** | 894 | 18 |
| RESID STORE,SEG,HANDLING | ****** | *** | ****** | *** | 216 | 5 | 485 | 7 | 463 | 4 | 2,584 | 8 | 3,943 | 33 |
| LIMITED COKING CAP | | | ****** | *** | ****** | *** | | | 397 | 3 | ****** | *** | 850 | 8 |
| DOWNSTREAM UNITS | | | ****** | *** | ****** | *** | ****** | *** | | | ****** | *** | 431 | 6 |
| CRUDE UNIT OVERHEAD CAP | ****** | *** | | | | | ****** | *** | ****** | *** | | | 329 | 4 |
| (NONE OR NO COMMENT) | 143 | 26 | 312 | 16 | 489 | 12 | 812 | 11 | 990 | 8 | 2,003 | 7 | 4,749 | 80 |

# TABLE C.9.10.3

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

9/20/79

REGULATORY AND PHYSICAL CONSTRAINTS UPON A 20 % SUBSTITUTION USING HIGH SULFUR CRUDE OIL
BY COMPANY SIZE
ALL GEOGRAPHIC REGIONS

| REFINERY CAPACITY | 0-10 CRUDE CAP MBPCD | 0-10 NO OF REF | 10-30 CRUDE CAP MBPCD | 10-30 NO OF REF | 30-50 CRUDE CAP MBPCD | 30-50 NO OF REF | 50-100 CRUDE CAP MBPCD | 50-100 NO OF REF | 100-175 CRUDE CAP MBPCD | 100-175 NO OF REF | 175 + CRUDE CAP MBPCD | 175 + NO OF REF | TOTAL CRUDE CAP MBPCD | TOTAL NO OF REF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SULFUR REG CHANGES REQD | | | | | | | | | | | | | | |
| PCT S IN LIGHT PRODUCTS | 34 | 6 | 138 | 8 | ****** | *** | ****** | *** | 559 | 6 | 5,159 | 35 | 6,248 | 61 |
| PCT S IN HVY FUEL OILS | 28 | 5 | 147 | 8 | 159 | 3 | 203 | 4 | 377 | 4 | 3,461 | 25 | 4,374 | 49 |
| PCT S IN AIR EMISSIONS | 34 | 5 | 237 | 12 | 170 | 4 | 303 | 9 | 496 | 5 | 3,691 | 30 | 4,933 | 65 |
| PCT S IN COKE | | | 29 | 1 | | | | | | | 514 | 3 | 544 | 4 |
| (SWEET NOT OVER 0.5% S) | ****** | *** | | | ****** | *** | ****** | *** | | | ****** | *** | 237 | 7 |
| (HIGH S CRUDE ONLY) | ****** | *** | 157 | 9 | | | ****** | *** | ****** | *** | 335 | 4 | 759 | 18 |
| (CONDENSATE ONLY) | ****** | *** | | | ****** | *** | ****** | *** | | | ****** | *** | 46 | 6 |
| (NONE OR NO COMMENT) | 113 | 22 | 211 | 15 | ****** | *** | ****** | *** | | | 3,609 | 32 | 4,162 | 79 |
| NON ENVIRON PHYSICAL RSTR | | | | | | | | | | | | | | |
| CRUDE UNIT METALLURGY | 73 | 15 | 372 | 23 | ****** | *** | 417 | 10 | ****** | *** | 5,396 | 37 | 6,646 | 90 |
| SULFUR RECOVERY CAP | ****** | *** | | | | | ****** | *** | | | 1,492 | 10 | 1,589 | 14 |
| DESULFURIZATION CAP | 17 | 3 | 93 | 6 | ****** | *** | ****** | *** | | | 621 | 5 | 894 | 18 |
| RESID STORE,SEG,HANDLING | ****** | *** | ****** | *** | | | 126 | 3 | 344 | 3 | 3,351 | 21 | 3,943 | 33 |
| LIMITED COKING CAP | | | | | | | | | | | 850 | 8 | 850 | 8 |
| DOWNSTREAM UNITS | | | | | ****** | *** | ****** | *** | | | 363 | 4 | 431 | 6 |
| CRUDE UNIT OVERHEAD CAP | | | | | | | | | | | 329 | 4 | 329 | 4 |
| (NONE OR NO COMMENT) | 109 | 20 | 262 | 15 | 296 | 10 | 168 | 3 | 377 | 5 | 3,537 | 27 | 4,749 | 80 |

Table C.9.10.4

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/11/79

REGULATORY AND PHYSICAL CONSTRAINTS UPON A 20 % SUBSTITUTION USING HIGH SULFUR CRUDE OIL
BY REFINERY COMPLEXITY FACTOR
ALL GEOGRAPHIC REGIONS

| | COMPLEXITY FACTOR | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-3 | | 3-5 | | 5-7 | | 7-9 | | 9-11 | | 11 + | | TOTAL | |
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| SULFUR REG CHANGES REQD | | | | | | | | | | | | | | |
| PCT S IN LIGHT PRODUCTS | 225 | 13 | 556 | 11 | 2,960 | 18 | 1,780 | 13 | ****** | *** | ****** | *** | 6,248 | 61 |
| PCT S IN HVY FUEL OILS | 258 | 12 | 388 | 9 | 1,730 | 14 | 1,255 | 8 | ****** | *** | ****** | *** | 4,374 | 49 |
| PCT S IN AIR EMISSIONS | 289 | 15 | 628 | 14 | 1,298 | 15 | 1,705 | 12 | 748 | 6 | 266 | 3 | 4,933 | 65 |
| PCT S IN COKE | | | | | ****** | *** | 29 | 1 | ****** | *** | ****** | *** | 544 | 4 |
| (SWEET NOT OVER 0.5% S) | ****** | *** | ****** | *** | ****** | *** | | | | | ****** | *** | 237 | 7 |
| (HIGH S CRUDE ONLY) | 172 | 11 | ****** | *** | ****** | *** | 364 | 3 | ****** | *** | | | 759 | 18 |
| (CONDENSATE ONLY) | 11 | 3 | 35 | 3 | | | | | | | | | 46 | 6 |
| (NONE OR NO COMMENT) | 380 | 38 | 508 | 12 | 861 | 12 | 1,511 | 10 | 205 | 3 | 697 | 4 | 4,162 | 79 |
| NON ENVIRON PHYSICAL RSTR | | | | | | | | | | | | | | |
| CRUDE UNIT METALLURGY | 477 | 33 | 463 | 15 | 2,273 | 17 | 2,033 | 16 | 803 | 5 | 598 | 4 | 6,646 | 90 |
| SULFUR RECOVERY CAP | | | 78 | 4 | 878 | 5 | ****** | *** | ****** | *** | | | 1,589 | 14 |
| DESULFURIZATION CAP | 141 | 8 | 150 | 3 | 74 | 3 | ****** | *** | ****** | *** | ****** | *** | 894 | 18 |
| RESID STORE,SEG,HANDLING | 169 | 6 | 273 | 6 | 1,989 | 13 | 1,123 | 5 | 390 | 3 | | | 3,943 | 33 |
| LIMITED COKING CAP | | | | | ****** | *** | ****** | *** | 342 | 3 | ****** | *** | 850 | 8 |
| DOWNSTREAM UNITS | ****** | *** | ****** | *** | ****** | *** | ****** | *** | | | | | 431 | 6 |
| CRUDE UNIT OVERHEAD CAP | | | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 329 | 4 |
| (NONE OR NO COMMENT) | 459 | 40 | 510 | 9 | 1,305 | 13 | 1,768 | 10 | 322 | 4 | 385 | 4 | 4,749 | 80 |

Table C.9.10.5

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

REGULATORY AND PHYSICAL CONSTRAINTS UPON A 20 % SUBSTITUTION USING HIGH SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 1

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | |
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| SULFUR REG CHANGES REQD | | | | | | | | | | | | |
| PCT S IN LIGHT PRODUCTS | ****** | *** | | | | | ****** | *** | ****** | *** | ****** | *** |
| PCT S IN HVY FUEL OILS | ****** | *** | | | | | | | | | ****** | *** |
| PCT S IN AIR EMISSIONS | | | | | | | ****** | *** | ****** | *** | ****** | *** |
| (SWEET NOT OVER 0.5% S) | ****** | *** | ****** | *** | | | ****** | *** | | | | |
| (HIGH S CRUDE ONLY) | | | ****** | *** | | | | | | | | |
| (CONDENSATE ONLY) | ****** | *** | ****** | *** | | | | | | | | |
| (NONE OR NO COMMENT) | 45 | 7 | ****** | *** | | | ****** | *** | ****** | *** | | |
| NON ENVIRON PHYSICAL RSTR | | | | | | | | | | | | |
| CRUDE UNIT METALLURGY | ****** | *** | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** |
| SULFUR RECOVERY CAP | | | | | | | | | ****** | *** | | |
| RESID STORE,SEG,HANDLING | | | | | | | ****** | *** | | | ****** | *** |
| LIMITED COKING CAP | | | | | | | | | ****** | *** | | |
| CRUDE UNIT OVERHEAD CAP | | | | | | | ****** | *** | | | | |
| (NONE OR NO COMMENT) | 21 | 4 | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** |

| | TOTAL | |
|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF |
| SULFUR REG CHANGES REQD | | |
| PCT S IN LIGHT PRODUCTS | 623 | 6 |
| PCT S IN HVY FUEL OILS | 216 | 3 |
| PCT S IN AIR EMISSIONS | 670 | 5 |
| (SWEET NOT OVER 0.5% S) | ****** | *** |
| (HIGH S CRUDE ONLY) | ****** | *** |
| (CONDENSATE ONLY) | ****** | *** |
| (NONE OR NO COMMENT) | 455 | 12 |
| NON ENVIRON PHYSICAL RSTR | | |
| CRUDE UNIT METALLURGY | 534 | 10 |
| SULFUR RECOVERY CAP | ****** | *** |
| RESID STORE,SEG,HANDLING | ****** | *** |
| LIMITED COKING CAP | ****** | *** |
| CRUDE UNIT OVERHEAD CAP | ****** | *** |
| (NONE OR NO COMMENT) | 576 | 10 |

Table C.9.10.6

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

REGULATORY AND PHYSICAL CONSTRAINTS UPON A 20 % SUBSTITUTION USING HIGH SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 2

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| SULFUR REG CHANGES REQD | | | | | | | | | | | | | | |
| PCT S IN LIGHT PRODUCTS | | | ****** | *** | ****** | *** | 534 | 8 | 537 | 4 | ****** | *** | 1,545 | 20 |
| PCT S IN HVY FUEL OILS | | | ****** | *** | 260 | 6 | ****** | *** | 401 | 3 | ****** | *** | 1,190 | 16 |
| PCT S IN AIR EMISSIONS | ****** | *** | ****** | *** | 318 | 7 | ****** | *** | 386 | 3 | ****** | *** | 1,191 | 17 |
| PCT S IN COKE | | | | | | | | | | | ****** | *** | ****** | *** |
| (SWEET NOT OVER 0.5% S) | ****** | *** | ****** | *** | | | ****** | *** | | | | | 83 | 3 |
| (HIGH S CRUDE ONLY) | | | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** | 407 | 5 |
| (NONE OR NO COMMENT) | 31 | 6 | ****** | *** | | | 240 | 4 | ****** | *** | ****** | *** | 1,170 | 16 |
| NON ENVIRON PHYSICAL RSTR | | | | | | | | | | | | | | |
| CRUDE UNIT METALLURGY | 20 | 4 | 156 | 7 | ****** | *** | 369 | 6 | 774 | 6 | ****** | *** | 1,841 | 27 |
| SULFUR RECOVERY CAP | | | | | ****** | *** | ****** | *** | | | | | ****** | *** |
| DESULFURIZATION CAP | ****** | *** | ****** | *** | 136 | 3 | | | | | | | 183 | 6 |
| RESID STORE,SEG,HANDLING | | | | | ****** | *** | ****** | *** | | | ****** | *** | 413 | 5 |
| LIMITED COKING CAP | | | | | | | | | ****** | *** | | | ****** | *** |
| DOWNSTREAM UNITS | | | | | | | ****** | *** | | | | | ****** | *** |
| CRUDE UNIT OVERHEAD CAP | | | | | | | | | ****** | *** | | | ****** | *** |
| (NONE OR NO COMMENT) | 20 | 4 | ****** | *** | 182 | 4 | 255 | 4 | ****** | *** | ****** | *** | 1,199 | 18 |

Table C.9.10.7

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

REGULATORY AND PHYSICAL CONSTRAINTS UPON A 20 % SUBSTITUTION USING HIGH SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 3

| | REFINERY SIZE (MBPCD) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| SULFUR REG CHANGES REQD | | | | | | | | | | | | | | |
| PCT S IN LIGHT PRODUCTS | 23 | 4 | ****** | *** | | | ****** | *** | 505 | 4 | 2,443 | 6 | 3,289 | 19 |
| PCT S IN HVY FUEL OILS | ****** | *** | 67 | 3 | | | ****** | *** | ****** | *** | 1,292 | 4 | 1,575 | 11 |
| PCT S IN AIR EMISSIONS | 24 | 3 | 173 | 8 | ****** | *** | ****** | *** | 648 | 5 | 1,159 | 4 | 2,264 | 24 |
| PCT S IN COKE | | | ****** | *** | | | | | | | ****** | *** | ****** | *** |
| (SWEET NOT OVER 0.5% S) | | | | | ****** | *** | | | | | | | ****** | *** |
| (HIGH S CRUDE ONLY) | ****** | *** | ****** | *** | | | ****** | *** | | | | | ****** | *** |
| (CONDENSATE ONLY) | ****** | *** | ****** | *** | | | | | | | | | 22 | 3 |
| (NONE OR NO COMMENT) | 65 | 12 | 187 | 9 | ****** | *** | ****** | *** | | | 950 | 3 | 1,516 | 31 |
| NON ENVIRON PHYSICAL RSTR | | | | | | | | | | | | | | |
| CRUDE UNIT METALLURGY | 42 | 7 | 245 | 12 | 155 | 4 | 303 | 4 | 509 | 4 | 2,603 | 7 | 3,856 | 38 |
| SULFUR RECOVERY CAP | | | | | | | | | ****** | *** | ****** | *** | 1,141 | 4 |
| DESULFURIZATION CAP | ****** | *** | ****** | *** | ****** | *** | ****** | *** | | | ****** | *** | 523 | 9 |
| RESID STORE,SEG,HANDLING | | | ****** | *** | | | | | 463 | 4 | ****** | *** | 2,604 | 12 |
| LIMITED COKING CAP | | | ****** | *** | | | | | | | ****** | *** | ****** | *** |
| DOWNSTREAM UNITS | | | ****** | *** | | | | | | | ****** | *** | ****** | *** |
| (NONE OR NO COMMENT) | 58 | 11 | 93 | 5 | ****** | *** | 218 | 3 | ****** | *** | ****** | *** | 1,179 | 25 |

Table C.9.10.8

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

REGULATORY AND PHYSICAL CONSTRAINTS UPON A 20 % SUBSTITUTION USING HIGH SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 4

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| SULFUR REG CHANGES REQD | | | | | | | | | | | | | | |
| PCT S IN LIGHT PRODUCTS | ****** | *** | ****** | *** | ****** | *** | | | | | | | 199 | 7 |
| PCT S IN HVY FUEL OILS | ****** | *** | ****** | *** | ****** | *** | | | | | | | 180 | 5 |
| PCT S IN AIR EMISSIONS | ****** | *** | 107 | 5 | ****** | *** | | | | | | | 215 | 10 |
| (CONDENSATE ONLY) | ****** | *** | | | | | | | | | | | ****** | *** |
| (NONE OR NO COMMENT) | ****** | *** | ****** | *** | 158 | 4 | | | | | | | 179 | 8 |
| NON ENVIRON PHYSICAL RSTR | | | | | | | | | | | | | | |
| CRUDE UNIT METALLURGY | 14 | 4 | ****** | *** | ****** | *** | | | | | | | 108 | 8 |
| SULFUR RECOVERY CAP | ****** | *** | ****** | *** | ****** | *** | | | | | | | 96 | 5 |
| DESULFURIZATION CAP | | | ****** | *** | ****** | *** | | | | | | | ****** | *** |
| RESID STORE,SEG,HANDLING | ****** | *** | ****** | *** | ****** | *** | | | | | | | ****** | *** |
| DOWNSTREAM UNITS | | | | | ****** | *** | | | | | | | ****** | *** |
| CRUDE UNIT OVERHEAD CAP | ****** | *** | | | | | | | | | | | ****** | *** |
| (NONE OR NO COMMENT) | | | ****** | *** | ****** | *** | | | | | | | 103 | 3 |

Table C.9.10.9

NATIONAL PETROLEUM COUNCIL
1979 REFINERY SURVEY - PART I

10/23/79

REGULATORY AND PHYSICAL CONSTRAINTS UPON A 20 % SUBSTITUTION USING HIGH SULFUR CRUDE OIL
BY REFINERY SIZE WITHIN PAD 5

| | REFINERY SIZE (MBPCD) 0-10 | | 10-30 | | 30-50 | | 50-100 | | 100-175 | | 175 + | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF | CRUDE CAP MBPCD | NO OF REF |
| SULFUR REG CHANGES .REQD | | | | | | | | | | | | | | |
| PCT S IN LIGHT PRODUCTS | | | 92 | 4 | | | 214 | 3 | ****** | *** | ****** | *** | 592 | 9 |
| PCT S IN HVY FUEL OILS | | | 74 | 4 | ****** | *** | 322 | 4 | ****** | *** | ****** | *** | 1,214 | 14 |
| PCT S IN AIR EMISSIONS | ****** | *** | ****** | *** | | | 351 | 5 | ****** | *** | | | 592 | 9 |
| PCT S IN COKE | | | | | | | | | ****** | *** | | | ****** | *** |
| (HIGH S CRUDE ONLY) | ****** | *** | 86 | 4 | ****** | *** | | | ****** | *** | | | 238 | 8 |
| (NONE OR NO COMMENT) | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | ****** | *** | 843 | 12 |
| NON ENVIRON PHYSICAL RSTR | | | | | | | | | | | | | | |
| CRUDE UNIT METALLURGY | ****** | *** | 58 | 3 | | | ****** | *** | ****** | *** | | | 307 | 7 |
| SULFUR RECOVERY CAP | | | | | | | ****** | *** | | | | | ****** | *** |
| DESULFURIZATION CAP | | | | | | | | | ****** | *** | | | ****** | *** |
| RESID STORE,SEG,HANDLING | | | 98 | 4 | ****** | *** | ****** | *** | | | | | 442 | 9 |
| LIMITED COKING CAP | | | | | ****** | *** | | | ****** | *** | ****** | *** | ****** | *** |
| CRUDE UNIT OVERHEAD CAP | | | | | | | | | ****** | *** | | | ****** | *** |
| (NONE OR NO COMMENT) | 45 | 7 | 123 | 6 | 110 | 3 | ****** | *** | 446 | 4 | ****** | *** | 1,692 | 24 |

TABLE C.10.1.1

GASOLINE MANUFACTURING CAPABILITIES

BY LOCATION (PAD)

| LOCATION (PAD) | | UNLEADED GASOLINE R+M/2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1978 | | | 1980 | | | 1982 | | |
| | | 87 | 89 | 90 | 87 | 89 | 90 | 87 | 89 | 90 |
| I | Gasoline Volume (MBPCD) 1/ | | | | | | | | | |
| | Unleaded Grades | 579 | 418 | 312 | 676 | 414 | 276 | 715 | 466 | 323 |
| | Leaded Grades | 227 | 379 | 388 | 84 | 343 | 380 | 88 | 324 | 362 |
| | Total | 806 | 797 | 700 | 760 | 757 | 656 | 803 | 790 | 685 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 72% | 52% | 45% | 89% | 55% | 42% | 89% | 59% | 47% |
| | Leaded Grades | 28% | 48% | 55% | 11% | 45% | 58% | 11% | 41% | 53% |
| II | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 1369 | 1027 | 872 | 1740 | 1159 | 839 | 1857 | 1292 | 1037 |
| | Leaded Grades | 831 | 1151 | 1296 | 540 | 1092 | 1399 | 451 | 980 | 1225 |
| | Total | 2200 | 2178 | 2168 | 2280 | 2251 | 2238 | 2308 | 2272 | 2262 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 62% | 47% | 40% | 76% | 51% | 37% | 80% | 57% | 46% |
| | Leaded Grades | 38% | 53% | 60% | 24% | 49% | 63% | 20% | 43% | 54% |
| III | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 1787 | 1374 | 1179 | 2476 | 1944 | 1636 | 2789 | 2188 | 1862 |
| | Leaded Grades | 1182 | 1589 | 1737 | 731 | 1210 | 1513 | 577 | 1021 | 1328 |
| | Total | 2969 | 2963 | 2916 | 3207 | 3154 | 3149 | 3366 | 3209 | 3190 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 60% | 48% | 40% | 77% | 62% | 52% | 83% | 68% | 58% |
| | Leaded Grades | 40% | 54% | 60% | 23% | 38% | 48% | 17% | 32% | 42% |
| IV | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 114 | 95 | 85 | 160 | 110 | 86 | 179 | 155 | 141 |
| | Leaded Grades | 125 | 143 | 149 | 99 | 54 | 64 | 93 | 115 | 126 |
| | Total | 239 | 238 | 234 | 259 | 164 | 150 | 272 | 270 | 267 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 48% | 40% | 36% | 62% | 67% | 57% | 66% | 57% | 53% |
| | Leaded Grades | 52% | 60% | 64% | 38% | 33% | 43% | 34% | 43% | 47% |

| LOCATION (PAD) | | UNLEADED GASOLINE R+M/2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1978 | | | 1980 | | | 1982 | | |
| | | 87 | 89 | 90 | 87 | 89 | 90 | 87 | 89 | 90 |
| V | **Gasoline Volume (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 767 | 575 | 449 | 876 | 672 | 510 | 943 | 772 | 648 |
| | **Leaded Grades** | 285 | 405 | 530 | 226 | 420 | 512 | 197 | 356 | 464 |
| | **Total** | 1052 | 980 | 979 | 1102 | 1092 | 1022 | 1140 | 1128 | 1112 |
| | **Percentages (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 73% | 59% | 46% | 79% | 62% | 50% | 83% | 68% | 58% |
| | **Leaded Grades** | 27% | 41% | 54% | 21% | 38% | 50% | 17% | 32% | 42% |
| U.S. TOTAL | **Gasoline Volume (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 4615 | 3515 | 2973 | 5927 | 4335 | 3458 | 6484 | 4936 | 4125 |
| | **Leaded Grades** | 2613 | 3678 | 4203 | 1659 | 3159 | 4004 | 1383 | 2829 | 3605 |
| | **Total** | 7228 | 7193 | 7176 | 7586 | 7494 | 7462 | 7867 | 7765 | 7730 |
| | **Percentages (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 64 | 49 | 41 | 78 | 58 | 46 | 82 | 64 | 53 |
| | **Leaded Grades** | 36 | 51 | 59 | 22 | 42 | 54 | 18 | 36 | 47 |

1/ 89 and 90 R+M/2 data includes those refineries operating at maximum specification at lower grades. Leaded gasoline data includes the product volumes of those refineries manufacturing 100% leaded gasoline.

TABLE C.10.1.2

GASOLINE MANUFACTURING CAPABILITIES

BY REFINERY SIZE CATEGORY

UNLEADED GASOLINE R+M/2

| REFINERY SIZE (MBPCD) | | 1978 | | | 1980 | | | 1982 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 87 | 89 | 90 | 87 | 89 | 90 | 87 | 89 | 90 |
| 0-10 | Gasoline Volume (MBPCD) 1/ | | | | | | | | | |
| | Unleaded Grades | 12 | 12 | 11 | 23 | 21 | 21 | 29 | 28 | 28 |
| | Leaded Grades | 36 | 28 | 23 | 41 | 43 | 44 | 33 | 35 | 34 |
| | Total | 48 | 50 | 34 | 64 | 64 | 65 | 62 | 63 | 62 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 25% | 24% | 32% | 36% | 33% | 32% | 47% | 44% | 45% |
| | Leaded Grades | 75% | 76% | 68% | 64% | 67% | 68% | 53% | 56% | 55% |
| 10-30 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 129 | 101 | 85 | 157 | 127 | 118 | 188 | 155 | 145 |
| | Leaded Grades | 210 | 236 | 227 | 165 | 192 | 201 | 169 | 199 | 208 |
| | Total | 339 | 337 | 312 | 322 | 319 | 319 | 357 | 354 | 353 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 38% | 30% | 27% | 49% | 40% | 37% | 53% | 44% | 41% |
| | Leaded Grades | 62% | 70% | 73% | 51% | 60% | 63% | 47% | 56% | 59% |
| 30-50 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 314 | 264 | 231 | 417 | 346 | 304 | 462 | 390 | 346 |
| | Leaded Grades | 251 | 294 | 297 | 192 | 254 | 271 | 175 | 239 | 255 |
| | Total | 565 | 558 | 528 | 609 | 600 | 572 | 637 | 629 | 601 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 56% | 47% | 44% | 68% | 58% | 53% | 73% | 62% | 58% |
| | Leaded Grades | 44% | 53% | 56% | 32% | 42% | 47% | 27% | 38% | 42% |
| 50-100 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 861 | 655 | 543 | 1224 | 880 | 728 | 1307 | 974 | 818 |
| | Leaded Grades | 653 | 856 | 859 | 452 | 772 | 918 | 307 | 610 | 758 |
| | Total | 1514 | 1511 | 1402 | 1676 | 1652 | 1646 | 1614 | 1584 | 1576 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 57% | 43% | 39% | 73% | 53% | 44% | 81% | 61% | 52% |
| | Leaded Grades | 43% | 57% | 61% | 27% | 47% | 56% | 19% | 39% | 48% |

UNLEADED GASOLINE R+M/2

| REFINERY SIZE (MBPCD) | | 1978 | | | 1980 | | | 1982 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 87 | 89 | 90 | 87 | 89 | 90 | 87 | 89 | 90 |
| 100-175 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 1153 | 917 | 761 | 1364 | 965 | 730 | 1507 | 1042 | 913 |
| | Leaded Grades | 628 | 847 | 960 | 356 | 740 | 843 | 305 | 639 | 750 |
| | Total | 1781 | 1764 | 1721 | 1720 | 1705 | 1573 | 1812 | 1681 | 1663 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 65% | 52% | 44% | 79% | 57% | 46% | 83% | 62% | 55% |
| | Leaded Grades | 35% | 48% | 56% | 21% | 43% | 54% | 17% | 38% | 45% |
| 175+ | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 2147 | 1566 | 1262 | 2743 | 1998 | 1476 | 2991 | 2248 | 1719 |
| | Leaded Grades | 872 | 1446 | 1643 | 474 | 1180 | 1596 | 416 | 1131 | 1453 |
| | Total | 3019 | 3012 | 2905 | 3217 | 3178 | 3072 | 3407 | 3379 | 3172 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 71% | 52% | 43% | 85% | 63% | 48% | 88% | 67% | 54% |
| | Leaded Grades | 29% | 48% | 57% | 15% | 37% | 52% | 12% | 33% | 46% |
| U.S. TOTAL | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 4615 | 3515 | 2973 | 5927 | 4335 | 3458 | 6484 | 4936 | 4125 |
| | Leaded Grades | 2613 | 3678 | 4203 | 1659 | 3159 | 4004 | 1383 | 2829 | 3605 |
| | Total | 7228 | 7193 | 7176 | 7586 | 7494 | 7462 | 7867 | 7765 | 7730 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 64 | 49 | 41 | 78 | 58 | 46 | 82 | 64 | 53 |
| | Leaded Grades | 36 | 51 | 59 | 22 | 42 | 54 | 18 | 36 | 47 |

1/ 89 and 90 R+M/2 data includes those refineries operating at maximum specification at lower grades. Leaded gasoline data includes the product volumes of those refineries manufacturing 100% leaded gasoline.

TABLE C.10.1.3

GASOLINE MANUFACTURING CAPABILITIES

BY COMPANY SIZE CATEGORY

| COMPANY SIZE (MBPCD) | | UNLEADED GASOLINE R+M/2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1978 | | | 1980 | | | 1982 | | |
| | | 87 | 89 | 90 | 87 | 89 | 90 | 87 | 89 | 90 |
| 0-10 | Gasoline Volume (MBPCD) 1/ | | | | | | | | | |
| | Unleaded Grades | 4 | 1 | 1 | 9 | 3 | 1 | 16 | 4 | 1 |
| | Leaded Grades | 19 | 5 | 2 | 19 | 5 | 2 | 19 | 4 | 1 |
| | Total | 23 | 6 | 3 | 28 | 8 | 3 | 35 | 8 | 2 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 17% | 17% | 33% | 32% | 37% | 33% | 46% | 50% | 50% |
| | Leaded Grades | 83% | 83% | 67% | 68% | 63% | 67% | 54% | 50% | 50% |
| 10-30 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 54 | 46 | 40 | 76 | 65 | 61 | 97 | 85 | 81 |
| | Leaded Grades | 91 | 100 | 94 | 80 | 91 | 94 | 82 | 94 | 97 |
| | Total | 145 | 146 | 134 | 156 | 156 | 155 | 179 | 179 | 178 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 37% | 32% | 30% | 49% | 42% | 39% | 54% | 47% | 46% |
| | Leaded Grades | 63% | 68% | 70% | 51% | 58% | 61% | 46% | 53% | 54% |
| 30-50 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 67 | 44 | 40 | 132 | 113 | 106 | 155 | 134 | 120 |
| | Leaded Grades | 73 | 31 | 34 | 79 | 95 | 99 | 83 | 100 | 107 |
| | Total | 140 | 75 | 74 | 211 | 208 | 205 | 238 | 234 | 227 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 48% | 59% | 54% | 63% | 54% | 52% | 65% | 57% | 53% |
| | Leaded Grades | 52% | 41% | 46% | 37% | 46% | 48% | 35% | 43% | 47% |
| 50-100 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 165 | 137 | 121 | 251 | 208 | 182 | 317 | 258 | 220 |
| | Leaded Grades | 232 | 256 | 230 | 189 | 224 | 206 | 160 | 209 | 183 |
| | Total | 397 | 393 | 351 | 440 | 432 | 388 | 477 | 467 | 403 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 42% | 35% | 34% | 57% | 48% | 47% | 66% | 55% | 55% |
| | Leaded Grades | 58% | 65% | 66% | 43% | 52% | 53% | 34% | 45% | 45% |

## GASOLINE MANUFACTURING CAPABILITIES

### BY COMPANY SIZE CATEGORY

UNLEADED GASOLINE R+M/2

| COMPANY SIZE (MBPCD) | | 1978 | | | 1980 | | | 1982 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 87 | 89 | 90 | 87 | 89 | 90 | 87 | 89 | 90 |
| 100-175 | Gasoline Volume (MBPCD) [1] | | | | | | | | | |
| | Unleaded Grades | 192 | 165 | 145 | 351 | 201 | 153 | 391 | 205 | 115 |
| | Leaded Grades | 225 | 252 | 229 | 96 | 173 | 127 | 59 | 169 | 121 |
| | Total | 417 | 417 | 374 | 447 | 374 | 280 | 450 | 374 | 276 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 46% | 40% | 39% | 79% | 54% | 55% | 87% | 55% | 56% |
| | Leaded Grades | 54% | 60% | 61% | 21% | 46% | 45% | 13% | 45% | 44% |
| 175+ | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 4133 | 3101 | 2590 | 5109 | 3711 | 2888 | 5507 | 4178 | 3427 |
| | Leaded Grades | 1973 | 2974 | 3470 | 1197 | 2525 | 3324 | 979 | 2229 | 2955 |
| | Total | 6106 | 6075 | 6060 | 6306 | 6236 | 6212 | 6486 | 6407 | 6382 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 68% | 51% | 43% | 81% | 60% | 46% | 85% | 65% | 54% |
| | Leaded Grades | 32% | 49% | 57% | 19% | 40% | 54% | 15% | 35% | 46% |
| U.S. TOTAL | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 4615 | 3515 | 2973 | 5927 | 4335 | 3458 | 6484 | 4936 | 4125 |
| | Leaded Grades | 2613 | 3678 | 4203 | 1659 | 3159 | 4004 | 1383 | 2929 | 3605 |
| | Total | 7228 | 7193 | 7176 | 7586 | 7494 | 7462 | 7867 | 7765 | 7730 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 64% | 49% | 41% | 78% | 58% | 46% | 82% | 64% | 53% |
| | Leaded Grades | 36% | 51% | 59% | 22% | 42% | 54% | 18% | 36% | 47% |

[1] 89 and 90 R+M/2 data includes those refineries operating at maximum specification at lower grades. Leaded gasoline data includes the product volumes of those refineries manufacturing 100% leaded gasoline.

TABLE C.10.1.4

GASOLINE MANUFACTURING CAPABILITIES

BY REFINERY SIZE WITHIN PAD I

| REFINERY SIZE (MBPCD) | | UNLEADED GASOLINE R+M/2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1978 | | | 1980 | | | 1982 | | |
| | | 87 | 89 | 90 | 87 | 89 | 90 | 87 | 89 | 90 |
| 0-10 | Gasoline Volume (MBPCD) [1] | | | | | | | | | |
| | Unleaded Grades | * | * | * | * | * | * | * | * | * |
| | Leaded Grades | * | * | * | * | * | * | * | * | * |
| | Total | * | * | * | * | * | * | * | * | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | * | * | * | * | * | * | * | * | * |
| | Leaded Grades | * | * | * | * | * | * | * | * | * |
| 10-30 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | * | * | * | * | * | * | * | * | * |
| | Leaded Grades | * | * | * | * | * | * | * | * | * |
| | Total | * | * | * | * | * | * | * | * | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | * | * | * | * | * | * | * | * | * |
| | Leaded Grades | * | * | * | * | * | * | * | * | * |
| 30-50 [1] | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | | | | | | | | | |
| | Leaded Grades | | | | | | | | | |
| | Total | | | | | | | | | |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | | | | | | | | | |
| | Leaded Grades | | | | | | | | | |
| 50-100 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 109 | 79 | 68 | 128 | 51 | 37 | 154 | 96 | 76 |
| | Leaded Grades | 52 | 83 | 93 | 24 | 101 | 116 | 20 | 78 | 98 |
| | Total | 161 | 162 | 161 | 152 | 152 | 153 | 174 | 174 | 174 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 68 | 49 | 42 | 84 | 34 | 24 | 89 | 55 | 44 |
| | Leaded Grades | 32 | 51 | 58 | 16 | 66 | 76 | 11 | 45 | 56 |

[1]-Reclassified to protect confidentiality

GASOLINE MANUFACTURING CAPABILITIES (Cont.)

BY REFINERY SIZE WITHIN PAD I

**UNLEADED GASOLINE R+M/2**

| REFINERY SIZE (MBPCD) | | 1978 87 | 1978 89 [1] | 1978 90 [1] | 1980 87 | 1980 89 | 1980 90 | 1982 87 | 1982 89 | 1982 90 |
|---|---|---|---|---|---|---|---|---|---|---|
| 100-175 | **Gasoline Volume (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 268 | 216 | 185 | 262 | 186 | 130 | 273 | 188 | 134 |
| | **Leaded Grades** | 51 | 102 | 133 | 36 | 119 | 175 | 39 | 121 | 174 |
| | **Total** | 319 | 318 | 318 | 298 | 305 | 305 | 312 | 309 | 308 |
| | **Percentages (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 84 | 68 | 58 | 88 | 61 | 43 | 88 | 61 | 44 |
| | **Leaded Grades** | 16 | 32 | 42 | 12 | 39 | 57 | 12 | 39 | 56 |
| 175+ | **Gasoline Volume (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | * | * | * | * | * | * | * | * | * |
| | **Leaded Grades** | * | * | * | * | * | * | * | * | * |
| | **Total** | * | * | * | * | * | * | * | * | * |
| | **Percentages (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | * | * | * | * | * | * | * | * | * |
| | **Leaded Grades** | * | * | * | * | * | * | * | * | * |
| PAD I TOTAL | **Gasoline Volume (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 579 | 418 | 312 | 676 | 414 | 276 | 715 | 466 | 323 |
| | **Leaded Grades** | 227 | 379 | 388 | 84 | 343 | 380 | 88 | 324 | 362 |
| | **Total** | 806 | 797 | 700 | 760 | 757 | 656 | 803 | 790 | 685 |
| | **Percentages (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 72 | 52 | 45 | 89 | 55 | 42 | 89 | 59 | 47 |
| | **Leaded Grades** | 28 | 48 | 55 | 11 | 45 | 58 | 11 | 41 | 53 |

[1] 89 and 90 R+M/2 data includes those refineries operating at maximum specification at lower grades. Leaded gasoline data includes the product volumes of those refineries manufacturing 100% leaded gasoline.

TABLE C.10.1.5

GASOLINE MANUFACTURING CAPABILITIES

BY REFINERY SIZE WITHIN PAD II

| REFINERY SIZE (MBPCD) | | UNLEADED GASOLINE R+M/2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1978 | | | 1980 | | | 1982 | | |
| | | 87 | 89 | 90 | 87 | 89 | 90 | 87 | 89 | 90 |
| 0-10 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 2 | 1 | * | * | * | * | * | 2 | * |
| | Leaded Grades | 3 | 4 | * | * | * | * | * | 4 | * |
| | Total | 5 | 5 | * | * | * | * | * | 6 | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 40 | 20 | * | * | * | * | * | 33 | * |
| | Leaded Grades | 60 | 80 | * | * | * | * | * | 67 | * |
| 10-30 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 44 | 35 | * | * | 42 | * | * | 46 | * |
| | Leaded Grades | 63 | 90 | * | * | 61 | * | * | 62 | * |
| | Total | 107 | 125 | * | * | 103 | * | * | 108 | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 41 | 28 | * | * | 41 | * | * | 43 | * |
| | Leaded Grades | 59 | 72 | * | * | 59 | * | * | 57 | * |
| 30-50 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 157 | * | * | 157 | * | * | 185 | * | * |
| | Leaded Grades | 94 | * | * | 68 | * | * | 69 | * | * |
| | Total | 251 | * | * | 225 | * | * | 254 | * | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 63 | * | * | 70 | * | * | 73 | * | * |
| | Leaded Grades | 37 | * | * | 30 | * | * | 27 | * | * |
| 50-100 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 295 | * | * | 454 | 324 | 262 | 518 | * | * |
| | Leaded Grades | 317 | * | * | 205 | 325 | 385 | 151 | * | * |
| | Total | 612 | * | * | 659 | 649 | 647 | 669 | * | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 48 | * | * | 69 | 50 | 40 | 77 | * | * |
| | Leaded Grades | 52 | * | * | 31 | 50 | 60 | 23 | * | * |

GASOLINE MANUFACTURING CAPABILITIES (Cont.)

BY REFINERY SIZE WITHIN PAD II

UNLEADED GASOLINE R+M/2

| REFINERY SIZE (MBPCD) | | 1978 | | | 1980 | | | 1982 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 87 | 89 1/ | 90 1/ | 87 | 89 | 90 | 87 | 89 | 90 |
| 100-175 | **Gasoline Volume (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 437 | 340 | 280 | 483 | 306 | * | 532 | 381 | * |
| | **Leaded Grades** | 256 | 339 | 392 | 139 | 306 | * | 106 | 246 | * |
| | **Total** | 693 | 679 | 672 | 622 | 612 | * | 638 | 627 | * |
| | **Percentages (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 63 | 50 | 42 | 78 | 50 | * | 83 | 61 | * |
| | **Leaded Grades** | 37 | 50 | 58 | 22 | 50 | * | 17 | 39 | * |
| 175+ | **Gasoline Volume (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 434 | 294 | 253 | 587 | 355 | 190 | 560 | 331 | 240 |
| | **Leaded Grades** | 97 | 236 | 277 | 75 | 303 | 464 | 71 | 297 | 387 |
| | **Total** | 531 | 530 | 530 | 662 | 658 | 654 | 631 | 628 | 627 |
| | **Percentages (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 82 | 55 | 48 | 89 | 54 | 29 | 89 | 53 | 38 |
| | **Leaded Grades** | 18 | 45 | 52 | 11 | 46 | 71 | 11 | 47 | 62 |
| PAD II TOTAL | **Gasoline Volume (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 1369 | 1027 | 872 | 1740 | 1159 | 839 | 1657 | 1292 | 1037 |
| | **Leaded Grades** | 831 | 1151 | 1296 | 540 | 1092 | 1399 | 451 | 980 | 1225 |
| | **Total** | 2200 | 2178 | 2168 | 2280 | 2251 | 2238 | 2308 | 2272 | 2262 |
| | **Percentages (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 62 | 47 | 40 | 76 | 51 | 37 | 80 | 57 | 46 |
| | **Leaded Grades** | 38 | 53 | 60 | 24 | 49 | 63 | 20 | 43 | 54 |

1/ 89 and 90 R+M/2 data includes those refineries operating at maximum specification at lower grades. Leaded gasoline data includes the product volumes of those refineries manufacturing 100% leaded gasoline.

TABLE C.10.1.6

GASOLINE MANUFACTURING CAPABILITIES

BY REFINERY SIZE WITHIN PAD III

| REFINERY SIZE (MBPCD) | | UNLEADED GASOLINE R+M/2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1978 | | | 1980 | | | 1982 | | |
| | | 87 | 89 | 90 | 87 | 89 | 90 | 87 | 89 | 90 |
| 0-10 | Gasoline Volume (MBPCD) 1/ | | | | | | | | | |
| | Unleaded Grades | 4 | 4 | 4 | * | * | * | * | * | * |
| | Leaded Grades | 21 | 21 | 21 | * | * | * | * | * | * |
| | Total | 25 | 25 | 25 | * | * | * | * | * | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 16 | 16 | 16 | * | * | * | * | * | * |
| | Leaded Grades | 84 | 84 | 84 | * | * | * | * | * | * |
| 10-30 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 54 | 40 | 37 | 50 | 38 | 35 | 62 | 50 | 47 |
| | Leaded Grades | 68 | 80 | 83 | 59 | 70 | 73 | 65 | 76 | 79 |
| | Total | 122 | 120 | 120 | 109 | 108 | 108 | 127 | 126 | 126 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 44 | 33 | 31 | 46 | 35 | 32 | 49 | 40 | 37 |
| | Leaded Grades | 56 | 67 | 69 | 54 | 65 | 68 | 51 | 60 | 63 |
| 30-50 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 27 | * | * | * | * | * | * | * | * |
| | Leaded Grades | 50 | * | * | * | * | * | * | * | * |
| | Total | 77 | * | * | * | * | * | * | * | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 35 | * | * | * | * | * | * | * | * |
| | Leaded Grades | 65 | * | * | * | * | * | * | * | * |
| 50-100 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 215 | 185 | 171 | 353 | * | * | 329 | 287 | * |
| | Leaded Grades | 257 | 287 | 299 | 210 | * | * | 114 | 143 | * |
| | Total | 472 | 472 | 470 | 563 | * | * | 443 | 430 | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 46 | 39 | 36 | 63 | * | * | 74 | 67 | * |
| | Leaded Grades | 54 | 61 | 64 | 37 | * | * | 26 | 33 | * |

GASOLINE MANUFACTURING CAPABILITIES (Cont.)

BY REFINERY SIZE WITHIN PAD III

| REFINERY SIZE (MBPCD) | | UNLEADED GASOLINE R+M/2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1978 | | | 1980 | | | 1982 | | |
| | | 87 [1] | 89 [1] | 90 | 87 | 89 | 90 | 87 | 89 | 90 |
| 100-175 | **Gasoline Volume (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 178 | * | * | 300 | 214 | * | 342 | 253 | * |
| | **Leaded Grades** | 185 | * | * | 88 | 164 | * | 92 | 168 | * |
| | **Total** | 363 | * | * | 388 | 378 | * | 434 | 421 | * |
| | **Percentages (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 49 | * | * | 77 | 57 | * | 79 | 60 | * |
| | **Leaded Grades** | 51 | * | * | 23 | 43 | * | 21 | 40 | * |
| 175+ | **Gasoline Volume (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 1311 | 983 | 828 | 1674 | 1301 | 1058 | 1948 | 1571 | * |
| | **Leaded Grades** | 600 | 925 | 1077 | 318 | 663 | 910 | 257 | 617 | * |
| | **Total** | 1911 | 1908 | 1905 | 1992 | 1964 | 1968 | 2205 | 2188 | * |
| | **Percentages (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 69 | 52 | 43 | 84 | 66 | 54 | 88 | 72 | * |
| | **Leaded Grades** | 31 | 48 | 57 | 16 | 34 | 46 | 12 | 28 | * |
| PAD III TOTAL | **Gasoline Volume (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 1787 | 1374 | 1179 | 2476 | 1944 | 1636 | 2789 | 2188 | 1862 |
| | **Leaded Grades** | 1182 | 1589 | 1737 | 731 | 1210 | 1513 | 577 | 1021 | 1328 |
| | **Total** | 2969 | 2963 | 2916 | 3207 | 3154 | 3149 | 3366 | 3209 | 3190 |
| | **Percentages (MBPCD)** | | | | | | | | | |
| | **Unleaded Grades** | 60 | 46 | 40 | 77 | 62 | 52 | 83 | 68 | 58 |
| | **Leaded Grades** | 40 | 54 | 60 | 23 | 38 | 48 | 17 | 32 | 42 |

[1] 89 and 90 R+M/2 data includes those refineries operating at maximum specification at lower grades. Leaded gasoline data includes the product volumes of those refineries manufacturing 100% leaded gasoline.

TABLE C.10.1.7

GASOLINE MANUFACTURING CAPABILITIES

BY REFINERY SIZE WITHIN PAD IV

UNLEADED GASOLINE R+M/2

| REFINERY SIZE (MBPCD) | | 1978 | | | 1980 | | | 1982 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 87 | 89 | 90 | 87 | 89 | 90 | 87 | 89 | 90 |
| 0-10 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | * | * | * | * | * | * | * | * | * |
| | Leaded Grades | * | * | * | * | * | * | * | * | * |
| | Total | * | * | * | * | * | * | * | * | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | * | * | * | * | * | * | * | * | * |
| | Leaded Grades | * | * | * | * | * | * | * | * | * |
| 10-30 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | * | * | * | * | * | * | * | * | * |
| | Leaded Grades | * | * | * | * | * | * | * | * | * |
| | Total | * | * | * | * | * | * | * | * | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | * | * | * | * | * | * | * | * | * |
| | Leaded Grades | * | * | * | * | * | * | * | * | * |
| 30-50 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 96 | * | * | 125 | 110 | 94 | 138 | 118 | 106 |
| | Leaded Grades | 63 | * | * | 54 | 65 | 80 | 54 | 69 | 82 |
| | Total | 159 | * | * | 179 | 175 | 174 | 192 | 187 | 188 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 60 | * | * | 70 | 63 | 54 | 72 | 63 | 56 |
| | Leaded Grades | 40 | * | * | 30 | 37 | 46 | 28 | 37 | 44 |
| PAD IV TOTAL | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 114 | 95 | 85 | 160 | 110 | 86 | 179 | 155 | 141 |
| | Leaded Grades | 125 | 143 | 149 | 99 | 54 | 64 | 93 | 115 | 126 |
| | Total | 239 | 238 | 234 | 259 | 164 | 150 | 272 | 170 | 267 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 48 | 40 | 36 | 62 | 67 | 57 | 66 | 57 | 53 |
| | Leaded Grades | 52 | 60 | 64 | 38 | 33 | 43 | 34 | 43 | 47 |

**TABLE** C.10.1.8

**GASOLINE MANUFACTURING CAPABILITIES**

**BY REFINERY SIZE WITHIN PAD V**

| REFINERY SIZE (MBPCD) | | UNLEADED GASOLINE R+M/2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1978 | | | 1980 | | | 1982 | | |
| | | 87 | 89 | 90 | 87 | 89 | 90 | 87 | 89 | 90 |
| 0-10 | 1/Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | | | | | | | | | |
| | Leaded Grades | | | | | | | | | |
| | Total | | | | | | | | | |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | | | | | | | | | |
| | Leaded Grades | | | | | | | | | |
| 10-30 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 13 | 12 | 11 | 23 | * | * | 29 | * | * |
| | Leaded Grades | 25 | 26 | 27 | 19 | * | * | 17 | * | * |
| | Total | 38 | 38 | 38 | 42 | * | * | 46 | * | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 34 | 32 | 29 | 55 | * | * | 63 | * | * |
| | Leaded Grades | 66 | 68 | 71 | 45 | * | * | 37 | * | * |
| 30-50 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | * | * | * | * | * | * | * | * | * |
| | Leaded Grades | * | * | * | * | * | * | * | * | * |
| | Total | * | * | * | * | * | * | * | * | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | * | * | * | * | * | * | * | * | * |
| | Leaded Grades | * | * | * | * | * | * | * | * | * |
| 50-100 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 242 | * | * | 289 | * | * | 306 | * | * |
| | Leaded Grades | 26 | * | * | 12 | * | * | 22 | * | * |
| | Total | 268 | * | * | 301 | * | * | 328 | * | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 90 | * | * | 96 | * | * | 93 | * | * |
| | Leaded Grades | 10 | * | * | 4 | * | * | 7 | * | * |

1/ No related gasoline production data was reported by PAD V/0-10 MBPCD Refineries.

GASOLINE MANUFACTURING CAPABILITIES (Cont.)

BY REFINERY SIZE WITHIN PAD V.

| REFINERY SIZE (MBPCD) | | UNLEADED GASOLINE R+M/2 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1978 | | | 1980 | | | 1982 | | |
| | | 87 | 89 [1] | 90 [1] | 87 | 89 | 90 | 87 | 89 | 90 |
| 100-175 | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 271 | * | * | 320 | 259 | 196 | 360 | 321 | 292 |
| | Leaded Grades | 135 | * | * | 93 | 151 | 148 | 69 | 104 | 134 |
| | Total | 406 | * | * | 413 | 410 | 344 | 429 | 425 | 426 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 67 | * | * | 77 | 63 | 57 | 84 | 76 | 69 |
| | Leaded Grades | 33 | * | * | 23 | 37 | 43 | 16 | 24 | 31 |
| 175+ | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | * | * | * | * | * | * | * | * | * |
| | Leaded Grades | * | * | * | * | * | * | * | * | * |
| | Total | * | * | * | * | * | * | * | * | * |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | * | * | * | * | * | * | * | * | * |
| | Leaded Grades | * | * | * | * | * | * | * | * | * |
| PAD V TOTAL | Gasoline Volume (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 767 | 575 | 449 | 876 | 672 | 510 | 943 | 772 | 648 |
| | Leaded Grades | 271 | 405 | 530 | 226 | 420 | 512 | 197 | 356 | 464 |
| | Total | 1052 | 980 | 979 | 1102 | 1092 | 1022 | 1140 | 1128 | 1112 |
| | Percentages (MBPCD) | | | | | | | | | |
| | Unleaded Grades | 73 | 59 | 46 | 79 | 62 | 50 | 83 | 68 | 58 |
| | Leaded Grades | 27 | 41 | 54 | 21 | 38 | 50 | 17 | 32 | 42 |

[1] 89 and 90 R+M/2 data includes those refineries operating at maximum specification at lower grades. Leaded gasoline data includes the product volumes of those refineries manufacturing 100% leaded gasoline.

TABLE C.10.2.1

REFINERIES REPORTING INABILITY TO MANUFACTURE

87 R+M/2 UNLEADED GASOLINE

BY LOCATION (PAD)

| LOCATION (PAD) | | 1978 | 1980 | 1982 |
|---|---|---|---|---|
| I | Crude Oil Capacity (MBPCD) | 121 | 182 | 196 |
| | Number of Refineries | 11 | 11 | 11 |
| | Gasoine (MBPCD) | 2 | 3 | 1 |
| II | Crude Oil Capacity (MBPCD) | 89 | 84 | 94 |
| | Number of Refineries | 11 | 10 | 10 |
| | Gasoline (MBPCD) | 2 | 0 | 0 |
| III | Crude Oil Capacity (MBPCD) | 347 | 321 | 323 |
| | Number of Refineries | 30 | 27 | 23 |
| | Gasoline (MBPCD) | 9 | 9 | 13 |
| IV | Crude Oil Capacity (MBPCD) | 39 | 19 | 19 |
| | Number of Refineries | 6 | 4 | 4 |
| | Gasoline (MBPCD) | 10 | 5 | 5 |
| V | Crude Oil Capacity (MBPCD) | 291 | 267 | 238 |
| | Number of Refineries | 19 | 16 | 15 |
| | Gasoline (MBPCD) | 14 | 4 | 4 |
| ALL | Crude Oil Capacity (MBPCD) | 887 | 872 | 869 |
| | Number of Refineries | 77 | 68 | 63 |
| | Gasoline (MBPCD) | 37 | 20 | 22 |

TABLE C.10.2.2

REFINERIES REPORTING INABILITY TO MANUFACTURE

89 R+M/2 UNLEADED GASOLINE

BY LOCATION (PAD)

| LOCATION (PAD) | | 1978 | 1980 | 1982 |
|---|---|---|---|---|
| I | Crude Oil Capacity (MBPCD) | 157 | 219 | 235 |
| | Number of Refineries | 16 | 16 | 16 |
| | Gasoine (MBPCD) | 10 | 11 | 10 |
| II | Crude Oil Capacity (MBPCD) | 910 | 772 | 728 |
| | Number of Refineries | 24 | 20 | 19 |
| | Gasoline (MBPCD) | 439 | 379 | 356 |
| III | Crude Oil Capacity (MBPCD) | 1,038 | 565 | 598 |
| | Number of Refineries | 47 | 39 | 38 |
| | Gasoline (MBPCD) | 344 | 99 | 123 |
| IV | Crude Oil Capacity (MBPCD) | 251 | 251 | 284 |
| | Number of Refineries | 14 | 13 | 14 |
| | Gasoline (MBPCD) | 97 | 94 | 123 |
| V | Crude Oil Capacity (MBPCD) | 476 | 441 | 352 |
| | Number of Refineries | 21 | 20 | 18 |
| | Gasoline (MBPCD) | 82 | 34 | 23 |
| ALL | Crude Oil Capacity (MBPCD) | 2,833 | 2,248 | 2,196 |
| | Number of Refineries | 122 | 108 | 105 |
| | Gasoline (MBPCD) | 972 | 617 | 635 |

TABLE C.10.2.3

REFINERIES REPORTING INABILITY TO MANUFACTURE

90 R+M/2 UNLEADED GASOLINE

BY LOCATION (PAD)

| LOCATION (PAD) | | 1978 | 1980 | 1982 |
|---|---|---|---|---|
| I | Crude Oil Capacity (MBPCD) | 364 | 426 | 468 |
| | Number of Refineries | 17 | 17 | 17 |
| | Gasoine (MBPCD) | 110 | 109 | 113 |
| II | Crude Oil Capacity (MBPCD) | 1,201 | 1,193 | 1,159 |
| | Number of Refineries | 32 | 30 | 29 |
| | Gasoline (MBPCD) | 599 | 590 | 576 |
| III | Crude Oil Capacity (MBPCD) | 1,152 | 900 | 1,171 |
| | Number of Refineries | 48 | 44 | 44 |
| | Gasoline (MBPCD) | 385 | 333 | 411 |
| IV | Crude Oil Capacity (MBPCD) | 256 | 281 | 289 |
| | Number of Refineries | 15 | 15 | 15 |
| | Gasoline (MBPCD) | 99 | 110 | 125 |
| V | Crude Oil Capacity (MBPCD) | 476 | 567 | 416 |
| | Number of Refineries | 21 | 21 | 19 |
| | Gasoline (MBPCD) | 82 | 95 | 36 |
| ALL | Crude Oil Capacity (MBPCD) | 3,450 | 3,366 | 3,503 |
| | Number of Refineries | 133 | 127 | 124 |
| | Gasoline (MBPCD) | 1,274 | 1,237 | 1,260 |

TABLE C.10.3.1

REFINERIES REPORTING INABILITY TO MANUFACTURE

87 R+M/2 UNLEADED GASOLINE

BY REFINERY SIZE CATEGORY

| REFINERY SIZE CATEGORIES (MBPCD) | | 1978 | 1980 | 1982 |
|---|---|---|---|---|
| 0-10 | Crude Oil Capacity (MBPCD) | 243 | 210 | 179 |
| | Number of Refineries | 46 | 36 | 31 |
| | Gasoine (MBPCD) | 11 | 8 | 3 |
| 10-30 | Crude Oil Capacity (MBPCD) | 465 | 435 | 474 |
| | Number of Refineries | 26 | 26 | 27 |
| | Gasoline (MBPCD) | 26 | 12 | 19 |
| 30-50 | Crude Oil Capacity (MBPCD) | 180 | 229 | 216 |
| | Number of Refineries | 5 | 6 | 5 |
| | Gasoline (MBPCD) | 0 | 0 | 0 |
| 50-100 | Crude Oil Capacity (MBPCD) | 0 | * | * |
| | Number of Refineries | 0 | * | * |
| | Gasoline (MBPCD) | 0 | * | * |
| 100+ | Crude Oil Capacity (MBPCD) | 0 | 0 | 0 |
| | Number of Refineries | | | |
| | Gasoline (MBPCD) | | | |
| ALL | Crude Oil Capacity (MBPCD) | 887 | 872 | 869 |
| | Number of Refineries | 77 | 68 | 63 |
| | Gasoline (MBPCD) | 37 | 20 | 22 |

*/ Merged with 30-50 Class to Protect Confidentiality

TABLE C.10.3.2

REFINERIES REPORTING INABILITY TO MANUFACTURE

89 R+M/2 UNLEADED GASOLINE

BY REFINERY SIZE CATEGORY

| REFINERY SIZE CATEGORIES (MBPCD) | | 1978 | 1980 | 1982 |
|---|---|---|---|---|
| 0-10 | Crude Oil Capacity (MBPCD) | 297 | 276 | 253 |
| | Number of Refineries | 54 | 46 | 42 |
| | Gasoine (MBPCD) | 40 | 45 | 44 |
| 10-30 | Crude Oil Capacity (MBPCD) | 793 | 712 | 806 |
| | Number of Refineries | 42 | 40 | 44 |
| | Gasoline (MBPCD) | 171 | 122 | 162 |
| 30-50 | Crude Oil Capacity (MBPCD) | 490 | 477 | 467 |
| | Number of Refineries | 12 | 12 | 11 |
| | Gasoline (MBPCD) | 111 | 117 | 32 |
| 50-100 | Crude Oil Capacity (MBPCD) | 744 | 373 | 260 |
| | Number of Refineries | 10 | 7 | 5 |
| | Gasoline (MBPCD) | 413 | 115 | 72 |
| 100+ | Crude Oil Capacity (MBPCD) | 509 | 410 | 410 |
| | Number of Refineries | 4 | 3 | 3 |
| | Gasoline (MBPCD) | 238 | 218 | 225 |
| ALL | Crude Oil Capacity (MBPCD) | 2,833 | 2,248 | 2,196 |
| | Number of Refineries | 122 | 108 | 105 |
| | Gasoline (MBPCD) | 972 | 617 | 635 |

TABLE C.10.3.3

REFINERIES REPORTING INABILITY TO MANUFACTURE

90 R+M/2 UNLEADED GASOLINE

BY REFINERY SIZE CATEGORY

| REFINERY SIZE CATEGORIES (MBPCD) | | 1978 | 1980 | 1982 |
|---|---|---|---|---|
| 0-10 | Crude Oil Capacity (MBPCD) | 313 | 299 | 277 |
| | Number of Refineries | 57 | 50 | 46 |
| | Gasoine (MBPCD) | 46 | 58 | 58 |
| 10-30 | Crude Oil Capacity (MBPCD) | 839 | 821 | 890 |
| | Number of Refineries | 44 | 45 | 48 |
| | Gasoline (MBPCD) | 196 | 177 | 205 |
| 30-50 | Crude Oil Capacity (MBPCD) | 540 | 524 | 551 |
| | Number of Refineries | 13 | 13 | 13 |
| | Gasoline (MBPCD) | 139 | 138 | 158 |
| 50-100 | Crude Oil Capacity (MBPCD) | 929 | 850 | 627 |
| | Number of Refineries | 13 | 13 | 10 |
| | Gasoline (MBPCD) | 515 | 431 | 274 |
| 100+ | Crude Oil Capacity (MBPCD) | 830 | 873 | 1,158 |
| | Number of Refineries | 6 | 6 | 7 |
| | Gasoline (MBPCD) | 378 | 434 | 567 |
| ALL | Crude Oil Capacity (MBPCD) | 3,450 | 3,366 | 3,503 |
| | Number of Refineries | 133 | 127 | 124 |
| | Gasoline (MBPCD) | 1,274 | 1,237 | 1,260 |

Table C.11.1.1

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

Based upon anticipated operation meeting normal demands for other products and under normal economic conditions, report of the capability to produce low sulfur heavy fuel oils of the alternate grades specified below, also the quality and quantity of the balance of heavy fuel oil production. (The maximum quantity that can be produced for each grade, independent of the other grades and the quantity wt. % sulfur content for the balance of heavy fuel oil. Each grade specifies a separate situation and vertical columns are not additive.)

U.S. Totals by Location (PAD)

| Refinery Location (PADs) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 | | | 1982 | | |
|---|---|---|---|---|---|---|---|
| | | MBPCD Low S HFO | Balance of HFO MBPCD HFO | Balance of HFO Wt. % S HFO | MBPCD Low S HFO | Balance of HFO MBPCD HFO | Balance of HFO Wt. % S HFO |
| PAD I | 0.1 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 3 | 1 | 1 | 3 | 1 | 1 |
| | 0.3 wt. % S Maximum | 37 | * | * | 37 | * | * |
| | MBPCD | 380 | | | 388 | | |
| | Number of Refineries | 5 | 1 | 1 | 5 | 1 | 1 |
| | 0.5 wt. % S Maximum | 121 | 28 | 2.32 | 119 | 43 | 1.97 |
| | MBPCD | 938 | | | 973 | | |
| | Number of Refineries | 10 | 3 | 3 | 10 | 4 | 4 |
| | 0.7 wt. % S Maximum | 124 | * | * | 131 | * | * |
| | MBPCD | 938 | | | 973 | | |
| | Number of Refineries | 10 | 2 | 2 | 10 | 3 | 3 |
| | 1.0 wt. % S Maximum | 133 | * | * | 143 | * | * |
| | MBPCD | 1,009 | | | 1,044 | | |
| | Number of Refineries | 12 | 3 | 3 | 12 | 3 | 3 |
| | 2.0 wt. % S Maximum | 193 | * | * | 210 | * | * |
| | MBPCD | 1,205 | | | 1,250 | | |
| | Number of Refineries | 17 | 1 | 1 | 17 | 1 | 1 |
| PAD II | 0.1 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | | | 1 | | |
| | 0.3 wt. % S Maximum | 7 | * | * | 5 | * | * |
| | MBPCD | 840 | | | 318 | | |
| | Number of Refineries | 6 | 5 | 5 | 4 | 4 | 4 |
| | 0.5 wt. % S Maximum | 23 | 39 | 1.92 | 23 | 44 | 1.41 |
| | MBPCD | 867 | | | 915 | | |
| | Number of Refineries | 11 | 4 | 4 | 11 | 5 | 5 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PAD II | 0.7 wt. % S Maximum | 33 | * | * | 37 | * | * |
| | MBPCD | 867 | | | 915 | | |
| | Number of Refineries | 11 | 3 | 3 | 11 | 4 | 4 |
| | 1.0 wt. % S Maximum | 101 | 41 | 2.48 | 104 | 43 | 2.19 |
| | MBPCD | 2,285 | | | 2,290 | | |
| | Number of Refineries | 33 | 9 | 9 | 32 | 9 | 9 |
| | 2.0 wt. % S Maximum | 177 | * | * | 183 | * | * |
| | MBPCD | 3,150 | | | 3,162 | | |
| | Number of Refineries | 47 | 1 | 1 | 46 | 1 | 1 |
| PAD III | 0.1 wt. % S Maximum | 5 | * | * | 7 | * | * |
| | MBPCD | 700 | | | 725 | | |
| | Number of Refineries | 5 | 2 | 2 | 5 | 2 | 2 |
| | 0.3 wt. % S Maximum | 86 | 91 | 1.26 | 69 | 135 | .83 |
| | MBPCD | 1,201 | | | 1,332 | | |
| | Number of Refineries | 20 | 7 | 7 | 20 | 9 | 9 |
| | 0.5 wt. % S Maximum | 145 | 81 | 1.89 | 170 | 86 | 1.17 |
| | MBPCD | 1,829 | | | 1,983 | | |
| | Number of Refineries | 26 | 8 | 8 | 26 | 10 | 10 |
| | 0.7 wt. % S Maximum | 268 | 77 | 2.35 | 310 | 88 | 2.18 |
| | MBPCD | 3,229 | | | 3,848 | | |
| | Number of Refineries | 42 | 9 | 9 | 42 | 12 | 12 |
| | 1.0 wt. % S Maximum | 410 | 92 | 2.87 | 466 | 110 | 2.80 |
| | MBPCD | 5,290 | | | 6,080 | | |
| | Number of Refineries | 59 | 11 | 11 | 59 | 11 | 11 |
| | 2.0 wt. % S Maximum | 498 | 28 | 3.08 | 536 | 51 | 2.84 |
| | MBPCD | 5,674 | | | 6,168 | | |
| | Number of Refineries | 62 | 3 | 3 | 62 | 4 | 4 |
| PAD IV | 0.1 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | | | 2 | | |
| | 0.3 wt. % S Maximum | 1 | | | 1 | | |
| | MBPCD | 35 | | | 35 | | |
| | Number of Refineries | 3 | | | 3 | | |
| | 0.5 wt. % S Maximum | 1 | | | 1 | | |
| | MBPCD | 36 | | | 36 | | |
| | Number of Refineries | 4 | | | 4 | | |
| | 0.7 wt. % S Maximum | 3 | | | 3 | | |
| | MBPCD | 40 | | | 40 | | |
| | Number of Refineries | 5 | | | 5 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PAD IV | 1.0 wt. % S Maximum | 9 | * | * | 9 | * | * |
| | MBPCD | 169 | | | 186 | | |
| | Number of Refineries | 8 | 2 | 2 | 9 | 2 | 2 |
| | 2.0 wt. % S Maximum | 14 | * | * | 15 | * | * |
| | MBPCD | 284 | | | 301 | | |
| | Number of Refineries | 12 | 2 | 2 | 13 | 2 | 2 |
| PAD V | 0.1 wt. % S Maximum | 103 | 132 | .86 | 125 | 113 | .93 |
| | MBPCD | 958 | | | 962 | | |
| | Number of Refineries | 6 | 6 | 6 | 6 | 5 | 5 |
| | 0.3 wt. % S Maximum | 266 | 130 | 1.70 | 296 | 110 | 1.86 |
| | MBPCD | 1,773 | | | 1,888 | | |
| | Number of Refineries | 17 | 14 | 14 | 18 | 14 | 14 |
| | 0.5 wt. % S Maximum | 319 | 89 | 1.97 | 350 | 86 | 1.95 |
| | MBPCD | 1,896 | | | 1,973 | | |
| | Number of Refineries | 19 | 13 | 13 | 20 | 13 | 13 |
| | 0.7 wt. % S Maximum | 342 | 71 | 1.98 | 375 | 64 | 2.00 |
| | MBPCD | 1,896 | | | 1,973 | | |
| | Number of Refineries | 19 | 9 | 9 | 20 | 9 | 9 |
| | 1.0 wt. % S Maximum | 401 | 38 | 2.00 | 431 | 33 | 2.04 |
| | MPBCD | 2,015 | | | 2,094 | | |
| | Number of Refineries | 24 | 7 | 7 | 25 | 6 | 6 |
| | 2.0 wt. % S Maximum | 560 | 21 | 2.11 | 567 | 21 | 2.11 |
| | MBPCD | 2,779 | | | 2,831 | | |
| | Number of Refineries | 38 | 3 | 3 | 38 | 3 | 3 |
| Total | 0.1 wt. % S Maximum | 129 | 223 | .94 | 153 | 227 | .81 |
| | MBPCD | 1,893 | | | 1,927 | | |
| | Number of Refineries | 17 | 9 | 9 | 17 | 8 | 8 |
| | 0.3 wt. % S Maximum | 397 | 296 | 1.61 | 408 | 329 | 1.37 |
| | MBPCD | 4,229 | | | 3,962 | | |
| | Number of Refineries | 51 | 27 | 27 | 50 | 28 | 28 |
| | 0.5 wt. % S Maximum | 608 | 237 | 1.97 | 663 | 259 | 1.60 |
| | MBPCD | 5,567 | | | 5,881 | | |
| | Number of Refineries | 70 | 28 | 28 | 71 | 32 | 32 |
| | 0.7 wt. % S Maximum | 771 | 200 | 2.21 | 856 | 203 | 2.03 |
| | MBPCD | 6,971 | | | 7,749 | | |
| | Number of Refineries | 87 | 23 | 23 | 88 | 28 | 28 |
| | 1.0 wt. % S Maximum | 1,052 | 201 | 2.59 | 1,154 | 217 | 2.54 |
| | MBPCD | 1,077 | | | 11,693 | | |
| | Number of Refineries | 136 | 32 | 32 | 137 | 31 | 31 |
| | 2.0 wt. % S Maximum | 1,441 | 56 | 2.69 | 1,511 | 79 | 2.65 |
| | MBPCD | 13,092 | | | 13,711 | | |
| | Number of Refineries | 176 | 10 | 10 | 176 | 11 | 11 |

Tables C-11.1.2

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

Based upon anticipated operation meeting normal demands for other products and under normal economic conditions, report of the capability to produce low sulfur heavy fuel oils of the alternate grades specified below, also the quality and quantity of the balance of heavy fuel oil production. (The maximum quantity that can be produced for each grade, independent of the other grades and the quantity wt. % sulfur content for the balance of heavy fuel oil. Each grade specifies a separate situation and vertical columns are not additive.)

By Refinery Size

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 - P | | | 1982 | | |
|---|---|---|---|---|---|---|---|
| | | MBPCD Low S HFO | Balance of HFO BPCD HFO | Balance of HFO Wt. % S HFO | MBPCD Low S HFO | Balance of HFO BPCD HFO | Balance of HFO Wt. % S HFO |
| 0-10 | 0.1 wt. % S Maximum | 5 | | | 6 | | |
| | MBPCD | 27 | | | 31 | | |
| | Number of Refineries | 6 | | | 6 | | |
| | 0.3 wt. % S Maximum | 19 | | | 12 | | |
| | MBPCD | 82 | | | 68 | | |
| | Number of Refineries | 13 | | | 11 | | |
| | 0.5 wt. % S Maximum | 29 | | | 22 | | |
| | MBPCD | 118 | | | 104 | | |
| | Number of Refineries | 21 | | | 19 | | |
| | 0.7 wt. % S Maximum | 32 | | | 26 | | |
| | MBPCD | 128 | | | 114 | | |
| | Number of Refineries | 23 | | | 21 | | |
| | 1.0 st. % S Maximum | 36 | | | 29 | | |
| | MBPCD | 145 | | | 131 | | |
| | Number of Refineries | 26 | | | 24 | | |
| | 2.0 wt. % S Maximum | 51 | * | * | 45 | * | * |
| | MBPCD | 183 | | | 169 | | |
| | Number of Refineries | 31 | 2 | 2 | 29 | 2 | 2 |
| 10-30 | 0.1 wt. % S Maximum | 6 | 5 | 1.22 | 6 | 5 | 1.22 |
| | MBPCD | 58 | | | 60 | | |
| | Number of Refineries | 3 | 1 | 1 | 3 | 1 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0.3 wt. % S Maximum | 46 | 37 | 1.50 | 46 | 36 | 1.56 |
| MBPCD | 282 | | | 314 | | |
| Number of Refineries | 14 | 6 | 6 | 15 | 7 | 7 |
| 0.5 wt. % S Maximum | 55 | 34 | 1.56 | 55 | 35 | 1.53 |
| MBPCD | 310 | | | 345 | | |
| Number of Refineries | 16 | | 6 | 17 | 7 | 7 |
| 0.7 wt. % S Maximum | 84 | | 1.79 | 83 | 20 | 1.93 |
| MBPCD | 459 | | | 469 | | |
| Number of Refineries | 23 | 3 | 3 | 23 | 4 | 4 |
| 1.0 wt. % S Maximum | 127 | 23 | 2.05 | 129 | 19 | 2.29 |
| MBPCD | 734 | | | 759 | | |
| Number of Refineries | 37 | 4 | 4 | 38 | 4 | 4 |
| 2.0 wt. % S Maximum | 196 | * | * | 194 | * | * |
| MBPCD | 885 | | | 940 | | |
| Number of Refineries | 45 | | 2 | 47 | 2 | 2 |
| 0.1 wt. % S Maximum | * | * | * | | | |
| MBPCD | * | | | | | |
| Number of Refineries | 2 | 2 | 2 | | | |
| 0.3 wt. % S Maximum | 26 | 46 | 1.43 | 28 | 28 | 1.94 |
| MBPCD | 265 | | | 221 | | |
| Number of Refineries | 6 | 6 | 6 | 5 | 5 | 5 |
| 0.5 wt. % S Maximum | 45 | 26 | 1.79 | 32 | 24 | 1.90 |
| MBPCD | 265 | | | 222 | | |
| Number of Refineries | 6 | 5 | 5 | 5 | 5 | 5 |
| 0.7 wt. % S Maximum | 59 | 29 | 1.71 | 38 | 33 | 1.61 |
| MBPCD | 376 | | | 333 | | |
| Number of Refineries | 9 | 3 | 3 | 8 | 4 | 4 |
| 1.0 wt. % S Maximum | 98 | 20 | 2.12 | 79 | 20 | 2.12 |
| MBPCD | 817 | | | 733 | | |
| Number of Refineries | 19 | 4 | 4 | 17 | 4 | 4 |
| 2.0 wt. % S Maximum | 154 | * | * | 119 | * | * |
| MBPCD | 1,100 | | | 995 | | |
| Number of Refineries | 26 | 2 | 2 | 23 | 2 | 2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 50-100 | 0.1 wt. % S Maximum | * | * | * | 54 | 30 |
| | MBPCD | * | | | 241 | |
| | Number of Refineries | 2 | 2 | 2 | 4 | 3 |
| | 0.3 wt. % S Maximum | 71 | 79 | 2.77 | 95 | 30 |
| | MBPCD | 304 | | | 426 | |
| | Number of Refineries | 4 | 3 | 3 | 6 | 4 |
| | 0.5 wt. % S Maximum | 125 | 11 | 2.27 | 169 | 34 |
| | MBPCD | 554 | | | 748 | |
| | Number of Refineries | 8 | 2 | 2 | 11 | 3 |
| | 0.7 wt. % S Maximum | 132 | 10 | 2.30 | 181 | 8 |
| | MBPCD | 651 | | | 748 | |
| | Number of Refineries | 9 | 2 | 2 | 11 | 2 |
| | 1.0 wt. % S Maximum | 173 | 30 | 2.20 | 215 | 30 |
| | MBPCD | 1,501 | | | 1,510 | |
| | Number of Refineries | 21 | 9 | 9 | 22 | 9 |
| | 2.0 wt. % S Maximum | 262 | * | * | 308 | * |
| | MBPCD | 2,395 | | | 2,414 | |
| | Number of Refineries | 35 | 2 | 2 | 36 | 2 |
| 100-175 | 0.1 wt. % S Maximum | | | | | |
| | MBPCD | | | | | |
| | Number of Refineries | | | | | |
| | 0.3 wt. % S Maximum | 21 | 51 | 1.68 | 26 | 56 |
| | MBPCD | 916 | | | 923 | |
| | Number of Refineries | 7 | 7 | 7 | 7 | 7 |
| | 0.5 wt. % S Maximum | 54 | 49 | 1.81 | 51 | 57 |
| | MBPCD | 1,318 | | | 1,324 | |
| | Number of Refineries | 10 | 9 | 9 | 10 | 10 |
| | 0.7 wt. % S Maximum | 81 | 32 | 2.33 | 76 | 32 |
| | MBPCD | 1,432 | | | 1,438 | |
| | Number of Refineries | 11 | 7 | 7 | 11 | 9 |
| | 1.0 wt. % S Maximum | 116 | 26 | 2.57 | 135 | 29 |
| | MBPCD | 1,969 | | | 2,156 | |
| | Number of Refineries | 15 | 6 | 6 | 16 | 5 |
| | 2.0 wt. % S Maximum | 184 | | | 204 | |
| | MBPCD | 2,422 | | | 2,610 | |
| | Number of Refineries | 19 | | | 20 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 175 and larger | 0.1 wt. % S Maximum | 86 | 188 | .98 | 87 | 193 | .81 |
| | MBPCD | 1,595 | | | 1,595 | | |
| | Number of Refineries | 4 | 4 | 4 | 4 | 4 | 4 |
| | 0.3 wt. % S Maximum | 215 | 154 | 1.60 | 200 | 178 | 1.16 |
| | MBPCD | 2,380 | | | 2,010 | | |
| | Number of Refineries | 7 | 5 | 5 | 6 | 5 | 5 |
| | 0.5 wt. % S Maximum | 299 | 117 | 2.18 | 334 | 108 | 1.64 |
| | MBPCD | 3,001 | | | 3,138 | | |
| | Number of Refineries | 9 | 6 | 6 | 9 | 7 | 7 |
| | 0.7 wt. % S Maximum | 382 | 107 | 2.39 | 452 | 111 | 2.18 |
| | MBPCD | 3,924 | | | 4,648 | | |
| | Number of Refineries | 12 | 8 | 8 | 14 | 9 | 9 |
| | 1.0 wt. % S Maximum | 502 | 102 | 2.91 | 567 | 119 | 2.75 |
| | MBPCD | 5,602 | | | 6,403 | | |
| | Number of Refineries | 18 | 9 | 9 | 20 | 9 | 9 |
| | 2.0 wt. % S Maximum | 595 | * | * | 641 | 48 | 2.86 |
| | MBPCD | 6,107 | | | 6,583 | | |
| | Number of Refineries | 20 | 2 | 2 | 21 | 3 | 3 |
| Total | 0.1 wt. % S Maximum | 129 | 223 | .94 | 153 | 227 | .81 |
| | MBPCD | 1,893 | | | 1,926 | | |
| | Number of Refineries | 17 | 9 | 9 | 17 | 8 | 8 |
| | 0.3 wt. % S Maximum | 397 | 296 | 1.61 | 407 | 329 | 1.37 |
| | MBPCD | 4,229 | | | 3,962 | | |
| | Number of Refineries | 51 | 27 | 27 | 50 | 28 | 28 |
| | 0.5 wt. % S Maximum | 608 | 237 | 1.97 | 663 | 259 | 1.60 |
| | MBPCD | 5,567 | | | 5,881 | | |
| | Number of Refineries | 70 | 28 | 28 | 71 | 32 | 32 |
| | 0.7 wt. % S Maximum | 771 | 200 | 2.21 | 856 | 203 | 2.03 |
| | MBPCD | 6,971 | | | 7,749 | | |
| | Number of Refineries | 87 | 23 | 23 | 88 | 28 | 28 |
| | 1.0 wt. % S Maximum | 1,052 | 201 | 2.59 | 1,154 | 217 | 2.54 |
| | MBPCD | 1,077 | | | 11,693 | | |
| | Number of Refineries | 136 | 32 | 32 | 137 | 31 | 31 |
| | 2.0 wt. % S Maximum | 1,441 | 56 | 2.69 | 1,511 | 79 | 2.65 |
| | MBPCD | 13,092 | | | 13,711 | | |
| | Number of Refineries | 176 | 10 | 10 | 176 | 11 | 11 |

Tables C-11.1.3

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

Based upon anticipated operation meeting normal demands for other products and under normal economic conditions, report of the capability to produce low sulfur heavy fuel oils of the alternate grades specified below, also the quality and quantity of the balance of heavy fuel oil production. (The maximum quantity that can be produced for each grade, independent of the other grades and the quantity wt. % sulfur content for the balance of heavy fuel oil. Each grade specifies situation and vertical columns are not additive.)

U.S. TOTALS BY COMPANY SIZE

| Company Size Category (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 - P | | | 1982 | | |
|---|---|---|---|---|---|---|---|
| | | MBPCD | Balance of HFO | | MBPCD | Balance of HFO | |
| | | Low S HFO | MBPCD HFO | Wt. % S HFO | Low S HFO | MBPCD HFO | Wt. % S HFO |
| 0-10 | 0.1 wt. % S Maximum | 4 | | | 5 | | |
| | MBPCD | 22 | | | 26 | | |
| | Number of Refineries | 5 | | | 5 | | |
| | 0.3 wt. % S Maximum | 18 | | | 10 | | |
| | MBPCD | 69 | | | 54 | | |
| | Number of Refineries | 11 | | | 9 | | |
| | 0.5 wt. % S Maximum | 26 | | | 19 | | |
| | MBPCD | 98 | | | 83 | | |
| | Number of Refineries | 17 | | | 15 | | |
| | 0.7 wt. % S Maximum | 30 | | | 22 | | |
| | MBPCD | 108 | | | 92 | | |
| | Number of Refineries | 19 | | | 17 | | |
| | 1.0 wt. % S Maximum | 30 | | | 22 | | |
| | MBPCD | 109 | | | 93 | | |
| | Number of Refineries | 20 | | | 18 | | |
| | 2.0 wt. % S Maximum | 43 | * | * | 35 | * | * |
| | MBPCD | 137 | | | 122 | | |
| | Number of Refineries | 23 | 1 | 1 | 21 | 1 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10-30 | 0.1 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 |
| | 0.3 wt. % S Maximum | 39 | 33 | 1.60 | 39 | 31 | 1.67 |
| | MBPCD | 187 | | | 219 | | |
| | Number of Refineries | 10 | 5 | 5 | 11 | 6 | 6 |
| | 0.5 wt. % S Maximum | 49 | 30 | 1.66 | 49 | 30 | 1.63 |
| | MBPCD | 219 | | | 253 | | |
| | Number of Refineries | 13 | 5 | 5 | 14 | 6 | 6 |
| | 0.7 wt. % S Maximum | 73 | 23 | 1.79 | 72 | 20 | 1.93 |
| | MBPCD | 349 | | | 359 | | |
| | Number of Refineries | 19 | 3 | 3 | 19 | 4 | 4 |
| | 1.0 wt. % S Maximum | 109 | 23 | 2.05 | 112 | 19 | 2.26 |
| | MBPCD | 547 | | | 572 | | |
| | Number of Refineries | 30 | 4 | 4 | 31 | 4 | 4 |
| | 2.0 wt. % S Maximum | 177 | 6 | 3.10 | 176 | 7 | 2.96 |
| | MBPCD | 648 | | | 703 | | |
| | Number of Refineries | 36 | 3 | 3 | 38 | 3 | 3 |
| 30-50 | 0.1 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.3 wt. % S Maximum | 9 | * | * | 17 | 17 | 1.79 |
| | MBPCD | 95 | | | 145 | | |
| | Number of Refineries | 3 | 2 | 2 | 4 | 3 | 3 |
| | 0.5 wt. % S Maximum | 11 | * | * | 19 | 16 | 1.75 |
| | MBPCD | 100 | | | | | |
| | Number of Refineries | 4 | 2 | 2 | 5 | 3 | 3 |
| | 0.7 wt. % S Maximum | * | * | * | 24 | 25 | 1.43 |
| | MBPCD | * | | | 261 | | |
| | Number of Refineries | 7 | 2 | 2 | 8 | 3 | 3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1.0 wt. % S Maximum | 43 | * | * | 55 | * | * |
| | MBPCD | 419 | | | 469 | | |
| | Number of Refineries | 12 | 2 | 2 | 13 | 2 | 2 |
| | 2.0 wt. % S Maximum | 75 | * | * | 89 | * | * |
| | MBPCD | 550 | | | 611 | | |
| | Number of Refineries | 16 | 1 | 1 | 17 | 1 | 1 |
| 50-100 | 0.1 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 7 | 4 | 4 | 6 | 3 | 3 |
| | 0.3 wt. % S Maximum | 40 | * | * | 35 | 32 | .65 |
| | MBPCD | 282 | | | 259 | | |
| | Number of Refineries | 8 | 5 | 5 | 7 | 4 | 4 |
| | 0.5 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 10 | 3 | 3 | 10 | 3 | 3 |
| | 0.7 wt. % S Maximum | 99 | * | * | * | * | * |
| | MBPCD | 374 | | | * | | |
| | Number of Refineries | 10 | 1 | 1 | 10 | 1 | 1 |
| | 1.0 wt. % S Maximum | 107 | * | * | 108 | * | * |
| | MBPCD | 572 | | | 575 | | |
| | Number of Refineries | 14 | 3 | 3 | 13 | 3 | 3 |
| | 2.0 wt. % S Maximum | 145 | | | 152 | | |
| | MBPCD | 731 | | | 738 | | |
| | Number of Refineries | 18 | | | 17 | | |
| 100-175 | 0.1 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.3 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0.5 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 |
| | 0.7 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | 1 | 1 | 2 | 1 | 1 |
| | 1.0 wt. % S Maximum | 39 | 9 | 1.82 | 40 | 9 | 1.82 |
| | MBPCD | 523 | | | 523 | | |
| | Number of Refineries | 5 | 3 | 3 | 5 | 3 | 3 |
| | 2.0 wt. % S Maximum | 52 | | | 53 | | |
| | MBPCD | 563 | | | 563 | | |
| | Number of Refineries | 6 | | | 6 | | |
| 175 and larger | 0.1 wt. % S Maximum | 86 | 188 | .98 | 111 | 193 | .81 |
| | MBPCD | 160 | | | 1,648 | | |
| | Number of Refineries | 4 | 4 | 4 | 5 | 4 | 4 |
| | 0.3 wt. % S Maximum | 291 | 221 | 1.69 | 306 | 249 | 1.40 |
| | MBPCD | 3,595 | | | 3,285 | | |
| | Number of Refineries | 19 | 15 | 15 | 19 | 15 | 15 |
| | 0.5 wt. % S Maximum | 433 | 169 | 2.19 | 486 | 166 | 1.82 |
| | MBPCD | 4,657 | | | 4,854 | | |
| | Number of Refineries | 25 | 17 | 17 | 26 | 19 | 19 |
| | 0.7 wt. % S Maximum | 534 | 147 | 2.39 | 615 | 150 | 2.16 |
| | MBPCD | 5,695 | | | 6,382 | | |
| | Number of Refineries | 30 | 16 | 16 | 32 | 19 | 19 |
| | 1.0 wt. % S Maximum | 724 | 144 | 2.81 | 817 | 163 | 2.68 |
| | MBPCD | 8,597 | | | 9,461 | | |
| | Number of Refineries | 55 | 20 | 20 | 57 | 19 | 19 |
| | 2.0 wt. % S Maximum | 948 | 47 | 2.66 | 1,007 | 69 | 2.63 |
| | MBPCD | 10,464 | | | | | |
| | Number of Refineries | 77 | 5 | 5 | 77 | 6 | 6 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Total | 0.1 wt. % S Maximum | 129 | 223 | .94 | 153 | 227 | .81 |
| | MBPCD | 1,893 | | | 1,927 | | |
| | Number of Refineries | 17 | 9 | 9 | 17 | 8 | 8 |
| | 0.3 wt. % S Maximum | 397 | 296 | 1.61 | 408 | 329 | 1.37 |
| | MBPCD | 4,229 | | | 3,962 | | |
| | Number of Refineries | 51 | 27 | 27 | 50 | 28 | 28 |
| | 0.5 wt. % S Maximum | 608 | 237 | 1.97 | 663 | 259 | 1.60 |
| | MBPCD | 5,567 | | | 5,881 | | |
| | Number of Refineries | 70 | 28 | 28 | 71 | 32 | 32 |
| | 0.7 wt. % S Maximum | 771 | 200 | 2.21 | 856 | 203 | 2.03 |
| | MBPCD | 6,971 | | | 7,749 | | |
| | Number of Refineries | 87 | 23 | 23 | 88 | 28 | 28 |
| | 1.0 wt. % S Maximum | 1,052 | 2,010 | 2.59 | 1,154 | 217 | 2.54 |
| | MBPCD | 10,767 | | | 11,693 | | |
| | Number of Refineries | 136 | 32 | 32 | 137 | 31 | 31 |
| | 2.0 wt. % S Maximum | 1,441 | 56 | 2.69 | 1,511 | 79 | 2.65 |
| | MBPCD | 13,092 | | | 13,711 | | |
| | Number of Refineries | 176 | 10 | 10 | 176 | 11 | 11 |

Table C.11.1.4 (Page 1 of 4)

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

Based upon anticipated operation meeting normal demands for other products and under normal economic conditions, report of the capability to produce low sulfur heavy fuel oils of the alternate grades specified below, also the quality and quantity of the balance of heavy fuel oil production. (The maximum quantity that can be produced for each grade, independent of the other grades and the quantity wt. % sulfur content for the balance of heavy fuel oil. Each grade specifies a separate situation and vertical columns are not additive.)

By Refinery Size Within PAD I

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD HFO | 1980 Balance of HFO Wt. % S HFO | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD HFO | 1982 Balance of HFO Wt. % S HFO |
|---|---|---|---|---|---|---|---|
| 0-10 | 0.1 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | | | 1 | | |
| | 0.3 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | | | 1 | | |
| | 0.5 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | | | 1 | | |
| | 0.7 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | | | 1 | | |
| | 1.0 st. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | | | 2 | | |
| | 2.0 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | | | 2 | | |
| 10-30 | 0.1 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | | | 1 | | |

Table C.11.1.4 (Page 2 of 4)

| | | | | | | |
|---|---|---|---|---|---|---|
| 10-30 | 0.3 wt. % S Maximum | * | | | * | |
| | MBPCD | * | | | * | |
| | Number of Refineries | 2 | | | 2 | |
| | 0.5 wt. % S Maximum | * | | | * | |
| | MBPCD | * | | | * | |
| | Number of Refineries | 2 | | | 2 | |
| | 0.7 wt. % S Maximum | * | | | * | |
| | MBPCD | * | | | * | |
| | Number of Refineries | 2 | | | 2 | |
| | 1.0 wt. % S Maximum | * | | | * | |
| | MBPCD | * | | | * | |
| | Number of Refineries | 2 | | | 2 | |
| | 2.0 wt. % S Maximum | 15 | * | * | 15 | * |
| | MBPCD | 51 | | | 53 | |
| | Number of Refineries | 4 | | | 4 | |
| 30-50 | 0.1 wt. % S Maximum | | | | | |
| | MBPCD | | | | | |
| | Number of Refineries | | | | | |
| | 0.3 wt. % S Maximum | | | | | |
| | MBPCD | | | | | |
| | Number of Refineries | | | | | |
| | 0.5 wt. % S Maximum | | | | | |
| | MBPCD | | | | | |
| | Number of Refineries | | | | | |
| | 0.7 wt. % S Maximum | | | | | |
| | MBPCD | | | | | |
| | Number of Refineries | | | | | |
| | 1.0 wt. % S Maximum | | | | | |
| | MBPCD | | | | | |
| | Number of Refineries | | | | | |
| | 2.0 wt. % S Maximum | | | | | |
| | MBPCD | | | | | |
| | Number of Refineries | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 50-100 | 0.1 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.3 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.5 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 3 | 1 | 1 | 3 | 1 | 1 |
| | 0.7 wt. % S Maximum | * | 6 | 1.50 | * | 6 | 1.50 |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 3 | 1 | 1 | 3 | 1 | 1 |
| | 1.0 wt. % S Maximum | 51 | * | * | 47 | * | * |
| | MBPCD | 244 | | | 244 | | |
| | Number of Refineries | 4 | 2 | 2 | 4 | 2 | 2 |
| | 2.0 wt. % S Maximum | 86 | | | 85 | | |
| | MBPCD | 415 | | | 425 | | |
| | Number of Refineries | 7 | | | 7 | | |
| 100-175 | 0.1 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.3 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 |
| | 0.5 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | 2 | 2 | 2 | 2 | 2 |
| | 0.7 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | 1 | 1 | 2 | 2 | 2 |
| | 1.0 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | 1 | 1 | 2 | 1 | 1 |
| | 2.0 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | | | 2 | | |

Table C.11.1.4 (Page 4 of 4)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 175+ | 0.1 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 |
| | 0.3 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | | | 1 | | |
| | 0.5 wt. % S Maximum | * | | | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | | | 2 | 1 | 1 |
| | 0.7 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | | | 2 | | |
| | 1.0 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | | | 2 | | |
| | 2.0 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | | | 2 | | |
| TOTAL | 0.1 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 3 | 1 | 1 | 3 | 1 | 1 |
| | 0.3 wt. % S Maximum | 37 | * | * | 37 | * | * |
| | MBPCD | 380 | | | 388 | | |
| | Number of Refineries | 5 | 1 | 1 | 5 | 1 | 1 |
| | 0.5 wt. % S Maximum | 121 | 28 | 2.32 | 119 | 43 | 1.97 |
| | MBPCD | 938 | | | 973 | | |
| | Number of Refineries | 10 | 3 | 3 | 10 | 4 | 4 |
| | 0.7 wt. % S Maximum | 124 | * | * | 131 | * | * |
| | MBPCD | 938 | | | 973 | | |
| | Number of Refineries | 10 | 2 | 2 | 10 | 3 | 3 |
| | 1.0 wt. % S Maximum | 133 | * | * | 143 | * | * |
| | MBPCD | 1009 | | | 1044 | | |
| | Number of Refineries | 12 | 3 | 3 | 12 | 3 | 3 |
| | 2.0 wt. % S Maximum | 193 | * | * | 210 | * | * |
| | MBPCD | 1205 | | | 1250 | | |
| | Number of Refineries | 17 | 1 | 1 | 17 | 1 | 1 |

Table C.11.1.5

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

Based upon anticipated operation meeting normal demands for other products and under normal economic conditions, report of the capability to produce low sulfur heavy fuel oils of the alternate grades specified below, also the quality and quantity of the balance of heavy fuel oil production. (The maximum quantity that can be produced for each grade, independent of the other grades and the quantity wt. % sulfur content for the balance of heavy fuel oil. Each grade specifies a separate situation and vertical columns are not additive.)

By Refinery Size Within PAD II

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD HFO | 1980 Balance of HFO Wt. % S HFO | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD HFO | 1982 Balance of HFO Wt. % S HFO |
|---|---|---|---|---|---|---|---|
| 0-10 | 0.1 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | | | 1 | | |
| | 0.3 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | | | 1 | | |
| | 0.5 wt. % S Maximum | 9 | | | 9 | | |
| | MBPCD | 35 | | | 38 | | |
| | Number of Refineries | 6 | | | 6 | | |
| | 0.7 wt. % S Maximum | 9 | | | 9 | | |
| | MBPCD | 35/ | | | 38 | | |
| | Number of Refineries | 6 | | | 6 | | |
| | 1.0 st. % S Maximum | 9 | | | 9 | | |
| | MBPCD | 36 | | | 39 | | |
| | Number of Refineries | 7 | | | 7 | | |
| | 2.0 wt. % S Maximum | 10 | * | * | 10 | * | * |
| | MBPCD | 44 | | | 47 | | |
| | Number of Refineries | 8 | 1 | 1 | 8 | 1 | 1 |
| 10-30 | 0.1 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10-30 | 0.3 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 |
| | 0.5 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 |
| | 0.7 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | | | 1 | | |
| | 1.0 wt. % S Maximum | 15 | | | 17 | | |
| | MBPCD | 159 | | | 165 | | |
| | Number of Refineries | 8 | | | 8 | | |
| | 2.0 wt. % S Maximum | 19 | | | 21 | | |
| | MBPCD | 208 | | | 215 | | |
| | Number of Refineries | 10 | | | 10 | | |
| 30-50 | 0.1 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.3 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.5 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.7 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 1.0 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 3 | 1 | 1 | 2 | 1 | 1 |
| | 2.0 wt. % S Maximum | 14 | | | 13 | | |
| | MBPCD | 269 | | | 232 | | |
| | Number of Refineries | 6 | | | 5 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 50-100 | 0.1 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.3 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.5 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.7 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 1.0 wt. % S Maximum | 18 | 19 | 2.19 | 18 | 21 | 2.24 |
| | MBPCD | 479 | | | 479 | | |
| | Number of Refineries | 7 | 5 | 5 | 7 | 5 | 5 |
| | 2.0 wt. % S Maximum | 47 | | | 50 | | |
| | MBPCD | 854 | | | 854 | | |
| | Number of Refineries | 13 | | | 13 | | |
| 100-175 | 0.1 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.3 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 3 | 3 | 3 | 2 | 2 | 2 |
| | 0.5 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 3 | 2 | 2 | 3 | 3 | 3 |
| | 0.7 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 3 | 2 | 2 | 3 | 3 | 3 |
| | 1.0 wt. % S Maximum | 22 | * | * | 22 | * | * |
| | MBPCD | 660 | | | 660 | | |
| | Number of Refineries | 5 | 1 | 1 | 5 | 1 | 1 |
| | 2.0 wt. % S Maximum | 32 | | | 32 | | |
| | MBPCD | 780 | | | 780 | | |
| | Number of Refineries | 6 | | | 6 | | |
| 175+ | 0.1 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 175+ | 0.3 | wt. % S Maximum | * | * | * | | * | * |
| | | MBPCD | * | | | | | |
| | | Number of Refineries | 1 | 1 | 1 | | 1 | 1 |
| | 0.5 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 |
| | 0.7 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 |
| | 1.0 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 3 | 2 | 2 | 3 | 2 | 2 |
| | 2.0 | wt. % S Maximum | 55 | | | 58 | | |
| | | MBPCD | 995 | | | 1035 | | |
| | | Number of Refineries | 4 | | | 4 | | |
| TOTAL | 0.1 | wt. % S Maximum | * | | | * | | |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 1 | | | 1 | | |
| | 0.3 | wt. % S Maximum | 7 | * | * | 5 | * | * |
| | | MBPCD | 840 | | | 318 | | |
| | | Number of Refineries | 6 | 5 | 5 | 4 | 4 | 4 |
| | 0.5 | wt. % S Maximum | 23 | 39 | 1.92 | 23 | 44 | 1.41 |
| | | MBPCD | 868 | | | 916 | | |
| | | Number of Refineries | 11 | 4 | 4 | 11 | 5 | 5 |
| | 0.7 | wt. % S Maximum | 33 | * | * | 37 | * | * |
| | | MBPCD | 868 | | | 916 | | |
| | | Number of Refineries | 11 | 3 | 3 | 11 | 4 | 4 |
| | 1.0 | wt. % S Maximum | 101 | 41 | 2.48 | 104 | 43 | 2.19 |
| | | MBPCD | 2285 | | | 2290 | | |
| | | Number of Refineries | 33 | 9 | 9 | 32 | 9 | 9 |
| | 2.0 | wt. % S Maximum | 177 | * | * | 183 | * | * |
| | | MBPCD | 3150 | | | 3162 | | |
| | | Number of Refineries | 47 | 1 | 1 | 46 | 1 | 1 |

Table C.11.1.6 :

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

Based upon anticipated operation meeting normal demands for other products and under normal economic conditions, report of the capability to produce low sulfur heavy fuel oils of the alternate grades specified below, also the quality and quantity of the balance of heavy fuel oil production. (The maximum quantity that can be produced for each grade, independent of the other grades and the quantity wt. % sulfur content for the balance of heavy fuel oil. Each grade specifies a separate situation and vertical columns are not additive.)

By Refinery Size Within PAD III

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD HFO | 1980 Balance of HFO Wt. % S HFO | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD HFO | 1982 Balance of HFO Wt. % S HFO |
|---|---|---|---|---|---|---|---|
| 0-10 | 0.1 wt. % S Maximum | 4 | | | 4 | | |
| | MBPCD | 15 | | | 16 | | |
| | Number of Refineries | 3 | | | 3 | | |
| | 0.3 wt. % S Maximum | 17 | | | 10 | | |
| | MBPCD | 60 | | | 43 | | |
| | Number of Refineries | 9 | | | 7 | | |
| | 0.5 wt. % S Maximum | 19 | | | 12 | | |
| | MBPCD | 68 | | | 51 | | |
| | Number of Refineries | 11 | | | 9 | | |
| | 0.7 wt. % S Maximum | 21 | | | 13 | | |
| | MBPCD | 74 | | | 57 | | |
| | Number of Refineries | 12 | | | 10 | | |
| | 1.0 st. % S Maximum | 23 | | | 16 | | |
| | MBPCD | 83 | | | 66 | | |
| | Number of Refineries | 13 | | | 11 | | |
| | 2.0 wt. % S Maximum | 26 | * | * | 18 | * | * |
| | MBPCD | 87 | | | 69 | | |
| | Number of Refineries | 14 | 1 | 1 | 12 | 1 | 1 |
| 10-30 | 0.1 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10-30 | 0.3 wt. % S Maximum | 21 | * | * | 19 | * | * |
| | MBPCD | 116 | | | 141 | | |
| | Number of Refineries | 6 | 2 | 2 | 7 | 3 | 3 |
| | 0.5 wt. % S Maximum | 28 | * | * | 26 | * | * |
| | MBPCD | 132 | | | 157 | | |
| | Number of Refineries | 7 | 1 | 1 | 8 | 2 | 2 |
| | 0.7 wt. % S Maximum | 48 | * | * | 43 | * | * |
| | MBPCD | 281 | | | 291 | | |
| | Number of Refineries | 14 | 1 | 1 | 14 | 1 | 1 |
| | 1.0 wt. % S Maximum | 52 | * | * | 48 | * | * |
| | MBPCD | 309 | | | 309 | | |
| | Number of Refineries | 16 | 1 | 1 | 16 | 1 | 1 |
| | 2.0 wt. % S Maximum | 53 | | | 50 | | |
| | MBPCD | 309 | | | 338 | | |
| | Number of Refineries | 16 | | | 17 | | |
| 30-50 | 0.1 wt. % S Maximum | * | * | * | | | |
| | MBPCD | * | | | | | |
| | Number of Refineries | 1 | 1 | 1 | | | |
| | 0.3 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | 2 | 2 | 2 | 2 | 2 |
| | 0.5 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | 2 | 2 | 2 | 2 | 2 |
| | 0.7 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 5 | 1 | 1 | 5 | 2 | 2 |
| | 1.0 wt. % S Maximum | 42 | | | 48 | | |
| | MBPCD | 350 | | | 355 | | |
| | Number of Refineries | 9 | | | 9 | | |
| | 2.0 wt. % S Maximum | 45 | | | 51 | | |
| | MBPCD | 350 | | | 355 | | |
| | Number of Refineries | 9 | | | 9 | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 50-100 | 0.1 | wt. % S Maximum | | | | * | * | * |
| | | MBPCD | | | | * | | |
| | | Number of Refineries | | | | 1 | 1 | 1 |
| | 0.3 | wt. % S Maximum | | | | * | * | * |
| | | MBPCD | | | | * | | |
| | | Number of Refineries | | | | 1 | 1 | 1 |
| | 0.5 | wt. % S Maximum | * | | | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 1 | | | 2 | 1 | 1 |
| | 0.7 | wt. % S Maximum | * | | | * | | |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 2 | | | 2 | | |
| | 1.0 | wt. % S Maximum | 28 | * | * | 26 | * | * |
| | | MBPCD | 474 | | | 361 | | |
| | | Number of Refineries | 6 | 1 | 1 | 5 | 1 | 1 |
| | 2.0 | wt. % S Maximum | 33 | | | 31 | | |
| | | MBPCD | 530 | | | 416 | | |
| | | Number of Refineries | 7 | | | 6 | | |
| 100-175 | 0.1 | wt. % S Maximum | | | | | | |
| | | MBPCD | | | | | | |
| | | Number of Refineries | | | | | | |
| | 0.3 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 |
| | 0.5 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 2 | 2 | 2 | 2 | 2 | 2 |
| | 0.7 | wt. % S Maximum | 32 | * | * | 28 | * | * |
| | | MBPCD | 353 | | | 353 | | |
| | | Number of Refineries | 3 | 1 | 1 | 3 | 2 | 2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 100-175 | 1.0 | wt. % S Maximum | 46 | * | * | 61 | * | * |
| | | MBPCD | 628 | | | 810 | | |
| | | Number of Refineries | 5 | 2 | 2 | 6 | 2 | 2 |
| | 2.0 | wt. % S Maximum | 52 | | | 67 | | |
| | | MBPCD | 628 | | | 810 | | |
| | | Number of Refineries | 5 | | | 6 | | |
| 175+ | 0.1 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 |
| | 0.3 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 2 | 2 | 2 | 2 | 2 | 2 |
| | 0.5 | wt. % S Maximum | 73 | 56 | 2.38 | 99 | 38 | 1.65 |
| | | MBPCD | 1240 | | | 1310 | | |
| | | Number of Refineries | 3 | 3 | 3 | 3 | 3 | 3 |
| | 0.7 | wt. % S Maximum | 138 | 64 | 2.54 | 190 | 68 | 2.43 |
| | | MBPCD | 2163 | | | 2820 | | |
| | | Number of Refineries | 6 | 6 | 6 | 8 | 7 | 7 |
| | 1.0 | wt. % S Maximum | 218 | * | * | 267 | * | * |
| | | MBPCD | 3446 | | | 4180 | | |
| | | Number of Refineries | 10 | 7 | 7 | 12 | 7 | 7 |
| | 2.0 | wt. % S Maximum | 291 | * | * | 319 | 48 | 2.86 |
| | | MBPCD | 3771 | | | 4180 | | |
| | | Number of Refineries | 11 | 2 | 2 | 12 | 3 | 3 |
| TOTAL (ALL) | 0.1 | wt. % S Maximum | 5 | * | * | 7 | * | * |
| | | MBPCD | 700 | | | 725 | | |
| | | Number of Refineries | 5 | 2 | 2 | 5 | 2 | 2 |
| | 0.3 | wt. % S Maximum | 86 | 91 | 1.26 | 69 | 135 | .83 |
| | | MBPCD | 1201 | | | 1332 | | |
| | | Number of Refineries | 20 | 7 | 7 | 20 | 9 | 9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TOTAL (ALL) | 0.5 | wt. % S Maximum | 145 | 81 | 1.89 | 170 | 86 | 1.17 |
| | | MBPCD | 1829 | | | 1983 | | |
| | | Number of Refineries | 26 | 8 | 8 | 26 | 10 | 10 |
| | 0.7 | wt. % S Maximum | 268 | 77 | 2.35 | 310 | 88 | 2.18 |
| | | MBPCD | 3229 | | | 3848 | | |
| | | Number of Refineries | 42 | 9 | 9 | 42 | 12 | 12 |
| | 1.0 | wt. % S Maximum | 410 | 92 | 2.87 | 466 | 110 | 2.80 |
| | | MBPCD | 5290 | | | 6080 | | |
| | | Number of Refineries | 59 | 11 | 11 | 59 | 11 | 11 |
| | 2.0 | wt. % S Maximum | 498 | 28 | 3.08 | 536 | 51 | 2.84 |
| | | MBPCD | 5674 | | | 6168 | | |
| | | Number of Refineries | 62 | 3 | 3 | 62 | 4 | 4 |

Table C.11.1.7

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

Based upon anticipated operation meeting normal demands for other products and under normal economic conditions, report of the capability to produce low sulfur heavy fuel oils of the alternate grades specified below, also the quality and quantity of the balance of heavy fuel oil production. (The maximum quantity that can be produced for each grade, independent of the other grades and the quantity wt. % sulfur content for the balance of heavy fuel oil. Each grade specifies a separate situation and vertical columns are not additive.)

By Refinery Size Within PAD IV

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD HFO | 1980 Balance of HFO Wt. % S HFO | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD HFO | 1982 Balance of HFO Wt. % S HFO |
|---|---|---|---|---|---|---|---|
| 0-10 | 0.1 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | | | 1 | | |
| | 0.3 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | | | 2 | | |
| | 0.5 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 3 | | | 3 | | |
| | 0.7 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 4 | | | 4 | | |
| | 1.0 st. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 4 | | | 4 | | |
| | 2.0 wt. % S Maximum | 3 | | | 3 | | |
| | MBPCD | 21 | | | 21 | | |
| | Number of Refineries | 5 | | | 5 | | |
| 10-30 | 0.1 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | | | 1 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10-30 | 0.3 | wt. % S Maximum | * | | | * | | |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 1 | | | 1 | | |
| | 0.5 | wt. % S Maximum | * | | | * | | |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 1 | | | 1 | | |
| | 0.7 | wt. % S Maximum | * | | | * | | |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 1 | | | 1 | | |
| | 1.0 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 2 | 1 | 1 | 3 | 1 | 1 |
| | 2.0 | wt. % S Maximum | 3 | * | * | 4 | * | * |
| | | MBPCD | 74 | | | 86 | | |
| | | Number of Refineries | 3 | 1 | 1 | 4 | 1 | 1 |
| 30-50 | 0.1 | wt. % S Maximum | | | | | | |
| | | MBPCD | | | | | | |
| | | Number of Refineries | | | | | | |
| | 0.3 | wt. % S Maximum | | | | | | |
| | | MBPCD | | | | | | |
| | | Number of Refineries | | | | | | |
| | 0.5 | wt. % S Maximum | | | | | | |
| | | MBPCD | | | | | | |
| | | Number of Refineries | | | | | | |
| | 0.7 | wt. % S Maximum | | | | | | |
| | | MBPCD | | | | | | |
| | | Number of Refineries | | | | | | |
| | 1.0 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 2 | 1 | 1 | 2 | 1 | 1 |
| | 2.0 | wt. % S Maximum | 8 | * | * | 8 | * | * |
| | | MBPCD | 190 | | | 193 | | |
| | | Number of Refineries | 4 | 1 | 1 | 4 | 1 | 1 |

| | | |
|---|---|---|
| 50-100 | 0.1 | wt. % S Maximum |
| | | MBPCD |
| | | Number of Refineries |
| | 0.3 | wt. % S Maximum |
| | | MBPCD |
| | | Number of Refineries |
| | 0.5 | wt. % S Maximum |
| | | MBPCD |
| | | Number of Refineries |
| | 0.7 | wt. % S Maximum |
| | | MBPCD |
| | | Number of Refineries |
| | 1.0 | wt. % S Maximum |
| | | MBPCD |
| | | Number of Refineries |
| | 2.0 | wt. % S Maximum |
| | | MBPCD |
| | | Number of Refineries |
| 100-175 | 0.1 | wt. % S Maximum |
| | | MBPCD |
| | | Number of Refineries |
| | 0.3 | wt. % S Maximum |
| | | MBPCD |
| | | Number of Refineries |
| | 0.5 | wt. % S Maximum |
| | | MBPCD |
| | | Number of Refineries |
| | 0.7 | wt. % S Maximum |
| | | MBPCD |
| | | Number of Refineries |

| | | | | |
|---|---|---|---|---|
| | 1.0 | wt. % S Maximum | | |
| | | MBPCD | | |
| | | Number of Refineries | | |
| | 2.0 | wt. % S Maximum | | |
| | | MBPCD | | |
| | | Number of Refineries | | |
| 175+ | 0.1 | wt. % S Maximum | | |
| | | MBPCD | | |
| | | Number of Refineries | | |
| | 0.3 | wt. % S Maximum | | |
| | | MBPCD | | |
| | | Number of Refineries | | |
| | 0.5 | wt. % S Maximum | | |
| | | MBPCD | | |
| | | Number of Refineries | | |
| | 0.7 | wt. % S Maximum | | |
| | | MBPCD | | |
| | | Number of Refineries | | |
| | 1.0 | wt. % S Maximum | | |
| | | MBPCD | | |
| | | Number of Refineries | | |
| | 2.0 | wt. % S Maximum | | |
| | | MBPCD | | |
| | | Number of Refineries | | |
| TOTAL | 0.1 | wt. % S Maximum | * | * |
| | | MBPCD | * | * |
| | | Number of Refineries | 2 | 2 |
| | 0.3 | wt. % S Maximum | 1 | 1 |
| | | MBPCD | 35 | 35 |
| | | Number of Refineries | 3 | 3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 0.5 | wt. % S Maximum | 1 | | | 1 | | |
| | | MBPCD | 36 | | | 36 | | |
| | | Number of Refineries | 4 | | | 4 | | |
| | 0.7 | wt. % S Maximum | 3 | | | 3 | | |
| | | MBPCD | 40 | | | 40 | | |
| | | Number of Refineries | 5 | | | 5 | | |
| | 1.0 | wt. % S Maximum | 9 | * | * | 9 | * | * |
| | | MBPCD | 169 | | | 186 | | |
| | | Number of Refineries | 8 | 2 | 2 | 9 | 2 | 2 |
| | 2.0 | wt. % S Maximum | 14 | * | * | 15 | * | * |
| | | MBPCD | 284 | | | 301 | | |
| | | Number of Refineries | 12 | 2 | 2 | 13 | 2 | 2 |

Table C.11.1.8

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

Based upon anticipated operation meeting normal demands for other products and under normal economic conditions, report of the capability to produce low sulfur heavy fuel oils of the alternate grades specified below, also the quality and quantity of the balance of heavy fuel oil production. (The maximum quantity that can be produced for each grade, independent of the other grades and the quantity wt. % sulfur content for the balance of heavy fuel oil. Each grade specifies a separate situation and vertical columns are not additive.)

By Refinery Size Within PAD V

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 | | | 1982 | | |
|---|---|---|---|---|---|---|---|
| | | MBPCD Low S HFO | Balance of HFO MBPCD HFO | Balance of HFO Wt. % S HFO | MBPCD Low S HFO | Balance of HFO MBPCD HFO | Balance of HFO Wt. % S HFO |
| 0-10 | 0.1 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.3 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.5 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 0.7 wt. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 1.0 st. % S Maximum | | | | | | |
| | MBPCD | | | | | | |
| | Number of Refineries | | | | | | |
| | 2.0 wt. % S Maximum | * | | | * | | |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 2 | | | 2 | | |
| 10-30 | 0.1 wt. % S Maximum | * | * | * | * | * | * |
| | MBPCD | * | | | * | | |
| | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10-30 | 0.3 | wt. % S Maximum | 18 | 29 | 1.72 | 19 | 25 | 1.87 |
| | | MBPCD | 100 | | | 100 | | |
| | | Number of Refineries | 4 | 3 | 3 | 4 | 3 | 3 |
| | 0.5 | wt. % S Maximum | 21 | 27 | 1.72 | 22 | 26 | 1.73 |
| | | MBPCD | 112 | | | 115 | | |
| | | Number of Refineries | 5 | 4 | 4 | 5 | 4 | 4 |
| | 0.7 | wt. % S Maximum | 28 | * | * | 29 | * | * |
| | | MBPCD | 112 | | | 115 | | |
| | | Number of Refineries | 5 | 2 | 2 | 5 | 3 | 3 |
| | 1.0 | wt. % S Maximum | 52 | * | * | 56 | * | * |
| | | MBPCD | 190 | | | 195 | | |
| | | Number of Refineries | 9 | 2 | 2 | 9 | 2 | 2 |
| | 2.0 | wt. % S Maximum | 106 | | | 104 | | |
| | | MBPCD | 243 | | | 248 | | |
| | | Number of Refineries | 12 | | | 12 | | |
| 30-50 | 0.1 | wt. % S Maximum | * | * | * | | | |
| | | MBPCD | * | | | | | |
| | | Number of Refineries | 1 | 1 | 1 | | | |
| | 0.3 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 4 | 4 | 4 | 3 | 3 | 3 |
| | 0.5 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 4 | 3 | 3 | 3 | 3 | 3 |
| | 0.7 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 4 | 2 | 2 | 3 | 2 | 2 |
| | 1.0 | wt. % S Maximum | 50 | * | * | 25 | * | * |
| | | MBPCD | 225 | | | 177 | | |
| | | Number of Refineries | 5 | 2 | 2 | 4 | 2 | 2 |
| | 2.0 | wt. % S Maximum | 87 | * | * | 47 | * | * |
| | | MBPCD | 291 | | | 215 | | |
| | | Number of Refineries | 7 | 1 | 1 | 5 | 1 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 50-100 | 0.1 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 2 | 2 | 2 | 3 | 2 | 2 |
| | 0.3 | wt. % S Maximum | 71 | 8 | 2.77 | * | * | * |
| | | MBPCD | 304 | | | * | | |
| | | Number of Refineries | 4 | 3 | 3 | 5 | 3 | 3 |
| | 0.5 | wt. % S Maximum | 74 | * | * | 121 | * | * |
| | | MBPCD | 304 | | | 427 | | |
| | | Number of Refineries | 4 | 1 | 1 | 6 | 1 | 1 |
| | 0.7 | wt. % S Maximum | 75 | 4 | 3.50 | 124 | 2 | 3.50 |
| | | MBPCD | 304 | | | 427 | | |
| | | Number of Refineries | 4 | 1 | 1 | 6 | 1 | 1 |
| | 1.0 | wt. % S Maximum | 76 | * | * | 125 | * | * |
| | | MBPCD | 304 | | | 427 | | |
| | | Number of Refineries | 4 | 1 | 1 | 6 | 1 | 1 |
| | 2.0 | wt. % S Maximum | 96 | * | * | 143 | * | * |
| | | MBPCD | 597 | | | 719 | | |
| | | Number of Refineries | 8 | 2 | 2 | 10 | 2 | 2 |
| 100-175 | 0.1 | wt. % S Maximum | | | | | | |
| | | MBPCD | | | | | | |
| | | Number of Refineries | | | | | | |
| | 0.3 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 2 | 2 | 2 | 3 | 3 | 3 |
| | 0.5 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 3 | 3 | 3 | 3 | 3 | 3 |
| | 0.7 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 3 | 3 | 3 | 3 | 2 | 2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 100-175 | 1.0 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 3 | 2 | 2 | 3 | 1 | 1 |
| | 2.0 | wt. % S Maximum | * | | | * | | |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 6 | | | 6 | | |
| 175+ | 0.1 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 2 | 2 | 2 | 2 | 2 | 2 |
| | 0.3 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 3 | 2 | 2 | 3 | 2 | 2 |
| | 0.5 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 3 | 2 | 2 | 3 | 2 | 2 |
| | 0.7 | wt. % S Maximum | * | * | * | * | * | * |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 3 | 1 | 1 | 3 | 1 | 1 |
| | 1.0 | wt. % S Maximum | * | | | * | | |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 3 | | | 3 | | |
| | 2.0 | wt. % S Maximum | * | | | * | | |
| | | MBPCD | * | | | * | | |
| | | Number of Refineries | 3 | | | 3 | | |
| TOTAL | 0.1 | wt. % S Maximum | 103 | 132 | .86 | 125 | 113 | .93 |
| | | MBPCD | 958 | | | 962 | | |
| | | Number of Refineries | 6 | 6 | 6 | 6 | 5 | 5 |
| | 0.3 | wt. % S Maximum | 266 | 130 | 1.70 | 296 | 110 | 1.86 |
| | | MBPCD | 1773 | | | 1889 | | |
| | | Number of Refineries | 17 | 14 | 14 | 18 | 14 | 14 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 0.5 | wt. % S Maximum | 319 | 89 | 1.97 | 350 | 86 | 1.95 |
| | | MBPCD | 1896 | | | 1973 | | |
| | | Number of Refineries | 19 | 13 | 13 | 20 | 13 | 13 |
| | 0.7 | wt. % S Maximum | 342 | 71 | 1.98 | 375 | 64 | 2.00 |
| | | MBPCD | 1896 | | | 1973 | | |
| | | Number of Refineries | 19 | 9 | 9 | 20 | 9 | 9 |
| | 1.0 | wt. % S Maximum | 401 | 38 | 2.00 | 431 | 33 | 2.04 |
| | | MBPCD | 2015 | | | 2094 | | |
| | | Number of Refineries | 24 | 7 | 7 | 25 | 6 | 6 |
| | 2.0 | wt. % S Maximum | 560 | 21 | 2.11 | 567 | 21 | 2.11 |
| | | MBPCD | 2779 | | | 2831 | | |
| | | Number of Refineries | 38 | 3 | 3 | 38 | 3 | 3 |

TABLES C.11.2.1

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

If, in the event of a national emergency, it becomes necessary to maximize heavy fuel oil production at the expense of light products, what do you estimate your capability to be to maximize low sulfur heavy fuel oil, assuming reduction in distillate and jet fuel volumes not exceed 10%? Assume constraints on refinery runs and quality of available crude oil supply to be the same as projected in Tables 169-177 for 1980 and 1982. (Report maximum quantity that can be produced for each grade. Each grade specifies a separate situation and vertical columns are not additive.)

U.S. TOTALS BY LOCATION (PAD)

| PAD | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 BALANCE OF HFO MBPCD | 1982 BALANCE OF HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| I | 0.1 wt. % S Maximum | * | * | * | | * | * | * | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 1 | 1 | | 3 | 1 | 1 | |
| | 0.3 wt. % S Maximum | 94 | 100 | 2.11 | * | 99 | 116 | 1.96 | * |
| | MBPCD | 1,007 | | | | 1,042 | | | |
| | Number of Refineries | 9 | 5 | 5 | 2 | 9 | 5 | 5 | 2 |
| | 0.5 wt. % S Maximum | 201 | 83 | 2.67 | 42 | 211 | 95 | 2.53 | 42 |
| | MBPCD | 1,460 | | | | 1,495 | | | |
| | Number of Refineries | 13 | 6 | 6 | 5 | 13 | 7 | 7 | 5 |
| | 0.7 wt. % S Maximum | 213 | 73 | 2.81 | 42 | 227 | 79 | 2.72 | 42 |
| | MBPCD | 1,460 | | | | 1,495 | | | |
| | Number of Refineries | 13 | 5 | 5 | 5 | 13 | 6 | 6 | 5 |
| | 1.0 wt. % S Maximum | 227 | 60 | 2.99 | 42 | 245 | 61 | 2.98 | 42 |
| | MBPCD | 1,467 | | | | 1,502 | | | |
| | Number of Refineries | 14 | 4 | 4 | 5 | 14 | 4 | 4 | 5 |
| | 2.0 wt. % S Maximum | 321 | 7 | 3.15 | 42 | 347 | 7 | 3.18 | 42 |
| | MBPCD | 1,663 | | | | 1,708 | | | |
| | Number of Refineries | 19 | 3 | 3 | 5 | 19 | 3 | 3 | 5 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| II | 0.1 wt. % S Maximum | * | | | | * | | | | |
| | MBPCD | * | | | | * | | | | |
| | Number of Refineries | 1 | | | | 1 | | | | |
| | 0.3 wt. % S Maximum | 120 | * | * | * | 108 | * | * | * | |
| | MBPCD | 1,164 | | | | 642 | | | | |
| | Number of Refineries | 9 | 8 | 8 | 3 | 7 | 6 | 6 | 3 | |
| | 0.5 wt. % S Maximum | 200 | * | * | 105 | 196 | * | * | 103 | |
| | MBPCD | 1,305 | | | | 1,355 | | | | |
| | Number of Refineries | 17 | 8 | 8 | 6 | 17 | 9 | 9 | 6 | |
| | 0.7 wt. % S Maximum | 246 | * | * | 117 | 246 | * | * | 114 | |
| | MBPCD | 1,406 | | | | 1,455 | | | | |
| | Number of Refineries | 20 | 3 | 3 | 8 | 20 | 4 | 4 | 8 | |
| | 1.0 wt. % S Maximum | 338 | 40 | 2.51 | 140 | 346 | 45 | 2.53 | 141 | |
| | MBPCD | 2,564 | | | | 2,513 | | | | |
| | Number of Refineries | 37 | 7 | 7 | 20 | 36 | 7 | 7 | 19 | |
| | 2.0 wt. % S Maximum | 480 | * | * | 179 | 494 | * | * | 184 | |
| | MBPCD | 3,695 | | | | 3,774 | | | | |
| | Number of Refineries | 53 | 1 | 1 | 28 | 53 | 2 | 2 | 29 | |
| III | 0.1 wt. % S Maximum | 5 | * | * | * | 7 | * | * | * | |
| | MBPCD | 699 | | | | 724 | | | | |
| | Number of Refineries | 5 | 2 | 2 | 1 | 5 | 2 | 2 | 1 | |
| | 0.3 wt. % S Maximum | 187 | 139 | 1.18 | 68 | 175 | 225 | 1.07 | 99 | |
| | MBPCD | 1,724 | | | | 1,734 | | | | |
| | Number of Refineries | 25 | 11 | 10 | 9 | 24 | 12 | 11 | 9 | |
| | 0.5 wt. % S Maximum | 363 | 87 | 1.86 | 97 | 405 | 149 | 1.72 | 130 | |
| | MBPCD | 2,825 | | | | 3,164 | | | | |
| | Number of Refineries | 35 | 10 | 9 | 14 | 35 | 13 | 12 | 14 | |
| | 0.7 wt. % S Maximum | 529 | 76 | 2.30 | 128 | 568 | 155 | 2.09 | 161 | |
| | MPBCD | 3,829 | | | | 4,607 | | | | |
| | Number of Refineries | 49 | 9 | 9 | 16 | 51 | 14 | 14 | 19 | |
| | 1.0 wt. % S Maximum | 717 | 105 | 2.45 | 175 | 823 | 177 | 2.44 | 220 | |
| | MBPCD | 5,466 | | | | 6,395 | | | | |
| | Number of Refineries | 60 | 10 | 10 | 24 | 62 | 13 | 13 | 26 | |
| | 2.0 wt. % S Maximum | 882 | * | * | 182 | 1,003 | 54 | 2.83 | 223 | |
| | MBPCD | 6,487 | | | | 7,091 | | | | |
| | Number of Refineries | 68 | 3 | 3 | 24 | 69 | 4 | 4 | 26 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| IV | 0.1 | wt. % S Maximum | 10 | * | * | * | 10 | * | * | * |
| | | MBPCD | 72 | | | | 71 | | | |
| | | Number of Refineries | 3 | 1 | 1 | 2 | 3 | 1 | 1 | 2 |
| | 0.3 | wt. % S Maximum | 14 | * | * | 10 | 14 | * | * | 10 |
| | | MBPCD | 141 | | | | 141 | | | |
| | | Number of Refineries | 6 | 2 | 2 | 3 | 6 | 2 | 2 | 3 |
| | 0.5 | wt. % S Maximum | 16 | * | * | 10 | 16 | * | * | 10 |
| | | MBPCD | 142 | | | | 142 | | | |
| | | Number of Refineries | 7 | 2 | 2 | 3 | 7 | 2 | 2 | 3 |
| | 0.7 | wt. % S Maximum | 23 | * | * | 10 | 24 | * | * | 10 |
| | | MBPCD | 158 | | | | 158 | | | |
| | | Number of Refineries | 9 | 2 | 2 | 3 | 9 | 2 | 2 | 3 |
| | 1.0 | wt. % S Maximum | 30 | 7 | 2.92 | 10 | 31 | 7 | 2.91 | 10 |
| | | MBPCD | 292 | | | | 300 | | | |
| | | Number of Refineries | 13 | 3 | 3 | 4 | 13 | 3 | 3 | 4 |
| | 2.0 | wt. % S Maximum | 43 | 19 | 3.30 | 23 | 43 | 20 | 3.29 | 23 |
| | | MBPCD | 478 | | | | 487 | | | |
| | | Number of Refineries | 19 | 4 | 4 | 8 | 19 | 4 | 4 | 8 |
| V | 0.1 | wt. % S Maximum | 234 | 114 | 1.16 | * | 259 | 114 | 1.16 | * |
| | | MBPCD | 983 | | | | 1,035 | | | |
| | | Number of Refineries | 7 | 7 | 7 | 4 | 8 | 7 | 7 | 4 |
| | 0.3 | wt. % S Maximum | 413 | 129 | 1.64 | 133 | 446 | 110 | 1.82 | 138 |
| | | MBPCD | 1,825 | | | | 1,940 | | | |
| | | Number of Refineries | 18 | 15 | 15 | 7 | 19 | 15 | 15 | 8 |
| | 0.5 | wt. % S Maximum | 477 | 95 | 1.69 | 110 | 511 | 88 | 1.71 | 110 |
| | | MBPCD | 1,968 | | | | 2,045 | | | |
| | | Number of Refineries | 21 | 14 | 14 | 8 | 22 | 14 | 14 | 8 |
| | 0.7 | wt. % S Maximum | 508 | 81 | 1.70 | 117 | 546 | 74 | 1.72 | 117 |
| | | MBPCD | 1,994 | | | | 2,071 | | | |
| | | Number of Refineries | 22 | 11 | 11 | 10 | 23 | 10 | 10 | 10 |
| | 1.0 | wt. % S Maximum | 567 | 51 | 1.82 | 123 | 603 | 46 | 1.83 | 123 |
| | | MBPCD | 2,198 | | | | 2,277 | | | |
| | | Number of Refineries | 27 | 8 | 8 | 11 | 28 | 8 | 8 | 11 |
| | 2.0 | wt. % S Maximum | 757 | * | * | 127 | 772 | * | * | 127 |
| | | MBPCD | 2,904 | | | | 2,956 | | | |
| | | Number of Refineries | 40 | 2 | 2 | 13 | 40 | 2 | 2 | 13 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Total | 0.1 wt. % S Maximum | 269 | 210 | 1.14 | 120 | 296 | 217 | .98 | 120 |
| | MBPCD | 1,964 | | | | 2,046 | | | |
| | Number of Refineries | 19 | 11 | 11 | 7 | 20 | 11 | 11 | 7 |
| | 0.3 wt. % S Maximum | 828 | 446 | 1.68 | 305 | 842 | 496 | 1.55 | 339 |
| | MBPCD | 5,861 | | | | 5,500 | | | |
| | Number of Refineries | 67 | 41 | 40 | 24 | 65 | 40 | 39 | 25 |
| | 0.5 wt. % S Maximum | 1,256 | 321 | 2.12 | 363 | 1,339 | 394 | 1.96 | 394 |
| | MBPCD | 7,700 | | | | 8,199 | | | |
| | Number of Refineries | 93 | 40 | 39 | 36 | 94 | 45 | 44 | 36 |
| | 0.7 wt. % S Maximum | 1,520 | 260 | 2.36 | 413 | 1,610 | 340 | 2.21 | 444 |
| | MBPCD | 8,847 | | | | 9,786 | | | |
| | Number of Refineries | 113 | 30 | 30 | 42 | 116 | 36 | 36 | 45 |
| | 1.0 wt. % S Maximum | 1,879 | 262 | 2.48 | 491 | 2,048 | 336 | 2.48 | 536 |
| | MBPCD | 11,987 | | | | 12,987 | | | |
| | Number of Refineries | 151 | 32 | 32 | 64 | 153 | 35 | 35 | 65 |
| | 2.0 wt. % S Maximum | 2,483 | 70 | 2.93 | 553 | 2,659 | 103 | 2.86 | 599 |
| | MBPCD | 15,227 | | | | 16,014 | | | |
| | Number of Refineries | 199 | 13 | 13 | 78 | 200 | 15 | 15 | 81 |

TABLE C.11.2.2

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

If, in the event of a national emergency, it becomes necessary to maximize heavy fuel oil production at the expense of light products, what do you estimate your capability to be to maximize low sulfur heavy fuel oil, assuming reduction in distillate and jet fuel volumes not exceed 10%? Assume constraints on refinery runs and quality of available crude oil supply to be the same as projected in Tables 169-177 for 1980 and 1982. (Report maximum quantity that can be produced for each grade. Each grade specifies a separate situation and vertical columns are not additive.)

BY REFINERY SIZE

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| 0-10 | 0.1 wt. % S Maximum | 5 | | | | 6 | | | |
| | MBPCD | 27 | | | | 31 | | | |
| | Number of Refineries | 6 | | | | 6 | | | |
| | 0.3 wt. % S Maximum | 21 | | | * | 13 | | | * |
| | MBPCD | 82 | | | | 68 | | | |
| | Number of Refineries | 13 | | | 1 | 11 | | | 1 |
| | 0.5 wt. % S Maximum | 32 | | | * | 24 | | | * |
| | MBPCD | 118 | | | | 104 | | | |
| | Number of Refineries | 21 | | | 2 | 19 | | | 2 |
| | 0.7 wt. % S Maximum | 36 | | | * | 28 | | | * |
| | MBPCD | 128 | | | | 114 | | | |
| | Number of Refineries | 23 | | | 2 | 21 | | | 2 |
| | 1.0 wt. % S Maximum | 39 | | | * | 31 | | | * |
| | MBPCD | 153 | | | | 131 | | | |
| | Number of Refineries | 27 | | | 2 | 24 | | | 2 |
| | 2.0 wt. % S Maximum | 58 | * | * | 1 | 50 | | | 1 |
| | MBPCD | 197 | | | | 175 | | | |
| | Number of Refineries | 33 | 1 | 1 | 3 | 30 | | | 3 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10-30 | 0.1 wt. % S Maximum | 10 | * | * | * | * | * | * | * |
| | MBPCD | 86 | | | | * | | | |
| | Number of Refineries | 4 | 2 | 2 | 1 | 4 | 2 | 2 | 1 |
| | 0.3 wt. % S Maximum | 64 | 43 | 1.67 | * | 72 | 40 | 1.72 | * |
| | MBPCD | 307 | | | | 339 | | | |
| | Number of Refineries | 15 | 7 | 7 | 4 | 16 | 8 | 8 | 3 |
| | 0.5 wt. % S Maximum | 92 | 54 | 1.48 | * | 100 | 53 | 1.49 | * |
| | MBPCD | 413 | | | | 450 | | | |
| | Number of Refineries | 21 | 10 | 10 | 5 | 22 | 11 | 11 | 4 |
| | 0.7 wt. % S Maximum | 144 | 44 | 1.63 | * | 155 | 40 | 1.49 | * |
| | MBPCD | 614 | | | | 655 | | | |
| | Number of Refineries | 31 | 6 | 6 | 8 | 32 | 6 | 6 | 8 |
| | 1.0 wt. % S Maximum | 181 | 32 | 1.75 | * | 194 | 28 | 1.86 | * |
| | MBPCD | 793 | | | | 848 | | | |
| | Number of Refineries | 40 | 5 | 5 | 11 | 42 | 5 | 5 | 10 |
| | 2.0 wt. % S Maximum | 282 | 4 | 3.17 | 35 | 290 | 4 | 3.20 | 31 |
| | MBPCD | 1,038 | | | | 1,093 | | | |
| | Number of Refineries | 52 | 3 | 3 | 15 | 54 | 3 | 3 | 14 |
| 30-50 | 0.1 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 |
| | 0.3 wt. % S Maximum | 45 | 63 | 1.31 | 9,668 | 58 | 45 | 1.50 | 25 |
| | MBPCD | 471 | | | | 427 | | | |
| | Number of Refineries | 11 | 9 | 8 | 5 | 10 | 8 | 7 | 5 |
| | 0.5 wt. % S Maximum | 83 | 37 | 1.67 | 12 | 77 | 38 | 1.56 | 27 |
| | MBPCD | 508 | | | | 463 | | | |
| | Number of Refineries | 12 | 8 | 7 | 5 | 11 | 8 | 7 | 5 |
| | 0.7 wt. % S Maximum | 118 | 33 | 1.69 | 33 | 112 | 34 | 1.57 | 50 |
| | MBPCD | 631 | | | | 586 | | | |
| | Number of Refineries | 15 | 6 | 6 | 6 | 14 | 6 | 6 | 6 |
| | 1.0 wt. % S Maximum | 157 | 29 | 1.96 | 38 | 158 | 24 | 2.47 | 56 |
| | MBPCD | 985 | | | | 953 | | | |
| | Number of Refineries | 23 | 6 | 6 | 11 | 22 | 5 | 5 | 11 |
| | 2.0 wt. % S Maximum | 242 | 17 | 3.27 | 59 | 219 | 20 | 3.44 | 76 |
| | MBPCD | 1,315 | | | | 1,256 | | | |
| | Number of Refineries | 31 | 3 | 3 | 16 | 29 | 4 | 4 | 16 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 50-100 | 0.1 wt. % S Maximum | * | * | * | * | 60 | 14 | 1.13 | * |
| | MBPCD | * | | | | 241 | | | |
| | Number of Refineries | 2 | 2 | 2 | 1 | 4 | 3 | 3 | 2 |
| | 0.3 wt. % S Maximum | 151 | 52 | 2.01 | 54 | 171 | 58 | 1.81 | 55 |
| | MBPCD | 610 | | | | 731 | | | |
| | Number of Refineries | 9 | 7 | 7 | 6 | 11 | 8 | 8 | 7 |
| | 0.5 wt. % S Maximum | 249 | 49 | 2.15 | 90 | 285 | 55 | 1.93 | 87 |
| | MBPCD | 958 | | | | 1,054 | | | |
| | Number of Refineries | 14 | 6 | 6 | 9 | 16 | 7 | 7 | 9 |
| | 0.7 wt. % S Maximum | 282 | 32 | 2.33 | 95 | 320 | 38 | 1.98 | 92 |
| | MBPCD | 1,109 | | | | 1,206 | | | |
| | Number of Refineries | 16 | 5 | 5 | 10 | 18 | 6 | 6 | 10 |
| | 1.0 wt. % S Maximum | 353 | 29 | 2.34 | 109 | 387 | 37 | 2.10 | 108 |
| | MBPCD | 1,736 | | | | 1,746 | | | |
| | Number of Refineries | 24 | 5 | 5 | 15 | 25 | 6 | 6 | 15 |
| | 2.0 wt. % S Maximum | 469 | * | * | 122 | 511 | 20 | 2.14 | 122 |
| | MBPCD | 2,649 | | | | 2,678 | | | |
| | Number of Refineries | 38 | 2 | 2 | 9 | 39 | 3 | 3 | 19 |
| 100-175 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | 59 | 56 | 1.88 | * | 52 | 61 | 2.00 | * |
| | MBPCD | 1,035 | | | | 923 | | | |
| | Number of Refineries | 8 | 8 | 8 | 2 | 7 | 7 | 7 | 3 |
| | 0.5 wt. % S Maximum | 134 | 50 | 2.39 | 52 | 123 | 72 | 2.23 | 53 |
| | MBPCD | 1,641 | | | | 1,667 | | | |
| | Number of Refineries | 12 | 8 | 8 | 7 | 12 | 10 | 10 | 7 |
| | 0.7 wt. % S Maximum | 155 | 45 | 2.62 | 52 | 153 | 70 | 2.54 | 55 |
| | MBPCD | 1,755 | | | | 1,891 | | | |
| | Number of Refineries | 13 | 7 | 7 | 7 | 14 | 10 | 10 | 8 |
| | 1.0 wt. % S Maximum | 191 | 34 | 2.78 | 58 | 223 | 53 | 2.67 | 60 |
| | MBPCD | 2,232 | | | | 2,420 | | | |
| | Number of Refineries | 17 | 7 | 7 | 10 | 18 | 9 | 9 | 10 |
| | 2.0 wt. % S Maximum | 287 | * | * | 68 | 336 | * | * | 71 |
| | MBPCD | 2,699 | | | | 3,008 | | | |
| | Number of Refineries | 21 | 1 | 1 | 10 | 23 | 2 | 2 | 12 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 175 and larger | 0.1 wt. % S Maximum | 210 | 164 | 1.02 | * | 211 | 169 | .83 | * |
| | MBPCD | 1,595 | | | | 1,595 | | | |
| | Number of Refineries | 4 | 4 | 4 | 2 | 4 | 4 | 4 | 2 |
| | 0.3 wt. % S Maximum | 487 | 233 | 1.67 | 211 | 476 | 293 | 1.38 | 231 |
| | MBPCD | 3,356 | | | | 3,013 | | | |
| | Number of Refineries | 11 | 10 | 10 | 6 | 10 | 9 | 9 | 6 |
| | 0.5 wt. % S Maximum | 666 | 131 | 2.39 | 189 | 730 | 176 | 2.09 | 212 |
| | MBPCD | 4,062 | | | | 4,461 | | | |
| | Number of Refineries | 13 | 8 | 8 | 8 | 14 | 9 | 9 | 9 |
| | 0.7 wt. % S Maximum | 785 | 107 | 2.76 | 209 | 842 | 158 | 2.37 | 228 |
| | MBPCD | 4,610 | | | | 5,334 | | | |
| | Number or Refineries | 15 | 6 | 6 | 9 | 17 | 8 | 8 | 11 |
| | 1.0 wt. % S Maximum | 958 | 139 | 2.70 | 260 | 1,055 | 195 | 2.59 | 292 |
| | MBPCD | 6,088 | | | | 6,889 | | | |
| | Number of Refineries | 20 | 9 | 9 | 15 | 22 | 10 | 10 | 17 |
| | 2.0 wt. % S Maximum | 1,146 | 31 | 3.02 | 269 | 1,253 | * | * | 297 |
| | MBPCD | 7,329 | | | | 7,804 | | | |
| | Number of Refineries | 24 | 3 | 3 | 15 | 25 | 3 | 3 | 17 |
| Total | 0.1 wt. % S Maximum | 269 | 210 | 1.14 | 120 | 296 | 217 | .98 | 120 |
| | MBPCD | 1,964 | | | | 2,046 | | | |
| | Number of Refineries | 19 | 11 | 11 | 7 | 20 | 11 | 11 | 7 |
| | 0.3 wt. % S Maximum | 828 | 446 | 1.68 | 305 | 842 | 496 | 1.55 | 339 |
| | MBPCD | 5,861 | | | | 5,500 | | | |
| | Number of Refineries | 67 | 41 | 40 | 24 | 65 | 40 | 39 | 25 |
| | 0.5 wt. % S Maximum | 1,256 | 321 | 2.12 | 363 | 1,339 | 394 | 1.96 | 394 |
| | MBPCD | 7,700 | | | | 8,199 | | | |
| | Number of Refineries | 93 | 40 | 39 | 36 | 94 | 45 | 44 | 36 |
| | 0.7 wt. % S Maximum | 1,520 | 260 | 2.36 | 413 | 1,610 | 340 | 2.21 | 444 |
| | MBPCD | 8,847 | | | | 9,786 | | | |
| | Number of Refineries | 113 | 30 | 30 | 42 | 116 | 36 | 36 | 45 |
| | 1.0 wt. % S Maximum | 1,879 | 262 | 2.48 | 491 | 2,048 | 336 | 2.48 | 536 |
| | MPBCD | 11,987 | | | | 12,987 | | | |
| | Number of Refineries | 151 | 32 | 32 | 64 | 153 | 35 | 35 | 65 |
| | 2.0 wt. % S Maximum | 2,483 | 70 | 2.73 | 553 | 2,659 | 103 | 2.86 | 599 |
| | MPBCD | 15,227 | | | | 16,014 | | | |
| | Number of Refineries | 199 | 13 | 13 | 78 | 200 | 15 | 15 | 81 |

TABLE C.11.2.3

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

If, in the event of a national emergency, it becomes necessary to maximize heavy fuel oil production at the expense of light products, what do you estimate your capability to be to maximize low sulfur heavy fuel oils, assuming reduction in distillate and jet fuel volumes not exceed 10%? Assume constraints on refinery runs and quality of available crude oil supply to be the same as projected in Tables 169-177 for 1980 and 1982. (Report Maximum quantity that can be produced for each grade. Each grade specifies a separate situation and veritcal columns are not additive.)

U.S. TOTALS BY COMPANY SIZE

| Company Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| 0-10 | 0.1 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 5 | | | | 5 | | | |
| | 0.3 wt. % S Maximum | 20 | | | * | 11 | | | * |
| | MBPCD | 69 | | | | 54 | | | |
| | Number of Refineries | 11 | | | 1 | 9 | | | 1 |
| | 0.5 wt. % S Maximum | 29 | | | * | 20 | | | * |
| | MBPCD | 98 | | | | 83 | | | |
| | Number of Refineries | 17 | | | 2 | 15 | | | 2 |
| | 0.7 wt. % S Maximum | 33 | | | * | 24 | | | * |
| | MBPCD | 108 | | | | 92 | | | |
| | Number of Refineries | 19 | | | 2 | 17 | | | 2 |
| | 1.0 wt. % S Maximum | 33 | | | * | 24 | | | * |
| | MBPCD | 109 | | | | 93 | | | |
| | Number of Refineries | 20 | | | 2 | 18 | | | 2 |
| | 2.0 wt. % S Maximum | 48 | * | * | * | 40 | | | * |
| | MBPCD | 137 | | | | 122 | | | |
| | Number of Refineries | 23 | 1 | 1 | 2 | 21 | | | 2 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10-30 | 0.1 wt. % S Maximum | * | * | * | | * | * | * | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 2 | 2 | | 2 | 2 | 2 | |
| | 0.3 wt. % S Maximum | 49 | 38 | 1.76 | * | 58 | 36 | 1.83 | * |
| | MBPCD | 212 | | | | 243 | | | |
| | Number of Refineries | 11 | 6 | 6 | 2 | 12 | 7 | 7 | 1 |
| | 0.5 wt. % S Maximum | 67 | 47 | 1.56 | * | 77 | 46 | 1.58 | * |
| | MBPCD | 296 | | | | 332 | | | |
| | Number of Refineries | 17 | 8 | 8 | 2 | 18 | 9 | 9 | 1 |
| | 0.7 wt. % S Maximum | 112 | 35 | 1.77 | 11 | 124 | 31 | 1.87 | 6 |
| | MBPCD | 453 | | | | 494 | | | |
| | Number of Refineries | 25 | 5 | 5 | 5 | 26 | 5 | 5 | 5 |
| | 1.0 wt. % S Maximum | 145 | 23 | 1.99 | 12 | 158 | 19 | 2.21 | 7 |
| | MBPCD | 568 | | | | 615 | | | |
| | Number of Refineries | 32 | 4 | 4 | 8 | 33 | 4 | 4 | 7 |
| | 2.0 wt. % S Maximum | 230 | * | * | 20 | 239 | * | * | 16 |
| | MBPCD | 695 | | | | 742 | | | |
| | Number of Refineries | 39 | 1 | 1 | 10 | 40 | 1 | 1 | 9 |
| 30-50 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 6 | 4 | 3 | 3 | 7 | 5 | 4 | 4 |
| | 0.5 wt. % S Maximum | * | 22 | 1.57 | 6 | * | 29 | 1.37 | 21 |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 8 | 4 | 3 | 3 | 9 | 5 | 4 | 4 |
| | 0.7 wt. % S Maximum | 55 | 19 | 1.58 | 16 | 71 | 26 | 1.40 | 33 |
| | MBPCD | 297 | | | | 347 | | | |
| | Number of Refineries | 9 | 3 | 3 | 3 | 10 | 4 | 4 | 4 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.0 | wt. % S Maximum | 78 | 17 | 2.09 | 17 | 100 | 19 | 2.57 | 35 |
| | | MBPCD | 462 | | | | 519 | | | |
| | | Number of Refineries | 13 | 3 | 3 | 5 | 14 | 3 | 3 | 6 |
| | 2.0 | wt. % S Maximum | 115 | * | * | 27 | 137 | 20 | 3.39 | 45 |
| | | MBPCD | 592 | | | | 652 | | | |
| | | Number of Refineries | 17 | 2 | 2 | 6 | 18 | 3 | 3 | 7 |
| 50-100 | 0.1 | wt. % S Maximum | 41 | * | * | * | 41 | * | * | * |
| | | MBPCD | 207 | | | | 233 | | | |
| | | Number of Refineries | 6 | 3 | 3 | 3 | 6 | 3 | 3 | 3 |
| | 0.3 | wt. % S Maximum | 67 | 57 | 1.52 | 23 | 65 | 40 | 1.82 | 23 |
| | | MBPCD | 384 | | | | 361 | | | |
| | | Number of Refineries | 10 | 7 | 7 | 5 | 9 | 6 | 6 | 5 |
| | 0.5 | wt. % S Maximum | 122 | 29 | 2.22 | 23 | 126 | 31 | 2.05 | 23 |
| | | MBPCD | 434 | | | | 481 | | | |
| | | Number of Refineries | 11 | 4 | 4 | 5 | 11 | 4 | 4 | 5 |
| | 0.7 | wt. % S Maximum | * | * | * | * | 167 | * | * | * |
| | | MBPCD | * | | | | 720 | | | |
| | | Number of Refineries | 15 | 3 | 3 | 7 | 15 | 3 | 3 | 7 |
| | 1.0 | wt. % S Maximum | 168 | 17 | 2.49 | 41 | 174 | 19 | 2.17 | 41 |
| | | MBPCD | 672 | | | | 720 | | | |
| | | Number of Refineries | 15 | 3 | 3 | 8 | 15 | 3 | 3 | 8 |
| | 2.0 | wt. % S Maximum | 233 | * | * | 55 | 249 | * | * | 57 |
| | | MBPCD | 921 | | | | 984 | | | |
| | | Number of Refineries | 22 | 1 | 1 | 13 | 22 | 1 | 1 | 13 |
| 100-175 | 0.1 | wt. % S Maximum | | | | | | | | |
| | | MBPCD | | | | | | | | |
| | | Number of Refineries | | | | | | | | |
| | 0.3 | wt. % S Maximum | * | * | * | * | * | * | * | * |
| | | MBPCD | * | | | | * | | | |
| | | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 0.5 wt. % S Maximum | * | | | * | * | | | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | | | 1 | 1 | | | 1 |
| | 0.7 wt. % S Maximum | * | * | * | * | 32 | * | * | * |
| | MBPCD | * | | | | 344 | | | |
| | Number of Refineries | 2 | 1 | 1 | 1 | 3 | 2 | 2 | 2 |
| | 1.0 wt. % S Maximum | 52 | 8 | 1.77 | * | 57 | 19 | 2.46 | * |
| | MBPCD | 523 | | | | 633 | | | |
| | Number of Refineries | 5 | 3 | 3 | 3 | 6 | 4 | 4 | 4 |
| | 2.0 wt. % S Maximum | 64 | | | * | 73 | * | * | * |
| | MBPCD | 563 | | | | 673 | | | |
| | Number of Refineries | 6 | | | 4 | 7 | 1 | 1 | 5 |
| 175 and Larger | 0.1 wt. % S Maximum | 219 | 178 | 1.11 | * | 245 | 183 | .93 | * |
| | MBPCD | 1,687 | | | | 1739 | | | |
| | Number of Refineries | 6 | 6 | 6 | 4 | 7 | 6 | 6 | 4 |
| | 0.3 wt. % S Maximum | 654 | 320 | 1.75 | 259 | 656 | 382 | 1.53 | 284 |
| | MBPCD | 4,857 | | | | 4453 | | | |
| | Number of Refineries | 28 | 23 | 23 | 12 | 27 | 21 | 21 | 13 |
| | 0.5 wt. % S Maximum | 980 | 223 | 2.28 | 315 | 1072 | 288 | 2.07 | 336 |
| | MBPCD | 6,492 | | | | 6873 | | | |
| | Number of Refineries | 39 | 24 | 24 | 23 | 40 | 27 | 27 | 23 |
| | 0.7 wt. % S Maximum | 1,130 | 181 | 2.54 | 335 | 1191 | 244 | 2.29 | 352 |
| | MBPCD | 7,084 | | | | 7790 | | | |
| | Number of Refineries | 43 | 18 | 18 | 24 | 45 | 22 | 22 | 25 |
| | 1.0 wt. % S Maximum | 1,404 | 197 | 2.59 | 407 | 1535 | 261 | 2.51 | 437 |
| | MBPCD | 9,654 | | | | 10407 | | | |
| | Number of Refineries | 66 | 19 | 19 | 38 | 67 | 21 | 21 | 38 |
| | 2.0 wt. % S Maximum | 1,792 | 48 | 2.84 | 438 | 1931 | 73 | 2.68 | 466 |
| | MBPCD | 12,320 | | | | 12843 | | | |
| | Number of Refineries | 92 | 8 | 8 | 43 | 92 | 9 | 9 | 45 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Total | 0.1 wt. % S Maximum | 269 | 210 | 1.14 | 120 | 296 | 217 | .98 | 120 |
| | MBPCD | 1964 | | | | 2046 | | | |
| | Number of Refineries | 19 | 11 | 11 | 7 | 20 | 11 | 11 | 7 |
| | 0.3 wt. % S Maximum | 828 | 446 | 1.68 | 305 | 8422 | 496 | 1.55 | 339 |
| | MBPCD | 5861 | | | | 5500 | | | |
| | Number of Refineries | 67 | 41 | 40 | 24 | 65 | 40 | 39 | 25 |
| | 0.5 wt. % S Maximum | 1256 | 321 | 2.12 | 363 | 1339 | 394 | 1.96 | 394 |
| | MBPCD | 7700 | | | | 8199 | | | |
| | Number of Refineries | 93 | 40 | 39 | 36 | 94 | 45 | 44 | 36 |
| | 0.7 wt. % S Maximum | 1520 | 260 | 2.36 | 413 | 1610 | 340 | 2.21 | 444 |
| | MBPCD | 8847 | | | | 9786 | | | |
| | Number of Refineries | 113 | 30 | 30 | 42 | 116 | 36 | 36 | 45 |
| | 1.0 wt. % S Maximum | 1879 | 262 | 2.48 | 491 | 2048 | 336 | 2.48 | 536 |
| | MBPCD | 11,987 | | | | 12,987 | | | |
| | Number of Refineries | 151 | 32 | 32 | 64 | 153 | 35 | 35 | 65 |
| | 2.0 wt. % S Maximum | 2483 | 70 | 2.93 | 553 | 2,659 | 103 | 2.86 | 599 |
| | MBPCD | 15,227 | | | | 16,014 | | | |
| | Number of Refineries | 199 | 13 | 13 | 78 | 200 | 15 | 15 | 81 |

Table C.11.2.4 (Page 1 of 4)

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

If, in the event of a national emergency, it becomes necessary to maximize heavy fuel oil production at the expense of light products, what do you estimate your capability to be to maximize low sulfur heavy fuel oils, assuming reduction in distillate and jet fuel volumes not exceed 10%? Assume constraints on refinery runs and quality of available crude oil supply to be the same as projected in Tables 169-177 for 1980 and 1982. (Report maximum quantity that can be produced for each grade. Each grade specifies a separate situation and vertical columns are not additive.)

By Refinery Size Within PAD I

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| 0-10 | 0.1 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | | | | 1 | | | |
| | 0.3 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | | | | 1 | | | |
| | 0.5 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | | | | 1 | | | |
| | 0.7 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | | | | 1 | | | |
| | 1.0 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | | | | 2 | | | |
| | 2.0 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | | | | 2 | | | |
| 10-30 | 0.1 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | | | | 1 | | | |
| | 0.3 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | | | | 2 | | | |
| | 0.5 wt. % X Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | | | | 2 | | | |

Table C.11.2.4 (Page 2 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 0.7 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | | | | 2 | | | |
| | 1.0 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | | | | 2 | | | |
| | 2.0 wt. % S Maximum | 17 | * | * | | 17 | * | * | |
| | MBPCD | 51 | | | | 53 | | | |
| | Number of Refineries | 4 | 1 | 1 | | 4 | 1 | 1 | |
| 30-50 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.5 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.7 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 1.0 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 2.0 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| 50-100 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 0.5 wt. % S Maximum | 73 | * | * | * | 67 | * | * | * |
| | MBPCD | 244 | | | | 244 | | | |
| | Number of Refineries | 4 | 2 | 2 | 2 | 4 | 2 | 2 | 2 |
| | 0.7 wt. % S Maximum | 78 | * | * | * | 72 | * | * | * |
| | MBPCD | 244 | | | | 244 | | | |
| | Number of Refineries | 4 | 2 | 2 | 2 | 4 | 2 | 2 | 2 |

Table C.11.2.4 (Page 3 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 1.0 wt. % S Maximum | 85 | * | * | * | 79 | * | * | * |
| | MBPCD | 244 | | | | 244 | | | |
| | Number of Refineries | 4 | 1 | 1 | 2 | 4 | 1 | 1 | 2 |
| | 2.0 wt. % S Maximum | 117 | | | * | 116 | | | * |
| | MBPCD | 415 | | | | 425 | | | |
| | Number of Refineries | 7 | | | 2 | 7 | | | 2 |
| 100-175 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | * | * | * | | * | * | * | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | 1 | 1 | | 1 | 1 | 1 | |
| | 0.5 wt. % S Maximum | 45 | 31 | 2.92 | * | 37 | 44 | 2.56 | * |
| | MBPCD | 504 | | | | 510 | | | |
| | Number of Refineries | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 |
| | 0.7 wt. % S Maximum | 48 | * | * | * | 44 | 37 | 2.74 | * |
| | MBPCD | 504 | | | | 510 | | | |
| | Number of Refineries | 3 | 2 | 2 | 2 | 3 | 3 | 3 | 2 |
| | 1.0 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 2 |
| | 2.0 wt. % S Maximum | 74 | * | * | * | 77 | * | * | * |
| | MBPCD | 504 | | | | 510 | | | |
| | Number of Refineries | 3 | 1 | 1 | 2 | 3 | 1 | 1 | 2 |
| 175+ | 0.1 wt. % S Maximum | * | * | * | | * | * | * | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | 1 | 1 | | 1 | 1 | 1 | |
| | 0.3 wt. % S Maximum | 53 | 62 | 2.07 | * | 64 | 75 | 1.83 | * |
| | MBPCD | 681 | | | | 708 | | | |
| | Number of Refineries | 3 | 3 | 3 | 1 | 3 | 3 | 3 | 1 |
| | 0.5 wt. % S Maximum | 77 | * | * | * | 100 | * | * | * |
| | MBPCD | 681 | | | | 708 | | | |
| | Number of Refineries | 3 | 1 | 1 | 1 | 3 | 2 | 2 | 1 |
| | 0.7 wt. % S Maximum | 81 | * | * | * | 105 | * | * | * |
| | MBPCD | 681 | | | | 708 | | | |
| | Number of Refineries | 3 | 1 | 1 | 1 | 3 | 1 | 1 | 1 |

Table C.11.2.4 (Page 4 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 1.0 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 1 | 1 | 1 | 3 | 1 | 1 | 1 |
| | 2.0 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 1 | 1 | 1 | 3 | 1 | 1 | 1 |
| TOTAL | 0.1 wt. % S Maximum | * | * | * | | * | * | * | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 1 | 1 | | 3 | 1 | 1 | |
| | 0.3 wt. % S Maximum | 94 | 100 | 2.11 | * | 99 | 116 | 1.96 | * |
| | MBPCD | 1007 | | | | 1042 | | | |
| | Number of Refineries | 9 | 5 | 5 | 2 | 9 | 5 | 5 | 2 |
| | 0.5 wt. % S Maximum | 201 | 83 | 2.67 | 42 | 211 | 95 | 2.53 | 42 |
| | MBPCD | 1460 | | | | 1495 | | | |
| | Number of Refineries | 13 | 6 | 6 | 5 | 13 | 7 | 7 | 5 |
| | 0.7 wt. % S Maximum | 213 | 73 | 2.81 | 42 | 227 | 79 | 2.72 | 42 |
| | MBPCD | 1460 | | | | 1495 | | | |
| | Number of Refineries | 13 | 5 | 5 | 5 | 13 | 6 | 6 | 5 |
| | 1.0 wt. % S Maximum | 227 | 60 | 2.99 | 42 | 245 | 61 | 2.98 | 42 |
| | MBPCD | 1467 | | | | 1502 | | | |
| | Number of Refineries | 14 | 4 | 4 | 5 | 14 | 4 | 4 | 5 |
| | 2.0 wt. % S Maximum | 321 | 7 | 3.15 | 42 | 347 | 7 | 3.18 | 42 |
| | MBPCD | 1663 | | | | 1708 | | | |
| | Number of Refineries | 19 | 3 | 3 | 5 | 19 | 3 | 3 | 5 |

Table C.11.2.5 (Page 1 of 4)

## LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

**If, in the event of a national emergency, it becomes necessary to maximize heavy fuel oil production at the expense of light products, what do you estimate your capability to be to maximize low sulfur heavy fuel oils, assuming reduction in distillate and jet fuel volumes not exceed 10%? Assume constraints on refinery runs and quality of available crude oil supply to be the same as projected in Tables 169-177 for 1980 and 1982. (Report maximum quantity that can be produced for each grade. Each grade specifies a separate situation and vertical columns are not additive.)**

By Refinery Size Within PAD II

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| 0-10 | 0.1 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | | | | 1 | | | |
| | 0.3 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | | | | 1 | | | |
| | 0.5 wt. % S Maximum | 10 | | | * | 10 | | | * |
| | MBPCD | 35 | | | | 38 | | | |
| | Number of Refineries | 6 | | | 1 | 6 | | | 1 |
| | 0.7 wt. % S Maximum | 10 | | | * | 10 | | | * |
| | MBPCD | 35 | | | | 38 | | | |
| | Number of Refineries | 6 | | | 1 | 6 | | | 1 |
| | 1.0 wt. % S Maximum | 10 | | | * | 10 | | | * |
| | MBPCD | 36 | | | | 39 | | | |
| | Number of Refineries | 7 | | | 1 | 7 | | | 1 |
| | 2.0 wt. % S Maximum | 11 | * | * | * | 12 | | | * |
| | MBPCD | 50 | | | | 53 | | | |
| | Number of Refineries | 9 | 1 | 1 | 2 | 9 | | | 2 |
| 10-30 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | * | * | * | | * | * | * | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | 1 | 1 | | 1 | 1 | 1 | |
| | 0.5 wt. % X Maximum | 12 | 7 | .92 | * | 13 | 8 | .92 | * |
| | MBPCD | 61 | | | | 68 | | | |
| | Number of Refineries | 3 | 3 | 3 | 1 | 3 | 3 | 3 | 1 |

Table C.11.2.5 (Page 2 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 0.7 wt. % S Maximum | 23 | | | * | 25 | | | * |
| | MBPCD | 75 | | | | 82 | | | |
| | Number of Refineries | 4 | | | 2 | 4 | | | 2 |
| | 1.0 wt. % S Maximum | 31 | | | * | 33 | | | * |
| | MBPCD | 159 | | | | 165 | | | |
| | Number of Refineries | 8 | | | 3 | 8 | | | 3 |
| | 2.0 wt. % S Maximum | 43 | | | 14 | 46 | | | * |
| | MBPCD | 208 | | | | 215 | | | |
| | Number of Refineries | 10 | | | 5 | 10 | | | 5 |
| 30-50 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.5 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.7 wt. % S Maximum | * | | | * | * | | | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | | | 1 | 2 | | | 1 |
| | 1.0 wt. % S Maximum | 27 | * | * | 16 | 27 | * | * | 16 |
| | MBPCD | 223 | | | | 231 | | | |
| | Number of Refineries | 5 | 1 | 1 | 5 | 5 | 1 | 1 | 5 |
| | 2.0 wt. % S Maximum | 53 | | | 25 | 51 | * | * | 25 |
| | MBPCD | 363 | | | | 371 | | | |
| | Number of Refineries | 8 | | | 7 | 8 | 1 | 1 | 7 |
| 50-100 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | 0.5 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 3 |
| | 0.7 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 1 | 1 | 3 | 3 | 1 | 1 | 3 |

Table C.11.2.5 (Page 3 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 1.0 wt. % S Maximum | 107 | 25 | 2.30 | 62 | 110 | 26 | 2.49 | 64 |
| | MBPCD | 562 | | | | 562 | | | |
| | Number of Refineries | 8 | 3 | 3 | 6 | 8 | 3 | 3 | 6 |
| | 2.0 wt. % S Maximum | 157 | | | 73 | 155 | * | * | 77 |
| | MBPCD | 908 | | | | 919 | | | |
| | Number of Refineries | 14 | | | 9 | 14 | 1 | 1 | 9 |
| 100-175 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | * | * | * | | * | * | * | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 3 | 3 | | 2 | 2 | 2 | |
| | 0.5 wt. % S Maximum | * | * | * | | * | * | * | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 2 | 2 | | 3 | 3 | 3 | |
| | 0.7 wt. % S Maximum | * | * | * | | * | * | * | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 1 | 1 | | 3 | 2 | 2 | |
| | 1.0 wt. % S Maximum | 32 | * | * | * | 35 | * | * | * |
| | MBPCD | 769 | | | | 660 | | | |
| | Number of Refineries | 6 | 2 | 2 | 2 | 5 | 2 | 2 | 1 |
| | 2.0 wt. % S Maximum | 55 | | | * | 66 | | | 11 |
| | MBPCD | 889 | | | | 900 | | | |
| | Number of Refineries | 7 | | | 2 | 7 | | | 3 |
| 175+ | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 |
| | 0.5 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 0.7 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 1.0 wt. % S Maximum | 131 | * | * | 53 | 131 | * | * | 52 |
| | MBPCD | | | | | 855 | | | |
| | Number of Refineries | 3 | 1 | 1 | 3 | 3 | 1 | 1 | 3 |

Table C.11.2.5 (Page 4 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| TOTAL | 2.0 wt. % S Maximum | 161 | | | 56 | 164 | | | 55 |
| | MBPCD | 1278 | | | | 1318 | | | |
| | Number of Refineries | 5 | | | 3 | 5 | | | 3 |
| | 0.1 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | | | | 1 | | | |
| | 0.3 wt. % S Maximum | 120 | * | * | * | 108 | * | * | * |
| | MBPCD | 1164 | | | | 642 | | | |
| | Number of Refineries | 9 | 8 | 8 | 3 | 7 | 6 | 6 | 3 |
| | 0.5 wt. % S Maximum | 200 | * | * | 105 | 196 | * | * | 103 |
| | MBPCD | 1305 | | | | 1355 | | | |
| | Number of Refineries | 17 | 8 | 8 | 6 | 17 | 9 | 9 | 6 |
| | 0.7 wt. % S Maximum | 246 | * | * | 117 | 246 | * | * | 114 |
| | MBPCD | 1406 | | | | 1455 | | | |
| | Number of Refineries | 20 | 3 | 3 | 8 | 20 | 4 | 4 | 8 |
| | 1.0 wt. % S Maximum | 338 | 40 | 2.51 | 140 | 346 | 45 | 2.53 | 141 |
| | MBPCD | 2564 | | | | 2513 | | | |
| | Number of Refineries | 37 | 7 | 7 | 20 | 36 | 7 | 7 | 19 |
| | 2.0 wt. % S Maximum | 480 | * | * | 179 | 494 | * | * | 184 |
| | MBPCD | 3695 | | | | 3774 | | | |
| | Number of Refineries | 53 | 1 | 1 | 28 | 53 | 2 | 2 | 29 |

Table C.11.2.6 (Page 1 of 4)

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

If, in the event of a national emergency, it becomes necessary to maximize heavy fuel oil production at the expense of light products, what do you estimate your capability to be to maximize low sulfur heavy fuel oils, assuming reduction in distillate and jet fuel volumes not exceed 10%? Assume constraints on refinery runs and quality of available crude oil supply to be the same as projected in Tables 169-177 for 1980 and 1982. (Report maximum quantity that can be produced for each grade. Each grade specifies a separate situation and vertical columns are not additive.)

By Refinery Size Within PAD III

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| 0-10 | 0.1 wt. % S Maximum | 4 | | | | 4 | | | |
| | MBPCD | 15 | | | | 16 | | | |
| | Number of Refineries | 3 | | | | 3 | | | |
| | 0.3 wt. % S Maximum | 19 | | | * | 11 | | | * |
| | MBPCD | 60 | | | | 43 | | | |
| | Number of Refineries | 9 | | | 1 | 7 | | | 1 |
| | 0.5 wt. % S Maximum | 21 | | | * | 12 | | | * |
| | MBPCD | 68 | | | | 51 | | | |
| | Number of Refineries | 11 | | | 1 | 9 | | | 1 |
| | 0.7 wt. % S Maximum | 22 | | | * | 14 | | | * |
| | MBPCD | 74 | | | | 57 | | | |
| | Number of Refineries | 12 | | | 1 | 10 | | | 1 |
| | 1.0 wt. % S Maximum | 25 | | | * | 17 | | | * |
| | MBPCD | 83 | | | | 66 | | | |
| | Number of Refineries | 13 | | | 1 | 11 | | | 1 |
| | 2.0 wt. % S Maximum | 28 | | | * | 19 | | | * |
| | MBPCD | 87 | | | | 69 | | | |
| | Number of Refineries | 14 | | | 1 | 12 | | | 1 |
| 10-30 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | 32 | * | * | * | 40 | 8 | .84 | * |
| | MBPCD | 116 | | | | 141 | | | |
| | Number of Refineries | 6 | 2 | 2 | 2 | 7 | 3 | 3 | 1 |
| | 0.5 wt. % X Maximum | 44 | * | * | * | 52 | * | * | * |
| | MBPCD | 144 | | | | 169 | | | |
| | Number of Refineries | 8 | 1 | 1 | 2 | 9 | 2 | 2 | 1 |

Table C.11.2.6 (Page 2 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 0.7 wt. % S Maximum | 73 | * | * | 10 | 81 | * | * | 5 |
| | MBPCD | 293 | | | | 332 | | | |
| | Number of Refineries | 15 | 1 | 1 | 3 | 16 | 1 | 1 | 3 |
| | 1.0 wt. % S Maximum | 74 | * | * | 10 | 82 | * | * | 5 |
| | MBPCD | 309 | | | | 338 | | | |
| | Number of Refineries | 16 | 1 | 1 | 5 | 17 | 1 | 1 | 4 |
| | 2.0 wt. % S Maximum | 80 | * | * | 11 | 88 | * | * | 6 |
| | MBPCD | 372 | | | | 402 | | | |
| | Number of Refineries | 19 | 1 | 1 | 5 | 20 | 1 | 1 | 4 |
| 30-50 | 0.1 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | | | | |
| | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 0.3 wt. % S Maximum | * | * | * | 2 | 33 | * | * | 17 |
| | MBPCD | * | | | | 209 | | | |
| | Number of Refineries | 5 | 4 | 3 | 3 | 5 | 4 | 3 | 3 |
| | 0.5 wt. % S Maximum | * | * | * | 4 | * | * | * | 19 |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 6 | 4 | 3 | 3 | 6 | 4 | 3 | 3 |
| | 0.7 wt. % S Maximum | * | * | * | 14 | * | * | * | 31 |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 7 | 3 | 3 | 3 | 7 | 3 | 3 | 3 |
| | 1.0 wt. % S Maximum | 66 | * | * | 14 | 89 | | | 31 |
| | MBPCD | 350 | | | | 355 | | | |
| | Number of Refineries | 9 | 1 | 1 | 3 | 9 | | | 3 |
| | 2.0 wt. % S Maximum | 75 | | | 14 | 92 | | | 31 |
| | MBPCD | 350 | | | | 355 | | | |
| | Number of Refineries | 9 | | | 3 | 9 | | | 3 |
| 50-100 | 0.1 wt. % S Maximum | | | | | * | * | * | * |
| | MBPCD | | | | | * | | | |
| | Number of Refineries | | | | | 1 | 1 | 1 | 1 |
| | 0.3 wt. % S Maximum | | | | | * | * | * | * |
| | MBPCD | | | | | * | | | |
| | Number of Refineries | | | | | 1 | 1 | 1 | 1 |
| | 0.5 wt. % S Maximum | * | | | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | | | 1 | 2 | 1 | 1 | 1 |
| | 0.7 wt. % S Maximum | * | | | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 4 | | | 2 | 4 | 1 | 1 | 2 |

Table C.11.2.6 (Page 3 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 1.0 wt. % S Maximum | 55 | | | * | 40 | * | * | * |
| | MBPCD | 574 | | | | 461 | | | |
| | Number of Refineries | 7 | | | 4 | 6 | 1 | 1 | 4 |
| | 2.0 wt. % S Maximum | 58 | | | * | 51 | | | * |
| | MBPCD | 630 | | | | 516 | | | |
| | Number of Refineries | 8 | | | 4 | 7 | | | 4 |
| 100-175 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 |
| | 0.5 wt. % S Maximum | 58 | | | 29 | 51 | * | * | 29 |
| | MBPCD | 394 | | | | 414 | | | |
| | Number of Refineries | 3 | | | 3 | 3 | 1 | 1 | 3 |
| | 0.7 wt. % S Maximum | 68 | * | * | 29 | 66 | 21 | 2.61 | 31 |
| | MBPCD | 508 | | | | 638 | | | |
| | Number of Refineries | 4 | 1 | 1 | 3 | 5 | 3 | 3 | 4 |
| | 1.0 wt. % S Maximum | 69 | * | * | 29 | 95 | 14 | 2.79 | 31 |
| | MBPCD | 508 | | | | 799 | | | |
| | Number of Refineries | 4 | 1 | 1 | 3 | 6 | 3 | 3 | 4 |
| | 2.0 wt. % S Maximum | 84 | | | 29 | 116 | * | * | 31 |
| | MBPCD | 628 | | | | 920 | | | |
| | Number of Refineries | 5 | | | 3 | 7 | 1 | 1 | 4 |
| 175+ | 0.1 wt. % S Maximum | * | * | * | | * | * | * | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | 1 | 1 | | 1 | 1 | 1 | |
| | 0.3 wt. % S Maximum | 90 | 102 | 1.28 | * | 78 | 183 | 1.12 | * |
| | MBPCD | 1105 | | | | 1155 | | | |
| | Number of Refineries | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 |
| | 0.5 wt. % S Maximum | 189 | 68 | 2.08 | 53 | 232 | 110 | 1.91 | 79 |
| | MBPCD | 1811 | | | | 2143 | | | |
| | Number of Refineries | 5 | 5 | 5 | 4 | 6 | 5 | 5 | 5 |
| | 0.7 wt. % S Maximum | 284 | 60 | 2.55 | 67 | 318 | 110 | 2.23 | 89 |
| | MBPCD | 2359 | | | | 3016 | | | |
| | Number of Refineries | 7 | 4 | 4 | 4 | 9 | 6 | 6 | 6 |

Table C.11.2.6 (Page 4 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 1.0 wt. % S Maximum | 428 | 97 | 2.52 | 112 | 501 | 153 | 2.49 | 145 |
| | MBPCD | 3641 | | | | 4376 | | | |
| | Number of Refineries | 11 | 7 | 7 | 8 | 13 | 8 | 8 | 10 |
| | 2.0 wt. % S Maximum | 557 | * | * | 118 | 637 | * | * | 147 |
| | MBPCD | 4419 | | | | 4829 | | | |
| | Number of Refineries | 13 | 2 | 2 | 8 | 14 | 2 | 2 | 8 |
| TOTAL | 0.1 wt. % S Maximum | 5 | * | * | * | 7 | * | * | * |
| | MBPCD | 700 | | | | 725 | | | |
| | Number of Refineries | 5 | 2 | 2 | 1 | 5 | 2 | 2 | 1 |
| | 0.3 wt. % S Maximum | 187 | 139 | 1.18 | 68 | 175 | 225 | 1.07 | 99 |
| | MBPCD | 1724 | | | | 1736 | | | |
| | Number of Refineries | 25 | 11 | 10 | 9 | 24 | 12 | 11 | 9 |
| | 0.5 wt. % S Maximum | 363 | 87 | 1.86 | 97 | 405 | 149 | 1.72 | 130 |
| | MBPCD | 2825 | | | | 3164 | | | |
| | Number of Refineries | 35 | 10 | 9 | 14 | 35 | 13 | 12 | 14 |
| | 0.7 wt. % S Maximum | 529 | 76 | 2.30 | 128 | 568 | 155 | 2.09 | 161 |
| | MBPCD | 3829 | | | | 4607 | | | |
| | Number of Refineries | 49 | 9 | 9 | 16 | 51 | 14 | 14 | 19 |
| | 1.0 wt. % S Maximum | 718 | 105 | 2.45 | 176 | 823 | 177 | 2.44 | 220 |
| | MBPCD | 5466 | | | | 6395 | | | |
| | Number of Refineries | 60 | 10 | 10 | 24 | 62 | 13 | 13 | 26 |
| | 2.0 wt. % S Maximum | 882 | * | * | 182 | 1003 | 54 | 2.83 | 223 |
| | MBPCD | 6487 | | | | 7091 | | | |
| | Number of Refineries | 68 | 3 | 3 | 24 | 69 | 4 | 4 | 26 |

Table C.11.2.7 (Page 1 of 4)

LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

**If, in the event of a national emergency, it becomes necessary to maximize heavy fuel oil production at the expense of light products, what do you estimate your capability to be to maximize low sulfur heavy fuel oils, assuming reduction in distillate and jet fuel volumes not exceed 10%? Assume constraints on refinery runs and quality of available crude oil supply to be the same as projected in Tables 169-177 for 1980 and 1982. (Report maximum quantity that can be produced for each grade. Each grade specifies a separate situation and vertical columns are not additive.)**

By Refinery Size Within PAD IV

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| 0-10 | 0.1 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | | | | 1 | | | |
| | 0.3 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | | | | 2 | | | |
| | 0.5 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | | | | 3 | | | |
| | 0.7 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 4 | | | | 4 | | | |
| | 1.0 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 5 | | | | 4 | | | |
| | 2.0 wt. % S Maximum | 4 | | | | 4 | | | |
| | MBPCD | 29 | | | | 21 | | | |
| | Number of Refineries | 6 | | | | 5 | | | |
| 10-30 | 0.1 wt. % S Maximum | * | | | * | * | | | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | | | 1 | 1 | | | 1 |
| | 0.3 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 2 |
| | 0.5 wt. % X Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 2 |

Table C.11.2.7 (Page 2 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 0.7 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 1 | 1 | 2 | 3 | 1 | 1 | 2 |
| | 1.0 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 4 | 1 | 1 | 2 | 5 | 1 | 1 | 2 |
| | 2.0 wt. % S Maximum | 18 | * | * | * | 18 | * | * | * |
| | MBPCD | 138 | | | | 150 | | | |
| | Number of Refineries | 6 | 1 | 1 | 2 | 7 | 1 | 1 | 3 |
| 30-50 | 0.1 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 0.3 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 0.5 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 0.7 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 |
| | 1.0 wt. % S Maximum | 13 | * | * | * | 13 | * | * | * |
| | MBPCD | 186 | | | | 190 | | | |
| | Number of Refineries | 4 | 2 | 2 | 2 | 4 | 2 | 2 | 2 |
| | 2.0 wt. % S Maximum | 22 | * | * | * | 22 | * | * | * |
| | MBPCD | 312 | | | | 316 | | | |
| | Number of Refineries | 7 | 3 | 3 | 5 | 7 | 3 | 3 | 5 |
| 50-100 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.5 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.7 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |

Table C.11.2.7 (Page 3 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 1.0 wt. % S Maximum MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 2.0 wt. % S Maximum MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| 100-175 | 0.1 wt. % S Maximum MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.5 wt. % S Maximum MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.7 wt. % S Maximum MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 1.0 wt. % S Maximum MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 2.0 wt. % S Maximum MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| 175+ | 0.1 wt. % S Maximum MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.5 wt. % S Maximum MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.7 wt. % S Maximum MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 1.0 wt. % S Maximum MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |

Table C.11.2.7 (Page 4 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 1.0 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 2.0 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| TOTAL | 0.1 wt. % S Maximum | 10 | * | * | * | 10 | * | * | * |
| | MBPCD | 71 | | | | 71 | | | |
| | Number of Refineries | 3 | 1 | 1 | 2 | 3 | 1 | 1 | 2 |
| | 0.3 wt. % S Maximum | 14 | * | * | 10 | 14 | * | * | 10 |
| | MBPCD | 141 | | | | 141 | | | |
| | Number of Refineries | 6 | 2 | 2 | 3 | 6 | 2 | 2 | 3 |
| | 0.5 wt. % S Maximum | 16 | * | * | 10 | 16 | * | * | 10 |
| | MBPCD | 142 | | | | 142 | | | |
| | Number of Refineries | 7 | 2 | 2 | 3 | 9 | 2 | 2 | 3 |
| | 0.7 wt. % S Maximum | 23 | * | * | 10 | 24 | * | * | 10 |
| | MBPCD | 158 | | | | 158 | | | |
| | Number of Refineries | 9 | 2 | 2 | 3 | 9 | 2 | 2 | 3 |
| | 1.0 wt. % S Maximum | 30 | 7 | 2.92 | 10 | 31 | 7 | 291 | 10 |
| | MBPCD | 292 | | | | 300 | | | |
| | Number of Refineries | 13 | 3 | 3 | 4 | 13 | 3 | 3 | 4 |
| | 2.0 wt. % S Maximum | 43 | 19 | 3.30 | 23 | 43 | 20 | 3.29 | 23 |
| | MBPCD | 478 | | | | 487 | | | |
| | Number of Refineries | 19 | 4 | 4 | 8 | 19 | 4 | 4 | 8 |

Table C.11.2.8 (Page 1 of 4)

## LOW SULFUR HEAVY FUEL OIL MANUFACTURING CAPABILITIES

**If, in the event of a national emergency, it becomes necessary to maximize heavy fuel oil production at the expense of light products, what do you estimate your capability to be to maximize low sulfur heavy fuel oils, assuming reduction in distillate and jet fuel volumes not exceed 10%? Assume constraints on refinery runs and quality of available crude oil supply to be the same as projected in Tables 169-177 for 1980 and 1982. (Report maximum quantity that can be produced for each grade. Each grade specifies a separate situation and vertical columns are not additive.)**

By Refinery Size Within PAD V

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| 0-10 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.5 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.7 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 1.0 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 2.0 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | | | | 2 | | | |
| 10-30 | 0.1 wt. % S Maximum | * | | | | * | | | |
| | MBPCD | * | * | * | | * | * | * | |
| | Number of Refineries | 2 | 2 | 2 | | 2 | 2 | 2 | |
| | 0.3 wt. % S Maximum | 19 | 29 | 1.72 | | 19 | 25 | 1.87 | |
| | MBPCD | 100 | | | | 100 | | | |
| | Number of Refineries | 4 | 3 | 3 | | 4 | 3 | 3 | |
| | 0.5 wt. % X Maximum | 22 | 40 | 1.47 | | 22 | 36 | 1.52 | |
| | MBPCD | 132 | | | | 135 | | | |
| | Number of Refineries | 6 | 5 | 5 | | 6 | 5 | 5 | |

Table C.11.2.8 (Page 2 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 0.7 wt. % S Maximum | 30 | 41 | 1.47 | * | 32 | 36 | 1.53 | * |
| | MBPCD | 158 | | | | 161 | | | |
| | Number of Refineries | 7 | 4 | 4 | 1 | 7 | 4 | 4 | 1 |
| | 1.0 wt. % S Maximum | 56 | 29 | 1.56 | * | 59 | 24 | 1.67 | * |
| | MBPCD | 216 | | | | 221 | | | |
| | Number of Refineries | 10 | 3 | 3 | 1 | 10 | 3 | 3 | 1 |
| | 2.0 wt. % S Maximum | 123 | | | * | 121 | | | * |
| | MBPCD | 269 | | | | 274 | | | |
| | Number of Refineries | 13 | | | 2 | 13 | | | 2 |
| 30-50 | 0.1 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 0.3 wt. % S Maximum | * | 42 | 1.45 | * | * | 23 | 2.08 | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 4 | 4 | 4 | 1 | 3 | 3 | 3 | 1 |
| | 0.5 wt. % S Maximum | * | 21 | 2.08 | * | * | 21 | 2.08 | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 4 | 3 | 3 | 1 | 3 | 3 | 3 | 1 |
| | 0.7 wt. % S Maximum | 45 | * | * | * | 23 | * | * | * |
| | MBPCD | 185 | | | | 137 | | | |
| | Number of Refineries | 4 | 2 | 2 | 1 | 3 | 2 | 2 | 1 |
| | 1.0 wt. % S Maximum | 51 | * | * | * | 29 | * | * | * |
| | MBPCD | 225 | | | | 177 | | | |
| | Number of Refineries | 5 | 2 | 2 | 1 | 4 | 2 | 2 | 1 |
| | 2.0 wt. % S Maximum | 91 | | | * | 54 | | | * |
| | MBPCD | 291 | | | | 215 | | | |
| | Number of Refineries | 7 | | | 1 | 5 | | | 1 |
| 50-100 | 0.1 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 2 | 2 | 1 | 3 | 2 | 2 | 1 |
| | 0.3 wt. % S Maximum | 87 | 22 | 1.68 | 18 | 112 | 20 | 1.49 | 18 |
| | MBPCD | 356 | | | | 408 | | | |
| | Number of Refineries | 5 | 4 | 4 | 3 | 6 | 4 | 4 | 3 |
| | 0.5 wt. % S Maximum | 92 | * | * | 18 | 143 | * | * | 18 |
| | MBPCD | 356 | | | | 479 | | | |
| | Number of Refineries | 5 | 2 | 2 | 3 | 7 | 2 | 2 | 3 |
| | 0.7 wt. % S Maximum | 97 | * | * | 18 | 143 | * | * | 18 |
| | MBPCD | 356 | | | | 478 | | | |
| | Number of Refineries | 5 | 2 | 2 | 3 | 7 | 2 | 2 | 3 |

Table C.11.2.8 (Page 3 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 1.0 wt. % S Maximum | 106 | * | * | 18 | 159 | * | * | 18 |
| | MBPCD | 356 | | | | 478 | | | |
| | Number of Refineries | 5 | 1 | 1 | 3 | 7 | 1 | 1 | 3 |
| | 2.0 wt. % S Maximum | 138 | * | * | 20 | 189 | * | * | 20 |
| | MBPCD | 696 | | | | 818 | | | |
| | Number of Refineries | 9 | 2 | 2 | 4 | 11 | 2 | 2 | 4 |
| 100-175 | 0.1 wt. % S Maximum | | | | | | | | |
| | MBPCD | | | | | | | | |
| | Number of Refineries | | | | | | | | |
| | 0.3 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 2 | 2 | 1 | 3 | 3 | 3 | 2 |
| | 0.5 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 |
| | 0.7 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 |
| | 1.0 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 4 | 2 | 2 | 3 | 4 | 2 | 2 | 3 |
| | 2.0 wt. % S Maximum | 74 | | | * | 77 | | | * |
| | MBPCD | 679 | | | | 679 | | | |
| | Number of Refineries | 6 | | | 2 | 6 | | | 3 |
| 175+ | 0.1 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | 0.3 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 2 |
| | 0.5 wt. % S Maximum | * | * | * | * | * | * | * | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | 1 | 1 | 2 | 3 | 1 | 1 | 2 |
| | 0.7 wt. % S Maximum | * | | | * | * | | | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | | | 3 | 3 | | | 3 |
| | 1.0 wt. % S Maximum | * | | | * | * | | | * |
| | MBPCD | * | | | | | | | |
| | Number of Refineries | 3 | | | 3 | 3 | | | 3 |

Table C.11.2.8 (Page 4 of 4)

| Refinery Size (MBPCD) | Low Sulfur Heavy Fuel Oil (HFO) Grades | 1980 MBPCD Low S HFO | 1980 Balance of HFO MBPCD | 1980 Balance of HFO Wt. % S | 1980 Estimated Volume of Reduction in Gasoline MB/CD | 1982 MBPCD Low S HFO | 1982 Balance of HFO MBPCD | 1982 Balance of HFO Wt. % S | 1982 Estimated Volume of Reduction in Gasoline MB/CD |
|---|---|---|---|---|---|---|---|---|---|
| | 2.0 wt. % S Maximum | * | | | * | * | | | * |
| | MBPCD | * | | | | * | | | |
| | Number of Refineries | 3 | | | 3 | 3 | | | 3 |
| TOTAL | 0.1 wt. % S Maximum | 234 | 114 | 1.16 | * | 259 | 114 | 1.16 | * |
| | MBPCD | 983 | | | | 1036 | | | |
| | Number of Refineries | 7 | 7 | 7 | 4 | 8 | 7 | 7 | 4 |
| | 0.3 wt. % S Maximum | 414 | 129 | 1.64 | 133 | 446 | 110 | 1.82 | 138 |
| | MBPCD | 1825 | | | | 1940 | | | |
| | Number of Refineries | 18 | 15 | 15 | 7 | 19 | 15 | 15 | 8 |
| | 0.5 wt. % S Maximum | 477 | 95 | 1.69 | 110 | 511 | 88 | 1.71 | 110 |
| | MBPCD | 1968 | | | | 2044 | | | |
| | Number of Refineries | 21 | 14 | 14 | 8 | 22 | 14 | 14 | 8 |
| | 0.7 wt. % S Maximum | 508 | 81 | 1.70 | 117 | 546 | 74 | 1.72 | 117 |
| | MBPCD | 1994 | | | | 2071 | | | |
| | Number of Refineries | 22 | 11 | 11 | 10 | 23 | 10 | 10 | 10 |
| | 1.0 wt. % S Maximum | 567 | 51 | 1.82 | 123 | 603 | 46 | 1.83 | 123 |
| | MBPCD | 2198 | | | | 2277 | | | |
| | Number of Refineries | 27 | 8 | 8 | 11 | 28 | 8 | 8 | 11 |
| | 2.0 wt. % S Maximum | 757 | * | * | 127 | 772 | * | * | 127 |
| | MBPCD | 2904 | | | | 2956 | | | |
| | Number of Refineries | 40 | 2 | 2 | 13 | 40 | 2 | 2 | 13 |

# APPENDIX D

APPENDIX D

Detailed Tabulations for
Part II, Operational Costs


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TABLE D.0

## Crude Oil Entitlements Program

Among the factors determining the net crude oil cost to refining companies in 1978 was the U.S. Department of Energy's crude oil entitlements program.

Respondents to this survey provided 1978 crude oil volumes and costs by regulatory classification excluding entitlements effects. The weighted average 1978 national figures for entitlements values, domestic oil supply ratio (DOSR), and deemed old oil ratio (DOOR), as published by the Department of Energy, were programmed into the computer to calculate the effects on crude oil costs of the entitlements program as administered in 1978 (i.e., on a company basis). The small refiner bias feature of the entitlements program was similarly programmed using DOE published equations and factors for the various size categories.

The entitlements and small refiner bias programs were also simulated on the computer for a hypothetical refinery basis. The DOE factors and equations were modified to appropriately reflect this change of basis.

For both bases, crude oil costs were estimated for the "after entitlements without small refiner bias" and "after entitlements with small refiner bias" costs. The methods used for computing the various entitlements costs are discussed below.

COMPANY BASIS

I. "After Entitlements With Small Refiner Bias"

(a) For each company refinery system, determine the total refinery crude oil runs, lower tier crude oil runs, and upper tier crude oil runs for 1978 on a daily average basis.

(b) 1. Determine Entitlements Issued = (total refinery runs) (DOSR), where DOSR denotes "domestic oil supply ratio" which had an average value of 0.1934 in 1978.

2. In addition to the number of entitlements issued in accordance with (1) above, each refining company with a daily average volume of crude oil runs to stills of less than 175,000 barrels shall be issued the number of additional entitlements computed in accordance with the schedule for Small Refiner Bias Entitlements shown at the end of this Exhibit.

(c) Determine "Entitlements Required" = [lower tier runs + (upper tier runs) (DOOR)], where DOOR denotes "deemed old oil ratio" which had an average value of 0.1897 in 1978.

(d) Determine "Entitlements Cost" (with small refiner bias) = (Entitlement Value) [Entitlements required less entitlements issued], where the average entitlements value was $8.26.

(e) Divide "entitlements cost with small refiner bias" by total refinery runs to determine per barrel cost.

(f) Add entitlements cost from (e) above to average crude oil cost before entitlements to obtain "after entitlements with small refiner bias crude oil costs."

II. "After Entitlements Without Small Refiner Bias"

Compute "entitlements cost" as in (I.) above except:

(a) Use DOSR[1] = 0.2084

(b) Omit calculation of additional entitlements under small refiner bias provision.

INDIVIDUAL REFINERY BASIS

I. "After Entitlements with Small Refiner Bias"

The entitlements calculations on a hypothetical individual refinery basis differ from the company basis calculations in the following ways:

(a) All individual refineries with crude oil capacities of less than 175,000 B/D qualified for the small refiner bias, and not just those companies with aggregate capacity less than 175,000 B/D.

(b) Small refiner bias entitlements were calculated on an individual refinery basis. Therefore, in the case of each company, the number of such entitlements is greater than or equal to the figure calculated on a company basis.

A revised DOSR was calculated by modifying the small refiner bias (SRB) term in the DOSR formulation to reflect the above

---

[1]The change in DOSR value results from omitting the term for small refiner bias (SRB) in the Department of Energy equation for DOSR; i.e.,

$$DOSR = [OOR + (DOOR)(UTR) - SRB - EAR - COR - Naphtha - Cal] \div [Crude\ runs - 0.5(DRD) + 0.5(IR)]. \quad \text{(Equation A)}$$

changes. More specifically, a revised national average DOSR was calculated based on an estimation of the total U.S. small refiner bias entitlements consistent with items (a) and (b) above.

The following procedure was utilized in the estimation of the SRB term:

(a) Assume that the companies that did not respond to Part II are single refinery companies. This is approximately correct because most of the non-respondents are small companies (and most likely single refinery companies). Sixty-nine (69) out of a total of 159 refineries in the 0-30,000 B/D range did not respond to the relevant items of Part II. The non-response in this category is over 80 percent of the total non-response.

(b) Based on the above assumption (which leads directly to the conclusion that the number of small refiner bias entitlements accounted for by the non-respondents will be approximately the same regardless of whether the basis for calculation is refinery or company), estimate the number of small refiner bias entitlements on a refinery basis estimate using the following equation:

$$SRB_{refinery} = SRB_{DOE} - SRB_{CS} + SRB_{RS},$$

where

$SRB_{refinery}$ = Estimated total U.S. small refiner bias entitlements on an individual refinery basis

$SRB_{DOE}$ = DOE daily average U.S. total small refiner bias entitlements

$SRB_{CS}$ = Actual daily average small refiner bias entitlements among Part II respondents on a company basis

$SRB_{RS}$ = Calculated daily average small refiner bias entitlements among Part II respondents on a refinery basis.

Crude oil costs on an individual refinery basis were subsequently estimated based on the above SRB term and Equation A (see Page ii), which is the standard formulation for the DOSR (estimated at 0.1829 for this case). The same general procedure as the corresponding company basis case was adopted, except for the different factors as discussed above.

Under this scenario, the cost of the entitlements program is greater for refineries of more than 175,000 B/D than on a company basis, because these refineries bear the entire cost of the bigger, modified, hypothetical small refiner bias program. As expected, the U.S. average cost of crude oil is also unchanged under this small refiner bias program because the additional credits to the small refiners are offset by the additional debits to the bigger (greater than 175,000 B/D) refineries.

This hypothetical version of the small refiner bias program increases the nationwide estimated small refiner bias pool from about $715 million to over $1,200 million.

II. "After Entitlements Without Small Refiner Bias"

The calculation of entitlements cost without small refiner bias uses the same procedure and DOSR as the corresponding case for the company basis.

## SCHEDULE FOR SMALL REFINER BIAS ENTITLEMENTS

In addition to the number of entitlements issued in accordance with the entitlements program, each refiner with a daily average volume of crude oil runs to stills of less than 175,000 barrels is issued the following number of additional entitlements:

(a) For daily average volume of runs of 100,000 to 175,000 barrels, 1,258 entitlements less the number of entitlements obtained by multiplying the difference between that daily volume of crude oil runs and 100,000 by .0167733.

(b) For daily average volume of runs of 50,000 to 100,000 barrels, 2,079 entitlements less the number of entitlements obtained by multiplying the difference between that daily volume of crude oil runs and 50,000 by .01642.

(c) For daily average volume of runs of 30,000 to 50,000 barrels, 3,123 entitlements less the number of entitlements between that daily volume of crude oil runs and 30,000 by .052.

(d) For daily average volume of runs of 10,000 to 30,000 barrels, 2,288 entitlements plus the number of entitlements obtained by multiplying the difference between that daily volume of crude oil runs and 10,000 by .04175.

(e) For daily average volume of runs of zero to 10,000 barrels, 0.02288 entitlements for each barrel of that small refiner's daily average volume of crude oil runs.

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .559 | | |
| NUMBER OF REFINERS | 97 | | |
| NUMBER OF REFINERIES | 196 | | |
| REFINERY CRUDE CAPACITY | 15377636 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.919 | 1.080 | 13887836 |
| NUMBER OF REFINERS | 96 | 96 | 96 |
| NUMBER OF REFINERIES | 195 | 195 | 195 |
| REFINERY CRUDE CAPACITY | 15358036 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .184 | | |
| NUMBER OF REFINERS | 98 | | |
| NUMBER OF REFINERIES | 196 | | |
| REFINERY CRUDE CAPACITY | 15403236 | | |
| UD MAINT & OTHER OPN COSTS | 1.022 | | |
| NUMBER OF REFINERS | 99 | | |
| NUMBER OF REFINERIES | 199 | | |
| REFINERY CRUDE CAPACITY | 15415436 | | |
| UZ (CONTROL TOTAL) | 3.675 | | |
| NUMBER OF REFINERS | 100 | | |
| NUMBER OF REFINERIES | 200 | | |
| REFINERY CRUDE CAPACITY | 15427936 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 2712925 | 5.989 | 34.791 | .803 |
| NUMBER OF REFINERS | 95 | 95 | 88 | 88 |
| NUMBER OF REFINERIES | 180 | 180 | 144 | 144 |
| REFINERY CRUDE CAPACITY | 13830693 | 13830693 | 9145455 | 9159455 |
| VB UPPER TIER | 2564998 | 12.670 | 36.339 | .773 |
| NUMBER OF REFINERS | 97 | 97 | 90 | 90 |
| NUMBER OF REFINERIES | 184 | 184 | 148 | 148 |
| REFINERY CRUDE CAPACITY | 13906813 | 13906813 | 9221575 | 9235575 |
| VC EXEMPT | 7646035 | 14.522 | 34.359 | .861 |
| NUMBER OF REFINERS | 93 | 93 | 87 | 85 |
| NUMBER OF REFINERIES | 192 | 192 | 154 | 152 |
| REFINERY CRUDE CAPACITY | 15263136 | 15263136 | 10408898 | 10270398 |
| VY TOTAL/AVERAGE | 12923958 | 12.363 | 34.840 | .832 |
| NUMBER OF REFINERS | 103 | 103 | 97 | 96 |
| NUMBER OF REFINERIES | 203 | 203 | 165 | 164 |
| REFINERY CRUDE CAPACITY | 15445436 | 15445436 | 10591198 | 10475198 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 37.681 |
| NUMBER OF REFINERS | 97 |
| NUMBER OF REFINERIES | 182 |
| REFINERY CRUDE CAPACITY | 11988436 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 301.556 | 1354 | 20864537 |
| NUMBER OF REFINERS | 98 | 99 | 99 |
| NUMBER OF REFINERIES | 198 | 199 | 199 |
| REFINERY CRUDE CAPACITY | 15400936 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 704.448 | 3727 | 53044775 |
| NUMBER OF REFINERS | 96 | 97 | 97 |
| NUMBER OF REFINERIES | 186 | 187 | 187 |
| REFINERY CRUDE CAPACITY | 14230021 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.24 | | |
| NUMBER OF REFINERS | 102 | | |
| NUMBER OF REFINERIES | 202 | | |
| REFINERY CRUDE CAPACITY | 15445436 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .538 | | |
| NUMBER OF REFINERS | 17 | | |
| NUMBER OF REFINERIES | 26 | | |
| REFINERY CRUDE CAPACITY | 1856693 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.094 | 1.120 | 1846588 |
| NUMBER OF REFINERS | 17 | 17 | 17 |
| NUMBER OF REFINERIES | 26 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 1856693 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .194 | | |
| NUMBER OF REFINERS | 17 | | |
| NUMBER OF REFINERIES | 26 | | |
| REFINERY CRUDE CAPACITY | 1856693 | | |
| UD MAINT & OTHER OPN COSTS | 1.194 | | |
| NUMBER OF REFINERS | 17 | | |
| NUMBER OF REFINERIES | 26 | | |
| REFINERY CRUDE CAPACITY | 1856693 | | |
| UZ (CONTROL TOTAL) | 4.022 | | |
| NUMBER OF REFINERS | 17 | | |
| NUMBER OF REFINERIES | 26 | | |
| REFINERY CRUDE CAPACITY | 1856693 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 103743 | 6.301 | 33.758 | .894 |
| NUMBER OF REFINERS | 9 | 9 | 8 | 8 |
| NUMBER OF REFINERIES | 13 | 13 | 11 | 11 |
| REFINERY CRUDE CAPACITY | 783850 | 783850 | 642850 | 642850 |
| VB UPPER TIER | 107749 | 13.025 | 35.037 | .852 |
| NUMBER OF REFINERS | 9 | 9 | 8 | 8 |
| NUMBER OF REFINERIES | 15 | 15 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 793670 | 793670 | 652670 | 652670 |
| VC EXEMPT | 1435907 | 14.626 | 34.307 | .804 |
| NUMBER OF REFINERS | 16 | 16 | 14 | 14 |
| NUMBER OF REFINERIES | 25 | 25 | 22 | 22 |
| REFINERY CRUDE CAPACITY | 1829193 | 1829193 | 1520193 | 1520193 |
| VY TOTAL/AVERAGE | 1647399 | 13.997 | 34.324 | .812 |
| NUMBER OF REFINERS | 17 | 17 | 15 | 15 |
| NUMBER OF REFINERIES | 26 | 26 | 23 | 23 |
| REFINERY CRUDE CAPACITY | 1856693 | 1856693 | 1547693 | 1547693 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 16.799 |
| NUMBER OF REFINERS | 16 |
| NUMBER OF REFINERIES | 25 |
| REFINERY CRUDE CAPACITY | 1566693 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 233.406 | 1507 | 2799080 |
| NUMBER OF REFINERS | 17 | 17 | 17 |
| NUMBER OF REFINERIES | 26 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 1856693 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 669.810 | 4224 | 7471390 |
| NUMBER OF REFINERS | 16 | 16 | 16 |
| NUMBER OF REFINERIES | 25 | 25 | 25 |
| REFINERY CRUDE CAPACITY | 1768693 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.08 | | |
| NUMBER OF REFINERS | 17 | | |
| NUMBER OF REFINERIES | 26 | | |
| REFINERY CRUDE CAPACITY | 1856693 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| **OPERATION COSTS - ENERGY** | | | |
| UA MM BTU / BBL CRUDE THRUPT | .557 | | |
| NUMBER OF REFINERS | 32 | | |
| NUMBER OF REFINERIES | 52 | | |
| REFINERY CRUDE CAPACITY | 3712770 | | |
| UB AV ENERGY COST | 1.972 | 1.112 | 3470123 |
| NUMBER OF REFINERS | 31 | 31 | 31 |
| NUMBER OF REFINERIES | 51 | 51 | 51 |
| REFINERY CRUDE CAPACITY | 3693170 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| **OPERATION COSTS - OTHER** | |
| UC DEPRECIATION | .158 |
| NUMBER OF REFINERS | 33 |
| NUMBER OF REFINERIES | 53 |
| REFINERY CRUDE CAPACITY | 3717570 |
| UD MAINT & OTHER OPN COSTS | .946 |
| NUMBER OF REFINERS | 33 |
| NUMBER OF REFINERIES | 53 |
| REFINERY CRUDE CAPACITY | 3717570 |
| UZ (CONTROL TOTAL) | 3.622 |
| NUMBER OF REFINERS | 33 |
| NUMBER OF REFINERIES | 53 |
| REFINERY CRUDE CAPACITY | 3717570 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 736207 | 6.146 | 36.523 | .682 |
| NUMBER OF REFINERS | 32 | 32 | 28 | 27 |
| NUMBER OF REFINERIES | 51 | 51 | 43 | 42 |
| REFINERY CRUDE CAPACITY | 3530570 | 3530570 | 2522655 | 2516655 |
| VB UPPER TIER | 727647 | 12.964 | 37.453 | .647 |
| NUMBER OF REFINERS | 32 | 32 | 28 | 27 |
| NUMBER OF REFINERIES | 51 | 51 | 43 | 42 |
| REFINERY CRUDE CAPACITY | 3530570 | 3530570 | 2522655 | 2516655 |
| VC EXEMPT | 1674814 | 15.021 | 36.220 | .800 |
| NUMBER OF REFINERS | 31 | 31 | 27 | 24 |
| NUMBER OF REFINERIES | 51 | 51 | 43 | 40 |
| REFINERY CRUDE CAPACITY | 3700070 | 3700070 | 2692155 | 2533655 |
| VY TOTAL/AVERAGE | 3138668 | 12.463 | 36.597 | .734 |
| NUMBER OF REFINERS | 33 | 33 | 29 | 27 |
| NUMBER OF REFINERIES | 53 | 53 | 45 | 43 |
| REFINERY CRUDE CAPACITY | 3717570 | 3717570 | 2709655 | 2573655 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 32.123 |
| NUMBER OF REFINERS | 30 |
| NUMBER OF REFINERIES | 49 |
| REFINERY CRUDE CAPACITY | 3166070 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 197.857 | 1271 | 4721502 |
| NUMBER OF REFINERS | 32 | 32 | 32 |
| NUMBER OF REFINERIES | 52 | 52 | 52 |
| REFINERY CRUDE CAPACITY | 3712570 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 562.966 | 3659 | 12845611 |
| NUMBER OF REFINERS | 32 | 32 | 32 |
| NUMBER OF REFINERIES | 50 | 50 | 50 |
| REFINERY CRUDE CAPACITY | 3510655 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.14 | | |
| NUMBER OF REFINERS | 34 | | |
| NUMBER OF REFINERIES | 54 | | |
| REFINERY CRUDE CAPACITY | 3718570 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| **OPERATION COSTS - ENERGY** | | | |
| UA MM BTU / BBL CRUDE THRUPT | .544 | | |
| NUMBER OF REFINERS | 48 | | |
| NUMBER OF REFINERIES | 62 | | |
| REFINERY CRUDE CAPACITY | 6537980 | | |
| UB AV ENERGY COST | 1.802 | .975 | 5414033 |
| NUMBER OF REFINERS | 48 | 48 | 48 |
| NUMBER OF REFINERIES | 62 | 62 | 62 |
| REFINERY CRUDE CAPACITY | 6537980 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| **OPERATION COSTS - OTHER** | |
| UC DEPRECIATION | .168 |
| NUMBER OF REFINERS | 48 |
| NUMBER OF REFINERIES | 61 |
| REFINERY CRUDE CAPACITY | 6527280 |
| UD MAINT & OTHER OPN COSTS | .956 |
| NUMBER OF REFINERS | 49 |
| NUMBER OF REFINERIES | 64 |
| REFINERY CRUDE CAPACITY | 6548480 |
| UZ (CONTROL TOTAL) | 3.470 |
| NUMBER OF REFINERS | 49 |
| NUMBER OF REFINERIES | 64 |
| REFINERY CRUDE CAPACITY | 6548480 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 1308624 | 5.967 | 36.062 | .734 |
| NUMBER OF REFINERS | 47 | 47 | 41 | 42 |
| NUMBER OF REFINERIES | 62 | 62 | 49 | 50 |
| REFINERY CRUDE CAPACITY | 6497580 | 6497580 | 4487580 | 4507580 |
| VB UPPER TIER | 1286162 | 12.643 | 36.925 | .796 |
| NUMBER OF REFINERS | 48 | 48 | 42 | 43 |
| NUMBER OF REFINERIES | 63 | 63 | 50 | 51 |
| REFINERY CRUDE CAPACITY | 6538880 | 6538880 | 4528880 | 4548880 |
| VC EXEMPT | 2959253 | 14.586 | 34.918 | .927 |
| NUMBER OF REFINERS | 48 | 48 | 41 | 42 |
| NUMBER OF REFINERIES | 63 | 63 | 49 | 50 |
| REFINERY CRUDE CAPACITY | 6503180 | 6503180 | 4492180 | 4512180 |
| VY TOTAL/AVERAGE | 5554039 | 12.105 | 35.638 | .854 |
| NUMBER OF REFINERS | 50 | 50 | 43 | 44 |
| NUMBER OF REFINERIES | 65 | 65 | 51 | 52 |
| REFINERY CRUDE CAPACITY | 6549480 | 6549480 | 4538480 | 4558480 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 42.184 |
| NUMBER OF REFINERS | 45 |
| NUMBER OF REFINERIES | 54 |
| REFINERY CRUDE CAPACITY | 4380980 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 407.255 | 1305 | 8545961 |
| NUMBER OF REFINERS | 48 | 49 | 49 |
| NUMBER OF REFINERIES | 63 | 64 | 64 |
| REFINERY CRUDE CAPACITY | 6548480 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 769.667 | 3254 | 19073887 |
| NUMBER OF REFINERS | 45 | 46 | 46 |
| NUMBER OF REFINERIES | 57 | 58 | 58 |
| REFINERY CRUDE CAPACITY | 5861380 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.38 | | |
| NUMBER OF REFINERS | 48 | | |
| NUMBER OF REFINERIES | 63 | | |
| REFINERY CRUDE CAPACITY | 6548480 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .579 | | |
| NUMBER OF REFINERS | 15 | | |
| NUMBER OF REFINERIES | 19 | | |
| REFINERY CRUDE CAPACITY | 515250 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.672 | .952 | 410452 |
| NUMBER OF REFINERS | 15 | 15 | 15 |
| NUMBER OF REFINERIES | 19 | 19 | 19 |
| REFINERY CRUDE CAPACITY | 515250 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .185 | | |
| NUMBER OF REFINERS | 15 | | |
| NUMBER OF REFINERIES | 19 | | |
| REFINERY CRUDE CAPACITY | 515250 | | |
| UD MAINT & OTHER OPN COSTS | 1.123 | | |
| NUMBER OF REFINERS | 14 | | |
| NUMBER OF REFINERIES | 18 | | |
| REFINERY CRUDE CAPACITY | 502750 | | |
| UZ (CONTROL TOTAL) | 3.538 | | |
| NUMBER OF REFINERS | 15 | | |
| NUMBER OF REFINERIES | 19 | | |
| REFINERY CRUDE CAPACITY | 515250 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 159217 | 6.192 | 32.867 | 1.318 |
| NUMBER OF REFINERS | 16 | 16 | 14 | 14 |
| NUMBER OF REFINERIES | 20 | 20 | 18 | 18 |
| REFINERY CRUDE CAPACITY | 515850 | 515850 | 449850 | 449850 |
| VB UPPER TIER | 166233 | 13.007 | 35.687 | .927 |
| NUMBER OF REFINERS | 16 | 16 | 14 | 14 |
| NUMBER OF REFINERIES | 20 | 20 | 18 | 18 |
| REFINERY CRUDE CAPACITY | 515850 | 515850 | 449850 | 449850 |
| VC EXEMPT | 106291 | 15.384 | 37.856 | .638 |
| NUMBER OF REFINERS | 13 | 13 | 11 | 11 |
| NUMBER OF REFINERIES | 16 | 16 | 14 | 14 |
| REFINERY CRUDE CAPACITY | 461850 | 461850 | 395850 | 395850 |
| VY TOTAL/AVERAGE | 431741 | 11.079 | 35.266 | .989 |
| NUMBER OF REFINERS | 16 | 16 | 14 | 14 |
| NUMBER OF REFINERIES | 20 | 20 | 18 | 18 |
| REFINERY CRUDE CAPACITY | 515850 | 515850 | 449850 | 449850 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 41.844 |
| NUMBER OF REFINERS | 15 |
| NUMBER OF REFINERIES | 19 |
| REFINERY CRUDE CAPACITY | 470850 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 41.753 | 1089 | 561997 |
| NUMBER OF REFINERS | 16 | 16 | 16 |
| NUMBER OF REFINERIES | 20 | 20 | 20 |
| REFINERY CRUDE CAPACITY | 515850 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 143.317 | 3658 | 1887100 |
| NUMBER OF REFINERS | 16 | 16 | 16 |
| NUMBER OF REFINERIES | 20 | 20 | 20 |
| REFINERY CRUDE CAPACITY | 515850 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 5.16 | | |
| NUMBER OF REFINERS | 16 | | |
| NUMBER OF REFINERIES | 20 | | |
| REFINERY CRUDE CAPACITY | 515850 | | |

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .616 | | |
| NUMBER OF REFINERS | 25 | | |
| NUMBER OF REFINERIES | 37 | | |
| REFINERY CRUDE CAPACITY | 2754943 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.061 | 1.301 | 2746640 |
| NUMBER OF REFINERS | 25 | 25 | 25 |
| NUMBER OF REFINERIES | 37 | 37 | 37 |
| REFINERY CRUDE CAPACITY | 2754943 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .253 | | |
| NUMBER OF REFINERS | 25 | | |
| NUMBER OF REFINERIES | 37 | | |
| REFINERY CRUDE CAPACITY | 2786443 | | |
| UD MAINT & OTHER OPN COSTS | 1.153 | | |
| NUMBER OF REFINERS | 26 | | |
| NUMBER OF REFINERIES | 38 | | |
| REFINERY CRUDE CAPACITY | 2789943 | | |
| UZ (CONTROL TOTAL) | 4.047 | | |
| NUMBER OF REFINERS | 26 | | |
| NUMBER OF REFINERIES | 38 | | |
| REFINERY CRUDE CAPACITY | 2789943 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 405134 | 5.611 | 26.119 | 1.067 |
| NUMBER OF REFINERS | 24 | 24 | 20 | 20 |
| NUMBER OF REFINERIES | 34 | 34 | 23 | 23 |
| REFINERY CRUDE CAPACITY | 2502843 | 2502843 | 1042520 | 1042520 |
| VB UPPER TIER | 277207 | 11.684 | 26.252 | 1.013 |
| NUMBER OF REFINERS | 25 | 25 | 21 | 21 |
| NUMBER OF REFINERIES | 35 | 35 | 24 | 24 |
| REFINERY CRUDE CAPACITY | 2527843 | 2527843 | 1067520 | 1067520 |
| VC EXEMPT | 1469770 | 13.662 | 29.760 | .888 |
| NUMBER OF REFINERS | 25 | 25 | 22 | 22 |
| NUMBER OF REFINERIES | 37 | 37 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 2768843 | 2768843 | 1308520 | 1308520 |
| VY TOTAL/AVERAGE | 2152111 | 11.891 | 28.798 | .931 |
| NUMBER OF REFINERS | 27 | 27 | 24 | 24 |
| NUMBER OF REFINERIES | 39 | 39 | 28 | 28 |
| REFINERY CRUDE CAPACITY | 2805843 | 2805843 | 1345520 | 1345520 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 51.673 |
| NUMBER OF REFINERS | 25 |
| NUMBER OF REFINERIES | 35 |
| REFINERY CRUDE CAPACITY | 2403843 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 284.708 | 1530 | 4235997 |
| NUMBER OF REFINERS | 25 | 25 | 25 |
| NUMBER OF REFINERIES | 37 | 37 | 37 |
| REFINERY CRUDE CAPACITY | 2767343 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 885.197 | 4572 | 11766787 |
| NUMBER OF REFINERS | 23 | 23 | 23 |
| NUMBER OF REFINERIES | 34 | 34 | 34 |
| REFINERY CRUDE CAPACITY | 2573443 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.52 | | |
| NUMBER OF REFINERS | 27 | | |
| NUMBER OF REFINERIES | 39 | | |
| REFINERY CRUDE CAPACITY | 2805843 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .440 | | |
| NUMBER OF REFINERS | 31 | | |
| NUMBER OF REFINERIES | 36 | | |
| REFINERY CRUDE CAPACITY | 228178 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.814 | .823 | 140708 |
| NUMBER OF REFINERS | 31 | 31 | 31 |
| NUMBER OF REFINERIES | 36 | 36 | 36 |
| REFINERY CRUDE CAPACITY | 228178 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .201 | | |
| NUMBER OF REFINERS | 31 | | |
| NUMBER OF REFINERIES | 36 | | |
| REFINERY CRUDE CAPACITY | 229778 | | |
| UD MAINT & OTHER OPN COSTS | 1.188 | | |
| NUMBER OF REFINERS | 33 | | |
| NUMBER OF REFINERIES | 39 | | |
| REFINERY CRUDE CAPACITY | 243478 | | |
| UZ (CONTROL TOTAL) | 3.547 | | |
| NUMBER OF REFINERS | 33 | | |
| NUMBER OF REFINERIES | 39 | | |
| REFINERY CRUDE CAPACITY | 243478 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 46043 | 5.868 | 27.265 | 1.025 |
| NUMBER OF REFINERS | 33 | 33 | 33 | 32 |
| NUMBER OF REFINERIES | 37 | 37 | 37 | 36 |
| REFINERY CRUDE CAPACITY | 224658 | 224658 | 224658 | 218658 |
| VB UPPER TIER | 64778 | 12.771 | 36.218 | .579 |
| NUMBER OF REFINERS | 33 | 33 | 33 | 32 |
| NUMBER OF REFINERIES | 39 | 39 | 39 | 38 |
| REFINERY CRUDE CAPACITY | 234478 | 234478 | 234478 | 228478 |
| VC EXEMPT | 67378 | 14.601 | 31.304 | .781 |
| NUMBER OF REFINERS | 31 | 31 | 30 | 29 |
| NUMBER OF REFINERIES | 37 | 37 | 36 | 35 |
| REFINERY CRUDE CAPACITY | 230578 | 230578 | 229578 | 223578 |
| VY TOTAL/AVERAGE | 178199 | 11.679 | 32.047 | .775 |
| NUMBER OF REFINERS | 35 | 35 | 34 | 33 |
| NUMBER OF REFINERIES | 41 | 41 | 40 | 39 |
| REFINERY CRUDE CAPACITY | 245078 | 245078 | 244078 | 238078 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 12.221 |
| NUMBER OF REFINERS | 33 |
| NUMBER OF REFINERIES | 38 |
| REFINERY CRUDE CAPACITY | 231078 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 6.905 | 972 | 228999 |
| NUMBER OF REFINERS | 31 | 32 | 32 |
| NUMBER OF REFINERIES | 37 | 38 | 38 |
| REFINERY CRUDE CAPACITY | 235578 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 16.929 | 2521 | 606541 |
| NUMBER OF REFINERS | 32 | 33 | 33 |
| NUMBER OF REFINERIES | 38 | 39 | 39 |
| REFINERY CRUDE CAPACITY | 240578 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 2.21 | | |
| NUMBER OF REFINERS | 34 | | |
| NUMBER OF REFINERIES | 40 | | |
| REFINERY CRUDE CAPACITY | 245078 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .429 | | |
| NUMBER OF REFINERS | 39 | | |
| NUMBER OF REFINERIES | 48 | | |
| REFINERY CRUDE CAPACITY | 974530 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.957 | .807 | 578452 |
| NUMBER OF REFINERS | 38 | 38 | 38 |
| NUMBER OF REFINERIES | 47 | 47 | 47 |
| REFINERY CRUDE CAPACITY | 954930 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .155 | | |
| NUMBER OF REFINERS | 38 | | |
| NUMBER OF REFINERIES | 47 | | |
| REFINERY CRUDE CAPACITY | 963530 | | |
| UD MAINT & OTHER OPN COSTS | .931 | | |
| NUMBER OF REFINERS | 38 | | |
| NUMBER OF REFINERIES | 47 | | |
| REFINERY CRUDE CAPACITY | 962030 | | |
| UZ (CONTROL TOTAL) | 3.418 | | |
| NUMBER OF REFINERS | 39 | | |
| NUMBER OF REFINERIES | 48 | | |
| REFINERY CRUDE CAPACITY | 974530 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 189616 | 6.060 | 31.276 | 1.039 |
| NUMBER OF REFINERS | 37 | 37 | 33 | 34 |
| NUMBER OF REFINERIES | 44 | 44 | 37 | 38 |
| REFINERY CRUDE CAPACITY | 907130 | 907130 | 763130 | 783130 |
| VB UPPER TIER | 196129 | 12.542 | 34.880 | .858 |
| NUMBER OF REFINERS | 38 | 38 | 34 | 35 |
| NUMBER OF REFINERIES | 45 | 45 | 38 | 39 |
| REFINERY CRUDE CAPACITY | 932130 | 932130 | 788130 | 808130 |
| VC EXEMPT | 360912 | 14.439 | 33.397 | .921 |
| NUMBER OF REFINERS | 35 | 35 | 31 | 31 |
| NUMBER OF REFINERIES | 43 | 43 | 36 | 36 |
| REFINERY CRUDE CAPACITY | 863930 | 863930 | 719930 | 717430 |
| VY TOTAL/AVERAGE | 746657 | 11.813 | 33.279 | .933 |
| NUMBER OF REFINERS | 40 | 40 | 36 | 36 |
| NUMBER OF REFINERIES | 49 | 49 | 42 | 42 |
| REFINERY CRUDE CAPACITY | 990430 | 990430 | 846430 | 843930 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 25.483 |
| NUMBER OF REFINERS | 39 |
| NUMBER OF REFINERIES | 48 |
| REFINERY CRUDE CAPACITY | 972430 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 18.275 | 837 | 829462 |
| NUMBER OF REFINERS | 40 | 40 | 40 |
| NUMBER OF REFINERIES | 49 | 49 | 49 |
| REFINERY CRUDE CAPACITY | 990430 | | |

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MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 51.883 | 2426 | 2223820 |
| NUMBER OF REFINERS | 38 | 38 | 38 |
| NUMBER OF REFINERIES | 45 | 45 | 45 |
| REFINERY CRUDE CAPACITY | 916530 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 3.45 | | |
| NUMBER OF REFINERS | 40 | | |
| NUMBER OF REFINERIES | 49 | | |
| REFINERY CRUDE CAPACITY | 990430 | | |

NATIONAL PETROLEUM COUNCIL
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9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .515 | | |
| NUMBER OF REFINERS | 24 | | |
| NUMBER OF REFINERIES | 30 | | |
| REFINERY CRUDE CAPACITY | 1317423 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.721 | .878 | 924882 |
| NUMBER OF REFINERS | 24 | 24 | 24 |
| NUMBER OF REFINERIES | 30 | 30 | 30 |
| REFINERY CRUDE CAPACITY | 1317423 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .154 | | |
| NUMBER OF REFINERS | 25 | | |
| NUMBER OF REFINERIES | 31 | | |
| REFINERY CRUDE CAPACITY | 1352423 | | |
| UD MAINT & OTHER OPN COSTS | .927 | | |
| NUMBER OF REFINERS | 25 | | |
| NUMBER OF REFINERIES | 31 | | |
| REFINERY CRUDE CAPACITY | 1352423 | | |
| UZ (CONTROL TOTAL) | 3.260 | | |
| NUMBER OF REFINERS | 25 | | |
| NUMBER OF REFINERIES | 31 | | |
| REFINERY CRUDE CAPACITY | 1352423 | | |

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 315345 | 5.945 | 33.857 | .863 |
| NUMBER OF REFINERS | 23 | 23 | 19 | 19 |
| NUMBER OF REFINERIES | 29 | 29 | 24 | 24 |
| REFINERY CRUDE CAPACITY | 1276123 | 1276123 | 1054800 | 1054800 |
| VB UPPER TIER | 328955 | 12.847 | 38.623 | .642 |
| NUMBER OF REFINERS | 24 | 24 | 20 | 20 |
| NUMBER OF REFINERIES | 30 | 30 | 25 | 25 |
| REFINERY CRUDE CAPACITY | 1317423 | 1317423 | 1096100 | 1096100 |
| VC EXEMPT | 437029 | 14.781 | 36.419 | .652 |
| NUMBER OF REFINERS | 24 | 24 | 20 | 20 |
| NUMBER OF REFINERIES | 30 | 30 | 25 | 25 |
| REFINERY CRUDE CAPACITY | 1311123 | 1311123 | 1089800 | 1089800 |
| VY TOTAL/AVERAGE | 1081329 | 11.616 | 36.428 | .707 |
| NUMBER OF REFINERS | 25 | 25 | 21 | 21 |
| NUMBER OF REFINERIES | 31 | 31 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 1352423 | 1352423 | 1131100 | 1131100 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 32.149 |
| NUMBER OF REFINERS | 23 |
| NUMBER OF REFINERIES | 29 |
| REFINERY CRUDE CAPACITY | 1275423 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 45.018 | 1006 | 1326046 |
| NUMBER OF REFINERS | 24 | 24 | 24 |
| NUMBER OF REFINERIES | 30 | 30 | 30 |
| REFINERY CRUDE CAPACITY | 1317423 | | |

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MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 148.934 | 3291 | 4052914 |
| NUMBER OF REFINERS | 22 | 22 | 22 |
| NUMBER OF REFINERIES | 28 | 28 | 28 |
| REFINERY CRUDE CAPACITY | 1231323 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 5.38 | | |
| NUMBER OF REFINERS | 25 | | |
| NUMBER OF REFINERIES | 31 | | |
| REFINERY CRUDE CAPACITY | 1352423 | | |

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 50,001-100,00(

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| **OPERATION COSTS - ENERGY** | | | |
| UA MM BTU / BBL CRUDE THRUPT | .590 | | |
| NUMBER OF REFINERS | 21 | | |
| NUMBER OF REFINERIES | 34 | | |
| REFINERY CRUDE CAPACITY | 2406582 | | |
| UB AV ENERGY COST | 1.957 | 1.141 | 2521900 |
| NUMBER OF REFINERS | 21 | 21 | 21 |
| NUMBER OF REFINERIES | 34 | 34 | 34 |
| REFINERY CRUDE CAPACITY | 2406582 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| **OPERATION COSTS - OTHER** | |
| UC DEPRECIATION | .167 |
| NUMBER OF REFINERS | 21 |
| NUMBER OF REFINERIES | 34 |
| REFINERY CRUDE CAPACITY | 2406582 |
| UD MAINT & OTHER OPN COSTS | 1.094 |
| NUMBER OF REFINERS | 21 |
| NUMBER OF REFINERIES | 34 |
| REFINERY CRUDE CAPACITY | 2406582 |
| UZ (CONTROL TOTAL) | 3.810 |
| NUMBER OF REFINERS | 21 |
| NUMBER OF REFINERIES | 34 |
| REFINERY CRUDE CAPACITY | 2406582 |

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MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 470666 | 6.078 | 36.626 | .639 |
| NUMBER OF REFINERS | 20 | 20 | 16 | 16 |
| NUMBER OF REFINERIES | 29 | 29 | 21 | 21 |
| REFINERY CRUDE CAPACITY | 2071582 | 2071582 | 1435167 | 1435167 |
| VB UPPER TIER | 429880 | 12.830 | 37.910 | .565 |
| NUMBER OF REFINERS | 20 | 20 | 16 | 16 |
| NUMBER OF REFINERIES | 29 | 29 | 21 | 21 |
| REFINERY CRUDE CAPACITY | 2071582 | 2071582 | 1435167 | 1435167 |
| VC EXEMPT | 1309232 | 14.736 | 35.730 | .656 |
| NUMBER OF REFINERS | 21 | 21 | 18 | 18 |
| NUMBER OF REFINERIES | 34 | 34 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 2406582 | 2406582 | 1770167 | 1770167 |
| VY TOTAL/AVERAGE | 2209778 | 12.521 | 36.308 | .636 |
| NUMBER OF REFINERS | 21 | 21 | 18 | 18 |
| NUMBER OF REFINERIES | 34 | 34 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 2406582 | 2406582 | 1770167 | 1770167 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 30.779 |
| NUMBER OF REFINERS | 18 |
| NUMBER OF REFINERIES | 30 |
| REFINERY CRUDE CAPACITY | 2078582 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 108.414 | 1399 | 3368130 |
| NUMBER OF REFINERS | 21 | 21 | 21 |
| NUMBER OF REFINERIES | 34 | 34 | 34 |
| REFINERY CRUDE CAPACITY | 2406582 | | |

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 275.657 | 3729 | 7397700 |
| NUMBER OF REFINERS | 20 | 20 | 20 |
| NUMBER OF REFINERIES | 29 | 29 | 29 |
| REFINERY CRUDE CAPACITY | 1983667 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.78 | | |
| NUMBER OF REFINERS | 21 | | |
| NUMBER OF REFINERIES | 34 | | |
| REFINERY CRUDE CAPACITY | 2406582 | | |

NATIONAL PETROLEUM COUNCIL
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MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .614 | | |
| NUMBER OF REFINERS | 16 | | |
| NUMBER OF REFINERIES | 24 | | |
| REFINERY CRUDE CAPACITY | 3083800 | | |
| UB AV ENERGY COST | 2.066 | 1.289 | 3040266 |
| NUMBER OF REFINERS | 16 | 16 | 16 |
| NUMBER OF REFINERIES | 24 | 24 | 24 |
| REFINERY CRUDE CAPACITY | 3083800 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .221 |
| NUMBER OF REFINERS | 16 |
| NUMBER OF REFINERIES | 24 |
| REFINERY CRUDE CAPACITY | 3083800 |
| UD MAINT & OTHER OPN COSTS | 1.102 |
| NUMBER OF REFINERS | 16 |
| NUMBER OF REFINERIES | 24 |
| REFINERY CRUDE CAPACITY | 3083800 |
| UZ (CONTROL TOTAL) | 4.006 |
| NUMBER OF REFINERS | 16 |
| NUMBER OF REFINERIES | 24 |
| REFINERY CRUDE CAPACITY | 3083800 |

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 360746 | 6.039 | 34.814 | .825 |
| NUMBER OF REFINERS | 12 | 12 | 7 | 7 |
| NUMBER OF REFINERIES | 19 | 19 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 2375800 | 2375800 | 1498300 | 1498300 |
| VB UPPER TIER | 345248 | 12.539 | 36.683 | .871 |
| NUMBER OF REFINERS | 12 | 12 | 7 | 7 |
| NUMBER OF REFINERIES | 19 | 19 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 2375800 | 2375800 | 1498300 | 1498300 |
| VC EXEMPT | 1652378 | 14.416 | 32.683 | .957 |
| NUMBER OF REFINERS | 16 | 16 | 11 | 10 |
| NUMBER OF REFINERIES | 24 | 24 | 16 | 15 |
| REFINERY CRUDE CAPACITY | 3083800 | 3083800 | 2038300 | 1908300 |
| VY TOTAL/AVERAGE | 2358372 | 12.860 | 33.594 | .924 |
| NUMBER OF REFINERS | 16 | 16 | 11 | 10 |
| NUMBER OF REFINERIES | 24 | 24 | 16 | 15 |
| REFINERY CRUDE CAPACITY | 3083800 | 3083800 | 2038300 | 1908300 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 31.408 |
| NUMBER OF REFINERS | 15 |
| NUMBER OF REFINERIES | 22 |
| REFINERY CRUDE CAPACITY | 2871800 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 191.917 | 1464 | 4515500 |
| NUMBER OF REFINERS | 16 | 16 | 16 |
| NUMBER OF REFINERIES | 24 | 24 | 24 |
| REFINERY CRUDE CAPACITY | 3083800 | | |

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9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 599.802 | 4603 | 13552800 |
| NUMBER OF REFINERS | 15 | 15 | 15 |
| NUMBER OF REFINERIES | 23 | 23 | 23 |
| REFINERY CRUDE CAPACITY | 2943800 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 8.46 | | |
| NUMBER OF REFINERS | 16 | | |
| NUMBER OF REFINERIES | 24 | | |
| REFINERY CRUDE CAPACITY | 3083800 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .554 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 24 | | |
| REFINERY CRUDE CAPACITY | 7367123 | | |
| UB AV ENERGY COST | 1.882 | 1.052 | 6681628 |
| NUMBER OF REFINERS | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 24 | 24 | 24 |
| REFINERY CRUDE CAPACITY | 7367123 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .183 |
| NUMBER OF REFINERS | 11 |
| NUMBER OF REFINERIES | 24 |
| REFINERY CRUDE CAPACITY | 7367123 |
| UD MAINT & OTHER OPN COSTS | .989 |
| NUMBER OF REFINERS | 11 |
| NUMBER OF REFINERIES | 24 |
| REFINERY CRUDE CAPACITY | 7367123 |
| UZ (CONTROL TOTAL) | 3.609 |
| NUMBER OF REFINERS | 11 |
| NUMBER OF REFINERIES | 24 |
| REFINERY CRUDE CAPACITY | 7367123 |

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PART II: OPERATIONAL COSTS

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MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 1330509 | 5.948 | 35.423 | .787 |
| NUMBER OF REFINERS | 11 | 11 | 7 | 7 |
| NUMBER OF REFINERIES | 22 | 22 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 6975400 | 6975400 | 4169400 | 4169400 |
| VB UPPER TIER | 1200008 | 12.618 | 35.066 | .873 |
| NUMBER OF REFINERS | 11 | 11 | 7 | 7 |
| NUMBER OF REFINERIES | 22 | 22 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 6975400 | 6975400 | 4169400 | 4169400 |
| VC EXEMPT | 3819106 | 14.471 | 34.477 | .925 |
| NUMBER OF REFINERS | 11 | 11 | 7 | 7 |
| NUMBER OF REFINERIES | 24 | 24 | 15 | 15 |
| REFINERY CRUDE CAPACITY | 7367123 | 7367123 | 4561123 | 4561123 |
| VY TOTAL/AVERAGE | 6349623 | 12.335 | 34.767 | .889 |
| NUMBER OF REFINERS | 11 | 11 | 7 | 7 |
| NUMBER OF REFINERIES | 24 | 24 | 15 | 15 |
| REFINERY CRUDE CAPACITY | 7367123 | 7367123 | 4561123 | 4561123 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 49.610 |
| NUMBER OF REFINERS | 7 |
| NUMBER OF REFINERIES | 15 |
| REFINERY CRUDE CAPACITY | 4559123 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 503.924 | 1438 | 10596400 |
| NUMBER OF REFINERS | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 24 | 24 | 24 |
| REFINERY CRUDE CAPACITY | 7367123 | | |

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 1081.380 | 3646 | 25211000 |
| NUMBER OF REFINERS | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 23 | 23 | 23 |
| REFINERY CRUDE CAPACITY | 6914123 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.57 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 24 | | |
| REFINERY CRUDE CAPACITY | 7367123 | | |

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MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: 0.01- 2.50

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .294 | | |
| NUMBER OF REFINERS | 26 | | |
| NUMBER OF REFINERIES | 27 | | |
| REFINERY CRUDE CAPACITY | 171250 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.779 | .518 | 65157 |
| NUMBER OF REFINERS | 26 | 26 | 26 |
| NUMBER OF REFINERIES | 27 | 27 | 27 |
| REFINERY CRUDE CAPACITY | 171250 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .146 | | |
| NUMBER OF REFINERS | 26 | | |
| NUMBER OF REFINERIES | 27 | | |
| REFINERY CRUDE CAPACITY | 172850 | | |
| UD MAINT & OTHER OPN COSTS | .920 | | |
| NUMBER OF REFINERS | 28 | | |
| NUMBER OF REFINERIES | 30 | | |
| REFINERY CRUDE CAPACITY | 186550 | | |
| UZ (CONTROL TOTAL) | 3.023 | | |
| NUMBER OF REFINERS | 28 | | |
| NUMBER OF REFINERIES | 30 | | |
| REFINERY CRUDE CAPACITY | 186550 | | |

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: 0.01- 2.50

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 41143 | 5.884 | 25.611 | 1.106 |
| NUMBER OF REFINERS | 28 | 28 | 28 | 27 |
| NUMBER OF REFINERIES | 30 | 30 | 30 | 29 |
| REFINERY CRUDE CAPACITY | 177550 | 177550 | 177550 | 171550 |
| VB UPPER TIER | 49859 | 12.643 | 34.877 | .706 |
| NUMBER OF REFINERS | 28 | 28 | 28 | 27 |
| NUMBER OF REFINERIES | 30 | 30 | 30 | 29 |
| REFINERY CRUDE CAPACITY | 177550 | 177550 | 177550 | 171550 |
| VC EXEMPT | 41925 | 13.952 | 27.798 | 1.093 |
| NUMBER OF REFINERS | 26 | 26 | 25 | 24 |
| NUMBER OF REFINERIES | 28 | 28 | 27 | 26 |
| REFINERY CRUDE CAPACITY | 173650 | 173650 | 172650 | 166650 |
| VY TOTAL/AVERAGE | 132927 | 10.964 | 29.776 | .959 |
| NUMBER OF REFINERS | 30 | 30 | 29 | 28 |
| NUMBER OF REFINERIES | 32 | 32 | 31 | 30 |
| REFINERY CRUDE CAPACITY | 188150 | 188150 | 187150 | 181150 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 12.378 |
| NUMBER OF REFINERS | 28 |
| NUMBER OF REFINERIES | 29 |
| REFINERY CRUDE CAPACITY | 174150 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 3.678 | 530 | 94825 |
| NUMBER OF REFINERS | 26 | 27 | 27 |
| NUMBER OF REFINERIES | 28 | 29 | 29 |
| REFINERY CRUDE CAPACITY | 178650 | | |

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MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: 0.01- 2.50

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 8.873 | 1378 | 253184 |
| NUMBER OF REFINERS | 27 | 28 | 28 |
| NUMBER OF REFINERIES | 29 | 30 | 30 |
| REFINERY CRUDE CAPACITY | 183650 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.31 | | |
| NUMBER OF REFINERS | 29 | | |
| NUMBER OF REFINERIES | 31 | | |
| REFINERY CRUDE CAPACITY | 188150 | | |

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MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: 2.51-999.99

| | | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|---|
| OPERATION COSTS - ENERGY | | | | |
| UA | MM BTU / BBL CRUDE THRUPT | .845 | | |
| | NUMBER OF REFINERS | 5 | | |
| | NUMBER OF REFINERIES | 9 | | |
| | REFINERY CRUDE CAPACITY | 56928 | | |
| UB | AV ENERGY COST | 1.912 | 1.668 | 75551 |
| | NUMBER OF REFINERS | 5 | 5 | 5 |
| | NUMBER OF REFINERIES | 9 | 9 | 9 |
| | REFINERY CRUDE CAPACITY | 56928 | | |

| | | $ PER BBL CRUDE THPT |
|---|---|---|
| OPERATION COSTS - OTHER | | |
| UC | DEPRECIATION | .346 |
| | NUMBER OF REFINERS | 5 |
| | NUMBER OF REFINERIES | 9 |
| | REFINERY CRUDE CAPACITY | 56928 |
| UD | MAINT & OTHER OPN COSTS | 1.970 |
| | NUMBER OF REFINERS | 5 |
| | NUMBER OF REFINERIES | 9 |
| | REFINERY CRUDE CAPACITY | 56928 |
| UZ | (CONTROL TOTAL) | 5.076 |
| | NUMBER OF REFINERS | 5 |
| | NUMBER OF REFINERIES | 9 |
| | REFINERY CRUDE CAPACITY | 56928 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: 2.51-999.99

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 4900 | 5.741 | 41.151 | .355 |
| NUMBER OF REFINERS | 5 | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 7 | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 47108 | 47108 | 47108 | 47108 |
| VB UPPER TIER | 14919 | 13.198 | 40.699 | .192 |
| NUMBER OF REFINERS | 5 | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 9 | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 56928 | 56928 | 56928 | 56928 |
| VC EXEMPT | 25453 | 15.670 | 37.077 | .269 |
| NUMBER OF REFINERS | 5 | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 9 | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 56928 | 56928 | 56928 | 56928 |
| VY TOTAL/AVERAGE | 45272 | 13.781 | 38.711 | .253 |
| NUMBER OF REFINERS | 5 | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 9 | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 56928 | 56928 | 56928 | 56928 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 11.793 |
| NUMBER OF REFINERS | 5 |
| NUMBER OF REFINERIES | 9 |
| REFINERY CRUDE CAPACITY | 56928 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 17.033 | 2356 | 134174 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 56928 | | |

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: 2.51-999.99

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 42.916 | 6207 | 353357 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 56928 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 5.18 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 56928 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 0.01- 2.50

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .234 | | |
| NUMBER OF REFINERS | 21 | | |
| NUMBER OF REFINERIES | 24 | | |
| REFINERY CRUDE CAPACITY | 470000 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.133 | .506 | 162599 |
| NUMBER OF REFINERS | 21 | 21 | 21 |
| NUMBER OF REFINERIES | 24 | 24 | 24 |
| REFINERY CRUDE CAPACITY | 470000 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .130 | | |
| NUMBER OF REFINERS | 20 | | |
| NUMBER OF REFINERIES | 23 | | |
| REFINERY CRUDE CAPACITY | 459000 | | |
| UD MAINT & OTHER OPN COSTS | .666 | | |
| NUMBER OF REFINERS | 20 | | |
| NUMBER OF REFINERIES | 23 | | |
| REFINERY CRUDE CAPACITY | 457500 | | |
| UZ (CONTROL TOTAL) | 3.143 | | |
| NUMBER OF REFINERS | 21 | | |
| NUMBER OF REFINERIES | 24 | | |
| REFINERY CRUDE CAPACITY | 470000 | | |

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 0.01-. 2.50

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 68535 | 5.674 | 23.730 | 1.434 |
| NUMBER OF REFINERS | 18 | 18 | 16 | 17 |
| NUMBER OF REFINERIES | 19 | 19 | 16 | 17 |
| REFINERY CRUDE CAPACITY | 386700 | 386700 | 318700 | 338700 |
| VB UPPER TIER | 75684 | 11.962 | 31.143 | .904 |
| NUMBER OF REFINERS | 19 | 19 | 17 | 18 |
| NUMBER OF REFINERIES | 20 | 20 | 17 | 18 |
| REFINERY CRUDE CAPACITY | 411700 | 411700 | 343700 | 363700 |
| VC EXEMPT | 176855 | 14.029 | 30.129 | 1.150 |
| NUMBER OF REFINERS | 17 | 17 | 15 | 16 |
| NUMBER OF REFINERIES | 20 | 20 | 17 | 18 |
| REFINERY CRUDE CAPACITY | 393000 | 393000 | 325000 | 345000 |
| VY TOTAL/AVERAGE | 321074 | 11.759 | 28.926 | 1.152 |
| NUMBER OF REFINERS | 21 | 21 | 19 | 20 |
| NUMBER OF REFINERIES | 24 | 24 | 21 | 22 |
| REFINERY CRUDE CAPACITY | 470000 | 470000 | 402000 | 422000 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 22.112 |
| NUMBER OF REFINERS | 21 |
| NUMBER OF REFINERIES | 24 |
| REFINERY CRUDE CAPACITY | 470000 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 14.495 | 635 | 298610 |
| NUMBER OF REFINERS | 21 | 21 | 21 |
| NUMBER OF REFINERIES | 24 | 24 | 24 |
| REFINERY CRUDE CAPACITY | 470000 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 0.01- 2.50

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 34.735 | 1671 | 750300 |
| NUMBER OF REFINERS | 20 | 20 | 20 |
| NUMBER OF REFINERIES | 23 | 23 | 23 |
| REFINERY CRUDE CAPACITY | 449000 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.41 | | |
| NUMBER OF REFINERS | 21 | | |
| NUMBER OF REFINERIES | 24 | | |
| REFINERY CRUDE CAPACITY | 470000 | | |

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 2.51-999.99

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .582 | | |
| NUMBER OF REFINERS | 20 | | |
| NUMBER OF REFINERIES | 24 | | |
| REFINERY CRUDE CAPACITY | 504530 | | |
| UB AV ENERGY COST | 1.814 | 1.051 | 415853 |
| NUMBER OF REFINERS | 19 | 19 | 19 |
| NUMBER OF REFINERIES | 23 | 23 | 23 |
| REFINERY CRUDE CAPACITY | 484930 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .174 |
| NUMBER OF REFINERS | 20 |
| NUMBER OF REFINERIES | 24 |
| REFINERY CRUDE CAPACITY | 504530 |
| UD MAINT & OTHER OPN COSTS | 1.132 |
| NUMBER OF REFINERS | 20 |
| NUMBER OF REFINERIES | 24 |
| REFINERY CRUDE CAPACITY | 504530 |
| UZ (CONTROL TOTAL) | 3.632 |
| NUMBER OF REFINERS | 20 |
| NUMBER OF REFINERIES | 24 |
| REFINERY CRUDE CAPACITY | 504530 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 2.51-999.99

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 121081 | 6.279 | 36.375 | .769 |
| NUMBER OF REFINERS | 21 | 21 | 19 | 19 |
| NUMBER OF REFINERIES | 25 | 25 | 21 | 21 |
| REFINERY CRUDE CAPACITY | 520430 | 520430 | 444430 | 444430 |
| VB UPPER TIER | 120445 | 12.907 | 37.441 | .825 |
| NUMBER OF REFINERS | 21 | 21 | 19 | 19 |
| NUMBER OF REFINERIES | 25 | 25 | 21 | 21 |
| REFINERY CRUDE CAPACITY | 520430 | 520430 | 444430 | 444430 |
| VC EXEMPT | 184057 | 14.833 | 36.178 | .696 |
| NUMBER OF REFINERS | 20 | 20 | 18 | 17 |
| NUMBER OF REFINERIES | 23 | 23 | 19 | 18 |
| REFINERY CRUDE CAPACITY | 470930 | 470930 | 394930 | 372430 |
| VY TOTAL/AVERAGE | 425583 | 11.854 | 36.585 | .753 |
| NUMBER OF REFINERS | 21 | 21 | 19 | 19 |
| NUMBER OF REFINERIES | 25 | 25 | 21 | 21 |
| REFINERY CRUDE CAPACITY | 520430 | 520430 | 444430 | 444430 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 28.107 |
| NUMBER OF REFINERS | 20 |
| NUMBER OF REFINERIES | 24 |
| REFINERY CRUDE CAPACITY | 502430 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 21.688 | 1020 | 530852 |
| NUMBER OF REFINERS | 21 | 21 | 21 |
| NUMBER OF REFINERIES | 25 | 25 | 25 |
| REFINERY CRUDE CAPACITY | 520430 | | |

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 2.51-999.99

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 68.353 | 3151 | 1473520 |
| NUMBER OF REFINERS | 20 | 20 | 20 |
| NUMBER OF REFINERIES | 22 | 22 | 22 |
| REFINERY CRUDE CAPACITY | 467530 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 5.29 | | |
| NUMBER OF REFINERS | 21 | | |
| NUMBER OF REFINERIES | 25 | | |
| REFINERY CRUDE CAPACITY | 520430 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: 0.01- 2.50

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | ********** | ********** | ********** |
| NUMBER OF REFINERS | 2 | 2 | 2 |
| NUMBER OF REFINERIES | 2 | 2 | 2 |
| REFINERY CRUDE CAPACITY | ********** | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.31 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 156100 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: 2.51-999.99

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .542 | | |
| NUMBER OF REFINERS | 21 | | |
| NUMBER OF REFINERIES | 27 | | |
| REFINERY CRUDE CAPACITY | 1196323 | | |
| UB AV ENERGY COST | 1.752 | .932 | 903706 |
| NUMBER OF REFINERS | 21 | 21 | 21 |
| NUMBER OF REFINERIES | 27 | 27 | 27 |
| REFINERY CRUDE CAPACITY | 1196323 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .155 |
| NUMBER OF REFINERS | 21 |
| NUMBER OF REFINERIES | 27 |
| REFINERY CRUDE CAPACITY | 1196323 |
| UD MAINT & OTHER OPN COSTS | .990 |
| NUMBER OF REFINERS | 21 |
| NUMBER OF REFINERIES | 27 |
| REFINERY CRUDE CAPACITY | 1196323 |
| UZ (CONTROL TOTAL) | 3.441 |
| NUMBER OF REFINERS | 21 |
| NUMBER OF REFINERIES | 27 |
| REFINERY CRUDE CAPACITY | 1196323 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: 2.51-999.99

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 301413 | 5.947 | 33.633 | .905 |
| NUMBER OF REFINERS | 20 | 20 | 16 | 16 |
| NUMBER OF REFINERIES | 26 | 26 | 21 | 21 |
| REFINERY CRUDE CAPACITY | 1155023 | 1155023 | 933700 | 933700 |
| VB UPPER TIER | 304708 | 12.842 | 38.665 | .681 |
| NUMBER OF REFINERS | 21 | 21 | 17 | 17 |
| NUMBER OF REFINERIES | 27 | 27 | 22 | 22 |
| REFINERY CRUDE CAPACITY | 1196323 | 1196323 | 975000 | 975000 |
| VC EXEMPT | 363062 | 14.902 | 36.406 | .591 |
| NUMBER OF REFINERS | 20 | 20 | 16 | 16 |
| NUMBER OF REFINERIES | 26 | 26 | 21 | 21 |
| REFINERY CRUDE CAPACITY | 1155023 | 1155023 | 933700 | 933700 |
| VY TOTAL/AVERAGE | 969183 | 11.469 | 36.348 | .715 |
| NUMBER OF REFINERS | 21 | 21 | 17 | 17 |
| NUMBER OF REFINERIES | 27 | 27 | 22 | 22 |
| REFINERY CRUDE CAPACITY | 1196323 | 1196323 | 975000 | 975000 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 36.140 |
| NUMBER OF REFINERS | 19 |
| NUMBER OF REFINERIES | 25 |
| REFINERY CRUDE CAPACITY | 1119323 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 45.794 | 1014 | 1213983 |
| NUMBER OF REFINERS | 21 | 21 | 21 |
| NUMBER OF REFINERIES | 27 | 27 | 27 |
| REFINERY CRUDE CAPACITY | 1196323 | | |

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: 2.51-999.99

| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
|---|---|---|---|
| ZZ AVERAGE COMPLEXITY FACTOR | 5.91 | | |
| NUMBER OF REFINERS | 21 | | |
| NUMBER OF REFINERIES | 27 | | |
| REFINERY CRUDE CAPACITY | 1196323 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .267 | | |
| NUMBER OF REFINERS | 53 | | |
| NUMBER OF REFINERIES | 60 | | |
| REFINERY CRUDE CAPACITY | 936058 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.965 | .524 | 355302 |
| NUMBER OF REFINERS | 53 | 53 | 53 |
| NUMBER OF REFINERIES | 60 | 60 | 60 |
| REFINERY CRUDE CAPACITY | 936058 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .157 | | |
| NUMBER OF REFINERS | 54 | | |
| NUMBER OF REFINERIES | 60 | | |
| REFINERY CRUDE CAPACITY | 961658 | | |
| UD MAINT & OTHER OPN COSTS | .805 | | |
| NUMBER OF REFINERS | 55 | | |
| NUMBER OF REFINERIES | 63 | | |
| REFINERY CRUDE CAPACITY | 973858 | | |
| UZ (CONTROL TOTAL) | 3.071 | | |
| NUMBER OF REFINERS | 56 | | |
| NUMBER OF REFINERIES | 64 | | |
| REFINERY CRUDE CAPACITY | 986358 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 152777 | 5.811 | 26.889 | 1.287 |
| NUMBER OF REFINERS | 51 | 51 | 49 | 49 |
| NUMBER OF REFINERIES | 57 | 57 | 54 | 54 |
| REFINERY CRUDE CAPACITY | 800058 | 800058 | 732058 | 746058 |
| VB UPPER TIER | 184896 | 12.507 | 34.435 | .697 |
| NUMBER OF REFINERS | 52 | 52 | 50 | 50 |
| NUMBER OF REFINERIES | 58 | 58 | 55 | 55 |
| REFINERY CRUDE CAPACITY | 825058 | 825058 | 757058 | 771058 |
| VC EXEMPT | 375910 | 14.206 | 32.303 | .935 |
| NUMBER OF REFINERS | 50 | 50 | 47 | 47 |
| NUMBER OF REFINERIES | 58 | 58 | 54 | 54 |
| REFINERY CRUDE CAPACITY | 896458 | 896458 | 827458 | 841458 |
| VY TOTAL/AVERAGE | 713583 | 11.968 | 31.683 | .950 |
| NUMBER OF REFINERS | 58 | 58 | 55 | 55 |
| NUMBER OF REFINERIES | 66 | 66 | 62 | 62 |
| REFINERY CRUDE CAPACITY | 987958 | 987958 | 918958 | 932958 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 12.381 |
| NUMBER OF REFINERS | 56 |
| NUMBER OF REFINERIES | 63 |
| REFINERY CRUDE CAPACITY | 973958 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 21.008 | 715 | 675348 |
| NUMBER OF REFINERS | 53 | 54 | 54 |
| NUMBER OF REFINERIES | 61 | 62 | 62 |
| REFINERY CRUDE CAPACITY | 943458 | | |

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9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 48.677 | 1706 | 1521084 |
| NUMBER OF REFINERS | 52 | 53 | 53 |
| NUMBER OF REFINERIES | 60 | 61 | 61 |
| REFINERY CRUDE CAPACITY | 891358 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.60 | | |
| NUMBER OF REFINERS | 57 | | |
| NUMBER OF REFINERIES | 65 | | |
| REFINERY CRUDE CAPACITY | 987958 | | |

NATIONAL PETROLEUM COUNCIL
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9/29/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|---|
| OPERATION COSTS - ENERGY | | | | |
| UA | MM BTU / BBL CRUDE THRUPT | .423 | | |
| | NUMBER OF REFINERS | 21 | | |
| | NUMBER OF REFINERIES | 29 | | |
| | REFINERY CRUDE CAPACITY | 1170050 | | |
| UB | AV ENERGY COST | 1.838 | .761 | 709089 |
| | NUMBER OF REFINERS | 21 | 21 | 21 |
| | NUMBER OF REFINERIES | 29 | 29 | 29 |
| | REFINERY CRUDE CAPACITY | 1170050 | | |

| | | $ PER BBL CRUDE THPT |
|---|---|---|
| OPERATION COSTS - OTHER | | |
| UC | DEPRECIATION | .180 |
| | NUMBER OF REFINERS | 21 |
| | NUMBER OF REFINERIES | 29 |
| | REFINERY CRUDE CAPACITY | 1170050 |
| UD | MAINT & OTHER OPN COSTS | .722 |
| | NUMBER OF REFINERS | 21 |
| | NUMBER OF REFINERIES | 29 |
| | REFINERY CRUDE CAPACITY | 1170050 |
| UZ | (CONTROL TOTAL) | 3.165 |
| | NUMBER OF REFINERS | 21 |
| | NUMBER OF REFINERIES | 29 |
| | REFINERY CRUDE CAPACITY | 1170050 |

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PART II: OPERATIONAL COSTS

9/29/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 195547 | 6.276 | 36.425 | .581 |
| NUMBER OF REFINERS | 20 | 20 | 20 | 20 |
| NUMBER OF REFINERIES | 27 | 27 | 27 | 27 |
| REFINERY CRUDE CAPACITY | 1134830 | 1134830 | 1134830 | 1134830 |
| VB UPPER TIER | 280204 | 12.836 | 40.067 | .631 |
| NUMBER OF REFINERS | 22 | 22 | 22 | 22 |
| NUMBER OF REFINERIES | 30 | 30 | 30 | 30 |
| REFINERY CRUDE CAPACITY | 1185950 | 1185950 | 1185950 | 1185950 |
| VC EXEMPT | 469078 | 14.776 | 35.681 | .799 |
| NUMBER OF REFINERS | 19 | 19 | 19 | 19 |
| NUMBER OF REFINERIES | 27 | 27 | 27 | 27 |
| REFINERY CRUDE CAPACITY | 1095150 | 1095150 | 1095150 | 1095150 |
| VY TOTAL/AVERAGE | 944829 | 12.441 | 37.136 | .704 |
| NUMBER OF REFINERS | 22 | 22 | 22 | 22 |
| NUMBER OF REFINERIES | 30 | 30 | 30 | 30 |
| REFINERY CRUDE CAPACITY | 1185950 | 1185950 | 1185950 | 1185950 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 26.777 |
| NUMBER OF REFINERS | 21 |
| NUMBER OF REFINERIES | 29 |
| REFINERY CRUDE CAPACITY | 985950 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 111.613 | 1096 | 1300198 |
| NUMBER OF REFINERS | 22 | 22 | 22 |
| NUMBER OF REFINERIES | 30 | 30 | 30 |
| REFINERY CRUDE CAPACITY | 1185950 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 207.408 | 2792 | 3266920 |
| NUMBER OF REFINERS | 21 | 21 | 21 |
| NUMBER OF REFINERIES | 29 | 29 | 29 |
| REFINERY CRUDE CAPACITY | 1170050 | | |

| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
|---|---|---|---|
| ZZ AVERAGE COMPLEXITY FACTOR | 4.37 | | |
| NUMBER OF REFINERS | 22 | | |
| NUMBER OF REFINERIES | 30 | | |
| REFINERY CRUDE CAPACITY | 1185950 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/29/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .518 | | |
| NUMBER OF REFINERS | 26 | | |
| NUMBER OF REFINERIES | 47 | | |
| REFINERY CRUDE CAPACITY | 5214663 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.805 | .931 | 3949596 |
| NUMBER OF REFINERS | 25 | 25 | 25 |
| NUMBER OF REFINERIES | 46 | 46 | 46 |
| REFINERY CRUDE CAPACITY | 5195063 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .177 | | |
| NUMBER OF REFINERS | 26 | | |
| NUMBER OF REFINERIES | 47 | | |
| REFINERY CRUDE CAPACITY | 5214663 | | |
| UD MAINT & OTHER OPN COSTS | 1.070 | | |
| NUMBER OF REFINERS | 26 | | |
| NUMBER OF REFINERIES | 47 | | |
| REFINERY CRUDE CAPACITY | 5214663 | | |
| UZ (CONTROL TOTAL) | 3.564 | | |
| NUMBER OF REFINERS | 26 | | |
| NUMBER OF REFINERIES | 47 | | |
| REFINERY CRUDE CAPACITY | 5214663 | | |

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 864917 | 6.044 | 34.918 | .985 |
| NUMBER OF REFINERS | 24 | 24 | 19 | 19 |
| NUMBER OF REFINERIES | 43 | 43 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 4653663 | 4653663 | 2808840 | 2808840 |
| VB UPPER TIER | 894037 | 12.793 | 35.849 | .922 |
| NUMBER OF REFINERS | 24 | 24 | 19 | 19 |
| NUMBER OF REFINERIES | 43 | 43 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 4653663 | 4653663 | 2808840 | 2808840 |
| VC EXEMPT | 2495091 | 14.683 | 35.029 | .896 |
| NUMBER OF REFINERS | 26 | 26 | 22 | 20 |
| NUMBER OF REFINERIES | 47 | 47 | 29 | 27 |
| REFINERY CRUDE CAPACITY | 5214663 | 5214663 | 3201840 | 3049340 |
| VY TOTAL/AVERAGE | 4254045 | 12.529 | 35.190 | .918 |
| NUMBER OF REFINERS | 26 | 26 | 22 | 20 |
| NUMBER OF REFINERIES | 47 | 47 | 29 | 27 |
| REFINERY CRUDE CAPACITY | 5214663 | 5214663 | 3201840 | 3049340 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 42.291 |
| NUMBER OF REFINERS | 23 |
| NUMBER OF REFINERIES | 40 |
| REFINERY CRUDE CAPACITY | 3412163 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 363.017 | 1267 | 6611180 |
| NUMBER OF REFINERS | 26 | 26 | 26 |
| NUMBER OF REFINERIES | 47 | 47 | 47 |
| REFINERY CRUDE CAPACITY | 5214663 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/29/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 620.910 | 3475 | 15369700 |
| NUMBER OF REFINERS | 26 | 26 | 26 |
| NUMBER OF REFINERIES | 41 | 41 | 41 |
| REFINERY CRUDE CAPACITY | 4422663 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 6.11 | | |
| NUMBER OF REFINERS | 26 | | |
| NUMBER OF REFINERIES | 47 | | |
| REFINERY CRUDE CAPACITY | 5214663 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU BBL CRUDE THRUPT | .581 | | |
| NUMBER OF REFINERS | 20 | | |
| NUMBER OF REFINERIES | 36 | | |
| REFINERY CRUDE CAPACITY | 5284988 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.011 | 1.175 | 5509778 |
| NUMBER OF REFINERS | 20 | 20 | 20 |
| NUMBER OF REFINERIES | 36 | 36 | 36 |
| REFINERY CRUDE CAPACITY | 5284988 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .167 | | |
| NUMBER OF REFINERS | 20 | | |
| NUMBER OF REFINERIES | 36 | | |
| REFINERY CRUDE CAPACITY | 5284988 | | |
| UD MAINT & OTHER OPN COSTS | 1.015 | | |
| NUMBER OF REFINERS | 20 | | |
| NUMBER OF REFINERIES | 36 | | |
| REFINERY CRUDE CAPACITY | 5284988 | | |
| UZ (CONTROL TOTAL) | 3.775 | | |
| NUMBER OF REFINERS | 20 | | |
| NUMBER OF REFINERIES | 36 | | |
| REFINERY CRUDE CAPACITY | 5284988 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 1024711 | 5.978 | 36.498 | .650 |
| NUMBER OF REFINERS | 19 | 19 | 15 | 15 |
| NUMBER OF REFINERIES | 32 | 32 | 22 | 22 |
| REFINERY CRUDE CAPACITY | 4804265 | 4804265 | 2878350 | 2878350 |
| VB UPPER TIER | 819284 | 12.628 | 36.573 | .725 |
| NUMBER OF REFINERS | 19 | 19 | 15 | 15 |
| NUMBER OF REFINERIES | 32 | 32 | 22 | 22 |
| REFINERY CRUDE CAPACITY | 4804265 | 4804265 | 2878350 | 2878350 |
| VC EXEMPT | 2844509 | 14.493 | 34.865 | .775 |
| NUMBER OF REFINERS | 20 | 20 | 16 | 16 |
| NUMBER OF REFINERIES | 36 | 36 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 5284988 | 5284988 | 3359073 | 3359073 |
| VY TOTAL/AVERAGE | 4688504 | 12.306 | 35.478 | .741 |
| NUMBER OF REFINERS | 20 | 20 | 16 | 16 |
| NUMBER OF REFINERIES | 36 | 36 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 5284988 | 5284988 | 3359073 | 3359073 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 43.085 |
| NUMBER OF REFINERS | 17 |
| NUMBER OF REFINERIES | 30 |
| REFINERY CRUDE CAPACITY | 4377488 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 337.364 | 1420 | 7506842 |
| NUMBER OF REFINERS | 20 | 20 | 20 |
| NUMBER OF REFINERIES | 36 | 36 | 36 |
| REFINERY CRUDE CAPACITY | 5284988 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 979.364 | 4188 | 21622614 |
| NUMBER OF REFINERS | 19 | 19 | 19 |
| NUMBER OF REFINERIES | 34 | 34 | 34 |
| REFINERY CRUDE CAPACITY | 5162073 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.80 | | |
| NUMBER OF REFINERS | 20 | | |
| NUMBER OF REFINERIES | 36 | | |
| REFINERY CRUDE CAPACITY | 5284988 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .690 | | |
| NUMBER OF REFINERS | 12 | | |
| NUMBER OF REFINERIES | 13 | | |
| REFINERY CRUDE CAPACITY | 1487277 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.887 | 1.330 | 1668330 |
| NUMBER OF REFINERS | 12 | 12 | 12 |
| NUMBER OF REFINERIES | 13 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 1487277 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .210 | | |
| NUMBER OF REFINERS | 12 | | |
| NUMBER OF REFINERIES | 13 | | |
| REFINERY CRUDE CAPACITY | 1487277 | | |
| UD MAINT & OTHER OPN COSTS | 1.018 | | |
| NUMBER OF REFINERS | 12 | | |
| NUMBER OF REFINERIES | 13 | | |
| REFINERY CRUDE CAPACITY | 1487277 | | |
| UZ (CONTROL TOTAL) | 3.808 | | |
| NUMBER OF REFINERS | 12 | | |
| NUMBER OF REFINERIES | 13 | | |
| REFINERY CRUDE CAPACITY | 1487277 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 303193 | 5.807 | 32.375 | .838 |
| NUMBER OF REFINERS | 10 | 10 | 7 | 7 |
| NUMBER OF REFINERIES | 11 | 11 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 1293277 | 1293277 | 670277 | 670277 |
| VB UPPER TIER | 226616 | 12.423 | 33.305 | .750 |
| NUMBER OF REFINERS | 10 | 10 | 7 | 7 |
| NUMBER OF REFINERIES | 11 | 11 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 1293277 | 1293277 | 670277 | 670277 |
| VC EXEMPT | 723972 | 14.532 | 33.202 | .933 |
| NUMBER OF REFINERS | 12 | 12 | 9 | 9 |
| NUMBER OF REFINERIES | 13 | 13 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 1487277 | 1487277 | 864277 | 864277 |
| VY TOTAL/AVERAGE | 1253781 | 12.041 | 33.015 | .878 |
| NUMBER OF REFINERS | 12 | 12 | 9 | 9 |
| NUMBER OF REFINERIES | 13 | 13 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 1487277 | 1487277 | 864277 | 864277 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 33.867 |
| NUMBER OF REFINERS | 10 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 1053277 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 272.977 | 1800 | 2678500 |
| NUMBER OF REFINERS | 12 | 12 | 12 |
| NUMBER OF REFINERIES | 13 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 1487277 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 689.258 | 4522 | 6328700 |
| NUMBER OF REFINERS | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 12 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 1399277 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 10.04 | | |
| NUMBER OF REFINERS | 12 | | |
| NUMBER OF REFINERIES | 13 | | |
| REFINERY CRUDE CAPACITY | 1487277 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .777 | | |
| NUMBER OF REFINERS | 10 | | |
| NUMBER OF REFINERIES | 11 | | |
| REFINERY CRUDE CAPACITY | 1284600 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.048 | 1.585 | 1695741 |
| NUMBER OF REFINERS | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 11 | 11 | 11 |
| REFINERY CRUDE CAPACITY | 1284600 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .272 | | |
| NUMBER OF REFINERS | 10 | | |
| NUMBER OF REFINERIES | 11 | | |
| REFINERY CRUDE CAPACITY | 1284600 | | |
| UD MAINT & OTHER OPN COSTS | 1.273 | | |
| NUMBER OF REFINERS | 10 | | |
| NUMBER OF REFINERIES | 11 | | |
| REFINERY CRUDE CAPACITY | 1284600 | | |
| UZ (CONTROL TOTAL) | 4.371 | | |
| NUMBER OF REFINERS | 10 | | |
| NUMBER OF REFINERIES | 11 | | |
| REFINERY CRUDE CAPACITY | 1284600 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/26/79

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 171780 | 5.926 | 36.280 | .537 |
| NUMBER OF REFINERS | 9 | 9 | 7 | 7 |
| NUMBER OF REFINERIES | 10 | 10 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 1144600 | 1144600 | 921100 | 921100 |
| VB UPPER TIER | 159961 | 12.448 | 35.534 | .674 |
| NUMBER OF REFINERS | 9 | 9 | 7 | 7 |
| NUMBER OF REFINERIES | 10 | 10 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 1144600 | 1144600 | 921100 | 921100 |
| VC EXEMPT | 737475 | 14.079 | 32.125 | .979 |
| NUMBER OF REFINERS | 10 | 10 | 8 | 8 |
| NUMBER OF REFINERIES | 11 | 11 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 1284600 | 1284600 | 1061100 | 1061100 |
| VY TOTAL/AVERAGE | 1069216 | 12.525 | 33.176 | .875 |
| NUMBER OF REFINERS | 10 | 10 | 8 | 8 |
| NUMBER OF REFINERIES | 11 | 11 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 1284600 | 1284600 | 1061100 | 1061100 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 34.070 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 1185600 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 319.237 | 1628 | 2092469 |
| NUMBER OF REFINERS | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 11 | 11 | 11 |
| REFINERY CRUDE CAPACITY | 1284600 | | |

MODIFIED PAD CODE(S): 01-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 820.667 | 4166 | 4935757 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 1184600 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 13.28 | | |
| NUMBER OF REFINERS | 10 | | |
| NUMBER OF REFINERIES | 11 | | |
| REFINERY CRUDE CAPACITY | 1284600 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

10/15/79

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .255 | | |
| NUMBER OF REFINERS | 25 | | |
| NUMBER OF REFINERIES | 26 | | |
| REFINERY CRUDE CAPACITY | 168308 | | |
| UB AV ENERGY COST | 1.739 | .412 | 49671 |
| NUMBER OF REFINERS | 25 | 25 | 25 |
| NUMBER OF REFINERIES | 26 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 168308 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .123 |
| NUMBER OF REFINERS | 25 |
| NUMBER OF REFINERIES | 26 |
| REFINERY CRUDE CAPACITY | 169608 |
| UD MAINT & OTHER OPN COSTS | .818 |
| NUMBER OF REFINERS | 26 |
| NUMBER OF REFINERIES | 27 |
| REFINERY CRUDE CAPACITY | 173108 |
| UZ (CONTROL TOTAL) | 2.886 |
| NUMBER OF REFINERS | 26 |
| NUMBER OF REFINERIES | 27 |
| REFINERY CRUDE CAPACITY | 173108 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

10/15/79

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 37719 | 5.950 | 27.676 | .730 |
| NUMBER OF REFINERS | 26 | 26 | 26 | 25 |
| NUMBER OF REFINERIES | 27 | 27 | 27 | 26 |
| REFINERY CRUDE CAPACITY | 164108 | 164108 | 164108 | 158108 |
| VB UPPER TIER | 50343 | 12.706 | 36.555 | .471 |
| NUMBER OF REFINERS | 26 | 26 | 26 | 25 |
| NUMBER OF REFINERIES | 27 | 27 | 27 | 26 |
| REFINERY CRUDE CAPACITY | 164108 | 164108 | 164108 | 158108 |
| VC EXEMPT | 35964 | 13.485 | 25.569 | 1.271 |
| NUMBER OF REFINERS | 24 | 24 | 23 | 22 |
| NUMBER OF REFINERIES | 25 | 25 | 24 | 23 |
| REFINERY CRUDE CAPACITY | 160208 | 160208 | 159208 | 153208 |
| VY TOTAL/AVERAGE | 124026 | 10.877 | 30.670 | .792 |
| NUMBER OF REFINERS | 28 | 28 | 27 | 26 |
| NUMBER OF REFINERIES | 29 | 29 | 28 | 27 |
| REFINERY CRUDE CAPACITY | 174708 | 174708 | 173708 | 167708 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 11.250 |
| NUMBER OF REFINERS | 26 |
| NUMBER OF REFINERIES | 27 |
| REFINERY CRUDE CAPACITY | 163708 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 3.571 | 498 | 82405 |
| NUMBER OF REFINERS | 24 | 25 | 25 |
| NUMBER OF REFINERIES | 25 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 165208 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

10/15/79

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 7.876 | 1173 | 199774 |
| NUMBER OF REFINERS | 25 | 26 | 26 |
| NUMBER OF REFINERIES | 26 | 27 | 27 |
| REFINERY CRUDE CAPACITY | 170208 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.49 | | |
| NUMBER OF REFINERS | 27 | | |
| NUMBER OF REFINERIES | 28 | | |
| REFINERY CRUDE CAPACITY | 174708 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

10/15/79

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .389 | | |
| NUMBER OF REFINERS | 28 | | |
| NUMBER OF REFINERIES | 35 | | |
| REFINERY CRUDE CAPACITY | 604200 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.958 | .712 | 301303 |
| NUMBER OF REFINERS | 27 | 27 | 27 |
| NUMBER OF REFINERIES | 34 | 34 | 34 |
| REFINERY CRUDE CAPACITY | 584600 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .183 | | |
| NUMBER OF REFINERS | 28 | | |
| NUMBER OF REFINERIES | 34 | | |
| REFINERY CRUDE CAPACITY | 593500 | | |
| UD MAINT & OTHER OPN COSTS | .971 | | |
| NUMBER OF REFINERS | 28 | | |
| NUMBER OF REFINERIES | 36 | | |
| REFINERY CRUDE CAPACITY | 602200 | | |
| UZ (CONTROL TOTAL) | 3.385 | | |
| NUMBER OF REFINERS | 29 | | |
| NUMBER OF REFINERIES | 37 | | |
| REFINERY CRUDE CAPACITY | 614700 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

10/15/79

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 116020 | 6.164 | 30.259 | 1.110 |
| NUMBER OF REFINERS | 28 | 28 | 27 | 28 |
| NUMBER OF REFINERIES | 33 | 33 | 32 | 33 |
| REFINERY CRUDE CAPACITY | 570480 | 570480 | 550480 | 570480 |
| VB UPPER TIER | 122049 | 12.378 | 32.553 | 1.014 |
| NUMBER OF REFINERS | 29 | 29 | 28 | 29 |
| NUMBER OF REFINERIES | 36 | 36 | 35 | 36 |
| REFINERY CRUDE CAPACITY | 605300 | 605300 | 585300 | 605300 |
| VC EXEMPT | 218596 | 14.613 | 34.400 | .713 |
| NUMBER OF REFINERS | 25 | 25 | 24 | 24 |
| NUMBER OF REFINERIES | 33 | 33 | 32 | 32 |
| REFINERY CRUDE CAPACITY | 529100 | 529100 | 509100 | 506600 |
| VY TOTAL/AVERAGE | 456665 | 11.869 | 32.825 | .899 |
| NUMBER OF REFINERS | 30 | 30 | 29 | 30 |
| NUMBER OF REFINERIES | 38 | 38 | 37 | 38 |
| REFINERY CRUDE CAPACITY | 630600 | 630600 | 610600 | 630600 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 9.013 |
| NUMBER OF REFINERS | 30 |
| NUMBER OF REFINERIES | 37 |
| REFINERY CRUDE CAPACITY | 627600 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 16.627 | 862 | 543615 |
| NUMBER OF REFINERS | 30 | 30 | 30 |
| NUMBER OF REFINERIES | 38 | 38 | 38 |
| REFINERY CRUDE CAPACITY | 630600 | | |

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 40.803 | 2224 | 1320500 |
| NUMBER OF REFINERS | 28 | 28 | 28 |
| NUMBER OF REFINERIES | 36 | 36 | 36 |
| REFINERY CRUDE CAPACITY | 593700 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 3.01 | | |
| NUMBER OF REFINERS | 30 | | |
| NUMBER OF REFINERIES | 38 | | |
| REFINERY CRUDE CAPACITY | 630600 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

10/15/79

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .404 | | |
| NUMBER OF REFINERS | 10 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 388750 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.875 | .695 | 198246 |
| NUMBER OF REFINERS | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 388750 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .159 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 11 | | |
| REFINERY CRUDE CAPACITY | 423750 | | |
| UD MAINT & OTHER OPN COSTS | .812 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 11 | | |
| REFINERY CRUDE CAPACITY | 423750 | | |
| UZ (CONTROL TOTAL) | 3.044 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 11 | | |
| REFINERY CRUDE CAPACITY | 423750 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 43248 | 5.892 | 31.929 | .813 |
| NUMBER OF REFINERS | 9 | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 9 | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 347450 | 347450 | 347450 | 347450 |
| VB UPPER TIER | 80423 | 12.655 | 43.895 | .599 |
| NUMBER OF REFINERS | 10 | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 10 | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 388750 | 388750 | 388750 | 388750 |
| VC EXEMPT | 190101 | 14.862 | 36.940 | .801 |
| NUMBER OF REFINERS | 10 | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 10 | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 382450 | 382450 | 382450 | 382450 |
| VY TOTAL/AVERAGE | 313772 | 13.060 | 38.032 | .751 |
| NUMBER OF REFINERS | 11 | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 11 | 11 | 11 | 11 |
| REFINERY CRUDE CAPACITY | 423750 | 423750 | 423750 | 423750 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 11.435 |
| NUMBER OF REFINERS | 11 |
| NUMBER OF REFINERIES | 11 |
| REFINERY CRUDE CAPACITY | 423750 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 37.280 | 923 | 359041 |
| NUMBER OF REFINERS | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 388750 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

10/15/79

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 110.556 | 2725 | 961200 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 352650 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 4.78 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 11 | | |
| REFINERY CRUDE CAPACITY | 423750 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

10/15/79

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| **OPERATION COSTS - ENERGY** | | | |
| UA MM BTU / BBL CRUDE THRUPT | .550 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 19 | | |
| REFINERY CRUDE CAPACITY | 764700 | | |
| UB AV ENERGY COST | 1.621 | .844 | 544187 |
| NUMBER OF REFINERS | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 19 | 19 | 19 |
| REFINERY CRUDE CAPACITY | 764700 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| **OPERATION COSTS - OTHER** | |
| UC DEPRECIATION | .161 |
| NUMBER OF REFINERS | 11 |
| NUMBER OF REFINERIES | 19 |
| REFINERY CRUDE CAPACITY | 764700 |
| UD MAINT & OTHER OPN COSTS | 1.075 |
| NUMBER OF REFINERS | 11 |
| NUMBER OF REFINERIES | 19 |
| REFINERY CRUDE CAPACITY | 764700 |
| UZ (CONTROL TOTAL) | 3.407 |
| NUMBER OF REFINERS | 11 |
| NUMBER OF REFINERIES | 19 |
| REFINERY CRUDE CAPACITY | 764700 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

10/15/79

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 121691 | 6.020 | 34.520 | 1.132 |
| NUMBER OF REFINERS | 10 | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 18 | 18 | 18 | 18 |
| REFINERY CRUDE CAPACITY | 705700 | 705700 | 705700 | 705700 |
| VB UPPER TIER | 177528 | 13.217 | 37.964 | .582 |
| NUMBER OF REFINERS | 10 | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 18 | 18 | 18 | 18 |
| REFINERY CRUDE CAPACITY | 705700 | 705700 | 705700 | 705700 |
| VC EXEMPT | 345042 | 15.125 | 36.660 | .464 |
| NUMBER OF REFINERS | 11 | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 18 | 18 | 18 | 18 |
| REFINERY CRUDE CAPACITY | 739700 | 739700 | 739700 | 739700 |
| VY TOTAL/AVERAGE | 644261 | 12.879 | 36.615 | .622 |
| NUMBER OF REFINERS | 11 | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 19 | 19 | 19 | 19 |
| REFINERY CRUDE CAPACITY | 764700 | 764700 | 764700 | 764700 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 9.206 |
| NUMBER OF REFINERS | 11 |
| .NUMBER OF REFINERIES | 19 |
| REFINERY CRUDE CAPACITY | 764700 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 54.514 | 1027 | 785684 |
| NUMBER OF REFINERS | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 19 | 19 | 19 |
| REFINERY CRUDE CAPACITY | 764700 | | |

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 167.257 | 3130 | 2394201 |
| NUMBER OF REFINERS | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 19 | 19 | 19 |
| REFINERY CRUDE CAPACITY | 764700 | | |

| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
|---|---|---|---|
| ZZ AVERAGE COMPLEXITY FACTOR | 5.68 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 19 | | |
| REFINERY CRUDE CAPACITY | 764700 | | |

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .505 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 8 | | |
| REFINERY CRUDE CAPACITY | 670000 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.675 | .850 | 319375 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 670000 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .172 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 8 | | |
| REFINERY CRUDE CAPACITY | 670000 | | |
| UD MAINT & OTHER OPN COSTS | .847 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 8 | | |
| REFINERY CRUDE CAPACITY | 670000 | | |
| UZ (CONTROL TOTAL) | 3.200 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 8 | | |
| REFINERY CRUDE CAPACITY | 670000 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 40957 | 6.199 | 35.441 | .944 |
| NUMBER OF REFINERS | 4 | 4 | 3 | 3 |
| NUMBER OF REFINERIES | 6 | 6 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 483000 | 483000 | 369000 | 369000 |
| VB UPPER TIER | 77265 | 12.860 | 36.646 | 1.046 |
| NUMBER OF REFINERS | 4 | 4 | 3 | 3 |
| NUMBER OF REFINERIES | 6 | 6 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 483000 | 483000 | 369000 | 369000 |
| VC EXEMPT | 257270 | 14.712 | 35.148 | .919 |
| NUMBER OF REFINERS | 5 | 5 | 4 | 3 |
| NUMBER OF REFINERIES | 8 | 8 | 7 | 6 |
| REFINERY CRUDE CAPACITY | 670000 | 670000 | 556000 | 426000 |
| VY TOTAL/AVERAGE | 375492 | 13.402 | 35.488 | .949 |
| NUMBER OF REFINERS | 5 | 5 | 4 | 3 |
| NUMBER OF REFINERIES | 8 | 8 | 7 | 6 |
| REFINERY CRUDE CAPACITY | 670000 | 670000 | 556000 | 426000 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 7.880 |
| NUMBER OF REFINERS | 5 |
| NUMBER OF REFINERIES | 8 |
| REFINERY CRUDE CAPACITY | 670000 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 111.232 | 1178 | 789900 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 670000 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

10/15/79

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 314.992 | 3267 | 2189400 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 670000 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.21 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 8 | | |
| REFINERY CRUDE CAPACITY | 670000 | | |

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| **OPERATION COSTS - ENERGY** | | | |
| UA MM BTU / BBL CRUDE THRUPT | .576 | | |
| NUMBER OF REFINERS | 18 | | |
| NUMBER OF REFINERIES | 98 | | |
| REFINERY CRUDE CAPACITY | 12781678 | | |
| UB AV ENERGY COST | 1.946 | 1.133 | 12475054 |
| NUMBER OF REFINERS | 18 | 18 | 18 |
| NUMBER OF REFINERIES | 98 | 98 | 98 |
| REFINERY CRUDE CAPACITY | 12781678 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| **OPERATION COSTS - OTHER** | |
| UC DEPRECIATION | .187 |
| NUMBER OF REFINERS | 18 |
| NUMBER OF REFINERIES | 98 |
| REFINERY CRUDE CAPACITY | 12781678 |
| UD MAINT & OTHER OPN COSTS | 1.035 |
| NUMBER OF REFINERS | 18 |
| NUMBER OF REFINERIES | 98 |
| REFINERY CRUDE CAPACITY | 12781678 |
| UZ (CONTROL TOTAL) | 3.745 |
| NUMBER OF REFINERS | 18 |
| NUMBER OF REFINERIES | 98 |
| REFINERY CRUDE CAPACITY | 12781678 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

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MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 2353290 | 5.977 | 35.422 | .749 |
| NUMBER OF REFINERS | 18 | 18 | 13 | 13 |
| NUMBER OF REFINERIES | 87 | 87 | 53 | 53 |
| REFINERY CRUDE CAPACITY | 11559955 | 11559955 | 7008717 | 7008717 |
| VB UPPER TIER | 2057390 | 12.633 | 35.978 | .782 |
| NUMBER OF REFINERS | 18 | 18 | 13 | 13 |
| NUMBER OF REFINERIES | 87 | 87 | 53 | 53 |
| REFINERY CRUDE CAPACITY | 11559955 | 11559955 | 7008717 | 7008717 |
| VC EXEMPT | 6599062 | 14.476 | 34.094 | .895 |
| NUMBER OF REFINERS | 18 | 18 | 15 | 15 |
| NUMBER OF REFINERIES | 98 | 98 | 63 | 63 |
| REFINERY CRUDE CAPACITY | 12781678 | 12781678 | 8062440 | 8062440 |
| VY TOTAL/AVERAGE | 11009742 | 12.315 | 34.705 | .845 |
| NUMBER OF REFINERS | 18 | 18 | 15 | 15 |
| NUMBER OF REFINERIES | 98 | 98 | 63 | 63 |
| REFINERY CRUDE CAPACITY | 12781678 | 12781678 | 8062440 | 8062440 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 44.466 |
| NUMBER OF REFINERS | 14 |
| NUMBER OF REFINERIES | 80 |
| REFINERY CRUDE CAPACITY | 9338678 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 352.259 | 1432 | 18303892 |
| NUMBER OF REFINERS | 18 | 18 | 18 |
| NUMBER OF REFINERIES | 98 | 98 | 98 |
| REFINERY CRUDE CAPACITY | 12781678 | | |

MODIFIED PAD CODE(S): 01-08

COMPANY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 823.787 | 3937 | 4597900 |
| NUMBER OF REFINERS | 18 | 18 | 18 |
| NUMBER OF REFINERIES | 88 | 88 | 88 |
| REFINERY CRUDE CAPACITY | 11678763 | | |
| | CAP BPCD JAN 1,,79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.71 | | |
| NUMBER OF REFINERS | 18 | | |
| NUMBER OF REFINERIES | 98 | | |
| REFINERY CRUDE CAPACITY | 12781678 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .313 | | |
| NUMBER OF REFINERS | 28 | | |
| NUMBER OF REFINERIES | 29 | | |
| REFINERY CRUDE CAPACITY | 180758 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.814 | .567 | 75926 |
| NUMBER OF REFINERS | 28 | 28 | 28 |
| NUMBER OF REFINERIES | 29 | 29 | 29 |
| REFINERY CRUDE CAPACITY | 180758 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .157 | | |
| NUMBER OF REFINERS | 28 | | |
| NUMBER OF REFINERIES | 29 | | |
| REFINERY CRUDE CAPACITY | 182358 | | |
| UD MAINT & OTHER OPN COSTS | .993 | | |
| NUMBER OF REFINERS | 30 | | |
| NUMBER OF REFINERIES | 32 | | |
| REFINERY CRUDE CAPACITY | 196058 | | |
| UZ (CONTROL TOTAL) | 3.165 | | |
| NUMBER OF REFINERS | 30 | | |
| NUMBER OF REFINERIES | 32 | | |
| REFINERY CRUDE CAPACITY | 196058 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 42193 | 5.881 | 26.066 | 1.081 |
| NUMBER OF REFINERS | 30 | 30 | 30 | 29 |
| NUMBER OF REFINERIES | 32 | 32 | 32 | 31 |
| REFINERY CRUDE CAPACITY | 187058 | 187058 | 187058 | 181058 |
| VB UPPER TIER | 53567 | 12.693 | 35.389 | .662 |
| NUMBER OF REFINERS | 30 | 30 | 30 | 29 |
| NUMBER OF REFINERIES | 32 | 32 | 32 | 31 |
| REFINERY CRUDE CAPACITY | 187058 | 187058 | 187058 | 181058 |
| VC EXEMPT | 45236 | 14.115 | 28.488 | 1.019 |
| NUMBER OF REFINERS | 28 | 28 | 27 | 26 |
| NUMBER OF REFINERIES | 30 | 30 | 29 | 28 |
| REFINERY CRUDE CAPACITY | 183158 | 183158 | 182158 | 176158 |
| VY TOTAL/AVERAGE | 140996 | 11.111 | 30.385 | .909 |
| NUMBER OF REFINERS | 32 | 32 | 31 | 30 |
| NUMBER OF REFINERIES | 34 | 34 | 33 | 32 |
| REFINERY CRUDE CAPACITY | 197658 | 197658 | 196658 | 190658 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 12.300 |
| NUMBER OF REFINERS | 30 |
| NUMBER OF REFINERIES | 31 |
| REFINERY CRUDE CAPACITY | 183658 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 4.206 | 652 | 122825 |
| NUMBER OF REFINERS | 28 | 29 | 29 |
| NUMBER OF REFINERIES | 30 | 31 | 31 |
| REFINERY CRUDE CAPACITY | 188158 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 10.117 | 1660 | 320784 |
| NUMBER OF REFINERS | 29 | 30 | 30 |
| NUMBER OF REFINERIES | 31 | 32 | 32 |
| REFINERY CRUDE CAPACITY | 193158 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.37 | | |
| NUMBER OF REFINERS | 31 | | |
| NUMBER OF REFINERIES | 33 | | |
| REFINERY CRUDE CAPACITY | 197658 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| **OPERATION COSTS - ENERGY** | | | |
| UA MM BTU / BBL CRUDE THRUPT | .764 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 32120 | | |
| UB AV ENERGY COST | 1.737 | 1.407 | 32957 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 32120 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| **OPERATION COSTS - OTHER** | |
| UC DEPRECIATION | .195 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 5 |
| REFINERY CRUDE CAPACITY | 32120 |
| UD MAINT & OTHER OPN COSTS | 1.876 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 5 |
| REFINERY CRUDE CAPACITY | 32120 |
| UZ (CONTROL TOTAL) | 4.574 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 5 |
| REFINERY CRUDE CAPACITY | 32120 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 3222 | 5.619 | 41.599 | .426 |
| NUMBER OF REFINERS | 3 | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 22300 | 22300 | 22300 | 22300 |
| VB UPPER TIER | 6012 | 12.989 | 43.387 | .279 |
| NUMBER OF REFINERS | 4 | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 5 | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 32120 | 32120 | 32120 | 32120 |
| VC EXEMPT | 14185 | 15.376 | 37.845 | .333 |
| NUMBER OF REFINERS | 4 | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 5 | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 32120 | 32120 | 32120 | 32120 |
| VY TOTAL/AVERAGE | 23419 | 13.421 | 39.784 | .332 |
| NUMBER OF REFINERS | 4 | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 5 | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 32120 | 32120 | 32120 | 32120 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 7.438 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 5 |
| REFINERY CRUDE CAPACITY | 32120 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 9.881 | 1587 | 51005 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 32120 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 36.703 | 5747 | 184600 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 32120 | | |

| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
|---|---|---|---|
| ZZ AVERAGE COMPLEXITY FACTOR | 3.94 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 32120 | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .233 | | |
| NUMBER OF REFINERS | 23 | | |
| NUMBER OF REFINERIES | 26 | | |
| REFINERY CRUDE CAPACITY | 503200 | | |
| UB AV ENERGY COST | 2.107 | .494 | 170712 |
| NUMBER OF REFINERS | 23 | 23 | 23 |
| NUMBER OF REFINERIES | 26 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 503200 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .143 |
| NUMBER OF REFINERS | 22 |
| NUMBER OF REFINERIES | 25 |
| REFINERY CRUDE CAPACITY | 492200 |
| UD MAINT & OTHER OPN COSTS | .708 |
| NUMBER OF REFINERS | 22 |
| NUMBER OF REFINERIES | 25 |
| REFINERY CRUDE CAPACITY | 490700 |
| UZ (CONTROL TOTAL) | 3.172 |
| NUMBER OF REFINERS | 23 |
| NUMBER OF REFINERIES | 26 |
| REFINERY CRUDE CAPACITY | 503200 |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 72531 | 5.695 | 24.602 | 1.388 |
| NUMBER OF REFINERS | 20 | 20 | 18 | 19 |
| NUMBER OF REFINERIES | 21 | 21 | 18 | 19 |
| REFINERY CRUDE CAPACITY | 419900 | 419900 | 351900 | 371900 |
| VB UPPER TIER | 80533 | 12.013 | 31.467 | .887 |
| NUMBER OF REFINERS | 21 | 21 | 19 | 20 |
| NUMBER OF REFINERIES | 22 | 22 | 19 | 20 |
| REFINERY CRUDE CAPACITY | 444900 | 444900 | 376900 | 396900 |
| VC EXEMPT | 192374 | 13.945 | 30.011 | 1.139 |
| NUMBER OF REFINERS | 19 | 19 | 17 | 18 |
| NUMBER OF REFINERIES | 22 | 22 | 19 | 20 |
| REFINERY CRUDE CAPACITY | 426200 | 426200 | 358200 | 378200 |
| VY TOTAL/AVERAGE | 345438 | 11.762 | 29.169 | 1.131 |
| NUMBER OF REFINERS | 23 | 23 | 21 | 22 |
| NUMBER OF REFINERIES | 26 | 26 | 23 | 24 |
| REFINERY CRUDE CAPACITY | 503200 | 503200 | 435200 | 455200 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 20.553 |
| NUMBER OF REFINERS | 23 |
| NUMBER OF REFINERIES | 26 |
| REFINERY CRUDE CAPACITY | 503200 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 14.522 | 654 | 329260 |
| NUMBER OF REFINERS | 23 | 23 | 23 |
| NUMBER OF REFINERIES | 26 | 26 | 26 |
| REFINERY CRUDE CAPACITY | 503200 | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 33.967 | 1655 | 798300 |
| NUMBER OF REFINERS | 22 | 22 | 22 |
| NUMBER OF REFINERIES | 25 | 25 | 25 |
| REFINERY CRUDE CAPACITY | 482200 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.48 | | |
| NUMBER OF REFINERS | 23 | | |
| NUMBER OF REFINERIES | 26 | | |
| REFINERY CRUDE CAPACITY | 503200 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | | | | |
|---|---|---|---|---|
| OPERATION COSTS - ENERGY | | | | |
| UA MM BTU / BBL CRUDE THRUPT | .500 | | | |
| NUMBER OF REFINERS | 10 | | | |
| NUMBER OF REFINERIES | 10 | | | |
| REFINERY CRUDE CAPACITY | 220430 | | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY | |
| UB AV ENERGY COST | 2.045 | 1.005 | 173423 | |
| NUMBER OF REFINERS | 10 | 10 | 10 | |
| NUMBER OF REFINERIES | 10 | 10 | 10 | |
| REFINERY CRUDE CAPACITY | 220430 | | | |
| | $ PER BBL CRUDE THPT | | | |
| OPERATION COSTS - OTHER | | | | |
| UC DEPRECIATION | .143 | | | |
| NUMBER OF REFINERS | 10 | | | |
| NUMBER OF REFINERIES | 10 | | | |
| REFINERY CRUDE CAPACITY | 220430 | | | |
| UD MAINT & OTHER OPN COSTS | 1.106 | | | |
| NUMBER OF REFINERS | 10 | | | |
| NUMBER OF REFINERIES | 10 | | | |
| REFINERY CRUDE CAPACITY | 220430 | | | |
| UZ (CONTROL TOTAL) | 3.795 | | | |
| NUMBER OF REFINERS | 10 | | | |
| NUMBER OF REFINERIES | 10 | | | |
| REFINERY CRUDE CAPACITY | 220430 | | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 47733 | 6.911 | 35.724 | .606 |
| NUMBER OF REFINERS | 11 | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 11 | 11 | 11 | 11 |
| REFINERY CRUDE CAPACITY | 236330 | 236330 | 236330 | 236330 |
| VB UPPER TIER | 55842 | 12.924 | 38.336 | .710 |
| NUMBER OF REFINERS | 11 | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 11 | 11 | 11 | 11 |
| REFINERY CRUDE CAPACITY | 236330 | 236330 | 236330 | 236330 |
| VC EXEMPT | 82887 | 15.355 | 38.288 | .445 |
| NUMBER OF REFINERS | 9 | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 9 | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 186830 | 186830 | 186830 | 186830 |
| VY TOTAL/AVERAGE | 186462 | 12.465 | 37.646 | .566 |
| NUMBER OF REFINERS | 11 | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 11 | 11 | 11 | 11 |
| REFINERY CRUDE CAPACITY | 236330 | 236330 | 236330 | 236330 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 9.034 |
| NUMBER OF REFINERS | 11 |
| NUMBER OF REFINERIES | 11 |
| REFINERY CRUDE CAPACITY | 236330 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 18.616 | 924 | 218385 |
| NUMBER OF REFINERS | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 11 | 11 | 11 |
| REFINERY CRUDE CAPACITY | 236330 | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 59.747 | 2896 | 638420 |
| NUMBER OF REFINERS | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 220430 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 4.26 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 11 | | |
| REFINERY CRUDE CAPACITY | 236330 | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | | | | |
|---|---|---|---|---|
| OPERATION COSTS - ENERGY | | | | |
| UA MM BTU / BBL CRUDE THRUPT | .702 | | | |
| NUMBER OF REFINERS | 7 | | | |
| NUMBER OF REFINERIES | 10 | | | |
| REFINERY CRUDE CAPACITY | 192900 | | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY | |
| UB AV ENERGY COST | 1.767 | 1.311 | 201635 | |
| NUMBER OF REFINERS | 6 | 6 | 6 | |
| NUMBER OF REFINERIES | 9 | 9 | 9 | |
| REFINERY CRUDE CAPACITY | 173300 | | | |
| | $ PER BBL CRUDE THPT | | | |
| OPERATION COSTS - OTHER | | | | |
| UC DEPRECIATION | .200 | | | |
| NUMBER OF REFINERS | 7 | | | |
| NUMBER OF REFINERIES | 10 | | | |
| REFINERY CRUDE CAPACITY | 192900 | | | |
| UD MAINT & OTHER OPN COSTS | 1.224 | | | |
| NUMBER OF REFINERS | 7 | | | |
| NUMBER OF REFINERIES | 10 | | | |
| REFINERY CRUDE CAPACITY | 192900 | | | |
| UZ (CONTROL TOTAL) | 3.726 | | | |
| NUMBER OF REFINERS | 7 | | | |
| NUMBER OF REFINERIES | 10 | | | |
| REFINERY CRUDE CAPACITY | 192900 | | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 46701 | 5.775 | 29.021 | 1.942 |
| NUMBER OF REFINERS | 7 | 7 | 5 | 5 |
| NUMBER OF REFINERIES | 10 | 10 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 192900 | 192900 | 116900 | 116900 |
| VB UPPER TIER | 51000 | 12.859 | 33.010 | 1.238 |
| NUMBER OF REFINERS | 7 | 7 | 5 | 5 |
| NUMBER OF REFINERIES | 10 | 10 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 192900 | 192900 | 116900 | 116900 |
| VC EXEMPT | 72245 | 14.596 | 33.504 | 1.231 |
| NUMBER OF REFINERS | 7 | 7 | 5 | 4 |
| NUMBER OF REFINERIES | 10 | 10 | 6 | 5 |
| REFINERY CRUDE CAPACITY | 192900 | 192900 | 116900 | 94400 |
| VY TOTAL/AVERAGE | 169946 | 11.651 | 32.582 | 1.371 |
| NUMBER OF REFINERS | 7 | 7 | 5 | 4 |
| NUMBER OF REFINERIES | 10 | 10 | 6 | 5 |
| REFINERY CRUDE CAPACITY | 192900 | 192900 | 116900 | 94400 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 42.673 |
| NUMBER OF REFINERS | 6 |
| NUMBER OF REFINERIES | 9 |
| REFINERY CRUDE CAPACITY | 174900 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 23.304 | 1120 | 216100 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 192900 | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 75.585 | 3670 | 572200 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 155900 | | |

| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
|---|---|---|---|
| ZZ AVERAGE COMPLEXITY FACTOR | 6.23 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 192900 | | |

NATIONAL PETROLEUM COUNCIL
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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .443 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 428000 | | |
| UB AV ENERGY COST | 1.720 | .707 | 219739 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 428000 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .139 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 428000 |
| UD MAINT & OTHER OPN COSTS | .777 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 428000 |
| UZ (CONTROL TOTAL) | 3.080 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 428000 |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 77496 | 6.028 | 35.738 | .575 |
| NUMBER OF REFINERS | 8 | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 9 | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 386700 | 386700 | 386700 | 386700 |
| VB UPPER TIER | 117997 | 12.780 | 42.356 | .595 |
| NUMBER OF REFINERS | 9 | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 428000 | 428000 | 428000 | 428000 |
| VC EXEMPT | 114921 | 14.957 | 35.536 | .704 |
| NUMBER OF REFINERS | 8 | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 9 | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 386700 | 386700 | 386700 | 386700 |
| VY TOTAL/AVERAGE | 310414 | 11.901 | 38.179 | .631 |
| NUMBER OF REFINERS | 9 | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 428000 | 428000 | 428000 | 428000 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 30.216 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 428000 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 30.486 | 717 | 307008 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 428000 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 114.769 | 2672 | 1143900 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 428000 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 4.41 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 428000 | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|---|
| OPERATION COSTS - ENERGY | | | | |
| UA | MM BTU / BBL CRUDE THRUPT | .512 | | |
| | NUMBER OF REFINERS | 7 | | |
| | NUMBER OF REFINERIES | 8 | | |
| | REFINERY CRUDE CAPACITY | 355673 | | |
| UB | AV ENERGY COST | 1.775 | .910 | 290011 |
| | NUMBER OF REFINERS | 7 | 7 | 7 |
| | NUMBER OF REFINERIES | 8 | 8 | 8 |
| | REFINERY CRUDE CAPACITY | 355673 | | |

| | | $ PER BBL CRUDE THPT |
|---|---|---|
| OPERATION COSTS - OTHER | | |
| UC | DEPRECIATION | .124 |
| | NUMBER OF REFINERS | 7 |
| | NUMBER OF REFINERIES | 8 |
| | REFINERY CRUDE CAPACITY | 355673 |
| UD | MAINT & OTHER OPN COSTS | .857 |
| | NUMBER OF REFINERS | 7 |
| | NUMBER OF REFINERIES | 8 |
| | REFINERY CRUDE CAPACITY | 355673 |
| UZ | (CONTROL TOTAL) | 3.270 |
| | NUMBER OF REFINERS | 7 |
| | NUMBER OF REFINERIES | 8 |
| | REFINERY CRUDE CAPACITY | 355673 |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 82240 | 6.099 | 35.499 | .711 |
| NUMBER OF REFINERS | 7 | 7 | 5 | 5 |
| NUMBER OF REFINERIES | 8 | 8 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 355673 | 355673 | 216350 | 216350 |
| VB UPPER TIER | 92224 | 13.121 | 37.907 | .462 |
| NUMBER OF REFINERS | 7 | 7 | 5 | 5 |
| NUMBER OF REFINERIES | 8 | 8 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 355673 | 355673 | 216350 | 216350 |
| VC EXEMPT | 144135 | 14.556 | 38.309 | .501 |
| NUMBER OF REFINERS | 7 | 7 | 5 | 5 |
| NUMBER OF REFINERIES | 8 | 8 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 355673 | 355673 | 216350 | 216350 |
| VY TOTAL/AVERAGE | 318599 | 11.958 | 37.519 | .536 |
| NUMBER OF REFINERS | 7 | 7 | 5 | 5 |
| NUMBER OF REFINERIES | 8 | 8 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 355673 | 355673 | 216350 | 216350 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 45.618 |
| NUMBER OF REFINERS | 7 |
| NUMBER OF REFINERIES | 8 |
| REFINERY CRUDE CAPACITY | 355673 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 51.501 | 1154 | 410780 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 355673 | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 190.153 | 4279 | 1522000 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 355673 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 5.74 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 8 | | |
| REFINERY CRUDE CAPACITY | 355673 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .643 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 217150 | | |
| UB AV ENERGY COST | 1.779 | 1.162 | 240038 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 217150 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .135 |
| NUMBER OF REFINERS | 5 |
| NUMBER OF REFINERIES | 5 |
| REFINERY CRUDE CAPACITY | 217150 |
| UD MAINT & OTHER OPN COSTS | 1.104 |
| NUMBER OF REFINERS | 5 |
| NUMBER OF REFINERIES | 5 |
| REFINERY CRUDE CAPACITY | 217150 |
| UZ (CONTROL TOTAL) | 3.663 |
| NUMBER OF REFINERS | 5 |
| NUMBER OF REFINERIES | 5 |
| REFINERY CRUDE CAPACITY | 217150 |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 74843 | 5.989 | 35.496 | .834 |
| NUMBER OF REFINERS | 5 | 5 | 3 | 3 |
| NUMBER OF REFINERIES | 5 | 5 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 217150 | 217150 | 135150 | 135150 |
| VB UPPER TIER | 45437 | 12.760 | 33.155 | 1.057 |
| NUMBER OF REFINERS | 5 | 5 | 3 | 3 |
| NUMBER OF REFINERIES | 5 | 5 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 217150 | 217150 | 135150 | 135150 |
| VC EXEMPT | 86123 | 15.492 | 36.359 | .434 |
| NUMBER OF REFINERS | 5 | 5 | 3 | 3 |
| NUMBER OF REFINERIES | 5 | 5 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 217150 | 217150 | 135150 | 135150 |
| VY TOTAL/AVERAGE | 206403 | 11.445 | 35.424 | .684 |
| NUMBER OF REFINERS | 5 | 5 | 3 | 3 |
| NUMBER OF REFINERIES | 5 | 5 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 217150 | 217150 | 135150 | 135150 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 48.450 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 4 |
| REFINERY CRUDE CAPACITY | 185150 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 58.375 | 1262 | 274195 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 217150 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 168.565 | 3775 | 631014 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 167150 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.35 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 217150 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .526 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 14 | | |
| REFINERY CRUDE CAPACITY | 927090 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.919 | 1.010 | 838118 |
| NUMBER OF REFINERS | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 14 | 14 | 14 |
| REFINERY CRUDE CAPACITY | 927090 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .142 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 14 | | |
| REFINERY CRUDE CAPACITY | 927090 | | |
| UD MAINT & OTHER OPN COSTS | 1.120 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 14 | | |
| REFINERY CRUDE CAPACITY | 927090 | | |
| UZ (CONTROL TOTAL) | 3.709 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 14 | | |
| REFINERY CRUDE CAPACITY | 927090 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 206732 | 6.101 | 36.369 | .823 |
| NUMBER OF REFINERS | 11 | 11 | 7 | 7 |
| NUMBER OF REFINERIES | 13 | 13 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 849090 | 849090 | 385590 | 385590 |
| VB UPPER TIER | 181703 | 12.969 | 39.530 | .512 |
| NUMBER OF REFINERS | 11 | 11 | 7 | 7 |
| NUMBER OF REFINERIES | 13 | 13 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 849090 | 849090 | 385590 | 385590 |
| VC EXEMPT | 441318 | 14.781 | 36.649 | .531 |
| NUMBER OF REFINERS | 11 | 11 | 8 | 8 |
| NUMBER OF REFINERIES | 14 | 14 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 927090 | 927090 | 463590 | 463590 |
| VY TOTAL/AVERAGE | 829753 | 12.222 | 37.241 | .594 |
| NUMBER OF REFINERS | 11 | 11 | 8 | 8 |
| NUMBER OF REFINERIES | 14 | 14 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 927090 | 927090 | 463590 | 463590 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 41.668 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 12 |
| REFINERY CRUDE CAPACITY | 767590 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 94.642 | 1256 | 1165200 |
| NUMBER OF REFINERS | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 14 | 14 | 14 |
| REFINERY CRUDE CAPACITY | 927090 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 258.001 | 3614 | 2765500 |
| NUMBER OF REFINERS | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 12 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 765090 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 6.27 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 14 | | |
| REFINERY CRUDE CAPACITY | 927090 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .585 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 691415 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.170 | 1.266 | 836588 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 691415 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .139 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 691415 | | |
| UD MAINT & OTHER OPN COSTS | .999 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 691415 | | |
| UZ (CONTROL TOTAL) | 3.895 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 691415 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 127538 | 6.169 | 37.104 | .270 |
| NUMBER OF REFINERS | 7 | 7 | 6 | 6 |
| NUMBER OF REFINERIES | 8 | 8 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 581415 | 581415 | 508500 | 508500 |
| VB UPPER TIER | 106282 | 12.980 | 36.924 | .307 |
| NUMBER OF REFINERS | 7 | 7 | 6 | 6 |
| NUMBER OF REFINERIES | 8 | 8 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 581415 | 581415 | 508500 | 508500 |
| VC EXEMPT | 426924 | 15.003 | 36.123 | .754 |
| NUMBER OF REFINERS | 8 | 8 | 7 | 7 |
| NUMBER OF REFINERIES | 10 | 10 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 691415 | 691415 | 618500 | 618500 |
| VY TOTAL/AVERAGE | 660744 | 12.973 | 36.444 | .588 |
| NUMBER OF REFINERS | 8 | 8 | 7 | 7 |
| NUMBER OF REFINERIES | 10 | 10 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 691415 | 691415 | 618500 | 618500 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 21.176 |
| NUMBER OF REFINERS | 7 |
| NUMBER OF REFINERIES | 9 |
| REFINERY CRUDE CAPACITY | 621915 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 87.099 | 1203 | 832430 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 691415 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 287.480 | 3918 | 2423300 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 618500 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.93 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 691415 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .698 | | |
| NUMBER OF REFINERS | 3 | | |
| NUMBER OF REFINERIES | 3 | | |
| REFINERY CRUDE CAPACITY | 233577 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.529 | 1.024 | 249364 |
| NUMBER OF REFINERS | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 233577 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .237 | | |
| NUMBER OF REFINERS | 3 | | |
| NUMBER OF REFINERIES | 3 | | |
| REFINERY CRUDE CAPACITY | 233577 | | |
| UD MAINT & OTHER OPN COSTS | 1.043 | | |
| NUMBER OF REFINERS | 3 | | |
| NUMBER OF REFINERIES | 3 | | |
| REFINERY CRUDE CAPACITY | 233577 | | |
| UZ (CONTROL TOTAL) | 3.509 | | |
| NUMBER OF REFINERS | 3 | | |
| NUMBER OF REFINERIES | 3 | | |
| REFINERY CRUDE CAPACITY | 233577 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | ********** | ********** | ********** | ********** |
| NUMBER OF REFINERS | 2 | 2 | 2 | 2 |
| NUMBER OF REFINERIES | 2 | 2 | 2 | 2 |
| REFINERY CRUDE CAPACITY | ********** | ********** | ********** | ********** |
| VB UPPER TIER | ********** | ********** | ********** | ********** |
| NUMBER OF REFINERS | 2 | 2 | 2 | 2 |
| NUMBER OF REFINERIES | 2 | 2 | 2 | 2 |
| REFINERY CRUDE CAPACITY | ********** | ********** | ********** | ********** |
| VC EXEMPT | 152351 | 14.796 | 36.873 | .484 |
| NUMBER OF REFINERS | 3 | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 233577 | 233577 | 233577 | 233577 |
| VY TOTAL/AVERAGE | 243327 | 12.474 | 36.084 | .751 |
| NUMBER OF REFINERS | 3 | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 233577 | 233577 | 233577 | 233577 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 16.035 |
| NUMBER OF REFINERS | 3 |
| NUMBER OF REFINERIES | 3 |
| REFINERY CRUDE CAPACITY | 233577 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 153.301 | 1949 | 455400 |
| NUMBER OF REFINERS | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 233577 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | ********** | ********** | ********** |
| NUMBER OF REFINERS | 2 | 2 | 2 |
| NUMBER OF REFINERIES | 2 | 2 | 2 |
| REFINERY CRUDE CAPACITY | ********** | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 10.01 | | |
| NUMBER OF REFINERS | 3 | | |
| NUMBER OF REFINERIES | 3 | | |
| REFINERY CRUDE CAPACITY | 233577 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|---|
| OPERATION COSTS - ENERGY | | | | |
| UA | MM BTU / BBL CRUDE THRUPT | .882 | | |
| | NUMBER OF REFINERS | 4 | | |
| | NUMBER OF REFINERIES | 4 | | |
| | REFINERY CRUDE CAPACITY | 316000 | | |
| UB | AV ENERGY COST | 1.988 | 1.723 | 458841 |
| | NUMBER OF REFINERS | 4 | 4 | 4 |
| | NUMBER OF REFINERIES | 4 | 4 | 4 |
| | REFINERY CRUDE CAPACITY | 316000 | | |

| | | $ PER BBL CRUDE THPT |
|---|---|---|
| OPERATION COSTS - OTHER | | |
| UC | DEPRECIATION | .309 |
| | NUMBER OF REFINERS | 4 |
| | NUMBER OF REFINERIES | 4 |
| | REFINERY CRUDE CAPACITY | 316000 |
| UD | MAINT & OTHER OPN COSTS | 1.569 |
| | NUMBER OF REFINERS | 4 |
| | NUMBER OF REFINERIES | 4 |
| | REFINERY CRUDE CAPACITY | 316000 |
| UZ | (CONTROL TOTAL) | 4.750 |
| | NUMBER OF REFINERS | 4 |
| | NUMBER OF REFINERIES | 4 |
| | REFINERY CRUDE CAPACITY | 316000 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 50778 | 5.974 | 36.475 | .710 |
| NUMBER OF REFINERS | 4 | 4 | 3 | 3 |
| NUMBER OF REFINERIES | 4 | 4 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 316000 | 316000 | 216000 | 216000 |
| VB UPPER TIER | 53169 | 12.299 | 34.449 | 1.053 |
| NUMBER OF REFINERS | 4 | 4 | 3 | 3 |
| NUMBER OF REFINERIES | 4 | 4 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 316000 | 316000 | 216000 | 216000 |
| VC EXEMPT | 162348 | 13.678 | 29.922 | 1.019 |
| NUMBER OF REFINERS | 4 | 4 | 3 | 3 |
| NUMBER OF REFINERIES | 4 | 4 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 316000 | 316000 | 216000 | 216000 |
| VY TOTAL/AVERAGE | 266295 | 11.934 | 31.488 | .976 |
| NUMBER OF REFINERS | 4 | 4 | 3 | 3 |
| NUMBER OF REFINERIES | 4 | 4 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 316000 | 316000 | 216000 | 216000 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 47.888 |
| NUMBER OF REFINERS | 3 |
| NUMBER OF REFINERIES | 3 |
| REFINERY CRUDE CAPACITY | 217000 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 181.440 | 2133 | 674100 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 316000 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 398.487 | 5180 | 1118900 |
| NUMBER OF REFINERS | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 216000 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 13.08 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 316000 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .498 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 8 | | |
| REFINERY CRUDE CAPACITY | 1071000 | | |
| UB AV ENERGY COST | 1.838 | .915 | 649796 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 1071000 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .153 |
| NUMBER OF REFINERS | 8 |
| NUMBER OF REFINERIES | 8 |
| REFINERY CRUDE CAPACITY | 1071000 |
| UD MAINT & OTHER OPN COSTS | .904 |
| NUMBER OF REFINERS | 8 |
| NUMBER OF REFINERIES | 8 |
| REFINERY CRUDE CAPACITY | 1071000 |
| UZ (CONTROL TOTAL) | 3.394 |
| NUMBER OF REFINERS | 8 |
| NUMBER OF REFINERIES | 8 |
| REFINERY CRUDE CAPACITY | 1071000 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | VOLUME BPCD | $ PER BARREL | API 1/ | WT PCT SULFUR 1/ |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 119050 | 6.101 | | |
| NUMBER OF REFINERS | 6 | 6 | | |
| NUMBER OF REFINERIES | 6 | 6 | | |
| REFINERY CRUDE CAPACITY | 773000 | 773000 | | |
| VB UPPER TIER | 158019 | 12.646 | | |
| NUMBER OF REFINERS | 6 | 6 | | |
| NUMBER OF REFINERIES | 6 | 6 | | |
| REFINERY CRUDE CAPACITY | 773000 | 773000 | 465000 | 465000 |
| VC EXEMPT | 432609 | 14.696 | 36.270 | .566 |
| NUMBER OF REFINERS | 8 | 8 | 5 | 4 |
| NUMBER OF REFINERIES | 8 | 8 | 5 | 4 |
| REFINERY CRUDE CAPACITY | 1071000 | 1071000 | 595000 | 465000 |
| VY TOTAL/AVERAGE | 709678 | 12.797 | 36.567 | .808 |
| NUMBER OF REFINERS | 8 | 8 | 5 | 4 |
| NUMBER OF REFINERIES | 8 | 8 | 5 | 4 |
| REFINERY CRUDE CAPACITY | 1071000 | 1071000 | 595000 | 465000 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 31.793 |
| NUMBER OF REFINERS | 8 |
| NUMBER OF REFINERIES | 8 |
| REFINERY CRUDE CAPACITY | 1071000 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 166.619 | 1183 | 1267700 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 1071000 | | |

1/ Partially withheld due to confidentiality

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 519.129 | 3808 | 3546000 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 931000 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 6.11 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 8 | | |
| REFINERY CRUDE CAPACITY | 107.1000 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .724 | | |
| NUMBER OF REFINERS | 6 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 687800 | | |
| UB AV ENERGY COST | 2.201 | 1.615 | 854900 |
| NUMBER OF REFINERS | 6 | 6 | 6 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 687800 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .230 |
| NUMBER OF REFINERS | 6 |
| NUMBER OF REFINERIES | 6 |
| REFINERY CRUDE CAPACITY | 687800 |
| UD MAINT & OTHER OPN COSTS | 1.105 |
| NUMBER OF REFINERS | 6 |
| NUMBER OF REFINERIES | 6 |
| REFINERY CRUDE CAPACITY | 687800 |
| UZ (CONTROL TOTAL) | 4.261 |
| NUMBER OF REFINERS | 6 |
| NUMBER OF REFINERIES | 6 |
| REFINERY CRUDE CAPACITY | 687800 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 100.001-175,000

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 74927 | 6.025 | ********** | ********** |
| NUMBER OF REFINERS | 5 | 5 | 2 | 2 |
| NUMBER OF REFINERIES | 5 | 5 | 2 | 2 |
| REFINERY CRUDE CAPACITY | 581800 | 581800 | ********** | ********** |
| VB UPPER TIER | 51903 | 12.368 | ********** | ********** |
| NUMBER OF REFINERS | 5 | 5 | 2 | 2 |
| NUMBER OF REFINERIES | 5 | 5 | 2 | 2 |
| REFINERY CRUDE CAPACITY | 581800 | 581800 | ********** | ********** |
| VC EXEMPT | 402477 | 14.407 | 31.083 | 1.279 |
| NUMBER OF REFINERS | 6 | 6 | 3 | 3 |
| NUMBER OF REFINERIES | 6 | 6 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 687800 | 687800 | 349800 | 349800 |
| VY TOTAL/AVERAGE | 529307 | 13.021 | 31.237 | 1.192 |
| NUMBER OF REFINERS | 6 | 6 | 3 | 3 |
| NUMBER OF REFINERIES | 6 | 6 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 687800 | 687800 | 349800 | 349800 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 37.502 |
| NUMBER OF REFINERS | 5 |
| NUMBER OF REFINERIES | 5 |
| REFINERY CRUDE CAPACITY | 583800 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 214.017 | 1861 | 1280100 |
| NUMBER OF REFINERS | 6 | 6 | 6 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 687800 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 561.766 | 4942 | 3399700 |
| NUMBER OF REFINERS | 6 | 6 | 6 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 687800 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 10.02 | | |
| NUMBER OF REFINERS | 6 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 687800 | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .725 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 509500 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.027 | 1.481 | 588655 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 509500 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .350 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 509500 | | |
| UD MAINT & OTHER OPN COSTS | 1.472 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 509500 | | |
| UZ (CONTROL TOTAL) | 4.575 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 509500 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 65313 | 5.838 | ********** | ********** |
| NUMBER OF REFINERS | 3 | 3 | 2 | 2 |
| NUMBER OF REFINERIES | 3 | 3 | 2 | 2 |
| REFINERY CRUDE CAPACITY | 369500 | 369500 | ********** | ********** |
| VB UPPER TIER | 35370 | 12.293 | ********** | ********** |
| NUMBER OF REFINERS | 3 | 3 | 2 | 2 |
| NUMBER OF REFINERIES | 3 | 3 | 2 | 2 |
| REFINERY CRUDE CAPACITY | 369500 | 369500 | ********** | ********** |
| VC EXEMPT | 296782 | 13.682 | 29.645 | 1.319 |
| NUMBER OF REFINERS | 4 | 4 | 3 | 3 |
| NUMBER OF REFINERIES | 4 | 4 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 509500 | 509500 | 386000 | 386000 |
| VY TOTAL/AVERAGE | 397465 | 12.269 | 31.438 | 1.080 |
| NUMBER OF REFINERS | 4 | 4 | 3 | 3 |
| NUMBER OF REFINERIES | 4 | 4 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 509500 | 509500 | 386000 | 386000 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 36.098 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 4 |
| REFINERY CRUDE CAPACITY | 509500 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 190.332 | 1464 | 746200 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 509500 | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 578.158 | 4478 | 2281700 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 509500 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 12.32 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 509500 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .508 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 2668000 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.758 | .884 | 1970036 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 2668000 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .204 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 2668000 | | |
| UD MAINT & OTHER OPN COSTS | 1.123 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 2668000 | | |
| UZ (CONTROL TOTAL) | 3.594 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 2668000 | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 410194 | 6.017 | ********** | ********** |
| NUMBER OF REFINERS | 4 | 4 | 2 | 2 |
| NUMBER OF REFINERIES | 6 | 6 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 2483000 | 2483000 | ********** | ********** |
| VB UPPER TIER | 411091 | 12.689 | ********** | ********** |
| NUMBER OF REFINERS | 4 | 4 | 2 | 2 |
| NUMBER OF REFINERIES | 6 | 6 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 2483000 | 2483000 | ********** | ********** |
| VC EXEMPT | 1404784 | 14.666 | 34.297 | 1.047 |
| NUMBER OF REFINERS | 5 | 5 | 3 | 3 |
| NUMBER OF REFINERIES | 7 | 7 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 2668000 | 2668000 | 1810000 | 1810000 |
| VY TOTAL/AVERAGE | 2226069 | 12.708 | 34.200 | 1.049 |
| NUMBER OF REFINERS | 5 | 5 | 3 | 3 |
| NUMBER OF REFINERIES | 7 | 7 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 2668000 | 2668000 | 1810000 | 1810000 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 51.232 |
| NUMBER OF REFINERS | 3 |
| NUMBER OF REFINERIES | 3 |
| REFINERY CRUDE CAPACITY | 1043000 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 601.202 | 1331 | 3551400 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 2668000 | | |

ALL PAD DISTRICTS

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 896.593 | 3144 | 6964000 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 2215000 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 6.09 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUOE CAPACITY | 2668000 | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .568 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 13 | | |
| REFINERY CRUDE CAPACITY | 3603223 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.958 | 1.119 | 3514413 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 13 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 3603223 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .162 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 13 | | |
| REFINERY CRUDE CAPACITY | 3603223 | | |
| UD MAINT & OTHER OPN COSTS | .976 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 13 | | |
| REFINERY CRUDE CAPACITY | 3603223 | | |
| UZ (CONTROL TOTAL) | 3.666 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 13 | | |
| REFINERY CRUDE CAPACITY | 3603223 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 721977 | 5.931 | 36.779 | .699 |
| NUMBER OF REFINERS | 8 | 8 | 5 | 5 |
| NUMBER OF REFINERIES | 12 | 12 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 3396500 | 3396500 | 1733500 | 1733500 |
| VB UPPER TIER | 583283 | 12.586 | 36.463 | .805 |
| NUMBER OF REFINERS | 8 | 8 | 5 | 5 |
| NUMBER OF REFINERIES | 12 | 12 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 3396500 | 3396500 | 1733500 | 1733500 |
| VC EXEMPT | 1833874 | 14.312 | 34.899 | .814 |
| NUMBER OF REFINERS | 8 | 8 | 5 | 5 |
| NUMBER OF REFINERIES | 13 | 13 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 3603223 | 3603223 | 1940223 | 1940223 |
| VY TOTAL/AVERAGE | 3139134 | 12.064 | 35.610 | .786 |
| NUMBER OF REFINERS | 8 | 8 | 5 | 5 |
| NUMBER OF REFINERIES | 13 | 13 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 3603223 | 3603223 | 1940223 | 1940223 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 52.301 |
| NUMBER OF REFINERS | 6 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 2905223 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 430.540 | 1437 | 5179000 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 13 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 3603223 | | |

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ALL PAD DISTRICTS

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 1189.375 | 3980 | 14342000 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 13 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 3603223 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.70 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 13 | | |
| REFINERY CRUDE CAPACITY | 3603223 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

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MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .341 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 111450 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.381 | .780 | 46373 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 111450 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .213 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 111450 | | |
| UD MAINT & OTHER OPN COSTS | 1.335 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 111450 | | |
| UZ (CONTROL TOTAL) | 4.271 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 111450 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 5916 | 7.609 | 28.294 | .896 |
| NUMBER OF REFINERS | 5 | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 53150 | 53150 | 53150 | 53150 |
| VB UPPER TIER | 2001 | 13.211 | 39.369 | .162 |
| NUMBER OF REFINERS | 5 | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 53150 | 53150 | 53150 | 53150 |
| VC EXEMPT | 51503 | 13.656 | 23.992 | 1.740 |
| NUMBER OF REFINERS | 6 | 6 | 6 | 6 |
| NUMBER OF REFINERIES | 8 | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 83950 | 83950 | 83950 | 83950 |
| VY TOTAL/AVERAGE | 59420 | 13.039 | 24.938 | 1.603 |
| NUMBER OF REFINERS | 7 | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 9 | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 111450 | 111450 | 111450 | 111450 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 5.319 |
| NUMBER OF REFINERS | 7 |
| NUMBER OF REFINERIES | 9 |
| REFINERY CRUDE CAPACITY | 111450 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 12.250 | 930 | 103670 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 111 50 | | |

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 26.141 | 2297 | 256010 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 111450 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.24 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 111450 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .492 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 826000 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.171 | 1.067 | 794939 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 826000 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .214 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 826000 | | |
| UD MAINT & OTHER OPN COSTS | 1.266 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 826000 | | |
| UZ (CONTROL TOTAL) | 4.146 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 826000 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | VOLUME BPCD | $ PER BARREL | API 1/ | WT PCT SULFUR 1/ |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 80806 | 6.174 | | |
| NUMBER OF REFINERS | 3 | 3 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 473000 | 473000 | | |
| VB UPPER TIER | 79021 | 12.894 | | |
| NUMBER OF REFINERS | 3 | 3 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 473000 | 473000 | | |
| VC EXEMPT | 584834 | 14.484 | | |
| NUMBER OF REFINERS | 5 | 5 | | |
| NUMBER OF REFINERIES | 6 | 6 | | |
| REFINERY CRUDE CAPACITY | 826000 | 826000 | | |
| VY TOTAL/AVERAGE | 744661 | 13.414 | | |
| NUMBER OF REFINERS | 5 | 5 | | |
| NUMBER OF REFINERIES | 6 | 6 | | |
| REFINERY CRUDE CAPACITY | 826000 | 826000 | | |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 30.494 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 5 |
| REFINERY CRUDE CAPACITY | 536000 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 289.194 | 1534 | 1267700 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 826000 | | |

1/ Withheld due to confidentiality

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 751.567 | 3967 | 3277300 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 826000 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 6.12 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 826000 | | |

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .283 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 77758 | | |
| UB AV ENERGY COST | 1.922 | .519 | 25658 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 77758 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .156 |
| NUMBER OF REFINERS | 10 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 82558 |
| UD MAINT & OTHER OPN COSTS | .905 |
| NUMBER OF REFINERS | 10 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 82558 |
| UZ (CONTROL TOTAL) | 3.142 |
| NUMBER OF REFINERS | 10 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 82558 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 11497 | 6.858 | 31.203 | .684 |
| NUMBER OF REFINERS | 10 | 10 | 10 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 | 9 |
| REFINERY CRUDE CAPACITY | 82558 | 82558 | 82558 | 76558 |
| VB UPPER TIER | 20747 | 13.486 | 38.851 | .476 |
| NUMBER OF REFINERS | 10 | 10 | 10 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 | 9 |
| REFINERY CRUDE CAPACITY | 82558 | 82558 | 82558 | 76558 |
| VC EXEMPT | 20072 | 14.740 | 32.176 | 1.020 |
| NUMBER OF REFINERS | 8 | 8 | 8 | 7 |
| NUMBER OF REFINERIES | 8 | 8 | 8 | 7 |
| REFINERY CRUDE CAPACITY | 65058 | 65058 | 65058 | 59058 |
| VY TOTAL/AVERAGE | 52316 | 12.511 | 34.609 | .752 |
| NUMBER OF REFINERS | 10 | 10 | 10 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 | 9 |
| REFINERY CRUDE CAPACITY | 82558 | 82558 | 82558 | 76558 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 5.971 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 9 |
| REFINERY CRUDE CAPACITY | 77558 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 4.494 | 461 | 35765 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 77558 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 16.249 | 1321 | 109100 |
| NUMBER OF REFINERS | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 82558 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.42 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 11 | | |
| REFINERY CRUDE CAPACITY | 83558 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .458 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 8 | | |
| REFINERY CRUDE CAPACITY | 331080 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.888 | .858 | 239560 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 331080 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .121 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 8 | | |
| REFINERY CRUDE CAPACITY | 331080 | | |
| UD MAINT & OTHER OPN COSTS | .682 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 8 | | |
| REFINERY CRUDE CAPACITY | 331080 | | |
| UZ (CONTROL TOTAL) | 3.150 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 8 | | |
| REFINERY CRUDE CAPACITY | 331080 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 48581 | 6.327 | 36.201 | .397 |
| NUMBER OF REFINERS | 8 | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 8 | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 331080 | 331080 | 331080 | 331080 |
| VB UPPER TIER | 73250 | 13.170 | 37.234 | .432 |
| NUMBER OF REFINERS | 8 | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 8 | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 331080 | 331080 | 331080 | 331080 |
| VC EXEMPT | 157355 | 15.409 | 36.460 | .643 |
| NUMBER OF REFINERS | 8 | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 8 | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 331080 | 331080 | 331080 | 331080 |
| VY TOTAL/AVERAGE | 279186 | 13.241 | 36.618 | .545 |
| NUMBER OF REFINERS | 8 | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 8 | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 331080 | 331080 | 331080 | 331080 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 19.957 |
| NUMBER OF REFINERS | 8 |
| NUMBER OF REFINERIES | 8 |
| REFINERY CRUDE CAPACITY | 331080 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 54.749 | 824 | 273073 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 331080 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 208.119 | 3294 | 1090740 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 331080 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 4.76 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 8 | | |
| REFINERY CRUDE CAPACITY | 331080 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .509 | | |
| NUMBER OF REFINERS | 15 | | |
| NUMBER OF REFINERIES | 18 | | |
| REFINERY CRUDE CAPACITY | 1345190 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.745 | .890 | 853703 |
| NUMBER OF REFINERS | 14 | 14 | 14 |
| NUMBER OF REFINERIES | 17 | 17 | 17 |
| REFINERY CRUDE CAPACITY | 1325590 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .127 | | |
| NUMBER OF REFINERS | 15 | | |
| NUMBER OF REFINERIES | 18 | | |
| REFINERY CRUDE CAPACITY | 1345190 | | |
| UD MAINT & OTHER OPN COSTS | .878 | | |
| NUMBER OF REFINERS | 15 | | |
| NUMBER OF REFINERIES | 18 | | |
| REFINERY CRUDE CAPACITY | 1345190 | | |
| UZ (CONTROL TOTAL) | 3.231 | | |
| NUMBER OF REFINERS | 15 | | |
| NUMBER OF REFINERIES | 18 | | |
| REFINERY CRUDE CAPACITY | 1345190 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 224520 | 6.195 | 36.030 | .836 |
| NUMBER OF REFINERS | 14 | 14 | 11 | 11 |
| NUMBER OF REFINERIES | 17 | 17 | 14 | 14 |
| REFINERY CRUDE CAPACITY | 1215190 | 1215190 | 913190 | 913190 |
| VB UPPER TIER | 257172 | 13.134 | 37.559 | .715 |
| NUMBER OF REFINERS | 14 | 14 | 11 | 11 |
| NUMBER OF REFINERIES | 17 | 17 | 14 | 14 |
| REFINERY CRUDE CAPACITY | 1215190 | 1215190 | 913190 | 913190 |
| VC EXEMPT | 493210 | 15.178 | 36.688 | .512 |
| NUMBER OF REFINERS | 15 | 15 | 12 | 10 |
| NUMBER OF REFINERIES | 18 | 18 | 15 | 13 |
| REFINERY CRUDE CAPACITY | 1345190 | 1345190 | 1043190 | 890690 |
| VY TOTAL/AVERAGE | 974902 | 12.570 | 36.774 | .650 |
| NUMBER OF REFINERS | 15 | 15 | 12 | 10 |
| NUMBER OF REFINERIES | 18 | 18 | 15 | 13 |
| REFINERY CRUDE CAPACITY | 1345190 | 1345190 | 1043190 | 890690 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 35.221 |
| NUMBER OF REFINERS | 14 |
| NUMBER OF REFINERIES | 16 |
| REFINERY CRUDE CAPACITY | 1081690 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 108.368 | 1010 | 1359300 |
| NUMBER OF REFINERS | 15 | 15 | 15 |
| NUMBER OF REFINERIES | 18 | 18 | 18 |
| REFINERY CRUDE CAPACITY | 1345190 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 330.019 | 3155 | 3980100 |
| NUMBER OF REFINERS | 14 | 14 | 14 |
| NUMBER OF REFINERIES | 17 | 17 | 17 |
| REFINERY CRUDE CAPACITY | 1261190 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 5.94 | | |
| NUMBER OF REFINERS | 15 | | |
| NUMBER OF REFINERIES | 18 | | |
| REFINERY CRUDE CAPACITY | 1345190 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .573 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 1496765 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.047 | 1.175 | 1632488 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 12 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 1496765 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .167 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 1496765 | | |
| UD MAINT & OTHER OPN COSTS | .994 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 1496765 | | |
| UZ (CONTROL TOTAL) | 3.782 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 1496765 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 358350 | 6.093 | 37.133 | .709 |
| NUMBER OF REFINERS | 9 | 9 | 6 | 6 |
| NUMBER OF REFINERIES | 11 | 11 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 1439765 | 1439765 | 853850 | 853850 |
| VB UPPER TIER | 312053 | 12.747 | 37.315 | .743 |
| NUMBER OF REFINERS | 9 | 9 | 6 | 6 |
| NUMBER OF REFINERIES | 11 | 11 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 1439765 | 1439765 | 853850 | 853850 |
| VC EXEMPT | 718094 | 14.730 | 35.811 | .948 |
| NUMBER OF REFINERS | 9 | 9 | 6 | 6 |
| NUMBER OF REFINERIES | 12 | 12 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 1496765 | 1496765 | 910850 | 910850 |
| VY TOTAL/AVERAGE | 1388497 | 12.055 | 36.488 | .841 |
| NUMBER OF REFINERS | 9 | 9 | 6 | 6 |
| NUMBER OF REFINERIES | 12 | 12 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 1496765 | 1496765 | 910850 | 910850 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 38.041 |
| NUMBER OF REFINERS | 8 |
| NUMBER OF REFINERIES | 11 |
| REFINERY CRUDE CAPACITY | 1213765 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 321.431 | 1523 | 2280095 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 12 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 1496765 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 929.787 | 4248 | 5836814 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 1373850 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.86 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 1496765 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .709 | | |
| NUMBER OF REFINERS | 3 | | |
| NUMBER OF REFINERIES | 3 | | |
| REFINERY CRUDE CAPACITY | 336377 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.366 | 1.685 | 546836 |
| NUMBER OF REFINERS | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 336377 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .229 | | |
| NUMBER OF REFINERS | 3 | | |
| NUMBER OF REFINERIES | 3 | | |
| REFINERY CRUDE CAPACITY | 336377 | | |
| UD MAINT & OTHER OPN COSTS | 1.079 | | |
| NUMBER OF REFINERS | 3 | | |
| NUMBER OF REFINERIES | 3 | | |
| REFINERY CRUDE CAPACITY | 336377 | | |
| UZ (CONTROL TOTAL) | 4.384 | | |
| NUMBER OF REFINERS | 3 | | |
| NUMBER OF REFINERIES | 3 | | |
| REFINERY CRUDE CAPACITY | 336377 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | VOLUME BPCD | $ PER BARREL | API 1/ | WT PCT SULFUR 1/ |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 51744 | 5.858 | | |
| NUMBER OF REFINERS | 3 | 3 | | |
| NUMBER OF REFINERIES | 3 | 3 | | |
| REFINERY CRUDE CAPACITY | 336377 | 336377 | | |
| VB UPPER TIER | 40463 | 12.776 | | |
| NUMBER OF REFINERS | 3 | 3 | | |
| NUMBER OF REFINERIES | 3 | 3 | | |
| REFINERY CRUDE CAPACITY | 336377 | 336377 | | |
| VC EXEMPT | 232310 | 15.150 | | |
| NUMBER OF REFINERS | 3 | 3 | | |
| NUMBER OF REFINERIES | 3 | 3 | | |
| REFINERY CRUDE CAPACITY | 336377 | 336377 | | |
| VY TOTAL/AVERAGE | 324517 | 13.372 | | |
| NUMBER OF REFINERS | 3 | 3 | | |
| NUMBER OF REFINERIES | 3 | 3 | | |
| REFINERY CRUDE CAPACITY | 336377 | 336377 | | |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 16.729 |
| NUMBER OF REFINERS | 3 |
| NUMBER OF REFINERIES | 3 |
| REFINERY CRUDE CAPACITY | 336377 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 215.169 | 1870 | 629100 |
| NUMBER OF REFINERS | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 336377 | | |

1/ Withheld due to confidentiality

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 473.007 | 4084 | 1374000 |
| NUMBER OF REFINERS | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 336377 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 9.98 | | |
| NUMBER OF REFINERS | 3 | | |
| NUMBER OF REFINERIES | 3 | | |
| REFINERY CRUDE CAPACITY | 336377 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .226 | | |
| NUMBER OF REFINERS | 19 | | |
| NUMBER OF REFINERIES | 21 | | |
| REFINERY CRUDE CAPACITY | 292850 | | |
| UB AV ENERGY COST | 2.036 | .449 | 84246 |
| NUMBER OF REFINERS | 19 | 19 | 19 |
| NUMBER OF REFINERIES | 21 | 21 | 21 |
| REFINERY CRUDE CAPACITY | 292850 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .145 |
| NUMBER OF REFINERS | 19 |
| NUMBER OF REFINERIES | 20 |
| REFINERY CRUDE CAPACITY | 282150 |
| UD MAINT & OTHER OPN COSTS | .611 |
| NUMBER OF REFINERS | 20 |
| NUMBER OF REFINERIES | 23 |
| REFINERY CRUDE CAPACITY | 303350 |
| UZ (CONTROL TOTAL) | 2.960 |
| NUMBER OF REFINERS | 20 |
| NUMBER OF REFINERIES | 23 |
| REFINERY CRUDE CAPACITY | 303350 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 34978 | 5.917 | 32.238 | 1.351 |
| NUMBER OF REFINERS | 19 | 19 | 18 | 19 |
| NUMBER OF REFINERIES | 22 | 22 | 21 | 22 |
| REFINERY CRUDE CAPACITY | 293750 | 293750 | 273750 | 293750 |
| VB UPPER TIER | 66829 | 12.954 | 38.228 | .617 |
| NUMBER OF REFINERS | 19 | 19 | 18 | 19 |
| NUMBER OF REFINERIES | 22 | 22 | 21 | 22 |
| REFINERY CRUDE CAPACITY | 293750 | 293750 | 273750 | 293750 |
| VC EXEMPT | 89196 | 14.670 | 36.139 | .542 |
| NUMBER OF REFINERS | 20 | 20 | 18 | 19 |
| NUMBER OF REFINERIES | 23 | 23 | 21 | 22 |
| REFINERY CRUDE CAPACITY | 299350 | 299350 | 278350 | 298350 |
| VY TOTAL/AVERAGE | 191003 | 12.467 | 36.157 | .716 |
| NUMBER OF REFINERS | 21 | 21 | 19 | 20 |
| NUMBER OF REFINERIES | 24 | 24 | 22 | 23 |
| REFINERY CRUDE CAPACITY | 304350 | 304350 | 283350 | 303350 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 5.263 |
| NUMBER OF REFINERS | 20 |
| NUMBER OF REFINERIES | 22 |
| REFINERY CRUDE CAPACITY | 295350 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 14.261 | 560 | 170134 |
| NUMBER OF REFINERS | 19 | 20 | 20 |
| NUMBER OF REFINERIES | 22 | 23 | 23 |
| REFINERY CRUDE CAPACITY | 303350 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 21.177 | 1228 | 302587 |
| NUMBER OF REFINERS | 17 | 18 | 18 |
| NUMBER OF REFINERIES | 20 | 21 | 21 |
| REFINERY CRUDE CAPACITY | 246250 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.38 | | |
| NUMBER OF REFINERS | 19 | | |
| NUMBER OF REFINERIES | 22 | | |
| REFINERY CRUDE CAPACITY | 303350 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| **OPERATION COSTS - ENERGY** | | | |
| UA MM BTU / BBL CRUDE THRUPT | .357 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 574730 | | |
| UB AV ENERGY COST | 1.872 | .645 | 307091 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 574730 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| **OPERATION COSTS - OTHER** | |
| UC DEPRECIATION | .225 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 9 |
| REFINERY CRUDE CAPACITY | 574730 |
| UD MAINT & OTHER OPN COSTS | .583 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 9 |
| REFINERY CRUDE CAPACITY | 574730 |
| UZ (CONTROL TOTAL) | 3.038 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 9 |
| REFINERY CRUDE CAPACITY | 574730 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 85853 | 6.024 | 39.490 | .515 |
| NUMBER OF REFINERS | 8 | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 8 | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 533430 | 533430 | 533430 | 533430 |
| VB UPPER TIER | 147690 | 12.645 | 43.146 | .706 |
| NUMBER OF REFINERS | 9 | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 9 | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 574730 | 574730 | 574730 | 574730 |
| VC EXEMPT | 242201 | 14.283 | 35.064 | 1.022 |
| NUMBER OF REFINERS | 8 | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 8 | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 533430 | 533430 | 533430 | 533430 |
| VY TOTAL/AVERAGE | 475744 | 12.284 | 38.371 | .832 |
| NUMBER OF REFINERS | 9 | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 9 | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 574730 | 574730 | 574730 | 574730 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 32.710 |
| NUMBER OF REFINERS | 8 |
| NUMBER OF REFINERIES | 8 |
| REFINERY CRUDE CAPACITY | 374730 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 186.413 | 1329 | 763910 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 574730 | | |

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 260.575 | 2331 | 1339800 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 574730 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 4.33 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 574730 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .520 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 2172000 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.641 | .847 | 1607003 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 12 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 2172000 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .175 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 2172000 | | |
| UD MAINT & OTHER OPN COSTS | 1.125 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 2172000 | | |
| UZ (CONTROL TOTAL) | 3.463 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 2172000 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 431234 | 6.009 | 34.639 | 1.006 |
| NUMBER OF REFINERS | 8 | 8 | 5 | 5 |
| NUMBER OF REFINERIES | 12 | 12 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 2172000 | 2172000 | 1448000 | 1448000 |
| VB UPPER TIER | 440263 | 12.640 | 34.994 | 1.033 |
| NUMBER OF REFINERS | 8 | 8 | 5 | 5 |
| NUMBER OF REFINERIES | 12 | 12 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 2172000 | 2172000 | 1448000 | 1448000 |
| VC EXEMPT | 1025700 | 14.791 | 33.889 | 1.084 |
| NUMBER OF REFINERS | 8 | 8 | 5 | 5 |
| NUMBER OF REFINERIES | 12 | 12 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 2172000 | 2172000 | 1448000 | 1448000 |
| VY TOTAL/AVERAGE | 1897197 | 12.296 | 34.275 | 1.058 |
| NUMBER OF REFINERS | 8 | 8 | 5 | 5 |
| NUMBER OF REFINERIES | 12 | 12 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 2172000 | 2172000 | 1448000 | 1448000 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 48.032 |
| NUMBER OF REFINERS | 6 |
| NUMBER OF REFINERIES | 9 |
| REFINERY CRUDE CAPACITY | 1014000 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 562.602 | 1252 | 2720800 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 12 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 2172000 | | |

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 615.895 | 3058 | 4716000 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 1542000 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 6.14 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 2172000 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .552 | | |
| NUMBER OF REFINERS | 10 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 2268000 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.915 | 1.056 | 2113426 |
| NUMBER OF REFINERS | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 12 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 2268000 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .143 | | |
| NUMBER OF REFINERS | 10 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 2268000 | | |
| UD MAINT & OTHER OPN COSTS | .942 | | |
| NUMBER OF REFINERS | 10 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 2268000 | | |
| UZ (CONTROL TOTAL) | 3.553 | | |
| NUMBER OF REFINERS | 10 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 2268000 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 508562 | 5.952 | 37.560 | .550 |
| NUMBER OF REFINERS | 10 | 10 | 7 | 7 |
| NUMBER OF REFINERIES | 12 | 12 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 2268000 | 2268000 | 1401000 | 1401000 |
| VB UPPER TIER | 400594 | 12.647 | 36.960 | .669 |
| NUMBER OF REFINERS | 10 | 10 | 7 | 7 |
| NUMBER OF REFINERIES | 12 | 12 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 2268000 | 2268000 | 1401000 | 1401000 |
| VC EXEMPT | 1090518 | 14.414 | 35.782 | .886 |
| NUMBER OF REFINERS | 10 | 10 | 7 | 7 |
| NUMBER OF REFINERIES | 12 | 12 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 2268000 | 2268000 | 1401000 | 1401000 |
| VY TOTAL/AVERAGE | 1999674 | 11.908 | 36.483 | .755 |
| NUMBER OF REFINERS | 10 | 10 | 7 | 7 |
| NUMBER OF REFINERIES | 12 | 12 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 2268000 | 2268000 | 1401000 | 1401000 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 50.680 |
| NUMBER OF REFINERS | 7 |
| NUMBER OF REFINERIES | 8 |
| REFINERY CRUDE CAPACITY | 1751500 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 361.121 | 1264 | 2868517 |
| NUMBER OF REFINERS | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 12 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 2268000 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 968.190 | 3488 | 7912900 |
| NUMBER OF REFINERS | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 12 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 2268000 | | |
| | CAP BPCD JAN 1. 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.62 | | |
| NUMBER OF REFINERS | 10 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 2268000 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .649 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 659900 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.650 | 1.095 | 525122 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 659900 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .179 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 659900 | | |
| UD MAINT & OTHER OPN COSTS | .857 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 659900 | | |
| UZ (CONTROL TOTAL) | 3.337 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 659900 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | VOLUME BPCD | $ PER BARREL | API 1/ | WT PCT SULFUR 1/ |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 162324 | 5.855 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 659900 | 659900 | | |
| VB UPPER TIER | 135080 | 12.532 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 659900 | 659900 | | |
| VC EXEMPT | 181879 | 14.559 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 659900 | 659900 | | |
| VY TOTAL/AVERAGE | 479283 | 11.040 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 659900 | 659900 | | |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 39.865 |
| NUMBER OF REFINERS | 3 |
| NUMBER OF REFINERIES | 3 |
| REFINERY CRUDE CAPACITY | 374900 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 371.117 | 1694 | 1118300 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 659900 | | |

1/ Withheld due to confidentiality

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 885.023 | 4048 | 2671700 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 659900 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 10.11 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 659900 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .794 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 570500 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.951 | 1.520 | 777145 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 570500 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .184 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 570500 | | |
| UD MAINT & OTHER OPN COSTS | .951 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 570500 | | |
| UZ (CONTROL TOTAL) | 3.882 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 570500 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | VOLUME BPCD | $ PER BARREL | API 1/ | WT PCT SULFUR 1/ |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 85673 | 6.018 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 570500 | 570500 | | |
| VB UPPER TIER | 95706 | 12.579 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 570500 | 570500 | | |
| VC EXEMPT | 329759 | 14.730 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 570500 | 570500 | | |
| VY TOTAL/AVERAGE | 511138 | 12.867 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 570500 | 570500 | | |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 26.604 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 4 |
| REFINERY CRUDE CAPACITY | 570500 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 472.469 | 1585 | 904300 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 570500 | | |

1/ Withheld due to confidentiality

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 1098.591 | 3735 | 2130900 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 570500 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 14.28 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 570500 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .477 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 101500 | | |
| UB AV ENERGY COST | 1.929 | .950 | 72781 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 101500 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .353 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 4 |
| REFINERY CRUDE CAPACITY | 101500 |
| UD MAINT & OTHER OPN COSTS | 1.630 |
| NUMBER OF REFINERS | 3 |
| NUMBER OF REFINERIES | 3 |
| REFINERY CRUDE CAPACITY | 89000 |
| UZ (CONTROL TOTAL) | 4.206 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 4 |
| REFINERY CRUDE CAPACITY | 101500 |

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 31431 | 5.899 | 31.028 | 1.638 |
| NUMBER OF REFINERS | 5 | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 102100 | 102100 | 102100 | 102100 |
| VB UPPER TIER | 36816 | 13.190 | 38.682 | .583 |
| NUMBER OF REFINERS | 5 | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 102100 | 102100 | 102100 | 102100 |
| VC EXEMPT | 8907 | 15.062 | 38.573 | .324 |
| NUMBER OF REFINERS | 3 | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 97600 | 97600 | 97600 | 97600 |
| VY TOTAL/AVERAGE | 77154 | 10.436 | 35.551 | .983 |
| NUMBER OF REFINERS | 5 | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 102100 | 102100 | 102100 | 102100 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 4.803 |
| NUMBER OF REFINERS | 5 |
| NUMBER OF REFINERIES | 5 |
| REFINERY CRUDE CAPACITY | 102100 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 37.832 | 770 | 78712 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 102100 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 159.523 | 2721 | 277900 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 102100 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 2.70 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 102100 | | |

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|---|
| OPERATION COSTS - ENERGY | | | | |
| UA | MM BTU / BBL CRUDE THRUPT | .677 | | |
| | NUMBER OF REFINERS | 5 | | |
| | NUMBER OF REFINERIES | 6 | | |
| | REFINERY CRUDE CAPACITY | 181650 | | |
| UB | AV ENERGY COST | 1.710 | 1.161 | 180483 |
| | NUMBER OF REFINERS | 5 | 5 | 5 |
| | NUMBER OF REFINERIES | 6 | 6 | 6 |
| | REFINERY CRUDE CAPACITY | 181650 | | |

| | | $ PER BBL CRUDE THPT |
|---|---|---|
| OPERATION COSTS - OTHER | | |
| UC | DEPRECIATION | .157 |
| | NUMBER OF REFINERS | 5 |
| | NUMBER OF REFINERIES | 6 |
| | REFINERY CRUDE CAPACITY | 181650 |
| UD | MAINT & OTHER OPN COSTS | 1.015 |
| | NUMBER OF REFINERS | 5 |
| | NUMBER OF REFINERIES | 6 |
| | REFINERY CRUDE CAPACITY | 181650 |
| UZ | (CONTROL TOTAL) | 3.562 |
| | NUMBER OF REFINERS | 5 |
| | NUMBER OF REFINERIES | 6 |
| | REFINERY CRUDE CAPACITY | 181650 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | VOLUME BPCD | $ PER BARREL | API[1] | WT PCT SULFUR[1] |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 55670 | 5.930 | | |
| NUMBER OF REFINERS | 5 | 5 | | |
| NUMBER OF REFINERIES | 6 | 6 | | |
| REFINERY CRUDE CAPACITY | 181650 | 181650 | | |
| VB UPPER TIER | 58283 | 13.018 | | |
| NUMBER OF REFINERS | 5 | 5 | | |
| NUMBER OF REFINERIES | 6 | 6 | | |
| REFINERY CRUDE CAPACITY | 181650 | 181650 | | |
| VC EXEMPT | 41440 | 15.254 | | |
| NUMBER OF REFINERS | 5 | 5 | | |
| NUMBER OF REFINERIES | 6 | 6 | | |
| REFINERY CRUDE CAPACITY | 181650 | 181650 | | |
| VY TOTAL/AVERAGE | 155393 | 11.075 | | |
| NUMBER OF REFINERS | 5 | 5 | | |
| NUMBER OF REFINERIES | 6 | 6 | | |
| REFINERY CRUDE CAPACITY | 181650 | 181650 | | |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 63.551 |
| NUMBER OF REFINERS | 5 |
| NUMBER OF REFINERIES | 6 |
| REFINERY CRUDE CAPACITY | 181650 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 43.622 | 1209 | 219680 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 181650 | | |

[1]/Withheld due to confidentiality

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 162.526 | 4581 | 832300 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 181650 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 6.03 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 181650 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .224 | | |
| NUMBER OF REFINERS | 16 | | |
| NUMBER OF REFINERIES | 17 | | |
| REFINERY CRUDE CAPACITY | 352500 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.857 | .413 | 126244 |
| NUMBER OF REFINERS | 16 | 16 | 16 |
| NUMBER OF REFINERIES | 17 | 17 | 17 |
| REFINERY CRUDE CAPACITY | 352500 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .108 | | |
| NUMBER OF REFINERS | 16 | | |
| NUMBER OF REFINERIES | 17 | | |
| REFINERY CRUDE CAPACITY | 384000 | | |
| UD MAINT & OTHER OPN COSTS | .638 | | |
| NUMBER OF REFINERS | 17 | | |
| NUMBER OF REFINERIES | 18 | | |
| REFINERY CRUDE CAPACITY | 387500 | | |
| UZ (CONTROL TOTAL) | 2.648 | | |
| NUMBER OF REFINERS | 17 | | |
| NUMBER OF REFINERIES | 18 | | |
| REFINERY CRUDE CAPACITY | 387500 | | |

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 68955 | 5.389 | 21.068 | 1.221 |
| NUMBER OF REFINERS | 14 | 14 | 13 | 13 |
| NUMBER OF REFINERIES | 15 | 15 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 268500 | 268500 | 220500 | 220500 |
| VB UPPER TIER | 58503 | 11.195 | 25.062 | .961 |
| NUMBER OF REFINERS | 15 | 15 | 14 | 14 |
| NUMBER OF REFINERIES | 16 | 16 | 14 | 14 |
| REFINERY CRUDE CAPACITY | 293500 | 293500 | 245500 | 245500 |
| VC EXEMPT | 206232 | 14.053 | 32.700 | .921 |
| NUMBER OF REFINERS | 15 | 15 | 14 | 14 |
| NUMBER OF REFINERIES | 16 | 16 | 14 | 14 |
| REFINERY CRUDE CAPACITY | 350500 | 350500 | 302500 | 302500 |
| VY TOTAL/AVERAGE | 333690 | 11.762 | 28.839 | .992 |
| NUMBER OF REFINERS | 17 | 17 | 16 | 16 |
| NUMBER OF REFINERIES | 18 | 18 | 16 | 16 |
| REFINERY CRUDE CAPACITY | 387500 | 387500 | 339500 | 339500 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 20.282 |
| NUMBER OF REFINERS | 17 |
| NUMBER OF REFINERIES | 18 |
| REFINERY CRUDE CAPACITY | 387500 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 28.416 | 822 | 287067 |
| NUMBER OF REFINERS | 15 | 15 | 15 |
| NUMBER OF REFINERIES | 16 | 16 | 16 |
| REFINERY CRUDE CAPACITY | 349000 | | |

NATIONAL PETROLEUM COUNCIL
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MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 0.01- 3.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 50.521 | 1648 | 575487 |
| NUMBER OF REFINERS | 15 | 15 | 15 |
| NUMBER OF REFINERIES | 16 | 16 | 16 |
| REFINERY CRUDE CAPACITY | 349000 | | |

| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
|---|---|---|---|
| ZZ AVERAGE COMPLEXITY FACTOR | 1.62 | | |
| NUMBER OF REFINERS | 17 | | |
| NUMBER OF REFINERIES | 18 | | |
| REFINERY CRUDE CAPACITY | 387500 | | |

MODIFIED PAD CODE(S): 05-08[1]/

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 3.01- 5.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 19504 | 5.177 | 21.985 | 1.507 |
| NUMBER OF REFINERS | 3 | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 106520 | 106520 | 106520 | 106520 |
| VB UPPER TIER | 6443 | 10.466 | 21.749 | 1.726 |
| NUMBER OF REFINERS | 3 | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 106520 | 106520 | 106520 | 106520 |
| VC EXEMPT | 26913 | 14.158 | 31.548 | .470 |
| NUMBER OF REFINERS | 3 | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 106520 | 106520 | 106520 | 106520 |
| VY TOTAL/AVERAGE | 52860 | 10.394 | 26.825 | 1.006 |
| NUMBER OF REFINERS | 3 | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 106520 | 106520 | 106520 | 106520 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 5.919 |
| NUMBER OF REFINERS | 3 |
| NUMBER OF REFINERIES | 3 |
| REFINERY CRUDE CAPACITY | 106520 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 15.591 | 436 | 46500 |
| NUMBER OF REFINERS | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 106520 | | |

| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
|---|---|---|---|
| ZZ AVERAGE COMPLEXITY FACTOR | 4.21 | | |
| NUMBER OF REFINERS | 3 | | |
| NUMBER OF REFINERIES | 3 | | |
| REFINERY CRUDE CAPACITY | 106520 | | |

[1]/Operating Costs and Replacement Costs withheld due to confidentiality.

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .519 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 689823 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.029 | 1.065 | 513468 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 689823 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .237 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 689823 | | |
| UD MAINT & OTHER OPN COSTS | .953 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 689823 | | |
| UZ (CONTROL TOTAL) | 3.739 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 689823 | | |

NATIONAL PETROLEUM COUNCIL
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MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | VOLUME BPCD | $ PER BARREL | API [1] | WT PCT SULFUR [1] |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 72687 | 5.720 | | |
| NUMBER OF REFINERS | 3 | 3 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 611823 | 611823 | | |
| VB UPPER TIER | 59298 | 12.091 | | |
| NUMBER OF REFINERS | 3 | 3 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 611823 | 611823 | | |
| VC EXEMPT | 349907 | 13.936 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 5 | 5 | | |
| REFINERY CRUDE CAPACITY | 689823 | 689823 | | |
| VY TOTAL/AVERAGE | 481892 | 12.470 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 5 | 5 | | |
| REFINERY CRUDE CAPACITY | 689823 | 689823 | | |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 48.627 |
| NUMBER OF REFINERS | 3 |
| NUMBER OF REFINERIES | 4 |
| REFINERY CRUDE CAPACITY | 598823 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 403.675 | 1512 | 1043700 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 689823 | | |

[1] Withheld due to confidentiality

NATIONAL PETROLEUM COUNCIL
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MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 5.01- 7.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 1192.875 | 4190 | 2564000 |
| NUMBER OF REFINERS | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 611823 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 6.32 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 689823 | | |

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MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .705 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 815500 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.200 | 1.554 | 970966 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 815500 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .244 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 815500 | | |
| UD MAINT & OTHER OPN COSTS | 1.291 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 815500 | | |
| UZ (CONTROL TOTAL) | 4.441 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 815500 | | |

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MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 129491 | 5.724 | 30.870 | .872 |
| NUMBER OF REFINERS | 5 | 5 | 3 | 3 |
| NUMBER OF REFINERIES | 5 | 5 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 815500 | 815500 | 342500 | 342500 |
| VB UPPER TIER | 75107 | 11.824 | 29.685 | .967 |
| NUMBER OF REFINERS | 5 | 5 | 3 | 3 |
| NUMBER OF REFINERIES | 5 | 5 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 815500 | 815500 | 342500 | 342500 |
| VC EXEMPT | 420002 | 13.677 | 29.335 | .899 |
| NUMBER OF REFINERS | 5 | 5 | 3 | 3 |
| NUMBER OF REFINERIES | 5 | 5 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 815500 | 815500 | 342500 | 342500 |
| VY TOTAL/AVERAGE | 624600 | 11.805 | 29.727 | .897 |
| NUMBER OF REFINERS | 5 | 5 | 3 | 3 |
| NUMBER OF REFINERIES | 5 | 5 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 815500 | 815500 | 342500 | 342500 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 68.372 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 4 |
| REFINERY CRUDE CAPACITY | 707500 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 422.993 | 1736 | 1415930 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 815500 | | |

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 7.01- 9.00

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 1385.828 | 5916 | 4825000 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 815500 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 8.04 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 815500 | | |

NATIONAL PETROLEUM COUNCIL
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MODIFIED PAD CODE(S): 05-08[1]/

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 9.01- 11.00

| | VOLUME BPCD | $ PER BARREL | API[2]/ | WT PCT[2]/ SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 69905 | 5.757 | | |
| NUMBER OF REFINERS | 3 | 3 | | |
| NUMBER OF REFINERIES | 3 | 3 | | |
| REFINERY CRUDE CAPACITY | 252000 | 252000 | | |
| VB UPPER TIER | 37563 | 11.732 | | |
| NUMBER OF REFINERS | 3 | 3 | | |
| NUMBER OF REFINERIES | 3 | 3 | | |
| REFINERY CRUDE CAPACITY | 252000 | 252000 | | |
| VC EXEMPT | 202440 | 13.542 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 358000 | 358000 | | |
| VY TOTAL/AVERAGE | 309908 | 11.567 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 358000 | 358000 | | |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 67.464 |
| NUMBER OF REFINERS | 3 |
| NUMBER OF REFINERIES | 3 |
| REFINERY CRUDE CAPACITY | 254000 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 201.603 | 1972 | 706000 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 358000 | | |

[1]/Operating Costs and REplacement Costs withheld due to confidentiality.

[2]/Withheld due to confidentiality.

NATIONAL PETROLEUM COUNCIL
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MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .818 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 448500 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.246 | 1.849 | 645932 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 448500 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .448 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 448500 | | |
| UD MAINT & OTHER OPN COSTS | 1.677 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 448500 | | |
| UZ (CONTROL TOTAL) | 5.191 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 448500 | | |

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MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | VOLUME BPCD | $ PER BARREL | API [1] | WT PCT SULFUR [1] |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 44592 | 5.404 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 448500 | 448500 | | |
| VB UPPER TIER | 40293 | 11.687 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 448500 | 448500 | | |
| VC EXEMPT | 264276 | 13.012 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 448500 | 448500 | | |
| VY TOTAL/AVERAGE | 349161 | 11.887 | | |
| NUMBER OF REFINERS | 4 | 4 | | |
| NUMBER OF REFINERIES | 4 | 4 | | |
| REFINERY CRUDE CAPACITY | 448500 | 448500 | | |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 58.502 |
| NUMBER OF REFINERS | 3 |
| NUMBER OF REFINERIES | 3 |
| REFINERY CRUDE CAPACITY | 349500 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 179.972 | 1642 | 736800 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 448500 | | |

[1] Withheld due to confidentiality.

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: (ALL)

COMPLEXITY FACTOR RANGE: 11.01-999.99

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 518.895 | 4464 | 1556000 |
| NUMBER OF REFINERS | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 348500 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 12.17 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 448500 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| **OPERATION COSTS - ENERGY** | | | |
| UA MM BTU / BBL CRUDE THRUPT | .994 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 45170 | | |
| UB AV ENERGY COST | 2.211 | 2.138 | 78586 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 45170 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| **OPERATION COSTS - OTHER** | |
| UC DEPRECIATION | .467 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 7 |
| REFINERY CRUDE CAPACITY | 45170 |
| UD MAINT & OTHER OPN COSTS | 2.672 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 7 |
| REFINERY CRUDE CAPACITY | 45170 |
| UZ (CONTROL TOTAL) | 6.345 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 7 |
| REFINERY CRUDE CAPACITY | 45170 |

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 808 | 6.723 | 43.425 | .192 |
| NUMBER OF REFINERS | 4 | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 5 | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 35350 | 35350 | 35350 | 35350 |
| VB UPPER TIER | 6354 | 13.272 | 37.824 | .106 |
| NUMBER OF REFINERS | 4 | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 7 | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 45170 | 45170 | 45170 | 45170 |
| VC EXEMPT | 29590 | 15.526 | 34.420 | .545 |
| NUMBER OF REFINERS | 4 | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 7 | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 45170 | 45170 | 45170 | 45170 |
| VY TOTAL/AVERAGE | 36752 | 14.943 | 35.206 | .461 |
| NUMBER OF REFINERS | 4 | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 7 | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 45170 | 45170 | 45170 | 45170 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 18.470 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 7 |
| REFINERY CRUDE CAPACITY | 45170 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 20.288 | 2846 | 128570 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 45170 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 47.742 | 7135 | 322310 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 45170 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 3.40 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 45170 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .409 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 98300 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.306 | .849 | 43298 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 98300 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .245 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 98300 | | |
| UD MAINT & OTHER OPN COSTS | 1.355 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 98300 | | |
| UZ (CONTROL TOTAL) | 4.315 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 98300 | | |

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | ********** | ********** | ********** | ********** |
| NUMBER OF REFINERS | 2 | 2 | 2 | 2 |
| NUMBER OF REFINERIES | 2 | 2 | 2 | 2 |
| REFINERY CRUDE CAPACITY | ********** | ********** | ********** | ********** |
| VB UPPER TIER | ********** | ********** | ********** | ********** |
| NUMBER OF REFINERS | 2 | 2 | 2 | 2 |
| NUMBER OF REFINERIES | 2 | 2 | 2 | 2 |
| REFINERY CRUDE CAPACITY | ********** | ********** | ********** | ********** |
| VC EXEMPT | 43110 | 13.631 | 24.700 | 1.780 |
| NUMBER OF REFINERS | 3 | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 5 | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 70800 | 70800 | 70800 | 70800 |
| VY TOTAL/AVERAGE | 50993 | 13.062 | 25.854 | 1.619 |
| NUMBER OF REFINERS | 4 | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 6 | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 98300 | 98300 | 98300 | 98300 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 3.763 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 6 |
| REFINERY CRUDE CAPACITY | 98300 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 16.913 | 1018 | 100110 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 98300 | | |

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 37.194 | 2468 | 242680 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 98300 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.29 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 98300 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| **OPERATION COSTS - ENERGY** | | | |
| UA MM BTU / BBL CRUDE THRUPT | .542 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 643500 | | |
| UB AV ENERGY COST | 2.130 | 1.161 | 625181 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 643500 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| **OPERATION COSTS - OTHER** | |
| UC DEPRECIATION | .225 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 4 |
| REFINERY CRUDE CAPACITY | 643500 |
| UD MAINT & OTHER OPN COSTS | 1.236 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 4 |
| REFINERY CRUDE CAPACITY | 643500 |
| UZ (CONTROL TOTAL) | 4.135 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 4 |
| REFINERY CRUDE CAPACITY | 643500 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | ********** | ********** | ********** | ********** |
| NUMBER OF REFINERS | 1 | 1 | 1 | 1 |
| NUMBER OF REFINERIES | 1 | 1 | 1 | 1 |
| REFINERY CRUDE CAPACITY | ********** | ********** | ********** | ********** |
| VB UPPER TIER | ********** | ********** | ********** | ********** |
| NUMBER OF REFINERS | 1 | 1 | 1 | 1 |
| NUMBER OF REFINERIES | 1 | 1 | 1 | 1 |
| REFINERY CRUDE CAPACITY | ********** | ********** | ********** | ********** |
| VC EXEMPT | 521539 | 14.434 | 32.451 | .906 |
| NUMBER OF REFINERS | 4 | 4 | 3 | 3 |
| NUMBER OF REFINERIES | 4 | 4 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 643500 | 643500 | 475500 | 475500 |
| VY TOTAL/AVERAGE | 538442 | 14.257 | 32.559 | .874 |
| NUMBER OF REFINERS | 4 | 4 | 3 | 3 |
| NUMBER OF REFINERIES | 4 | 4 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 643500 | 643500 | 475500 | 475500 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 18.344 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 4 |
| REFINERY CRUDE CAPACITY | 643500 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 255.252 | 1603 | 1031700 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 643500 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 01

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 771.523 | 4788 | 3081400 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 643500 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 8.50 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 643500 | | |

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| **OPERATION COSTS - ENERGY** | | | |
| UA MM BTU / BBL CRUDE THRUPT | .381 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 38258 | | |
| UB AV ENERGY COST | 1.449 | .550 | 16686 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 38258 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| **OPERATION COSTS - OTHER** | |
| UC DEPRECIATION | .140 |
| NUMBER OF REFINERS | 8 |
| NUMBER OF REFINERIES | 8 |
| REFINERY CRUDE CAPACITY | 43058 |
| UD MAINT & OTHER OPN COSTS | .932 |
| NUMBER OF REFINERS | 8 |
| NUMBER OF REFINERIES | 8 |
| REFINERY CRUDE CAPACITY | 43058 |
| UZ (CONTROL TOTAL) | 2.741 |
| NUMBER OF REFINERS | 8 |
| NUMBER OF REFINERIES | 8 |
| REFINERY CRUDE CAPACITY | 43058 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 8326 | 6.810 | 31.879 | .168 |
| NUMBER OF REFINERS | 8 | 8 | 8 | 7 |
| NUMBER OF REFINERIES | 8 | 8 | 8 | 7 |
| REFINERY CRUDE CAPACITY | 43058 | 43058 | 43058 | 37058 |
| VB UPPER TIER | 15341 | 13.596 | 39.030 | .264 |
| NUMBER OF REFINERS | 8 | 8 | 8 | 7 |
| NUMBER OF REFINERIES | 8 | 8 | 8 | 7 |
| REFINERY CRUDE CAPACITY | 43058 | 43058 | 43058 | 37058 |
| VC EXEMPT | 9621 | 15.301 | 33.391 | .312 |
| NUMBER OF REFINERS | 7 | 7 | 7 | 6 |
| NUMBER OF REFINERIES | 7 | 7 | 7 | 6 |
| REFINERY CRUDE CAPACITY | 38058 | 38058 | 38058 | 32058 |
| VY TOTAL/AVERAGE | 33288 | 12.392 | 35.612 | .253 |
| NUMBER OF REFINERS | 8 | 8 | 8 | 7 |
| NUMBER OF REFINERIES | 8 | 8 | 8 | 7 |
| REFINERY CRUDE CAPACITY | 43058 | 43058 | 43058 | 37058 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 2.751 |
| NUMBER OF REFINERS | 7 |
| NUMBER OF REFINERIES | 7 |
| REFINERY CRUDE CAPACITY | 38058 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 3.346 | 597 | 22734 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 38058 | | |

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 7.053 | 1248 | 53757 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 8 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 43058 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 2.95 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 44058 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .426 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 197000 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.832 | .726 | 105455 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 177400 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .130 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 197000 | | |
| UD MAINT & OTHER OPN COSTS | 1.017 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 197000 | | |
| UZ (CONTROL TOTAL) | 3.222 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 197000 | | |

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 16683 | 6.410 | 33.070 | .829 |
| NUMBER OF REFINERS | 9 | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 197000 | 197000 | 197000 | 197000 |
| VB UPPER TIER | 37788 | 13.048 | 35.829 | .641 |
| NUMBER OF REFINERS | 9 | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 197000 | 197000 | 197000 | 197000 |
| VC EXEMPT | 106971 | 15.253 | 35.640 | .513 |
| NUMBER OF REFINERS | 8 | 8 | 8 | 7 |
| NUMBER OF REFINERIES | 9 | 9 | 9 | 8 |
| REFINERY CRUDE CAPACITY | 184500 | 184500 | 184500 | 162000 |
| VY TOTAL/AVERAGE | 161442 | 13.823 | 35.419 | .580 |
| NUMBER OF REFINERS | 9 | 9 | 9 | 8 |
| NUMBER OF REFINERIES | 10 | 10 | 10 | 9 |
| REFINERY CRUDE CAPACITY | 197000 | 197000 | 197000 | 174500 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 10.235 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 197000 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 15.389 | 713 | 140575 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 197000 | | |

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 52.065 | 2408 | 474440 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 197000 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 4.38 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 197000 | | |

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| **OPERATION COSTS - ENERGY** | | | |
| UA MM BTU / BBL CRUDE THRUPT | .554 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 459630 | | |
| UB AV ENERGY COST | 1.863 | 1.043 | 422416 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 459630 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| **OPERATION COSTS - OTHER** | |
| UC DEPRECIATION | .140 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 459630 |
| UD MAINT & OTHER OPN COSTS | .915 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 459630 |
| UZ (CONTROL TOTAL) | 3.473 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 459630 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 112969 | 6.162 | 37.039 | .394 |
| NUMBER OF REFINERS | 9 | 9 | 7 | 7 |
| NUMBER OF REFINERIES | 10 | 10 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 459630 | 459630 | 359630 | 359630 |
| VB UPPER TIER | 109625 | 13.182 | 38.047 | .364 |
| NUMBER OF REFINERS | 9 | 9 | 7 | 7 |
| NUMBER OF REFINERIES | 10 | 10 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 459630 | 459630 | 359630 | 359630 |
| VC EXEMPT | 182287 | 15.017 | 36.329 | .624 |
| NUMBER OF REFINERS | 9 | 9 | 7 | 7 |
| NUMBER OF REFINERIES | 10 | 10 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 459630 | 459630 | 359630 | 359630 |
| VY TOTAL/AVERAGE | 404881 | 12.049 | 36.997 | .495 |
| NUMBER OF REFINERS | 9 | 9 | 7 | 7 |
| NUMBER OF REFINERIES | 10 | 10 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 459630 | 459630 | 359630 | 359630 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 33.702 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 459630 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 48.312 | 1025 | 471493 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 459630 | | |

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 167.184 | 3639 | 1490914 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 409630 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 5.98 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 459630 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .582 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 810082 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.040 | 1.192 | 905631 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 12 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 810082 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .156 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 810082 | | |
| UD MAINT & OTHER OPN COSTS | 1.035 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 810082 | | |
| UZ (CONTROL TOTAL) | 3.814 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 810082 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 190228 | 6.138 | 37.334 | .639 |
| NUMBER OF REFINERS | 9 | 9 | 8 | 8 |
| NUMBER OF REFINERIES | 11 | 11 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 753082 | 753082 | 596167 | 596167 |
| VB UPPER TIER | 157452 | 13.048 | 39.003 | .513 |
| NUMBER OF REFINERS | 9 | 9 | 8 | 8 |
| NUMBER OF REFINERIES | 11 | 11 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 753082 | 753082 | 596167 | 596167 |
| VC EXEMPT | 411931 | 15.153 | 36.772 | .825 |
| NUMBER OF REFINERS | 9 | 9 | 8 | 8 |
| NUMBER OF REFINERIES | 12 | 12 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 810082 | 810082 | 653167 | 653167 |
| VY TOTAL/AVERAGE | 759611 | 12.459 | 37.411 | .706 |
| NUMBER OF REFINERS | 9 | 9 | 8 | 8 |
| NUMBER OF REFINERIES | 12 | 12 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 810082 | 810082 | 653167 | 653167 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 32.246 |
| NUMBER OF REFINERS | 8 |
| NUMBER OF REFINERIES | 11 |
| REFINERY CRUDE CAPACITY | 741582 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 95.251 | 1312 | 1062900 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 12 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 810082 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 268.835 | 3790 | 2475800 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 653167 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.25 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 810082 | | |

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .604 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 1169800 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.115 | 1.301 | 1090821 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 1169800 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .174 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 1169800 | | |
| UD MAINT & OTHER OPN COSTS | .934 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 1169800 | | |
| UZ (CONTROL TOTAL) | 3.829 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 1169800 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API 1/ | WT PCT SULFUR 1/ |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA,LOWER TIER 1/ | 161135 | 6.198 | | |
| NUMBER OF REFINERS | 6 | 6 | | |
| NUMBER OF REFINERIES | 8 | 8 | | |
| REFINERY CRUDE CAPACITY | 1039800 | 1039800 | | |
| VB UPPER TIER 1/ | 179366 | 12.878 | | |
| NUMBER OF REFINERS | 6 | 6 | | |
| NUMBER OF REFINERIES | 8 | 8 | | |
| REFINERY CRUDE CAPACITY | 1039800 | 1039800 | | |
| VC EXEMPT | 497746 | 15.033 | | |
| NUMBER OF REFINERS | 7 | 7 | | |
| NUMBER OF REFINERIES | 9 | 9 | | |
| REFINERY CRUDE CAPACITY | 1169800 | 1169800 | | |
| VY TOTAL/AVERAGE | 838247 | 12.874 | | |
| NUMBER OF REFINERS | 7 | 7 | | |
| NUMBER OF REFINERIES | 9 | 9 | | |
| REFINERY CRUDE CAPACITY | 1169800 | 1169800 | | |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD 1/ | |
| NUMBER OF REFINERS | |
| NUMBER OF REFINERIES | |
| REFINERY CRUDE CAPACITY | |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 174.986 | 1315 | 1538800 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 1169800 | | |

1/ Withheld to protect confidentiality

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 519.654 | 3929 | 4596700 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 1169800 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.81 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 1169800 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .524 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 1038000 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.876 | .987 | 929114 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 1038000 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .158 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 1038000 | | |
| UD MAINT & OTHER OPN COSTS | .887 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 1038000 | | |
| UZ (CONTROL TOTAL) | 3.446 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 1038000 | | |

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 246866 | 6.072 | ********** | ********** |
| NUMBER OF REFINERS | 4 | 4 | 2 | 2 |
| NUMBER OF REFINERIES | 4 | 4 | 2 | 2 |
| REFINERY CRUDE CAPACITY | 1038000 | 1038000 | ********** | ********** |
| VB UPPER TIER | 228075 | 12.812 | ********** | ********** |
| NUMBER OF REFINERS | 4 | 4 | 2 | 2 |
| NUMBER OF REFINERIES | 4 | 4 | 2 | 2 |
| REFINERY CRUDE CAPACITY | 1038000 | 1038000 | ********** | ********** |
| VC EXEMPT | 466258 | 14.834 | ********** | ********** |
| NUMBER OF REFINERS | 4 | 4 | 2 | 2 |
| NUMBER OF REFINERIES | 4 | 4 | 2 | 2 |
| REFINERY CRUDE CAPACITY | 1038000 | 1038000 | ********** | ********** |
| VY TOTAL/AVERAGE | 941199 | 12.046 | ********** | ********** |
| NUMBER OF REFINERS | 4 | 4 | 2 | 2 |
| NUMBER OF REFINERIES | 4 | 4 | 2 | 2 |
| REFINERY CRUDE CAPACITY | 1038000 | 1038000 | ********** | ********** |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | ********** |
| NUMBER OF REFINERS | 2 |
| NUMBER OF REFINERIES | 2 |
| REFINERY CRUDE CAPACITY | ********** |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 411.688 | 1430 | 1485000 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 1038000 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 02

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 1073.074 | 3616 | 3754000 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 1038000 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.53 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 1038000 | | |

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .252 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 12 | | |
| REFINERY CRUDE CAPACITY | 74050 | | |
| UB AV ENERGY COST | 1.880 | .454 | 23384 |
| NUMBER OF REFINERS | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 12 | 12 | 12 |
| REFINERY CRUDE CAPACITY | 74050 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .140 |
| NUMBER OF REFINERS | 11 |
| NUMBER OF REFINERIES | 12 |
| REFINERY CRUDE CAPACITY | 74350 |
| UD MAINT & OTHER OPN COSTS | .853 |
| NUMBER OF REFINERS | 12 |
| NUMBER OF REFINERIES | 14 |
| REFINERY CRUDE CAPACITY | 84550 |
| UZ (CONTROL TOTAL) | 2.961 |
| NUMBER OF REFINERS | 12 |
| NUMBER OF REFINERIES | 14 |
| REFINERY CRUDE CAPACITY | 84550 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 16124 | 6.034 | 30.523 | 1.372 |
| NUMBER OF REFINERS | 11 | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 13 | 13 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 74950 | 74950 | 74950 | 74950 |
| VB UPPER TIER | 26492 | 12.902 | 39.192 | .614 |
| NUMBER OF REFINERS | 11 | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 13 | 13 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 74950 | 74950 | 74950 | 74950 |
| VC EXEMPT | 12594 | 13.925 | 26.297 | 1.319 |
| NUMBER OF REFINERS | 12 | 12 | 11 | 11 |
| NUMBER OF REFINERIES | 14 | 14 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 80550 | 80550 | 79550 | 79550 |
| VY TOTAL/AVERAGE | 55210 | 11.129 | 33.722 | .996 |
| NUMBER OF REFINERS | 13 | 13 | 12 | 12 |
| NUMBER OF REFINERIES | 15 | 15 | 14 | 14 |
| REFINERY CRUDE CAPACITY | 85550 | 85550 | 84550 | 84550 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 18.812 |
| NUMBER OF REFINERS | 12 |
| NUMBER OF REFINERIES | 13 |
| REFINERY CRUDE CAPACITY | 76550 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 3.178 | 421 | 35608 |
| NUMBER OF REFINERS | 11 | 12 | 12 |
| NUMBER OF REFINERIES | 13 | 14 | 14 |
| REFINERY CRUDE CAPACITY | 84550 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 8.606 | 1338 | 113187 |
| NUMBER OF REFINERS | 11 | 12 | 12 |
| NUMBER OF REFINERIES | 13 | 14 | 14 |
| REFINERY CRUDE CAPACITY | 84550 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.28 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 13 | | |
| REFINERY CRUDE CAPACITY | 84550 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .493 | | |
| NUMBER OF REFINERS | 15 | | |
| NUMBER OF REFINERIES | 16 | | |
| REFINERY CRUDE CAPACITY | 347630 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.917 | .915 | 235139 |
| NUMBER OF REFINERS | 15 | 15 | 15 |
| NUMBER OF REFINERIES | 16 | 16 | 16 |
| REFINERY CRUDE CAPACITY | 347630 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .156 | | |
| NUMBER OF REFINERS | 14 | | |
| NUMBER OF REFINERIES | 15 | | |
| REFINERY CRUDE CAPACITY | 336630 | | |
| UD MAINT & OTHER OPN COSTS | .876 | | |
| NUMBER OF REFINERS | 15 | | |
| NUMBER OF REFINERIES | 16 | | |
| REFINERY CRUDE CAPACITY | 347630 | | |
| UZ (CONTROL TOTAL) | 3.438 | | |
| NUMBER OF REFINERS | 15 | | |
| NUMBER OF REFINERIES | 16 | | |
| REFINERY CRUDE CAPACITY | 347630 | | |

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 69064 | 5.840 | 39.660 | .811 |
| NUMBER OF REFINERS | 15 | 15 | 12 | 13 |
| NUMBER OF REFINERIES | 16 | 16 | 12 | 13 |
| REFINERY CRUDE CAPACITY | 347630 | 347630 | 272630 | 292630 |
| VB UPPER TIER | 66730 | 12.750 | 40.592 | .759 |
| NUMBER OF REFINERS | 15 | 15 | 12 | 13 |
| NUMBER OF REFINERIES | 16 | 16 | 12 | 13 |
| REFINERY CRUDE CAPACITY | 347630 | 347630 | 272630 | 292630 |
| VC EXEMPT | 121180 | 14.496 | 37.142 | .797 |
| NUMBER OF REFINERS | 15 | 15 | 12 | 13 |
| NUMBER OF REFINERIES | 16 | 16 | 12 | 13 |
| REFINERY CRUDE CAPACITY | 347630 | 347630 | 272630 | 292630 |
| VY TOTAL/AVERAGE | 256974 | 11.717 | 38.693 | .790 |
| NUMBER OF REFINERS | 15 | 15 | 12 | 13 |
| NUMBER OF REFINERIES | 16 | 16 | 12 | 13 |
| REFINERY CRUDE CAPACITY | 347630 | 347630 | 272630 | 292630 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 27.682 |
| NUMBER OF REFINERS | 14 |
| NUMBER OF REFINERIES | 15 |
| REFINERY CRUDE CAPACITY | 329630 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 18.719 | 822 | 285980 |
| NUMBER OF REFINERS | 15 | 15 | 15 |
| NUMBER OF REFINERIES | 16 | 16 | 16 |
| REFINERY CRUDE CAPACITY | 347630 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 56.314 | 2442 | 707300 |
| NUMBER OF REFINERS | 13 | 13 | 13 |
| NUMBER OF REFINERIES | 13 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 289630 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 4.19 | | |
| NUMBER OF REFINERS | 15 | | |
| NUMBER OF REFINERIES | 16 | | |
| REFINERY CRUDE CAPACITY | 347630 | | |

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .336 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 276400 | | |
| UB AV ENERGY COST | 2.040 | .615 | 108180 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 276400 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .149 |
| NUMBER OF REFINERS | 7 |
| NUMBER OF REFINERIES | 7 |
| REFINERY CRUDE CAPACITY | 276400 |
| UD MAINT & OTHER OPN COSTS | .743 |
| NUMBER OF REFINERS | 7 |
| NUMBER OF REFINERIES | 7 |
| REFINERY CRUDE CAPACITY | 276400 |
| UZ (CONTROL TOTAL) | 3.271 |
| NUMBER OF REFINERS | 7 |
| NUMBER OF REFINERIES | 7 |
| REFINERY CRUDE CAPACITY | 276400 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 48311 | 5.958 | 39.336 | .314 |
| NUMBER OF REFINERS | 6 | 6 | 5 | 5 |
| NUMBER OF REFINERIES | 6 | 6 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 235100 | 235100 | 203100 | 203100 |
| VB UPPER TIER | 81281 | 12.620 | 46.252 | .587 |
| NUMBER OF REFINERS | 7 | 7 | 6 | 6 |
| NUMBER OF REFINERIES | 7 | 7 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 276400 | 276400 | 244400 | 244400 |
| VC EXEMPT | 46230 | 14.739 | 39.273 | .251 |
| NUMBER OF REFINERS | 6 | 6 | 5 | 5 |
| NUMBER OF REFINERIES | 6 | 6 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 235100 | 235100 | 203100 | 203100 |
| VY TOTAL/AVERAGE | 175822 | 11.347 | 42.779 | .436 |
| NUMBER OF REFINERS | 7 | 7 | 6 | 6 |
| NUMBER OF REFINERIES | 7 | 7 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 276400 | 276400 | 244400 | 244400 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 29.912 |
| NUMBER OF REFINERS | 6 |
| NUMBER OF REFINERIES | 6 |
| REFINERY CRUDE CAPACITY | 244400 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 34.693 | 879 | 243073 |
| NUMBER OF REFINERS | 7 | 7 | 7 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 276400 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 30,001- 50,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 81.622 | 2000 | 480800 |
| NUMBER OF REFINERS | 6 | 6 | 6 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 240300 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 5.07 | | |
| NUMBER OF REFINERS | 7 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 276400 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .593 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 658500 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.627 | .889 | 547548 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 658500 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .145 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 658500 | | |
| UD MAINT & OTHER OPN COSTS | .880 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 658500 | | |
| UZ (CONTROL TOTAL) | 3.246 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 658500 | | |

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 181788 | 6.123 | 36.519 | .621 |
| NUMBER OF REFINERS | 9 | 9 | 8 | 8 |
| NUMBER OF REFINERIES | 9 | 9 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 658500 | 658500 | 582500 | 582500 |
| VB UPPER TIER | 181019 | 12.829 | 37.313 | .605 |
| NUMBER OF REFINERS | 9 | 9 | 8 | 8 |
| NUMBER OF REFINERIES | 9 | 9 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 658500 | 658500 | 582500 | 582500 |
| VC EXEMPT | 252723 | 14.890 | 37.829 | .548 |
| NUMBER OF REFINERS | 9 | 9 | 8 | 8 |
| NUMBER OF REFINERIES | 9 | 9 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 658500 | 658500 | 582500 | 582500 |
| VY TOTAL/AVERAGE | 615530 | 11.695 | 37.328 | .584 |
| NUMBER OF REFINERS | 9 | 9 | 8 | 8 |
| NUMBER OF REFINERIES | 9 | 9 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 658500 | 658500 | 582500 | 582500 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 31.045 |
| NUMBER OF REFINERS | 8 |
| NUMBER OF REFINERIES | 8 |
| REFINERY CRUDE CAPACITY | 589000 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 88.502 | 1210 | 796900 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 658500 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 50,001-100,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 252.716 | 3482 | 2292900 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 658500 | | |

| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
|---|---|---|---|
| ZZ AVERAGE COMPLEXITY FACTOR | 8.01 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 658500 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .502 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 484000 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.819 | .921 | 298797 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 484000 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .132 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 484000 | | |
| UD MAINT & OTHER OPN COSTS | .843 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 484000 | | |
| UZ (CONTROL TOTAL) | 3.298 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 484000 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME 1/ BPCD | $ PER 1/ BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | | | ********** | ********** |
| NUMBER OF REFINERS | | | 2 | 2 |
| NUMBER OF REFINERIES | | | 2 | 2 |
| REFINERY CRUDE CAPACITY | | | ********** | ********** |
| VB UPPER TIER | | | ********** | ********** |
| NUMBER OF REFINERS | | | 2 | 2 |
| NUMBER OF REFINERIES | | | 2 | 2 |
| REFINERY CRUDE CAPACITY | | | ********** | ********** |
| VC EXEMPT | 179909 | 15.057 | ********** | ********** |
| NUMBER OF REFINERS | 4 | 4 | 2 | 2 |
| NUMBER OF REFINERIES | 4 | 4 | 2 | 2 |
| REFINERY CRUDE CAPACITY | 484000 | 484000 | ********** | ********** |
| VY TOTAL/AVERAGE | 324300 | 12.733 | ********** | ********** |
| NUMBER OF REFINERS | 4 | 4 | 2 | 2 |
| NUMBER OF REFINERIES | 4 | 4 | 2 | 2 |
| REFINERY CRUDE CAPACITY | 484000 | 484000 | ********** | ********** |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD 1/ | |
| NUMBER OF REFINERS | |
| NUMBER OF REFINERIES | |
| REFINERY CRUDE CAPACITY | |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 146.103 | 1188 | 575000 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 484000 | | |

1/ Partially withheld to protect confidentiality

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 466.429 | 4034 | 1387700 |
| NUMBER OF REFINERS | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 344000 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.36 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 484000 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .556 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 14 | | |
| REFINERY CRUDE CAPACITY | 4697400 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.809 | 1.018 | 4200985 |
| NUMBER OF REFINERS | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 14 | 14 | 14 |
| REFINERY CRUDE CAPACITY | 4697400 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .176 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 14 | | |
| REFINERY CRUDE CAPACITY | 4697400 | | |
| UD MAINT & OTHER OPN COSTS | .991 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 14 | | |
| REFINERY CRUDE CAPACITY | 4697400 | | |
| UZ (CONTROL TOTAL) | 3.534 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 14 | | |
| REFINERY CRUDE CAPACITY | 4697400 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API 1/ | WT PCT SULFUR 1/ |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER 1/ | | | | |
| NUMBER OF REFINERS | | | | |
| NUMBER OF REFINERIES | | | | |
| REFINERY CRUDE CAPACITY | | | | |
| VB UPPER TIER 1/ | | | | |
| NUMBER OF REFINERS | | | | |
| NUMBER OF REFINERIES | | | | |
| REFINERY CRUDE CAPACITY | | | | |
| VC EXEMPT | 2346617 | 14.522 | | |
| NUMBER OF REFINERS | 11 | 11 | | |
| NUMBER OF REFINERIES | 14 | 14 | | |
| REFINERY CRUDE CAPACITY | 4697400 | 4697400 | | |
| VY TOTAL/AVERAGE | 4126203 | 12.187 | | |
| NUMBER OF REFINERS | 11 | 11 | | |
| NUMBER OF REFINERIES | 14 | 14 | | |
| REFINERY CRUDE CAPACITY | 4697400 | 4697400 | | |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD 1/ | |
| NUMBER OF REFINERS | |
| NUMBER OF REFINERIES | |
| REFINERY CRUDE CAPACITY | |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 536.796 | 1407 | 6609400 |
| NUMBER OF REFINERS | 11 | 11 | 11 |
| NUMBER OF REFINERIES | 14 | 14 | 14 |
| REFINERY CRUDE CAPACITY | 4697400 | | |

1/ Withheld to protect confidentiality

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 03

REFINERY SIZE GROUP: 175,001-999,999

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 977.240 | 3320 | 14092000 |
| NUMBER OF REFINERS | 10 | 10 | 10 |
| NUMBER OF REFINERIES | 13 | 13 | 13 |
| REFINERY CRUDE CAPACITY | 4244400 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 7.78 | | |
| NUMBER OF REFINERS | 11 | | |
| NUMBER OF REFINERIES | 14 | | |
| REFINERY CRUDE CAPACITY | 4697400 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .305 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 26200 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.424 | .451 | 8615 |
| NUMBER OF REFINERS | 4 | 4 | 4 |
| NUMBER OF REFINERIES | 4 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 26200 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .110 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 26200 | | |
| UD MAINT & OTHER OPN COSTS | .679 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 26200 | | |
| UZ (CONTROL TOTAL) | 2.521 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 4 | | |
| REFINERY CRUDE CAPACITY | 26200 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 6174 | 5.418 | 37.187 | .453 |
| NUMBER OF REFINERS | 5 | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 26800 | 26800 | 26800 | 26800 |
| VB UPPER TIER | 7239 | 12.922 | 42.129 | .290 |
| NUMBER OF REFINERS | 5 | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 26800 | 26800 | 26800 | 26800 |
| VC EXEMPT | 6284 | 14.942 | 38.909 | .639 |
| NUMBER OF REFINERS | 3 | 3 | 3 | 3 |
| NUMBER OF REFINERIES | 3 | 3 | 3 | 3 |
| REFINERY CRUDE CAPACITY | 22300 | 22300 | 22300 | 22300 |
| VY TOTAL/AVERAGE | 19697 | 11.214 | 39.553 | .452 |
| NUMBER OF REFINERS | 5 | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 26800 | 26800 | 26800 | 26800 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 18.810 |
| NUMBER OF REFINERS | 5 |
| NUMBER OF REFINERIES | 5 |
| REFINERY CRUDE CAPACITY | 26800 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 7.094 | 1048 | 28105 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 26800 | | |

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 24.505 | 3376 | 90500 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 26800 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 3.75 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 5 | | |
| REFINERY CRUDE CAPACITY | 26800 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .667 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 131100 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.075 | 1.309 | 121711 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 131100 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .195 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 131100 | | |
| UD MAINT & OTHER OPN COSTS | 1.212 | | |
| NUMBER OF REFINERS | 4 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 118600 | | |
| UZ (CONTROL TOTAL) | 4.039 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 131100 | | |

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER 1/ | | | | |
| NUMBER OF REFINERS | | | | |
| NUMBER OF REFINERIES | | | | |
| REFINERY CRUDE CAPACITY | | | | |
| VB UPPER TIER 1/ | | | | |
| NUMBER OF REFINERS | | | | |
| NUMBER OF REFINERIES | | | | |
| REFINERY CRUDE CAPACITY | | | | |
| VC EXEMPT | 7924 | 14.954 | 39.994 | .540 |
| NUMBER OF REFINERS | 4 | 4 | 3 | 3 |
| NUMBER OF REFINERIES | 5 | 5 | 4 | 4 |
| REFINERY CRUDE CAPACITY | 81600 | 81600 | 60600 | 60600 |
| VY TOTAL/AVERAGE | 92942 | 10.668 | 35.451 | 1.106 |
| NUMBER OF REFINERS | 5 | 5 | 4 | 4 |
| NUMBER OF REFINERIES | 7 | 7 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 131100 | 131100 | 110100 | 110100 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 35.833 |
| NUMBER OF REFINERS | 5 |
| NUMBER OF REFINERIES | 7 |
| REFINERY CRUDE CAPACITY | 131100 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 18.273 | 884 | 115912 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 131100 | | |

1/ Withheld to protect confidentiality

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 04

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 62.185 | 3064 | 401700 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 131100 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 4.53 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 131100 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .248 | | |
| NUMBER OF REFINERS | 6 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 44500 | | |
| UB AV ENERGY COST | 1.833 | .404 | 13437 |
| NUMBER OF REFINERS | 6 | 6 | 6 |
| NUMBER OF REFINERIES | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 44500 | | |

| | $ PER BBL CRUDE THPT |
|---|---|
| OPERATION COSTS - OTHER | |
| UC DEPRECIATION | .096 |
| NUMBER OF REFINERS | 5 |
| NUMBER OF REFINERIES | 5 |
| REFINERY CRUDE CAPACITY | 41000 |
| UD MAINT & OTHER OPN COSTS | .652 |
| NUMBER OF REFINERS | 6 |
| NUMBER OF REFINERIES | 6 |
| REFINERY CRUDE CAPACITY | 44500 |
| UZ (CONTROL TOTAL) | 2.823 |
| NUMBER OF REFINERS | 6 |
| NUMBER OF REFINERIES | 6 |
| REFINERY CRUDE CAPACITY | 44500 |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 14611 | 5.292 | 15.953 | 1.406 |
| NUMBER OF REFINERS | 6 | 6 | 6 | 6 |
| NUMBER OF REFINERIES | 6 | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 44500 | 44500 | 44500 | 44500 |
| VB UPPER TIER | 9352 | 10.588 | 17.511 | 1.405 |
| NUMBER OF REFINERS | 6 | 6 | 6 | 6 |
| NUMBER OF REFINERIES | 6 | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 44500 | 44500 | 44500 | 44500 |
| VC EXEMPT | 9289 | 11.613 | 20.851 | 1.377 |
| NUMBER OF REFINERS | 6 | 6 | 6 | 6 |
| NUMBER OF REFINERIES | 6 | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 44500 | 44500 | 44500 | 44500 |
| VY TOTAL/AVERAGE | 33252 | 8.547 | 17.759 | 1.398 |
| NUMBER OF REFINERS | 6 | 6 | 6 | 6 |
| NUMBER OF REFINERIES | 6 | 6 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 44500 | 44500 | 44500 | 44500 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | .001 |
| NUMBER OF REFINERS | 6 |
| NUMBER OF REFINERIES | 6 |
| REFINERY CRUDE CAPACITY | 44500 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 3.030 | 341 | 13982 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 41000 | | |

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: 0- 10,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 5.563 | 653 | 26787 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 5 | 5 | 5 |
| REFINERY CRUDE CAPACITY | 41000 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.11 | | |
| NUMBER OF REFINERS | 6 | | |
| NUMBER OF REFINERIES | 6 | | |
| REFINERY CRUDE CAPACITY | 44500 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .213 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 200500 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 1.956 | .427 | 72849 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 200500 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .129 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 200500 | | |
| UD MAINT & OTHER OPN COSTS | .668 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 200500 | | |
| UZ (CONTROL TOTAL) | 2.967 | | |
| NUMBER OF REFINERS | 8 | | |
| NUMBER OF REFINERIES | 9 | | |
| REFINERY CRUDE CAPACITY | 200500 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API | WT PCT SULFUR |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER | 57933 | 5.347 | 21.719 | 1.220 |
| NUMBER OF REFINERS | 8 | 8 | 7 | 7 |
| NUMBER OF REFINERIES | 9 | 9 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 191400 | 191400 | 143400 | 143400 |
| VB UPPER TIER | 44646 | 11.059 | 24.931 | 1.015 |
| NUMBER OF REFINERS | 9 | 9 | 8 | 8 |
| NUMBER OF REFINERIES | 10 | 10 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 216400 | 216400 | 168400 | 168400 |
| VC EXEMPT | 81727 | 13.664 | 28.812 | 1.224 |
| NUMBER OF REFINERS | 7 | 7 | 6 | 6 |
| NUMBER OF REFINERIES | 8 | 8 | 6 | 6 |
| REFINERY CRUDE CAPACITY | 179400 | 179400 | 131400 | 131400 |
| VY TOTAL/AVERAGE | 184306 | 10.419 | 25.264 | 1.166 |
| NUMBER OF REFINERS | 9 | 9 | 8 | 8 |
| NUMBER OF REFINERIES | 10 | 10 | 8 | 8 |
| REFINERY CRUDE CAPACITY | 216400 | 216400 | 168400 | 168400 |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 36.721 |
| NUMBER OF REFINERS | 9 |
| NUMBER OF REFINERIES | 10 |
| REFINERY CRUDE CAPACITY | 216400 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 20.808 | 863 | 186885 |
| NUMBER OF REFINERS | 9 | 9 | 9 |
| NUMBER OF REFINERIES | 10 | 10 | 10 |
| REFINERY CRUDE CAPACITY | 216400 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: 10,001- 30,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 45.771 | 1983 | 397700 |
| NUMBER OF REFINERS | 8 | 8 | 8 |
| NUMBER OF REFINERIES | 9 | 9 | 9 |
| REFINERY CRUDE CAPACITY | 200500 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 1.72 | | |
| NUMBER OF REFINERS | 9 | | |
| NUMBER OF REFINERIES | 10 | | |
| REFINERY CRUDE CAPACITY | 216400 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | | | |
|---|---|---|---|
| OPERATION COSTS - ENERGY | | | |
| UA MM BTU / BBL CRUDE THRUPT | .741 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 786500 | | |
| | $ PER MM BTU | $ PER BARREL | $ PER CLNDR DAY |
| UB AV ENERGY COST | 2.073 | 1.559 | 1025467 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 786500 | | |
| | $ PER BBL CRUDE THPT | | |
| OPERATION COSTS - OTHER | | | |
| UC DEPRECIATION | .321 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 786500 | | |
| UD MAINT & OTHER OPN COSTS | 1.336 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 786500 | | |
| UZ (CONTROL TOTAL) | 4.473 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 786500 | | |

NATIONAL PETROLEUM COUNCIL
PART II: OPERATIONAL COSTS

9/27/79

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | VOLUME BPCD | $ PER BARREL | API [1] | WT PCT SULFUR [1] |
|---|---|---|---|---|
| CRUDE OIL COSTS | | | | |
| VA LOWER TIER [1] | | | ********** | ********** |
| NUMBER OF REFINERS | | | 2 | 2 |
| NUMBER OF REFINERIES | | | 3 | 3 |
| REFINERY CRUDE CAPACITY | | | ********** | ********** |
| VB UPPER TIER [1] | | | ********** | ********** |
| NUMBER OF REFINERS | | | 2 | 2 |
| NUMBER OF REFINERIES | | | 3 | 3 |
| REFINERY CRUDE CAPACITY | | | ********** | ********** |
| VC EXEMPT | 453184 | 13.463 | | |
| NUMBER OF REFINERS | 5 | 5 | | |
| NUMBER OF REFINERIES | 7 | 7 | | |
| REFINERY CRUDE CAPACITY | 786500 | 786500 | | |
| VY TOTAL/AVERAGE | 657383 | 11.761 | | |
| NUMBER OF REFINERS | 5 | 5 | | |
| NUMBER OF REFINERIES | 7 | 7 | | |
| REFINERY CRUDE CAPACITY | 786500 | 786500 | | |

| | PCT |
|---|---|
| WA PCT CRUDE COMPANY PRODUCD | 52.043 |
| NUMBER OF REFINERS | 4 |
| NUMBER OF REFINERIES | 5 |
| REFINERY CRUDE CAPACITY | 574500 |

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| REFINERY ASSETS | | | |
| WB UNDEPRECIATED FIXD ASSETS | 193.474 | 1741 | 1370000 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 786500 | | |

[1] Withheld to protect confidentiality

MODIFIED PAD CODE(S): 05-08

REFINERY SIZE GROUP: 100,001-175,000

COMPLEXITY FACTOR RANGE: (ALL)

| | $MM PER REFINERY | $ PER BARREL | TOTAL $ (M) |
|---|---|---|---|
| WC 78 REPLACEMENT COST | 636.845 | 5705 | 4487000 |
| NUMBER OF REFINERS | 5 | 5 | 5 |
| NUMBER OF REFINERIES | 7 | 7 | 7 |
| REFINERY CRUDE CAPACITY | 786500 | | |
| | CAP BPCD JAN 1, 79 | CAP BPCD JAN 1, 80 | CAP BPCD JAN 1, 82 |
| ZZ AVERAGE COMPLEXITY FACTOR | 10.07 | | |
| NUMBER OF REFINERS | 5 | | |
| NUMBER OF REFINERIES | 7 | | |
| REFINERY CRUDE CAPACITY | 786500 | | |

# APPENDIX E

# REFINERY CAPABILITY SURVEY

NATIONAL PETROLEUM COUNCIL

1979 SURVEY OF PETROLEUM REFINING CAPABILITIES

GENERAL INSTRUCTIONS

As outlined in a letter to all Chief Executive Officers of petroleum companies, dated January 2, 1979, the National Petroleum Council is performing a study of refinery capability for the Secretary of Energy.

## Overview of the Survey

The Council requests that the attached questionnaires, in three parts, be completed for each refinery and returned to the Washington, D.C. office of Arthur Young & Company.

Part I surveys each refinery's current operations and those facilities that are firmly committed for installation prior to January 1, 1982. Response to this portion of the survey is needed by February 1, 1979 to enable completion of an interim report targeted for February.

Part II surveys selected operational costs in each refinery. Response to this portion of the survey is needed by March 1, 1979.

Part III surveys possible future facilities requirements. A Part III report is requested from each refinery, even if no hypothetical expansion is appropriate under the Part III scenarios.

## Multiple Refinery Companies

Companies with multiple refineries have the option of replying to Part III on a refinery-by-refinery basis or on a systems basis for (a) PADs I-IV, (b) PAD V and (c) offshore locations. For example, a refiner may determine that all new facilities associated with a 20% increase in high sulfur crude oil processing within PADs I-IV should be concentrated at one location. In such cases, please submit a memo to Arthur Young & Company explaining the shift of 20% expansion increments among refineries. Note that system modification analyses should be done separately for PADs I-IV, PAD V and offshore.

Companies with multiple refineries are requested to identify a Corporate-level coordinator for this survey by January 20, 1979, and send a memo to Arthur Young & Company containing this individual's name and telephone number.

## Jointly Owned Refineries

The operating company should complete the survey forms for jointly owned refineries.

Mailing Instructions

The completed questionnaires should be mailed under confidential cover to the attention of:

Mr. Thomas Willis
Arthur Young & Company
Suite 608
1025 Connecticut Avenue, N.W.
Washington, D.C. 20036

[Telephone: (202) 785-4747]

Data Tabulation and Confidentiality

Arthur Young & Company has been retained by the National Petroleum Council to tabulate refinery data and provide aggregated data to the NPC Refinery Capability Task Group and staff. Individual company and refinery data will be held strictly confidential to the extent permitted by law and will not be released to any government, industry or NPC staff representatives. The Secretary of the Refinery Capability Task Group, Mr. Ray Whitson, will be available on an as-requested basis to assist Arthur Young & Company in the event of any difficulties in questionnaire interpretation. The accounting firm will minimize Mr. Whitson's access to individual company data. Mr. Whitson has agreed not to divulge any confidential information he may receive while assisting Arthur Young & Company.

The accounting firm will release data for study or inclusion in the report only when sufficient data is available to permit aggregation in a manner which would not disclose an individual refiner's operations. Immediately after the aggregated data has been formally accepted by the Refinery Capability Task Group, the accounting firm will destroy all individual company and refinery reports.

Conclusion

It is very much hoped that you can return your completed questionnaires not later than February 1 for Part I and March 1 for Parts II and III. This will enable the Refinery Capability Task Group to report on a timely basis. If unavailability of data or policy considerations prevent your responding to all questions raised, please furnish as much data as possible by the specified date and any additional data which you are prepared to release as soon as possible thereafter.

If there are any questions in completing the questionnaires, contact Ray W. Whitson, National Petroleum Council, 1625 K Street, N.W., Washington, D.C. 20006, (202) 393-6100. In the event that confidential data must be discussed, contact Mr. Thomas Willis or Mr. Robert Merrill of Arthur Young & Company at (202) 785-4747.

Enclosure: Parts I, II and III of survey

SUPPLEMENTAL INSTRUCTION SHEET

NATIONAL PETROLEUM COUNCIL
1979 SURVEY OF PETROLEUM REFINING CAPABILITIES

January 10, 1979

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1. Part I: Current and Firmly Committed Facilities

(a) Page 4 of 13, Item 10. Catalytic Hydrocracking Unit

Draw a line under the phrase "Catalytic Hydrocracking Unit Capacity", and extend that line across the 1979, 1980 and 1982 columns of the form. Report capacity in BPCD on this newly drawn line.

Also report type of feed and conversion percentage for Hydrocracking Units.

(b) Page 4 of 13, Item 13. Sulfur Recovery

Report sulfur that is recovered from the refinery's feedstocks. Include any recovery that may be accomplished off premises (e.g., an adjacent chemical plant).

(c) Page 5 of 13, Line Item ED

Page 9 of 13, Line Item KC

In each of these two cases, the row title should read as follows:

High Sulfur Crude Oil
Light High

The word "Heavy" is a typographic error.

(d) Page 6 of 13, Line Item FS, Refinery Fuel Produced

Report all refinery fuel produced, including carbon monoxide burned.

(e) Page 8 of 13

(1) Change Question 4 to read as follows:

> Which environmental or other constraints, if any, are restricting your ability to process high sulfur crude oils? Check applicable items.

[Note that the phrase "or other" has been inserted and the parenthetical sentence has been deleted.]

(2) Write in "Metallurgy" on the J line, next to the word "(Type)".

(f) Page 9 of 13, Question 5

(1) Second Line

Insert the phrase "as outlined in Section C4" after the word "fuels".

(2) Third Line

Insert the phrase "on a sustained basis" after the word "process".

(g) Page 10 of 13, Question 6, Second Line

Insert the phrase "on a sustained basis" after the word "slate".

(h) Page 11 of 13, Unleaded Gasoline Data, Quality

Delete the heading "RON" and the "91" entries. When reporting unleaded gasoline, the minimum specification in all cases is RON 91. It is recognized that higher (R+M)/2 unleaded gasoline will have RON values greater than 91.

(i) Page 12 of 13

Page 13 of 13

Each of these pages contains two typographic errors. The columns dealing with the balance of heavy fuel oil production should have these headings:

1980 Balance of HFO
or
1982 Balance of HFO

2. Part II: Operational Costs

(a) Page 2 of 3, Line Item UB

In calculating unit fuel costs, use (1) actual cost for purchased energy, and (2) the local incremental purchase/sale price for self-produced energy.

(b) Page 3 of 3, Question 2

Change the question to read:

> What percent of crude oil processed in this refinery during 1978 was covered by own domestic crude and condensate production, whether supplied directly or indirectly (exchange, buy/sell), plus royalty owners share?

3. Part III: Future Facilities

(a) Page 4 of 4

The Low Sulfur Fuel Oil Manufacturing Capability data is Section D (not C).

NATIONAL PETROLEUM COUNCIL

1979 SURVEY OF REFINING CAPABILITIES

PART I: CURRENT AND FIRMLY COMMITTED FACILITIES

REFINERY IDENTIFICATION SHEET

COMPANY: _____

REFINERY NAME: _____

STATE, TERRITORY
OR NATION: _____

REFINERY POINT
OF CONTACT: _____
(NAME)

_____
(PHONE NUMBER)

NATIONAL PETROLEUM COUNCIL
1979 SURVEY OF REFINING CAPABILITIES

INDIVIDUAL REFINERY REPORT

PART I: CURRENT AND FIRMLY COMMITTED FACILITIES (INSTALLATION PRIOR TO JAN 1, 1982)

Survey Due Date: February 1, 1979

| Code Number (NPC entry) 1/ | 1 | | | | | |
|---|---|---|---|---|---|---|

**Section A:** General Refinery Information

1. Indicate PAD District location of this refinery. Enter 1, 2, 3, 4, or 5 for Continental U.S.; 6 for Alaska; 7 for Hawaii; 8 for other Pacific islands; 9 for Puerto Rico; 10 for any Free Trade Zone; 11 for other US territories in Caribbean; 12 for non-US Caribbean locations. [ ][ ]

2. If refinery is outside the 50 states, indicate which PAD Districts you are currently or anticipate supplying petroleum products. (Check all applicable boxes)

(See Item 1 above)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

3. Total crude charge capacity reported to Department of Energy as of January 1, 1979. [ ] B/CD

4. If there are questions, contact Ray W. Whitson, National Petroleum Council, 1625 K Street, N.W., Washington, D.C. 20006, (202) 393-6100.

1/This entry, and other NPC Code columns on subsequent pages, will be entered by the accounting firm for Data Tabulation purposes.

Section B: Process Facilities Capacities

List process unit capacities as of January 1, 1979, under way and planned for completion on or before January 1, 1980 and January 1, 1982 (if multiple units list only the combined capacity).

| | NPC Code | Capacity BPCD[1/] January 1, 1979 | | January 1, 1980 | | January 1, 1982 |
|---|---|---|---|---|---|---|
| 1. Crude Oil Charge | | | | | | |
| a. Atmospheric distillation units | AA | | | | | |
| b. Other units that normally charge crude oil | AB | | | | | |
| 2. Vacuum Distillation | AC | | | | | |
| 3. Catalytic Reforming Total Charge Capacity at Each of the Following Severities: 90 RONC [2/] | AD | | | | | |
| (Note: answers are not additive) 95 RONC | AE | | | | | |
| 98 RONC | AF | | | | | |
| 100 RONC | AG | | | | | |
| 4. BTX Recovery Capacity in Terms of Aromatic Product Produced | AH | | | | | |
| 5. Catalytic Cracking Fresh Feed | AJ | | | | | |
| Conversion, expressed as volume % of fresh feed changed to products of less than 430° F End Point | AK | | | | | |
| RONC of debutanized catalytic naphtha | AL | | | | | |
| (For NPC Use) | AZ | | | | | |

1/ Barrels Per Calendar Day
2/ Research Octane Number
Clear of Debutanized Reformate (RONC).

Section B: Process Facilities Capacities (Cont.)

| | NPC Code | January 1, 1979 | NPC Code | January 1, 1980 | NPC Code | January 1, 1982 |
|---|---|---|---|---|---|---|
| | | Capacity BPCD | | | | |
| (For NPC Use) | BZ | | | | | |
| 6. Alkylation | | | | | | |
| *Indicate Feed Type (e.g., Butylene, Propylene, Mix, etc)* | B | | | | | |
| Debutanized Product Volume | BK | | | | | |
| RONC of Debutanized Product | BL | | | | | |
| 7. $C_5$ and $C_6$ Isomerization | | | | | | |
| *Indicate Feed Type* | B | | | | | |
| Debutanized Product Volume | BT | | | | | |
| RONC of Debutanized Product | BW | | | | | |
| 8. Polymer Gasoline | | | | | | |
| Net Debutanized Volume | BX | | | | | |
| RONC of Debutanized Product | BY | | | | | |
| 9. Catalytic Hydrotreating | | | | | | |
| Reformer Naphtha | CA | | | | | |
| Other Naphtha | CB | | | | | |
| Catalytic Cracking Charge Stock | CC | | | | | |
| Other Heavy Gas Oil | CD | | | | | |
| Distillate | CE | | | | | |
| Residual Desulfurization | CF | | | | | |
| Total of the Above | CZ | | | | | |

Section B: Process Facilities Capacities (Cont.)

| | NPC Code | Capacity BPCD January 1, 1979 | NPC Code | January 1, 1980 | NPC Code | January 1, 1982 |
|---|---|---|---|---|---|---|
| 10. Catalytic Hydrocracking Unit Capacity *Type of Feed (e.g. distillate, heavy gas oil, residual oil, etc.)* | DA | | | | | |
| Conversion, expressed as volume % of fresh feed changed to products of less than 430°F End Point | DB | | | | | |
| 11. Thermal Processing | | | | | | |
| Gas Oil Cracking | DC | | | | | |
| Visbreaking | DD | | | | | |
| Fluid Coking | | | | | | |
| Feed Rate B/CD | DE | | | | | |
| Coke Make ST/CD | DF | | | | | |
| Delayed Coking | | | | | | |
| Feed Rate B/CD | DG | | | | | |
| Coke Make ST/CD | DH | | | | | |
| 12. Hydrogen (Generation of or upgrading to 90+% purity MSCF/CD 3/) | | | | | | |
| Steam Methane Reforming | DI | | | | | |
| Steam Naphtha Reforming | DJ | | | | | |
| Partial Oxidation | DK | | | | | |
| Cryogenic | DL | | | | | |
| Other (Source _____) | D | | | | | |
| 13. Sulfur Recovery (includes recovered non-elemental sulfur) LT/CD4/ | DY | | | | | |
| (For NPC Use) | DZ | | | | | |

3/ MSCF/CD = Thousand Standard Cubic Feet Per Calendar Day
4/ LT/CD = Long Tons Per Calendar Day

Section C: Crude Oil and Other Feedstock; Product Yield

1. List actual calendar 1978 and projected calendar 1980 and 1982 crude oil and other feed and blending stocks. Crude oils should be identified by the following types: (See attached chart, Attachment I, for classification of selected specific crude oils).

| | |
|---|---|
| Sweet: | Under 0.5 wt. % sulfur |
| Medium Sulfur: | Between 0.5 and 1.0 wt. % sulfur |
| Light Medium: | 15% or less @ 1050°F+ residuum assay |
| Heavy Medium: | Greater than 15% @ 1050°F+ residuum assay |
| High Sulfur: | In excess of 1.0 wt. % sulfur |
| Light High: | 15% or less @ 1050°F+ residuum assay |
| Heavy High: | Greater than 15% @ 1050°F+ residuum assay |

B/CD

| | NPC Code | Actual 1978 | | Projected 1980 | | Projected 1982 |
|---|---|---|---|---|---|---|
| Sweet Crude Oil | EA | | | | | |
| Medium Sulfur Crude Oil | | | | | | |
| Light Medium | EB | | | | | |
| Heavy Medium | EC | | | | | |
| Heavy Sulfur Crude Oil | | | | | | |
| Light High | ED | | | | | |
| Heavy High | EE | | | | | |
| Field Condensate | EF | | | | | |
| Field Natural Gasoline | EG | | | | | |
| Butanes | EH | | | | | |
| Other Feed Stocks | EJ | | | | | |
| Other Blending Stocks | EK | | | | | |
| Total Feed Stocks | EZ | | | | | |

Section C: Crude Oil and other Feedstock; Product Yield (Cont.)

2. List product yields for crude oil and other feedstock slates shown in Section C1 above.

B/CD

| | NPC Code | Actual 1978 | | Projected 1980 | | Projected 1982 |
|---|---|---|---|---|---|---|
| LPG | FA | | | | | |
| Motor Gasoline (All Grades) | FB | | | | | |
| Jet Fuel - Naphtha Base | FC | | | | | |
| - Kerosene Base | FD | | | | | |
| Kerosene & #1 Heating Oil | FE | | | | | |
| Diesel | FF | | | | | |
| Distillate #2 | FG | | | | | |
| Heavy Fuel Oils (#4, #5, #6 and others) | FH | | | | | |
| Asphalt | FJ | | | | | |
| Finished Lubricants | FK | | | | | |
| Wax (all grades), ST/CD | FY | | | | | |
| BTX | FM | | | | | |
| Other Specialties & Petrochemical Intermediates | FN | | | | | |
| Feed Stocks Sold to Other Refiners & Petrochemical Plants | FP | | | | | |
| Sulfur, LT/CD (include non-elementary sulfur equivalent) | FW | | | | | |
| Coke, ST/CD | FX | | | | | |
| Miscellaneous | FQ | | | | | |
| Blending stocks that go to other refiners | FR | | | | | |
| Refinery Fuel Produced (include refinery coke in the refinery fuel ) - FOE B/CD | FS | | | | | |
| Total (Ex-wax, sulfur, & coke) | FT | | | | | |
| For NPC Use | FZ | | | | | |

Section C: Crude Oil and Other Feedstock; Product Yield (Cont.)

3. Under presently known environmental restraints, how much crude oil over 0.5 wt. % sulfur content could be substituted for crude oil of 0.5 wt. % or less for processing in facilities reported in Section B above while yielding products marketable in the areas now served by this refinery? (Report maximum substitution of each grade of crude oil for 0.5 wt. % sulfur or less independent of the other three grades. In other words, the quantities for the four grades are not additive.)

| | 1980 | | | | |
|---|---|---|---|---|---|
| | NPC Code | BPCD Substitute for Sweet Crude | | BPCD Sweet Crude Dropped Out | Wt. Percent of S in Substitute Crude |
| Medium Sulfur Crude Oil | | | | | |
| Light Medium Sulfur | GA | | | | |
| Heavy Medium Sulfur | GB | | | | |
| High Sulfur Crude Oil | | | | | |
| Light High Sulfur | GC | | | | |
| Heavy High Sulfur | GD | | | | |
| (For NPC Use) | GZ | | | | |

| | 1982 | | | | |
|---|---|---|---|---|---|
| | NPC Code | BPCD Substitute for Sweet Crude | | BPCD Sweet Crude Dropped Out | Wt. Percent of S in Substitute Crude |
| Medium Sulfur Crude Oil | | | | | |
| Light Medium Sulfur | HA | | | | |
| Heavy Medium Sulfur | HB | | | | |
| High Sulfur Crude Oil | | | | | |
| Light High Sulfur | HC | | | | |
| Heavy High Sulfur | HD | | | | |
| (For NPC Use) | HZ | | | | |

Section C: Crude Oil and Other Feedstock; Product Yield (Cont.)

4. Which environmental constraints, if any, are restricting your ability to process high sulfur crude oils? Check applicable items. (Report 1979 as base figure.)

| | NPC Code | 1979 | | 1980 | | 1982 |
|---|---|---|---|---|---|---|
| Sulfur Content of Products | JA | | | | | |
| Sulfur Content of Refinery Fuels | JB | | | | | |
| Air Emissions | JC | | | | | |
| Effluent Water Quality | JD | | | | | |
| Others (Type) | J | | | | | |
| | | | | | | |
| | | | | | | |
| (For NPC Use Only) | JZ | | | | | |

Section C: Crude Oil and Other Feedstock; Product Yield (Cont.)

5. If, in the event of a national emergency, environmental restraints on product qualities and refinery fuels were suspended, how much crude oil of 0.5 wt.% or more sulfur content could this refinery process and yield products marketable in areas now served? (Report maximum substitution of each grade of crude oil for 0.5 wt. % sulfur or less, independent of the other three grades. In other words, the quantities for the four grades are not additive.)

| | 1980 | | | | |
|---|---|---|---|---|---|
| | NPC Code | BPCD Substitute for Sweet Crude | | BPCD Sweet Crude Dropped Out | Wt. Percent of S in Substitute Crude |
| Medium Sulfur Crude Oil | | | | | |
| Light Medium Sulfur | KA | | | | |
| Heavy Medium Sulfur | KB | | | | |
| Heavy Sulfur Crude Oil | | | | | |
| Light High Sulfur | KC | | | | |
| Heavy High Sulfur | KD | | | | |
| (For NPC Use Only) | KZ | | | | |

| | 1982 | | | | |
|---|---|---|---|---|---|
| | NPC Code | BPCD Substitute for Sweet Crude | | BPCD Sweet Crude Dropped Out | Wt. Percent of S in Substitute Crude |
| Medium Sulfur Crude Oil | | | | | |
| Light Medium Sulfur | LA | | | | |
| Heavy Medium Sulfur | LB | | | | |
| High Sulfur Crude Oil | | | | | |
| Light High Sulfur | LC | | | | |
| Heavy High Sulfur | LD | | | | |
| (For NPC Use Only) | LZ | | | | |

Section C: Crude Oil and Other Feedstock; Product Yield (Cont.)

6. What change in sulfur emission regulation affecting this refinery or its product sulfur specification would be necessary for this refinery to replace 20% or more of the total sweet or medium sulfur crude oil slate with high sulfur crude oil (over 1.0 wt. % sulfur content) of types available to your refinery location?

7. What physical restrictions, if any, other than environmental would limit the crude oil slate change described in Section C.6 above?

Section D: Gasoline Manufacturing Capabilities

For the years 1978, 1980 and 1982, indicate your capability to make unleaded gasoline, taking into account normal seasonal factors, under each alternate set of specifications shown below and report qualities and quantities of the remaining gasoline pool. In reporting capability to make unleaded gasoline, the leaded gasoline pool should be blended to meet normal product specifications and applicable regulations on lead and other additives.

| | Unleaded Gasoline[1/] | | | | | Leaded Gasoline Pool | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Quality | | | | Quantity[2/] | Quantity[2/] | Quality | | Lead Content |
| | RON | R+M / 2 | NPC Code | | B/CD | B/CD | RON | | gm./gal. |
| 1978 | 91 | 87 | MA | | | | | | |
| | | 89 | MB | | | | | | |
| | | 90 | MC | | | | | | |
| 1980 | 91 | 87 | MD | | | | | | |
| | | 89 | ME | | | | | | |
| | | 90 | MF | | | | | | |
| 1982 | 91 | 87 | MG | | | | | | |
| | | 89 | MH | | | | | | |
| | | 90 | MJ | | | | | | |
| | (For NPC Use) | | MZ | | | | | | |

1/ R = Research Octane Number
M = Motor Octane Number
R+M / 2 = Road Octane Number
RON = Research Octane Number
2/ = These quantities are not additive.

Section E: Low Sulfur Heavy Fuel Oil Manufacturing Capabilities

1. Based upon your anticipated operation meeting normal demands for other products and under normal economic conditions, report your capability to produce low sulfur fuel oils of the alternate grades specified below. Also indicate the quality and quantity of the balance of your heavy fuel oil production. (Report the maximum quantity that can be produced for each grade, independent of the other grades and the quantity and wt. % sulfur content for the balance of heavy fuel oil. Each grade specifies a separate situation and vertical columns are not additive).

| | | | 1980 Balance of HSO | | | |
|---|---|---|---|---|---|---|
| Low Sulfur Heavy Oil (HFO) Grades | NPC Code | 1980 B/CD | NPC Code | B/CD | NPC Code | Wt. % S |
| 0.1 wt. % S max. | PA | | | | | |
| 0.3 wt. % S max. | PB | | | | | |
| 0.5 wt. % S max. | PC | | | | | |
| 0.7 wt. % S max. | PD | | | | | |
| 1.0 wt. % S max. | PE | | | | | |
| 2.0 wt. % S max. | PF | | | | | |
| (For NPC Use) | PZ | | | | | |

| | | | 1982 Balance of HSO | | | |
|---|---|---|---|---|---|---|
| Low Sulfur Heavy Oil (HFO) Grades | NPC Code | 1982 B/CD | NPC Code | B/CD | NPC Code | Wt. % S |
| 0.1 wt. % S max. | RA | | | | | |
| 0.3 wt. % S max. | RB | | | | | |
| 0.5 wt. % S max. | RC | | | | | |
| 0.7 wt. % S max. | RD | | | | | |
| 1.0 wt. % S max. | RE | | | | | |
| 2.0 wt. % S max. | RF | | | | | |
| (For NPC Use) | PZ | | | | | |

Section E: Low Sulfur Heavy Fuel Oil Manufacturing Capabilities (Continued)

2. If, in the event of a national emergency, it becomes necessary to maximize heavy fuel oil production at the expense of light products, what do you estimate your capability to be to maximize low sulfur heavy fuel oils, assuming reduction in distillate and jet fuel volumes not to exceed 10%? Assume constraints on refinery runs and quality of available crude oil supply to be the same as projected in Section C above for 1980 and 1982. (Report maximum quantity that can be produced for each grade. Each grade specifies a separate situation and vertical columns are not additive.)

| Low Sulfur Heavy Oil (HFO) Grades | 1980 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | NPC CODE | 1980 B/CD | NPC CODE | BALANCE OF HSO B/CD | BALANCE OF HSO CODE | BALANCE OF HSO WT. % S | NPC CODE | Estimate Volume of Reduction in Gasoline (B/CD) |
| 0.1 wt. % S max. | SA | | | | | | | |
| 0.3 wt. % S max. | SB | | | | | | | |
| 0.5 wt. % S max. | SC | | | | | | | |
| 0.7 wt. % S max. | SD | | | | | | | |
| 1.0 wt. % S max. | SE | | | | | | | |
| 2.0 wt. % S max. | SF | | | | | | | |
| (For NPC Use) | SZ | | | | | | | |

| Low Sulfur Heavy Oil (HFO) Grades | 1982 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | NPC CODE | 1982 B/CD | NPC CODE | BALANCE OF HSO B/CD | BALANCE OF HSO CODE | BALANCE OF HSO WT. % S | NPC CODE | Estimate Volume of Reduction in Gasoline (B/CD) |
| 0.1 wt. % S max. | TA | | | | | | | |
| 0.3 wt. % S max. | TB | | | | | | | |
| 0.5 wt. % S max. | TC | | | | | | | |
| 0.7 wt. % S max. | TD | | | | | | | |
| 1.0 wt. % S max. | TE | | | | | | | |
| 2.0 wt. % S max. | TF | | | | | | | |
| (For NPC Use) | TZ | | | | | | | |

ATTACHMENT I

TYPICAL QUALITIES OF HIGH SULFUR CRUDE OILS

| High Sulfur - Light | | | | High Sulfur - Heavy | | | |
|---|---|---|---|---|---|---|---|
| Crude Stream | Gravity °API | Sulfur Wt.% | 1,050+°F Bottoms Yield Vol.% | Crude Stream | Gravity °API | Sulfur Wt. % | 1,050+°F Bottoms Yield Vol. % |
| Domestic | | | | Domestic | | | |
| East Mississippi | 32-36 | 1.0-1.4 | 8-11 | Hawkins/Talco, Tex. | 20-29 | 2.0-3.5 | 25-35 |
| Carpentria Mix, Cal. | 28-29 | 1.1-1.4 | 15-20 | HEY Heavy, Miss. | 20-25 | 3.0-4.0 | 27-31 |
| Montana Sour | 31-34 | 1.0-1.3 | 8-14 | San Joaquin Valley, Ca. | 13-25 | 1.0-1.5 | 15-30 |
| West Texas Sour | 25-36 | 1.0-2.0 | 10-15 | Wilmington, Ca. | 15-21 | 1.4-2.2 | 21-32 |
| | | | | Wyoming Sour | 20-28 | 2.0-3.5 | 15-27 |
| Foreign | | | | Foreign | | | |
| Arabian - Light | 32-36 | 1.5-1.8 | 11-14 | Arabian - Heavy | 27-29 | 2.5-3.0 | 25-28 |
| Iranian - Light | 32-35 | 1.3-1.6 | 11-14 | Iranian - Heavy | 30-32 | 1.4-1.7 | 17-20 |
| Qatar | 40-43 | 1.0-1.3 | 5-8 | Tia Juana, Venez. | 25-27 | 1.4-1.6 | 23-25 |
| Kirkuk, Iraq | 35-37 | 1.8-2.0 | 11-14 | Bachaquero, Venez. | 16-21 | 2.0-2.5 | 30-40 |
| | | | | Lagunillas, Venez. | 11-18 | 2.0-3.0 | 35-45 |
| Typical Crude | 25-40 | 1.0-2.0 | 8-15 | | 13-29 | 1.0-4.0 | 16-40 |

NOTE: Alaskan North Slope Crude Oil is classified as Medium Sulfur - Heavy

NATIONAL PETROLEUM COUNCIL

1979 SURVEY OF REFINING CAPABILITIES

PART II: OPERATIONAL COSTS

REFINERY IDENTIFICATION SHEET

COMPANY: _____

REFINERY NAME: _____

STATE, TERRITORY
OR NATION: _____

REFINERY POINT
OF CONTACT: _____
(NAME)

_____
(PHONE NUMBER)

NATIONAL PETROLEUM COUNCIL
1979 SURVEY OF REFINING CAPABILITIES

INDIVIDUAL REFINERY REPORT

PART II: OPERATIONAL COSTS

Survey Due Date: March 1, 1979

| Code Number (NPC entry) 1/ | 3 | | | | | |
|---|---|---|---|---|---|---|

Section A: General Refinery Information

1. Indicate PAD District location of this refinery. Enter 1, 2, 3, 4, or 5 for Continental U.S.; 6 for Alaska; 7 for Hawaii; 8 for other Pacific Islands; 9 for Puerto Rico; 10 for any Free Trade Zone; 11 for other US territories in Caribbean; non-US Caribbean locations.

2. If refinery is outside the 50 states, indicate which PAD Districts you are currently or anticipate supplying petroleum products. (Check all applicable boxes.)

(See Item 1 above)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

3. Total crude charge capacity reported to Department of Energy as of January 1, 1979. _____ B/CD

4. If there are questions, contact Ray W. Whitson, National Petroleum Council, 1625 K Street, N.W., Washington, D.C. 20006, (202) 393-6100.

1/ This entry, and other NPC Code columns on subsequent pages, Will be entered by the accounting firm for Data Tabulation purposes.

Section B: Operation Costs[1/]

For calendar year 1978, what were the operating expenses for the refinery for the categories listed below?

1. Fuel and Purchased Utilities. Report total energy consumption including fluid coker and catalytic cracking unit, CO and coke burned, and electric power procured or generated, and steam purchased.[2/]

| | (NPC CODE) | | |
|---|---|---|---|
| | UA | _____ | MM BTU consumed/bbl. Crude Oil Thruput. |
| | UB | _____ | $/MM BTU weighted average energy unit costs. |
| 2. Depreciation: | UC | _____ | $/bbl. Crude Oil Thruput. |
| 3. Maintenance and Other Operating Costs not reported above: | UD | _____ | $/bbl. Crude Oil Thruput. |
| (For NPC Use) | UZ | _____ | |

Section C: Crude Oil Costs

1. For calendar year 1978, what was the delivered cost of crude oil processed at this refinery (exclusive of entitlement effects).[3/]

| | NPC CODE | VOLUME B/CD | NPC CODE | $/BARREL | NPC CODE | API | NPC CODE | WT % SULFUR |
|---|---|---|---|---|---|---|---|---|
| Lower Tier | VA | | | | | | | |
| Upper Tier | VB | | | | | | | |
| Exempt | VC | | | | | | | |
| (For NPC Use) | VZ | | | | | | | |

1/ Costs and assets are for operations, facilities within the refinery fence.
2/ Use 10,000 BTU's/kilowatt hour to convert fuel to electricity.
3/ Source of volume and price data should be DOE form ERA-49.

Section C: Crude Oil Costs (Cont.)

2. What percent of crude processed in this refinery during 1978 was covered by own domestic crude and condensate production plus royalty owners share?

(WA) _____%

Section D: Refinery Assets[1/]

Gross (undepreciated) fixed assets in this refinery: (WB) _____MM$.

Approximate in kind replacement cost (1978 year end): (WC) _____MM$.

(For NPC Use) (WZ) _____

1/ Within the refinery fence.

NATIONAL PETROLEUM COUNCIL

1979 SURVEY OF REFINING CAPABILITIES

PART III: FUTURE FACILITIES 1/

REFINERY IDENTIFICATION SHEET

COMPANY: _____

REFINERY NAME: _____

STATE, TERRITORY
OR NATION: _____

REFINERY POINT
OF CONTACT: _____
(NAME)

_____
(PHONE NUMBER)



1/ This report is requested for each refinery participating in the survey. Submit a report for each refinery, even if no hypothetical expansion is appropriate under the Part III scenarios.

Companies with multiple refineries have the option of replying to Part III on a refinery-by-refinery basis or on a systems basis for (a) PADs I-IV, (b) PAD V and (c) offshore locations. For example, a refiner may determine that all new facilities associated with a 20% increase in high sulfur crude oil processing within PADs I-IV should be concentrated at one location. In such cases, please submit a memo to Arthur Young & Company explaining the shift of 20% expansion increments among refineries.

NATIONAL PETROLEUM COUNCIL
1979 SURVEY OF REFINING CAPABILITIES

INDIVIDUAL REFINERY REPORT

PART III: FUTURE FACILITIES

Survey Due Date: March 1, 1979

| Code Number (NPC entry) 1/ | 5 | | | | | |
|---|---|---|---|---|---|---|

Section A: General Refinery Information

1. Indicate PAD location of this refinery. Enter 1, 2, 3, 4 or 5 for Continental U.S.; 6 for Alaska; 7 for Hawaii; 8 for other Pacific Islands; 9 for Puerto Rico; 10 for any Free Trade Zone; 11 for other U.S. territories in Caribbean; 12 for non-US Caribbean locations. [ ][ ]

2. If refinery is outside the 50 states, indicate which PAD Districts you are currently or anticipate supplying petroleum products. (Check all applicable boxes.)

(See Item 1 above)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

3. Total Crude charge capacity reported to Department of Energy as of January 1, 1979. [ ] B/CD

4. If there are questions, contact Ray W. Whitson, National Petroleum Council, 1625 K Street, N.W., Washington, D.C. 20006 (202) 393-6100.

1/ This entry, and other NPC Code columns on subsequent pages, will be entered by the accounting firm for Data Tabulation purposes.

Section B: High Sulfur Crude Oil Processing Capability

What added refinery facilities would be required to increase the capability to process high sulfur crude oils under existing environmental regulations by at least 20% of total crude capacity? Estimate incremental unit capacities required where appropriate. Except as to replacement of high sulfur crude oils, base response upon 1982 crude oil mix and facilities projected in Sections B and C of Part I. Analyze separately for cases using light high sulfur and heavy high sulfur crude oils.

| | | INCREMENTAL UNIT CAPACITY | | |
|---|---|---|---|---|
| | NPC CODE | LIGHT HIGH SULFUR CRUDE | | HEAVY HIGH SULFUR CRUDE |
| Desulfurization Facilities | | | | |
| Naphtha | IA | B/CD | | |
| Distillate | IB | B/CD | | |
| Heavy Fuel Oil | IC | B/CD | | |
| Sulfur Plant & Tail Gas Cleanup | ID | LT/CD | | |
| Vacuum Distillation | IE | B/CD | | |
| Tankage | IF | MB | | |
| Residual Conversion | IG | B/CD | | |
| Reforming | IH | B/CD | | |
| Isomerization | IJ | B/CD | | |
| Hydrogen Manufacture | IK | MMCF/D | | |
| Catalytic Cracking | IL | B/CD | | |
| Other (Type) _____ | I | | | |
| | | | | |
| | | | | |
| (For NPC Use) | IZ | | | |

Can you process high sulfur crude oil with your existing distillation unit metallurgy_____(yes or no)?

With respect to above projected facilities requirement, do you believe you could obtain necessary permits for construction of and operation of such facilities? Yes_____ No_____

If Yes, how long do you estimate it would take to bring above facilities on stream, including time for authorization, permitting, design, engineering, procurement, and construction? _____Years _____Months

From your assessment of future economic conditions and your company strategies, what do you assess as the likelihood that you would install any significant part of the facilities described above?
Low ____ Medium ____ High ____ Impossible ___

Section C: Unleaded Gasoline Manufacturing Capability

What additional facilities would you need to add over and above those now anticipated to be completed by January 1, 1982, to increase your capability to make 90% unleaded gasoline and 10% leaded for approximately the same total gasoline volume as projected for 1982 in Section D of Part I? Assume that the crude oil mix is shown in Part I, C,1 and that the lead content of leaded gasoline meets applicable Government regulations and normal refinery specifications.

| | NPC CODE | Added Capacity to Meet 91 RON, 87 (R+M)/2 on Unleaded Gasoline | | Added Capacity to Meet 89 (R+M)/2 on Unleaded Gasoline |
|---|---|---|---|---|
| Crude Atmospheric Distillation | QA | B/CD | | |
| Vacuum Distillation | QB | B/CD | | |
| Reforming | QC | B/CD | | |
| Isomerization | QD | B/CD | | |
| Alkylation | QE | B/CD | | |
| Catalytic Cracking | QF | B/CD | | |
| Hydrotreating | QG | B/CD | | |
| Hydrocracking | QH | B/CD | | |
| Hydrogen Generation | QJ | MMCF/D | | |
| Others (Type)____ | Q | | | |
| | | | | |
| | | | | |
| For NPC Use) | QZ | | | |

With respect to above projected facilities requirement, do you believe you could obtain necessary permits for construction of and operation of such facilities? Yes ___ No ___

If yes, how long do you estimate it would take to bring above facilities on stream, including time for authorization, permitting, design, engineering, procurement, and construction? ____ Years ____ Months

From your assessment of future economic conditions and your company strategies, what do you assess as the likelihood that you would install any significant part of the facilities described above?

Low ____ Medium ____ High ____ Impossible ____ .

Section C: Low Sulfur Fuel Oil Manufacturing Capability

Based on projected 1982 crude oil mix and product volumes plus incremental crude of a type you expect to be available, estimate the added refining facilities which would be required to increase your production of Heavy Fuel Oils by 25% with minimum changes in other principal product volumes. The incremental residual fuel should be 0.7 wt. % S or less.

| | | | |
|---|---|---|---|
| Crude Oil Distillation | ZA | | B/CD |
| Vacuum Distillation | ZB | | B/CD |
| Reforming | ZC | | B/CD |
| Hydrotreating | | | |
| Naphtha | ZD | | B/CD |
| Distillate (Heavy Gas Oil) | ZE | | B/CD |
| Hydrorefining | ZF | | B/CD |
| Hydrogen Generation | ZG | | MMCF/D |
| Sulfur Recovery & Tail Gas Cleaning | ZH | | LT/D |
| Tankage | ZJ | | MB |
| (For NPC Use) | ZZ | | |

Indicate type of incremental crude oil assumed: _____ (See Part I, C1)

With respect to above projected facilities requirement, do you believe you could obtain necessary permits for Construction of and operation of such facilities? Yes_____ No_____

If Yes, how long do you estimate it would take to bring above facilities on stream, including time for authorization, permitting, design, engineering, procurement, and construction? _____Years _____Months

From your assessment of future economic conditions and your company strategies, what do you assess as the likelihood that you would install any significant part of the facilities described above?
Low_____ Medium_____ High_____

# APPENDIX F

# HISTORICAL SUPPLY/DEMAND DATA

# TABLE NO. 1

## TOTAL U.S. ENERGY CONSUMPTION BY FUELS AND BY CONSUMING SECTORS

(TRILLION BTU'S)

| | | PRIMARY ENERGY INPUTS TO SECTOR | | | | | | | Total Primary Energy | Electricity Distributed To Sector | Energy Consumption[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Petroleum Liquids[1] | Nat. Gas (Dry)[1] | Coal[1] | Nuclear | Hydro-Electric | Geo-Thermal | Other Specify | | | |
| RESIDENTIAL/COMMERCIAL: | 1972 | 5,531 | 7,943 | 308 | | | | | 13,782 | 3,478 | 17,260 |
| | 1973 | 5,433 | 7,633 | 296 | | | | | 13,362 | 3,723 | 17,085 |
| | 1974 | 4,934 | 7,518 | 297 | | | | | 12,749 | 3,726 | 16,475 |
| | 1975 | 4,739 | 7,589 | 246 | | | | | 12,574 | 3,970 | 16,544 |
| | 1976 | 5,255 | 7,873 | 237 | | | | | 13,365 | 4,154 | 17,519 |
| | 1977 | 5,142 | 7,476 | 243 | | | | | 12,861 | 4,381 | 17,242 |
| TRANSPORTATION: | 1972 | 17,107 | 787 | 4 | | | | | 17,898 | 17 | 17,915 |
| | 1973 | 18,029 | 744 | 3 | | | | | 18,776 | 15 | 18,791 |
| | 1974 | 17,577 | 685 | 2 | | | | | 18,264 | 16 | 18,280 |
| | 1975 | 17,796 | 595 | 1 | | | | | 18,392 | 16 | 18,408 |
| | 1976 | 18,690 | 559 | Negl. | | | | | 19,249 | 16 | 19,265 |
| | 1977 | 19,362 | 544 | Negl. | | | | | 19,906 | 16 | 19,922 |
| INDUSTRIAL: | 1972 | 3,533 | 9,211 | 4,152 | | 35 | | | 16,931 | 2,493 | 19,424 |
| | 1973 | 3,826 | 9,740 | 4,259 | | 38 | | | 17,863 | 2,644 | 20,507 |
| | 1974 | 3,692 | 9,291 | 3,962 | | 33 | | 59* | 17,037 | 2,670 | 19,707 |
| | 1975 | 3,548 | 7,861 | 3,712 | | 35 | | 14* | 15,170 | 2,580 | 17,750 |
| | 1976 | 4,094 | 8,071 | 3,691 | | 33 | | | 15,889 | 2,819 | 18,708 |
| | 1977 | 4,524 | 7,927 | 3,529 | | 36 | | | 16,016 | 2,921 | 18,937 |
| ELECTRIC UTILITY: | 1972 | 3,134 | 4,086 | 7,836 | 576 | 2,911 | | | 18,543 | (5,988) | 12,555 |
| | 1973 | 3,656 | 3,581 | 8,618 | 888 | 2,971 | | | 19,814 | (6,382) | 13,432 |
| | 1974 | 3,480 | 3,512 | 8,520 | 1,211 | 3,276 | | | 19,999 | (6,412) | 13,587 |
| | 1975 | 3,239 | 3,213 | 8,760 | 1,833 | 3,194 | | | 20,239 | (6,566) | 13,673 |
| | 1976 | 3,451 | 3,140 | 9,726 | 2,037 | 3,042 | 84 | | 21,480 | (6,989) | 14,491 |
| | 1977 | 4,025 | 3,256 | 10,263 | 2,674 | 2,475 | 103 | | 22,796 | (7,318) | 15,478 |
| NON-ENERGY & OTHERS: | 1972 | 3,661 | 671 | 123 | | | | | 4,455 | | 4,455 |
| | 1973 | 3,908 | 714 | 118 | | | | | 4,740 | | 4,470 |
| | 1974 | 3,784 | 727 | 108 | | | | | 4,619 | | 4,619 |
| | 1975 | 3,398 | 690 | 95 | | | | | 4,183 | | 4,183 |
| | 1976 | 3,633 | 702 | 96 | | | | | 4,431 | | 4,431 |
| | | 3,917 | 728 | 98 | | | | | 4,743 | | 4,743 |
| SYNTHETIC CONVERSION LOSSES: | 1972 | | | | | | | | 0 | | 0 |
| | 1973 | | | | | | | | | | |
| | 1974 | | | | | | | | | | |
| | 1975 | | | | | | | | | | |
| | 1976 | | | | | | | | | | |
| | 1977 | | | | | | | | | | |
| TOTAL: | 1972 | 32,966 | 22,698 | 12,423 | 576 | 2,946 | | | 71,609 | 0 | 71,609 |
| | 1973 | 34,852 | 22,512 | 13,294 | 888 | 3,009 | | | 74,555 | | 74,555 |
| | 1974 | 33,467 | 21,733 | 12,889 | 1,211 | 3,309 | | 59* | 72,668 | | 72,668 |
| | 1975 | 32,720 | 19,948 | 12,814 | 1,833 | 3,229 | | 14* | 70,558 | | 70,558 |
| | 1976 | 35,123 | 20,345 | 13,750 | 2,037 | 3,075 | 84 | | 74,414 | | 74,414 |
| | 1977 | 36,970 | 19,931 | 14,133 | 2,674 | 2,511 | 103 | | 76,322 | | 76,322 |

*Net Imports of coke

Note: [1]In consuming sectors, include only fuels used in the forms of liquids, gases, or coal. If any synthetic fuel production indicated, conversion losses of the process should be included under "Synthetic Conversion Losses."

[2]Total consumption equals primary energy inputs plus electricity for all sectors, except "Electric Utility" and "Synthetic Conversion Losses." For electric utility sector total consumption equals generation, transmission and distribution losses. For synthetic conversion losses, total consumption equals net primary fuel losses in synthetic oil and gas manufacture.

Source: 1972-1975 data are from the 1973-75 Mineral Yearbooks with gross consumption table adjusted for non-energy volumes as shown in the following Table 1, Attachment A. The most recently reported data for each year are used (i.e., where 1972 data are reported in 1975 Yearbook they are used). Geothermal electricity is not.

1976-1977 data are from the December 1978 issue of Dept. of Energy's Monthly Energy Review. The Residential, Transportation, and Industrial Sectors data have been adjusted to show non-energy consumption consistent with years 1972-1975. Electric energy loss distributed to these sectors in the review are accumulated in the Electric Utility sector. Petroleum, Natural Gas, and Coal used by Electric Utilities were backed into.

# TABLE NO. 1 - ATTACHMENT A

## CALCULATION OF 1972 NON-ENERGY CONSUMPTION

(TRILLION BTU'S)

| | PETROLEUM | NATURAL GAS | COAL | TOTAL |
|---|---|---|---|---|
| Industrial | | | | |
| Non-Energy | 2,134.9 | 671.6 | 122.3 | 2,928.8 |
| Energy | 3,533.1 | 9,210.9 | 4,152.3 | 16,986.3 |
| Transportation | | | | |
| Non-Energy | 156.5 | | | 156.5 |
| Energy | 17,107.4 | | | 17,107.4 |
| Residential | | | | |
| Non-Energy | 1,136.7 | | | 1,136.7 |
| Energy | 5,530.7 | | | 5,530.7 |
| Total All Sectors | | | | |
| Non-Energy | 3,428.1 | 671.6 | 122.3 | 4,220.0 |
| Miscellaneous | 232.6 | | | 232.6 |
| Total Non-Energy Consumption | 3,660.7 | 671.6 | 122.3 | 4,454.6 |

Source: Minerals Yearbooks - Domestic Supply and Demand for Coal
- Domestic Supply and Demand for Natural Gas
- Petroleum Consumption, by Major Product and Major Consuming Sector

# TABLE NO. 1 - ATTACHMENT A

## CALCULATION OF 1973 NON-ENERGY CONSUMPTION

(TRILLION BTU's)

| | PETROLEUM | NATURAL GAS | COAL | TOTAL |
|---|---|---|---|---|
| Industrial | | | | |
| Non-Energy | 2,250.2 | 714.4 | 118.3 | 3,082.9 |
| Energy | 3,826.0 | 9,740.1 | 4,259.4 | 17,825.5 |
| Transportation | | | | |
| Non-Energy | 163.1 | | | 163.1 |
| Energy | 18,029.1 | | | 18,029.1 |
| Residential | | | | |
| Non-Energy | 1,263.5 | | | 1,263.5 |
| Energy | 5,433.4 | | | 5,433.4 |
| Total All Sectors | | | | |
| Non-Energy | 3,676.8 | 714.4 | 118.3 | 4,509.5 |
| Miscellaneous | 231.0 | | | 231.0 |
| Total Non-Energy Consumption | 3,907.8 | 714.4 | 118.3 | 4,740.5 |

Source: Minerals Yearbooks - Domestic Supply and Demand for Coal
- Domestic Supply and Demand for Natural Gas
- Petroleum Consumption, by Major Product and Major Consuming Sector

# TABLE NO. 1 - ATTACHMENT A

## CALCULATION OF 1974 NON-ENERGY CONSUMPTION

(TRILLION BTU's)

| | PETROLEUM | NATURAL GAS | COAL | TOTAL |
|---|---|---|---|---|
| Industrial | | | | |
| Non-Energy | 2,217.2 | 727.2 | 107.7 | 3,052.1 |
| Energy | 3,692.2 | 9,291.0 | 3,962.5 | 16,945.7 |
| Transportation | | | | |
| Non-Energy | 156.5 | | | 156.5 |
| Energy | 17,577.1 | | | 17,577.1 |
| Residential | | | | |
| Non-Energy | 1,165.3 | | | 1,165.3 |
| Energy | 4,933.5 | | | 4,933.5 |
| Total All Sectors | | | | |
| Non-Energy | 3,539.0 | 727.2 | 107.7 | 4,373.9 |
| Miscellaneous | 245.3 | | | 245.3 |
| Total Non-Energy Consumption | 3,784.3 | 727.2 | 107.7 | 4,619.2 |

Source: Minerals Yearbooks - Domestic Supply and Demand for Coal
- Domestic Supply and Demand for Natural Gas
- Petroleum Consumption, by Major Product and Major Consuming Sector

# TABLE NO. 1 - ATTACHMENT A

## CALCULATION OF 1975 NON-ENERGY CONSUMPTION

(TRILLION BTU'S)

| | PETROLEUM | NATURAL GAS | COAL | TOTAL |
|---|---|---|---|---|
| Industrial | | | | |
| Non-Energy | 1,968.8 | 690.4 | 95.1 | 2,754.3 |
| Energy | 3,548.5 | 7,860.8 | 3,712.4 | 15,121.7 |
| Transportation | | | | |
| Non-Energy | 137.1 | | | 137.1 |
| Energy | 17,795.6 | | | 17,795.6 |
| Residential | | | | |
| Non-Energy | 1,014.0 | | | 1,014.0 |
| Energy | 4,738.4 | | | 4,738.4 |
| Total All Sectors | | | | |
| Non-Energy | 3,119.9 | 690.4 | 95.1 | 3,905.4 |
| Miscellaneous | 278.0 | | | 278.0 |
| Total Non-Energy Consumption | 3,397.9 | 690.4 | 95.1 | 4,183.4 |

Source: Minerals Yearbooks - Domestic Supply and Demand for Coal
- Domestic Supply and Demand for Natural Gas
- Petroleum Consumption, by Major Product and Major Consuming Sector

# TABLE NO. 1 - ATTACHMENT A

## CALCULATION OF 1976 NON-ENERGY CONSUMPTION

(TRILLION BTU'S)

| | PETROLEUM | NATURAL GAS | COAL | TOTAL |
|---|---|---|---|---|
| Industrial | | | | |
| Non-Energy | 2,187.5 | 701.8 | 96.1 | 2,985.4 |
| Energy | 4,094.0 | 8,071.2 | 3,690.8 | |
| Transportation | | | | |
| Non-Energy | 144.1 | | | 144.1 |
| Energy | 18,689.6 | | | |
| Residential | | | | |
| Non-Energy | 998.1 | | | 998.1 |
| Energy | 5,255.0 | | | |
| Total All Sectors | | | | |
| Non-Energy | 3,329.7 | 701.8 | 96.1 | 4,127.6 |
| Miscellaneous | 303.4 | | | 303.4 |
| Total Non-Energy Consumption | 3,633.1 | 701.8 | 96.1 | 4,431.0 |

Source: Minerals Yearbooks - Domestic Supply and Demand for Coal
- Domestic Supply and Demand for Natural Gas
- Petroleum Consumption, by Major Product and Major Consuming Sector
- Natural Gas Annual, 1976

EIA, Energy Data Reports - Pennsylvania Anthracite Weekly
- Weekly Coal Report

# TABLE NO. 1 - ATTACHMENT A

## CALCULATION OF 1977 NON-ENERGY CONSUMPTION

(TRILLION BTU's)

| | PETROLEUM | NATURAL GAS | COAL | TOTAL |
|---|---|---|---|---|
| Industrial | | | | |
| Non-Energy | 2,462.2 | 728.1 | 97.8 | 3,288.1 |
| Energy | 4,524.3 | 7,926.8 | 3,529.6 | |
| Transportation | | | | |
| Non-Energy | 150.4 | | | 150.4 |
| Energy | 19,361.8 | | | |
| Residential | | | | |
| Non-Energy | 1,056.5 | | | 1,056.5 |
| Energy | 5,141.6 | | | |
| Total All Sectors | | | | |
| Non-Energy | 3,669.1 | 728.1 | 97.8 | 4,495.0 |
| Miscellaneous | 247.7 | | | 247.7 |
| Total Non-Energy Consumption | 3,916.8 | 728.1 | 97.8 | 4,742.7 |

Source: Minerals Yearbooks - Domestic Supply and Demand for Coal
- Domestic Supply and Demand for Natural Gas
- Petroleum Consumption, by Major Product and Major Consuming Sector
- Natural Gas Annual, 1977

EIA, Energy Data Reports - Pennsylvania Anthracite Weekly
- Weekly Coal Report

TABLE NO. 2

# U.S. ENERGY SUPPLIES

| | In Physical Units | | | | | |
|---|---|---|---|---|---|---|
| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
| OIL: MILLION BARRELS PER YEAR | | | | | | |
| Domestic Production - Total | 4,093.6 | 3,995.3 | 3,818.7 | 3,652.7 | 3,563.2 | 3,599.8 |
| Crude & Lease Condensate | 3,455.4 | 3,360.9 | 3,202.6 | 3,056.8 | 2,976.2 | 3,009.3 |
| NGL | 638.2 | 634.4 | 616.1 | 595.9 | 587.0 | 590.5 |
| Imports - Total | 1,735.3 | 2,283.5 | 2,231.0 | 2,210.3 | 2,676.4 | 3,214.6 |
| Crude | 811.1 | 1,184.0 | 1,269.2 | 1,498.2 | 1,935.0 | 2,414.3 |
| Products (Incl. NGL & Unfinished) | 924.2 | 1,099.5 | 961.8 | 712.1 | 741.4 | 800.3 |
| Exports | (81.4) | (84.4) | (80.5) | (76.4) | (81.6) | (88.6) |
| Processing Gain, etc.[1] | 157.8 | 172.2 | 174.4 | 182.7 | 211.6 | 201.8 |
| Syncrude | - | - | - | - | - | - |
| From Shale | | | | | | |
| From Coal | | | | | | |
| From Inventory | 85.0 | (49.3) | (67.3) | (59.3) | 21.1 | (200.1) |
| Crude | 13.3 | 3.9 | (22.5) | (6.3) | (14.1) | (62.2) |
| Products | 71.7 | (53.2) | (44.8) | (53.0) | 35.2 | (137.9) |
| Total Oil Supply | 5,990.3 | 6,317.3 | 6,076.3 | 5,910.0 | 6,390.7 | 6,727.5 |
| Memo: Trillion BTU's/Year | 32,466 | 34,852 | 33,467 | 32,720 | 35,123 | 36,970 |
| GAS: BILLION CUBIC FEET PER YEAR | | | | | | |
| Production (MKTD, Prod'n. of Wet Gas)[2] | 22,532 | 22,648 | 21,601 | 20,109 | 19,952 | 20,025 |
| Extraction Loss, Transfers Out | (908) | (917) | (887) | (872) | (854) | (862) |
| Imports | 1,019 | 1,033 | 959 | 953 | 964 | 1,011 |
| Exports | (78) | (77) | (77) | (73) | (65) | (56) |
| From Inventory | (136) | (442) | (84) | (344) | (51) | (597) |
| Transmission Loss & Unaccounted For | (328) | (196) | (289) | (235) | | |
| Total Dry Natural Gas | 22,101 | 22,049 | 21,223 | 19,538 | 19,946 | 19,521 |
| Syngas | - | - | - | - | - | - |
| From Coal | | | | | | |
| From Liquids | | | | | | |
| Total Gas Supply | 22,101 | 22,049 | 21,223 | 19,538 | 19,946 | 19,521 |
| Memo: Trillion BTU's/Year | 22,698 | 22,512 | 21,733 | 19,948 | 20,345 | 19,931 |
| COAL (Anthracite, Bituminous, and Lignite): THUUSAND SHORT TONS PER YEAR | | | | | | |
| Production - Total | 602,492 | 598,568 | 610,023 | 654,641 | 684,913 | 694,775 |
| For Conventional Domestic Markets | 602,492 | 598,568 | 610,023 | 654,641 | 684,913 | 694,775 |
| For Synthetic Oil &/or Gas Plants | - | - | - | - | - | - |
| Net Exports | (57,104) | (53,935) | (59,015) | (65,821) | (58,818) | (52,509) |
| From Inventory | (24,100) | 14,417 | 7,265 | (31,765) | (22,305) | (16,575) |
| Losses, Gains, & Unaccounted For | 4,403 | 2,643 | (116) | 4,795 | | |
| Total Coal Supply | 525,691 | 561,693 | 558,157 | 561,850 | 603,790 | 625,691 |
| Memo: Trillion BTU's/Year | 12,423 | 13,294 | 12.889 | 12,814 | 13,749 | 14,133 |
| NUCLEAR: HEAT RATE - BTU/kWh: 10,660 | | | | | | |
| Equivalent Primary Energy Input | 576 | 888 | 1,211 | 1,835 | 2,037 | 2,674 |

Sources:

Annual Petroleum Statements, 1972-77.
Minerals Yearbook, 1972-75.
Dept. of Energy, Monthly Energy Review - December 1978.

[1] Includes Other Hydrocarbon & Hydrogen Refinery Inputs, "Unaccounted For" Crude Inputs & Losses.

[2] Excludes Quantities for Repressuring, Vented, and Flared.

TABLE III (Page 1 of 6)

DOMESTIC DEMAND FOR PRODUCTS (MB/D)

TOTAL U.S.

| | | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|---|
| Motor Gasoline: | Premium Leaded | 2,430 | 2,118 | 1,473 | 1,264 | 1,193 | 1,061 |
| | Non-Prem. Leaded | 3,947 | 4,422 | 4,541 | 4,544 | 4,380 | 4,207 |
| | S.Total | 6,377 | 6,540 | 6,014 [m] | 5,808 | 5,573 | 5,268 |
| | Unleaded | - | 134 | 523 | 867 | 1,405 | 1,908 |
| | Total | 6,377 | 6,674 | 6,537 | 6,675 | 6,978 | 7,176 |
| Aviation Gasoline | | 46 | 45 | 45 | 39 | 37 | 38 |
| Jet Fuel: | Naphtha Type | 242 | 217 | 222 | 210 | 199 | 208 |
| | Kerosine Type | 803 | 842 | 771 | 791 | 789 | 831 |
| | Total | 1,045 | 1,059 | 993 | 1,001 | 988 | 1,039 |
| Special Naphtha | | 87 | 89 | 87 | 75 | 82 | 86 |
| Kerosine | | 234 | 216 | 176 | 159 | 169 | 175 |
| Distillate Fuel Oil (excl. #4 oil) | | 2,800 | 2,977 | 2,879 | 2,798 | 3,074 | 3,290 |
| #4 oil: | 0- .5% S | 76 | 80 | 45 | 41 | 40 | 35 |
| | .51-1.0% S | 23 | 18 | 14 | 6 | 9 | 13 |
| | 1.1 -2.0% S | 10 | 13 | 9 | 6 | 9 | 8 |
| | 2.0% S + | 3 | 4 | 1 | - | 1 | 6 |
| | Total | 2,912 | 3,092 | 2,948 | 2,851 | 3,133 | 3,352 |
| Residual Fuel Oil: | 0- .5% S | 777 | 1,006 | 852 | 817 | 866 | 959 |
| | .51-1.0% S | 679 | 637 | 602 | 513 | 624 | 693 |
| | 1.1 - 2.0% S | 488 | 520 | 509 | 529 | 561 | 612 |
| | 2.0% S + | 585 | 659 | 676 | 602 | 750 | 807 |
| | Total | 2,529 | 2,822 | 2,639 | 2,461 | 2,801 | 3,071 |
| Liquified Gases[1]: | Ethane | 290 | 327 | 341 | 341 | 362 | 412 |
| | Propane | 907 | 887 | 862 | 819 | 878 | 866 |
| | Butane | 152 | 172 | 154 | 129 | 130 | 115 |
| | Propane/Butane Mix | 72 | 63 | 48 | 43 | 34 | 29 |
| | Total | 1,421 | 1,449 | 1,405 | 1,332 | 1,404 | 1,422 |
| Petrochemical Feedstocks & | Still Gas | 40 | 34 | 39 | 43 | 48 | 48 |
| | Naphtha 400 | 159 | 157 | 170 | 147 | 199 | 204 |
| | Other | 139 | 166 | 154 | 130 | 171 | 269 |
| | Total | 338 | 357 | 363 | 320 | 418 | 521 |
| Lubricants and Wax | | 160 | 181 | 175 | 155 | 172 | 176 |
| Coke | | 241 | 261 | 239 | 247 | 243 | 267 |
| Asphalt and Road Oil | | 468 | 522 | 482 | 419 | 411 | 437 |
| Still Gas for Fuel | | 467 | 484 | 481 | 480 | 494 | 524 |
| Miscellaneous Products | | 42 | 57 | 83 | 108 | 132 | 147 |
| Total | | 16,367 | 17,308 | 16,653 | 16,322 | 17,462 | 18,431 |

TABLE III (Page 2 of 6)

DOMESTIC DEMAND FOR PRODUCTS (MB/D)

PAD I

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| Motor Gasoline: Premium Leaded | 923 | 798 | 531 | 437 | 426 | 379 |
| Non-Prem. Leaded | 1,238 | 1,376 | 1,415 | 1,439 | 1,423 | 1,336 |
| S.Total | 2,161 | 2,174 | 1,946 | 1,876 | 1,849 | 1,715 |
| Unleaded | - | 63 | 220 | 357 | 547 | 708 |
| Total | 2,161 | 2,237 | 2,166 | 2,233 | 2,396 | 2,423 |
| Aviation Gasoline | 13 | 10 | 10 | 10 | 8 | 8 |
| Jet Fuel: Naphtha Type | 64 | 63 | 58 | 61 | 53 | 57 |
| Kerosine Type | 332 | 356 | 313 | 317 | 309 | 333 |
| Total | 396 | 419 | 371 | 378 | 362 | 390 |
| Special Naphtha | 21 | 21 | 21 | 20 | 23 | 28 |
| Kerosine | 119 | 90 | 73 | 67 | 81 | 74 |
| Distillate Fuel Oil (excl. #4 oil) | 1,300 | 1,344 | 1,291 | 1,231 | 1,351 | 1,390 |
| #4 oil: 0- .5% S | 66 | 69 | 40 | 39 | 32 | 31 |
| .51-1.0% S | 20 | 14 | 12 | 5 | 7 | 11 |
| 1.1 -2.0% S | 8 | 11 | 8 | 4 | 8 | 7 |
| 2.0% S + | 2 | 4 | - | - | 1 | 5 |
| Total | 1,396 | 1,441 | 1,351 | 1,279 | 1,399 | 1,444 |
| Residual Fuel Oil: 0- .5% S | 623 | 714 | 569 | 530 | 539 | 501 |
| .51-1.0% S | 540 | 462 | 411 | 343 | 430 | 381 |
| 1.1 - 2.0% S | 261 | 259 | 253 | 246 | 241 | 263 |
| 2.0% S + | 452 | 505 | 497 | 377 | 477 | 477 |
| Total | 1,876 | 1,940 | 1,730 | 1,496 | 1,687 | 1,622 |
| Liquified Gases[1]: Ethane | 5 | 5 | 5 | 10 | 14 | 15 |
| Propane | 144 | 165 | 148 | 169 | 185 | 182 |
| Butane | 8 | 10 | 6 | 4 | 4 | 6 |
| Propane/Butane Mix | 5 | 5 | 4 | 6 | 5 | 3 |
| Total | 162 | 185 | 163 | 189 | 208 | 206 |
| Petrochemical Feedstocks & Still Gas | 2 | 3 | 2 | 2 | 2 | 2 |
| Naphtha 400 | 15 | 13 | 15 | 16 | 19 | 12 |
| Other | 7 | 10 | 13 | 12 | 11 | 15 |
| Total | 24 | 26 | 30 | 30 | 32 | 29 |
| Lubricants and Wax | 65 | 73 | 68 | 60 | 67 | 63 |
| Coke | 36 | 30 | 32 | 30 | 33 | 32 |
| Asphalt and Road Oil | 122 | 143 | 142 | 107 | 104 | 103 |
| Still Gas for Fuel | 59 | 62 | 53 | 56 | 58 | 57 |
| Miscellaneous Products | 9 | 11 | 22 | 28 | 30 | 43 |
| Total | 6,459 | 6,688 | 6,232 | 5,983 | 6,488 | 6,522 |

TABLE III (Page 3 of 6)

DOMESTIC DEMAND FOR PRODUCTS (MB/D)

PAD II

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| Motor Gasoline: Premium Leaded | 629 | 521 | 344 | 282 | 255 | 205 |
| Non-Prem. Leaded | 1,577 | 1,734 | 1,726 | 1,726 | 1,678 | 1,565 |
| S.Total | 2,206 | 2,255 | 2,070 | 2,008 | 1,933 | 1,770 |
| Unleaded | - | 38 | 152 | 257 | 455 | 625 |
| Total | 2,206 | 2,293 | 2,222 | 2,265 | 2,388 | 2,395 |
| Aviation Gasoline | 11 | 12 | 11 | 10 | 11 | 10 |
| Jet Fuel: Naphtha Type | 45 | 35 | 41 | 39 | 36 | 36 |
| Kerosine Type | 167 | 169 | 150 | 148 | 150 | 168 |
| Total | 212 | 204 | 191 | 187 | 186 | 204 |
| Special Naphtha | 22 | 26 | 30 | 23 | 27 | 29 |
| Kerosine | 67 | 64 | 52 | 45 | 48 | 47 |
| Distillate Fuel Oil (excl. #4 oil) | 869 | 886 | 865 | 863 | 976 | 1,014 |
| #4 oil: 0- .5% S | 9 | 5 | 2 | 1 | 1 | 1 |
| .51-1.0% S | 2 | 4 | 2 | 1 | 2 | 2 |
| 1.1 -2.0% S | 2 | 1 | 1 | 1 | 1 | 1 |
| 2.0% S + | 1 | 1 | - | - | - | - |
| Total | 883 | 897 | 870 | 866 | 980 | 1,018 |
| Residual Fuel Oil: 0- .5% S | 8 | 14 | 22 | 26 | 24 | 28 |
| .51-1.0% S | 89 | 107 | 99 | 95 | 106 | 112 |
| 1.1 - 2.0% S | 70 | 79 | 70 | 96 | 114 | 121 |
| 2.0% S + | 52 | 39 | 42 | 32 | 35 | 37 |
| Total | 219 | 239 | 233 | 249 | 279 | 298 |
| Liquified Gases[1]: Ethane | 30 | 38 | 40 | 41 | 45 | 48 |
| Propane | 339 | 336 | 344 | 355 | 368 | 408 |
| Butane | 5 | 6 | 7 | 6 | 6 | 8 |
| Propane/Butane Mix | 3 | 2 | 1 | 1 | 1 | 1 |
| Total | 377 | 382 | 392 | 403 | 420 | 465 |
| Petrochemical Feedstocks & Still Gas | 13 | 7 | 8 | 4 | 8 | 11 |
| Naphtha 400 | 19 | 18 | 13 | 10 | 15 | 11 |
| Other | 13 | 13 | 9 | 7 | 9 | 15 |
| Total | 45 | 38 | 30 | 21 | 32 | 37 |
| Lubricants and Wax | 40 | 42 | 42 | 35 | 38 | 36 |
| Coke | 85 | 99 | 98 | 95 | 93 | 96 |
| Asphalt and Road Oil | 165 | 188 | 160 | 144 | 154 | 171 |
| Still Gas for Fuel | 120 | 127 | 122 | 130 | 126 | 136 |
| Miscellaneous Products | 10 | 15 | 26 | 37 | 49 | 54 |
| Total | 4,462 | 4,626 | 4,479 | 4,510 | 4,831 | 4,996 |

TABLE III (Page 4 of 6)

DOMESTIC DEMAND FOR PRODUCTS (MB/D)

PAD III

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| Motor Gasoline: Premium Leaded | 367 | 325 | 226 | 181 | 156 | 148 |
| Non-Prem. Leaded | 516 | 621 | 688 | 686 | 599 | 617 |
| S.Total | 883 | 946 | 914 | 867 | 755 | 765 |
| Unleaded | - | 20 | 78 | 124 | 190 | 266 |
| Total | 883 | 966 | 992 | 991 | 945 | 1,031 |
| Aviation Gasoline | 10 | 11 | 11 | 9 | 8 | 9 |
| Jet Fuel: Naphtha Type | 40 | 46 | 48 | 41 | 40 | 47 |
| Kerosine Type | 50 | 53 | 70 | 75 | 73 | 65 |
| Total | 90 | 99 | 118 | 116 | 113 | 112 |
| Special Naphtha | 29 | 28 | 21 | 21 | 23 | 21 |
| Kerosine | 38 | 53 | 40 | 36 | 29 | 39 |
| Distillate Fuel Oil (excl. #4 oil) | 277 | 348 | 358 | 332 | 360 | 444 |
| #4 oil: 0- .5% S | - | - | - | - | 1 | 1 |
| .51-1.0% S | - | - | - | - | - | - |
| 1.1 -2.0% S | - | - | - | 1 | - | - |
| 2.0% S + | - | - | - | - | - | 1 |
| Total | 277 | 348 | 358 | 333 | 361 | 446 |
| Residual Fuel Oil: 0- .5% S | 5 | 26 | 43 | 53 | 57 | 88 |
| .51-1.0% S | 8 | 33 | 65 | 44 | 52 | 156 |
| 1.1 - 2.0% S | 11 | 30 | 29 | 30 | 34 | 36 |
| 2.0% S + | 63 | 98 | 115 | 154 | 200 | 263 |
| Total | 87 | 187 | 252 | 281 | 343 | 543 |
| Liquified Gases[1]: Ethane | 253 | 283 | 294 | 285 | 295 | 338 |
| Propane | 339 | 314 | 301 | 223 | 229 | 197 |
| Butane | 128 | 146 | 134 | 116 | 116 | 97 |
| Propane/Butane Mix | 59 | 52 | 38 | 31 | 25 | 22 |
| Total | 779 | 795 | 767 | 655 | 665 | 654 |
| Petrochemical Feedstocks & Still Gas | 22 | 21 | 29 | 33 | 32 | 30 |
| Naphtha 400 | 112 | 113 | 127 | 113 | 163 | 178 |
| Other | 116 | 139 | 130 | 110 | 144 | 231 |
| Total | 250 | 273 | 286 | 256 | 339 | 439 |
| Lubricants and Wax | 35 | 46 | 47 | 42 | 47 | 57 |
| Coke | 83 | 87 | 69 | 75 | 69 | 78 |
| Asphalt and Road Oil | 90 | 91 | 84 | 80 | 64 | 68 |
| Still Gas for Fuel | 184 | 192 | 206 | 196 | 201 | 217 |
| Miscellaneous Products | 16 | 24 | 30 | 38 | 46 | 41 |
| Total | 2,851 | 3,200 | 3,281 | 3,129 | 3,253 | 3,755 |

TABLE III (Page 5 of 6)

DOMESTIC DEMAND FOR PRODUCTS (MB/D)

PAD IV

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| Motor Gasoline: Premium Leaded | 46 | 44 | 29 | 25 | 25 | 22 |
| Non-Prem. Leaded | 142 | 162 | 170 | 174 | 176 | 181 |
| S.Total | 188 | 206 | 199 | 199 | 201 | 203 |
| Unleaded | - | - | 10 | 14 | 26 | 41 |
| Total | 188 | 206 | 209 | 213 | 227 | 244 |
| Aviation Gasoline | 2 | 2 | 2 | 1 | 2 | 2 |
| Jet Fuel: Naphtha Type | 7 | 8 | 9 | 8 | 9 | 9 |
| Kerosine Type | 19 | 23 | 22 | 22 | 27 | 25 |
| Total | 26 | 31 | 31 | 30 | 36 | 34 |
| Special Naphtha | 1 | - | - | - | - | - |
| Kerosine | 6 | 5 | 3 | 3 | 2 | 2 |
| Distillate Fuel Oil (excl. #4 oil) | 83 | 93 | 106 | 108 | 113 | 119 |
| #4 oil: 0- .5% S | - | 1 | 1 | 1 | - | - |
| .51-1.0% S | 1 | - | - | - | - | - |
| 1.1 -2.0% S | - | 1 | - | - | - | - |
| 2.0% S + | - | - | - | - | - | - |
| Total | 84 | 95 | 107 | 109 | 113 | 119 |
| Residual Fuel Oil: 0- .5% S | 2 | 3 | 7 | 9 | 12 | 16 |
| .51-1.0% S | 10 | 6 | 10 | 12 | 8 | 5 |
| 1.1 - 2.0% S | 6 | 9 | 6 | 3 | 6 | 8 |
| 2.0% S + | 8 | 8 | 11 | 13 | 15 | 9 |
| Total | 26 | 26 | 34 | 37 | 41 | 38 |
| Liquified Gases[1]: Ethane | - | - | 1 | 4 | 7 | 9 |
| Propane | 38 | 27 | 24 | 29 | 46 | 33 |
| Butane | 1 | 1 | - | - | - | - |
| Propane/Butane Mix | 1 | 1 | 1 | 1 | - | - |
| Total | 40 | 29 | 26 | 34 | 53 | 42 |
| Petrochemical Feedstocks & Still Gas | 1 | 1 | - | 3 | 3 | 3 |
| Naphtha 400 | - | - | - | - | - | - |
| Other | - | - | - | - | - | - |
| Total | 1 | 1 | - | 3 | 3 | 3 |
| Lubricants and Wax | 2 | - | 2 | 2 | 2 | 2 |
| Coke | 10 | 11 | 11 | 11 | 8 | 12 |
| Asphalt and Road Oil | 35 | 36 | 29 | 28 | 32 | 32 |
| Still Gas for Fuel | 15 | 15 | 15 | 13 | 12 | 13 |
| Miscellaneous Products | - | - | - | - | - | 1 |
| Total | 436 | 457 | 469 | 484 | 531 | 544 |

TABLE III (Page 6 of 6)

DOMESTIC DEMAND FOR PRODUCTS (MB/D)

PAD V

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| Motor Gasoline: Premium Leaded | 465 | 430 | 343 | 339 | 331 | 307 |
| Non-Prem. Leaded | 474 | 529 | 542 | 519 | 504 | 508 |
| S.Total | 939 | 959 | 885 | 858 | 835 | 815 |
| Unleaded | - | 13 | 63 | 115 | 187 | 268 |
| Total | 939 | 972 | 948 | 973 | 1,022 | 1,083 |
| Aviation Gasoline | 10 | 10 | 11 | 9 | 8 | 9 |
| Jet Fuel: Naphtha Type | 86 | 65 | 66 | 61 | 61 | 59 |
| Kerosine Type | 235 | 241 | 216 | 229 | 230 | 240 |
| Total | 321 | 306 | 282 | 290 | 291 | 299 |
| Special Naphtha | 14 | 14 | 15 | 11 | 9 | 8 |
| Kerosine | 4 | 4 | 8 | 8 | 9 | 13 |
| Distillate Fuel Oil (excl. #4 oil) | 271 | 306 | 259 | 264 | 274 | 323 |
| #4 oil: 0- .5% S | 1 | 5 | 2 | - | 6 | 2 |
| .51-1.0% S | - | - | - | - | - | - |
| 1.1 -2.0% S | - | - | - | - | - | - |
| 2.0% S + | - | - | 1 | - | - | - |
| Total | 272 | 311 | 262 | 264 | 280 | 325 |
| Residual Fuel Oil: 0- .5% S | 139 | 249 | 211 | 199 | 234 | 326 |
| .51-1.0% S | 32 | 29 | 17 | 19 | 28 | 39 |
| 1.1 - 2.0% S | 140 | 143 | 151 | 154 | 166 | 184 |
| 2.0% S + | 10 | 9 | 11 | 26 | 23 | 21 |
| Total | 321 | 430 | 390 | 398 | 451 | 570 |
| Liquified Gases[1]: Ethane | 2 | 1 | 1 | 1 | 1 | 2 |
| Propane | 47 | 45 | 45 | 43 | 50 | 46 |
| Butane | 10 | 9 | 7 | 3 | 4 | 4 |
| Propane/Butane Mix | 4 | 3 | 4 | 4 | 3 | 3 |
| Total | 63 | 58 | 57 | 51 | 58 | 55 |
| Petrochemical Feedstocks & Still Gas | 2 | 2 | - | 1 | 3 | 2 |
| Naphtha 400 | 13 | 13 | 15 | 8 | 2 | 3 |
| Other | 3 | 4 | 2 | 1 | 7 | 8 |
| Total | 18 | 19 | 17 | 10 | 12 | 13 |
| Lubricants and Wax | 18 | 20 | 16 | 16 | 18 | 18 |
| Coke | 27 | 34 | 29 | 36 | 40 | 49 |
| Asphalt and Road Oil | 56 | 64 | 67 | 60 | 57 | 63 |
| Still Gas for Fuel | 89 | 88 | 85 | 85 | 97 | 101 |
| Miscellaneous Products | 7 | 7 | 5 | 5 | 7 | 8 |
| Total | 2,159 | 2,337 | 2,192 | 2,216 | 2,359 | 2,614 |

TABLE III - ATTACHMENT A

CALCULATED AMOUNTS OF PROPANE, BUTANE, B-P MIX CONSUMED FOR CHEMICAL USES INCLUDING SYNTHETIC RUBBER BASED ON PERCENTS OF TOTAL USE IN LPG SALES, ANNUAL AND TOTAL USES BY P.A.D. DISTRICT. ETHANE AS REPORTED IN SUPPLY, DEMAND AND STOCKS OF ALL OILS BY P.A.D. DISTRICT

| | | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|---|
| I | Ethane | 5 | 5 | 5 | 10 | 14 | 15 |
| | Propane | 16 | 18 | 16 | 17 | 18 | 19 |
| | Butane | 6 | 9 | 5 | 3 | 3 | 5 |
| | B-P Mix | 2 | 2 | 2 | 3 | 2 | 1 |
| | Total | 29 | 34 | 28 | 33 | 37 | 40 |
| II | Ethane | 30 | 38 | 40 | 41 | 45 | 48 |
| | Propane | 15 | 17 | 16 | 17 | 15 | 17 |
| | Butane | 1 | 2 | 2 | 1 | 1 | 2 |
| | B-P Mix | - | - | - | - | - | - |
| | Total | 46 | 57 | 58 | 59 | 61 | 67 |
| III | Ethane | 253 | 283 | 294 | 285 | 295 | 338 |
| | Propane | 185 | 176 | 169 | 106 | 105 | 82 |
| | Butane | 116 | 131 | 122 | 103 | 102 | 84 |
| | B-P Mix | 19 | 15 | 7 | 5 | 4 | 3 |
| | Total | 573 | 605 | 592 | 499 | 506 | 507 |
| IV | Ethane Only | - | - | 1 | 4 | 7 | 9 |
| V | Ethane | 2 | 1 | 1 | 1 | 1 | 2 |
| | Propane | 5 | 4 | 3 | 3 | 5 | 5 |
| | Butane | 7 | 6 | 5 | 1 | 1 | 2 |
| | B-P Mix | 2 | 1 | 1 | 1 | 1 | 1 |
| | Total | 16 | 12 | 10 | 6 | 8 | 10 |
| U.S. | Ethane | 290 | 327 | 341 | 341 | 362 | 412 |
| | Propane | 221 | 215 | 204 | 143 | 143 | 123 |
| | Butane | 130 | 148 | 134 | 108 | 107 | 93 |
| | B-P Mix | 23 | 18 | 10 | 9 | 7 | 5 |
| | Total | 664 | 708 | 689 | 601 | 619 | 633 |

TABLE IV (Page 1 of 6)

U.S. PETROLEUM SUPPLY/DEMAND BALANCE BY PAD DISTRICTS - YEAR 1972[1]
(Thousand Barrels Daily)

| | PAD District | | | | | | |
|---|---|---|---|---|---|---|---|
| | I | II | III | IV | I-IV | V | U.S. Total |
| DEMAND - TOTAL | 6,633 | 4,639 | 8,386 | 847 | 14,536 | 2,277 | 16,813 |
| 1. Local Product Demand | 6,459 | 4,462 | 2,851 | 436 | 14,208 | 2,159 | 16,367 |
| 2. Crude and Product Exports | 21 | 10 | 104 | - | 135 | 88 | 223 |
| 3. Product Shipments to Other Districts | 141 | 133 | 3,547 | 105 | 144 | 29 | 173 |
| 4. Crude, NGL and Unfinished Shipments to Other Districts | 9 | 30 | 1,881 | 305 | 38 | - | 38 |
| 5. Crude Losses | 3 | 4 | 3 | 1 | 11 | 1 | 12 |
| SUPPLY - TOTAL | 6,633 | 4,639 | 8,386 | 847 | 14,536 | 2,277 | 16,813 |
| 1. Production - Total | 88 | 1,293 | 7,933 | 680 | 9,994 | 1,191 | 11,185 |
| Crude and Lease Condensate | 66 | 1,050 | 6,540 | 635 | 8,291 | 1,150 | 9,441 |
| NGL | 22 | 243 | 1,393 | 45 | 1,703 | 41 | 1,744 |
| 2. Receipts From Other Districts | 3,280 | 2,571 | 94 | 53 | 29 | 182 | 211 |
| Crude NGL and Unfinished | 354 | 1,812 | 21 | - | - | 38 | 38 |
| Products | 2,926 | 959 | 73 | 53 | 29 | 144 | 173 |
| 3. Processing Gain, Etc.[2] | 47 | 119 | 164 | 25 | 355 | 89 | 444 |
| 4. Imports - Total | 3,133 | 577 | 126 | 85 | 3,921 | 820 | 4,741 |
| Crude and Unfinished | 1,053 | 468 | 81 | 39 | 1,641 | 700 | 2,341 |
| From Overland | 144 | 446 | - | 39 | 629 | 290 | 919 |
| From Offshore | 909 | 22 | 81 | - | 1,012 | 410 | 1,422 |
| NGL | 2 | 45 | - | 31 | 78 | 8 | 86 |
| Finished Products | 2,078 | 64 | 45 | 15 | 2,202 | 113 | 2,314 |
| 5. Syncrude | - | - | - | - | - | - | - |
| From Shale | - | - | - | - | - | - | - |
| From Coal | - | - | - | - | - | - | - |
| 6. From Inventory | 85 | 79 | 69 | 4 | 237 | (5) | 232 |
| Crude | 11 | 23 | 18 | (2) | 50 | 2 | 52 |
| Products | 74 | 56 | 51 | 6 | 187 | (7) | 180 |
| 7. Crude Runs | 1,318 | 3,311 | 4,817 | 397 | 9,843 | 1,853 | 11,696 |

[1] Source: U.S. Bureau of Mines, Petroleum Statement, 1972 Annual (Final).
[2] Includes other hydrocarbon and hydrogen refinery inputs, "unaccounted for" crude inputs.

TABLE IV (Page 2 of 6)

U.S. PETROLEUM SUPPLY/DEMAND BALANCE BY PAD DISTRICTS - YEAR 1973[1]
(Thousand Barrels Daily)

| | PAD District | | | | | | |
|---|---|---|---|---|---|---|---|
| | I | II | III | IV | I-IV | V | U.S. Total |
| DEMAND - TOTAL | 6,936 | 4,858 | 8,603 | 872 | 15,281 | 2,466 | 17,747 |
| 1. Local Product Demand | 6,688 | 4,626 | 3,200 | 457 | 14,971 | 2,337 | 17,308 |
| 2. Crude and Product Exports | 17 | 10 | 104 | - | 131 | 100 | 231 |
| 3. Product Shipments to Other Districts | 165 | 164 | 3,516 | 93 | 127 | 28 | 155 |
| 4. Crude, NGL and Unfinished Shipments to Other Districts | 63 | 54 | 1,779 | 321 | 40 | - | 40 |
| 5. Crude Losses | 3 | 4 | 4 | 1 | 12 | 1 | 13 |
| SUPPLY - TOTAL | 6,936 | 4,858 | 8,603 | 872 | 15,281 | 2,466 | 17,747 |
| 1. Production - Total | 132 | 1,215 | 7,722 | 719 | 9,788 | 1,158 | 10,946 |
| Crude and Lease Condensate | 108 | 969 | 6,336 | 673 | 8,086 | 1,122 | 9,208 |
| NGL | 24 | 246 | 1,386 | 46 | 1,702 | 36 | 1,738 |
| 2. Receipts From Other Districts | 3,073 | 2,708 | 178 | 57 | 28 | 167 | 195 |
| Crude NGL and Unfinished | 231 | 1,851 | 45 | - | - | 40 | 40 |
| Products | 2,842 | 857 | 83 | 57 | 28 | 127 | 154 |
| 3. Processing Gain, Etc.[2] | 57 | 140 | 177 | 15 | 389 | 96 | 485 |
| 4. Imports - Total | 3,746 | 864 | 553 | 89 | 5,252 | 1,004 | 6,256 |
| Crude and Unfinished | 1,349 | 716 | 428 | 44 | 2,537 | 844 | 3,381 |
| From Overland | 122 | 595 | - | 44 | 761 | 242 | 1,003 |
| From Offshore | 1,227 | 121 | 428 | - | 1,776 | 602 | 2,378 |
| NGL | 5 | 67 | - | 28 | 100 | 8 | 108 |
| Finished Products | 2,392 | 81 | 125 | 17 | 2,615 | 152 | 2,767 |
| 5. Syncrude | - | - | - | - | - | - | - |
| From Shale | - | - | - | - | - | - | - |
| From Coal | - | - | - | - | - | - | - |
| 6. From Inventory | (72) | (69) | (27) | (8) | (176) | 41 | (135) |
| Crude | (10) | - | (1) | 2 | (9) | 20 | 11 |
| Products | (62) | (69) | (26) | (10) | (167) | 21 | (146) |
| 7. Crude Runs | 1502 | 3,485 | 5,054 | 415 | 10,456 | 1,976 | 12,432 |

[1] Source: U.S. Bureau of Mines, Petroleum Statement, 1973 Annual (Final).
[2] Includes other hydrocarbon and hydrogen refinery inputs, "unaccounted for" crude inputs.

TABLE IV (Page 3 of 6)

U.S. PETROLEUM SUPPLY/DEMAND BALANCE BY PAD DISTRICTS - YEAR 1974[1]
(Thousand Barrels Daily)

| | PAD District | | | | | | |
|---|---|---|---|---|---|---|---|
| | I | II | III | IV | I-IV | V | U.S. Total |
| DEMAND - TOTAL | 6,497 | 4,742 | 8,500 | 903 | 14,787 | 2,308 | 17,095 |
| 1. Local Product Demand | 6,232 | 4,479 | 3,281 | 469 | 14,461 | 2,192 | 16,653 |
| 2. Crude and Product Exports | 17 | 10 | 102 | - | 129 | 92 | 221 |
| 3. Product Shipments to Other Districts | 164 | 193 | 3,388 | 101 | 139 | 23 | 162 |
| 4. Crude, NGL and Unfinished Shipments to Other Districts | 82 | 59 | 1,721 | 332 | 46 | - | 46 |
| 5. Crude Losses | 2 | 1 | 8 | 1 | 12 | 1 | 13 |
| SUPPLY - TOTAL | 6,497 | 4,742 | 8,500 | 903 | 14,787 | 2,308 | 17,095 |
| 1. Production - Total | 143 | 1,165 | 7,305 | 736 | 9,349 | 1,113 | 10,462 |
| Crude and Lease Condensate | 119 | 916 | 5,969 | 689 | 7,693 | 1,081 | 8,774 |
| NGL | 24 | 249 | 1,336 | 47 | 1,656 | 32 | 1,688 |
| 2. Receipts From Other Districts | 2,988 | 2,617 | 212 | 61 | 23 | 185 | 208 |
| Crude NGL and Unfinished | 243 | 1,779 | 122 | 4 | - | 46 | 46 |
| Products | 2,745 | 838 | 90 | 57 | 23 | 139 | 162 |
| 3. Processing Gain, Etc.[2] | 68 | 189 | 110 | 29 | 396 | 96 | 492 |
| 4. Imports - Total | 3,288 | 827 | 965 | 84 | 5,164 | 948 | 6,112 |
| Crude and Unfinished | 1,213 | 690 | 847 | 45 | 2,795 | 803 | 3,598 |
| From Overland | 94 | 468 | 2 | 45 | 609 | 190 | 799 |
| From Offshore | 1,119 | 222 | 845 | - | 2,486 | 613 | 2,799 |
| NGL | 8 | 52 | - | 23 | 83 | 6 | 89 |
| Finished Products | 2,067 | 85 | 118 | 16 | 2,286 | 139 | 2,425 |
| 5. Syncrude | - | - | - | - | - | - | - |
| From Shale | - | - | - | - | - | - | - |
| From Coal | - | - | - | - | - | - | - |
| 6. From Inventory | 10 | (56) | (92) | (7) | (145) | (34) | (179) |
| Crude | 3 | (33) | (5) | (7) | (42) | (20) | (62) |
| Products | 7 | (23) | (87) | - | (103) | (14) | (117) |
| 7. Crude Runs | 1,408 | 3,333 | 5,103 | 420 | 10,264 | 1,869 | 12,133 |

[1] Source: U.S. Bureau of Mines, Petroleum Statement, 1974 Annual (Final).
[2] Includes other hydrocarbon and hydrogen refinery inputs, "unaccounted for" crude inputs.

TABLE IV - (Page 4 of 6)

U.S. PETROLEUM SUPPLY/DEMAND BALANCE BY PAD DISTRICTS - YEAR 1975[1]

(Thousand Barrels Daily)

| | PAD District | | | | | | |
|---|---|---|---|---|---|---|---|
| | I | II | III | IV | I-IV | V | U.S. Total |
| DEMAND - TOTAL | 6,277 | 4,811 | 8,470 | 891 | 14,428 | 2,321 | 16,749 |
| 1. Local Product Demand | 5,983 | 4,510 | 3,129 | 484 | 14,106 | 2,216 | 16,322 |
| 2. Crude and Product Exports | 15 | 12 | 103 | - | 130 | 86 | 210 |
| 3. Product Shipments to Other Districts | 176 | 225 | 3,600 | 99 | 137 | 23 | 160 |
| 4. Crude, NGL and Unfinished Shipments to Other Districts | 101 | 61 | 1,631 | 308 | 43 | 1 | 44 |
| 5. Crude Losses | 2 | 3 | 7 | - | 12 | 1 | 13 |
| SUPPLY - TOTAL | 6,277 | 4,811 | 8,470 | 891 | 14,428 | 2,321 | 16,749 |
| 1. Production - Total | 168 | 1,119 | 6,882 | 734 | 8,903 | 1,104 | 10,007 |
| Crude and Lease Condensate | 133 | 883 | 5,600 | 683 | 7,299 | 1,076 | 8,375 |
| NGL | 35 | 236 | 1,282 | 51 | 1,604 | 28 | 1,632 |
| 2. Receipts From Other Districts | 3,171 | 2,594 | 213 | 67 | 24 | 180 | 204 |
| Crude NGL and Unfinished | 164 | 1,765 | 122 | 8 | 1 | 43 | 44 |
| Products | 3,007 | 829 | 91 | 59 | 23 | 137 | 160 |
| 3. Processing Gain, Etc.[2] | 62 | 217 | 147 | 12 | 438 | 76 | 514 |
| 4. Imports - Total | 2,840 | 910 | 1,253 | 78 | 5,081 | 976 | 6,057 |
| Crude and Unfinished | 1,254 | 775 | 1,209 | 44 | 3,282 | 859 | 4,141 |
| From Overland | 64 | 330 | - | 44 | 438 | 164 | 602 |
| From Offshore | 1,190 | 445 | 1,209 | - | 2,844 | 695 | 3,539 |
| NGL | 9 | 41 | - | 18 | 68 | 6 | 74 |
| Finished Products | 1,577 | 94 | 44 | 16 | 1,731 | 111 | 1,842 |
| 5. Syncrude | - | - | - | - | - | - | - |
| From Shale | - | - | - | - | - | - | - |
| From Coal | - | - | - | - | - | - | - |
| 6. From Inventory | 36 | (29) | (25) | - | (18) | (15) | (33) |
| Crude | 3 | (10) | (7) | (2) | (16) | (2) | (18) |
| Products | 33 | (19) | (18) | 2 | (2) | (13) | (15) |
| 7. Crude Runs | 1,407 | 3,412 | 5,260 | 426 | 10,505 | 1,937 | 12,442 |

[1] Source: U.S. Bureau of Mines, Petroleum Statement, 1975 Annual (Final).

[2] Includes other hydrocarbon and hydrogen refinery inputs, "unaccounted for" crude inputs.

TABLE IV - (Page 5 of 6)

U.S. PETROLEUM SUPPLY/DEMAND BALANCE BY PAD DISTRICTS - YEAR 1976[1]

(Thousand Barrels Daily)

| | PAD District | | | | | | |
|---|---|---|---|---|---|---|---|
| | I | II | III | IV | I-IV | V | U.S. Total |
| DEMAND - TOTAL | 6,816 | 5,226 | 8,833 | 906 | 15,426 | 2,454 | 17,880 |
| 1. Local Product Demand | 6,488 | 4,831 | 3,253 | 531 | 15,103 | 2,359 | 17,462 |
| 2. Crude and Product Exports | 15 | 15 | 119 | - | 149 | 74 | 223 |
| 3. Product Shipments to Other Districts | 183 | 284 | 3,861 | 87 | 137 | 19 | 156 |
| 4. Crude, NGL and Unfinished Shipments to Other Districts | 129 | 92 | 1,592 | 288 | 24 | 1 | 25 |
| 5. Crude Losses | 1 | 4 | 8 | - | 13 | 1 | 14 |
| SUPPLY - TOTAL | 6,816 | 5,226 | 8,833 | 906 | 15,426 | 2,454 | 17,880 |
| 1. Production - Total | 182 | 1,144 | 6,602 | 715 | 8,643 | 1,093 | 9,736 |
| Crude and Lease Condensate | 139 | 896 | 5,374 | 657 | 7,066 | 1,066 | 8,132 |
| NGL | 43 | 248 | 1,228 | 58 | 1,577 | 27 | 1,604 |
| 2. Receipts From Other Districts | 3,389 | 2,617 | 276 | 93 | 20 | 161 | 181 |
| Crude NGL and Unfinished | 189 | 1,712 | 165 | 12 | 1 | 24 | 25 |
| Products | 3,200 | 905 | 111 | 81 | 19 | 137 | 156 |
| 3. Processing Gain, Etc.[2] | 73 | 254 | 196 | 15 | 538 | 54 | 592 |
| 4. Imports - Total | 3,133 | 1,132 | 1,828 | 86 | 6,179 | 1,134 | 7,313 |
| Crude and Unfinished | 1,436 | 1,000 | 1,790 | 54 | 4,280 | 1,039 | 5,319 |
| From Overland | 16 | 214 | - | 54 | 284 | 87 | 371 |
| From Offshore | 1,420 | 786 | 1,790 | - | 3,996 | 952 | 4,948 |
| NGL | 6 | 38 | 1 | 16 | 61 | 6 | 67 |
| Finished Products | 1,691 | 94 | 37 | 16 | 1,838 | 89 | 1,927 |
| 5. Syncrude | - | - | - | - | - | - | - |
| From Shale | - | - | - | - | - | - | - |
| From Coal | - | - | - | - | - | - | - |
| 6. From Inventory | 39 | 79 | (69) | (3) | 46 | 12 | 58 |
| Crude | 2 | - | (44) | - | (42) | 4 | (38) |
| Products | 37 | 79 | (25) | (3) | 88 | 8 | 96 |
| 7. Crude Runs | 1,586 | 3,600 | 5,717 | 441 | 11,344 | 2,072 | 13,416 |

[1] Source: U.S. Bureau of Mines, Petroleum Statement, 1976 Annual (Final).

[2] Includes other hydrocarbon and hydrogen refinery inputs, "unaccounted for" crude inputs.

TABLE IV - (Page 6 of 6)

U.S. PETROLEUM SUPPLY/DEMAND BALANCE BY PAD DISTRICTS - YEAR 1977[1]
(Thousand Barrels Daily)

| | PAD District | | | | | | |
|---|---|---|---|---|---|---|---|
| | I | II | III | IV | I-IV | V | U.S. Total |
| DEMAND - TOTAL | 6,906 | 5,433 | 9,288 | 911 | 16,139 | 2,754 | 18,690 |
| 1. Local Product Demand | 6,522 | 4,996 | 3,755 | 544 | 15,817 | 2,614 | 18,431 |
| 2. Crude and Product Exports | 15 | 58 | 97 | 2 | 172 | 71 | 243 |
| 3. Product Shipments to Other Districts | 207 | 306 | 4,048 | 112 | 126 | 21 | |
| 4. Crude, NGL and Unfinished Shipments to Other Districts | 160 | 68 | 1,382 | 251 | 9 | 47 | |
| 5. Crude Losses | 2 | 5 | 6 | 2 | 15 | 1 | 16 |
| SUPPLY - TOTAL | 6,906 | 5,433 | 9,288 | 911 | 16,139 | 2,754 | 18,890 |
| 1. Production - Total | 189 | 1,150 | 6,349 | 725 | 8,413 | 1,448 | 9,361 |
| Crude and Lease Condensate | 144 | 892 | 5,122 | 662 | 6,820 | 1,424 | 8,244 |
| NGL | 45 | 258 | 1,227 | 63 | 1,593 | 24 | 1,617 |
| 2. Receipts From Other Districts | 3,380 | 2,643 | 346 | 98 | 68 | 135 | 203 |
| Crude NGL and Unfinished | 144 | 1,526 | 219 | 10 | 47 | 11 | 58 |
| Products | 3,236 | 1,117 | 127 | 88 | 21 | 124 | 145 |
| 3. Processing Gain, Etc.[2] | 99 | 259 | 159 | 18 | 535 | 34 | 569 |
| 4. Imports - Total | 3,368 | 1,560 | 2,592 | 74 | 7,594 | 1,214 | 8,808 |
| Crude and Unfinished | 1,543 | 1,416 | 2,544 | 44 | 5,547 | 1,099 | 6,646 |
| From Overland | 5 | 210 | - | 44 | 259 | 20 | 279 |
| From Offshore | 1,538 | 1,206 | 2,544 | - | 5,288 | 1,079 | 6,367 |
| NGL | - | 24 | - | 14 | 38 | 4 | 42 |
| Finished Products | 1,825 | 120 | 48 | 16 | 2,009 | 111 | 2,120 |
| 5. Syncrude | - | - | - | - | - | - | - |
| From Shale | - | - | - | - | - | - | - |
| From Coal | - | - | - | - | - | - | - |
| 6. From Inventory | (130) | (179) | (158) | (4) | (471) | (77) | (548) |
| Crude | (3) | (21) | (78) | (1) | (103) | (67) | (170) |
| Products | (127) | (158) | (80) | (3) | (368) | (10) | (378) |
| 7. Crude Runs | 1,674 | 3,779 | 6,346 | 480 | 12,279 | 2,323 | 14,602 |

[1] Source: U.S. Bureau of Mines, Petroleum Statement, 1977 Annual (Final).
[2] Includes other hydrocarbon and hydrogen refinery inputs, "unaccounted for" crude inputs.

TABLE IV - ATTACHMENT A (Page 1 of 5)

CRUDE IMPORTS TO U.S.

| | 1972 | | 1973 | | 1974 | | 1975 | | 1976 | | 1977 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N. America - Canada | 854 | | 1001 | | 790 | | 600 | | 371 | | 279 | |
| Mexico | - | | 1 | | 2 | | 71 | | 86 | | 177 | |
| S.Total | 854 | 39% | 1002 | 31% | 792 | 23% | 671 | 16% | 457 | 8% | 456 | 7% |
| S. America -- Argentina | 1 | | - | | - | | - | | - | | - | |
| Bolivia | - | | 3 | | 7 | | 5 | | 5 | | 4 | |
| Chile | - | | - | | - | | - | | - | | 1 | |
| Colombia | 4 | | 2 | | - | | - | | 5 | | - | |
| Ecuador | 15 | | 48 | | 41 | | 57 | | 52 | | 56 | |
| Trinidad | 24 | | 59 | | 63 | | 115 | | 104 | | 133 | |
| Venezuela | 255 | | 344 | | 319 | | 396 | | 241 | | 250 | |
| S.Total | 299 | 13% | 456 | 14% | 430 | 12% | 573 | 14% | 407 | 8% | 444 | 7% |
| Western Hemisphere - Total | 1153 | 52% | 1458 | 45% | 1222 | 35% | 1244 | 30% | 864 | 16% | 900 | 14% |
| Europe - Netherlands | - | | - | | - | | 4 | | - | | 4 | |
| Norway | - | | - | | 1 | | 13 | | 36 | | 48 | |
| U.K. | - | | - | | - | | - | | 13 | | 98 | |
| U.S.S.R. | 1 | | - | | - | | - | | 2 | | 2 | |
| S.Total | 1 | | - | | 1 | | 17 | | 51 | 1% | 152 | 2% |
| Middle East - Iran | 137 | | 216 | | 463 | | 278 | | 298 | | 530 | |
| Iraq | 3 | | 6 | | - | | 2 | | 25 | | 74 | |
| Israel | - | | 1 | | - | | - | | 6 | | - | |
| Kuwait | 36 | | 40 | | 5 | | 4 | | 2 | | 42 | |
| Oman | - | | - | | 1 | | 1 | | 30 | | 74 | |
| Qatar | 4 | | 7 | | 17 | | 19 | | 24 | | 67 | |
| Saudi Arabia | 174 | | 462 | | 437 | | 702 | | 1221 | | 1373 | |
| Syria | - | | - | | - | | - | | - | | 2 | |
| U.A.E. | 73 | | 71 | | 69 | | 116 | | 254 | | 333 | |
| S.Total | 427 | 19% | 803 | 25% | 992 | 29% | 1122 | 27% | 1860 | 35% | 2495 | 38% |
| Asia - Australia | 1 | | - | | - | | - | | - | | - | |
| Brunei | - | | - | | - | | - | | - | | 5 | |
| Indonesia | 163 | | 200 | | 283 | | 379 | | 538 | | 507 | |
| Malaysia | 3 | | 1 | | 1 | | 5 | | 16 | | 55 | |
| S.Total | 167 | 8% | 201 | 6% | 284 | 8% | 384 | 10% | 554 | 11% | 567 | 8% |
| Africa - Algeria | 86 | | 119 | | 180 | | 265 | | 408 | | 544 | |
| Angola | 16 | | 49 | | 48 | | 71 | | 6 | | 17 | |
| Congo | - | | - | | 2 | | - | | 8 | | 7 | |
| Egypt | 8 | | 15 | | 9 | | 4 | | 17 | | 36 | |
| Gabon | - | | - | | 24 | | 27 | | 27 | | 35 | |
| Libya | 109 | | 133 | | 4 | | 223 | | 444 | | 704 | |
| Nigeria | 242 | | 448 | | 698 | | 746 | | 1013 | | 1130 | |
| Tunisia | 7 | | 18 | | 13 | | 2 | | 15 | | 28 | |
| Zaire | - | | - | | - | | - | | 20 | | - | |
| S.Total | 468 | 21% | 782 | 24% | 978 | 28% | 1338 | 33% | 1958 | 37% | 2501 | 38% |
| Eastern Hemisphere - Total | 1063 | 48% | 1786 | 55% | 2255 | 65% | 2861 | 70% | 4423 | 84% | 5715 | 86% |
| Worldwide - Total | 2216 | | 3244 | | 3477 | | 4105 | | 5287 | | 6615 | |

TABLE IV - ATTACHMENT A (Page 2 of 5)

CRUDE IMPORTS TO U.S.

PAD I

| | | 1972 | | 1973 | | 1974 | | 1975 | | 1976 | | 1977 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N. America | - Canada | 111 | | 120 | | 89 | | 63 | | 16 | | 5 | |
| | Mexico | - | | - | | - | | 4 | | 6 | | 21 | |
| | S.Total | 111 | 12% | 120 | 9% | 89 | 8% | 67 | 5% | 22 | 2% | 26 | 2% |
| S. America | - Bolivia | - | | - | | 1 | | - | | - | | - | |
| | Colombia | 3 | | 1 | | - | | - | | - | | - | |
| | Ecuador | - | | 1 | | - | | - | | 2 | | - | |
| | Trinidad | 20 | | 12 | | 15 | | 16 | | 4 | | 14 | |
| | Venezuela | 220 | | 265 | | 227 | | 268 | | 161 | | 170 | |
| | S.Total | 243 | 25% | 279 | 22% | 243 | 20% | 284 | 23% | 167 | 12% | 184 | 12% |
| West. Hemisphere | - Total | 354 | 37% | 399 | 31% | 332 | 28% | 351 | 28% | 189 | 14% | 210 | 14% |
| Europe | - Italy | - | | - | | - | | - | | - | | - | |
| | Netherlands | - | | - | | - | | 3 | | - | | 2 | |
| | Norway | - | | - | | 1 | | - | | 5 | | 13 | |
| | U.K. | - | | - | | - | | - | | 2 | | 24 | |
| | S.Total | - | - | - | - | 1 | - | 3 | - | 7 | 1% | 39 | 2% |
| Middle East | - Iran | 76 | | 130 | | 196 | | 106 | | 123 | | 171 | |
| | Iraq | 1 | | 1 | | - | | - | | - | | 1 | |
| | Kuwait | 34 | | 35 | | 5 | | 4 | | 1 | | 3 | |
| | Oman | - | | - | | 1 | | - | | - | | 4 | |
| | Qatar | 1 | | - | | 1 | | - | | - | | 3 | |
| | Saudi Arabia | 59 | | 105 | | 109 | | 219 | | 433 | | 397 | |
| | UAE | 43 | | 36 | | 32 | | 27 | | 42 | | 6 | |
| | S.Total | 214 | 22% | 307 | 24% | 344 | 29% | 356 | 29% | 599 | 42% | 585 | 39% |
| Asia | - Indonesia | - | - | 7 | 1% | 19 | 2% | 31 | 3% | 35 | 2% | 42 | 3% |
| Africa | - Algeria | 73 | | 102 | | 73 | | 124 | | 189 | | 183 | |
| | Angola | 14 | | 38 | | 32 | | 41 | | 5 | | 13 | |
| | Congo | - | | - | | 2 | | - | | - | | 1 | |
| | Egypt | 7 | | 14 | | 9 | | 3 | | 16 | | 14 | |
| | Gabon | - | | - | | 13 | | 26 | | 11 | | 32 | |
| | Libya | 93 | | 72 | | 3 | | 61 | | 57 | | 81 | |
| | Nigeria | 207 | | 327 | | 339 | | 241 | | 284 | | 316 | |
| | Tunisia | 7 | | 11 | | 7 | | - | | 3 | | 2 | |
| | Zaire | - | | - | | - | | - | | 20 | | - | |
| | S.Total | 401 | 41% | 564 | 44% | 478 | 41% | 496 | 40% | 585 | 41% | 642 | 42% |
| East. Hemisphere | - Total | 615 | 63% | 878 | 69% | 842 | 72% | 886 | 72% | 1226 | 86% | 1308 | 86% |
| Worldwide | - Total | 969 | | 1277 | | 1174 | | 1237 | | 1415 | | 1518 | |

TABLE IV - ATTACHMENT A (Page 3 of 5)

CRUDE IMPORTS TO U.S.

PAD II

| | | 1972 | | 1973 | | 1974 | | 1975 | | 1976 | | 1977 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N. America - | Canada | 447 | | 595 | | 465 | | 329 | | 214 | | 210 | |
| | Mexico | - | | - | | - | | 11 | | 3 | | 23 | |
| | S.Total | 447 | 96% | 595 | 83% | 465 | 67% | 340 | 44% | 217 | 22% | 233 | 17% |
| S. America - | Bolivia | - | | 2 | | - | | - | | 1 | | - | |
| | Colombia | - | | - | | - | | - | | - | | - | |
| | Ecuador | - | | 1 | | 2 | | 1 | | 1 | | 2 | |
| | Trinidad | - | | 11 | | 21 | | 24 | | 38 | | 21 | |
| | Venezuela | 2 | | 3 | | 10 | | 19 | | 16 | | 37 | |
| | S.Total | 2 | | 17 | 3% | 33 | 5% | 44 | 6% | 56 | 5% | 60 | 4% |
| West. Hemisphere - | Total | 449 | 96% | 612 | 86% | 498 | 72% | 384 | 50% | 273 | 27% | 293 | 21% |
| Europe - | Netherlands | - | | - | | - | | - | | - | | 1 | |
| | Norway | - | | - | | - | | 1 | | 15 | | 23 | |
| | U.K. | - | | - | | - | | - | | 8 | | 50 | |
| | S.Total | - | - | - | - | - | - | 1 | - | 23 | 2% | 74 | 5% |
| Middle East - | Iran | 5 | | 18 | | 57 | | 37 | | 25 | | 75 | |
| | Iraq | - | | - | | - | | - | | 6 | | 6 | |
| | Oman | - | | - | | - | | - | | 14 | | 33 | |
| | Qatar | - | | 2 | | 4 | | 1 | | 1 | | 19 | |
| | Saudi Arabia | 1 | | 48 | | 58 | | 89 | | 153 | | 148 | |
| | Syria | - | | - | | - | | - | | - | | 1 | |
| | UAE | - | | 2 | | 4 | | 16 | | 44 | | 70 | |
| | S. Total | 6 | 1% | 70 | 10% | 123 | 18% | 143 | 18% | 243 | 25% | 352 | 25% |
| Africa - | Algeria | 6 | | 4 | | 25 | | 53 | | 76 | | 148 | |
| | Congo | - | | - | | - | | - | | 2 | | 4 | |
| | Egypt | - | | 1 | | - | | - | | 1 | | 14 | |
| | Gabon | - | | - | | 3 | | - | | - | | - | |
| | Libya | 6 | | 15 | | - | | 75 | | 226 | | 341 | |
| | Nigeria | 1 | | 12 | | 38 | | 118 | | 155 | | 182 | |
| | Tunisia | - | | - | | - | | - | | 1 | | 8 | |
| | S.Total | 13 | 3% | 32 | 4% | 66 | 10% | 246 | 32% | 461 | 46% | 697 | 49% |
| East. Hemisphere - | Total | 19 | 4% | 102 | 14% | 189 | 28% | 390 | 50% | 727 | 73% | 1123 | 79% |
| Worldwide - | Total | 468 | | 714 | | 687 | | 774 | | 1000 | | 1416 | |

TABLE IV - ATTACHMENT A (Page 4 of 5)

CRUDE IMPORTS TO U.S.

PAD III

| | | 1972 | | 1973 | | 1974 | | 1975 | | 1976 | | 1977 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N. America - | Canada | - | - | - | - | 2 | - | - | - | - | - | - | - |
| | Mexico | - | - | 1 | - | 2 | - | 56 | 5% | 77 | 4% | 133 | 5% |
| S. America - | Argentina | 1 | | - | | - | | - | | - | | - | |
| | Bolivia | - | | 1 | | - | | - | | - | | - | |
| | Colombia | 1 | | - | | - | | - | | 5 | | - | |
| | Ecuador | 4 | | 2 | | - | | 3 | | 11 | | 8 | |
| | Trinidad | 4 | | 36 | | 27 | | 75 | | 62 | | 98 | |
| | Venezuela | 11 | | 52 | | 52 | | 65 | | 56 | | 35 | |
| | S.Total | 21 | 27% | 91 | 23% | 79 | 10% | 143 | 12% | 134 | 8% | 141 | 6% |
| West. Hemisphere - | Total | 21 | 27 % | 92 | 23% | 83 | 10% | 199 | 17% | 211 | 12% | 274 | 11% |
| Europe - | Netherlands | - | | - | | - | | 1 | | - | | 1 | |
| | Norway | - | | - | | - | | 12 | | 16 | | 12 | |
| | U.K. | - | | - | | - | | - | | 3 | | 24 | |
| | U.S.S.R. | 1 | | - | | - | | - | | 2 | | 2 | |
| | S.Total | 1 | 1% | - | - | - | - | 13 | 1% | 21 | 1% | 39 | 1% |
| Middle East - | Iran | - | | 30 | | 71 | | 30 | | 60 | | 184 | |
| | Iraq | - | | 2 | | - | | 2 | | 19 | | 65 | |
| | Israel | - | | 1 | | - | | - | | 6 | | - | |
| | Kuwait | - | | 1 | | - | | - | | - | | 39 | |
| | Oman | - | | - | | - | | - | | 6 | | 6 | |
| | Qatar | - | | 2 | | 12 | | 7 | | 12 | | 35 | |
| | Saudi Arabia | 2 | | 78 | | 175 | | 298 | | 456 | | 630 | |
| | Syria | - | | - | | - | | - | | - | | 1 | |
| | UAE | - | | 3 | | 9 | | 23 | | 84 | | 131 | |
| | S.Total | 2 | 3% | 117 | 29% | 267 | 34% | 360 | 30% | 643 | 36% | 1091 | 43% |
| Asia - | Indonesia | - | - | 4 | 1% | 14 | 2% | 52 | 4% | 54 | 3% | 41 | 2% |
| | Malaysia | - | - | - | - | - | - | - | - | 1 | - | - | - |
| Africa - | Algeria | 7 | | 13 | | 82 | | 87 | | 138 | | 208 | |
| | Angola | 2 | | 11 | | 16 | | 30 | | 1 | | 2 | |
| | Congo | - | | - | | - | | - | | 6 | | 2 | |
| | Egypt | - | | - | | - | | 1 | | - | | 7 | |
| | Gabon | - | | - | | 8 | | 1 | | - | | 1 | |
| | Libya | 10 | | 46 | | - | | 80 | | 153 | | 281 | |
| | Nigeria | 34 | | 109 | | 319 | | 373 | | 542 | | 577 | |
| | Tunisia | - | | 7 | | 6 | | 2 | | 10 | | 18 | |
| | S.Total | 53 | 69% | 186 | 47% | 431 | 54% | 574 | 48% | 850 | 48% | 1096 | 43% |
| East. Hemisphere - | Total | 56 | 73% | 307 | 77% | 712 | 90% | 999 | 83% | 1569 | 88% | 2267 | 89% |
| Worldwide - | Total | 77 | | 399 | | 795 | | 1198 | | 1780 | | 2541 | |

TABLE IV - ATTACHMENT A (Page 5 of 5)

CRUDE IMPORTS TO U.S.
PAD IV AND V

| | 1972 | | 1973 | | 1974 | | 1975 | | 1976 | | 1977 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PAD IV** | | | | | | | | | | | | |
| Canada | 39 | 100% | 44 | 100% | 45 | 100% | 44 | 100% | 54 | 100% | 44 | 100% |
| **PAD V** | | | | | | | | | | | | |
| N. America - Canada | 257 | 39% | 242 | 30% | 189 | 24% | 164 | 19% | 87 | 8% | 20 | 2% |
| S. America - Bolivia | - | | - | | 6 | | 5 | | 4 | | 4 | |
| Chile | - | | - | | - | | - | | - | | 1 | |
| Colombia | - | | 1 | | - | | - | | - | | - | |
| Ecuador | 11 | | 44 | | 39 | | 53 | | 38 | | 46 | |
| Venezuela | 22 | | 24 | | 30 | | 44 | | 8 | | 8 | |
| S.Total | 33 | 5% | 69 | 8% | 75 | | 102 | 12% | 50 | 5% | 59 | 5% |
| West. Hemisphere - Total | 290 | 44% | 311 | 38% | 264 | 34% | 266 | 31% | 137 | 13% | 79 | 7% |
| Middle East - Iran | 56 | | 38 | | 139 | | 105 | | 90 | | 100 | |
| Iraq | 2 | | 3 | | - | | - | | - | | 2 | |
| Kuwait | 2 | | 4 | | - | | - | | 1 | | - | |
| Oman | - | | - | | - | | 1 | | 10 | | 31 | |
| Qatar | 3 | | 3 | | - | | 11 | | 11 | | 10 | |
| Saudi Arabia | 112 | | 231 | | 95 | | 96 | | 179 | | 198 | |
| UAE | 30 | | 30 | | 24 | | 50 | | 84 | | 126 | |
| S.Total | 205 | 31% | 309 | 38% | 258 | 33% | 263 | 31% | 375 | 36% | 467 | 43% |
| Asia - Australia | 1 | | - | | - | | - | | - | | - | |
| Brunei | - | | - | | - | | - | | - | | 5 | |
| Indonesia | 163 | | 189 | | 250 | | 296 | | 449 | | 424 | |
| Malaysia | 3 | | 1 | | 1 | | 5 | | 15 | | 55 | |
| S.Total | 167 | 25% | 190 | 24% | 251 | 33% | 301 | 35% | 464 | 45% | 484 | 44% |
| Africa - Algeria | - | | - | | - | | 1 | | 5 | | 5 | |
| Angola | - | | - | | - | | - | | - | | 2 | |
| Egypt | 1 | | - | | - | | - | | - | | 1 | |
| Gabon | - | | - | | - | | - | | 16 | | 2 | |
| Libya | - | | - | | 1 | | 7 | | 8 | | 1 | |
| Nigeria | - | | - | | 2 | | 14 | | 32 | | 55 | |
| Tunisia | - | | - | | - | | - | | 1 | | - | |
| S.Total | 1 | - | - | - | 3 | - | 22 | 3% | 62 | 6% | 66 | 6% |
| East. Hemisphere - Total | 373 | 56% | 499 | 62% | 512 | 66% | 586 | 69% | 901 | 87% | 1017 | 93% |
| Worldwide - Total | 663 | | 810 | | 776 | | 852 | | 1038 | | 1096 | |

TABLE IV - ATTACHMENT B

| | From | UNFINISHED OIL IMPORTS (MB/D) 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | NATURAL GASOLINE, ISOPENTANE & PLANT CONDENSATE IMPORTS (MB/D) 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| To U.S.: | North America | 16 | 14 | 10 | 2 | 2 | 1 | 86 | 103 | 88 | 74 | 66 | 42 |
| | Central America/Carib | 65 | 50 | 42 | 18 | 26 | 25 | | | | | | |
| | South America | 25 | 46 | 46 | 9 | 2 | 5 | | | 1 | | 1 | |
| | Total Western Hemisphere | 106 | 110 | 98 | 29 | 30 | 31 | 86 | 103 | 89 | 74 | 67 | 42 |
| | Middle East | 14 | 14 | 7 | 4 | 2 | - | | | | | | |
| | Asia | 3 | 4 | 4 | 2 | - | - | | | | | | |
| | Africa | - | - | 1 | 1 | - | - | | | | | | |
| | Western Europe | 2 | 9 | 11 | - | - | - | | | | | | |
| | Total Eastern Hemisphere | 19 | 27 | 23 | 7 | 2 | - | 0 | 0 | 0 | 0 | 0 | 0 |
| | Total Non-Communist World | 125 | 137 | 121 | 36 | 32 | 31 | 86 | 103 | 89 | 74 | 67 | 42 |
| To PAD I: | North America | 16 | 13 | 6 | - | - | - | 2 | 5 | 7 | 9 | 6 | - |
| | Central America/Carib | 54 | 41 | 12 | 10 | 17 | 23 | | | | | | |
| | South America | 12 | 14 | 19 | 1 | 2 | 2 | | | 1 | | | |
| | Total Western Hemisphere | 82 | 68 | 37 | 11 | 19 | 25 | 2 | 5 | 8 | 9 | 6 | 0 |
| | Middle East | 2 | 2 | 1 | 4 | 2 | - | | | | | | |
| | Asia | - | - | - | 1 | - | - | | | | | | |
| | Africa | - | - | 1 | 1 | - | - | | | | | | |
| | Western Europe | - | 2 | - | - | - | - | | | | | | |
| | Total Eastern Hemisphere | 2 | 4 | 2 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Total Non-Communist World | 84 | 72 | 39 | 17 | 21 | 25 | 2 | 5 | 8 | 9 | 6 | 0 |
| To PAD II: | North America | | | 3 | 1 | | | 45 | 62 | 52 | 41 | 38 | 24 |
| | Central America/Carib | | 1 | | | | | | | | | | |
| | South America | | 1 | | | | | | | | | | |
| | Total Western Hemisphere | 0 | 2 | 3 | 1 | 0 | 0 | 45 | 62 | 52 | 41 | 38 | 24 |
| To PAD III: | North America | | 1 | | | 1 | | | | | | | |
| | Central America/Carib | 1 | 1 | 24 | 7 | 9 | 2 | | | | | | |
| | South America | 1 | 17 | 14 | 3 | - | 1 | | | | | 1 | |
| | Total Western Hemisphere | 2 | 19 | 38 | 10 | 10 | 3 | 0 | 0 | 0 | 0 | 1 | 0 |
| | Middle East | | 2 | 2 | | | | | | | | | |
| | Asia | | 1 | 1 | 1 | | | | | | | | |
| | Western Europe | 2 | 7 | 11 | | | | | | | | | |
| | Total Eastern Hemisphere | 2 | 10 | 14 | 1 | | | 0 | 0 | 0 | 0 | 0 | 0 |
| | Total Non-Communist World | 4 | 29 | 52 | 11 | 10 | 3 | 0 | 0 | 0 | 0 | 1 | 0 |
| To PAD IV: | North America | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 28 | 23 | 18 | 16 | 14 |
| To PAD V: | North America | - | - | 1 | 1 | 1 | 1 | 8 | 8 | 6 | 6 | 6 | 4 |
| | Central America/Carib | 10 | 7 | 6 | 1 | - | | | | | | | |
| | South America | 12 | 14 | 13 | 5 | | 2 | | | | | | |
| | Total Western Hemisphere | 22 | 21 | 20 | 7 | 1 | 3 | 8 | 8 | 6 | 6 | 6 | 4 |
| | Middle East | 12 | 10 | 4 | | | | | | | | | |
| | Asia | 3 | 3 | 3 | | | | | | | | | |
| | Total Eastern Hemisphere | 15 | 13 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Total Non-Communist World | 37 | 34 | 27 | 7 | 1 | 3 | 8 | 8 | 6 | 6 | 6 | 4 |

TABLE IV - ATTACHMENT C (Page 1 of 6)

REFINED PRODUCT IMPORTS
(MB/D)

| TOTAL U.S. | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| Motor Gasoline | 68 | 133 | 204 | 184 | 130 | 218 |
| Aviation Gasoline | - | - | - | - | - | - |
| Jet Fuel - Naphtha Type | 33 | 36 | 27 | 28 | 15 | 21 |
| - Kerosine Type | 162 | 176 | 135 | 105 | 61 | 53 |
| Special Naphtha | 2 | - | 3 | - | - | 3 |
| Kerosine | 1 | 2 | 5 | 3 | 9 | 19 |
| Distillate Fuel Oil | 181 | 392 | 289 | 155 | 146 | 250 |
| Residual Fuel Oil | 1,742 | 1,853 | 1,587 | 1,223 | 1,413 | 1,359 |
| Liquefied Gases | 89 | 132 | 122 | 112 | 130 | 161 |
| Petrochemical Feedstocks | 8 | 11 | 12 | 6 | 4 | 15 |
| Lubricants and Wax | 3 | 9 | 8 | 6 | 6 | 9 |
| Coke | - | - | - | - | - | - |
| Asphalt and Road Oil | 25 | 23 | 31 | 14 | 11 | 4 |
| Miscellaneous Products | - | - | 2 | 6 | 2 | 8 |
| Total | 2,314 | 2,767 | 2,425 | 1,842 | 1,927 | 2,120 |
| % U.S. Domestic Demand | 14.1 | 16.0 | 14.6 | 11.3 | 11.0 | 11.5 |

TABLE IV - ATTACHMENT C (Page 2 of 6)

REFINED PRODUCT IMPORTS
(MB/D)

| PAD I | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| Motor Gasoline | 68 | 117 | 176 | 164 | 119 | 190 |
| Aviation Gasoline | - | - | - | - | - | - |
| Jet Fuel - Naphtha Type | 23 | 27 | 19 | 24 | 10 | 19 |
| - Kerosine Type | 83 | 96 | 75 | 53 | 30 | 24 |
| Special Naphtha | 1 | - | - | - | - | 1 |
| Kerosine | 1 | 2 | 4 | 3 | 9 | 19 |
| Distillate Fuel Oil | 174 | 343 | 261 | 148 | 134 | 242 |
| Residual Fuel Oil | 1,686 | 1,752 | 1,476 | 1,140 | 1,355 | 1,280 |
| Liquefied Gases | 15 | 24 | 15 | 18 | 16 | 28 |
| Petrochemical Feedstocks | - | 1 | 2 | 1 | - | 4 |
| Lubricants and Wax | 3 | 8 | 7 | 6 | 6 | 7 |
| Coke | - | - | - | - | - | - |
| Asphalt and Road Oil | 24 | 22 | 30 | 14 | 10 | 4 |
| Miscellaneous Products | | - | 2 | 6 | 2 | 7 |
| Total | 2,078 | 2,392 | 2,067 | 1,577 | 1,691 | 1,825 |
| % Total U.S. Imports | 89.8 | 86.4 | 85.2 | 85.6 | 87.8 | 86.1 |
| % PAD I Domestic Demand | 32.2 | 35.8 | 33.2 | 26.4 | 26.1 | 28.0 |

TABLE IV - ATTACHMENT C (Page 3 of 6)

REFINED PRODUCT IMPORTS
(MB/D)

| PAD II | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| Motor Gasoline | | 2 | 1 | 4 | 1 | 4 |
| Aviation Gasoline | | | | | | - |
| Jet Fuel - Naphtha Type | | | | | | - |
| - Kerosine Type | 8 | 7 | 5 | 2 | | - |
| Special Naphtha | | | 3 | | | 1 |
| Kerosine | | | | | | - |
| Distillate Fuel Oil | 2 | 4 | 1 | 1 | | - |
| Residual Fuel Oil | 15 | 17 | 22 | 38 | 32 | 32 |
| Liquefied Gases | 39 | 51 | 53 | 49 | 61 | 81 |
| Petrochemical Feedstocks | | | | | | 2 |
| Lubricants and Wax | | | | | | |
| Coke | | | | | | |
| Asphalt and Road Oil | | | | | | |
| Miscellaneous Products | | | | | | |
| Total | 64 | 81 | 85 | 94 | 94 | 120 |
| % Total U.S. Imports | 2.8 | 2.9 | 3.5 | 5.1 | 4.8 | 5.7 |
| % PAD II Domestic Demand | 1.4 | 1.8 | 1.9 | 2.1 | 1.9 | 2.4 |

TABLE IV - ATTACHMENT C (Page 4 of 6)

REFINED PRODUCT IMPORTS
(MB/D)

| PAD III | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| Motor Gasoline | | 9 | 19 | 4 | 6 | 9 |
| Aviation Gasoline | | | | | | |
| Jet Fuel - Naphtha Type | | | 2 | | | |
| - Kerosine Type | 12 | 16 | 8 | 5 | 1 | |
| Special Naphtha | 1 | | | | | |
| Kerosine | | | 1 | | | |
| Distillate Fuel Oil | 4 | 34 | 18 | 4 | 2 | 1 |
| Residual Fuel Oil | 17 | 29 | 32 | 11 | 5 | 2 |
| Liquefied Gases | 2 | 25 | 26 | 15 | 18 | 25 |
| Petrochemical Feedstocks | 8 | 10 | 10 | 5 | 4 | 9 |
| Lubricants and Wax | | 1 | 1 | | | 2 |
| Coke | | | | | | |
| Asphalt and Road Oil | 1 | 1 | 1 | | 1 | |
| Miscellaneous Products | | | | | | |
| Total | 45 | 125 | 118 | 44 | 37 | 48 |
| % Total U.S. Imports | 1.9 | 4.5 | 4.9 | 2.4 | 1.9 | 2.2 |
| % PAD III Domestic Demand | 1.6 | 3.9 | 3.6 | 1.4 | 1.1 | 1.3 |

TABLE IV - ATTACHMENT C (Page 5 of 6)

REFINED PRODUCT IMPORTS
(MB/D)

| PAD IV | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| Motor Gasoline | | 2 | 1 | | | 1 |
| Aviation Gasoline | | | | | | |
| Jet Fuel - Naphtha Type | | | | | | |
| - Kerosine Type | | | | | | |
| Special Naphtha | | | | | | |
| Kerosine | | | | | | |
| Distillate Fuel Oil | | | | | | |
| Residual Fuel Oil | | | | | | |
| Liquefied Gases | 15 | 15 | 15 | 16 | 16 | 15 |
| Petrochemical Feedstocks | | | | | | |
| Lubricants and Wax | | | | | | |
| Coke | | | | | | |
| Asphalt and Road Oil | | | | | | |
| Miscellaneous Products | | | | | | |
| Total | 15 | 17 | 16 | 16 | 16 | 16 |
| % Total U.S. Imports | 0.6 | 0.6 | 0.7 | 0.9 | 0.8 | 0.8 |
| % PAD IV Domestic Demand | 3.4 | 3.7 | 3.4 | 3.3 | 3.0 | 2.9 |

TABLE IV - ATTACHMENT C (Page 6 of 6)

REFINED PRODUCT IMPORTS
(MB/D)

| PAD V | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| Motor Gasoline | | 3 | 7 | 12 | 4 | 14 |
| Aviation Gasoline | | | | | | |
| Jet Fuel - Naphtha Type | 10 | 9 | 6 | 4 | 5 | 2 |
| - Kerosine Type | 59 | 57 | 47 | 45 | 30 | 29 |
| Special Naphtha | | | | | | 1 |
| Kerosine | | | | | | |
| Distillate Fuel Oil | 1 | 11 | 9 | 2 | 10 | 7 |
| Residual Fuel Oil | 24 | 55 | 57 | 34 | 21 | 45 |
| Liquefied Gases | 18 | 17 | 13 | 14 | 19 | 12 |
| Petrochemical Feedstocks | | | | | | |
| Lubricants and Wax | | | | | | |
| Coke | | | | | | |
| Asphalt and Road Oil | | | | | | |
| Miscellaneous Products | | | | | | 1 |
| Total | 112 | 152 | 139 | 111 | 89 | 111 |
| % Total U.S. Imports | 4.8 | 5.5 | 5.7 | 6.0 | 4.6 | 5.2 |
| % PAD V Domestic Demand | 5.2 | 6.5 | 6.3 | 5.0 | 3.8 | 4.2 |

TABLE IV - ATTACHMENT D (Page 1 of 7)

MOTOR GASOLINE IMPORTS BY PAD BY SOURCE
(MBPD)

| From | To PAD I | II | III | IV | I-IV | V | Total | To PAD I | II | III | IV | I-IV | V | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1972 | | | | | | | 1975 | | | |
| North America | 1 | | | | 1 | | 1 | 5 | 4 | | | 9 | 1 | 10 |
| Central America/Caribbean | 65 | | | | 65 | | 65 | 125 | | 1 | | 126 | | 126 |
| South America | | | | | - | | - | 14 | | 2 | | 16 | 1 | 17 |
| Total Western Hemisphere | 66 | - | - | - | 66 | - | 66 | 144 | 4 | 3 | - | 151 | 2 | 153 |
| Europe | 2 | | | | 2 | | 2 | 17 | | | | 17 | | 17 |
| Middle East | | | | | - | | - | 2 | | 1 | | 3 | 4 | 7 |
| Africa | | | | | - | | - | 1 | | | | 1 | | 1 |
| Asia | | | | | - | | - | | | | | - | 2 | 2 |
| Oceania | | | | | - | | - | | | | | - | 4 | 4 |
| Total Eastern Hemisphere | 2 | - | - | - | 2 | - | 2 | 20 | - | 1 | - | 21 | 10 | 31 |
| Total | 68 | - | - | - | 68 | - | 68 | 164 | 4 | 4 | - | 172 | 12 | 184 |
| | | | | 1973 | | | | | | | 1976 | | | |
| North America | 8 | 2 | | 2 | 12 | 1 | 13 | 1 | 1 | 2 | | 4 | | 4 |
| Central America/Caribbean | 78 | | 4 | | 82 | | 82 | 107 | | 1 | | 108 | | 108 |
| South America | 8 | | 3 | | 11 | | 11 | 8 | | 1 | | 9 | 1 | 10 |
| Total Western Hemisphere | 94 | 2 | 7 | 2 | 105 | 1 | 106 | 116 | 1 | 4 | - | 121 | 1 | 122 |
| Europe | 22 | | 1 | | 23 | | 23 | 3 | | 2 | | 5 | | 5 |
| Middle East | 1 | | 1 | | 2 | 1 | 3 | | | | | - | 3 | 3 |
| Africa | | | | | - | | - | | | | | - | | - |
| Asia | | | | | - | | - | | | | | - | | - |
| Oceania | | | | | - | 1 | 1 | | | | | - | | - |
| Total Eastern Hemisphere | 23 | - | 2 | - | 25 | 1 | 26 | 3 | - | 2 | - | 5 | 3 | 8 |
| Total | 117 | 2 | 9 | 2 | 130 | 3 | 133 | 119 | 1 | 6 | - | 126 | 4 | 130 |
| | | | | 1974 | | | | | | | 1977 | | | |
| North America | 1 | 1 | | 1 | 3 | 1 | 4 | 5 | 4 | 1 | 1 | 11 | 3 | 14 |
| Central America/Caribbean | 102 | | 5 | | 107 | 1 | 108 | 133 | | | | 133 | | 133 |
| South America | 22 | | 5 | | 27 | | 27 | 19 | | 4 | | 23 | | 23 |
| Total Western Hemisphere | 125 | 1 | 10 | 1 | 137 | 2 | 139 | 157 | 4 | 5 | 1 | 167 | 3 | 170 |
| Europe | 48 | | 6 | | 54 | 1 | 55 | 28 | | 2 | | 30 | | 30 |
| Middle East | 3 | | 3 | | 6 | | 6 | 5 | | 2 | | 7 | 2 | 9 |
| Africa | | | | | - | | - | | | | | - | 1 | 1 |
| Asia | | | | | - | | - | | | | | - | 8 | 8 |
| Oceania | | | | | - | 4 | 4 | | | | | - | | - |
| Total Eastern Hemisphere | 51 | - | 9 | - | 60 | 5 | 65 | 33 | - | 4 | - | 37 | 11 | 48 |
| Total | 176 | 1 | 19 | 1 | 197 | 7 | 204 | 190 | 4 | 9 | 1 | 204 | 14 | 218 |

TABLE IV - ATTACHMENT D (Page 2 of 7)

JET FUEL (KEROSINE) IMPORTS BY PAD BY SOURCE
(MBPD)

| From | To PAD I | II | III | IV | I-IV | V | Total | To PAD I | II | III | IV | I-IV | V | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1972 | | | | | | | 1975 | | | |
| North America | 4 | | | | 4 | | 4 | 6 | | | | 6 | | 6 |
| Central America/Caribbean | 46 | 7 | 5 | | 58 | 17 | 75 | 27 | 2 | 1 | | 30 | 12 | 42 |
| South America | 25 | 1 | 7 | | 33 | 17 | 50 | 15 | | 4 | | 19 | 11 | 30 |
| Total Western Hemisphere | 75 | 8 | 12 | - | 95 | 34 | 129 | 48 | 2 | 5 | - | 55 | 23 | 78 |
| Europe | 6 | | | | 6 | | 6 | 3 | | | | 3 | 1 | 4 |
| Middle East | 2 | | | | 2 | 11 | 13 | 2 | | | | 2 | 6 | 8 |
| Africa | | | | | | | - | | | | | - | | - |
| Asia | | | | | | 11 | 11 | | | | | - | 14 | 14 |
| Oceania | | | | | | 3 | 3 | | | | | - | 1 | 1 |
| Total Eastern Hemisphere | 8 | - | - | - | 8 | 25 | 33 | 5 | - | - | - | 5 | 22 | 27 |
| Total | 83 | 8 | 12 | - | 103 | 59 | 162 | 53 | 2 | 5 | - | 60 | 45 | 105 |
| | | | | 1973 | | | | | | | 1976 | | | |
| North America | 8 | | | | 8 | | 8 | 2 | | | | 2 | | 2 |
| Central America/Caribbean | 56 | 6 | 7 | | 69 | 12 | 81 | 15 | | 1 | | 16 | 8 | 24 |
| South America | 25 | | 9 | | 34 | 14 | 48 | 13 | | | | 13 | 3 | 16 |
| Total Western Hemisphere | 89 | 6 | 16 | - | 111 | 26 | 137 | 30 | - | 1 | - | 31 | 11 | 42 |
| Europe | 4 | 1 | | | 5 | | 5 | | | | | - | 1 | 1 |
| Middle East | 3 | | | | 3 | 6 | 9 | | | | | - | 1 | 1 |
| Africa | | | | | | | - | | | | | - | | - |
| Asia | | | | | | 24 | 24 | | | | | - | 13 | 13 |
| Oceania | | | | | | 1 | 1 | | | | | - | 4 | 4 |
| Total Eastern Hemisphere | 7 | 1 | - | - | 8 | 31 | 39 | - | - | - | - | - | 19 | 19 |
| Total | 96 | 7 | 16 | - | 119 | 57 | 176 | 30 | - | 1 | - | 31 | 30 | 61 |
| | | | | 1974 | | | | | | | 1977 | | | |
| North America | 7 | | | | 7 | | 7 | 2 | | | | 2 | | 2 |
| Central America/Caribbean | 42 | 4 | 3 | | 49 | 8 | 57 | 11 | | | | 11 | 5 | 16 |
| South America | 19 | | 5 | | 24 | 13 | 37 | 9 | | | | 9 | 3 | 12 |
| Total Western Hemisphere | 68 | 4 | 8 | - | 80 | 21 | 101 | 22 | - | - | - | 22 | 8 | 30 |
| Europe | 6 | | | | 6 | | 6 | 2 | | | | 2 | | 2 |
| Middle East | 2 | | | | 2 | 9 | 11 | | | | | - | 2 | 2 |
| Africa | | | | | - | | - | | | | | - | 1 | 1 |
| Asia | | | | | - | 17 | 17 | | | | | - | 17 | 17 |
| Oceania | | | | | - | | - | | | | | - | 1 | 1 |
| Total Eastern Hemisphere | 8 | - | - | - | 8 | 26 | 34 | 2 | - | - | - | 2 | 21 | 23 |
| Total | 76 | 4 | 8 | - | 88 | 47 | 135 | 24 | - | - | - | 24 | 29 | 53 |

TABLE IV - ATTACHMENT D (Page 3 of 7)

DISTILLATE FUEL OIL IMPORTS BY PAD BY SOURCE
(MBPD)

| From | To PAD I | II | III | IV | I-IV | V | Total | To PAD I | II | III | IV | I-IV | V | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1972 | | | | | | | 1975 | | | |
| North America | 5 | 1 | | | 6 | | 6 | 4 | 1 | | | 5 | | 5 |
| Central America/Caribbean | 87 | | 1 | | 88 | | 88 | 88 | | 2 | | 90 | | 90 |
| South America | 59 | | 2 | | 61 | | 61 | 32 | | 2 | | 34 | 1 | 35 |
| Total Western Hemisphere | 151 | 1 | 3 | - | 155 | - | 155 | 124 | 1 | 4 | - | 129 | 1 | 130 |
| Europe | 22 | | | | 22 | | 22 | 12 | | | | 12 | | 12 |
| Middle East | 3 | | | | 3 | 1 | 4 | 12 | | | | 12 | | 12 |
| Africa | | | | | - | | - | | | | | - | | - |
| Asia | | | | | - | | - | | | | | - | | - |
| Oceania | | | | | - | | - | | | | | - | 1 | 1 |
| Total Eastern Hemisphere | 25 | - | - | - | 25 | 1 | 26 | 24 | - | - | - | 24 | 1 | 25 |
| Total | 176 | 1 | 3 | - | 180 | 1 | 181 | 148 | 1 | 4 | - | 153 | 2 | 155 |
| | | | | 1973 | | | | | | | 1976 | | | |
| North America | 2 | 4 | | | 6 | 1 | 7 | | | | | - | | - |
| Central America/Caribbean | 171 | | 13 | | 184 | | 184 | 112 | | 2 | | 114 | | 114 |
| South America | 63 | | 12 | | 75 | 4 | 79 | 20 | | | | 20 | | 20 |
| Total Western Hemisphere | 236 | 4 | 25 | - | 265 | 5 | 270 | 132 | - | 2 | - | 134 | | 134 |
| Europe | 100 | | 9 | | 109 | | 109 | | | | | - | | - |
| Middle East | 5 | | | | 5 | 2 | 7 | 2 | | | | 2 | 1 | 3 |
| Africa | 2 | | | | 2 | | 2 | | | | | - | | - |
| Asia | | | | | - | 3 | 3 | | | | | - | 1 | 1 |
| Oceania | | | | | - | 1 | 1 | | | | | - | 8 | 8 |
| Total Eastern Hemisphere | 107 | - | 9 | - | 116 | 6 | 122 | 2 | - | - | - | 2 | 10 | 12 |
| Total | 343 | 4 | 34 | - | 381 | 11 | 392 | 134 | - | 2 | - | 136 | 10 | 146 |
| | | | | 1974 | | | | | | | 1977 | | | |
| North America | 6 | 1 | | | 7 | | 7 | 5 | | | | 5 | | 5 |
| Central America/Caribbean | 133 | | 8 | | 141 | 3 | 144 | 160 | | 1 | | 161 | | |
| South America | 60 | | 4 | | 64 | 3 | 67 | 39 | | | | 39 | | 39 |
| Total Western Hemisphere | 199 | 1 | 12 | - | 212 | 6 | 218 | 204 | - | 1 | - | 205 | - | 205 |
| Europe | 57 | | 6 | | 63 | | 63 | 34 | | | | 34 | | 34 |
| Middle East | 4 | | | | 4 | 1 | 5 | 4 | | | | 4 | 1 | 5 |
| Africa | 1 | | | | 1 | | 1 | | | | | - | 1 | 1 |
| Asia | | | | | - | 1 | 1 | | | | | - | 4 | 4 |
| Oceania | | | | | - | 1 | 1 | | | | | - | 1 | 1 |
| Total Eastern Hemisphere | 62 | - | 6 | - | 68 | 3 | 71 | 38 | - | - | - | 38 | 7 | 45 |
| Total | 261 | 1 | 18 | - | 280 | 9 | 289 | 242 | - | 1 | - | 243 | 7 | 250 |

TABLE IV - ATTACHMENT D (Page 4 of 7)

RESIDUAL FUEL OIL IMPORTS BY PAD BY SOURCE
(MBPD)

| From | To PAD I | II | III | IV | I-IV | V | Total | To PAD I | II | III | IV | I-IV | V | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1972 | | | | | | | 1975 | | | |
| North America | 79 | 5 | | | 84 | | 84 | 27 | 38 | | | 65 | | 65 |
| Central America/Caribbean | 707 | 1 | 7 | | 715 | 3 | 718 | 651 | | 8 | | 659 | 11 | 670 |
| South America | 729 | 4 | 9 | | 742 | 7 | 749 | 333 | | 3 | | 336 | 6 | 342 |
| Total Western Hemisphere | 1515 | 10 | 16 | | 1541 | 10 | 1551 | 1011 | 38 | 11 | | 1060 | 17 | 1077 |
| Europe | 140 | 5 | 1 | | 146 | | 146 | 75 | | | | 75 | 1 | 76 |
| Middle East | 1 | | | | 1 | 13 | 14 | 1 | | | | 1 | | 1 |
| Africa | 28 | | | | 28 | | 28 | 49 | | | | 49 | | 49 |
| Asia | 1 | | | | 1 | 1 | 2 | 4 | | | | 4 | 8 | 12 |
| Oceania | 1 | | | | 1 | | 1 | | | | | | 8 | 8 |
| Total Eastern Hemisphere | 171 | 5 | 1 | | 177 | 14 | 191 | 129 | | | | 129 | 17 | 146 |
| Total | 1686 | 15 | 17 | | 1718 | 24 | 1742 | 1140 | 38 | 11 | | 1189 | 34 | 1223 |
| | | | | 1973 | | | | | | | 1976 | | | |
| North America | 82 | 11 | | | 93 | | 93 | 25 | 32 | | | 57 | | 57 |
| Central America/Caribbean | 769 | | 10 | | 779 | 8 | 787 | 597 | | 3 | | 600 | 2 | 602 |
| South America | 713 | 5 | 15 | | 733 | 20 | 753 | 578 | | 2 | | 580 | | 580 |
| Total Western Hemisphere | 1564 | 16 | 25 | | 1605 | 28 | 1633 | 1200 | 32 | 5 | | 1237 | 2 | 1239 |
| Europe | 138 | | 1 | | 139 | 2 | 141 | 102 | | | | 102 | | 102 |
| Middle East | | | | | | 9 | 9 | | | | | | | |
| Africa | 50 | 1 | 3 | | 54 | | 54 | 53 | | | | 53 | | 53 |
| Asia | | | | | | 15 | 15 | | | | | | 2 | 2 |
| Oceania | | | | | | 1 | 1 | | | | | | 17 | 17 |
| Total Eastern Hemisphere | 188 | 1 | 4 | | 193 | 27 | 220 | 155 | | | | 155 | 19 | 174 |
| Total | 1752 | 17 | 29 | | 1798 | 55 | 1853 | 1355 | 32 | 5 | | 1392 | 21 | 1413 |
| | | | | 1974 | | | | | | | 1977 | | | |
| North America | 57 | 21 | | | 78 | | 78 | 27 | 32 | | | 59 | | 59 |
| Central America/Caribbean | 740 | | 17 | | 757 | 17 | 774 | 562 | | 2 | | 564 | 1 | 565 |
| South America | 587 | 1 | 14 | | 602 | 22 | 624 | 508 | | | | 508 | | 508 |
| Total Western Hemisphere | 1384 | 22 | 31 | | 1437 | 39 | 1476 | 1097 | 32 | 2 | | 1131 | 1 | 1132 |
| Europe | 56 | | 1 | | 57 | 1 | 58 | 109 | | | | 109 | | 109 |
| Middle East | 4 | | | | 4 | 5 | 9 | 5 | | | | 5 | 4 | 9 |
| Africa | 29 | | | | 29 | | 29 | 62 | | | | 62 | 3 | 65 |
| Asia | | | | | | 14 | 14 | 5 | | | | 5 | 36 | 41 |
| Oceania | 1 | | | | 1 | | 1 | 2 | | | | 2 | 1 | 3 |
| Total Eastern Hemisphere | 90 | | 1 | | 91 | 20 | 111 | 183 | | | | 183 | 44 | 227 |
| Total | 1474 | 22 | 32 | | 1528 | 59 | 1587 | 1280 | 32 | 2 | | 1314 | 45 | 1359 |

TABLE IV - ATTACHMENT D (Page 5 of 7)

LIQUIFIED GAS IMPORTS BY PAD BY SOURCE
(MBPD)

| From | To PAD I | II | III | IV | I-IV | V | Total | To PAD I | II | III | IV | I-IV | V | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1972 | | | | | | | 1975 | | | |
| North America | 5 | 39 | - | 15 | 59 | 17 | 76 | 6 | 49 | | 16 | 71 | 13 | 84 |
| Central America/Caribbean | | | | | | | | | | | | | | |
| South America | 10 | | 2 | | 12 | | 12 | 9 | | 4 | | 13 | 1 | 14 |
| Total Western Hemisphere | 15 | 39 | 2 | 15 | 71 | 17 | 88 | 15 | 49 | 4 | 16 | 84 | 14 | 98 |
| Europe | | | | | | | | | | | | | | |
| Middle East | | | | | | 1 | 1 | 2 | | 9 | | 11 | | 11 |
| Africa | | | | | | | | 1 | | 2 | | 3 | | 3 |
| Asia | | | | | | | | | | | | | | |
| Oceania | | | | | | | | | | | | | | |
| Total Eastern Hemisphere | | | | | | 1 | 1 | 3 | | 11 | | 14 | | 14 |
| Total Non-Communist World | 15 | 39 | 2 | 15 | 71 | 18 | 89 | 18 | 49 | 15 | 16 | 98 | 14 | 112 |
| | | | | 1973 | | | | | | | 1976 | | | |
| North America | 5 | 51 | | 15 | 71 | 16 | 87 | 6 | 61 | | 16 | 83 | 14 | 97 |
| Central America/Caribbean | | | | | | | | | | | | | | |
| South America | 18 | | 18 | | 36 | | 36 | 7 | | 8 | | 15 | 1 | 16 |
| Total Western Hemisphere | 23 | 51 | 18 | 15 | 107 | 16 | 123 | 13 | 61 | 8 | 16 | 98 | 15 | 113 |
| Europe | 1 | | 4 | | 5 | | 5 | | | 1 | | 1 | | 1 |
| Middle East | | | 1 | | 1 | 1 | 2 | 1 | | 6 | | 7 | | 7 |
| Africa | | | 2 | | 2 | | 2 | 2 | | 2 | | 4 | 2 | 6 |
| Asia | | | | | | | | | | | | | | |
| Oceania | | | | | | | | | | 1 | | 1 | 2 | 3 |
| Total Eastern Hemisphere | 1 | | 7 | | 8 | 1 | 9 | 3 | | 10 | | 13 | 4 | 17 |
| Total Non-Communist World | 24 | 51 | 25 | 15 | 115 | 17 | 132 | 16 | 61 | 18 | 16 | 111 | 19 | 130 |
| | | | | 1974 | | | | | | | 1977 | | | |
| North America | 3 | 53 | | 15 | 71 | 12 | 83 | 8 | 81 | | 15 | 104 | 11 | 115 |
| Central America/Caribbean | 1 | | 1 | | 2 | | 2 | | | | | | | |
| South America | 11 | | 20 | | 31 | 1 | 32 | 12 | | 12 | | 24 | 1 | 25 |
| Total Western Hemisphere | 15 | 53 | 21 | 15 | 104 | 13 | 117 | 20 | 81 | 12 | 15 | 128 | 12 | 140 |
| Europe | | | 1 | | 1 | | 1 | 1 | | | | 1 | | 1 |
| Middle East | | | 4 | | 4 | | 4 | 5 | | 7 | | 12 | | 12 |
| Africa | | | | | | | | 2 | | 2 | | 4 | | 4 |
| Asia | | | | | | | | | | 3 | | 3 | | 3 |
| Oceania | | | | | | | | | | 1 | | 1 | | 1 |
| Total Eastern Hemisphere | | | 5 | | 5 | | 5 | 8 | | 13 | | 21 | | 21 |
| Total Non-Communist World | 15 | 53 | 26 | 15 | 109 | 13 | 122 | 28 | 81 | 25 | 15 | 149 | 12 | 161 |

TABLE IV - ATTACHMENT D (Page 6 of 7)

ASPHALT IMPORTS BY PAD BY SOURCE
(MBPD)

| From | To PAD I | II | III | IV | I-IV | V | Total | To PAD I | II | III | IV | I-IV | V | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1972 | | | | | | | 1975 | | | |
| North America | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| Central America/Caribbean | 10 | | | | 10 | | 10 | 12 | | | | 12 | | 12 |
| South America | 13 | | 1 | | 14 | | 14 | 1 | | | | 1 | | 1 |
| Total Western Hemisphere | 24 | | 1 | | 25 | | 25 | 14 | | | | 14 | | 14 |
| Europe | | | | | | | | | | | | | | |
| Middle East | | | | | | | | | | | | | | |
| Africa | | | | | | | | | | | | | | |
| Asia | | | | | | | | | | | | | | |
| Oceania | | | | | | | | | | | | | | |
| Total Eastern Hemisphere | | | | | | | | | | | | | | |
| Total | | | | | | | | | | | | | | |
| | | | | 1973 | | | | | | | 1976 | | | |
| North America | 1 | | | | 1 | | 1 | 1 | | 1 | | 1 | | 1 |
| Central America/Caribbean | 14 | | | | 14 | | 14 | 9 | | 1 | | 10 | | 10 |
| South America | 4 | | 1 | | 5 | | 5 | | | | | | | |
| Total Western Hemisphere | 19 | | 1 | | 20 | | 20 | 10 | | 1 | | 11 | | 11 |
| Europe | 3 | | | | 3 | | 3 | | | | | | | |
| Middle East | | | | | | | | | | | | | | |
| Africa | | | | | | | | | | | | | | |
| Asia | | | | | | | | | | | | | | |
| Oceania | | | | | | | | | | | | | | |
| Total Eastern Hemisphere | | | | | | | | | | | | | | |
| Total | 22 | | 1 | | 23 | | 23 | | | | | | | |
| | | | | 1974 | | | | | | | 1977 | | | |
| North America | 2 | | | | 2 | | 2 | 1 | | | | 1 | | 1 |
| Central America/Caribbean | 24 | | | | 24 | | 24 | 3 | | | | 3 | | 3 |
| South America | 4 | | 1 | | 5 | | 5 | | | | | | | |
| Total Western Hemisphere | 30 | | 1 | | 31 | | 31 | 4 | | | | 4 | | 4 |
| Europe | | | | | | | | | | | | | | |
| Middle East | | | | | | | | | | | | | | |
| Africa | | | | | | | | | | | | | | |
| Asia | | | | | | | | | | | | | | |
| Oceania | | | | | | | | | | | | | | |
| Total Eastern Hemisphere | | | | | | | | | | | | | | |
| Total | | | | | | | | | | | | | | |

TABLE IV - ATTACHMENT D (Page 7 of 7)

OTHER REFINED PRODUCT IMPORTS BY PAD BY SOURCE[1]
(MBPD)

| From | To PAD I | II | III | IV | I-IV | V | Total | To PAD I | II | III | IV | I-IV | V | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1972 | | | | | | | 1975 | | | |
| North America | 1 | | | | 1 | | 1 | | | | | | | |
| Central America/Caribbean | 3 | | 2 | | 5 | | 5 | 11 | | 3 | | 14 | | 14 |
| South America | 1 | | 4 | | 5 | | 5 | 4 | | 1 | | 5 | | 5 |
| Total Western Hemisphere | 5 | | 6 | | 11 | | 11 | 15 | | 4 | | 19 | | 19 |
| Europe | | | 2 | | 2 | | 2 | | | 1 | | 1 | | 1 |
| Middle East | | | 1 | | 1 | | 1 | | | | | | | |
| Africa | | | | | | | | 1 | | | | 1 | | 1 |
| Asia | | | | | | | | | | | | | | |
| Oceania | | | | | | | | | | | | | | |
| Total Eastern Hemisphere | | | 3 | | 3 | | 3 | 1 | | 1 | | 2 | | 2 |
| Total | 5 | | 9 | | 14 | | 13 | 16 | | 5 | | 21 | | 21 |
| | | | | 1973 | | | | | | | 1976 | | | |
| North America | | | | | | | | | | | | | | |
| Central America/Caribbean | 9 | | 2 | | 11 | | 11 | 16 | | | | 16 | | 16 |
| South America | | | 7 | | 7 | | 7 | 1 | | 3 | | 4 | | 4 |
| Total Western Hemisphere | 9 | | 9 | | 18 | | 18 | 17 | | 3 | | 20 | | 20 |
| Europe | 2 | | 1 | | 3 | | 3 | | | 1 | | 1 | | 1 |
| Middle East | | | | | | | | | | | | | | |
| Africa | | | | | | | | | | | | | | |
| Asia | | | 1 | | 1 | | 1 | | | | | | | |
| Oceania | | | | | | | | | | | | | | |
| Total Eastern Hemisphere | 2 | | 2 | | 4 | | 4 | | | 1 | | 1 | | 1 |
| Total | 11 | | 11 | | 22 | | 22 | 17 | | 4 | | 21 | | 21 |
| | | | | 1974 | | | | | | | 1977 | | | |
| North America | 1 | 3 | | | 4 | | 4 | | 3 | | | 3 | | 3 |
| Central America/Caribbean | 11 | | 2 | | 13 | | 13 | 29 | | 6 | | 35 | 1 | 36 |
| South America | 1 | | 6 | | 7 | | 7 | 7 | | 2 | | 9 | | 9 |
| Total Western Hemisphere | 13 | 3 | 8 | | 24 | | 24 | 36 | 3 | 8 | | 47 | 1 | 48 |
| Europe | 2 | | 4 | | 6 | | 6 | 2 | | 2 | | 4 | | 4 |
| Middle East | | | | | | | | | | | | | | |
| Africa | | | | | | | | | | | | | | |
| Asia | | | | | | | | | | 1 | | 1 | | 1 |
| Oceania | | | | | | | | | | | | | 1 | 1 |
| Total Eastern Hemisphere | 2 | | 4 | | 6 | | 6 | 2 | | 3 | | 5 | 1 | 6 |
| Total | 15 | 3 | 12 | | 30 | | 30 | 38 | 3 | 11 | | 52 | 2 | 54 |

[1]Includes petrochemical feedstocks, special naphtha, kerosine, lubricants, wax, and miscellaneous products.

TABLE V

WORLD OIL CONSUMPTION[1]
(Million Barrels/Day)

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| OECD | | | | | | |
| United States | 16.4 | 17.3 | 16.7 | 16.3 | 17.5 | 18.4 |
| Western Europe | 14.1 | 15.2 | 14.2 | 13.5 | 14.5 | 14.2 |
| Japan | 4.7 | 5.5 | 5.3 | 5.0 | 5.2 | 5.3 |
| Other OECD | 2.3 | 2.5 | 2.5 | 2.5 | 2.6 | 2.6 |
| NON-OECD (Excl. USSR, E. Europe China) | 7.3 | 7.9 | 8.1 | 8.3 | 8.9 | 9.3 |
| Sub-Total | 44.8 | 48.4 | 46.8 | 45.6 | 48.7 | 49.8 |
| USSR | 6.0 | 6.4 | 6.9 | 7.3 | 7.7 | 8.0 |
| East Europe | 1.4 | 1.6 | 1.7 | 1.7 | 1.8 | 2.1 |
| China | .6 | .8 | 1.0 | 1.1 | 1.3 | 1.5 |
| Sub-Total | 8.0 | 8.8 | 9.6 | 10.1 | 10.8 | 11.6 |
| TOTAL CONSUMPTION | 52.8 | 57.2 | 56.4 | 55.7 | 59.5 | 61.4 |

[1] Including International Bunkers and Refinery Fuel and Losses.

Data for outside U.S. from BP 1977 Statistical Review of the World Oil Industry.

TABLE VI

WORLD CRUDE OIL SUPPLY[1]
(Million Barrels/Day)

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| OECD | | | | | | |
| U.S. | 9.5 | 9.2 | 8.8 | 8.4 | 8.1 | 8.2 |
| Canada | 1.5 | 1.8 | 1.7 | 1.5 | 1.3 | 1.3 |
| W. Europe | .4 | 4 | .4 | .6 | .9 | 1.4 |
| Japan, Australia, New Zealand | .3 | .4 | .4 | .4 | .4 | .4 |
| Sub-Total | 11.7 | 11.8 | 11.3 | 10.9 | 10.7 | 11.3 |
| OPEC - | | | | | | |
| Venezuela | 3.2 | 3.4 | 3.0 | 2.3 | 2.3 | 2.2 |
| Ecuador | .1 | .2 | .2 | .2 | .2 | .2 |
| Indonesia | 1.1 | 1.3 | 1.4 | 1.3 | 1.5 | 1.7 |
| Africa | 5.2 | 5.6 | 5.0 | 4.5 | 5.2 | 5.5 |
| Alberia | 1.1 | 1.1 | 1.0 | 1.0 | 1.0 | 1.1 |
| Libya | 2.2 | 2.2 | 1.5 | 1.5 | 1.9 | 2.1 |
| Nigeria | 1.8 | 2.1 | 2.3 | 1.8 | 2.1 | 2.1 |
| Gabon | .1 | .2 | .2 | .2 | .2 | .2 |
| Middle East | 17.5 | 20.6 | 21.2 | 18.9 | 21.4 | 21.8 |
| Iran | 5.0 | 5.9 | 6.0 | 5.4 | 5.9 | 5.7 |
| Kuwait | 3.0 | 2.8 | 2.3 | 1.8 | 1.9 | 1.8 |
| S. Arabia | 5.7 | 7.3 | 8.2 | 6.8 | 8.3 | 9.0 |
| Iraq | 1.5 | 2.0 | 2.0 | 2.3 | 2.4 | 2.5 |
| UAE | 1.2 | 1.5 | 1.7 | 1.7 | 1.9 | 2.0 |
| Qatar | .5 | .6 | .5 | .4 | .5 | .4 |
| Neutral Zone | .6 | .5 | .5 | .5 | .5 | .4 |
| Sub-Total | 27.1 | 31.1 | 30.8 | 27.2 | 30.6 | 31.4 |
| NON-OPEC (Excl USSR, E.Europe, China)- | | | | | | |
| Mexico | .5 | .5 | .6 | .7 | .8 | 1.0 |
| Other L. America | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| Africa | .5 | .5 | .4 | .5 | .6 | .7 |
| Middle East | .7 | .6 | .6 | .7 | .7 | .6 |
| Asia | .5 | .5 | .5 | .5 | :6 | .7 |
| Sub-Total | 3.3 | 3.2 | 3.2 | 3.5 | 3.8 | 4.1 |
| USSR | 7.9 | 8.4 | 9.0 | 9.6 | 10.2 | 10.7 |
| East Europe | .4 | .4 | .4 | .4 | .4 | .4 |
| China | .6 | 1.1 | 1.3 | 1.5 | 1.7 | 1.8 |
| Sub-Total | 8.9 | 9.9 | 10.7 | 11.5 | 12.3 | 12.9 |
| Refinery Processing Gains | | | | | | |
| U.S. | .4 | .5 | .5 | .5 | .5 | .5 |
| Other | NEG | NEG | NEG | NEG | NEG | NEG |
| Sub-Total | .4 | .5 | .5 | .5 | .5 | .5 |
| TOTAL SUPPLY | 51.4 | 56.5 | 56.5 | 53.6 | 57.9 | 60.2 |

[1]Including field condensate and non-conventional supplies from Tar Sands (Canada) and heavy oil (Venezuela's Heavy Oil Belt).

## TABLE VII

## WORLD NATURAL GAS LIQUIDS SUPPLY[1]

(Thousand Barrels/Day)

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| OCED - | | | | | | |
| U.S. | 1745 | 1740 | 1690 | 1635 | 1605 | 1620 |
| Canada | 294 | 320 | 310 | 310 | 285 | 290 |
| W. Europe | 35 | 40 | 45 | 50 | 70 | 85 |
| Japan, Australia, N. Zealand | 50 | 50 | 50 | 50 | 50 | 55 |
| Sub-Total | 2124 | 2150 | 2095 | 2045 | 2010 | 2050 |
| OPEC- | | | | | | |
| Venezuela | 75 | 90 | 85 | 75 | 75 | 80 |
| Indonesia | - | - | - | - | 10 | 10 |
| Africa | 50 | 65 | 70 | 75 | 105 | 115 |
| Algeria | 15 | 30 | 50 | 50 | 65 | 75 |
| Libya | 35 | 35 | 20 | 25 | 40 | 40 |
| Middle East | 150 | 190 | 230 | 245 | 290 | 335 |
| Iran | 40 | 40 | 45 | 45 | 45 | 40 |
| Kuwait | 60 | 60 | 50 | 50 | 50 | 55 |
| S. Arabia | 50 | 90 | 130 | 140 | 185 | 215 |
| Iraq | - | - | - | - | - | 5 |
| UAE | - | - | - | - | - | 15 |
| Qatar | - | - | 15 | 10 | 10 | 5 |
| Sub-Total | 275 | 345 | 385 | 395 | 480 | 540 |
| NON-OPEC (Excl. USSR, E. Europe, China) - | | | | | | |
| Mexico | 70 | 75 | 80 | 90 | 95 | 105 |
| Other L. America | 45 | 45 | 45 | 45 | 45 | 45 |
| Asia | 10 | 10 | 15 | 20 | 25 | 30 |
| Sub-Total | 125 | 130 | 140 | 155 | 166 | 180 |
| USSR | 120 | 160 | 180 | 190 | 200 | 220 |
| East Europe | 10 | 10 | 10 | 15 | 15 | 15 |
| China | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. |
| Sub-Total | 130 | 170 | 190 | 205 | 215 | 235 |
| TOTAL SUPPLY | 2054 | 2795 | 2810 | 2800 | 2870 | 3005 |

[1]Estimated, Source: CIA
N.A. - Not Available

TABLE VIII

NON-COMMUNIST WORLD REFINERY CAPACITIES, CRUDE RUNS, AND PERCENT CAPACITY UTILIZED

| | Refinery Capacities As Of January 1 (MB/D) | | | | | | Refinery Crude Runs (MB/D)[1] | | | | | | Percent Capacity Utilized | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
| United States[2] | 13,035 | 13,454 | 14,220 | 14,697 | 14,868 | 15,861 | 11,982 | 12,712 | 12,358 | 12,575 | 13,503 | 14,650 | 91.9 | 94.5 | 86.9 | 85.6 | 90.8 | 92.4 |
| PAD's I-IV | 10,884 | 11,250 | 12,001 | 12,388 | 12,563 | 13,311 | 10,081 | 10,690 | 10,461 | 10,628 | 11,417 | 12,300 | 92.6 | 95.0 | 87.2 | 85.8 | 90.9 | 92.4 |
| PAD V | 2,151 | 2,204 | 2,219 | 2,309 | 2,305 | 2,550 | 1,901 | 2,022 | 1,897 | 1,947 | 2,086 | 2,350 | 88.4 | 91.7 | 85.5 | 84.3 | 90.5 | 92.2 |
| Canada[2] | 1,655 | 1,717 | 1,867 | 2,010 | 2,063 | 2,120 | 1,533 | 1,683 | 1,771 | 1,704 | 1,708 | 1,805 | 92.6 | 98.0 | 94.9 | 84.8 | 82.8 | 85.1 |
| Latin America | 5,968 | 6,449 | 7,126 | 7,736 | 7,617 | 7,743 | 5,608 | 6,107 | 5,990 | 5,398 | 5,410 | 5,534 | 94.0 | 94.7 | 84.1 | 69.8 | 71.0 | 71.5 |
| Caribbean | 3,853 | 4,186 | 4,746 | 4,921 | 4,779 | 4,741 | 3,725 | 4,052 | 3,767 | 3,136 | 3,090 | 3,062 | 96.7 | 96.8 | 79.4 | 63.7 | 64.7 | 64.6 |
| Other | 2,115 | 2,263 | 2,380 | 2,815 | 7,838 | 3,002 | 1,883 | 2,055 | 2,223 | 2,262 | 2,320 | 2,472 | 89.0 | 90.8 | 93.4 | 80.4 | 81.7 | 82.3 |
| Total Western Hemisphere | 20,658 | 21,620 | 23,213 | 24,443 | 24,548 | 25,724 | 19,123 | 20,502 | 20,119 | 19,677 | 20,621 | 21,989 | 92.6 | 94.8 | 86.7 | 80.5 | 84.0 | 85.5 |
| Western Europe | 16,080 | 17,212 | 18,481 | 19,359 | 19,955 | 20,468 | 14,020 | 15,168 | 14,317 | 12,625 | 13,635 | 13,510 | 87.2 | 88.1 | 77.5 | 65.2 | 68.3 | 66.0 |
| Africa | 878 | 993 | 1,279 | 1,449 | 1,494 | 1,516 | 921 | 1,005 | 1,010 | 1,146 | 1,100 | 1,129 | 104.9 | 101.2 | 79.0 | 79.1 | 73.6 | 74.5 |
| Middle East | 2,547 | 2,518 | 2,617 | 2,752 | 2,968 | 3,016 | 2,206 | 2,254 | 2,164 | 2,025 | 2,210 | 2,360 | 86.6 | 89.5 | 82.7 | 73.6 | 74.5 | 78.2 |
| S.&E. Asia and Oceania | 7,084 | 8,156 | 8,963 | 9,649 | 9,873 | 10,125 | 6,771 | 7,744 | 7,514 | 7,249 | 7,160 | 7,445 | 95.6 | 94.9 | 83.8 | 75.1 | 72.5 | 73.5 |
| Japan | 3,929 | 4,719 | 5,140 | 5,377 | 5,567 | 5,643 | 4,103 | 4,772 | 4,660 | 4,427 | 4,314 | 4,405 | 104.4 | 101.1 | 90.7 | 82.3 | 77.5 | 78.1 |
| Oceania | 770 | 754 | 782 | 823 | 808 | 806 | 600 | 658 | 663 | 659 | 686 | 712 | 77.9 | 87.3 | 84.8 | 80.1 | 84.9 | 88.3 |
| Other | 2,385 | 2,683 | 3,041 | 3,449 | 3,498 | 3,676 | 2,068 | 2,314 | 2,191 | 2,163 | 2,160 | 2,328 | 86.7 | 86.2 | 72.0 | 62.7 | 61.7 | 63.3 |
| Total Eastern Hemisphere | 26,589 | 28,879 | 31,340 | 33,209 | 34,290 | 35,125 | 23,918 | 26,171 | 25,005 | 23,045 | 24,105 | 24,444 | 90.0 | 90.6 | 79.8 | 69.4 | 70.3 | 69.6 |
| Total Non-Communist World | 47,247 | 50,499 | 54,553 | 57,652 | 58,838 | 60,849 | 43,041 | 46,673 | 45,124 | 42,722 | 44,226 | 46,433 | 91.1 | 92.4 | 82.7 | 74.1 | 76.0 | 76.3 |

[1] Includes Crude and Net Unfinished Oils.

[2] Includes Condensate.

# APPENDIX G

# SUPPLY/DEMAND SURVEY

# I N S T R U C T I O N S

## NPC SURVEY OF U.S. AND WORLD ENERGY AND OIL SUPPLY/DEMAND FORECASTS

The National Petroleum Council is conducting a survey of current energy and oil supply/demand forecasts to develop a consensus of current thinking. About 30 organizations are being contacted to provide their best current estimates of future energy and oil supply/demand. For your information, a list of all survey recipients is attached. Your organization has been selected as one which would have forecasts based on current thinking in regards to future government policies and economic conditions.

All data supplied on the attached forms will be held in strict confidence and should be forwarded directly to the attention of:

Mr. Dimitri A. Plionis
Arthur Young & Company
1025 Connecticut Avenue
Washington, D.C. 20036

Arthur Young has been contracted to receive, process, compile, and consolidate results of the survey, and has been instructed to return your survey forms to you along with a copy of the results of the survey for your further review and comment.

You are requested to complete the attached survey questionnaire forms as fully as possible based on whatever assumptions you deem necessary and reflective of your best current estimate of future trends. It is further requested that you return with the completed survey forms any explanatory notes you feel necessary for an accurate interpretation of the forecast data you supply. Such explanations should include the key assumptions used in your forecasts regarding political, economic, demographic, and logistical conditions. You are also requested to indicate the date of the internal forecast on which your questionnaire data are based and whether your forecast is based on any outside forecast such as Chase Econometric, DRI, or PIES. If you are providing your own forecast, you should indicate the type of methodology used, e.g., econometric model, statistical methods, etc. Additionally, specific forms are attached to provide key assumptions used in developing forecasts in Table I - "Total U.S. Energy Consumption by Fuels and by Consuming Sectors," and Table III -"Domestic Demand for Products."

You will note that each survey table requests data for the years 1980, 1982, 1985, and 1990. To provide guidance and to ensure an accurate interpretation of your data, 1977 information has been filled in. 1978 data will be completed by NPC when preliminary 1978 data are available from the Department of Energy.

You will also note that certain survey forms - U.S. Domestic Product Demand and U.S. Oil Supply/Demand Balances - request that data be provided for the five Petroleum Administration for the Defense (PAD) districts (see Exhibit A for map of PAD districts). This information is needed to help assess U.S. refining capacity and hardware requirements by PAD's for the forecast period. This information will also be used to develop comparative refining economic assessments by size and location.

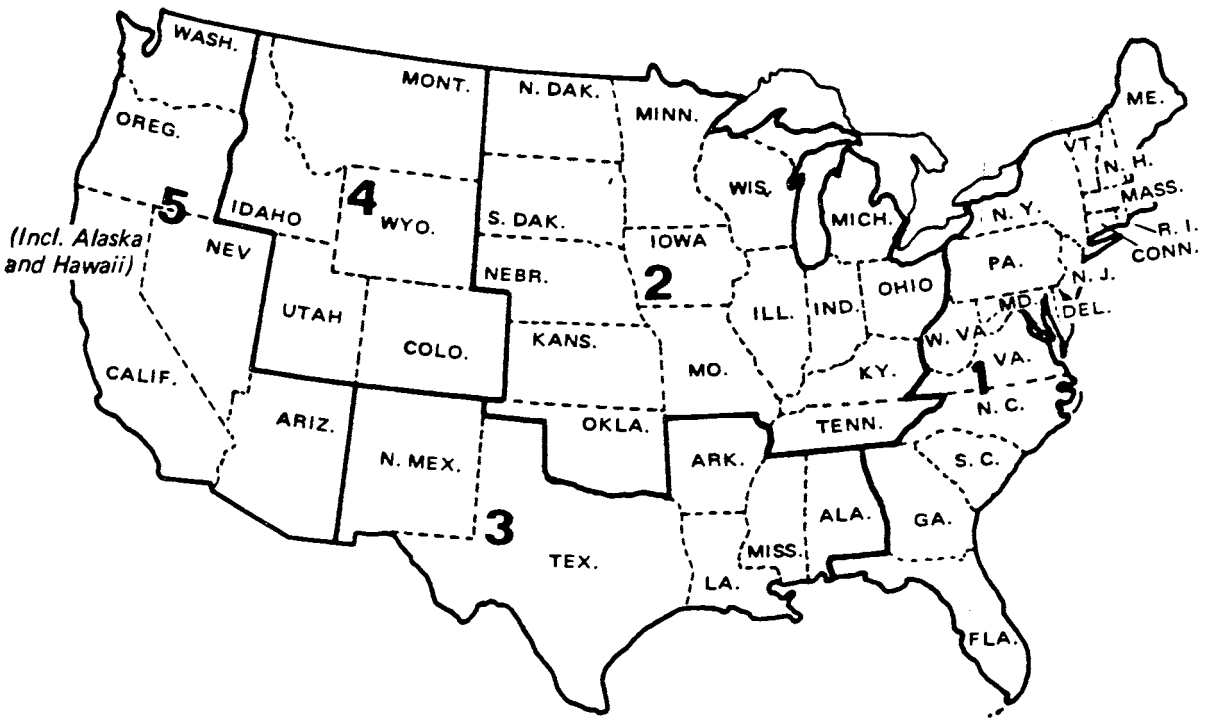
If any questions arise regarding the survey, please contact Mr. Marshall W. Nichols, Deputy Executive Director, National Petroleum Council, 1625 K Street, N.W., Washington, D.C. 20006 [(202) 393-6100]. It is requested that your completed survey forms be returned to Arthur Young & Co. by May 25, 1979. Please include the name and phone number of the individual in your organization to be contacted if any questions arise.

---

Note: The consuming sector definitions used by the NPC vary slightly from those used by the Bureau of Mines and the Department of Energy. NPC data shown in Table I for 1977 have been adjusted to remove from consuming sectors those amounts of energy fuels which were used as raw materials. An example of the calculation of the 1977 "non-energy and other" consuming sector is shown in Exhibit B attached.

## EXHIBIT A

### PETROLEUM ADMINISTRATION FOR DEFENSE – (PAD) DISTRICTS




## EXHIBIT B

CALCULATION OF 1977 NON-ENERGY CONSUMPTION
(Trillion BTU)

| | Coal | Natural Gas | Petroleum | Total* |
|---|---|---|---|---|
| Industrial | | | | |
| Non-Energy | 97.8 | 728.1 | 2462.2 | 3288 |
| Energy | 3529.6 | 7926.3 | 4524.3 | |
| Transportation | | | | |
| Non-Energy | | | 150.4 | 150 |
| Energy | | | 19,361.8 | |
| Residential | | | | |
| Non-Energy | | | 1056.5 | 1057 |
| Energy | | | 5141.6 | |
| Total All Sectors | | | | |
| Non-Energy | 97.8 | 728.1 | 3669.1 | 4495 |
| Misc., etc. | | | 247.7 | 248 |
| TOTAL* | | | | 4743 |

*Rounded.

SELECTED ORGANIZATIONS TO WHOM THE
SURVEY QUESTIONNAIRE IS BEING MAILED

Mr. Robert O. Anderson
Chairman of the Board
Atlantic Richfield Company
515 South Flower Street
Los Angeles, California 90071

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Chairman
The British Petroleum Company, Ltd.
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Corporate Banking
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New York, New York 10015

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Vice President
Energy Department
Citibank
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Library of Congress
Washington, D.C. 20540

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and Chief Executive Officer
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Cambridge, Massachusetts 02139

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Chief Executive Officer
Petroleum Industry Research
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New York, New York 10017

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Chief Executive Officer
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Bartlesville, Oklahoma 74004

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and Chief Executive Officer
Shell Oil Company
One Shell Plaza
Post Office Box 2463
Houston, Texas 77001

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Standard Oil Company of California
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San Francisco, California 94104

Mr. John E. Swearingen
Chairman of the Board
Standard Oil Company (Indiana)
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Mr. Charles A. Anderson
Executive President
Stanford Research Institute
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Mr. Maurice F. Granville
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Professor Robert Deam
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London, E1 4NS England

# NATIONAL PETROLEUM COUNCIL
# SURVEY OF U.S. AND WORLD ENERGY AND OIL SUPPLY/DEMAND FORECASTS

Cover Page

Reporting Organization: _____

Address: _____

_____

Person to be Contacted if Questions Arise: _____

Telephone Number: _____

Please return by May 25, 1979 to: Mr. Dimitri A. Plionis
Arthur Young & Co.
1025 Connecticut Avenue, N.W.
Washington, D.C. 20036

TABLE I

TOTAL U.S. ENERGY CONSUMPTION BY FUELS AND BY CONSUMING SECTORS
(Trillion BTU's)

| | | PRIMARY ENERGY INPUTS TO SECTOR | | | | | | | Total Primary Energy | Electricity Distributed To Sector | Energy Consumption[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Petroleum Liquids[1] | Nat. Gas (Dry)[1] | Coal[1] | Nuclear | Hydro-Electric | Geo-Thermal | Other Specify | | | |
| RESIDENTIAL/COMMERCIAL: | 1977 | 5,142 | 7,476 | 243 | - | - | - | - | 12,861 | 4,381 | 17,242 |
| | 1978 | | | | | | | | | | |
| | 1980 | | | | | | | | | | |
| | 1982 | | | | | | | | | | |
| | 1985 | | | | | | | | | | |
| | 1990 | | | | | | | | | | |
| TRANSPORTATION: | 1977 | 19,362 | 544 | - | - | - | - | - | 19,906 | 16 | 19,922 |
| | 1978 | | | | | | | | | | |
| | 1980 | | | | | | | | | | |
| | 1982 | | | | | | | | | | |
| | 1985 | | | | | | | | | | |
| | 1990 | | | | | | | | | | |
| INDUSTRIAL: | 1977 | 4,524 | 7,927 | 3,529 | - | 36 | - | - | 16,016 | 2,921 | 18,937 |
| | 1978 | | | | | | | | | | |
| | 1980 | | | | | | | | | | |
| | 1982 | | | | | | | | | | |
| | 1985 | | | | | | | | | | |
| | 1990 | | | | | | | | | | |
| ELECTRIC UTILITY: | 1977 | 4,025 | 3,256 | 10,263 | 2,674 | 2,475 | 103 | - | 22,796 | (7,318) | 15,478 |
| | 1978 | | | | | | | | | | |
| | 1980 | | | | | | | | | | |
| | 1982 | | | | | | | | | | |
| | 1985 | | | | | | | | | | |
| | 1990 | | | | | | | | | | |
| NON-ENERGY & OTHERS: | 1977 | 3,917 | 728 | 98 | - | - | - | - | 4,743 | - | 4,743 |
| | 1978 | | | | | | | | | | |
| | 1980 | | | | | | | | | | |
| | 1982 | | | | | | | | | | |
| | 1985 | | | | | | | | | | |
| | 1990 | | | | | | | | | | |
| SYNTHETIC CONVERSION LOSSES: | 1977 | - | - | - | - | - | - | - | - | - | - |
| | 1978 | | | | | | | | | | |
| | 1980 | | | | | | | | | | |
| | 1982 | | | | | | | | | | |
| | 1985 | | | | | | | | | | |
| | 1990 | | | | | | | | | | |
| TOTAL: | 1977 | 36,970 | 19,931 | 14,133 | 2,674 | 2,511 | 103 | - | 76,322 | - | 76,322 |
| | 1978 | | | | | | | | | | |
| | 1980 | | | | | | | | | | |
| | 1982 | | | | | | | | | | |
| | 1985 | | | | | | | | | | |
| | 1990 | | | | | | | | | | |

[1]In consuming sectors, include only fuels used in the forms of liquids, gases, or coal. If any synthetic fuel production is indicated, conversion losses of the process should be included under "Synthetic Conversion Losses."

[2]Total consumption equals primary energy inputs plus electricity for all sectors, except "Electric Utility" and "Synthetic Conversion Losses." For electric utility sector, total consumption equals generation, transmission and distribution losses. For synthetic conversion losses, total consumption equals net primary fuel losses in synthetic oil and gas manufacture.

TABLE IA (Pg. 1 of 2)

ECONOMIC AND ENERGY ASSUMPTIONS
PERTINENT TO U.S. ENERGY DEMAND/SUPPLY FORECAST

Economic Assumptions

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| Real GNP (Billion 1972 $) | 1332.7 | | | | |
| FRB Index of Industrial Production (1967=100) | 137.1 | | | | |
| Population (Mid-year, 000) | 216,820 | | | | |
| Disposable Personal Income (Billion 1972 $) | 926.3 | | | | |

Fuel Availability Assumptions

In the area below and on the next page, please briefly state what basic assumptions were made concerning the availability, development or government policies affecting the demand and/or supply of the following fuels:

Geothermal

Hydroelectric

Natural Gas

Coal

TABLE IA (Pg. 2 of 2)

ECONOMIC AND ENERGY ASSUMPTIONS
PERTINENT TO U.S. ENERGY DEMAND/SUPPLY FORECAST

Nuclear

Petroleum

Shale Oil

Solar

Other

TABLE II

U.S. ENERGY SUPPLIES

IN PHYSICAL UNITS

| OIL: Million Barrels Per Year | 1977 | 1978 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| Domestic Production - Total | 3,599.8 | | | | | |
| Crude & Lease Condensate | 3,009.3 | | | | | |
| NGL | 590.5 | | | | | |
| Imports - Total | 3,214.6 | | | | | |
| Crude | 2,414.3 | | | | | |
| Products (incl. NGL & Unfinished) | 800.3 | | | | | |
| Exports | (88.6) | | | | | |
| Processing Gain, etc.[1] | 201.8 | | | | | |
| Syncrude | 0 | | | | | |
| From Shale | | | | | | |
| From Coal | | | | | | |
| From Inventory | (200.1) | | | | | |
| Crude | (62.2) | | | | | |
| Products | (137.9) | | | | | |
| Total Oil Supply | 6,727.5 | | | | | |
| MEMO: Trillion BTU's/Yr. | 36,970 | | | | | |
| GAS: Billion Cubic Feet Per Year | | | | | | |
| Production (marketed prod'n of wet gas)[2] | 20,025 | | | | | |
| Extraction Loss, Transfers Out | (862) | | | | | |
| Imports | 1,001 | | | | | |
| Exports | 56 | | | | | |
| From Inventory, Transmission Loss & Unaccounted | (597) | | | | | |
| Total Dry Natural Gas | 19,521 | | | | | |
| Syngas | 0 | | | | | |
| From Coal | 0 | | | | | |
| From Liquids | 0 | | | | | |
| Total Gas Supply | 19,521 | | | | | |
| MEMO: Trillion BTU's/Yr. | 19,931 | | | | | |
| COAL (Anthracite, Bituminous, & Lignite): Thousand Short Tons Per Year | | | | | | |
| Production - Total | 694,755 | | | | | |
| For Conventional Domestic Markets | 694,755 | | | | | |
| For Synthetic Oil &/or Gas Plants | 0 | | | | | |
| Net Exports | (52,509) | | | | | |
| From Inventory, Losses, Gains, & Unaccounted For | (16,575) | | | | | |
| Total Coal Supply | 625,691 | | | | | |
| MEMO: Trillion BTU's/Yr. | 14,133 | | | | | |
| NUCLEAR: Trillion BTU's/Yr. (Heat Rate - BTU/kWh: 10,660) | 2,674 | | | | | |

[1] Includes other hydrocarbon and hydrogen refinery inputs, "unaccounted for" crude inputs and losses.

[2] Excludes quantities for repressuring, vented and flared.

TABLE III (Pg. 1 of 6)

DOMESTIC DEMAND FOR PRODUCTS - TOTAL U.S.

(MB/D)

| | Actual[1] 1977 | Prel. 1978* | Forecast 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| Motor Gasoline: Leaded - Premium | 1,061 | | | | | |
| - Non-premium | 4,207 | | | | | |
| S.Total | 5,268 | | | | | |
| Unleaded - Premium | | | | | | |
| - Non-premium | | | | | | |
| S.Total | 1,908 | | | | | |
| Total Motor Gasoline | 7,176 | | | | | |
| Aviation Gasoline | 38 | | | | | |
| Jet Fuel: Naphtha Type | 208 | | | | | |
| Kerosine Type | 831 | | | | | |
| Total Jet Fuel | 1,039 | | | | | |
| Special Naphtha | 86 | | | | | |
| Kerosine | 175 | | | | | |
| Distillate Fuel Oil: #2 Oil | 1,292 | | | | | |
| #4 Oil - 0 - .5%S | 35 | | | | | |
| .51-1.0%S | 13 | | | | | |
| 1.1 -2.0%S | 8 | | | | | |
| 2.0%S + | 6 | | | | | |
| Diesel - On Highway | 724 | | | | | |
| - Off Highway | 172 | | | | | |
| Other Distillate | 1,102 | | | | | |
| Total Distillate Fuel Oil | 3,352 | | | | | |
| Residual Fuel Oil: 0 - .1%S, .11 - .3%S, .31 - .5%S | 959 | | | | | |
| .51 - 1.0%S | 693 | | | | | |
| 1.1 - 2.0%S | 612 | | | | | |
| 2.0%S + | 807 | | | | | |
| Total Residual Fuel Oil | 3,071 | | | | | |
| Liquefied Gases: Ethane | 412 | | | | | |
| Propane | 866 | | | | | |
| Butane | 115 | | | | | |
| Propane/Butane Mix | 29 | | | | | |
| Total Liquefied Gases[2] | 1,422 | | | | | |
| Petrochemical Feedstocks: Still Gas | 48 | | | | | |
| 400 EP Naphtha | 204 | | | | | |
| Other | 269 | | | | | |
| Total Petrochemical Feedstocks | 521 | | | | | |
| Lubricants | 160 | | | | | |
| Waxes | 16 | | | | | |
| Coke | 267 | | | | | |
| Asphalt & Road Oil | 437 | | | | | |
| Still Gas for Fuel | 524 | | | | | |
| Miscellaneous Products | 147 | | | | | |
| Total Domestic Demand for Products | 18,431 | | | | | |

[1]Total U.S. per Annual Petroleum Statement, Final Summary, 12/28/78. Detail for U.S. PAD's per PAD District Supply/Demand, Annual, 5/31/78 adjusted to conform with Total U.S. Final Summary figures.

[2]Amount of Liquefied Gases Included Above Consumed for Chemical Uses:

| | | | | | | |
|---|---|---|---|---|---|---|
| Ethane | 412 | | | | | |
| Propane | 123 | | | | | |
| Butane | 93 | | | | | |
| Propane/Butane Mix | 5 | | | | | |
| Total | 633 | | | | | |

*To be completed by National Petroleum Council office

TABLE III (Pg. 2 of 6)

DOMESTIC DEMAND FOR PRODUCTS - PAD I

(MB/D)

| | Actual[1] 1977 | Prel. 1978* | Forecast 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| Motor Gasoline: Leaded - Premium | 379 | | | | | |
| - Non-premium | 1,336 | | | | | |
| S.Total | 1,715 | | | | | |
| Unleaded - Premium | | | | | | |
| - Non-premium | | | | | | |
| S.Total | 708 | | | | | |
| Total Motor Gasoline | 2,423 | | | | | |
| Aviation Gasoline | 8 | | | | | |
| Jet Fuel: Naphtha Type | 57 | | | | | |
| Kerosine Type | 333 | | | | | |
| Total Jet Fuel | 390 | | | | | |
| Special Naphtha | 28 | | | | | |
| Kerosine | 74 | | | | | |
| Distillate Fuel Oil: #2 Oil | 817 | | | | | |
| #4 Oil - 0 - .5%S | 31 | | | | | |
| .51-1.0%S | 11 | | | | | |
| 1.1 -2.0%S | 7 | | | | | |
| 2.0%S + | 5 | | | | | |
| Diesel - On Highway | 209 | | | | | |
| - Off Highway | 42 | | | | | |
| Other Distillate | 322 | | | | | |
| Total Distillate Fuel Oil | 1,444 | | | | | |
| Residual Fuel Oil: 0 - .1%S, .11 - .3%S, .31 - .5%S | 501 | | | | | |
| .51 - 1.0%S | 381 | | | | | |
| 1.1 - 2.0%S | 263 | | | | | |
| 2.0%S + | 477 | | | | | |
| Total Residual Fuel Oil | 1,622 | | | | | |
| Liquefied Gases: Ethane | 15 | | | | | |
| Propane | 182 | | | | | |
| Butane | 6 | | | | | |
| Propane/Butane Mix | 3 | | | | | |
| Total Liquefied Gases[2] | 206 | | | | | |
| Petrochemical Feedstocks: Still Gas | 2 | | | | | |
| 400 EP Naphtha | 12 | | | | | |
| Other | 15 | | | | | |
| Total Petrochemical Feedstocks | 29 | | | | | |
| Lubricants | 58 | | | | | |
| Waxes | 5 | | | | | |
| Coke | 32 | | | | | |
| Asphalt & Road Oil | 103 | | | | | |
| Still Gas for Fuel | 57 | | | | | |
| Miscellaneous Products | 43 | | | | | |
| Total Domestic Demand for Products | 6,522 | | | | | |

[1]Total U.S. per Annual Petroleum Statement, Final Summary, 12/28/78. Detail for U.S. PAD's per PAD District Supply/Demand, Annual, 5/31/78 adjusted to conform with Total U.S. Final Summary figures.

[2]Amount of Liquefied Gases Included Above Consumed for Chemical Uses:

| | | | | | | |
|---|---|---|---|---|---|---|
| Ethane | 15 | | | | | |
| Propane | 19 | | | | | |
| Butane | 5 | | | | | |
| Propane/Butane Mix | 1 | | | | | |
| Total | 40 | | | | | |

*To be completed by National Petroleum Council office

TABLE III (Pg. 3 of 6)

DOMESTIC DEMAND FOR PRODUCTS - PAD II

(MB/D)

| | Actual[1] 1977 | Prel. 1978* | Forecast 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| Motor Gasoline: Leaded - Premium | 205 | | | | | |
| - Non-premium | 1,565 | | | | | |
| S.Total | 1,770 | | | | | |
| Unleaded - Premium | | | | | | |
| - Non-premium | | | | | | |
| S.Total | 625 | | | | | |
| Total Motor Gasoline | 2,395 | | | | | |
| Aviation Gasoline | 10 | | | | | |
| Jet Fuel: Naphtha Type | 36 | | | | | |
| Kerosine Type | 168 | | | | | |
| Total Jet Fuel | 204 | | | | | |
| Special Naphtha | 29 | | | | | |
| Kerosine | 47 | | | | | |
| Distillate Fuel Oil: #2 Oil | 364 | | | | | |
| #4 Oil - 0 - .5%S | 1 | | | | | |
| .51-1.0%S | 2 | | | | | |
| 1.1 -2.0%S | 1 | | | | | |
| 2.0%S + | - | | | | | |
| Diesel - On Highway | 265 | | | | | |
| - Off Highway | 46 | | | | | |
| Other Distillate | 339 | | | | | |
| Total Distillate Fuel Oil | 1,018 | | | | | |
| Residual Fuel Oil: 0 - .1%S / .11 - .3%S / .31 - .5%S | 28 | | | | | |
| .51 - 1.0%S | 112 | | | | | |
| 1.1 - 2.0%S | 121 | | | | | |
| 2.0%S + | 37 | | | | | |
| Total Residual Fuel Oil | 298 | | | | | |
| Liquefied Gases: Ethane | 48 | | | | | |
| Propane | 408 | | | | | |
| Butane | 8 | | | | | |
| Propane/Butane Mix | 1 | | | | | |
| Total Liquefied Gases[2] | 465 | | | | | |
| Petrochemical Feedstocks: Still Gas | 11 | | | | | |
| 400 EP Naphtha | 11 | | | | | |
| Other | 15 | | | | | |
| Total Petrochemical Feedstocks | 37 | | | | | |
| Lubricants | 35 | | | | | |
| Waxes | 1 | | | | | |
| Coke | 96 | | | | | |
| Asphalt & Road Oil | 171 | | | | | |
| Still Gas for Fuel | 136 | | | | | |
| Miscellaneous Products | 54 | | | | | |
| Total Domestic Demand for Products | 4,996 | | | | | |

[1]Total U.S. per Annual Petroleum Statement, Final Summary, 12/28/78. Detail for U.S. PAD's per PAD District Supply/Demand, Annual, 5/31/78 adjusted to conform with Total U.S. Final Summary figures.

[2]Amount of Liquefied Gases Included Above Consumed for Chemical Uses:

| | | | | | | |
|---|---|---|---|---|---|---|
| Ethane | 48 | | | | | |
| Propane | 17 | | | | | |
| Butane | 2 | | | | | |
| Propane/Butane Mix | - | | | | | |
| Total | 67 | | | | | |

*To be completed by National Petroleum Council office

TABLE III (Pg. 4 of 6)

DOMESTIC DEMAND FOR PRODUCTS - PAD III

(MB/D)

| | Actual[1] 1977 | Prel. 1978* | Forecast 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| Motor Gasoline: Leaded - Premium | 148 | | | | | |
| - Non-premium | 617 | | | | | |
| S.Total | 765 | | | | | |
| Unleaded - Premium | | | | | | |
| - Non-premium | | | | | | |
| S.Total | 266 | | | | | |
| Total Motor Gasoline | 1,031 | | | | | |
| Aviation Gasoline | 9 | | | | | |
| Jet Fuel: Naphtha Type | 47 | | | | | |
| Kerosine Type | 65 | | | | | |
| Total Jet Fuel | 112 | | | | | |
| Special Naphtha | 21 | | | | | |
| Kerosine | 39 | | | | | |
| Distillate Fuel Oil: #2 Oil | 55 | | | | | |
| #4 Oil - 0 - .5%S | 1 | | | | | |
| .51-1.0%S | - | | | | | |
| 1.1 -2.0%S | - | | | | | |
| 2.0%S + | 1 | | | | | |
| Diesel - On Highway | 119 | | | | | |
| - Off Highway | 48 | | | | | |
| Other Distillate | 222 | | | | | |
| Total Distillate Fuel Oil | 446 | | | | | |
| Residual Fuel Oil: 0 - .1%S / .11 - .3%S / .31 - .5%S | 88 | | | | | |
| .51 - 1.0%S | 156 | | | | | |
| 1.1 - 2.0%S | 36 | | | | | |
| 2.0%S + | 263 | | | | | |
| Total Residual Fuel Oil | 543 | | | | | |
| Liquefied Gases: Ethane | 338 | | | | | |
| Propane | 197 | | | | | |
| Butane | 97 | | | | | |
| Propane/Butane Mix | 22 | | | | | |
| Total Liquefied Gases[2] | 654 | | | | | |
| Petrochemical Feedstocks: Still Gas | 30 | | | | | |
| 400 EP Naphtha | 178 | | | | | |
| Other | 231 | | | | | |
| Total Petrochemical Feedstocks | 439 | | | | | |
| Lubricants | 50 | | | | | |
| Waxes | 7 | | | | | |
| Coke | 78 | | | | | |
| Asphalt & Road Oil | 68 | | | | | |
| Still Gas for Fuel | 217 | | | | | |
| Miscellaneous Products | 41 | | | | | |
| Total Domestic Demand for Products | 3,755 | | | | | |

[1]Total U.S. per Annual Petroleum Statement, Final Summary, 12/28/78. Detail for U.S. PAD's per PAD District Supply/Demand, Annual, 5/31/78 adjusted to conform with Total U.S. Final Summary figures.

[2]Amount of Liquefied Gases Included Above Consumed for Chemical Uses:

| | | | | | | |
|---|---|---|---|---|---|---|
| Ethane | 338 | | | | | |
| Propane | 82 | | | | | |
| Butane | 84 | | | | | |
| Propane/Butane Mix | 3 | | | | | |
| Total | 507 | | | | | |

*To be completed by National Petroleum Council office

TABLE III (Pg. 5 of 6)

DOMESTIC DEMAND FOR PRODUCTS - PAD IV

(MB/D)

| | Actual[1] 1977 | Prel. 1978* | Forecast 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| Motor Gasoline: Leaded - Premium | 22 | | | | | |
| - Non-premium | 181 | | | | | |
| S.Total | 203 | | | | | |
| Unleaded - Premium | | | | | | |
| - Non-premium | | | | | | |
| S.Total | 41 | | | | | |
| Total Motor Gasoline | 244 | | | | | |
| Aviation Gasoline | 2 | | | | | |
| Jet Fuel: Naphtha Type | 9 | | | | | |
| Kerosine Type | 25 | | | | | |
| Total Jet Fuel | 34 | | | | | |
| Special Naphtha | - | | | | | |
| Kerosine | 2 | | | | | |
| Distillate Fuel Oil: #2 Oil | 17 | | | | | |
| #4 Oil - 0 - .5%S | - | | | | | |
| .51-1.0%S | - | | | | | |
| 1.1 -2.0%S | - | | | | | |
| 2.0%S + | - | | | | | |
| Diesel - On Highway | 29 | | | | | |
| - Off Highway | 14 | | | | | |
| Other Distillate | 59 | | | | | |
| Total Distillate Fuel Oil | 119 | | | | | |
| Residual Fuel Oil: 0 - .1%S / .11 - .3%S / .31 - .5%S | 16 | | | | | |
| .51 - 1.0%S | 5 | | | | | |
| 1.1 - 2.0%S | 8 | | | | | |
| 2.0%S + | 9 | | | | | |
| Total Residual Fuel Oil | 38 | | | | | |
| Liquefied Gases: Ethane | 9 | | | | | |
| Propane | 33 | | | | | |
| Butane | - | | | | | |
| Propane/Butane Mix | - | | | | | |
| Total Liquefied Gases[2] | 42 | | | | | |
| Petrochemical Feedstocks: Still Gas | 3 | | | | | |
| 400 EP Naphtha | - | | | | | |
| Other | - | | | | | |
| Total Petrochemical Feedstocks | 3 | | | | | |
| Lubricants | 2 | | | | | |
| Waxes | - | | | | | |
| Coke | 12 | | | | | |
| Asphalt & Road Oil | 32 | | | | | |
| Still Gas for Fuel | 13 | | | | | |
| Miscellaneous Products | 1 | | | | | |
| Total Domestic Demand for Products | 544 | | | | | |

[1]Total U.S. per Annual Petroleum Statement, Final Summary, 12/28/78. Detail for U.S. PAD's per PAD District Supply/Demand, Annual, 5/31/78 adjusted to conform with Total U.S. Final Summary figures.

[2]Amount of Liquefied Gases Included Above Consumed for Chemical Uses:

| | | | | | | |
|---|---|---|---|---|---|---|
| Ethane | 9 | | | | | |
| Propane | - | | | | | |
| Butane | - | | | | | |
| Propane/Butane Mix | - | | | | | |
| Total | 9 | | | | | |

*To be completed by National Petroleum Council office

TABLE III (Pg. 6 of 6)

DOMESTIC DEMAND FOR PRODUCTS - PAD V

(MB/D)

| | Actual[1] 1977 | Prel. 1978* | Forecast 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| Motor Gasoline: Leaded - Premium | 307 | | | | | |
| - Non-premium | 508 | | | | | |
| S.Total | 815 | | | | | |
| Unleaded - Premium | | | | | | |
| - Non-premium | | | | | | |
| S.Total | 268 | | | | | |
| Total Motor Gasoline | 1,083 | | | | | |
| Aviation Gasoline | 9 | | | | | |
| Jet Fuel: Naphtha Type | 59 | | | | | |
| Kerosine Type | 240 | | | | | |
| Total Jet Fuel | 299 | | | | | |
| Special Naphtha | 8 | | | | | |
| Kerosine | 13 | | | | | |
| Distillate Fuel Oil: #2 Oil | 39 | | | | | |
| #4 Oil - 0 - .5%S | 2 | | | | | |
| .51-1.0%S | - | | | | | |
| 1.1 -2.0%S | - | | | | | |
| 2.0%S + | - | | | | | |
| Diesel - On Highway | 102 | | | | | |
| - Off Highway | 22 | | | | | |
| Other Distillate | 160 | | | | | |
| Total Distillate Fuel Oil | 325 | | | | | |
| Residual Fuel Oil: 0 - .1%S | | | | | | |
| .11 - .3%S | 326 | | | | | |
| .31 - .5%S | | | | | | |
| .51 - 1.0%S | 39 | | | | | |
| 1.1 - 2.0%S | 184 | | | | | |
| 2.0%S + | 21 | | | | | |
| Total Residual Fuel Oil | 570 | | | | | |
| Liquefied Gases: Ethane | 2 | | | | | |
| Propane | 46 | | | | | |
| Butane | 4 | | | | | |
| Propane/Butane Mix | 3 | | | | | |
| Total Liquefied Gases[2] | 55 | | | | | |
| Petrochemical Feedstocks: Still Gas | 2 | | | | | |
| 400 EP Naphtha | 3 | | | | | |
| Other | 8 | | | | | |
| Total Petrochemical Feedstocks | 13 | | | | | |
| Lubricants | 15 | | | | | |
| Waxes | 3 | | | | | |
| Coke | 49 | | | | | |
| Asphalt & Road Oil | 63 | | | | | |
| Still Gas for Fuel | 101 | | | | | |
| Miscellaneous Products | 8 | | | | | |
| Total Domestic Demand for Products | 2,614 | | | | | |

[1]Total U.S. per Annual Petroleum Statement, Final Summary, 12/28/78. Detail for U.S. PAD's per PAD District Supply/Demand, Annual, 5/31/78 adjusted to conform with Total U.S. Final Summary figures.

[2]Amount of Liquefied Gases Included Above Consumed for Chemical Uses:

| | | | | | | |
|---|---|---|---|---|---|---|
| Ethane | 2 | | | | | |
| Propane | 5 | | | | | |
| Butane | 2 | | | | | |
| Propane/Butane Mix | 1 | | | | | |
| Total | 10 | | | | | |

*To be completed by National Petroleum Council office

TABLE IIIA

MOTOR GASOLINE DEMAND ASSUMPTIONS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| Passenger Cars In Use (Thousands) | 99,904[1] | | | | |
| New Car Registrations (Thousands) | 10,319[1] | | | | |
| Total Miles Traveled-Passenger Cars (Millions) | 1,118,649[2] | | | | |
| Average Miles Per Car (All Cars) | 11,197 | | | | |
| Average Miles Per Gallon (New Cars) | 18.7[3] | | | | |
| Average Miles Per Gallon (All Cars) | 13.9[2] | | | | |
| Diesel Passenger Car Sales (Thousands) | N/A | | | | |
| Average Miles Per Gallon (New Trucks) | 14.9[4] | | | | |
| Octane Level Implicit in Your Mogas Demand Forecast $\left(\frac{R+M}{2}\right)$ | | | | | |
| Leaded Premium | 95.0[5] | | | | |
| Leaded Non-Premium | 89.6[5] | | | | |
| Unleaded Premium / Unleaded Non-Premium | 88.4[5] | | | | |

[1]Source: R. L. Polk. Mid-year estimate.

[2]Source: Department of Transportation.

[3]EPA estimate. If you regularly apply a discount factor to EPA estimate, please indicate both your MPG number and your discount factor.

[4]Source: DOT. Two wheel drive vehicles only.

[5]Source: Motor Gasoline, Winter 1977-1978. DOE.

TABLE IV (Pg. 1 of 6)

U.S. PETROLEUM SUPPLY/DEMAND BALANCE BY PAD DISTRICTS - YEAR 1977
(Thousand Barrels Daily)

| | PAD District | | | | | | |
|---|---|---|---|---|---|---|---|
| | I | II | III | IV | I-IV | V | U.S. Total |
| DEMAND - TOTAL | 6,906 | 5,433 | 9,288 | 911 | 16,139 | 2,754 | 18,690 |
| 1. Local Product Demand | 6,522 | 4,996 | 3,755 | 544 | 15,817 | 2,614 | 18,431 |
| 2. Crude and Product Exports | 15 | 58 | 97 | 2 | 172 | 71 | 243 |
| 3. Product Shipments to Other Districts | 207 | 306 | 4,048 | 112 | 126 | 21 | - |
| 4. Crude, NGL and Unfinished Shipments to Other Districts | 160 | 68 | 1,382 | 251 | 9 | 47 | - |
| 5. Crude Losses | 2 | 5 | 6 | 2 | 15 | 1 | 16 |
| SUPPLY - TOTAL | 6,906 | 5,433 | 9,288 | 911 | 16,139 | 2,754 | 18,690 |
| 1. Production - Total | 189 | 1,150 | 6,349 | 725 | 8,413 | 1,448 | 9,861 |
| Crude and Lease Condensate | 144 | 892 | 5,122 | 662 | 6,820 | 1,424 | 8,244 |
| NGL | 45 | 258 | 1,227 | 63 | 1,593 | 24 | 1,617 |
| 2. Receipts From Other Districts | 3,380 | 2,643 | 346 | 98 | 68 | 135 | - |
| Crude NGL and Unfinished | 144 | 1,526 | 219 | 10 | 47 | 9 | - |
| Products | 3,236 | 1,117 | 127 | 88 | 21 | 126 | - |
| 3. Processing Gain, Etc.[1] | 99 | 259 | 159 | 18 | 535 | 34 | 569 |
| 4. Imports - Total | 3,368 | 1,560 | 2,592 | 74 | 7,594 | 1,214 | 8,808 |
| Crude and Unfinished | 1,543 | 1,416 | 2,544 | 44 | 5,547 | 1,099 | 6,646 |
| From Overland | 5 | 210 | - | 44 | 259 | 20 | 279 |
| From Offshore | 1,538 | 1,206 | 2,544 | - | 5,288 | 1,079 | 6,367 |
| NGL | - | 24 | - | 14 | 38 | 4 | 42 |
| Finished Products | 1,825 | 120 | 48 | 16 | 2,009 | 111 | 2,120 |
| 5. Syncrude | - | - | - | - | - | - | - |
| From Shale | - | - | - | - | - | - | - |
| From Coal | - | - | - | - | - | - | - |
| 6. From Inventory | (130) | (179) | (158) | (4) | (471) | (77) | (548) |
| Crude | (3) | (21) | (78) | (1) | (103) | (67) | (170) |
| Products | (127) | (158) | (80) | (3) | (368) | (10) | (378) |
| 7. Crude Runs | 1,674 | 3,779 | 6,346 | 480 | 12,279 | 2,323 | 14,602 |

[1]Includes other hydrocarbon and hydrogen refinery inputs, "unaccounted for" crude inputs.

Source: Supply, Demand and Stocks of All Oils by PAD Districts - Final 1977

TABLE IV (Pg. 2 of 6)

U.S. PETROLEUM SUPPLY/DEMAND BALANCE BY PAD DISTRICTS - YEAR 1978[2]
(Thousand Barrels Daily)

| | PAD District | | | | | | |
|---|---|---|---|---|---|---|---|
| | I | II | III | IV | I-IV | V | U.S. Total |
| DEMAND - TOTAL | | | | | | | |
| 1. Local Product Demand | | | | | | | |
| 2. Crude and Product Exports | | | | | | | |
| 3. Product Shipments to Other Districts | | | | | | | |
| 4. Crude, NGL and Unfinished Shipments to Other Districts | | | | | | | |
| 5. Crude Losses | | | | | | | |
| SUPPLY - TOTAL | | | | | | | |
| 1. Production - Total | | | | | | | |
| Crude and Lease Condensate | | | | | | | |
| NGL | | | | | | | |
| 2. Receipts From Other Districts | | | | | | | |
| Crude NGL and Unfinished | | | | | | | |
| Products | | | | | | | |
| 3. Processing Gain, Etc.[1] | | | | | | | |
| 4. Imports - Total | | | | | | | |
| Crude and Unfinished | | | | | | | |
| From Overland | | | | | | | |
| From Offshore | | | | | | | |
| NGL | | | | | | | |
| Finished Products | | | | | | | |
| 5. Syncrude | | | | | | | |
| From Shale | | | | | | | |
| From Coal | | | | | | | |
| 6. From Inventory | | | | | | | |
| Crude | | | | | | | |
| Products | | | | | | | |
| 7. Crude Runs | | | | | | | |

[1]Includes other hydrocarbon and hydrogen refinery inputs, "unaccounted for" crude inputs.

[2]1978 data will be completed by the National Petroleum Council Office.

TABLE IV (Pg. 3 of 6)

U.S. PETROLEUM SUPPLY/DEMAND BALANCE BY PAD DISTRICTS - YEAR 1980
(Thousand Barrels Daily)

| | PAD District | | | | | | |
|---|---|---|---|---|---|---|---|
| | I | II | III | IV | I-IV | V | U.S. Total |
| DEMAND - TOTAL | | | | | | | |
| 1. Local Product Demand | | | | | | | |
| 2. Crude and Product Exports | | | | | | | |
| 3. Product Shipments to Other Districts | | | | | | | |
| 4. Crude, NGL and Unfinished Shipments to Other Districts | | | | | | | |
| 5. Crude Losses | | | | | | | |
| SUPPLY - TOTAL | | | | | | | |
| 1. Production - Total | | | | | | | |
| Crude and Lease Condensate | | | | | | | |
| NGL | | | | | | | |
| 2. Receipts From Other Districts | | | | | | | |
| Crude NGL and Unfinished | | | | | | | |
| Products | | | | | | | |
| 3. Processing Gain, Etc.[1] | | | | | | | |
| 4. Imports - Total | | | | | | | |
| Crude and Unfinished | | | | | | | |
| From Overland | | | | | | | |
| From Offshore | | | | | | | |
| NGL | | | | | | | |
| Finished Products | | | | | | | |
| 5. Syncrude | | | | | | | |
| From Shale | | | | | | | |
| From Coal | | | | | | | |
| 6. From Inventory | | | | | | | |
| Crude | | | | | | | |
| Products | | | | | | | |
| 7. Crude Runs | | | | | | | |

[1]Includes other hydrocarbon and hydrogen refinery inputs, "unaccounted for" crude inputs.

TABLE IV (Pg. 4 of 6)

U.S. PETROLEUM SUPPLY/DEMAND BALANCE BY PAD DISTRICTS - YEAR 1982
(Thousand Barrels Daily)

| | PAD District | | | | | | |
|---|---|---|---|---|---|---|---|
| | I | II | III | IV | I-IV | V | U.S. Total |
| DEMAND - TOTAL | | | | | | | |
| 1. Local Product Demand | | | | | | | |
| 2. Crude and Product Exports | | | | | | | |
| 3. Product Shipments to Other Districts | | | | | | | |
| 4. Crude, NGL and Unfinished Shipments to Other Districts | | | | | | | |
| 5. Crude Losses | | | | | | | |
| SUPPLY - TOTAL | | | | | | | |
| 1. Production - Total | | | | | | | |
| Crude and Lease Condensate | | | | | | | |
| NGL | | | | | | | |
| 2. Receipts From Other Districts | | | | | | | |
| Crude NGL and Unfinished | | | | | | | |
| Products | | | | | | | |
| 3. Processing Gain, Etc.[1] | | | | | | | |
| 4. Imports - Total | | | | | | | |
| Crude and Unfinished | | | | | | | |
| From Overland | | | | | | | |
| From Offshore | | | | | | | |
| NGL | | | | | | | |
| Finished Products | | | | | | | |
| 5. Syncrude | | | | | | | |
| From Shale | | | | | | | |
| From Coal | | | | | | | |
| 6. From Inventory | | | | | | | |
| Crude | | | | | | | |
| Products | | | | | | | |
| 7. Crude Runs | | | | | | | |

[1]Includes other hydrocarbon and hydrogen refinery inputs, "unaccounted for" crude inputs.

TABLE IV (Pg. 5 of 6)

U.S. PETROLEUM SUPPLY/DEMAND BALANCE BY PAD DISTRICTS - YEAR 1985
(Thousand Barrels Daily)

| | PAD District | | | | | | |
|---|---|---|---|---|---|---|---|
| | I | II | III | IV | I-IV | V | U.S. Total |
| DEMAND - TOTAL | | | | | | | |
| 1. Local Product Demand | | | | | | | |
| 2. Crude and Product Exports | | | | | | | |
| 3. Product Shipments to Other Districts | | | | | | | |
| 4. Crude, NGL and Unfinished Shipments to Other Districts | | | | | | | |
| 5. Crude Losses | | | | | | | |
| SUPPLY - TOTAL | | | | | | | |
| 1. Production - Total | | | | | | | |
| Crude and Lease Condensate | | | | | | | |
| NGL | | | | | | | |
| 2. Receipts From Other Districts | | | | | | | |
| Crude NGL and Unfinished | | | | | | | |
| Products | | | | | | | |
| 3. Processing Gain, Etc.[1] | | | | | | | |
| 4. Imports - Total | | | | | | | |
| Crude and Unfinished | | | | | | | |
| From Overland | | | | | | | |
| From Offshore | | | | | | | |
| NGL | | | | | | | |
| Finished Products | | | | | | | |
| 5. Syncrude | | | | | | | |
| From Shale | | | | | | | |
| From Coal | | | | | | | |
| 6. From Inventory | | | | | | | |
| Crude | | | | | | | |
| Products | | | | | | | |
| 7. Crude Runs | | | | | | | |

[1]Includes other hydrocarbon and hydrogen refinery inputs, "unaccounted for" crude inputs.

TABLE IV (Pg. 6 of 6)

U.S. PETROLEUM SUPPLY/DEMAND BALANCE BY PAD DISTRICTS - YEAR 1990
(Thousand Barrels Daily)

| | PAD District | | | | | | |
|---|---|---|---|---|---|---|---|
| | I | II | III | IV | I-IV | V | U.S. Total |
| **DEMAND - TOTAL** | | | | | | | |
| 1. Local Product Demand | | | | | | | |
| 2. Crude and Product Exports | | | | | | | |
| 3. Product Shipments to Other Districts | | | | | | | |
| 4. Crude, NGL and Unfinished Shipments to Other Districts | | | | | | | |
| 5. Crude Losses | | | | | | | |
| **SUPPLY - TOTAL** | | | | | | | |
| 1. Production - Total | | | | | | | |
| Crude and Lease Condensate | | | | | | | |
| NGL | | | | | | | |
| 2. Receipts From Other Districts | | | | | | | |
| Crude NGL and Unfinished | | | | | | | |
| Products | | | | | | | |
| 3. Processing Gain, Etc.[1] | | | | | | | |
| 4. Imports - Total | | | | | | | |
| Crude and Unfinished | | | | | | | |
| From Overland | | | | | | | |
| From Offshore | | | | | | | |
| NGL | | | | | | | |
| Finished Products | | | | | | | |
| 5. Syncrude | | | | | | | |
| From Shale | | | | | | | |
| From Coal | | | | | | | |
| 6. From Inventory | | | | | | | |
| Crude | | | | | | | |
| Products | | | | | | | |
| 7. Crude Runs | | | | | | | |

[1]Includes other hydrocarbon and hydrogen refinery inputs, "unaccounted for" crude inputs.

TABLE V

WORLD OIL CONSUMPTION[1]
(Million Barrels/Day)

| | 1977[2] | 1978[3] | Forecast 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| **OECD** | | | | | | |
| United States | 18.4 | | | | | |
| Western Europe | 14.2 | | | | | |
| Japan | 5.3 | | | | | |
| Other OECD | 2.6 | | | | | |
| **NON-OECD** (Excl. USSR, E. Europe China) | 9.3 | | | | | |
| Sub-Total | 49.8 | | | | | |
| **USSR** | 8.0 | | | | | |
| **East Europe** | 2.1 | | | | | |
| **China** | 1.5 | | | | | |
| Sub-Total | 11.6 | | | | | |
| **TOTAL CONSUMPTION** | 61.4 | | | | | |

[1]Including International Bunkers and Refinery Fuel and Losses.
[2]Product Basis. Data for outside U.S. from BP 1977 Statistical Review of the World Oil Industry.
[3]To be completed by National Petroleum Council Office.

## TABLE VI

## WORLD CRUDE OIL SUPPLY[1]
(Million Barrels/Day)

| | 1977 | 1978[2] | Forecast 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| OECD - | | | | | | |
| U.S. | 8.2 | | | | | |
| Canada | 1.3 | | | | | |
| W. Europe | 1.4 | | | | | |
| Japan, Australia, New Zealand | .4 | | | | | |
| Sub-Total | 11.3 | | | | | |
| OPEC - | | | | | | |
| Venezuela | 2.2 | | | | | |
| Ecuador | .2 | | | | | |
| Indonesia | 1.7 | | | | | |
| Africa | 5.5 | | | | | |
| Algeria | 1.1 | | | | | |
| Libya | 2.1 | | | | | |
| Nigeria | 2.1 | | | | | |
| Gabon | .2 | | | | | |
| Middle East | 21.8 | | | | | |
| Iran | 5.7 | | | | | |
| Kuwait | 1.8 | | | | | |
| S. Arabia | 9.0 | | | | | |
| Iraq | 2.5 | | | | | |
| UAE | 2.0 | | | | | |
| Qatar | .4 | | | | | |
| Neutral Zone | .4 | | | | | |
| Sub-Total | 31.4 | | | | | |
| NON-OPEC (Excl. USSR, E. Europe, China) - | | | | | | |
| Mexico | 1.0 | | | | | |
| Other L. America | 1.1 | | | | | |
| Africa | .7 | | | | | |
| Middle East | .6 | | | | | |
| Asia | .7 | | | | | |
| Sub-Total | 4.1 | | | | | |
| USSR | 10.7 | | | | | |
| East Europe | .4 | | | | | |
| China | 1.8 | | | | | |
| Sub-Total | 12.9 | | | | | |
| Refinery Processing Gains | | | | | | |
| U.S. | .5 | | | | | |
| Other | Neg. | | | | | |
| Sub-Total | .5 | | | | | |
| TOTAL SUPPLY | 60.2 | | | | | |

[1]Including field condensate and non-conventional supplies from Tar Sands (Canada) and heavy oil (Venezuela's Heavy Oil Belt).

[2]To be completed by National Petroleum Council Office.

NOTE: Forecast only such quantities that you feel oil exporting countries will produce. You are asked to take into account the political and economic constraints which may lower production from that physically sustainable.

## TABLE VII

## WORLD NATURAL GAS LIQUIDS SUPPLY

(Thousand Barrels/Day)

| | | | Forecast | | | |
|---|---|---|---|---|---|---|
| | 1977[1] | 1978[2] | 1980 | 1982 | 1985 | 1990 |
| OECD - | | | | | | |
| U.S. | 1620 | | | | | |
| Canada | 290 | | | | | |
| W. Europe | 85 | | | | | |
| Japan, Australia, N. Zealand | 55 | | | | | |
| Sub-Total | 2050 | | | | | |
| OPEC - | | | | | | |
| Venezuela | 80 | | | | | |
| Ecuador | - | | | | | |
| Indonesia | 10 | | | | | |
| Africa | 115 | | | | | |
| Algeria | 75 | | | | | |
| Libya | 40 | | | | | |
| Nigeria | - | | | | | |
| Gabon | - | | | | | |
| Middle East | 335 | | | | | |
| Iran | 40 | | | | | |
| Kuwait | 55 | | | | | |
| S. Arabia | 215 | | | | | |
| Iraq | 5 | | | | | |
| UAE | 15 | | | | | |
| Qatar | 5 | | | | | |
| Neutral Zone | - | | | | | |
| Sub-Total | 540 | | | | | |
| NON-OPEC (Excl. USSR, E. Europe, China) - | | | | | | |
| Mexico | 105 | | | | | |
| Other L. America | 45 | | | | | |
| Africa | - | | | | | |
| Middle East | - | | | | | |
| Asia | 30 | | | | | |
| Sub-Total | 180 | | | | | |
| USSR | 220 | | | | | |
| East Europe | 15 | | | | | |
| China | N.A. | | | | | |
| Sub-Total | 235 | | | | | |
| TOTAL SUPPLY | 3005 | | | | | |

[1]Estimated. Source: CIA
N.A. - Not available
[2]To be completed by National Petroleum Council Office.

# APPENDIX H

# SUPPLY/DEMAND SURVEY DATA

APPENDIX H

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TOTAL U.S. ENERGY CONSUMPTION BY FUELS AND BY CONSUMING SECTORS
(TRILLION BTU S)

TOTAL--ALL RESPONDENTS
ADJUSTED AVERAGE

| | | PETROL. LIQUIDS | NAT. GAS (DRY) | COAL | NUCLEAR | HYDRO-ELEC. | GEO-THERMAL | OTHER | TOTAL PRIMARY ENERGY | ELEC. DIST. SECTOR | TOTAL ENERGY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDENTIAL/COMMERCIAL: | 1977 | 5142.0 | 7476.0 | 243.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12861.0 | 4381.0 | 17242.0 |
| | 1980 | 5416.3 | 7984.1 | 206.7 | 0.0 | 0.0 | 0.0 | 4.0 | 13611.1 | 4720.2 | 18331.3 |
| | 1982 | 5492.4 | 8434.6 | 176.4 | 0.0 | 0.0 | 0.0 | 12.2 | 14115.6 | 5170.3 | 19285.9 |
| | 1985 | 5567.1 | 8767.9 | 169.5 | 0.0 | 0.0 | 0.0 | 40.9 | 14545.4 | 5783.7 | 20329.1 |
| | 1990 | 5603.5 | 9534.1 | 142.8 | 0.0 | 0.0 | 0.0 | 158.7 | 15439.1 | 6873.2 | 22312.3 |
| TRANSPORTATION: | 1977 | 19362.0 | 544.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19906.0 | 16.0 | 19922.0 |
| | 1980 | 20708.8 | 649.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21358.7 | 25.9 | 21384.6 |
| | 1982 | 21011.0 | 729.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21740.4 | 29.2 | 21769.6 |
| | 1985 | 21250.7 | 662.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21913.6 | 29.4 | 21943.0 |
| | 1990 | 21960.6 | 678.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22639.0 | 37.3 | 22676.3 |
| INDUSTRIAL: | 1977 | 4524.0 | 7927.0 | 3529.0 | 0.0 | 36.0 | 0.0 | 0.0 | 16016.0 | 2921.0 | 18937.0 |
| | 1980 | 4681.1 | 8161.5 | 3793.4 | 0.0 | 36.6 | 0.0 | 3.7 | 16676.3 | 3119.1 | 19795.4 |
| | 1982 | 5063.3 | 8308.4 | 4005.0 | 0.0 | 37.3 | 0.0 | 7.8 | 17421.8 | 3414.8 | 20836.6 |
| | 1985 | 5301.1 | 8492.3 | 4491.3 | 0.0 | 38.2 | 0.0 | 7.2 | 18330.1 | 3845.3 | 22175.4 |
| | 1990 | 5751.0 | 8569.1 | 5571.9 | 0.0 | 39.3 | 0.0 | 14.3 | 19945.6 | 4632.0 | 24577.6 |
| ELECTRIC UTILITY: | 1977 | 4025.0 | 3256.0 | 10263.0 | 2674.0 | 2475.0 | 103.0 | 0.0 | 22796.0 | -7318.0 | 15478.0 |
| | 1980 | 3848.2 | 2827.4 | 11924.5 | 3547.6 | 3291.9 | 114.1 | 5.3 | 25559.0 | -7865.2 | 17693.8 |
| | 1982 | 3846.0 | 2466.2 | 13257.7 | 4542.0 | 3463.2 | 159.6 | 9.0 | 27743.7 | -8614.3 | 19129.4 |
| | 1985 | 3987.2 | 2095.9 | 14995.0 | 6305.1 | 3617.2 | 221.1 | 104.3 | 31325.8 | -9658.4 | 21667.4 |
| | 1990 | 3526.0 | 1460.5 | 18661.4 | 9159.6 | 3896.2 | 359.0 | 176.2 | 37238.9 | -11542.5 | 25696.4 |
| NON-ENERGY & OTHERS: | 1977 | 3917.0 | 728.0 | 98.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4743.0 | 0.0 | 4743.0 |
| | 1980 | 4212.8 | 687.4 | 93.9 | 0.0 | 0.0 | 0.0 | 0.0 | 4994.1 | 0.0 | 4994.1 |
| | 1982 | 4643.3 | 709.1 | 105.1 | 0.0 | 0.0 | 0.0 | 0.0 | 5457.5 | 0.0 | 5457.5 |
| | 1985 | 4940.5 | 764.4 | 112.3 | 0.0 | 0.0 | 0.0 | 0.0 | 5817.2 | 0.0 | 5817.2 |
| | 1990 | 5595.5 | 842.8 | 138.7 | 0.0 | 0.0 | 0.0 | 0.0 | 6577.0 | 0.0 | 6577.0 |
| SYNTHETIC CONVERSION ADJUSTMENT | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 279.3 | -247.7 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 35.6 | 0.0 | 35.6 |
| | 1982 | 309.4 | -271.7 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 44.3 | 0.0 | 44.3 |
| | 1985 | 257.8 | -314.4 | 135.2 | 0.0 | 0.0 | 0.0 | 0.0 | 78.6 | 0.0 | 78.6 |
| | 1990 | 207.2 | -598.6 | 639.7 | 0.0 | 0.0 | 0.0 | 0.0 | 248.3 | 0.0 | 248.3 |
| TOTAL: | 1977 | 36970.0 | 19931.0 | 14133.0 | 2674.0 | 2511.0 | 103.0 | 0.0 | 76322.0 | 0.0 | 76322.0 |
| | 1980 | 39146.5 | 20062.6 | 16022.5 | 3547.6 | 3328.5 | 114.1 | 12.9 | 82234.6 | 0.0 | 82234.6 |
| | 1982 | 40365.3 | 20376.0 | 17550.8 | 4542.0 | 3500.5 | 159.6 | 29.1 | 86523.3 | 0.0 | 86523.3 |
| | 1985 | 41304.3 | 20469.0 | 19903.3 | 6305.1 | 3655.4 | 221.1 | 152.4 | 92010.7 | 0.0 | 92010.7 |
| | 1990 | 42643.8 | 20486.2 | 25154.4 | 9159.6 | 3935.5 | 359.0 | 349.3 | 102087.9 | 0.0 | 102087.9 |

Date: 09/18/79

TOTAL U.S. ENERGY CONSUMPTION BY FUELS AND BY CONSUMING SECTORS
(TRILLION BTU S)

TOTAL--ALL RESPONDENTS
ANNUAL GROWTH RATE

| | | PETROL. LIQUIDS | NAT. GAS (DRY) | COAL | NUCLEAR | HYDRO-ELEC. | GEO-THERMAL | OTHER | TOTAL PRIMARY ENERGY | ELEC. DIST. SECTOR | TOTAL ENERGY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDENTIAL/COMMERCIAL: | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 1.7 | 2.2 | -5.2 | 0.0 | 0.0 | 0.0 | **.* | 1.9 | 2.5 | 2.0 |
| | 1982 | 1.3 | 2.4 | -6.2 | 0.0 | 0.0 | 0.0 | **.* | 1.9 | 3.4 | 2.3 |
| | 1985 | 1.0 | 2.0 | -4.4 | 0.0 | 0.0 | 0.0 | **.* | 1.6 | 3.5 | 2.1 |
| | 1990 | 0.7 | 1.9 | -4.0 | 0.0 | 0.0 | 0.0 | **.* | 1.4 | 3.5 | 2.0 |
| TRANSPORTATION: | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 2.2 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 17.2 | 2.4 |
| | 1982 | 1.6 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 12.8 | 1.8 |
| | 1985 | 1.2 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 7.9 | 1.2 |
| | 1990 | 1.0 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 6.7 | 1.0 |
| INDUSTRIAL: | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 1.1 | 1.0 | 2.4 | 0.0 | 0.5 | 0.0 | **.* | 1.3 | 2.2 | 1.5 |
| | 1982 | 2.3 | 0.9 | 2.6 | 0.0 | 0.7 | 0.0 | **.* | 1.7 | 3.2 | 1.9 |
| | 1985 | 2.0 | 0.9 | 3.1 | 0.0 | 0.7 | 0.0 | **.* | 1.7 | 3.5 | 2.0 |
| | 1990 | 1.9 | 0.6 | 3.6 | 0.0 | 0.7 | 0.0 | **.* | 1.7 | 3.6 | 2.0 |
| ELECTRIC UTILITY: | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | -1.5 | -4.6 | 5.1 | 9.8 | 9.9 | 3.4 | **.* | 3.8 | 2.4 | 4.5 |
| | 1982 | -0.9 | -5.4 | 5.3 | 11.2 | 6.9 | 9.2 | **.* | 4.0 | 3.3 | 4.3 |
| | 1985 | -0.1 | -5.4 | 4.9 | 11.3 | 4.9 | 10.0 | **.* | 4.1 | 3.5 | 4.3 |
| | 1990 | -1.0 | -6.0 | 4.7 | 9.9 | 3.6 | 10.1 | **.* | 3.8 | 3.6 | 4.0 |
| NON-ENERGY & OTHERS: | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 2.4 | -1.9 | -1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 | 1.7 |
| | 1982 | 3.5 | -0.5 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 0.0 | 2.8 |
| | 1985 | 2.9 | 0.6 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 0.0 | 2.6 |
| | 1990 | 2.8 | 1.1 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 0.0 | 2.5 |
| SYNTHETIC CONVERSION ADJUSTMENT | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | **.* | **.* | **.* | 0.0 | 0.0 | 0.0 | 0.0 | **.* | 0.0 | **.* |
| | 1982 | **.* | **.* | **.* | 0.0 | 0.0 | 0.0 | 0.0 | **.* | 0.0 | **.* |
| | 1985 | **.* | **.* | **.* | 0.0 | 0.0 | 0.0 | 0.0 | **.* | 0.0 | **.* |
| | 1990 | **.* | **.* | **.* | 0.0 | 0.0 | 0.0 | 0.0 | **.* | 0.0 | **.* |
| TOTAL: | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 1.9 | 0.2 | 4.2 | 9.8 | 9.7 | 3.4 | **.* | 2.5 | 0.0 | 2.5 |
| | 1982 | 1.8 | 0.4 | 4.4 | 11.2 | 6.9 | 9.2 | **.* | 2.5 | 0.0 | 2.5 |
| | 1985 | 1.4 | 0.3 | 4.4 | 11.3 | 4.8 | 10.0 | **.* | 2.4 | 0.0 | 2.4 |
| | 1990 | 1.1 | 0.2 | 4.5 | 9.9 | 3.5 | 10.1 | **.* | 2.3 | 0.0 | 2.3 |

DATE: 10/12/79

U.S. ENERGY SUPPLIES

ADJUSTED AVERAGE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| **OIL (MILLION BARRELS/YEAR)** | | | | | |
| DOMESTIC PRODUCTION - TOTAL | 3,599.8 | 3,738.8 | 3,665.9 | 3,570.4 | 3,586.1 |
| CRUDE & LEASE CONDENSATE | 3,009.3 | 3,179.4 | 3,118.7 | 3,058.5 | 3,112.7 |
| NGL | 590.5 | 559.4 | 547.2 | 511.9 | 473.4 |
| IMPORTS - TOTAL | 3,214.6 | 3,342.7 | 3,609.8 | 3,812.6 | 3,980.3 |
| CRUDE | 2,414.3 | 2,509.0 | 2,691.5 | 2,897.7 | 2,952.9 |
| PRODUCTS (INCL. NGL & UNFINISHED) | 800.3 | 833.7 | 918.3 | 914.9 | 1,027.4 |
| EXPORTS | -88.6 | -106.3 | -113.9 | -95.4 | -94.7 |
| PROCESSING GAIN, ETC. | 201.8 | 193.5 | 209.1 | 192.4 | 192.7 |
| SYNCRUDE | 0.0 | 0.0 | 1.5 | 16.7 | 92.4 |
| FROM SHALE | 0.0 | 0.0 | 1.5 | 16.2 | 75.7 |
| FROM COAL | 0.0 | 0.0 | 0.0 | 0.5 | 16.7 |
| FROM INVENTORY | -200.1 | -32.2 | -18.3 | -6.6 | -7.7 |
| CRUDE | -62.2 | -23.0 | -17.7 | -3.9 | -4.6 |
| PRODUCTS | -137.9 | -9.2 | -0.6 | -2.7 | -3.1 |
| TOTAL OIL SUPPLY | 6,727.5 | 7,136.5 | 7,354.1 | 7,490.1 | 7,749.1 |
| MEMO: TRILLION BTU'S/YR. | 36,970.0 | 39,146.5 | 40,365.3 | 41,304.3 | 42,643.8 |
| **GAS (BILLION CUBIC FEET/YEAR)** | | | | | |
| PRODUCTION | 20,025.0 | 18,783.0 | 18,144.9 | 17,507.7 | 16,885.4 |
| EXTRACTION LOSS, TRANSFERS OUT | -862.0 | -706.0 | -615.7 | -694.6 | -676.8 |
| IMPORTS - TOTAL | 1,001.0 | 1,413.9 | 2,009.0 | 2,516.0 | 2,785.2 |
| EXPORTS | -56.0 | -53.0 | -54.1 | -37.2 | -36.1 |
| FROM INV., TRANSMILLION LOSS & UNACCOUNTED | -597.0 | -260.3 | -198.6 | -216.1 | -211.2 |
| TOTAL DRY NATURAL GAS | 19,511.0 | 19,177.8 | 19,285.5 | 19,075.8 | 18,746.5 |
| SYNGAS | 0.0 | 214.1 | 265.9 | 335.3 | 536.8 |
| FROM COAL | 0.0 | 15.1 | 25.3 | 106.1 | 307.1 |
| FROM LIQUIDS | 0.0 | 199.0 | 240.6 | 229.2 | 229.7 |
| TOTAL GAS SUPPLY | 19,511.0 | 19,391.9 | 19,551.4 | 19,411.1 | 19,283.3 |
| MEMO: TRILLION BTU'S/YR. | 19,931.0 | 20,062.6 | 20,376.0 | 20,469.0 | 20,486.2 |
| **COAL (ANTHRACITE, BITUMINOUS, & LIGNITE): THOUSAND SHORT TONS PER YEAR** | | | | | |
| PRODUCTION - TOTAL | 694,755.0 | 779,336.5 | 845,443.0 | 982,173.6 | 1,258,422.0 |
| FOR CONVENTIONAL DOMESTIC MARKETS | 694,755.0 | 779,028.3 | 845,443.0 | 975,737.5 | 1,235,753.0 |
| FOR SYNTHETIC OIL &/OR GAS PLANTS | 0.0 | 308.2 | 0.0 | 6,436.1 | 22,669.5 |
| NET EXPORTS | -52,509.0 | -49,323.5 | -51,511.9 | -60,262.5 | -62,684.5 |
| FROM INV., LOSSES, GAINS, & UNACCOUNTED FOR | -16,575.0 | -4,367.1 | 0.0 | -5,801.5 | -5,810.5 |
| TOTAL COAL SUPPLY | 625,671.0 | 725,645.9 | 793,931.1 | 916,109.6 | 1,189,927.0 |
| MEMO: TRILLION BTU'S/YR. | 14,133.0 | 16,022.5 | 17,550.8 | 19,903.3 | 25,154.4 |
| NUCLEAR: TRILLION BTU'S/YR. | 2,674.0 | 3,547.6 | 4,542.0 | 6,305.1 | 9,159.6 |

U.S. ENERGY SUPPLIES

ANNUAL GROWTH RATE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| OIL (MILLION BARRELS/YEAR) | | | | | |
| DOMESTIC PRODUCTION - TOTAL | 0.0 | 1.3 | 0.4 | -0.1 | 0.0 |
| CRUDE & LEASE CONDENSATE | 0.0 | 1.8 | 0.7 | 0.2 | 0.3 |
| NGL | 0.0 | -1.8 | -1.5 | -1.8 | -1.7 |
| IMPORTS - TOTAL | 0.0 | 1.3 | 2.3 | 2.2 | 1.7 |
| CRUDE | 0.0 | 1.3 | 2.2 | 2.3 | 1.6 |
| PRODUCTS (INCL. NGL & UNFINISHED) | 0.0 | 1.4 | 2.8 | 1.7 | 1.9 |
| EXPORTS | 0.0 | 6.2 | 5.2 | 0.9 | 0.5 |
| PROCESSING GAIN, ETC. | 0.0 | -1.4 | 0.7 | -0.6 | -0.4 |
| SYNCRUDE | 0.0 | 0.0 | **.* | **.* | **.* |
| FROM SHALE | 0.0 | 0.0 | **.* | **.* | **.* |
| FROM COAL | 0.0 | 0.0 | 0.0 | **.* | **.* |
| FROM INVENTORY | 0.0 | -45.3 | -38.0 | -34.7 | -22.2 |
| CRUDE | 0.0 | -28.0 | -22.2 | -29.3 | -18.1 |
| PRODUCTS | 0.0 | -59.1 | -66.3 | -38.8 | -25.3 |
| TOTAL OIL SUPPLY | 0.0 | 2.0 | 1.8 | 1.4 | 1.1 |
| MEMO: TRILLION BTU'S/YR. | 0.0 | 1.9 | 1.8 | 1.4 | 1.1 |
| GAS (BILLION CUBIC FEET/YEAR) | | | | | |
| PRODUCTION | 0.0 | -2.1 | -2.0 | -1.7 | -1.3 |
| EXTRACTION LOSS, TRANSFERS OUT | 0.0 | -6.4 | -6.5 | -2.7 | -1.8 |
| IMPORTS - TOTAL | 0.0 | 12.1 | 15.0 | 12.2 | 8.2 |
| EXPORTS | 0.0 | -1.8 | -0.7 | -5.0 | -3.3 |
| FROM INV., TRANSMILLION LOSS & UNACCOUNTED | 0.0 | -24.0 | -19.8 | -11.9 | -7.7 |
| TOTAL DRY NATURAL GAS | 0.0 | -0.6 | -0.2 | -0.3 | -0.3 |
| SYNGAS | 0.0 | **.* | **.* | **.* | **.* |
| FROM COAL | 0.0 | **.* | **.* | **.* | **.* |
| FROM LIQUIDS | 0.0 | **.* | **.* | **.* | **.* |
| TOTAL GAS SUPPLY | 0.0 | -0.2 | 0.0 | -0.1 | -0.1 |
| MEMO: TRILLION BTU'S/YR. | 0.0 | 0.2 | 0.4 | 0.3 | 0.2 |
| COAL (ANTHRACITE, BITUMINOUS, & LIGNITE): THOUSAND SHORT TONS PER YEAR | | | | | |
| PRODUCTION - TOTAL | 0.0 | 3.9 | 4.0 | 4.4 | 4.7 |
| FOR CONVENTIONAL DOMESTIC MARKETS | 0.0 | 3.9 | 4.0 | 4.3 | 4.5 |
| FOR SYNTHETIC OIL &/OR GAS PLANTS | 0.0 | **.* | 0.0 | **.* | **.* |
| NET EXPORTS | 0.0 | -2.0 | -0.4 | 1.7 | 1.4 |
| FROM INV., LOSSES, GAINS, & UNACCOUNTED FOR | 0.0 | -35.6 | **.* | -12.3 | -7.7 |
| TOTAL COAL SUPPLY | 0.0 | 5.0 | 4.9 | 4.9 | 5.1 |
| MEMO: TRILLION BTU'S/YR. | 0.0 | 4.2 | 4.4 | 4.4 | 4.5 |
| NUCLEAR: TRILLION BTU'S/YR. | 0.0 | 9.8 | 11.2 | 11.3 | 9.9 |

Date: 09/14/79

DOMESTIC DEMAND FOR PRODUCTS - TOTAL U.S.
(THOUSAND BARRELS/DAY)

ADJUSTED AVERAGE
TOTAL--ALL RESPONDENTS

| | | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| MOTOR GASOLINE: | LEADED - PREMIUM | 1,061.0 | 418.4 | 154.1 | 21.4 | 0.0 |
| | - NON-PREMIUM | 4,207.0 | 3,508.7 | 2,867.7 | 1,949.8 | 1,088.9 |
| | S.TOTAL | 5,268.0 | 3,927.1 | 3,021.8 | 1,971.2 | 1,088.9 |
| | UNLEADED - PREMIUM | 0.0 | 900.2 | 1,341.8 | 1,882.6 | 2,235.3 |
| | - NON-PREMIUM | 1,908.0 | 2,755.7 | 3,189.3 | 3,302.6 | 3,429.1 |
| | S.TOTAL | 1,908.0 | 3,655.9 | 4,531.1 | 5,185.2 | 5,664.4 |
| | TOTAL MOTOR GASOLINE | 7,176.0 | 7,583.0 | 7,552.9 | 7,156.4 | 6,753.3 |
| AVIATION GASOLINE | | 38.0 | 41.6 | 43.4 | 44.9 | 49.0 |
| JET FUEL: | NAPTHA TYPE | 208.0 | 196.8 | 184.1 | 170.8 | 140.2 |
| | KEROSINE TYPE | 831.0 | 921.4 | 1,001.1 | 1,101.5 | 1,298.1 |
| | TOTAL JET FUEL | 1,039.0 | 1,118.2 | 1,185.2 | 1,272.3 | 1,438.3 |
| SPECIAL NAPTHA | | 86.0 | 98.1 | 103.0 | 104.2 | 112.5 |
| KEROSINE | | 175.0 | 191.0 | 189.0 | 168.7 | 163.1 |
| DISTILLATE FUEL OIL: | NO.2 OIL | 1,292.0 | 1,302.2 | 1,292.3 | 1,279.5 | 1,218.4 |
| | NO.4 OIL | 62.0 | 64.2 | 66.6 | 70.3 | 74.3 |
| | DIESEL - ON HIGHWAY | 724.0 | 939.1 | 1,088.0 | 1,352.0 | 1,822.4 |
| | - OFF HIGHWAY | 172.0 | 195.6 | 205.9 | 220.9 | 251.2 |
| | OTHER DISTILLATE | 1,102.0 | 1,079.3 | 1,153.6 | 1,172.6 | 1,227.5 |
| | TOTAL DISTILLATE FUEL OIL | 3,352.0 | 3,580.4 | 3,806.4 | 4,095.4 | 4,593.9 |
| RESIDUAL FUEL OIL: | 0 - .5%S | 959.0 | 996.3 | 1,070.7 | 1,137.7 | 1,048.6 |
| | .51 - 1.0%S | 693.0 | 815.1 | 839.7 | 876.2 | 898.3 |
| | 1.1 - 2.0%S | 612.0 | 641.5 | 651.2 | 654.0 | 643.9 |
| | 2.0%S + | 807.0 | 686.9 | 679.1 | 659.6 | 634.1 |
| | TOTAL RESIDUAL FUEL OIL | 3,071.0 | 3,139.9 | 3,240.7 | 3,327.5 | 3,225.0 |
| LIQUEFIED GASES: | ETHANE | 412.0 | 417.9 | 403.3 | 402.0 | 390.3 |
| | PROPANE | 866.0 | 900.1 | 941.3 | 1,017.4 | 1,123.6 |
| | BUTANE | 115.0 | 147.9 | 170.0 | 193.4 | 210.2 |
| | PROPANE/BUTANE MIX | 29.0 | 20.6 | 22.5 | 23.8 | 26.7 |
| | TOTAL LIQUEFIED GASES | 1,422.0 | 1,486.5 | 1,537.0 | 1,636.6 | 1,750.7 |
| PETROCHEMICAL FEEDSTOCKS: | STILL GAS | 48.0 | 53.0 | 58.2 | 50.7 | 47.0 |
| | 400 EP NAPTHA | 204.0 | 239.9 | 272.0 | 318.6 | 435.8 |
| | OTHER | 269.0 | 353.5 | 438.4 | 555.2 | 771.2 |
| | TOTAL PETROCHEMICAL FEEDSTOCKS | 521.0 | 646.4 | 768.6 | 924.4 | 1,254.0 |
| LUBRICANTS | | 160.0 | 172.6 | 180.3 | 189.6 | 209.8 |
| WAXES | | 16.0 | 19.1 | 19.8 | 21.2 | 24.2 |
| COKE | | 267.0 | 269.5 | 276.5 | 284.2 | 304.9 |
| ASPHALT & ROAD OIL | | 437.0 | 474.8 | 488.4 | 508.0 | 543.5 |
| STILL GAS FOR FUEL | | 524.0 | 560.0 | 580.8 | 582.3 | 599.6 |
| MISCELLANEOUS PRODUCTS | | 147.0 | 171.0 | 176.1 | 205.2 | 208.6 |
| | TOTAL DEMAND | 18,431.5 | 19,552.1 | 20,148.2 | 20,520.8 | 21,230.4 |
| | ETHANE | 412.0 | 392.6 | 389.4 | 371.0 | 336.9 |
| | PROPANE | 123.0 | 160.6 | 175.6 | 216.2 | 259.0 |
| | BUTANE | 93.0 | 96.1 | 103.4 | 104.5 | 109.2 |
| | PROPANE/BUTANE MIX | 5.0 | 3.1 | 3.3 | 3.7 | 4.5 |
| | TOTAL | 633.0 | 652.4 | 671.7 | 695.3 | 709.7 |

Date: 09/14/79

# DOMESTIC DEMAND FOR PRODUCTS - TOTAL U.S.
## (THOUSAND BARRELS/DAY)

### ANNUAL GROWTH RATE
### TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 0.0 | -26.4 | -32.0 | -38.6 | -75.9 |
| - NON-PREMIUM | 0.0 | -5.8 | -7.4 | -9.2 | -9.9 |
| S.TOTAL | 0.0 | -9.2 | -10.5 | -11.6 | -11.4 |
| UNLEADED - PREMIUM | 0.0 | **.* | **.* | **.* | **.* |
| - NON-PREMIUM | 0.0 | 12.9 | 10.8 | 7.1 | 4.6 |
| S.TOTAL | 0.0 | 23.9 | 18.9 | 13.3 | 8.7 |
| TOTAL MOTOR GASOLINE | 0.0 | 1.8 | 1.0 | 0.0 | -0.5 |
| AVIATION GASOLINE | 0.0 | 3.0 | 2.7 | 2.1 | 2.0 |
| JET FUEL: NAPTHA TYPE | 0.0 | -1.8 | -2.4 | -2.4 | -3.0 |
| KEROSINE TYPE | 0.0 | 3.5 | 3.8 | 3.6 | 3.5 |
| TOTAL JET FUEL | 0.0 | 2.5 | 2.7 | 2.6 | 2.5 |
| SPECIAL NAPTHA | 0.0 | 4.4 | 3.7 | 2.4 | 2.1 |
| KEROSINE | 0.0 | 2.9 | 1.6 | -0.5 | -0.5 |
| DISTILLATE FUEL OIL: NO.2 OIL | 0.0 | 0.3 | 0.0 | -0.1 | -0.5 |
| NO.4 OIL | 0.0 | 1.2 | 1.4 | 1.6 | 1.4 |
| DIESEL - ON HIGHWAY | 0.0 | 9.0 | 8.5 | 8.1 | 7.4 |
| - OFF HIGHWAY | 0.0 | 4.3 | 3.7 | 3.2 | 3.0 |
| OTHER DISTILLATE | 0.0 | -0.7 | 0.9 | 0.8 | 0.8 |
| TOTAL DISTILLATE FUEL OIL | 0.0 | 2.2 | 2.6 | 2.5 | 2.5 |
| RESIDUAL FUEL OIL: 0 - .5%S | 0.0 | 1.3 | 2.2 | 2.2 | 0.7 |
| .51 - 1.0%S | 0.0 | 5.5 | 3.9 | 3.0 | 2.0 |
| 1.1 - 2.0%S | 0.0 | 1.6 | 1.2 | 0.8 | 0.4 |
| 2.0%S + | 0.0 | -5.2 | -3.4 | -2.5 | -1.8 |
| TOTAL RESIDUAL FUEL OIL | 0.0 | 0.7 | 1.1 | 1.0 | 0.4 |
| LIQUEFIED GASES: ETHANE | 0.0 | 0.5 | -0.4 | -0.3 | -0.4 |
| PROPANE | 0.0 | 1.3 | 1.7 | 2.0 | 2.0 |
| BUTANE | 0.0 | 8.7 | 8.1 | 6.7 | 4.7 |
| PROPANE/BUTANE MIX | 0.0 | -10.7 | -4.9 | -2.4 | -0.6 |
| TOTAL LIQUEFIED GASES | 0.0 | 1.5 | 1.6 | 1.8 | 1.6 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 0.0 | 3.3 | 3.9 | 0.7 | -0.2 |
| 400 EP NAPTHA | 0.0 | 5.5 | 5.9 | 5.7 | 6.0 |
| OTHER | 0.0 | 9.4 | 10.3 | 9.5 | 8.4 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 0.0 | 7.4 | 8.1 | 7.4 | 7.0 |
| LUBRICANTS | 0.0 | 2.5 | 2.4 | 2.1 | 2.1 |
| WAXES | 0.0 | 6.0 | 4.4 | 3.6 | 3.2 |
| COKE | 0.0 | 0.3 | 0.7 | 0.8 | 1.0 |
| ASPHALT & ROAD OIL | 0.0 | 2.8 | 2.2 | 1.9 | 1.7 |
| STILL GAS FOR FUEL | 0.0 | 2.2 | 2.1 | 1.3 | 1.0 |
| MISCELLANEOUS PRODUCTS | 0.0 | 5.1 | 3.7 | 4.3 | 2.7 |
| TOTAL DEMAND | 0.0 | 2.0 | 1.8 | 1.4 | 1.1 |
| ETHANE | 0.0 | -1.6 | -1.1 | -1.3 | -1.5 |
| PROPANE | 0.0 | 9.2 | 7.4 | 7.3 | 5.9 |
| BUTANE | 0.0 | 1.1 | 2.1 | 1.5 | 1.2 |
| PROPANE/BUTANE MIX | 0.0 | -14.6 | -8.0 | -3.7 | -0.8 |
| TOTAL | 0.0 | 1.0 | 1.2 | 1.2 | 0.9 |

Date: 10/23/79

DOMESTIC DEMAND FOR PRODUCTS - PAD V
(THOUSAND BARRELS/DAY)

ADJUSTED AVERAGE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 307.0 | 102.2 | 37.6 | 8.1 | 0.0 |
| LEADED - NON-PREMIUM | 508.0 | 479.5 | 387.7 | 266.6 | 150.0 |
| LEADED - S.TOTAL | 815.0 | 581.7 | 425.3 | 274.7 | 150.0 |
| UNLEADED - PREMIUM | 0.0 | 114.4 | 206.3 | 323.7 | 422.5 |
| UNLEADED - NON-PREMIUM | 268.0 | 447.2 | 517.5 | 517.6 | 496.7 |
| UNLEADED - S.TOTAL | 268.0 | 561.6 | 723.8 | 841.3 | 919.2 |
| TOTAL MOTOR GASOLINE | 1,083.0 | 1,143.3 | 1,149.1 | 1,116.0 | 1,069.2 |
| AVIATION GASOLINE | 9.0 | 9.8 | 10.0 | 10.7 | 11.4 |
| JET FUEL: NAPTHA TYPE | 59.0 | 55.1 | 51.7 | 48.5 | 35.8 |
| KEROSINE TYPE | 240.0 | 269.6 | 294.1 | 327.0 | 400.2 |
| TOTAL JET FUEL | 299.0 | 324.7 | 345.8 | 375.5 | 436.0 |
| SPECIAL NAPTHA | 8.0 | 10.6 | 10.9 | 11.6 | 13.0 |
| KEROSINE | 13.0 | 13.9 | 13.3 | 14.5 | 15.4 |
| DISTILLATE FUEL OIL: NO.2 OIL | 39.0 | 45.0 | 45.2 | 44.2 | 40.9 |
| NO.4 OIL | 2.0 | 3.1 | 3.2 | 3.4 | 3.4 |
| DIESEL - ON HIGHWAY | 102.0 | 140.5 | 160.7 | 197.0 | 261.8 |
| DIESEL - OFF HIGHWAY | 22.0 | 24.7 | 25.5 | 26.9 | 31.3 |
| OTHER DISTILLATE | 160.0 | 139.6 | 147.3 | 147.4 | 156.7 |
| TOTAL DISTILLATE FUEL OIL | 325.0 | 353.0 | 381.9 | 419.0 | 494.2 |
| RESIDUAL FUEL OIL: 0 - .5%S | 326.0 | 359.4 | 382.3 | 411.1 | 345.5 |
| .51 - 1.0%S | 39.0 | 31.6 | 36.6 | 40.0 | 43.9 |
| 1.1 - 2.0%S | 184.0 | 130.6 | 133.3 | 130.4 | 131.4 |
| 2.0%S + | 21.0 | 28.6 | 29.2 | 28.3 | 24.8 |
| TOTAL RESIDUAL FUEL OIL | 570.0 | 550.2 | 581.5 | 609.8 | 545.5 |
| LIQUEFIED GASES: ETHANE | 2.0 | 2.2 | 2.3 | 2.1 | 2.0 |
| PROPANE | 46.0 | 52.1 | 53.6 | 56.4 | 61.4 |
| BUTANE | 4.0 | 4.2 | 5.2 | 6.8 | 8.4 |
| PROPANE/BUTANE MIX | 3.0 | 3.2 | 3.2 | 3.1 | 3.1 |
| TOTAL LIQUEFIED GASES | 55.0 | 61.8 | 64.2 | 68.4 | 74.9 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 2.0 | 2.2 | 1.9 | 2.6 | 2.3 |
| 400 EP NAPTHA | 3.0 | 2.0 | 4.3 | 9.6 | 17.2 |
| OTHER | 8.0 | 11.3 | 11.3 | 20.9 | 32.9 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 13.0 | 15.5 | 17.6 | 33.0 | 52.4 |
| LUBRICANTS | 15.0 | 16.1 | 16.6 | 18.1 | 20.1 |
| WAXES | 3.0 | 3.1 | 3.6 | 3.9 | 4.4 |
| COKE | 49.0 | 47.2 | 48.6 | 50.5 | 54.5 |
| ASPHALT & ROAD OIL | 63.0 | 67.5 | 69.4 | 72.3 | 76.3 |
| STILL GAS FOR FUEL | 101.0 | 100.8 | 104.3 | 107.7 | 109.7 |
| MISCELLANEOUS PRODUCTS | 8.0 | 12.0 | 12.0 | 13.6 | 13.5 |
| TOTAL DEMAND | 2,614.0 | 2,729.9 | 2,828.9 | 2,924.7 | 2,990.6 |
| ETHANE | 2.0 | 2.2 | 2.3 | 1.9 | 1.4 |
| PROPANE | 5.0 | 6.8 | 7.5 | 8.5 | 10.6 |
| BUTANE | 2.0 | 1.3 | 1.4 | 1.7 | 1.8 |
| PROPANE/BUTANE MIX | 1.0 | 0.8 | 0.8 | 0.8 | 0.6 |
| TOTAL | 10.0 | 11.1 | 12.0 | 12.8 | 14.5 |

Date: 10/23/79

DOMESTIC DEMAND FOR PRODUCTS - PAD V
(THOUSAND BARRELS/DAY)

ANNUAL GROWTH RATE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 0.0 | -30.4 | -34.3 | -36.5 | -73.4 |
| - NON-PREMIUM | 0.0 | -1.9 | -5.3 | -7.7 | -9.0 |
| S.TOTAL | 0.0 | -10.5 | -12.2 | -12.7 | -12.2 |
| UNLEADED - PREMIUM | 0.0 | **.* | **.* | **.* | **.* |
| - NON-PREMIUM | 0.0 | 18.4 | 14.1 | 8.6 | 4.9 |
| S.TOTAL | 0.0 | 27.7 | 22.0 | 15.4 | 9.9 |
| TOTAL MOTOR GASOLINE | 0.0 | 1.8 | 1.2 | 0.4 | -0.1 |
| AVIATION GASOLINE | 0.0 | 2.9 | 2.1 | 2.2 | 1.8 |
| JET FUEL: NAPTHA TYPE | 0.0 | -2.2 | -2.6 | -2.4 | -3.8 |
| KEROSINE TYPE | 0.0 | 3.9 | 4.1 | 3.9 | 4.0 |
| TOTAL JET FUEL | 0.0 | 2.8 | 3.0 | 2.9 | 2.9 |
| SPECIAL NAPTHA | 0.0 | 9.7 | 6.4 | 4.8 | 3.8 |
| KEROSINE | 0.0 | 2.2 | 0.5 | 1.4 | 1.3 |
| DISTILLATE FUEL OIL: NO.2 OIL | 0.0 | 4.8 | 3.0 | 1.6 | 0.4 |
| NO.4 OIL | 0.0 | 15.6 | 9.9 | 6.9 | 4.2 |
| DIESEL - ON HIGHWAY | 0.0 | 11.1 | 9.5 | 8.6 | 7.5 |
| - OFF HIGHWAY | 0.0 | 3.9 | 3.0 | 2.5 | 2.7 |
| OTHER DISTILLATE | 0.0 | -4.4 | -1.6 | -1.0 | -0.2 |
| TOTAL DISTILLATE FUEL OIL | 0.0 | 2.8 | 3.3 | 3.2 | 3.3 |
| RESIDUAL FUEL OIL: 0 - .5%S | 0.0 | 3.3 | 3.2 | 2.9 | 0.4 |
| .51 - 1.0%S | 0.0 | -6.7 | -1.3 | 0.3 | 0.9 |
| 1.1 - 2.0%S | 0.0 | -10.7 | -6.2 | -4.2 | -2.6 |
| 2.0%S + | 0.0 | 10.7 | 6.8 | 3.8 | 1.3 |
| TOTAL RESIDUAL FUEL OIL | 0.0 | -1.2 | 0.4 | 0.8 | -0.3 |
| LIQUEFIED GASES: ETHANE | 0.0 | 3.2 | 2.8 | 0.6 | 0.0 |
| PROPANE | 0.0 | 4.2 | 3.1 | 2.6 | 2.2 |
| BUTANE | 0.0 | 1.6 | 5.4 | 6.9 | 5.9 |
| PROPANE/BUTANE MIX | 0.0 | 2.2 | 1.3 | 0.4 | 0.3 |
| TOTAL LIQUEFIED GASES | 0.0 | 3.9 | 3.1 | 2.8 | 2.4 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 0.0 | 3.2 | -1.0 | 3.3 | 1.1 |
| 400 EP NAPTHA | 0.0 | -12.5 | 7.5 | 15.6 | 14.4 |
| OTHER | 0.0 | 12.1 | 7.2 | 12.8 | 11.5 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 0.0 | 6.0 | 6.2 | 12.3 | 11.3 |
| LUBRICANTS | 0.0 | 2.4 | 2.0 | 2.4 | 2.3 |
| WAXES | 0.0 | 1.1 | 3.7 | 3.3 | 3.0 |
| COKE | 0.0 | -1.2 | -0.2 | 0.4 | 0.8 |
| ASPHALT & ROAD OIL | 0.0 | 2.3 | 2.0 | 1.7 | 1.5 |
| STILL GAS FOR FUEL | 0.0 | -0.1 | 0.6 | 0.8 | 0.6 |
| MISCELLANEOUS PRODUCTS | 0.0 | 14.3 | 8.4 | 6.9 | 4.1 |
| TOTAL DEMAND | 0.0 | 1.4 | 1.6 | 1.4 | 1.0 |
| ETHANE | 0.0 | 3.2 | 2.8 | -0.6 | -2.7 |
| PROPANE | 0.0 | 10.7 | 8.4 | 6.9 | 5.9 |
| BUTANE | 0.0 | -13.3 | -6.9 | -2.0 | -0.8 |
| PROPANE/BUTANE MIX | 0.0 | -7.1 | -4.4 | -2.8 | -3.9 |
| TOTAL | 0.0 | 3.5 | 3.7 | 3.1 | 2.9 |

Date: 10/23/79

DOMESTIC DEMAND FOR PRODUCTS - PADS I-IV
(THOUSAND BARRELS/DAY)

ADJUSTED AVERAGE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 754.0 | 316.2 | 116.5 | 13.3 | 0.0 |
| LEADED - NON-PREMIUM | 3,699.0 | 3,029.2 | 2,480.0 | 1,683.2 | 938.9 |
| LEADED S.TOTAL | 4,453.0 | 3,345.4 | 2,596.5 | 1,696.5 | 938.9 |
| UNLEADED - PREMIUM | 0.0 | 785.8 | 1,135.5 | 1,558.9 | 1,812.8 |
| UNLEADED - NON-PREMIUM | 1,640.0 | 2,308.5 | 2,671.8 | 2,785.0 | 2,932.4 |
| UNLEADED S.TOTAL | 1,640.0 | 3,094.3 | 3,807.3 | 4,343.9 | 4,745.2 |
| TOTAL MOTOR GASOLINE | 6,093.0 | 6,439.7 | 6,403.8 | 6,040.4 | 5,684.1 |
| AVIATION GASOLINE | 29.0 | 31.8 | 33.4 | 34.2 | 37.6 |
| JET FUEL: NAPTHA TYPE | 149.0 | 141.7 | 132.4 | 122.3 | 104.4 |
| KEROSINE TYPE | 591.0 | 651.8 | 707.0 | 774.5 | 897.9 |
| TOTAL JET FUEL | 740.0 | 793.5 | 839.4 | 896.8 | 1,002.3 |
| SPECIAL NAPTHA | 78.0 | 87.5 | 92.1 | 92.6 | 99.5 |
| KEROSINE | 162.0 | 177.1 | 175.7 | 154.2 | 147.7 |
| DISTILLATE FUEL OIL: NO.2 OIL | 1,253.0 | 1,257.2 | 1,247.1 | 1,235.3 | 1,177.5 |
| NO.4 OIL | 60.0 | 61.1 | 63.4 | 66.9 | 70.9 |
| DIESEL - ON HIGHWAY | 622.0 | 798.6 | 927.3 | 1,155.0 | 1,560.6 |
| DIESEL - OFF HIGHWAY | 150.0 | 170.9 | 180.4 | 194.0 | 219.9 |
| OTHER DISTILLATE | 942.0 | 939.7 | 1,006.3 | 1,025.2 | 1,070.8 |
| TOTAL DISTILLATE FUEL OIL | 3,027.0 | 3,227.4 | 3,424.5 | 3,676.4 | 4,099.7 |
| RESIDUAL FUEL OIL: 0 - .5%S | 633.0 | 636.9 | 688.4 | 726.6 | 703.1 |
| .51 - 1.0%S | 654.0 | 783.5 | 803.1 | 836.2 | 854.4 |
| 1.1 - 2.0%S | 428.0 | 510.9 | 517.9 | 523.6 | 512.5 |
| 2.0%S + | 786.0 | 658.3 | 649.9 | 631.3 | 609.3 |
| TOTAL RESIDUAL FUEL OIL | 2,501.0 | 2,589.7 | 2,659.2 | 2,717.7 | 2,679.5 |
| LIQUEFIED GASES: ETHANE | 410.0 | 415.7 | 401.0 | 399.9 | 388.3 |
| PROPANE | 820.0 | 848.0 | 887.7 | 961.0 | 1,062.2 |
| BUTANE | 111.0 | 143.7 | 164.8 | 186.6 | 201.8 |
| PROPANE/BUTANE MIX | 26.0 | 17.4 | 19.3 | 20.7 | 23.6 |
| TOTAL LIQUEFIED GASES | 1,367.0 | 1,424.7 | 1,472.8 | 1,568.2 | 1,675.8 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 46.0 | 50.8 | 56.3 | 48.1 | 44.7 |
| 400 EP NAPTHA | 201.0 | 237.9 | 267.7 | 309.0 | 418.6 |
| OTHER | 261.0 | 342.2 | 427.1 | 534.3 | 738.3 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 508.0 | 630.9 | 751.0 | 891.4 | 1,201.6 |
| LUBRICANTS | 145.0 | 156.5 | 163.7 | 171.5 | 189.7 |
| WAXES | 13.0 | 16.0 | 16.2 | 17.3 | 19.8 |
| COKE | 218.0 | 222.3 | 227.9 | 233.7 | 250.4 |
| ASPHALT & ROAD OIL | 374.0 | 407.3 | 419.0 | 435.7 | 467.2 |
| STILL GAS FOR FUEL | 423.0 | 459.2 | 476.5 | 474.6 | 489.9 |
| MISCELLANEOUS PRODUCTS | 139.0 | 159.0 | 164.1 | 191.6 | 195.1 |
| TOTAL DEMAND | 15,817.5 | 16,822.2 | 17,319.3 | 17,596.1 | 18,239.8 |
| ETHANE | 410.0 | 390.4 | 387.1 | 369.1 | 335.5 |
| PROPANE | 118.0 | 153.8 | 168.1 | 207.7 | 248.4 |
| BUTANE | 91.0 | 94.8 | 102.0 | 102.8 | 107.4 |
| PROPANE/BUTANE MIX | 4.0 | 2.3 | 2.5 | 2.9 | 3.9 |
| TOTAL | 623.0 | 641.3 | 659.7 | 682.5 | 695.2 |

Date: 10/23/79

DOMESTIC DEMAND FOR PRODUCTS - PADS I-IV
(THOUSAND BARRELS/DAY)

ANNUAL GROWTH RATE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 0.0 | -24.9 | -31.2 | -39.6 | -75.2 |
| - NON-PREMIUM | 0.0 | -6.4 | -7.7 | -9.4 | -10.0 |
| S.TOTAL | 0.0 | -9.0 | -10.2 | -11.4 | -11.3 |
| UNLEADED - PREMIUM | 0.0 | **.* | **.* | **.* | **.* |
| - NON-PREMIUM | 0.0 | 11.9 | 10.3 | 6.8 | 4.6 |
| S.TOTAL | 0.0 | 23.3 | 18.3 | 12.9 | 8.5 |
| TOTAL MOTOR GASOLINE | 0.0 | 1.8 | 1.0 | -0.1 | -0.5 |
| AVIATION GASOLINE | 0.0 | 3.1 | 2.9 | 2.1 | 2.0 |
| JET FUEL: NAPTHA TYPE | 0.0 | -1.6 | -2.3 | -2.4 | -2.7 |
| KEROSINE TYPE | 0.0 | 3.3 | 3.6 | 3.4 | 3.3 |
| TOTAL JET FUEL | 0.0 | 2.3 | 2.6 | 2.4 | 2.4 |
| SPECIAL NAPTHA | 0.0 | 3.9 | 3.4 | 2.2 | 1.9 |
| KEROSINE | 0.0 | 3.0 | 1.6 | -0.6 | -0.7 |
| DISTILLATE FUEL OIL: NO.2 OIL | 0.0 | 0.1 | -0.1 | -0.2 | -0.5 |
| NO.4 OIL | 0.0 | 0.6 | 1.1 | 1.4 | 1.3 |
| DIESEL - ON HIGHWAY | 0.0 | 8.6 | 8.3 | 8.0 | 7.3 |
| - OFF HIGHWAY | 0.0 | 4.4 | 3.8 | 3.3 | 3.0 |
| OTHER DISTILLATE | 0.0 | -0.1 | 1.3 | 1.1 | 1.0 |
| TOTAL DISTILLATE FUEL OIL | 0.0 | 2.1 | 2.5 | 2.5 | 2.4 |
| RESIDUAL FUEL OIL: 0 - .5%S | 0.0 | 0.2 | 1.7 | 1.7 | 0.8 |
| .51 - 1.0%S | 0.0 | 6.1 | 4.2 | 3.1 | 2.1 |
| 1.1 - 2.0%S | 0.0 | 6.0 | 3.9 | 2.6 | 1.4 |
| 2.0%S + | 0.0 | -5.7 | -3.7 | -2.7 | -1.9 |
| TOTAL RESIDUAL FUEL OIL | 0.0 | 1.2 | 1.2 | 1.0 | 0.5 |
| LIQUEFIED GASES: ETHANE | 0.0 | 0.5 | -0.4 | -0.3 | -0.4 |
| PROPANE | 0.0 | 1.1 | 1.6 | 2.0 | 2.0 |
| BUTANE | 0.0 | 8.9 | 8.2 | 6.7 | 4.7 |
| PROPANE/BUTANE MIX | 0.0 | -12.4 | -5.8 | -2.8 | -0.7 |
| TOTAL LIQUEFIED GASES | 0.0 | 1.4 | 1.5 | 1.7 | 1.6 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 0.0 | 3.3 | 4.1 | 0.6 | -0.2 |
| 400 EP NAPTHA | 0.0 | 5.7 | 5.9 | 5.5 | 5.8 |
| OTHER | 0.0 | 9.4 | 10.4 | 9.4 | 8.3 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 0.0 | 7.4 | 8.1 | 7.3 | 6.8 |
| LUBRICANTS | 0.0 | 2.6 | 2.5 | 2.1 | 2.1 |
| WAXES | 0.0 | 7.1 | 4.5 | 3.6 | 3.3 |
| COKE | 0.0 | 0.6 | 0.9 | 0.9 | 1.1 |
| ASPHALT & ROAD OIL | 0.0 | 2.9 | 2.3 | 1.9 | 1.7 |
| STILL GAS FOR FUEL | 0.0 | 2.7 | 2.4 | 1.4 | 1.1 |
| MISCELLANEOUS PRODUCTS | 0.0 | 4.5 | 3.4 | 4.1 | 2.6 |
| TOTAL DEMAND | 0.0 | 2.1 | 1.8 | 1.3 | 1.1 |
| ETHANE | 0.0 | -1.6 | -1.1 | -1.3 | -1.5 |
| PROPANE | 0.0 | 9.1 | 7.3 | 7.3 | 5.9 |
| BUTANE | 0.0 | 1.4 | 2.3 | 1.5 | 1.3 |
| PROPANE/BUTANE MIX | 0.0 | -16.7 | -9.0 | -3.9 | -0.2 |
| TOTAL | 0.0 | 1.0 | 1.2 | 1.1 | 0.8 |

Date: 09/14/79

U.S. PETROLEUM SUPPLY/DEMAND BALANCE - U.S. TOTAL
(THOUSAND BARRELS/DAY)

ADJUSTED AVERAGE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 18,690.3 | 19,862.3 | 20,472.9 | 20,811.7 | 21,518.8 |
| 1. LOCAL PRODUCT DEMAND | 18,431.5 | 19,552.1 | 20,148.2 | 20,520.8 | 21,230.4 |
| 2. CRUDE AND PRODUCT EXPORTS | 242.7 | 291.2 | 312.1 | 261.4 | 259.5 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5. CRUDE LOSSES | 16.1 | 19.0 | 12.6 | 29.5 | 28.9 |
| SUPPLY - TOTAL | 18,690.3 | 19,862.3 | 20,472.9 | 20,811.7 | 21,518.8 |
| 1. PRODUCTION - TOTAL | 9,862.5 | 10,243.3 | 10,043.6 | 9,781.9 | 9,824.9 |
| CRUDE AND LEASE CONDENSATE | 8,244.7 | 8,710.7 | 8,544.4 | 8,379.4 | 8,527.9 |
| NGL | 1,617.8 | 1,532.6 | 1,499.2 | 1,402.5 | 1,297.0 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CRUDE, NGL, AND UNFINISHED | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| PRODUCTS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3. PROCESSING GAIN, ETC. | 569.0 | 549.1 | 585.5 | 556.6 | 556.8 |
| 4. IMPORTS - TOTAL | 8,807.1 | 9,158.1 | 9,889.9 | 10,445.5 | 10,904.9 |
| CRUDE AND UNFINISHED | 6,646.0 | 7,103.6 | 7,665.4 | 8,180.6 | 8,491.6 |
| FROM OVERLAND | 279.0 | 206.5 | 130.5 | 88.3 | 82.1 |
| FROM OFFSHORE | 6,367.0 | 6,897.1 | 7,534.9 | 8,092.3 | 8,409.5 |
| NGL | 42.0 | 77.7 | 88.1 | 120.1 | 162.2 |
| FINISHED PRODUCTS | 2,119.1 | 1,976.8 | 2,136.4 | 2,144.8 | 2,251.1 |
| 5. SYNCRUDE | 0.0 | 0.0 | 4.1 | 45.8 | 253.2 |
| FROM SHALE | 0.0 | 0.0 | 4.1 | 44.4 | 207.4 |
| FROM COAL | 0.0 | 0.0 | 0.0 | 1.4 | 45.8 |
| 6. FROM INVENTORY | -548.2 | -88.2 | -50.1 | -18.1 | -21.1 |
| CRUDE | -170.4 | -63.0 | -48.5 | -10.7 | -12.6 |
| PRODUCTS | -377.8 | -25.2 | -1.6 | -7.4 | -8.5 |
| 7. CRUDE RUNS | 14,602.0 | 15,581.8 | 15,903.9 | 16,413.3 | 16,978.6 |

Date: 09/14/79

# U.S. PETROLEUM SUPPLY/DEMAND BALANCE - U.S. TOTAL
(THOUSAND BARRELS/DAY)

ANNUAL GROWTH RATE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 0.0 | 2.0 | 1.8 | 1.4 | 1.1 |
| 1. LOCAL PRODUCT DEMAND | 0.0 | 2.0 | 1.8 | 1.4 | 1.1 |
| 2. CRUDE AND PRODUCT EXPORTS | 0.0 | 6.2 | 5.2 | 0.9 | 0.5 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5. CRUDE LOSSES | 0.0 | 5.6 | -4.8 | 7.9 | 4.6 |
| SUPPLY - TOTAL | 0.0 | 2.0 | 1.8 | 1.4 | 1.1 |
| 1. PRODUCTION - TOTAL | 0.0 | 1.3 | 0.4 | -0.1 | 0.0 |
| CRUDE AND LEASE CONDENSATE | 0.0 | 1.8 | 0.7 | 0.2 | 0.3 |
| NGL | 0.0 | -1.8 | -1.5 | -1.8 | -1.7 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CRUDE, NGL, AND UNFINISHED | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| PRODUCTS | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3. PROCESSING GAIN, ETC. | 0.0 | -1.2 | 0.6 | -0.3 | -0.2 |
| 4. IMPORTS - TOTAL | 0.0 | 1.3 | 2.3 | 2.2 | 1.7 |
| CRUDE AND UNFINISHED | 0.0 | 2.2 | 2.9 | 2.6 | 1.9 |
| FROM OVERLAND | 0.0 | -9.5 | -14.1 | -13.4 | -9.0 |
| FROM OFFSHORE | 0.0 | 2.7 | 3.4 | 3.0 | 2.2 |
| NGL | 0.0 | 22.5 | 16.0 | 14.0 | 10.9 |
| FINISHED PRODUCTS | 0.0 | -2.3 | 0.2 | 0.2 | 0.5 |
| 5. SYNCRUDE | 0.0 | 0.0 | **.* | **.* | **.* |
| FROM SHALE | 0.0 | 0.0 | **.* | **.* | **.* |
| FROM COAL | 0.0 | 0.0 | 0.0 | **.* | **.* |
| 6. FROM INVENTORY | 0.0 | -45.3 | -38.0 | -34.7 | -22.2 |
| CRUDE | 0.0 | -28.0 | -22.2 | -29.2 | -18.2 |
| PRODUCTS | 0.0 | -59.1 | -66.5 | -38.8 | -25.3 |
| 7. CRUDE RUNS | 0.0 | 2.2 | 1.7 | 1.5 | 1.2 |

Date: 09/14/79

U.S. PETROLEUM SUPPLY/DEMAND BALANCE - PAD V
(THOUSAND BARRELS/DAY)

ADJUSTED AVERAGE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 2,754.0 | 3,283.0 | 3,446.8 | 3,655.9 | 3,957.3 |
| 1. LOCAL PRODUCT DEMAND | 2,614.0 | 2,729.9 | 2,828.9 | 2,924.7 | 2,990.6 |
| 2. CRUDE AND PRODUCT EXPORTS | 71.0 | 122.5 | 109.1 | 107.2 | 93.1 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 21.0 | 24.9 | 26.7 | 31.6 | 44.9 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 47.0 | 402.5 | 476.3 | 582.7 | 821.1 |
| 5. CRUDE LOSSES | 1.0 | 3.2 | 5.9 | 9.7 | 7.6 |
| SUPPLY - TOTAL | 2,754.0 | 3,283.0 | 3,446.8 | 3,655.9 | 3,957.3 |
| 1. PRODUCTION - TOTAL | 1,448.0 | 2,478.9 | 2,651.6 | 2,831.5 | 3,144.7 |
| CRUDE AND LEASE CONDENSATE | 1,424.0 | 2,447.9 | 2,616.9 | 2,788.9 | 3,081.4 |
| NGL | 24.0 | 31.0 | 34.7 | 42.6 | 63.3 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 135.0 | 135.6 | 142.0 | 122.3 | 127.2 |
| CRUDE, NGL, AND UNFINISHED | 9.0 | 3.5 | 10.3 | 2.7 | 3.4 |
| PRODUCTS | 126.0 | 132.1 | 131.7 | 119.6 | 123.8 |
| 3. PROCESSING GAIN, ETC. | 34.0 | 104.0 | 106.2 | 108.7 | 101.8 |
| 4. IMPORTS - TOTAL | 1,214.0 | 567.6 | 547.8 | 597.3 | 588.0 |
| CRUDE AND UNFINISHED | 1,099.0 | 462.6 | 425.8 | 470.8 | 441.7 |
| FROM OVERLAND | 20.0 | 14.2 | 11.5 | 5.1 | 4.2 |
| FROM OFFSHORE | 1,079.0 | 448.4 | 414.3 | 465.7 | 437.5 |
| NGL | 4.0 | 2.6 | 2.9 | 3.5 | 2.4 |
| FINISHED PRODUCTS | 111.0 | 102.4 | 119.2 | 123.0 | 143.9 |
| 5. SYNCRUDE | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| FROM SHALE | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| FROM COAL | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 6. FROM INVENTORY | -77.0 | -3.1 | -0.7 | -3.9 | -4.3 |
| CRUDE | -67.0 | -1.1 | 0.0 | -1.8 | -0.9 |
| PRODUCTS | -10.0 | -2.0 | -0.7 | -2.1 | -3.4 |
| 7. CRUDE RUNS | 2,323.0 | 2,449.4 | 2,529.8 | 2,631.0 | 2,669.9 |

Date: 09/14/79

# U.S. PETROLEUM SUPPLY/DEMAND BALANCE - PAD V
## (THOUSAND BARRELS/DAY)

### ANNUAL GROWTH RATE
### TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 0.0 | 6.0 | 4.6 | 3.6 | 2.8 |
| 1. LOCAL PRODUCT DEMAND | 0.0 | 1.4 | 1.6 | 1.4 | 1.0 |
| 2. CRUDE AND PRODUCT EXPORTS | 0.0 | 19.7 | 9.0 | 5.3 | 2.1 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 0.0 | 5.8 | 4.9 | 5.2 | 6.0 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 0.0 | 104.6 | 58.9 | 37.0 | 24.6 |
| 5. CRUDE LOSSES | 0.0 | 46.8 | 42.6 | 32.8 | 16.9 |
| SUPPLY - TOTAL | 0.0 | 6.0 | 4.6 | 3.6 | 2.8 |
| 1. PRODUCTION - TOTAL | 0.0 | 19.4 | 12.9 | 8.7 | 6.1 |
| CRUDE AND LEASE CONDENSATE | 0.0 | 19.6 | 12.9 | 8.8 | 6.1 |
| NGL | 0.0 | 8.8 | 7.7 | 7.4 | 7.7 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 0.0 | 0.1 | 1.0 | -1.2 | -0.5 |
| CRUDE, NGL, AND UNFINISHED | 0.0 | -26.8 | 2.7 | -14.0 | -7.2 |
| PRODUCTS | 0.0 | 1.6 | 0.9 | -0.6 | -0.1 |
| 3. PROCESSING GAIN, ETC. | 0.0 | 44.6 | 25.6 | 15.6 | 8.8 |
| 4. IMPORTS - TOTAL | 0.0 | -22.2 | -14.7 | -8.5 | -5.4 |
| CRUDE AND UNFINISHED | 0.0 | -24.8 | -17.3 | -10.1 | -6.8 |
| FROM OVERLAND | 0.0 | -10.7 | -10.5 | -15.7 | -11.3 |
| FROM OFFSHORE | 0.0 | -25.2 | -17.4 | -10.0 | -6.7 |
| NGL | 0.0 | -13.3 | -6.2 | -1.7 | -3.9 |
| FINISHED PRODUCTS | 0.0 | -2.6 | 1.4 | 1.3 | 2.0 |
| 5. SYNCRUDE | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| FROM SHALE | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| FROM COAL | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 6. FROM INVENTORY | 0.0 | -65.4 | -60.9 | -31.1 | -19.9 |
| CRUDE | 0.0 | -74.2 | ***.* | -36.4 | -28.2 |
| PRODUCTS | 0.0 | -41.2 | -41.2 | -17.7 | -8.0 |
| 7. CRUDE RUNS | 0.0 | 1.8 | 1.7 | 1.6 | 1.1 |

U.S. PETROLEUM SUPPLY/DEMAND BALANCE - PADS I-IV
(THOUSAND BARRELS/DAY)

ADJUSTED AVERAGE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 16,139.3 | 17,142.3 | 17,671.1 | 17,892.4 | 18,554.7 |
| 1. LOCAL PRODUCT DEMAND | 15,817.5 | 16,822.2 | 17,319.3 | 17,596.1 | 18,239.8 |
| 2. CRUDE AND PRODUCT EXPORTS | 171.7 | 168.7 | 203.0 | 154.2 | 166.4 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 126.0 | 132.1 | 131.7 | 119.6 | 123.8 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 9.0 | 3.5 | 10.3 | 2.7 | 3.4 |
| 5. CRUDE LOSSES | 15.1 | 15.8 | 6.7 | 19.8 | 21.3 |
| SUPPLY - TOTAL | 16,139.3 | 17,142.3 | 17,671.1 | 17,892.4 | 18,554.7 |
| 1. PRODUCTION - TOTAL | 8,414.5 | 7,764.4 | 7,392.0 | 6,950.4 | 6,680.2 |
| CRUDE AND LEASE CONDENSATE | 6,820.7 | 6,262.8 | 5,927.5 | 5,590.5 | 5,446.5 |
| NGL | 1,593.8 | 1,501.6 | 1,464.5 | 1,359.9 | 1,233.7 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 68.0 | 427.4 | 503.0 | 614.3 | 866.0 |
| CRUDE, NGL, AND UNFINISHED | 47.0 | 402.5 | 476.3 | 582.7 | 821.1 |
| PRODUCTS | 21.0 | 24.9 | 26.7 | 31.6 | 44.9 |
| 3. PROCESSING GAIN, ETC. | 535.0 | 445.1 | 479.3 | 447.9 | 455.0 |
| 4. IMPORTS - TOTAL | 7,593.1 | 8,590.5 | 9,342.1 | 9,848.2 | 10,316.9 |
| CRUDE AND UNFINISHED | 6,547.0 | 6,641.0 | 7,239.6 | 7,709.8 | 8,049.9 |
| FROM OVERLAND | 259.0 | 192.3 | 119.0 | 83.2 | 77.9 |
| FROM OFFSHORE | 6,288.0 | 6,448.7 | 7,120.6 | 7,626.6 | 7,972.0 |
| NGL | 38.0 | 75.1 | 85.2 | 116.6 | 159.8 |
| FINISHED PRODUCTS | 2,008.1 | 1,874.4 | 2,017.2 | 2,021.8 | 2,107.2 |
| 5. SYNCRUDE | 0.0 | 0.0 | 4.1 | 45.8 | 253.2 |
| FROM SHALE | 0.0 | 0.0 | 4.1 | 44.4 | 207.4 |
| FROM COAL | 0.0 | 0.0 | 0.0 | 1.4 | 45.8 |
| 6. FROM INVENTORY | -471.2 | -85.1 | -49.4 | -14.2 | -16.8 |
| CRUDE | -103.4 | -61.9 | -48.5 | -8.9 | -11.7 |
| PRODUCTS | -367.8 | -23.2 | -0.9 | -5.3 | -5.1 |
| 7. CRUDE RUNS | 12,279.0 | 13,132.4 | 13,374.1 | 13,782.3 | 14,308.7 |

Date: 09/14/79

U.S. PETROLEUM SUPPLY/DEMAND BALANCE - PADS I-IV
(THOUSAND BARRELS/DAY)

ANNUAL GROWTH RATE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 0.0 | 2.0 | 1.8 | 1.3 | 1.1 |
| 1. LOCAL PRODUCT DEMAND | 0.0 | 2.1 | 1.8 | 1.3 | 1.1 |
| 2. CRUDE AND PRODUCT EXPORTS | 0.0 | -0.6 | 3.4 | -1.3 | -0.2 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 0.0 | 1.6 | 0.9 | -0.6 | -0.1 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 0.0 | -26.8 | 2.7 | -14.0 | -7.2 |
| 5. CRUDE LOSSES | 0.0 | 1.5 | -15.0 | 3.4 | 2.7 |
| SUPPLY - TOTAL | 0.0 | 2.0 | 1.8 | 1.3 | 1.1 |
| 1. PRODUCTION - TOTAL | 0.0 | -2.6 | -2.6 | -2.4 | -1.8 |
| CRUDE AND LEASE CONDENSATE | 0.0 | -2.8 | -2.8 | -2.5 | -1.7 |
| NGL | 0.0 | -1.9 | -1.7 | -2.0 | -2.0 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 0.0 | 83.4 | 49.2 | 31.7 | 21.6 |
| CRUDE, NGL, AND UNFINISHED | 0.0 | 104.6 | 58.9 | 37.0 | 24.6 |
| PRODUCTS | 0.0 | 5.8 | 4.9 | 5.2 | 6.0 |
| 3. PROCESSING GAIN, ETC. | 0.0 | -5.9 | -2.2 | -2.2 | -1.2 |
| 4. IMPORTS - TOTAL | 0.0 | 4.2 | 4.2 | 3.3 | 2.4 |
| CRUDE AND UNFINISHED | 0.0 | 6.1 | 5.5 | 4.2 | 2.9 |
| FROM OVERLAND | 0.0 | -9.4 | -14.4 | -13.2 | -8.8 |
| FROM OFFSHORE | 0.0 | 6.8 | 6.1 | 4.7 | 3.2 |
| NGL | 0.0 | 25.2 | 17.5 | 15.0 | 11.7 |
| FINISHED PRODUCTS | 0.0 | -2.2 | 0.1 | 0.1 | 0.4 |
| 5. SYNCRUDE | 0.0 | 0.0 | **.* | **.* | **.* |
| FROM SHALE | 0.0 | 0.0 | **.* | **.* | **.* |
| FROM COAL | 0.0 | 0.0 | 0.0 | **.* | **.* |
| 6. FROM INVENTORY | 0.0 | -43.2 | -36.3 | -35.5 | -22.6 |
| CRUDE | 0.0 | -15.6 | -14.1 | -26.4 | -15.4 |
| PRODUCTS | 0.0 | -59.8 | -70.0 | -41.1 | -28.0 |
| 7. CRUDE RUNS | 0.0 | 2.2 | 1.7 | 1.5 | 1.2 |

Date: 10/11/79

WORLD OIL CONSUMPTION
(MILLION BARRELS/DAY)

ADJUSTED AVERAGE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| OECD | | | | | |
| UNITED STATES | 18.4 | 19.6 | 20.1 | 20.5 | 21.2 |
| WESTERN EUROPE | 14.2 | 14.7 | 15.2 | 16.0 | 16.8 |
| JAPAN | 5.3 | 5.6 | 6.0 | 6.6 | 7.1 |
| OTHER OECD | 2.6 | 2.7 | 2.7 | 3.0 | 3.0 |
| NON-OECD (EXCL. USSR, E. EUROPE, CHINA) | | | | | |
| NON-OECD | 9.3 | 10.9 | 11.6 | 13.3 | 15.9 |
| NON-COMMUNIST COUNTRIES | 49.8 | 53.4 | 55.6 | 59.4 | 64.0 |
| USSR | 8.0 | 9.1 | 9.6 | 10.3 | 11.2 |
| EAST EUROPE | 2.1 | 2.4 | 2.6 | 2.9 | 3.2 |
| CHINA | 1.5 | 2.1 | 2.5 | 3.0 | 3.8 |
| COMMUNIST COUNTRIES | 11.6 | 13.7 | 14.6 | 16.1 | 18.2 |
| TOTAL CONSUMPTION | 61.4 | 67.1 | 70.2 | 75.5 | 82.2 |

Date: 10/11/79

WORLD OIL CONSUMPTION
(MILLION BARRELS/DAY)

ANNUAL GROWTH RATE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| OECD | | | | | |
| UNITED STATES | 0.0 | 2.1 | 1.8 | 1.4 | 1.1 |
| WESTERN EUROPE | 0.0 | 1.1 | 1.4 | 1.5 | 1.3 |
| JAPAN | 0.0 | 1.8 | 2.5 | 2.8 | 2.3 |
| OTHER OECD | 0.0 | 1.3 | 0.8 | 1.8 | 1.1 |
| NON-OECD (EXCL. USSR, E. EUROPE, CHINA) | | | | | |
| NON-OECD | 0.0 | 5.4 | 4.5 | 4.6 | 4.2 |
| NON-COMMUNIST COUNTRIES | 0.0 | 2.3 | 2.2 | 2.2 | 1.9 |
| USSR | 0.0 | 4.3 | 3.7 | 3.2 | 2.6 |
| EAST EUROPE | 0.0 | 4.5 | 4.4 | 4.1 | 3.3 |
| CHINA | 0.0 | 11.7 | 10.8 | 9.1 | 7.4 |
| COMMUNIST COUNTRIES | 0.0 | 5.6 | 4.7 | 4.2 | 3.5 |
| TOTAL CONSUMPTION | 0.0 | 3.0 | 2.7 | 2.6 | 2.3 |

Date: 10/11/79

WORLD OIL AND NATURAL GAS LIQUIDS SUPPLIES
(MILLION BARRELS/DAY)

ADJUSTED AVERAGE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| OECD | | | | | |
| U.S. | 9.9 | 10.2 | 10.0 | 9.8 | 9.8 |
| CANADA | 1.6 | 1.6 | 1.7 | 1.8 | 1.8 |
| W. EUROPE | 1.5 | 3.0 | 3.8 | 4.2 | 4.6 |
| JAPAN, AUSTRALIA, NEW ZEALAND | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 |
| SUB-TOTAL | 13.4 | 15.4 | 16.1 | 16.4 | 16.9 |
| OPEC | | | | | |
| VENEZUELA | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| ECUADOR | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| INDONESIA | 1.7 | 1.7 | 1.7 | 1.7 | 1.6 |
| AFRICA | 5.6 | 5.9 | 6.2 | 6.0 | 5.7 |
| ALGERIA | 1.2 | 1.2 | 1.4 | 1.3 | 1.2 |
| LIBYA | 2.1 | 2.2 | 2.3 | 2.3 | 2.1 |
| NIGERIA | 2.1 | 2.3 | 2.3 | 2.3 | 2.1 |
| GABON | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| MIDDLE EAST | 22.1 | 21.1 | 22.7 | 24.9 | 26.9 |
| IRAN | 5.7 | 4.1 | 4.3 | 4.6 | 4.6 |
| KUWAIT | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 |
| S. ARABIA | 9.2 | 8.8 | 9.7 | 10.5 | 11.7 |
| IRAQ | 2.5 | 3.1 | 3.5 | 4.0 | 4.4 |
| UAE | 2.0 | 1.9 | 2.1 | 2.4 | 2.6 |
| QATAR | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 |
| NEUTRAL ZONE | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 |
| SUB-TOTAL | 31.9 | 31.1 | 33.1 | 35.1 | 36.7 |
| NON-OPEC (EXCL. USSR, E. EUROPE, CHINA) | | | | | |
| MEXICO | 1.1 | 2.1 | 2.6 | 3.1 | 4.2 |
| OTHER L. AMERICA | 1.2 | 1.4 | 1.5 | 1.7 | 1.9 |
| AFRICA | 0.7 | 1.0 | 1.1 | 1.3 | 1.4 |
| MIDDLE EAST | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 |
| ASIA | 0.7 | 0.9 | 1.1 | 1.3 | 1.5 |
| SUB-TOTAL | 4.3 | 5.9 | 7.0 | 8.0 | 9.7 |
| USSR | 10.9 | 12.0 | 12.4 | 12.8 | 13.6 |
| EAST EUROPE | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| CHINA | 1.8 | 2.4 | 2.8 | 3.5 | 4.5 |
| SUB-TOTAL | 13.1 | 14.8 | 15.6 | 16.6 | 18.5 |
| REFINERY PROCESSING GAINS | | | | | |
| U.S. | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| OTHER | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 |
| SUB-TOTAL | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| TOTAL SUPPLY | 63.2 | 67.7 | 72.2 | 76.6 | 82.3 |

Date: 10/11/79

# WORLD OIL AND NATURAL GAS LIQUIDS SUPPLIES
(MILLION BARRELS/DAY)

## ANNUAL GROWTH RATE
TOTAL--ALL RESPONDENTS

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| OECD | | | | | |
| U.S. | 0.0 | 1.0 | 0.2 | -0.1 | -0.1 |
| CANADA | 0.0 | 0.0 | 1.2 | 1.5 | 0.9 |
| W. EUROPE | 0.0 | 25.7 | 20.4 | 13.7 | 9.0 |
| JAPAN, AUSTRALIA, NEW ZEALAND | 0.0 | 0.0 | 3.7 | 2.3 | 2.6 |
| SUB-TOTAL | 0.0 | 4.7 | 3.7 | 2.6 | 1.8 |
| OPEC | | | | | |
| VENEZUELA | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ECUADOR | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| INDONESIA | 0.0 | 0.0 | 0.0 | 0.0 | -0.5 |
| AFRICA | 0.0 | 1.7 | 2.1 | 0.9 | 0.1 |
| ALGERIA | 0.0 | 0.0 | 3.1 | 1.0 | 0.0 |
| LIBYA | 0.0 | 1.5 | 1.8 | 1.1 | 0.0 |
| NIGERIA | 0.0 | 3.0 | 1.8 | 1.1 | 0.0 |
| GABON | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| MIDDLE EAST | 0.0 | -1.5 | 0.5 | 1.5 | 1.5 |
| IRAN | 0.0 | -10.3 | -5.5 | -2.6 | -1.6 |
| KUWAIT | 0.0 | 1.7 | 2.0 | 1.8 | 1.5 |
| S. ARABIA | 0.0 | -1.5 | 1.1 | 1.7 | 1.9 |
| IRAQ | 0.0 | 7.4 | 7.0 | 6.1 | 4.4 |
| UAE | 0.0 | -1.7 | 1.0 | 2.3 | 2.0 |
| QATAR | 0.0 | 7.6 | 4.6 | 2.8 | 1.7 |
| NEUTRAL ZONE | 0.0 | 14.3 | 8.4 | 5.2 | 3.2 |
| SUB-TOTAL | 0.0 | -0.8 | 0.7 | 1.2 | 1.1 |
| NON-OPEC (EXCL. USSR, E. EUROPE, CHINA) | | | | | |
| MEXICO | 0.0 | 23.8 | 18.8 | 13.8 | 10.9 |
| OTHER L. AMERICA | 0.0 | 5.2 | 4.6 | 4.4 | 3.6 |
| AFRICA | 0.0 | 12.5 | 9.5 | 8.0 | 5.5 |
| MIDDLE EAST | 0.0 | 0.0 | 0.0 | 1.9 | 1.2 |
| ASIA | 0.0 | 8.6 | 9.5 | 8.0 | 6.0 |
| SUB-TOTAL | 0.0 | 11.0 | 10.2 | 8.1 | 6.5 |
| USSR | 0.0 | 3.2 | 2.6 | 2.0 | 1.7 |
| EAST EUROPE | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CHINA | 0.0 | 10.0 | 9.2 | 8.7 | 7.3 |
| SUB-TOTAL | 0.0 | 4.1 | 3.6 | 3.0 | 2.7 |
| REFINERY PROCESSING GAINS | | | | | |
| U.S. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| OTHER | 0.0 | 0.0 | 0.0 | 0.0 | ***.* |
| SUB-TOTAL | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| TOTAL SUPPLY | 0.0 | 2.3 | 2.7 | 2.4 | 2.1 |

TOTAL U.S. ENERGY CONSUMPTION BY FUELS AND BY CONSUMING SECCTORS
(TRILLION BTU S)

TOTAL--ALL RESPONDENTS
HIGH

| | | PETROL. LIQUIDS | NAT. GAS (DRY) | COAL | NUCLEAR | HYDRO-ELEC. | GEO-THERMAL | OTHER | TOTAL PRIMARY ENERGY | ELEC. DIST. SECTOR | TOTAL ENERGY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDENTIAL/COMMERCIAL: | 1977 | 5142 | 7476 | 243 | 0 | 0 | 0 | 0 | 12861 | 4381 | 17242 |
| | 1980 | 6677 | 8760 | 300 | 0 | 0 | 0 | 25 | 14992 | 5070 | 19844 |
| | 1982 | 6495 | 8775 | 263 | 0 | 0 | 0 | 35 | 15248 | 5630 | 20532 |
| | 1985 | 6400 | 9760 | 425 | 0 | 0 | 0 | 100 | 15827 | 6550 | 22050 |
| | 1990 | 7100 | 11279 | 500 | 0 | 0 | 0 | 350 | 17394 | 7880 | 24841 |
| TRANSPORTATION: | 1977 | 19362 | 544 | 0 | 0 | 0 | 0 | 0 | 19906 | 16 | 19922 |
| | 1980 | 21450 | 1040 | 0 | 0 | 0 | 0 | 0 | 22378 | 100 | 22397 |
| | 1982 | 22144 | 970 | 0 | 0 | 0 | 0 | 0 | 23075 | 100 | 23096 |
| | 1985 | 22818 | 954 | 0 | 0 | 0 | 0 | 0 | 23758 | 100 | 23781 |
| | 1990 | 23030 | 951 | 0 | 0 | 0 | 0 | 0 | 23872 | 100 | 23894 |
| INDUSTRIAL: | 1977 | 4524 | 7927 | 3529 | 0 | 36 | 0 | 0 | 16016 | 2921 | 18937 |
| | 1980 | 5368 | 9234 | 4085 | 0 | 40 | 0 | 40 | 17760 | 3361 | 20692 |
| | 1982 | 5773 | 9177 | 4366 | 0 | 42 | 0 | 60 | 18660 | 3518 | 21847 |
| | 1985 | 6408 | 9434 | 5107 | 0 | 45 | 0 | 75 | 20100 | 4391 | 23444 |
| | 1990 | 6970 | 10194 | 7745 | 0 | 50 | 0 | 125 | 21956 | 5654 | 26976 |
| ELECTRIC UTILITY: | 1977 | 4025 | 3256 | 10263 | 2674 | 2475 | 103 | 0 | 22796 | -7318 | 15478 |
| | 1980 | 4411 | 3300 | 12805 | 4000 | 3830 | 200 | 50 | 26010 | -7360 | 18324 |
| | 1982 | 4671 | 3100 | 14179 | 5000 | 3897 | 300 | 65 | 28950 | -7871 | 20136 |
| | 1985 | 5014 | 2900 | 16146 | 7463 | 4273 | 400 | 1000 | 34000 | -8728 | 23000 |
| | 1990 | 4928 | 2420 | 22050 | 11022 | 5603 | 800 | 1600 | 41370 | -9713 | 28823 |
| NON-ENERGY & OTHERS: | 1977 | 3917 | 728 | 98 | 0 | 0 | 0 | 0 | 4743 | 0 | 4743 |
| | 1980 | 4660 | 848 | 120 | 0 | 0 | 0 | 0 | 5490 | 0 | 5438 |
| | 1982 | 4980 | 900 | 140 | 0 | 0 | 0 | 0 | 6000 | 0 | 5960 |
| | 1985 | 5688 | 1037 | 160 | 0 | 0 | 0 | 0 | 6840 | 0 | 6660 |
| | 1990 | 7116 | 1364 | 215 | 0 | 0 | 0 | 0 | 8320 | 0 | 8070 |
| SYNTHETIC CONVERSION ADJUST | 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 1980 | 526 | 0 | 39 | 0 | 0 | 0 | 0 | 134 | 0 | 134 |
| | 1982 | 526 | 0 | 50 | 0 | 0 | 0 | 0 | 134 | 0 | 134 |
| | 1985 | 514 | 0 | 378 | 0 | 0 | 0 | 0 | 228 | 0 | 228 |
| | 1990 | 852 | 0 | 1480 | 0 | 0 | 0 | 0 | 535 | 0 | 550 |
| TOTAL: | 1977 | 36970 | 19931 | 14133 | 2674 | 2511 | 103 | 0 | 76322 | 0 | 76322 |
| | 1980 | 40577 | 22100 | 17400 | 4000 | 3830 | 200 | 115 | 84430 | 0 | 84430 |
| | 1982 | 42152 | 23020 | 19360 | 5000 | 3897 | 300 | 160 | 89350 | 0 | 89350 |
| | 1985 | 43670 | 24400 | 22300 | 7463 | 4273 | 400 | 1000 | 97580 | 0 | 97580 |
| | 1990 | 46100 | 26059 | 29160 | 11022 | 5603 | 800 | 1700 | 110150 | 0 | 110150 |

Date: 09/17/79

TOTAL U.S. ENERGY CONSUMPTION BY FUELS AND BY CONSUMING SECCTORS
(TRILLION BTU S)

TOTAL--ALL RESPONDENTS
LOW

| | | PETROL. LIQUIDS | NAT. GAS (DRY) | COAL | NUCLEAR | HYDRO-ELEC. | GEO-THERMAL | OTHER | TOTAL PRIMARY ENERGY | ELEC. DIST. SECTOR | TOTAL ENERGY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDENTIAL/COMMERCIAL: | 1977 | 5142 | 7476 | 243 | 0 | 0 | 0 | 0 | 12861 | 4381 | 17242 |
| | 1980 | 4810 | 7500 | 70 | 0 | 0 | 0 | 0 | 12560 | 4337 | 17257 |
| | 1982 | 4770 | 7729 | 69 | 0 | 0 | 0 | 0 | 12810 | 4780 | 17965 |
| | 1985 | 4610 | 7430 | 22 | 0 | 0 | 0 | 0 | 12910 | 5342 | 18350 |
| | 1990 | 4290 | 7790 | 21 | 0 | 0 | 0 | 0 | 13050 | 5838 | 19470 |
| TRANSPORTATION: | 1977 | 19362 | 544 | 0 | 0 | 0 | 0 | 0 | 19906 | 16 | 19922 |
| | 1980 | 20343 | 500 | 0 | 0 | 0 | 0 | 0 | 20909 | 15 | 20929 |
| | 1982 | 20500 | 545 | 0 | 0 | 0 | 0 | 0 | 20843 | 15 | 20860 |
| | 1985 | 19961 | 500 | 0 | 0 | 0 | 0 | 0 | 20542 | 10 | 20573 |
| | 1990 | 20085 | 480 | 0 | 0 | 0 | 0 | 0 | 20652 | 10 | 20693 |
| INDUSTRIAL: | 1977 | 4524 | 7927 | 3529 | 0 | 36 | 0 | 0 | 16016 | 2921 | 18937 |
| | 1980 | 3568 | 6748 | 3413 | 0 | 30 | 0 | 0 | 15571 | 2828 | 18789 |
| | 1982 | 3567 | 6898 | 3530 | 0 | 30 | 0 | 0 | 16333 | 3023 | 19597 |
| | 1985 | 3580 | 7018 | 3670 | 0 | 30 | 0 | 0 | 17218 | 3334 | 20586 |
| | 1990 | 3574 | 6582 | 4260 | 0 | 30 | 0 | 0 | 17890 | 3844 | 22097 |
| ELECTRIC UTILITY: | 1977 | 4025 | 3256 | 10263 | 2674 | 2475 | 103 | 0 | 22796 | -7318 | 15478 |
| | 1980 | 3341 | 2070 | 11004 | 2940 | 2690 | 56 | 0 | 25020 | -8380 | 16870 |
| | 1982 | 3401 | 1873 | 12350 | 3900 | 3030 | 81 | 0 | 26651 | -9120 | 17664 |
| | 1985 | 3025 | 1176 | 14050 | 4551 | 2740 | 121 | -4 | 29500 | -10546 | 19730 |
| | 1990 | 1800 | 267 | 15020 | 5967 | 2820 | 144 | 0 | 33782 | -12775 | 22750 |
| NON-ENERGY & OTHERS: | 1977 | 3917 | 728 | 98 | 0 | 0 | 0 | 0 | 4743 | 0 | 4743 |
| | 1980 | 3400 | 28 | 0 | 0 | 0 | 0 | 0 | 438 | 0 | 4180 |
| | 1982 | 4282 | 28 | 34 | 0 | 0 | 0 | 0 | 5112 | 0 | 5112 |
| | 1985 | 3944 | 28 | 36 | 0 | 0 | 0 | 0 | 4947 | 0 | 4947 |
| | 1990 | 4682 | 28 | 40 | 0 | 0 | 0 | 0 | 5794 | 0 | 5794 |
| SYNTHETIC CONVERSION ADJUST | 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 1980 | 0 | -413 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 1982 | 0 | -462 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 1985 | 0 | -549 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 1990 | -203 | -1683 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL: | 1977 | 36970 | 19931 | 14133 | 2674 | 2511 | 103 | 0 | 76322 | 0 | 76322 |
| | 1980 | 36500 | 18361 | 14714 | 2940 | 2690 | 56 | 0 | 80130 | 0 | 80130 |
| | 1982 | 36580 | 18452 | 16206 | 3900 | 3030 | 81 | 0 | 84030 | 0 | 84030 |
| | 1985 | 36700 | 18490 | 17980 | 4551 | 2740 | 121 | 0 | 89090 | 0 | 89090 |
| | 1990 | 36800 | 17170 | 22400 | 5967 | 2820 | 144 | 0 | 97200 | 0 | 97200 |

Date: 09/17/79

TOTAL U.S. ENERGY CONSUMPTION BY FUELS AND BY CONSUMING SECCTORS
(TRILLION BTU S)

TOTAL--ALL RESPONDENTS
AVERAGE

| | | PETROL. LIQUIDS | NAT. GAS (DRY) | COAL | NUCLEAR | HYDRO-ELEC. | GEO-THERMAL | OTHER | TOTAL PRIMARY ENERGY | ELEC. DIST. SECTOR | TOTAL ENERGY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDENTIAL/COMMERCIAL: | 1977 | 5142.0 | 7476.0 | 243.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12861.0 | 4381.0 | 17242.0 |
| | 1980 | 5454.2 | 7916.9 | 204.9 | 0.0 | 0.0 | 0.0 | 3.8 | 13633.4 | 4722.2 | 18330.2 |
| | 1982 | 5546.6 | 8313.9 | 173.0 | 0.0 | 0.0 | 0.0 | 11.4 | 14102.4 | 5172.3 | 19217.2 |
| | 1985 | 5610.0 | 8616.6 | 167.3 | 0.0 | 0.0 | 0.0 | 39.6 | 14503.7 | 5784.1 | 20131.0 |
| | 1990 | 5654.3 | 9234.4 | 142.9 | 0.0 | 0.0 | 0.0 | 153.2 | 15304.1 | 6874.9 | 21892.8 |
| TRANSPORTATION: | 1977 | 19362.0 | 544.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19906.0 | 16.0 | 19922.0 |
| | 1980 | 20844.6 | 643.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21321.9 | 25.9 | 21356.3 |
| | 1982 | 21207.4 | 717.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21699.6 | 29.2 | 21793.2 |
| | 1985 | 21407.8 | 649.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21882.3 | 29.4 | 21935.9 |
| | 1990 | 22145.4 | 654.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22546.7 | 37.3 | 22570.6 |
| INDUSTRIAL: | 1977 | 4524.0 | 7927.0 | 3529.0 | 0.0 | 36.0 | 0.0 | 0.0 | 16016.0 | 2921.0 | 18937.0 |
| | 1980 | 4713.9 | 8090.6 | 3766.4 | 0.0 | 36.2 | 0.0 | 3.5 | 16673.0 | 3120.4 | 19755.5 |
| | 1982 | 5115.0 | 8184.3 | 3945.6 | 0.0 | 37.0 | 0.0 | 7.0 | 17407.5 | 3416.1 | 20684.4 |
| | 1985 | 5343.8 | 8344.8 | 4451.3 | 0.0 | 7.6 | 0.0 | 6.8 | 18295.1 | 3845.6 | 22067.3 |
| | 1990 | 5804.7 | 8292.7 | 5575.1 | 0.0 | 38.6 | 0.0 | 13.4 | 19827.9 | 4633.2 | 24380.0 |
| ELECTRIC UTILITY: | 1977 | 4025.0 | 3256.0 | 10263.0 | 2674.0 | 2475.0 | 103.0 | 0.0 | 22796.0 | -7318.0 | 15478.0 |
| | 1980 | 3875.0 | 2801.6 | 11841.8 | 3543.8 | 3256.4 | 109.4 | 5.0 | 25509.8 | -7865.2 | 17635.8 |
| | 1982 | 3885.0 | 2426.4 | 13064.8 | 4530.1 | 3435.9 | 158.9 | 8.1 | 27661.7 | -8614.3 | 18904.2 |
| | 1985 | 4019.9 | 2054.3 | 14867.4 | 6306.6 | 3561.4 | 210.7 | 98.3 | 31285.4 | -9658.4 | 21555.5 |
| | 1990 | 3561.9 | 1399.8 | 18671.4 | 9139.5 | 3830.7 | 340.8 | 164.6 | 37377.1 | -11542.5 | 25725.8 |
| NON-ENERGY & OTHERS: | 1977 | 3917.0 | 728.0 | 98.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4743.0 | 0.0 | 4743.0 |
| | 1980 | 4242.1 | 680.3 | 93.1 | 0.0 | 0.0 | 0.0 | 0.0 | 4694.6 | 0.0 | 5037.6 |
| | 1982 | 4687.6 | 695.9 | 103.3 | 0.0 | 0.0 | 0.0 | 0.0 | 5545.9 | 0.0 | 5495.4 |
| | 1985 | 4979.0 | 748.3 | 111.1 | 0.0 | 0.0 | 0.0 | 0.0 | 5891.1 | 0.0 | 5865.2 |
| | 1990 | 5646.1 | 809.7 | 138.8 | 0.0 | 0.0 | 0.0 | 0.0 | 6732.7 | 0.0 | 6675.5 |
| SYNTHETIC CONVERSION ADJUST | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 282.3 | -246.9 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 37.3 | 0.0 | 39.3 |
| | 1982 | 314.1 | -270.4 | 6.3 | 0.0 | 0.0 | 0.0 | 0.0 | 49.9 | 0.0 | 49.9 |
| | 1985 | 261.0 | -312.4 | 133.2 | 0.0 | 0.0 | 0.0 | 0.0 | 76.4 | 0.0 | 81.8 |
| | 1990 | 211.2 | -594.7 | 640.2 | 0.0 | 0.0 | 0.0 | 0.0 | 206.7 | 0.0 | 256.7 |
| TOTAL: | 1977 | 36970.0 | 19931.0 | 14133.0 | 2674.0 | 2511.0 | 103.0 | 0.0 | 76322.0 | 0.0 | 76322.0 |
| | 1980 | 39076.0 | 20025.7 | 15993.1 | 3540.9 | 3322.1 | 113.8 | 12.8 | 82234.6 | 0.0 | 82234.6 |
| | 1982 | 40239.6 | 20310.5 | 17495.4 | 4527.1 | 3489.1 | 158.9 | 28.9 | 86432.4 | 0.0 | 86523.3 |
| | 1985 | 41189.9 | 20410.3 | 19847.6 | 6286.1 | 3644.6 | 220.3 | 151.3 | 92010.7 | 0.0 | 92010.7 |
| | 1990 | 42489.7 | 20407.8 | 25061.7 | 9123.5 | 3919.9 | 357.1 | 346.5 | 102087.9 | 0.0 | 102087.9 |

Date: 09/17/79

TOTAL U.S. ENERGY CONSUMPTION BY FUELS AND BY CONSUMING SECCTORS
(TRILLION BTU S)

TOTAL--ALL RESPONDENTS
STD. DEVIATION (AS A PCT. OF AVERAGE)

| | | PETROL. LIQUIDS | NAT. GAS (DRY) | COAL | NUCLEAR | HYDRO-ELEC. | GEO-THERMAL | OTHER | TOTAL PRIMARY ENERGY | ELEC. DIST. SECTOR | TOTAL ENERGY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDENTIAL/COMMERCIAL: | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 8.1 | 4.3 | 27.0 | 0.0 | 0.0 | 0.0 | 214.3 | 4.8 | 4.9 | 4.1 |
| | 1982 | 7.9 | 4.2 | 36.8 | 0.0 | 0.0 | 0.0 | 124.6 | 5.1 | 5.4 | 4.5 |
| | 1985 | 7.8 | 7.9 | 56.4 | 0.0 | 0.0 | 0.0 | 99.6 | 7.3 | 6.0 | 5.6 |
| | 1990 | 11.5 | 10.5 | 80.8 | 0.0 | 0.0 | 0.0 | 86.4 | 9.8 | 7.2 | 7.1 |
| TRANSPORTATION: | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 1.4 | 27.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 90.7 | 1.7 |
| | 1982 | 2.2 | 24.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 86.8 | 2.5 |
| | 1985 | 3.4 | 25.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 75.4 | 3.7 |
| | 1990 | 3.6 | 26.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 62.0 | 4.2 |
| INDUSTRIAL: | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 8.3 | 7.7 | 6.6 | 0.0 | 10.2 | 0.0 | 314.8 | 3.6 | 4.7 | 3.1 |
| | 1982 | 11.6 | 8.8 | 6.2 | 0.0 | 12.4 | 0.0 | 268.0 | 4.3 | 4.2 | 3.5 |
| | 1985 | 12.6 | 8.6 | 8.8 | 0.0 | 13.1 | 0.0 | 305.8 | 4.7 | 6.9 | 4.2 |
| | 1990 | 14.8 | 13.5 | 16.5 | 0.0 | 17.0 | 0.0 | 261.4 | 6.1 | 10.9 | 5.9 |
| ELECTRIC UTILITY: | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 7.6 | 13.0 | 3.7 | 8.1 | 8.9 | 39.7 | 288.7 | 1.2 | -4.4 | 2.5 |
| | 1982 | 10.8 | 17.6 | 4.1 | 9.8 | 8.3 | 44.7 | 264.6 | 2.5 | -4.4 | 3.9 |
| | 1985 | 14.6 | 24.4 | 3.9 | 13.6 | 11.5 | 41.5 | 278.8 | 3.8 | -5.6 | 3.8 |
| | 1990 | 25.2 | 47.7 | 9.4 | 15.5 | 16.9 | 58.2 | 265.6 | 5.7 | -7.3 | 5.5 |
| NON-ENERGY & OTHERS: | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 7.6 | 28.2 | 34.8 | 0.0 | 0.0 | 0.0 | 0.0 | 26.1 | 0.0 | 6.9 |
| | 1982 | 4.2 | 36.0 | 26.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 0.0 | 4.7 |
| | 1985 | 9.0 | 31.8 | 25.8 | 0.0 | 0.0 | 0.0 | 0.0 | 8.8 | 0.0 | 7.8 |
| | 1990 | 11.2 | 39.1 | 31.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.6 | 0.0 | 10.0 |
| SYNTHETIC CONVERSION ADJUST | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 64.6 | -62.0 | 300.0 | 0.0 | 0.0 | 0.0 | 0.0 | 104.3 | 0.0 | 95.2 |
| | 1982 | 64.8 | -64.9 | 264.6 | 0.0 | 0.0 | 0.0 | 0.0 | 93.7 | 0.0 | 93.7 |
| | 1985 | 70.7 | -60.6 | 84.4 | 0.0 | 0.0 | 0.0 | 0.0 | 85.8 | 0.0 | 74.9 |
| | 1990 | 137.4 | -77.7 | 74.3 | 0.0 | 0.0 | 0.0 | 0.0 | 81.6 | 0.0 | 70.6 |
| TOTAL: | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 2.3 | 4.5 | 4.1 | 7.8 | 9.1 | 38.9 | 255.9 | 1.2 | 0.0 | 1.2 |
| | 1982 | 3.5 | 6.9 | 4.9 | 9.3 | 8.4 | 44.7 | 177.0 | 1.5 | 0.0 | 1.5 |
| | 1985 | 4.2 | 7.9 | 5.3 | 13.3 | 10.8 | 40.0 | 183.5 | 2.3 | 0.0 | 2.3 |
| | 1990 | 5.6 | 11.9 | 7.7 | 15.1 | 15.9 | 57.3 | 136.0 | 3.2 | 0.0 | 3.2 |

Date: 09/17/79

TOTAL U.S. ENERGY CONSUMPTION BY FUELS AND BY CONSUMING SECCTORS
(TRILLION BTU S)

TOTAL--ALL RESPONDENTS
MEDIAN

| | | PETROL. LIQUIDS | NAT. GAS (DRY) | COAL | NUCLEAR | HYDRO-ELEC. | GEO-THERMAL | OTHER | TOTAL PRIMARY ENERGY | ELEC. DIST. SECTOR | TOTAL ENERGY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDENTIAL/COMMERCIAL: | 1977 | 5142.0 | 7476.0 | 243.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12861.0 | 4381.0 | 17242.0 |
| | 1980 | 5300.0 | 7912.5 | 200.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13748.0 | 4678.0 | 18254.0 |
| | 1982 | 5473.0 | 8373.0 | 171.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14200.0 | 5284.0 | 19027.0 |
| | 1985 | 5595.5 | 8736.0 | 159.5 | 0.0 | 0.0 | 0.0 | 28.0 | 14900.0 | 5680.0 | 20200.0 |
| | 1990 | 5534.0 | 9594.0 | 106.0 | 0.0 | 0.0 | 0.0 | 150.0 | 15594.0 | 6933.0 | 21662.0 |
| TRANSPORTATION: | 1977 | 19362.0 | 544.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19906.0 | 16.0 | 19922.0 |
| | 1980 | 20875.0 | 558.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21282.0 | 20.0 | 21300.5 |
| | 1982 | 21146.5 | 653.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21706.0 | 20.0 | 21737.0 |
| | 1985 | 21600.0 | 565.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21996.0 | 25.0 | 22019.0 |
| | 1990 | 22290.0 | 558.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22740.0 | 33.0 | 22775.0 |
| INDUSTRIAL: | 1977 | 4524.0 | 7927.0 | 3529.0 | 0.0 | 36.0 | 0.0 | 0.0 | 16016.0 | 2921.0 | 18937.0 |
| | 1980 | 4712.0 | 7924.0 | 3701.5 | 0.0 | 36.0 | 0.0 | 0.0 | 16694.0 | 3161.0 | 19913.0 |
| | 1982 | 5270.0 | 7950.0 | 3936.0 | 0.0 | 38.0 | 0.0 | 0.0 | 17405.0 | 3470.0 | 20800.0 |
| | 1985 | 5496.0 | 8230.5 | 4432.0 | 0.0 | 37.0 | 0.0 | 0.0 | 18333.0 | 3845.0 | 22151.0 |
| | 1990 | 5875.0 | 8391.5 | 5546.0 | 0.0 | 37.0 | 0.0 | 0.0 | 19526.0 | 4640.0 | 24390.0 |
| ELECTRIC UTILITY: | 1977 | 4025.0 | 3256.0 | 10263.0 | 2674.0 | 2475.0 | 103.0 | 0.0 | 22796.0 | -7318.0 | 15478.0 |
| | 1980 | 3842.0 | 2919.5 | 11787.5 | 3518.5 | 3305.0 | 100.0 | 0.0 | 25500.0 | -7793.0 | 17710.0 |
| | 1982 | 3600.0 | 2441.0 | 13025.0 | 4820.0 | 3480.0 | 170.0 | 0.0 | 27642.0 | -8760.0 | 18940.0 |
| | 1985 | 4108.0 | 2112.5 | 14840.0 | 6481.5 | 3645.0 | 190.0 | 0.0 | 31400.0 | -9540.0 | 21650.0 |
| | 1990 | 3747.5 | 1403.0 | 18520.0 | 9230.0 | 3900.0 | 230.0 | 0.0 | 37600.0 | -11450.0 | 25510.0 |
| NON-ENERGY & OTHERS: | 1977 | 3917.0 | 728.0 | 98.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4743.0 | 0.0 | 4743.0 |
| | 1980 | 4291.5 | 726.0 | 102.5 | 0.0 | 0.0 | 0.0 | 0.0 | 4979.0 | 0.0 | 5113.0 |
| | 1982 | 4694.5 | 791.0 | 109.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5566.0 | 0.0 | 5540.0 |
| | 1985 | 5027.0 | 787.0 | 115.5 | 0.0 | 0.0 | 0.0 | 0.0 | 5850.0 | 0.0 | 5850.0 |
| | 1990 | 5540.0 | 782.0 | 139.5 | 0.0 | 0.0 | 0.0 | 0.0 | 6510.0 | 0.0 | 6510.0 |
| SYNTHETIC CONVERSION ADJUST | 1977 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 1980 | 320.0 | -285.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 29.8 | 0.0 | 29.8 |
| | 1982 | 410.6 | -353.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.3 | 0.0 | 40.3 |
| | 1985 | 250.0 | -340.0 | 150.0 | 0.0 | 0.0 | 0.0 | 0.0 | 79.0 | 0.0 | 79.0 |
| | 1990 | 204.0 | -520.0 | 509.5 | 0.0 | 0.0 | 0.0 | 0.0 | 180.0 | 0.0 | 184.8 |
| TOTAL: | 1977 | 36970.0 | 19931.0 | 14133.0 | 2674.0 | 2511.0 | 103.0 | 0.0 | 76322.0 | 0.0 | 76322.0 |
| | 1980 | 39000.0 | 19800.0 | 15911.0 | 3500.0 | 3352.5 | 102.0 | 0.0 | 82416.0 | 0.0 | 82416.0 |
| | 1982 | 40442.5 | 20042.5 | 17325.0 | 4660.0 | 3540.0 | 170.0 | 5.0 | 86450.0 | 0.0 | 86450.0 |
| | 1985 | 41400.0 | 20070.0 | 19850.0 | 6393.0 | 3700.0 | 195.0 | 60.0 | 92191.0 | 0.0 | 92191.0 |
| | 1990 | 42647.0 | 19900.0 | 24586.0 | 9030.0 | 3925.0 | 315.0 | 210.0 | 101865.0 | 0.0 | 101865.0 |

Date: 09/28/79

TABLE 1A -- ECONOMIC ASSUMPTIONS

All Respondents
High

| | | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| GNP ASSUMPTION | (BILLION 1972 $) | 1,333 | 1,495 | 1,609 | 1,791 | 2,097 |
| FRB INDEX OF IND. PROD. | (1967=100) | 137 | 160 | 174 | 201 | 245 |
| POPULATION | (MID-YEAR, 000) | 216,820 | 224,000 | 227,200 | 236,000 | 247,000 |
| DISPOSABLE PERSONAL INCOME | (BILLION 1972 $) | 926 | 1,162 | 1,237 | 1,365 | 1,575 |

TABLE 1A -- ECONOMIC ASSUMPTIONS

All Respondents
Low

| | | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| GNP ASSUMPTION | (BILLION 1972 $) | 1,333 | 1,422 | 1,495 | 1,610 | 1,820 |
| FRB INDEX OF IND. PROD. | (1967=100) | 137 | 145 | 153 | 177 | 205 |
| POPULATION | (MID-YEAR, 000) | 216,820 | 221,560 | 225,846 | 232,000 | 241,000 |
| DISPOSABLE PERSONAL INCOME | (BILLION 1972 $) | 926 | 965 | 1,040 | 1,155 | 1,305 |

Date: 09/28/79

TABLE 1A -- ECONOMIC ASSUMPTIONS

All Respondents
AVERAGE AND STANDARD DEVIATION

| | | AVERAGE | | | | | STANDARD DEVIATION AS A % OF THE MEAN | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1977 | 1980 | 1982 | 1985 | 1990 | 1980 | 1982 | 1985 | 1990 |
| GNP ASSUMPTION | (BILLION 1972 $) | 1,333 | 1,461 | 1,562 | 1,742 | 2,018 | 1.65% | 2.20% | 2.78% | 3.50% |
| FRB INDEX OF IND. PROD. | (1967=100) | 137 | 153 | 166 | 191 | 230 | 2.69% | 3.48% | 3.57% | 4.71% |
| POPULATION | (MID-YEAR, 000) | 216,820 | 222,497 | 226,507 | 233,221 | 243,799 | 24% | 15% | 38% | 50% |
| DISPOSABLE PERSONAL INCOME | (BILLION 1972 $) | 926 | 1,031 | 1,108 | 1,240 | 1,440 | 4.54% | 4.34% | 3.85% | 4.37% |

Date: 09/28/79

TABLE 1A -- ECONOMIC ASSUMPTIONS

All Respondents
Median

| | | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| GNP ASSUMPTION | (BILLION 1972 $) | 1,333 | 1,459 | 1,567 | 1,759 | 2,039 |
| FRB INDEX OF IND. PROD. | (1967=100) | 137 | 152 | 166 | 194 | 232 |
| POPULATION | (MID-YEAR, 000) | 216,820 | 222,400 | 226,600 | 232,900 | 243,513 |
| DISPOSABLE PERSONAL INCOME | (BILLION 1972 $) | 926 | 1,028 | 1,109 | 1,240 | 1,432 |

DATE: 10/12/79

TABLE II INPUT -- ENERGY SUPPLIES

ALL RESPONDENTS
HIGH

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| **OIL (MILLION BARRELS/YEAR)** | | | | | |
| DOMESTIC PRODUCTION - TOTAL | 3,600 | 4,094 | 4,031 | 3,950 | 4,099 |
| CRUDE & LEASE CONDENSATE | 3,009 | 3,538 | 3,484 | 3,412 | 3,632 |
| NGL | 591 | 612 | 602 | 593 | 584 |
| IMPORTS - TOTAL | 3,215 | 3,676 | 4,031 | 4,690 | 4,986 |
| CRUDE | 2,414 | 2,858 | 3,192 | 3,610 | 4,128 |
| PRODUCTS (INCL. NGL & UNFINISHED) | 800 | 1,285 | 1,068 | 1,222 | 1,570 |
| EXPORTS | -89 | 3 | -80 | 0 | 0 |
| PROCESSING GAIN, ETC. | 202 | 240 | 260 | 280 | 310 |
| SYNCRUDE | 0 | 0 | 10 | 55 | 183 |
| FROM SHALE | 0 | 0 | 10 | 55 | 183 |
| FROM COAL | 0 | 0 | 0 | 3 | 70 |
| FROM INVENTORY | -200 | 0 | 0 | 0 | 0 |
| CRUDE | -62 | 0 | 0 | 0 | 0 |
| PRODUCTS | -138 | 0 | 0 | 4 | 0 |
| TOTAL OIL SUPPLY | 6,728 | 7,357 | 7,614 | 7,777 | 8,326 |
| MEMO: TRILLION BTU'S/YR. | 36,970 | 40,577 | 42,152 | 43,670 | 46,100 |
| **GAS (BILLION CUBIC FEET/YEAR)** | | | | | |
| PRODUCTION | 20,025 | 19,700 | 20,172 | 21,088 | 21,469 |
| EXTRACTION LOSS, TRANSFERS OUT | -862 | 0 | 0 | 0 | 0 |
| IMPORTS - TOTAL | 1,001 | 1,930 | 2,469 | 3,400 | 3,645 |
| EXPORTS | -56 | 0 | 0 | 0 | 0 |
| FROM INV., TRANSMILLION LOSS & UNACCOUNTED | -597 | 0 | 0 | 0 | 0 |
| TOTAL DRY NATURAL GAS | 19,511 | 21,500 | 21,800 | 21,700 | 21,500 |
| SYNGAS | 0 | 403 | 420 | 540 | 1,075 |
| FROM COAL | 0 | 200 | 300 | 500 | 850 |
| FROM LIQUIDS | 0 | 425 | 500 | 500 | 500 |
| TOTAL GAS SUPPLY | 19,511 | 21,500 | 21,800 | 21,700 | 21,500 |
| MEMO: TRILLION BTU'S/YR. | 19,931 | 22,100 | 23,090 | 24,400 | 25,500 |
| **COAL (ANTHRACITE, BITUMINOUS, & LIGNITE): THOUSAND SHORT TONS PER YEAR** | | | | | |
| PRODUCTION - TOTAL | 694,755 | 885,000 | 913,000 | 1093,000 | 1465,000 |
| FOR CONVENTIONAL DOMESTIC MARKETS | 694,755 | 833,000 | 913,000 | 1053,000 | 1437,000 |
| FOR SYNTHETIC OIL &/OR GAS PLANTS | 0 | 2,000 | 0 | 13,000 | 51,000 |
| NET EXPORTS | -52,509 | 61,137 | 65,422 | 69,931 | 82,699 |
| FROM INV., LOSSES, GAINS, & UNACCOUNTED FOR | -16,575 | 0 | 0 | 0 | 0 |
| TOTAL COAL SUPPLY | 625,671 | 826,000 | 839,410 | 1021,000 | 1385,000 |
| MEMO: TRILLION BTU'S/YR. | 14,133 | 19,000 | 20,600 | 23,500 | 31,220 |
| NUCLEAR: TRILLION BTU'S/YR. | 2,674 | 4,000 | 5,000 | 7,463 | 11,022 |

DATE: 10/12/79

TABLE II INPUT -- ENERGY SUPPLIES

ALL RESPONDENTS
LOW

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| **OIL (MILLION BARRELS/YEAR)** | | | | | |
| DOMESTIC PRODUCTION - TOTAL | 3,600 | 3,452 | 3,305 | 2,907 | 2,462 |
| CRUDE & LEASE CONDENSATE | 3,009 | 2,933 | 0 | 2,528 | 2,146 |
| NGL | 591 | 500 | 461 | 379 | 317 |
| IMPORTS - TOTAL | 3,215 | 2,513 | 2,462 | 2,410 | 2,359 |
| CRUDE | 2,414 | 0 | 2,486 | 0 | 0 |
| PRODUCTS (INCL. NGL & UNFINISHED) | 800 | 0 | 840 | 0 | 0 |
| EXPORTS | -89 | -183 | -182 | -183 | -183 |
| PROCESSING GAIN, ETC. | 202 | 0 | 126 | 0 | 0 |
| SYNCRUDE | 0 | 0 | 0 | 0 | 0 |
| FROM SHALE | 0 | 0 | 0 | 0 | 0 |
| FROM COAL | 0 | 0 | 0 | 0 | 0 |
| FROM INVENTORY | -200 | -185 | -123 | -46 | -48 |
| CRUDE | -62 | -175 | -115 | -39 | -47 |
| PRODUCTS | -138 | -48 | -8 | -37 | -37 |
| TOTAL OIL SUPPLY | 6,728 | 6,980 | 7,224 | 6,992 | 7,140 |
| MEMO: TRILLION BTU'S/YR. | 36,970 | 36,500 | 36,520 | 36,700 | 36,800 |
| **GAS (BILLION CUBIC FEET/YEAR)** | | | | | |
| PRODUCTION | 20,025 | 17,525 | 16,300 | 15,000 | 14,259 |
| EXTRACTION LOSS, TRANSFERS OUT | -862 | -850 | -850 | -920 | -890 |
| IMPORTS - TOTAL | 1,001 | 635 | 1,600 | 1,820 | 1,777 |
| EXPORTS | -56 | -100 | -100 | -100 | -100 |
| FROM INV., TRANSMILLION LOSS & UNACCOUNTED | -597 | -580 | -400 | -450 | -400 |
| TOTAL DRY NATURAL GAS | 19,511 | 17,210 | 17,772 | 15,650 | 14,080 |
| SYNGAS | 0 | 0 | 0 | 0 | 0 |
| FROM COAL | 0 | 0 | 0 | 0 | 0 |
| FROM LIQUIDS | 0 | 0 | 0 | 0 | 0 |
| TOTAL GAS SUPPLY | 19,511 | 17,440 | 18,072 | 15,980 | 14,830 |
| MEMO: TRILLION BTU'S/YR. | 19,931 | 18,000 | 18,452 | 16,490 | 15,300 |
| **COAL (ANTHRACITE, BITUMINOUS, & LIGNITE): THOUSAND SHORT TONS PER YEAR** | | | | | |
| PRODUCTION - TOTAL | 694,755 | 723,000 | 788,000 | 888,000 | 1097,000 |
| FOR CONVENTIONAL DOMESTIC MARKETS | 694,755 | 0 | 788,000 | 888,000 | 1081,000 |
| FOR SYNTHETIC OIL &/OR GAS PLANTS | 0 | 0 | 0 | 0 | 0 |
| NET EXPORTS | -52,509 | -68,000 | -70,000 | -80,000 | -89,000 |
| FROM INV., LOSSES, GAINS, & UNACCOUNTED FOR | -16,575 | -20,000 | 0 | -25,000 | -30,000 |
| TOTAL COAL SUPPLY | 625,671 | 672,000 | 733,000 | 828,000 | 1027,000 |
| MEMO: TRILLION BTU'S/YR. | 14,133 | 15,120 | 16,460 | 17,980 | 22,500 |
| NUCLEAR: TRILLION BTU'S/YR. | 2,674 | 2,940 | 3,900 | 5,000 | 7,200 |

DATE: 10/12/79
TABLE II INPUT -- ENERGY SUPPLIES

ALL RESPONDENTS
AVERAGE AND STANDARD DEVIATION

| | AVERAGE | | | | | STANDARD DEVIATION AS A % OF THE MEAN | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1977 | 1980 | 1982 | 1985 | 1990 | 1980 | 1982 | 1985 | 1990 |
| **OIL (MILLION BARRELS/YEAR)** | | | | | | | | | |
| DOMESTIC PRODUCTION - TOTAL | 3,600 | 3,721 | 3,641 | 3,550 | 3,563 | 3.95% | 5.35% | 8.35% | 12.36% |
| CRUDE & LEASE CONDENSATE | 3,009 | 3,157 | 2,801 | 3,012 | 3,046 | 4.42% | 32.22% | 8.63% | 13.32% |
| NGL | 591 | 555 | 535 | 503 | 462 | 4.80% | 6.71% | 10.23% | 15.08% |
| IMPORTS - TOTAL | 3,215 | 3,313 | 3,563 | 3,775 | 3,944 | 7.56% | 10.42% | 14.16% | 17.56% |
| CRUDE | 2,414 | 2,370 | 2,770 | 2,771 | 2,852 | 30.14% | 7.04% | 31.15% | 33.33% |
| PRODUCTS (INCL. NGL & UNFINISHED) | 800 | 782 | 941 | 868 | 984 | 34.05% | 5.88% | 36.41% | 41.56% |
| EXPORTS | -89 | -111 | -118 | -98 | -97 | -37.82% | -25.54% | -42.26% | -45.05% |
| PROCESSING GAIN, ETC. | 202 | 187 | 205 | 188 | 189 | 31.21% | 15.88% | 34.36% | 38.67% |
| SYNCRUDE | 0 | 0 | 1 | 16 | 90 | 0% | 282.84% | 97.01% | 60.40% |
| FROM SHALE | 0 | 0 | 1 | 15 | 83 | 0% | 253.27% | 101.54% | 63.26% |
| FROM COAL | 0 | 0 | 0 | 0 | 19 | 0% | 0% | 234.93% | 107.68% |
| FROM INVENTORY | -200 | -40 | -24 | -8 | -9 | 156.69% | 176.58% | 195.83% | 197.48% |
| CRUDE | -62 | -31 | -23 | -4 | -5 | 207.07% | 178.79% | 270.96% | 278.52% |
| PRODUCTS | -138 | -11 | -1 | -3 | -3 | 145.72% | 264.58% | 378.38% | 324.91% |
| TOTAL OIL SUPPLY | 6,728 | 7,136 | 7,354 | 7,490 | 7,749 | 1.51% | 1.51% | 2.94% | 4.39% |
| MEMO: TRILLION BTU'S/YR. | 36,970 | 39,086 | 40,232 | 41,206 | 42,435 | 2.24% | 3.36% | 4.19% | 5.62% |
| **GAS (BILLION CUBIC FEET/YEAR)** | | | | | | | | | |
| PRODUCTION | 20,025 | 18,897 | 18,246 | 17,780 | 17,306 | 3.53% | 6.08% | 8.90% | 11.49% |
| EXTRACTION LOSS, TRANSFERS OUT | -862 | -655 | -587 | -644 | -615 | -45.54% | -54.57% | -46.13% | -47.24% |
| IMPORTS - TOTAL | 1,001 | 1,468 | 2,030 | 2,579 | 2,906 | 21.72% | 11.56% | 14.25% | 19.72% |
| EXPORTS | -56 | -48 | -52 | -32 | -29 | -56.59% | -53.37% | -99.50% | 112.01% |
| FROM INV., TRANSMILLION LOSS & UNACCOUNTED | -597 | -228 | -185 | -188 | -180 | -84.03% | -81.13% | -86.29% | -83.14% |
| TOTAL DRY NATURAL GAS | 19,511 | 19,122 | 19,207 | 19,036 | 18,726 | 5.00% | 5.69% | 7.11% | 9.37% |
| SYNGAS | 0 | 206 | 255 | 330 | 533 | 68.55% | 56.88% | 54.89% | 54.48% |
| FROM COAL | 0 | 17 | 30 | 112 | 309 | 308.43% | 300.00% | 113.08% | 71.04% |
| FROM LIQUIDS | 0 | 206 | 250 | 236 | 231 | 77.87% | 70.77% | 70.49% | 71.82% |
| TOTAL GAS SUPPLY | 19,511 | 19,392 | 19,551 | 19,411 | 19,283 | 4.89% | 5.27% | 6.60% | 8.31% |
| MEMO: TRILLION BTU'S/YR. | 19,931 | 19,856 | 20,130 | 20,002 | 19,914 | 4.99% | 6.16% | 8.03% | 10.63% |
| **COAL (ANTHRACITE, BITUMINOUS, & LIGNITE): THOUSAND SHORT TONS PER YEAR** | | | | | | | | | |
| PRODUCTION - TOTAL | 694,755 | 783,940 | 853,790 | 989,122 | 1274,129 | 5.28% | 4.53% | 5.89% | 8.66% |
| FOR CONVENTIONAL DOMESTIC MARKETS | 694,755 | 713,167 | 859,852 | 976,874 | 1230,211 | 31.87% | 4.80% | 5.27% | 8.44% |
| FOR SYNTHETIC OIL &/OR GAS PLANTS | 0 | 154 | 0 | 6,555 | 21,855 | 346.41% | 0% | 82.12% | 69.80% |
| NET EXPORTS | -52,509 | -45,962 | -42,572 | -55,991 | -56,443 | -65.80% | -97.20% | -64.00% | -77.68% |
| FROM INV., LOSSES, GAINS, & UNACCOUNTED FOR | -16,575 | -3,633 | 0 | -4,783 | -4,500 | 181.69% | 0% | 178.56% | 204.58% |
| TOTAL COAL SUPPLY | 625,671 | 725,646 | 793,931 | 916,110 | 1189,927 | 5.43% | 4.63% | 5.87% | 8.81% |
| MEMO: TRILLION BTU'S/YR. | 14,133 | 16,311 | 17,933 | 20,192 | 25,498 | 5.76% | 6.44% | 7.38% | 8.93% |
| NUCLEAR: TRILLION BTU'S/YR. | 2,674 | 3,530 | 4,462 | 6,212 | 9,284 | 7.85% | 9.34% | 12.06% | 12.00% |

DATE: 10/12/79

TABLE II INPUT -- ENERGY SUPPLIES

ALL RESPONDENTS
MEDIAN

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| **OIL (MILLION BARRELS/YEAR)** | | | | | |
| DOMESTIC PRODUCTION - TOTAL | 3,600 | 3,712 | 3,566 | 3,556 | 3,597 |
| CRUDE & LEASE CONDENSATE | 3,009 | 3,112 | 3,015 | 2,960 | 3,056 |
| NGL | 591 | 551 | 530 | 513 | 473 |
| IMPORTS - TOTAL | 3,215 | 3,343 | 3,628 | 3,860 | 4,012 |
| CRUDE | 2,414 | 2,540 | 2,764 | 2,920 | 3,015 |
| PRODUCTS (INCL. NGL & UNFINISHED) | 800 | 802 | 941 | 950 | 980 |
| EXPORTS | -89 | -115 | -120 | -89 | -87 |
| PROCESSING GAIN, ETC. | 202 | 203 | 212 | 210 | 214 |
| SYNCRUDE | 0 | 0 | 0 | 10 | 91 |
| FROM SHALE | 0 | 0 | 0 | 10 | 90 |
| FROM COAL | 0 | 0 | 0 | 0 | 18 |
| FROM INVENTORY | -200 | -10 | 0 | 0 | 0 |
| CRUDE | -62 | 0 | 0 | 0 | 0 |
| PRODUCTS | -138 | 0 | 0 | 0 | 0 |
| TOTAL OIL SUPPLY | 6,728 | 7,122 | 7,318 | 7,464 | 7,703 |
| MEMO: TRILLION BTU'S/YR. | 36,970 | 39,050 | 40,385 | 41,600 | 42,610 |
| **GAS (BILLION CUBIC FEET/YEAR)** | | | | | |
| PRODUCTION | 20,025 | 18,850 | 18,135 | 17,600 | 17,079 |
| EXTRACTION LOSS, TRANSFERS OUT | -862 | -800 | -750 | -760 | -738 |
| IMPORTS - TOTAL | 1,001 | 1,474 | 1,985 | 2,565 | 2,975 |
| EXPORTS | -56 | -50 | -50 | -25 | -19 |
| FROM INV., TRANSMILLION LOSS & UNACCOUNTED | -597 | -250 | -200 | -193 | -197 |
| TOTAL DRY NATURAL GAS | 19,511 | 19,085 | 19,148 | 19,381 | 19,288 |
| SYNGAS | 0 | 215 | 300 | 331 | 553 |
| FROM COAL | 0 | 0 | 0 | 90 | 309 |
| FROM LIQUIDS | 0 | 230 | 300 | 240 | 230 |
| TOTAL GAS SUPPLY | 19,511 | 19,400 | 19,700 | 19,670 | 19,700 |
| MEMO: TRILLION BTU'S/YR. | 19,931 | 19,650 | 19,760 | 20,080 | 19,920 |
| **COAL (ANTHRACITE, BITUMINOUS, & LIGNITE): THOUSAND SHORT TONS PER YEAR** | | | | | |
| PRODUCTION - TOTAL | 694,755 | 775,150 | 850,457 | 998,629 | 1273,350 |
| FOR CONVENTIONAL DOMESTIC MARKETS | 694,755 | 775,300 | 859,850 | 983,700 | 1240,000 |
| FOR SYNTHETIC OIL &/OR GAS PLANTS | 0 | 0 | 0 | 10,000 | 25,000 |
| NET EXPORTS | -52,509 | -52,350 | -56,500 | -62,500 | -70,000 |
| FROM INV., LOSSES, GAINS, & UNACCOUNTED FOR | -16,575 | 0 | 0 | 0 | 0 |
| TOTAL COAL SUPPLY | 625,671 | 713,500 | 794,520 | 902,650 | 1177,000 |
| MEMO: TRILLION BTU'S/YR. | 14,133 | 16,184 | 17,490 | 19,888 | 24,940 |
| NUCLEAR: TRILLION BTU'S/YR. | 2,674 | 3,500 | 4,397 | 6,200 | 9,100 |

Date: 09/28/79

TABLE III-INPUT -- DOMESTIC DEMAND FOR PRODUCTS-U.S. TOTAL
MILLION BARRELS/DAY

All Respondents
High

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 1,061 | 608 | 303 | 50 | 0 |
| - NON-PREMIUM | 4,207 | 3,774 | 3,156 | 2,230 | 1,555 |
| S.TOTAL | 5,268 | 4,306 | 3,897 | 2,972 | 2,243 |
| UNLEADED - PREMIUM | 0 | 1,305 | 2,128 | 2,786 | 3,367 |
| - NON-PREMIUM | 1,908 | 3,914 | 4,260 | 4,051 | 4,402 |
| S.TOTAL | 1,908 | 4,233 | 5,054 | 5,767 | 6,219 |
| TOTAL MOTOR GASOLINE | 7,176 | 7,765 | 7,890 | 7,710 | 7,240 |
| AVIATION GASOLINE | 38 | 50 | 50 | 59 | 67 |
| JET FUEL: NAPTHA TYPE | 208 | 212 | 211 | 211 | 210 |
| KEROSINE TYPE | 831 | 943 | 1,128 | 1,210 | 1,535 |
| TOTAL JET FUEL | 1,039 | 1,190 | 1,270 | 1,390 | 1,585 |
| SPECIAL NAPTHA | 86 | 110 | 121 | 131 | 152 |
| KEROSINE | 175 | 422 | 436 | 457 | 498 |
| DISTILLATE FUEL OIL: NO.2 OIL | 1,292 | 1,360 | 1,377 | 1,404 | 1,365 |
| NO.4 OIL | 62 | 69 | 71 | 76 | 83 |
| DIESEL - ON HIGHWAY | 724 | 1,296 | 1,463 | 1,829 | 2,547 |
| - OFF HIGHWAY | 172 | 237 | 252 | 275 | 317 |
| OTHER DISTILLATE | 1,102 | 1,266 | 1,443 | 1,408 | 1,547 |
| TOTAL DISTILLATE FUEL OIL | 3,352 | 3,718 | 4,006 | 4,560 | 5,510 |
| RESIDUAL FUEL OIL: 0 - .5%S | 959 | 1,162 | 1,364 | 1,801 | 1,552 |
| .51 - 1.0%S | 693 | 1,185 | 1,233 | 1,319 | 1,311 |
| 1.1 - 2.0%S | 612 | 933 | 956 | 984 | 940 |
| 2.0%S + | 807 | 801 | 826 | 835 | 782 |
| TOTAL RESIDUAL FUEL OIL | 3,071 | 3,551 | 3,820 | 4,365 | 4,094 |
| LIQUEFIED GASES: ETHANE | 412 | 470 | 440 | 524 | 608 |
| PROPANE | 866 | 1,036 | 1,080 | 1,172 | 1,392 |
| BUTANE | 115 | 206 | 218 | 297 | 334 |
| PROPANE/BUTANE MIX | 29 | 35 | 39 | 43 | 53 |
| TOTAL LIQUEFIED GASES | 1,422 | 1,593 | 1,685 | 2,440 | 2,870 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 48 | 70 | 85 | 110 | 120 |
| 400 EP NAPTHA | 204 | 275 | 336 | 420 | 665 |
| OTHER | 269 | 430 | 579 | 804 | 1,237 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 521 | 745 | 897 | 1,165 | 1,684 |
| LUBRICANTS | 160 | 185 | 202 | 221 | 266 |
| WAXES | 16 | 21 | 23 | 25 | 31 |
| COKE | 267 | 301 | 326 | 354 | 415 |
| ASPHALT & ROAD OIL | 437 | 510 | 518 | 620 | 700 |
| STILL GAS FOR FUEL | 524 | 650 | 665 | 675 | 700 |
| MISCELLANEOUS PRODUCTS | 147 | 244 | 230 | 570 | 640 |
| TOTAL DEMAND | 18,431 | 20,036 | 20,859 | 21,660 | 22,960 |
| ETHANE | 412 | 425 | 436 | 436 | 411 |
| PROPANE | 123 | 199 | 226 | 283 | 376 |
| BUTANE | 93 | 150 | 160 | 165 | 165 |
| PROPANE/BUTANE MIX | 5 | 9 | 10 | 12 | 16 |
| TOTAL | 633 | 726 | 743 | 801 | 885 |
| | 0 | 0 | 0 | 0 | 0 |

Date: 09/28/79

TABLE III-INPUT -- DOMESTIC DEMAND FOR PRODUCTS-U.S. TOTAL
MILLION BARRELS/DAY

All Respondents
Low

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 1,061 | 85 | 0 | 0 | 0 |
| - NON-PREMIUM | 4,207 | 3,192 | 2,446 | 1,680 | 680 |
| S.TOTAL | 5,268 | 3,367 | 2,446 | 1,705 | 680 |
| UNLEADED - PREMIUM | 0 | 319 | 794 | 1,594 | 1,600 |
| - NON-PREMIUM | 1,908 | 2,353 | 2,508 | 2,469 | 2,539 |
| S.TOTAL | 1,908 | 3,166 | 3,515 | 3,896 | 4,045 |
| TOTAL MOTOR GASOLINE | 7,176 | 7,363 | 7,185 | 6,634 | 6,024 |
| AVIATION GASOLINE | 38 | 35 | 38 | 35 | 35 |
| JET FUEL: NAPTHA TYPE | 208 | 170 | 137 | 100 | 0 |
| KEROSINE TYPE | 831 | 892 | 957 | 1,046 | 1,203 |
| TOTAL JET FUEL | 1,039 | 1,075 | 1,106 | 1,125 | 1,150 |
| SPECIAL NAPTHA | 86 | 85 | 85 | 85 | 85 |
| KEROSINE | 175 | 149 | 142 | 130 | 100 |
| DISTILLATE FUEL OIL: NO.2 OIL | 1,292 | 1,223 | 1,209 | 1,130 | 936 |
| NO.4 OIL | 62 | 60 | 60 | 60 | 60 |
| DIESEL - ON HIGHWAY | 724 | 781 | 930 | 1,075 | 1,261 |
| - OFF HIGHWAY | 172 | 154 | 160 | 170 | 175 |
| OTHER DISTILLATE | 1,102 | 264 | 307 | 284 | 312 |
| TOTAL DISTILLATE FUEL OIL | 3,352 | 3,206 | 3,428 | 3,782 | 4,080 |
| RESIDUAL FUEL OIL: 0 - .5%S | 959 | 895 | 937 | 929 | 729 |
| .51 - 1.0%S | 693 | 685 | 696 | 680 | 710 |
| 1.1 - 2.0%S | 612 | 552 | 556 | 531 | 495 |
| 2.0%S + | 807 | 345 | 342 | 338 | 380 |
| TOTAL RESIDUAL FUEL OIL | 3,071 | 2,892 | 2,926 | 2,826 | 2,450 |
| LIQUEFIED GASES: ETHANE | 412 | 365 | 354 | 322 | 271 |
| PROPANE | 866 | 838 | 860 | 859 | 850 |
| BUTANE | 115 | 115 | 113 | 113 | 111 |
| PROPANE/BUTANE MIX | 29 | 0 | 0 | 0 | 0 |
| TOTAL LIQUEFIED GASES | 1,422 | 1,407 | 1,414 | 1,408 | 1,393 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 48 | 15 | 15 | -30 | -60 |
| 400 EP NAPTHA | 204 | 179 | 227 | 240 | 250 |
| OTHER | 269 | 200 | 241 | 241 | 241 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 521 | 480 | 626 | 767 | 928 |
| LUBRICANTS | 160 | 164 | 168 | 175 | 180 |
| WAXES | 16 | 17 | 14 | 18 | 18 |
| COKE | 267 | 188 | 184 | 180 | 175 |
| ASPHALT & ROAD OIL | 437 | 454 | 461 | 460 | 425 |
| STILL GAS FOR FUEL | 524 | 466 | 465 | 465 | 469 |
| MISCELLANEOUS PRODUCTS | 147 | 95 | 82 | 46 | 38 |
| TOTAL DEMAND | 18,431 | 19,070 | 19,725 | 19,130 | 19,610 |
| ETHANE | 412 | 353 | 342 | 320 | 271 |
| PROPANE | 123 | 110 | 120 | 164 | 170 |
| BUTANE | 93 | 56 | 60 | 65 | 66 |
| PROPANE/BUTANE MIX | 5 | 0 | 0 | 0 | 0 |
| TOTAL | 633 | 591 | 616 | 611 | 612 |
| | 0 | 0 | 0 | 0 | 0 |

Date: 09/28/79

TABLE III-INPUT -- DOMESTIC DEMAND FOR PRODUCTS-U.S. TOTAL
MILLION BARRELS/DAY

All Respondents
AVERAGE AND STANDARD DEVIATION

| | AVERAGE | | | | | STANDARD DEVIATION AS A % OF THE MEAN | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1977 | 1980 | 1982 | 1985 | 1990 | 1980 | 1982 | 1985 | 1990 |
| MOTOR GASOLINE: LEADED - PREMIUM | 1,061 | 401 | 128 | 14 | 0 | 46.56% | 84.75% | 140.51% | 0% |
| LEADED - NON-PREMIUM | 4,207 | 3,490 | 2,810 | 1,879 | 954 | 5.80% | 8.50% | 9.74% | 30.61% |
| LEADED S.TOTAL | 5,268 | 3,937 | 3,039 | 2,013 | 1,097 | 6.70% | 12.25% | 18.78% | 44.64% |
| UNLEADED - PREMIUM | 0 | 950 | 1,434 | 2,010 | 2,367 | 33.79% | 27.13% | 20.62% | 24.48% |
| UNLEADED - NON-PREMIUM | 1,908 | 2,827 | 3,304 | 3,474 | 3,573 | 16.37% | 14.65% | 16.06% | 17.78% |
| UNLEADED S.TOTAL | 1,908 | 3,667 | 4,550 | 5,244 | 5,675 | 8.04% | 9.10% | 10.14% | 11.29% |
| TOTAL MOTOR GASOLINE | 7,176 | 7,574 | 7,545 | 7,187 | 6,780 | 1.50% | 2.39% | 4.04% | 4.96% |
| AVIATION GASOLINE | 38 | 41 | 43 | 46 | 50 | 8.21% | 8.02% | 13.85% | 20.56% |
| JET FUEL: NAPTHA TYPE | 208 | 195 | 188 | 181 | 155 | 5.99% | 11.30% | 17.61% | 43.71% |
| KEROSINE TYPE | 831 | 919 | 1,011 | 1,116 | 1,319 | 1.94% | 4.97% | 3.95% | 7.60% |
| TOTAL JET FUEL | 1,039 | 1,116 | 1,183 | 1,278 | 1,447 | 2.63% | 3.55% | 4.61% | 7.41% |
| SPECIAL NAPTHA | 86 | 97 | 103 | 106 | 114 | 8.90% | 11.26% | 14.33% | 19.59% |
| KEROSINE | 175 | 186 | 186 | 177 | 171 | 35.82% | 41.39% | 44.99% | 55.33% |
| DISTILLATE FUEL OIL: NO.2 OIL | 1,292 | 1,290 | 1,278 | 1,261 | 1,192 | 3.82% | 5.45% | 8.77% | 14.89% |
| NO.4 OIL | 62 | 63 | 66 | 69 | 73 | 5.14% | 6.03% | 8.13% | 12.22% |
| DIESEL - ON HIGHWAY | 724 | 904 | 1,055 | 1,313 | 1,760 | 15.47% | 15.38% | 17.94% | 23.95% |
| DIESEL - OFF HIGHWAY | 172 | 188 | 199 | 215 | 243 | 15.49% | 16.22% | 16.98% | 22.76% |
| OTHER DISTILLATE | 1,102 | 987 | 1,072 | 1,103 | 1,160 | 37.08% | 36.97% | 38.00% | 38.86% |
| TOTAL DISTILLATE FUEL OIL | 3,352 | 3,570 | 3,800 | 4,117 | 4,625 | 3.50% | 3.94% | 5.11% | 8.35% |
| RESIDUAL FUEL OIL: 0 - .5%S | 959 | 1,000 | 1,076 | 1,149 | 1,042 | 9.28% | 14.27% | 28.93% | 26.60% |
| .51 - 1.0%S | 693 | 822 | 847 | 884 | 893 | 22.41% | 23.16% | 25.33% | 24.38% |
| 1.1 - 2.0%S | 612 | 647 | 657 | 660 | 640 | 22.22% | 22.91% | 25.02% | 24.47% |
| 2.0%S + | 807 | 694 | 685 | 666 | 631 | 25.19% | 25.58% | 26.37% | 22.00% |
| TOTAL RESIDUAL FUEL OIL | 3,071 | 3,125 | 3,230 | 3,365 | 3,270 | 5.78% | 7.30% | 10.82% | 17.23% |
| LIQUEFIED GASES: ETHANE | 412 | 420 | 402 | 398 | 378 | 8.36% | 7.49% | 13.80% | 25.14% |
| PROPANE | 866 | 905 | 939 | 1,010 | 1,099 | 8.52% | 9.45% | 10.98% | 18.31% |
| BUTANE | 115 | 150 | 169 | 190 | 202 | 20.47% | 24.10% | 31.65% | 34.45% |
| PROPANE/BUTANE MIX | 29 | 22 | 22 | 23 | 24 | 71.49% | 72.49% | 73.72% | 78.07% |
| TOTAL LIQUEFIED GASES | 1,422 | 1,483 | 1,534 | 1,661 | 1,778 | 3.25% | 4.60% | 14.12% | 19.43% |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 48 | 48 | 52 | 46 | 45 | 29.81% | 39.25% | 82.11% | 106.21% |
| 400 EP NAPTHA | 204 | 231 | 261 | 311 | 431 | 11.66% | 13.46% | 17.82% | 32.97% |
| OTHER | 269 | 330 | 409 | 535 | 761 | 22.65% | 23.12% | 28.26% | 39.68% |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 521 | 640 | 764 | 940 | 1,275 | 12.23% | 12.91% | 16.01% | 20.81% |
| LUBRICANTS | 160 | 172 | 180 | 191 | 212 | 3.06% | 4.93% | 6.22% | 10.04% |
| WAXES | 16 | 19 | 20 | 21 | 25 | 5.84% | 11.86% | 9.63% | 15.38% |
| COKE | 267 | 267 | 275 | 288 | 309 | 9.51% | 12.14% | 12.87% | 15.95% |
| ASPHALT & ROAD OIL | 437 | 473 | 487 | 512 | 548 | 3.79% | 3.86% | 8.16% | 11.29% |
| STILL GAS FOR FUEL | 524 | 557 | 579 | 587 | 604 | 7.21% | 8.09% | 8.22% | 9.13% |
| MISCELLANEOUS PRODUCTS | 147 | 168 | 174 | 217 | 219 | 25.90% | 27.44% | 53.00% | 59.88% |
| TOTAL DEMAND | 18,431 | 19,498 | 20,111 | 20,552 | 21,333 | 1.35% | 1.49% | 3.05% | 4.53% |
| ETHANE | 412 | 391 | 387 | 369 | 335 | 6.81% | 8.32% | 11.41% | 15.41% |
| PROPANE | 123 | 158 | 173 | 214 | 256 | 20.10% | 19.12% | 17.23% | 28.89% |
| BUTANE | 93 | 94 | 100 | 103 | 108 | 33.30% | 34.96% | 31.22% | 29.58% |
| PROPANE/BUTANE MIX | 5 | 3 | 3 | 3 | 4 | 121.86% | 124.72% | 128.43% | 134.74% |
| TOTAL | 633 | 652 | 672 | 695 | 710 | 6.15% | 6.01% | 7.22% | 12.34% |
| | 0 | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |

Date: 09/28/79

TABLE III-INPUT -- DOMESTIC DEMAND FOR PRODUCTS-U.S. TOTAL
MILLION BARRELS/DAY

All Respondents
Median

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 1,061 | 473 | 160 | 0 | 0 |
| - NON-PREMIUM | 4,207 | 3,470 | 2,784 | 1,847 | 861 |
| S.TOTAL | 5,268 | 3,915 | 3,046 | 1,886 | 894 |
| UNLEADED - PREMIUM | 0 | 1,000 | 1,460 | 1,814 | 2,302 |
| - NON-PREMIUM | 1,908 | 2,709 | 3,274 | 3,555 | 3,449 |
| S.TOTAL | 1,908 | 3,658 | 4,700 | 5,369 | 5,980 |
| TOTAL MOTOR GASOLINE | 7,176 | 7,573 | 7,524 | 7,255 | 6,898 |
| AVIATION GASOLINE | 38 | 41 | 43 | 47 | 50 |
| JET FUEL: NAPTHA TYPE | 208 | 200 | 198 | 198 | 175 |
| KEROSINE TYPE | 831 | 920 | 997 | 1,104 | 1,289 |
| TOTAL JET FUEL | 1,039 | 1,114 | 1,185 | 1,283 | 1,461 |
| SPECIAL NAPTHA | 86 | 100 | 105 | 101 | 106 |
| KEROSINE | 175 | 170 | 164 | 157 | 150 |
| DISTILLATE FUEL OIL: NO.2 OIL | 1,292 | 1,288 | 1,263 | 1,255 | 1,234 |
| NO.4 OIL | 62 | 62 | 66 | 70 | 77 |
| DIESEL - ON HIGHWAY | 724 | 873 | 1,003 | 1,191 | 1,538 |
| - OFF HIGHWAY | 172 | 190 | 201 | 216 | 235 |
| OTHER DISTILLATE | 1,102 | 1,126 | 1,187 | 1,292 | 1,230 |
| TOTAL DISTILLATE FUEL OIL | 3,352 | 3,600 | 3,807 | 4,100 | 4,538 |
| RESIDUAL FUEL OIL: 0 - .5%S | 959 | 1,008 | 1,060 | 965 | 950 |
| .51 - 1.0%S | 693 | 750 | 766 | 797 | 780 |
| 1.1 - 2.0%S | 612 | 583 | 593 | 600 | 595 |
| 2.0%S + | 807 | 770 | 764 | 732 | 698 |
| TOTAL RESIDUAL FUEL OIL | 3,071 | 3,092 | 3,151 | 3,310 | 3,300 |
| LIQUEFIED GASES: ETHANE | 412 | 422 | 412 | 397 | 365 |
| PROPANE | 866 | 865 | 894 | 990 | 1,073 |
| BUTANE | 115 | 145 | 170 | 180 | 190 |
| PROPANE/BUTANE MIX | 29 | 30 | 29 | 29 | 29 |
| TOTAL LIQUEFIED GASES | 1,422 | 1,484 | 1,519 | 1,590 | 1,700 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 48 | 50 | 52 | 53 | 56 |
| 400 EP NAPTHA | 204 | 233 | 248 | 302 | 411 |
| OTHER | 269 | 350 | 419 | 541 | 707 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 521 | 650 | 746 | 880 | 1,180 |
| LUBRICANTS | 160 | 170 | 180 | 190 | 210 |
| WAXES | 16 | 19 | 20 | 21 | 24 |
| COKE | 267 | 272 | 281 | 298 | 310 |
| ASPHALT & ROAD OIL | 437 | 470 | 493 | 512 | 544 |
| STILL GAS FOR FUEL | 524 | 564 | 583 | 596 | 605 |
| MISCELLANEOUS PRODUCTS | 147 | 164 | 181 | 205 | 188 |
| TOTAL DEMAND | 18,431 | 19,440 | 20,036 | 20,531 | 21,430 |
| ETHANE | 412 | 399 | 387 | 369 | 321 |
| PROPANE | 123 | 170 | 180 | 205 | 239 |
| BUTANE | 93 | 93 | 90 | 93 | 104 |
| PROPANE/BUTANE MIX | 5 | 0 | 0 | 0 | 0 |
| TOTAL | 633 | 644 | 659 | 692 | 691 |
| | 0 | 0 | 0 | 0 | 0 |

Date: 10/23/79

TABLE III-INPUT -- DOMESTIC DEMAND FOR PRODUCTS-PAD V
MILLION BARRELS/DAY

All Respondents
High

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 307 | 136 | 49 | 14 | 0 |
| - NON-PREMIUM | 508 | 514 | 430 | 285 | 191 |
| S.TOTAL | 815 | 655 | 493 | 306 | 191 |
| UNLEADED - PREMIUM | 0 | 205 | 334 | 438 | 519 |
| - NON-PREMIUM | 268 | 598 | 651 | 616 | 600 |
| S.TOTAL | 268 | 647 | 772 | 866 | 964 |
| TOTAL MOTOR GASOLINE | 1,083 | 1,178 | 1,194 | 1,224 | 1,166 |
| AVIATION GASOLINE | 9 | 12 | 12 | 12 | 15 |
| JET FUEL: NAPTHA TYPE | 59 | 60 | 59 | 59 | 59 |
| KEROSINE TYPE | 240 | 280 | 323 | 364 | 485 |
| TOTAL JET FUEL | 299 | 345 | 365 | 396 | 501 |
| SPECIAL NAPTHA | 8 | 16 | 18 | 21 | 26 |
| KEROSINE | 13 | 33 | 34 | 43 | 55 |
| DISTILLATE FUEL OIL: NO.2 OIL | 39 | 56 | 56 | 51 | 46 |
| NO.4 OIL | 2 | 5 | 5 | 5 | 5 |
| DIESEL - ON HIGHWAY | 102 | 200 | 225 | 280 | 389 |
| - OFF HIGHWAY | 22 | 30 | 30 | 30 | 39 |
| OTHER DISTILLATE | 160 | 167 | 176 | 191 | 185 |
| TOTAL DISTILLATE FUEL OIL | 325 | 399 | 442 | 501 | 582 |
| RESIDUAL FUEL OIL: 0 - .5%S | 326 | 509 | 526 | 589 | 410 |
| .51 - 1.0%S | 39 | 40 | 50 | 60 | 70 |
| 1.1 - 2.0%S | 184 | 154 | 163 | 165 | 160 |
| 2.0%S + | 21 | 40 | 40 | 40 | 30 |
| TOTAL RESIDUAL FUEL OIL | 570 | 637 | 710 | 724 | 705 |
| LIQUEFIED GASES: ETHANE | 2 | 5 | 5 | 5 | 5 |
| PROPANE | 46 | 70 | 69 | 68 | 73 |
| BUTANE | 4 | 7 | 7 | 8 | 13 |
| PROPANE/BUTANE MIX | 3 | 5 | 5 | 5 | 5 |
| TOTAL LIQUEFIED GASES | 55 | 74 | 75 | 78 | 90 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 2 | 3 | 3 | 7 | 8 |
| 400 EP NAPTHA | 3 | 4 | 5 | 34 | 79 |
| OTHER | 8 | 23 | 19 | 59 | 83 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 13 | 25 | 26 | 70 | 115 |
| LUBRICANTS | 15 | 19 | 19 | 21 | 25 |
| WAXES | 3 | 4 | 5 | 5 | 5 |
| COKE | 49 | 55 | 57 | 61 | 68 |
| ASPHALT & ROAD OIL | 63 | 72 | 74 | 77 | 82 |
| STILL GAS FOR FUEL | 101 | 131 | 132 | 120 | 123 |
| MISCELLANEOUS PRODUCTS | 8 | 26 | 22 | 28 | 28 |
| TOTAL DEMAND | 2,614 | 2,804 | 2,932 | 3,017 | 3,339 |
| ETHANE | 2 | 5 | 5 | 5 | 5 |
| PROPANE | 5 | 15 | 16 | 16 | 16 |
| BUTANE | 2 | 3 | 4 | 4 | 5 |
| PROPANE/BUTANE MIX | 1 | 2 | 2 | 2 | 2 |
| TOTAL | 10 | 15 | 16 | 19 | 25 |
| | 0 | 0 | 0 | 0 | 0 |

Date: 10/23/79

TABLE III-INPUT -- DOMESTIC DEMAND FOR PRODUCTS-PAD V
MILLION BARRELS/DAY

All Respondents
Low

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 307 | 23 | 0 | 0 | 0 |
| - NON-PREMIUM | 508 | 401 | 308 | 202 | 85 |
| S.TOTAL | 815 | 515 | 357 | 216 | 85 |
| UNLEADED - PREMIUM | 0 | 49 | 121 | 242 | 350 |
| - NON-PREMIUM | 268 | 370 | 394 | 388 | 391 |
| S.TOTAL | 268 | 498 | 679 | 783 | 810 |
| TOTAL MOTOR GASOLINE | 1,083 | 1,095 | 1,085 | 1,017 | 994 |
| AVIATION GASOLINE | 9 | 9 | 9 | 9 | 9 |
| JET FUEL: NAPTHA TYPE | 59 | 51 | 42 | 32 | 0 |
| KEROSINE TYPE | 240 | 259 | 280 | 311 | 350 |
| TOTAL JET FUEL | 299 | 310 | 330 | 359 | 388 |
| SPECIAL NAPTHA | 8 | 8 | 8 | 8 | 7 |
| KEROSINE | 13 | 7 | 6 | 4 | 4 |
| DISTILLATE FUEL OIL: NO.2 OIL | 39 | 40 | 40 | 40 | 36 |
| NO.4 OIL | 2 | 2 | 2 | 2 | 2 |
| DIESEL - ON HIGHWAY | 102 | 109 | 127 | 159 | 205 |
| - OFF HIGHWAY | 22 | 18 | 18 | 19 | 21 |
| OTHER DISTILLATE | 160 | 69 | 77 | 45 | 65 |
| TOTAL DISTILLATE FUEL OIL | 325 | 322 | 329 | 339 | 360 |
| RESIDUAL FUEL OIL: 0 - .5%S | 326 | 270 | 293 | 301 | 285 |
| .51 - 1.0%S | 39 | 20 | 22 | 25 | 30 |
| 1.1 - 2.0%S | 184 | 81 | 81 | 81 | 89 |
| 2.0%S + | 21 | 17 | 18 | 17 | 16 |
| TOTAL RESIDUAL FUEL OIL | 570 | 480 | 505 | 520 | 400 |
| LIQUEFIED GASES: ETHANE | 2 | 0 | 0 | 0 | 0 |
| PROPANE | 46 | 43 | 45 | 45 | 48 |
| BUTANE | 4 | 2 | 4 | 6 | 5 |
| PROPANE/BUTANE MIX | 3 | 2 | 2 | 2 | 2 |
| TOTAL LIQUEFIED GASES | 55 | 50 | 55 | 59 | 60 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 2 | 2 | 2 | 2 | 2 |
| 400 EP NAPTHA | 3 | 0 | 4 | 8 | 14 |
| OTHER | 8 | 7 | 8 | 18 | 34 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 13 | 12 | 13 | 13 | 13 |
| LUBRICANTS | 15 | 15 | 15 | 15 | 16 |
| WAXES | 3 | 3 | 3 | 3 | 3 |
| COKE | 49 | 30 | 30 | 28 | 26 |
| ASPHALT & ROAD OIL | 63 | 62 | 66 | 64 | 64 |
| STILL GAS FOR FUEL | 101 | 46 | 58 | 80 | 74 |
| MISCELLANEOUS PRODUCTS | 8 | 8 | 7 | 4 | 3 |
| TOTAL DEMAND | 2,614 | 2,668 | 2,765 | 2,815 | 2,677 |
| ETHANE | 2 | 0 | 0 | 0 | 0 |
| PROPANE | 5 | 2 | 2 | 2 | 2 |
| BUTANE | 2 | 0 | 0 | 0 | 0 |
| PROPANE/BUTANE MIX | 1 | 0 | 0 | 0 | 0 |
| TOTAL | 10 | 4 | 4 | 4 | 4 |
| | 0 | 0 | 0 | 0 | 0 |

Date: 10/23/79

TABLE III-INPUT -- DOMESTIC DEMAND FOR PRODUCTS-PAD V
MILLION BARRELS/DAY

All Respondents
AVERAGE AND STANDARD DEVIATION

| | AVERAGE | | | | | STANDARD DEVIATION AS A % OF THE MEAN | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1977 | 1980 | 1982 | 1985 | 1990 | 1980 | 1982 | 1985 | 1990 |
| MOTOR GASOLINE: LEADED - PREMIUM | 307 | 92 | 30 | 5 | 0 | 53.71% | 71.34% | 141.42% | 0% |
| - NON-PREMIUM | 508 | 469 | 371 | 249 | 135 | 10.43% | 13.45% | 13.94% | 32.32% |
| S.TOTAL | 815 | 584 | 424 | 267 | 135 | 10.17% | 13.98% | 12.60% | 27.98% |
| UNLEADED - PREMIUM | 0 | 124 | 213 | 328 | 411 | 51.47% | 42.06% | 24.99% | 18.63% |
| - NON-PREMIUM | 268 | 462 | 525 | 522 | 484 | 21.24% | 20.00% | 18.65% | 17.98% |
| S.TOTAL | 268 | 564 | 723 | 833 | 897 | 9.77% | 4.62% | 3.92% | 6.17% |
| TOTAL MOTOR GASOLINE | 1,083 | 1,143 | 1,149 | 1,111 | 1,064 | 2.17% | 3.11% | 5.63% | 5.98% |
| AVIATION GASOLINE | 9 | 10 | 10 | 11 | 11 | 9.37% | 9.43% | 11.04% | 17.15% |
| JET FUEL: NAPTHA TYPE | 59 | 55 | 52 | 49 | 37 | 5.17% | 10.23% | 17.96% | 55.11% |
| KEROSINE TYPE | 240 | 270 | 295 | 328 | 404 | 2.61% | 4.54% | 5.16% | 12.05% |
| TOTAL JET FUEL | 299 | 324 | 346 | 374 | 433 | 3.16% | 3.68% | 3.98% | 7.82% |
| SPECIAL NAPTHA | 8 | 11 | 11 | 11 | 13 | 26.08% | 31.33% | 37.65% | 49.15% |
| KEROSINE | 13 | 14 | 13 | 14 | 14 | 52.31% | 57.68% | 78.05% | 101.74% |
| DISTILLATE FUEL OIL: NO.2 OIL | 39 | 44 | 45 | 44 | 41 | 15.36% | 14.95% | 9.75% | 8.82% |
| NO.4 OIL | 2 | 3 | 3 | 3 | 3 | 47.14% | 47.14% | 37.42% | 37.42% |
| DIESEL - ON HIGHWAY | 102 | 137 | 157 | 193 | 254 | 23.48% | 22.34% | 22.91% | 27.12% |
| - OFF HIGHWAY | 22 | 24 | 25 | 27 | 31 | 17.59% | 17.44% | 16.56% | 21.06% |
| OTHER DISTILLATE | 160 | 136 | 143 | 142 | 151 | 28.95% | 27.15% | 40.09% | 32.96% |
| TOTAL DISTILLATE FUEL OIL | 325 | 352 | 382 | 416 | 489 | 5.50% | 7.81% | 9.90% | 12.79% |
| RESIDUAL FUEL OIL: 0 - .5%S | 326 | 352 | 376 | 417 | 350 | 31.64% | 28.18% | 29.81% | 14.62% |
| .51 - 1.0%S | 39 | 31 | 36 | 41 | 45 | 26.73% | 31.75% | 35.71% | 38.85% |
| 1.1 - 2.0%S | 184 | 128 | 131 | 132 | 134 | 26.11% | 27.40% | 27.71% | 23.84% |
| 2.0%S + | 21 | 28 | 29 | 29 | 25 | 33.63% | 31.37% | 32.77% | 26.05% |
| TOTAL RESIDUAL FUEL OIL | 570 | 549 | 581 | 606 | 538 | 9.63% | 11.13% | 9.08% | 17.86% |
| LIQUEFIED GASES: ETHANE | 2 | 2 | 3 | 3 | 2 | 79.35% | 72.11% | 72.11% | 79.35% |
| PROPANE | 46 | 53 | 55 | 58 | 63 | 23.32% | 18.91% | 16.70% | 17.31% |
| BUTANE | 4 | 4 | 5 | 7 | 9 | 47.42% | 23.39% | 11.66% | 36.29% |
| PROPANE/BUTANE MIX | 3 | 3 | 3 | 3 | 3 | 37.42% | 37.42% | 37.42% | 37.42% |
| TOTAL LIQUEFIED GASES | 55 | 62 | 64 | 68 | 74 | 12.18% | 10.09% | 11.47% | 13.97% |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 2 | 2 | 2 | 4 | 4 | 20.20% | 20.20% | 54.01% | 60.57% |
| 400 EP NAPTHA | 3 | 2 | 5 | 17 | 39 | 72.84% | 10.10% | 68.15% | 72.22% |
| OTHER | 8 | 13 | 15 | 33 | 51 | 57.77% | 33.11% | 55.93% | 45.13% |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 13 | 15 | 18 | 32 | 50 | 25.39% | 28.78% | 61.35% | 75.01% |
| LUBRICANTS | 15 | 16 | 17 | 18 | 20 | 8.46% | 9.95% | 10.76% | 14.11% |
| WAXES | 3 | 3 | 4 | 4 | 4 | 10.58% | 19.20% | 15.47% | 19.51% |
| COKE | 49 | 47 | 49 | 50 | 54 | 15.49% | 16.56% | 18.33% | 21.42% |
| ASPHALT & ROAD OIL | 63 | 67 | 69 | 72 | 76 | 4.75% | 4.32% | 6.05% | 7.20% |
| STILL GAS FOR FUEL | 101 | 100 | 104 | 107 | 109 | 22.50% | 18.83% | 10.67% | 13.55% |
| MISCELLANEOUS PRODUCTS | 8 | 12 | 12 | 13 | 13 | 46.76% | 35.36% | 48.70% | 51.02% |
| TOTAL DEMAND | 2,614 | 2,730 | 2,829 | 2,925 | 2,991 | 1.53% | 1.72% | 2.36% | 6.49% |
| ETHANE | 2 | 2 | 2 | 2 | 2 | 72.73% | 67.70% | 94.87% | 101.84% |
| PROPANE | 5 | 7 | 8 | 9 | 12 | 72.86% | 66.03% | 57.92% | 48.28% |
| BUTANE | 2 | 1 | 2 | 2 | 2 | 103.92% | 110.55% | 102.02% | 101.23% |
| PROPANE/BUTANE MIX | 1 | 1 | 1 | 1 | 1 | 110.55% | 110.55% | 110.55% | 110.55% |
| TOTAL | 10 | 11 | 12 | 13 | 15 | 28.58% | 30.90% | 33.68% | 44.56% |
| | 0 | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |

Date: 10/23/79

TABLE III-INPUT -- DOMESTIC DEMAND FOR PRODUCTS-PAD V
MILLION BARRELS/DAY

All Respondents
Median

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 307 | 116 | 42 | 0 | 0 |
| - NON-PREMIUM | 508 | 492 | 374 | 259 | 128 |
| S.TOTAL | 815 | 584 | 423 | 272 | 132 |
| UNLEADED - PREMIUM | 0 | 118 | 183 | 303 | 364 |
| - NON-PREMIUM | 268 | 418 | 530 | 563 | 460 |
| S.TOTAL | 268 | 556 | 721 | 842 | 907 |
| TOTAL MOTOR GASOLINE | 1,083 | 1,148 | 1,160 | 1,116 | 1,065 |
| AVIATION GASOLINE | 9 | 10 | 10 | 10 | 11 |
| JET FUEL: NAPTHA TYPE | 59 | 55 | 54 | 50 | 49 |
| KEROSINE TYPE | 240 | 271 | 295 | 320 | 385 |
| TOTAL JET FUEL | 299 | 320 | 341 | 370 | 420 |
| SPECIAL NAPTHA | 8 | 10 | 10 | 10 | 10 |
| KEROSINE | 13 | 12 | 11 | 10 | 10 |
| DISTILLATE FUEL OIL: NO.2 OIL | 39 | 41 | 41 | 42 | 40 |
| NO.4 OIL | 2 | 2 | 2 | 3 | 3 |
| DIESEL - ON HIGHWAY | 102 | 127 | 146 | 176 | 224 |
| - OFF HIGHWAY | 22 | 25 | 26 | 29 | 31 |
| OTHER DISTILLATE | 160 | 153 | 160 | 166 | 177 |
| TOTAL DISTILLATE FUEL OIL | 325 | 349 | 380 | 410 | 482 |
| RESIDUAL FUEL OIL: 0 - .5%S | 326 | 276 | 310 | 360 | 354 |
| .51 - 1.0%S | 39 | 33 | 36 | 37 | 36 |
| 1.1 - 2.0%S | 184 | 150 | 150 | 150 | 153 |
| 2.0%S + | 21 | 27 | 28 | 29 | 30 |
| TOTAL RESIDUAL FUEL OIL | 570 | 543 | 565 | 614 | 524 |
| LIQUEFIED GASES: ETHANE | 2 | 2 | 3 | 3 | 2 |
| PROPANE | 46 | 45 | 50 | 62 | 69 |
| BUTANE | 4 | 4 | 5 | 7 | 9 |
| PROPANE/BUTANE MIX | 3 | 3 | 3 | 3 | 3 |
| TOTAL LIQUEFIED GASES | 55 | 60 | 63 | 67 | 70 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 2 | 2 | 2 | 3 | 3 |
| 400 EP NAPTHA | 3 | 3 | 5 | 10 | 25 |
| OTHER | 8 | 8 | 18 | 22 | 35 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 13 | 15 | 16 | 21 | 29 |
| LUBRICANTS | 15 | 16 | 16 | 18 | 20 |
| WAXES | 3 | 3 | 4 | 4 | 5 |
| COKE | 49 | 50 | 50 | 52 | 55 |
| ASPHALT & ROAD OIL | 63 | 68 | 70 | 73 | 77 |
| STILL GAS FOR FUEL | 101 | 104 | 105 | 109 | 111 |
| MISCELLANEOUS PRODUCTS | 8 | 10 | 11 | 13 | 12 |
| TOTAL DEMAND | 2,614 | 2,733 | 2,835 | 2,936 | 3,022 |
| ETHANE | 2 | 2 | 2 | 2 | 2 |
| PROPANE | 5 | 5 | 7 | 9 | 15 |
| BUTANE | 2 | 1 | 1 | 2 | 2 |
| PROPANE/BUTANE MIX | 1 | 1 | 1 | 1 | 1 |
| TOTAL | 10 | 12 | 13 | 13 | 14 |
| | 0 | 0 | 0 | 0 | 0 |

Date: 10/23/79

TABLE III-INPUT -- DOMESTIC DEMAND FOR PRODUCTS-PADS I-IV
MILLION BARRELS/DAY

All Respondents
High

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 754 | 486 | 186 | 27 | 0 |
| - NON-PREMIUM | 3,699 | 3,032 | 2,388 | 1,601 | 1,065 |
| S.TOTAL | 4,453 | 3,524 | 2,574 | 1,601 | 1,065 |
| UNLEADED - PREMIUM | 0 | 1,100 | 1,794 | 2,348 | 2,848 |
| - NON-PREMIUM | 1,640 | 3,316 | 3,609 | 3,435 | 3,180 |
| S.TOTAL | 1,640 | 3,586 | 4,282 | 4,787 | 5,167 |
| TOTAL MOTOR GASOLINE | 6,093 | 6,586 | 6,675 | 6,330 | 6,125 |
| AVIATION GASOLINE | 29 | 38 | 38 | 40 | 50 |
| JET FUEL: NAPTHA TYPE | 149 | 152 | 152 | 152 | 151 |
| KEROSINE TYPE | 591 | 672 | 833 | 831 | 1,050 |
| TOTAL JET FUEL | 740 | 845 | 905 | 995 | 1,103 |
| SPECIAL NAPTHA | 78 | 98 | 100 | 111 | 130 |
| KEROSINE | 162 | 389 | 402 | 414 | 443 |
| DISTILLATE FUEL OIL: NO.2 OIL | 1,253 | 1,319 | 1,336 | 1,362 | 1,329 |
| NO.4 OIL | 60 | 63 | 67 | 73 | 77 |
| DIESEL - ON HIGHWAY | 622 | 1,096 | 1,238 | 1,549 | 2,158 |
| - OFF HIGHWAY | 150 | 180 | 193 | 207 | 278 |
| OTHER DISTILLATE | 942 | 1,019 | 1,120 | 1,241 | 1,374 |
| TOTAL DISTILLATE FUEL OIL | 3,027 | 3,373 | 3,605 | 3,886 | 4,598 |
| RESIDUAL FUEL OIL: 0 - .5%S | 633 | 740 | 838 | 1,212 | 1,198 |
| .51 - 1.0%S | 654 | 1,165 | 1,211 | 1,294 | 1,281 |
| 1.1 - 2.0%S | 428 | 852 | 875 | 903 | 851 |
| 2.0%S + | 786 | 766 | 808 | 818 | 766 |
| TOTAL RESIDUAL FUEL OIL | 2,501 | 2,914 | 3,163 | 3,641 | 3,591 |
| LIQUEFIED GASES: ETHANE | 410 | 420 | 407 | 405 | 402 |
| PROPANE | 820 | 966 | 1,011 | 1,104 | 1,319 |
| BUTANE | 111 | 160 | 203 | 289 | 321 |
| PROPANE/BUTANE MIX | 26 | 32 | 32 | 32 | 32 |
| TOTAL LIQUEFIED GASES | 1,367 | 1,519 | 1,610 | 1,784 | 1,939 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 46 | 68 | 83 | 103 | 112 |
| 400 EP NAPTHA | 201 | 252 | 332 | 410 | 590 |
| OTHER | 261 | 422 | 561 | 745 | 1,154 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 508 | 730 | 881 | 1,144 | 1,587 |
| LUBRICANTS | 145 | 164 | 171 | 183 | 215 |
| WAXES | 13 | 18 | 19 | 21 | 27 |
| COKE | 218 | 234 | 240 | 247 | 265 |
| ASPHALT & ROAD OIL | 374 | 430 | 439 | 460 | 508 |
| STILL GAS FOR FUEL | 423 | 519 | 533 | 555 | 540 |
| MISCELLANEOUS PRODUCTS | 139 | 218 | 216 | 271 | 269 |
| TOTAL DEMAND | 15,817 | 17,309 | 17,670 | 18,309 | 19,424 |
| ETHANE | 410 | 423 | 434 | 436 | 411 |
| PROPANE | 118 | 184 | 210 | 267 | 360 |
| BUTANE | 91 | 98 | 102 | 107 | 115 |
| PROPANE/BUTANE MIX | 4 | 7 | 8 | 10 | 14 |
| TOTAL | 623 | 712 | 731 | 788 | 870 |
| | 0 | 0 | 0 | 0 | 0 |

Date: 10/23/79

TABLE III-INPUT -- DOMESTIC DEMAND FOR PRODUCTS-PADS I-IV
MILLION BARRELS/DAY

All Respondents
Low

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 754 | 129 | 0 | 0 | 0 |
| - NON-PREMIUM | 3,699 | 2,723 | 2,072 | 1,446 | 621 |
| S.TOTAL | 4,453 | 2,852 | 2,072 | 1,446 | 621 |
| UNLEADED - PREMIUM | 0 | 270 | 673 | 1,352 | 1,836 |
| - NON-PREMIUM | 1,640 | 1,983 | 2,114 | 2,081 | 2,148 |
| S.TOTAL | 1,640 | 2,948 | 3,838 | 4,429 | 4,514 |
| TOTAL MOTOR GASOLINE | 6,093 | 6,245 | 6,090 | 5,701 | 5,398 |
| AVIATION GASOLINE | 29 | 30 | 29 | 28 | 26 |
| JET FUEL: NAPTHA TYPE | 149 | 117 | 95 | 68 | 0 |
| KEROSINE TYPE | 591 | 633 | 685 | 759 | 853 |
| TOTAL JET FUEL | 740 | 750 | 776 | 763 | 736 |
| SPECIAL NAPTHA | 78 | 77 | 77 | 77 | 78 |
| KEROSINE | 162 | 137 | 131 | 120 | 110 |
| DISTILLATE FUEL OIL: NO.2 OIL | 1,253 | 1,183 | 1,175 | 1,138 | 1,077 |
| NO.4 OIL | 60 | 55 | 55 | 55 | 55 |
| DIESEL - ON HIGHWAY | 622 | 691 | 803 | 995 | 1,240 |
| - OFF HIGHWAY | 150 | 136 | 145 | 158 | 169 |
| OTHER DISTILLATE | 942 | 195 | 230 | 239 | 247 |
| TOTAL DISTILLATE FUEL OIL | 3,027 | 2,857 | 3,044 | 3,378 | 3,770 |
| RESIDUAL FUEL OIL: 0 - .5%S | 633 | 619 | 659 | 664 | 626 |
| .51 - 1.0%S | 654 | 652 | 703 | 746 | 744 |
| 1.1 - 2.0%S | 428 | 414 | 430 | 435 | 389 |
| 2.0%S + | 786 | 318 | 314 | 309 | 350 |
| TOTAL RESIDUAL FUEL OIL | 2,501 | 2,408 | 2,444 | 2,350 | 2,028 |
| LIQUEFIED GASES: ETHANE | 410 | 365 | 352 | 320 | 271 |
| PROPANE | 820 | 795 | 818 | 814 | 802 |
| BUTANE | 111 | 108 | 106 | 107 | 106 |
| PROPANE/BUTANE MIX | 26 | 24 | 23 | 23 | 23 |
| TOTAL LIQUEFIED GASES | 1,367 | 1,351 | 1,354 | 1,349 | 1,333 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 46 | 13 | 13 | 13 | 13 |
| 400 EP NAPTHA | 201 | 179 | 222 | 289 | 376 |
| OTHER | 261 | 327 | 365 | 423 | 438 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 508 | 519 | 600 | 725 | 968 |
| LUBRICANTS | 145 | 149 | 153 | 159 | 171 |
| WAXES | 13 | 14 | 10 | 15 | 15 |
| COKE | 218 | 158 | 154 | 152 | 149 |
| ASPHALT & ROAD OIL | 374 | 390 | 399 | 396 | 361 |
| STILL GAS FOR FUEL | 423 | 420 | 407 | 385 | 395 |
| MISCELLANEOUS PRODUCTS | 139 | 85 | 75 | 42 | 35 |
| TOTAL DEMAND | 15,817 | 16,400 | 16,861 | 16,840 | 17,343 |
| ETHANE | 410 | 350 | 337 | 315 | 271 |
| PROPANE | 118 | 108 | 118 | 157 | 178 |
| BUTANE | 91 | 56 | 60 | 65 | 66 |
| PROPANE/BUTANE MIX | 4 | 0 | 0 | 0 | 0 |
| TOTAL | 623 | 587 | 612 | 600 | 600 |
| | 0 | 0 | 0 | 0 | 0 |

Date: 10/23/79

TABLE III-INPUT -- DOMESTIC DEMAND FOR PRODUCTS-PADS I-IV
MILLION BARRELS/DAY

All Respondents
AVERAGE AND STANDARD DEVIATION

| | AVERAGE | | | | | STANDARD DEVIATION AS A % OF THE MEAN | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1977 | 1980 | 1982 | 1985 | 1990 | 1980 | 1982 | 1985 | 1990 |
| MOTOR GASOLINE: LEADED - PREMIUM | 754 | 320 | 103 | 9 | 0 | 45.85% | 74.99% | 141.42% | 0% |
| - NON-PREMIUM | 3,699 | 2,893 | 2,262 | 1,518 | 817 | 4.43% | 6.04% | 4.20% | 22.62% |
| S.TOTAL | 4,453 | 3,291 | 2,416 | 1,521 | 786 | 7.88% | 8.46% | 3.69% | 21.48% |
| UNLEADED - PREMIUM | 0 | 668 | 1,141 | 1,737 | 2,212 | 50.82% | 41.69% | 25.15% | 20.44% |
| - NON-PREMIUM | 1,640 | 2,537 | 2,868 | 2,836 | 2,630 | 22.34% | 21.28% | 19.88% | 16.12% |
| S.TOTAL | 1,640 | 3,170 | 4,034 | 4,590 | 4,923 | 7.75% | 4.32% | 2.98% | 4.98% |
| TOTAL MOTOR GASOLINE | 6,093 | 6,417 | 6,379 | 6,117 | 5,749 | 1.33% | 2.24% | 2.72% | 3.68% |
| AVIATION GASOLINE | 29 | 32 | 33 | 35 | 39 | 7.97% | 7.95% | 11.27% | 19.66% |
| JET FUEL: NAPTHA TYPE | 149 | 137 | 131 | 123 | 93 | 8.27% | 13.93% | 22.33% | 57.31% |
| KEROSINE TYPE | 591 | 650 | 727 | 786 | 946 | 2.06% | 6.36% | 2.98% | 7.23% |
| TOTAL JET FUEL | 740 | 789 | 837 | 893 | 998 | 3.34% | 4.05% | 6.51% | 10.40% |
| SPECIAL NAPTHA | 78 | 86 | 88 | 91 | 95 | 8.32% | 9.39% | 11.58% | 16.09% |
| KEROSINE | 162 | 180 | 177 | 173 | 167 | 41.47% | 45.42% | 50.18% | 59.60% |
| DISTILLATE FUEL OIL: NO.2 OIL | 1,253 | 1,254 | 1,260 | 1,263 | 1,239 | 4.44% | 5.24% | 7.39% | 9.25% |
| NO.4 OIL | 60 | 59 | 62 | 64 | 65 | 5.56% | 8.22% | 11.45% | 13.99% |
| DIESEL - ON HIGHWAY | 622 | 801 | 921 | 1,154 | 1,561 | 18.64% | 17.64% | 18.02% | 22.43% |
| - OFF HIGHWAY | 150 | 160 | 171 | 185 | 214 | 11.25% | 11.35% | 11.37% | 20.21% |
| OTHER DISTILLATE | 942 | 782 | 837 | 892 | 915 | 43.46% | 42.30% | 43.46% | 45.06% |
| TOTAL DISTILLATE FUEL OIL | 3,027 | 3,198 | 3,383 | 3,670 | 4,094 | 4.36% | 4.42% | 3.90% | 6.13% |
| RESIDUAL FUEL OIL: 0 - .5%S | 633 | 671 | 749 | 875 | 828 | 7.60% | 9.76% | 27.49% | 31.64% |
| .51 - 1.0%S | 654 | 842 | 888 | 940 | 952 | 27.23% | 25.81% | 26.67% | 24.75% |
| 1.1 - 2.0%S | 428 | 572 | 585 | 603 | 570 | 34.71% | 35.08% | 35.32% | 35.34% |
| 2.0%S + | 786 | 605 | 621 | 622 | 595 | 33.61% | 35.22% | 35.97% | 29.87% |
| TOTAL RESIDUAL FUEL OIL | 2,501 | 2,569 | 2,659 | 2,741 | 2,657 | 6.18% | 7.93% | 12.43% | 19.47% |
| LIQUEFIED GASES: ETHANE | 410 | 392 | 382 | 368 | 338 | 6.71% | 6.73% | 8.57% | 14.67% |
| PROPANE | 820 | 866 | 895 | 952 | 1,026 | 8.40% | 9.31% | 12.48% | 21.13% |
| BUTANE | 111 | 130 | 148 | 183 | 196 | 17.04% | 27.60% | 42.22% | 46.53% |
| PROPANE/BUTANE MIX | 26 | 28 | 28 | 28 | 28 | 11.66% | 13.31% | 13.31% | 13.31% |
| TOTAL LIQUEFIED GASES | 1,367 | 1,413 | 1,454 | 1,521 | 1,598 | 3.30% | 4.55% | 7.24% | 10.77% |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 46 | 43 | 49 | 56 | 60 | 52.63% | 58.75% | 66.27% | 68.07% |
| 400 EP NAPTHA | 201 | 222 | 271 | 330 | 517 | 14.09% | 16.86% | 17.06% | 19.32% |
| OTHER | 261 | 364 | 454 | 585 | 826 | 11.41% | 17.82% | 22.46% | 35.77% |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 508 | 633 | 760 | 944 | 1,293 | 12.56% | 14.90% | 17.21% | 19.46% |
| LUBRICANTS | 145 | 155 | 162 | 170 | 189 | 2.91% | 3.56% | 4.37% | 7.18% |
| WAXES | 13 | 16 | 16 | 18 | 20 | 7.99% | 16.54% | 11.68% | 18.27% |
| COKE | 218 | 215 | 219 | 225 | 235 | 10.43% | 11.94% | 12.95% | 14.50% |
| ASPHALT & ROAD OIL | 374 | 405 | 417 | 435 | 459 | 3.37% | 3.40% | 4.59% | 8.86% |
| STILL GAS FOR FUEL | 423 | 458 | 468 | 473 | 482 | 5.87% | 7.40% | 9.68% | 9.23% |
| MISCELLANEOUS PRODUCTS | 139 | 159 | 168 | 181 | 176 | 28.98% | 31.23% | 39.73% | 40.68% |
| TOTAL DEMAND | 15,817 | 16,727 | 17,229 | 17,671 | 18,233 | 1.43% | 1.44% | 2.30% | 4.06% |
| ETHANE | 410 | 379 | 378 | 368 | 339 | 7.65% | 9.72% | 12.83% | 16.85% |
| PROPANE | 118 | 147 | 161 | 199 | 237 | 23.72% | 23.56% | 20.76% | 30.85% |
| BUTANE | 91 | 75 | 77 | 82 | 86 | 25.61% | 22.89% | 19.98% | 21.01% |
| PROPANE/BUTANE MIX | 4 | 3 | 3 | 4 | 5 | 107.18% | 110.55% | 116.93% | 127.17% |
| TOTAL | 623 | 644 | 659 | 684 | 693 | 6.77% | 6.76% | 8.20% | 13.10% |
| | 0 | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |

Date: 10/23/79

TABLE III-INPUT -- DOMESTIC DEMAND FOR PRODUCTS-PADS I-IV
MILLION BARRELS/DAY

All Respondents
Median

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 754 | 346 | 123 | 0 | 0 |
| LEADED - NON-PREMIUM | 3,699 | 2,925 | 2,326 | 1,508 | 766 |
| LEADED S.TOTAL | 4,453 | 3,395 | 2,508 | 1,519 | 730 |
| UNLEADED - PREMIUM | 0 | 635 | 957 | 1,511 | 1,952 |
| UNLEADED - NON-PREMIUM | 1,640 | 2,313 | 2,881 | 2,992 | 2,562 |
| UNLEADED S.TOTAL | 1,640 | 3,073 | 4,008 | 4,573 | 5,006 |
| TOTAL MOTOR GASOLINE | 6,093 | 6,437 | 6,357 | 6,145 | 5,776 |
| AVIATION GASOLINE | 29 | 31 | 34 | 36 | 39 |
| JET FUEL: NAPTHA TYPE | 149 | 143 | 136 | 126 | 125 |
| KEROSINE TYPE | 591 | 650 | 715 | 780 | 939 |
| TOTAL JET FUEL | 740 | 787 | 842 | 892 | 1,033 |
| SPECIAL NAPTHA | 78 | 85 | 87 | 91 | 93 |
| KEROSINE | 162 | 158 | 150 | 150 | 140 |
| DISTILLATE FUEL OIL: NO.2 OIL | 1,253 | 1,260 | 1,270 | 1,290 | 1,310 |
| NO.4 OIL | 60 | 60 | 64 | 65 | 63 |
| DIESEL - ON HIGHWAY | 622 | 749 | 860 | 1,036 | 1,335 |
| DIESEL - OFF HIGHWAY | 150 | 163 | 173 | 187 | 204 |
| OTHER DISTILLATE | 942 | 957 | 998 | 1,043 | 1,020 |
| TOTAL DISTILLATE FUEL OIL | 3,027 | 3,186 | 3,370 | 3,675 | 4,038 |
| RESIDUAL FUEL OIL: 0 - .5%S | 633 | 653 | 750 | 750 | 660 |
| .51 - 1.0%S | 654 | 710 | 750 | 780 | 830 |
| 1.1 - 2.0%S | 428 | 450 | 450 | 470 | 470 |
| 2.0%S + | 786 | 730 | 740 | 740 | 670 |
| TOTAL RESIDUAL FUEL OIL | 2,501 | 2,518 | 2,600 | 2,669 | 2,578 |
| LIQUEFIED GASES: ETHANE | 410 | 391 | 384 | 374 | 340 |
| PROPANE | 820 | 837 | 857 | 938 | 956 |
| BUTANE | 111 | 121 | 134 | 153 | 161 |
| PROPANE/BUTANE MIX | 26 | 28 | 28 | 28 | 28 |
| TOTAL LIQUEFIED GASES | 1,367 | 1,415 | 1,436 | 1,508 | 1,620 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 46 | 49 | 50 | 51 | 54 |
| 400 EP NAPTHA | 201 | 236 | 259 | 292 | 586 |
| OTHER | 261 | 343 | 437 | 588 | 885 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 508 | 644 | 808 | 990 | 1,270 |
| LUBRICANTS | 145 | 155 | 161 | 170 | 189 |
| WAXES | 13 | 16 | 17 | 17 | 20 |
| COKE | 218 | 221 | 227 | 234 | 248 |
| ASPHALT & ROAD OIL | 374 | 401 | 417 | 438 | 470 |
| STILL GAS FOR FUEL | 423 | 454 | 471 | 486 | 494 |
| MISCELLANEOUS PRODUCTS | 139 | 171 | 188 | 199 | 191 |
| TOTAL DEMAND | 15,817 | 16,673 | 17,227 | 17,689 | 18,007 |
| ETHANE | 410 | 366 | 358 | 363 | 315 |
| PROPANE | 118 | 149 | 159 | 187 | 205 |
| BUTANE | 91 | 73 | 74 | 78 | 82 |
| PROPANE/BUTANE MIX | 4 | 2 | 2 | 2 | 2 |
| TOTAL | 623 | 633 | 631 | 688 | 681 |
| | 0 | 0 | 0 | 0 | 0 |

Date: 10/11/79

TABLE IIIA-INPUT -- MOTOR GASOLINE ASSUMPTIONS

All Respondents
High

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| PASSENGER CARS IN USE (THOUSANDS) | 102,700 | 123,821 | 124,872 | 137,000 | 151,500 |
| NEW CAR REGISTRATION (THOUSANDS) | 10,319 | 12,000 | 12,215 | 13,000 | 13,545 |
| TOTAL MILES TRAVELED-MILLIONS | 1118,6491 | 637,2001 | 717,0312 | 079,2702 | 648,292 |
| AVERAGE MILES PER CAR (ALL CARS) | 10,892 | 11,772 | 12,058 | 12,473 | 13,093 |
| AVERAGE MILES PER GALLON (NEW CARS) | 15 | 21 | 24 | 28 | 34 |
| AVERAGE MPG (ALL CARS) | 14 | 16 | 17 | 20 | 24 |
| DIESEL PASSENGER CAR SALES (THOUSANDS) | -9 | 446 | 792 | 1,311 | 2,200 |
| AVERAGE MILES PER GALLON (NEW TRUCKS) | 11 | 16 | 18 | 19 | 21 |
| LEADED PREMIUM | 95 | 96 | 96 | 96 | 96 |
| LEADED NON-PREMIUM | 90 | 91 | 91 | 91 | 91 |
| UNLEADED PREMIUM | -9 | 93 | 93 | 93 | 94 |
| UNLEADED NON-PREMIUM | 88 | 92 | 92 | 92 | 92 |

TABLE IIIA-INPUT -- MOTOR GASOLINE ASSUMPTIONS

All Respondents
Low

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| PASSENGER CARS IN USE (THOUSANDS) | 102,700 | 105,200 | 108,200 | 112,090 | 119,400 |
| NEW CAR REGISTRATION (THOUSANDS) | 10,319 | 10,500 | 9,530 | 10,244 | 10,668 |
| TOTAL MILES TRAVELED-MILLIONS | 1118,649 | 1187,000 | 1256,000 | 1324,000 | 1417,000 |
| AVERAGE MILES PER CAR (ALL CARS) | 10,892 | 9,992 | 10,225 | 10,141 | 9,850 |
| AVERAGE MILES PER GALLON (NEW CARS) | 15 | 16 | 18 | 22 | 24 |
| AVERAGE MPG (ALL CARS) | 14 | 14 | 15 | 17 | 20 |
| DIESEL PASSENGER CAR SALES (THOUSANDS) | -9 | 150 | 179 | 232 | 230 |
| AVERAGE MILES PER GALLON (NEW TRUCKS) | 11 | 12 | 12 | 13 | 14 |
| LEADED PREMIUM | 95 | 93 | 93 | 94 | 94 |
| LEADED NON-PREMIUM | 90 | 89 | 89 | 89 | 89 |
| UNLEADED PREMIUM | -9 | 88 | 88 | 87 | 87 |
| UNLEADED NON-PREMIUM | 88 | 87 | 87 | 87 | 87 |

Date: 10/11/79

TABLE IIIA-INPUT -- MOTOR GASOLINE ASSUMPTIONS

All Respondents
AVERAGE AND STANDARD DEVIATION

| | AVERAGE | | | | | STANDARD DEVIATION AS A % OF THE MEAN | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1977 | 1980 | 1982 | 1985 | 1990 | 1980 | 1982 | 1985 | 1990 |
| PASSENGER CARS IN USE (THOUSANDS) | 102,700 | 111,731 | 114,088 | 123,748 | 134,192 | 6.00% | 4.57% | 6.85% | 8.10% |
| NEW CAR REGISTRATION (THOUSANDS) | 10,319 | 11,096 | 11,352 | 11,896 | 12,138 | 4.32% | 6.75% | 6.00% | 7.65% |
| TOTAL MILES TRAVELED-MILLIONS | 1118,6491 | 280,3931 | 338,7211 | 459,4061 | 659,696 | 10.15% | 9.27% | 12.76% | 18.23% |
| AVERAGE MILES PER CAR (ALL CARS) | 10,892 | 10,962 | 11,314 | 11,326 | 11,615 | 5.44% | 5.34% | 7.28% | 8.42% |
| AVERAGE MILES PER GALLON (NEW CARS) | 15 | 18 | 21 | 24 | 26 | 9.87% | 10.18% | 9.09% | 11.97% |
| AVERAGE MPG (ALL CARS) | 14 | 15 | 16 | 18 | 22 | 2.76% | 3.64% | 3.99% | 4.11% |
| DIESEL PASSENGER CAR SALES (THOUSANDS) | -9 | 271 | 498 | 811 | 1,212 | 30.37% | 37.74% | 46.43% | 55.18% |
| AVERAGE MILES PER GALLON (NEW TRUCKS) | 11 | 14 | 16 | 16 | 17 | 13.35% | 16.68% | 16.60% | 18.04% |
| LEADED PREMIUM | 95 | 94 | 94 | 95 | 95 | 1.00% | 1.08% | 88% | 86% |
| LEADED NON-PREMIUM | 90 | 90 | 90 | 90 | 90 | 76% | 80% | 80% | 80% |
| UNLEADED PREMIUM | -9 | 92 | 92 | 91 | 92 | 1.90% | 1.90% | 2.33% | 2.40% |
| UNLEADED NON-PREMIUM | 88 | 88 | 88 | 88 | 88 | 2.08% | 2.08% | 2.08% | 2.08% |

Date: 10/11/79

TABLE IIIA-INPUT -- MOTOR GASOLINE ASSUMPTIONS

All Respondents
Median

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| PASSENGER CARS IN USE (THOUSANDS) | 102,700 | 107,688 | 112,700 | 120,900 | 131,200 |
| NEW CAR REGISTRATION (THOUSANDS) | 10,319 | 11,139 | 11,564 | 12,091 | 12,101 |
| TOTAL MILES TRAVELED-MILLIONS | 1118,649 | 1226,675 | 1300,923 | 1394,000 | 1561,000 |
| AVERAGE MILES PER CAR (ALL CARS) | 10,892 | 11,156 | 11,570 | 11,568 | 11,718 |
| AVERAGE MILES PER GALLON (NEW CARS) | 15 | 17 | 21 | 24 | 25 |
| AVERAGE MPG (ALL CARS) | 14 | 15 | 16 | 19 | 22 |
| DIESEL PASSENGER CAR SALES (THOUSANDS) | -9 | 288 | 510 | 658 | 1,080 |
| AVERAGE MILES PER GALLON (NEW TRUCKS) | 11 | 13 | 16 | 15 | 15 |
| LEADED PREMIUM | 95 | 94 | 94 | 95 | 95 |
| LEADED NON-PREMIUM | 90 | 90 | 89 | 89 | 89 |
| UNLEADED PREMIUM | -9 | 92 | 92 | 92 | 92 |
| UNLEADED NON-PREMIUM | 88 | 87 | 87 | 87 | 87 |

Date: 09/28/79

TABLE IV-INPUT -- PETROLEUM SUPPLY & DEMAND BALANCE -- TOTAL U.S.
THOUSAND BARRELS DAILY

All Respondents
High

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 18,690 | 20,331 | 21,204 | 21,850 | 23,250 |
| 1. LOCAL PRODUCT DEMAND | 18,431 | 20,036 | 20,859 | 21,660 | 22,960 |
| 2. CRUDE AND PRODUCT EXPORTS | 243 | 500 | 500 | 500 | 500 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 0 | 0 | 0 | 0 | 0 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 0 | 0 | 0 | 0 | 0 |
| 5. CRUDE LOSSES | 16 | 143 | 229 | 386 | 342 |
| SUPPLY - TOTAL | 18,690 | 20,331 | 21,204 | 21,850 | 23,250 |
| 1. PRODUCTION - TOTAL | 9,861 | 11,217 | 11,043 | 10,821 | 11,140 |
| CRUDE AND LEASE CONDENSATE | 8,244 | 9,694 | 9,545 | 9,348 | 9,950 |
| NGL | 1,617 | 1,675 | 1,650 | 1,625 | 1,600 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 0 | 0 | 0 | 0 | 0 |
| CRUDE, NGL, AND UNFINISHED | 0 | 0 | 0 | 0 | 0 |
| PRODUCTS | 0 | 0 | 0 | 0 | 0 |
| 3. PROCESSING GAIN, ETC. | 569 | 660 | 710 | 765 | 850 |
| 4. IMPORTS - TOTAL | 8,808 | 10,070 | 11,044 | 12,860 | 13,659 |
| CRUDE AND UNFINISHED | 6,646 | 7,865 | 8,784 | 9,908 | 11,360 |
| FROM OVERLAND | 279 | 300 | 243 | 192 | 192 |
| FROM OFFSHORE | 6,367 | 7,278 | 8,141 | 8,465 | 9,270 |
| NGL | 42 | 410 | 322 | 620 | 740 |
| FINISHED PRODUCTS | 2,120 | 2,450 | 2,512 | 2,865 | 3,621 |
| 5. SYNCRUDE | 0 | 0 | 25 | 150 | 500 |
| FROM SHALE | 0 | 0 | 25 | 150 | 500 |
| FROM COAL | 0 | 0 | 0 | 9 | 200 |
| 6. FROM INVENTORY | -548 | 100 | 0 | 0 | 0 |
| CRUDE | -170 | 0 | 0 | 0 | 0 |
| PRODUCTS | -378 | 0 | 0 | 11 | 0 |
| 7. CRUDE RUNS | 14,602 | 16,291 | 17,092 | 17,240 | 18,200 |

Date: 09/28/79

TABLE IV-INPUT -- PETROLEUM SUPPLY & DEMAND BALANCE -- TOTAL U.S.
THOUSAND BARRELS DAILY

All Respondents
Low

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 18,690 | 19,370 | 20,013 | 19,160 | 19,560 |
| 1. LOCAL PRODUCT DEMAND | 18,431 | 19,070 | 19,725 | 19,160 | 19,560 |
| 2. CRUDE AND PRODUCT EXPORTS | 243 | 190 | 200 | 0 | 0 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 0 | 0 | 0 | 0 | 0 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 0 | 0 | 0 | 0 | 0 |
| 5. CRUDE LOSSES | 16 | 0 | 0 | 0 | 0 |
| SUPPLY - TOTAL | 18,690 | 19,370 | 20,013 | 19,160 | 19,560 |
| 1. PRODUCTION - TOTAL | 9,861 | 9,458 | 9,055 | 7,965 | 6,746 |
| CRUDE AND LEASE CONDENSATE | 8,244 | 8,035 | 7,793 | 6,926 | 5,879 |
| NGL | 1,617 | 1,380 | 1,262 | 1,039 | 867 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 0 | 0 | 0 | 0 | 0 |
| CRUDE, NGL, AND UNFINISHED | 0 | 0 | 0 | 0 | 0 |
| PRODUCTS | 0 | 0 | 0 | 0 | 0 |
| 3. PROCESSING GAIN, ETC. | 569 | 331 | 362 | 280 | 212 |
| 4. IMPORTS - TOTAL | 8,808 | 8,689 | 9,350 | 8,170 | 7,980 |
| CRUDE AND UNFINISHED | 6,646 | 6,750 | 6,970 | 6,910 | 6,640 |
| FROM OVERLAND | 279 | 40 | 40 | 0 | 0 |
| FROM OFFSHORE | 6,367 | 6,400 | 6,727 | 0 | 0 |
| NGL | 42 | 0 | 0 | 0 | 0 |
| FINISHED PRODUCTS | 2,120 | 1,258 | 1,118 | 1,260 | 1,108 |
| 5. SYNCRUDE | 0 | 0 | 0 | 0 | 0 |
| FROM SHALE | 0 | 0 | 0 | 0 | 0 |
| FROM COAL | 0 | 0 | 0 | 0 | 0 |
| 6. FROM INVENTORY | -548 | -480 | -200 | -125 | -125 |
| CRUDE | -170 | -480 | -314 | -108 | -130 |
| PRODUCTS | -378 | -130 | -22 | -100 | -100 |
| 7. CRUDE RUNS | 14,602 | 15,130 | 15,385 | 15,836 | 16,291 |

Date: 09/28/79

TABLE IV-INPUT -- PETROLEUM SUPPLY & DEMAND BALANCE -- TOTAL U.S.
THOUSAND BARRELS DAILY

All Respondents
AVERAGE & STANDARD DEVIATION

| | AVERAGE | | | | | STANDARD DEVIATION AS A % OF THE MEAN | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1977 | 1980 | 1982 | 1985 | 1990 | 1980 | 1982 | 1985 | 1990 |
| DEMAND - TOTAL | 18,690 | 19,879 | 20,473 | 20,855 | 21,496 | 1.34% | 1.88% | 3.56% | 5.17% |
| 1. LOCAL PRODUCT DEMAND | 18,431 | 19,525 | 20,137 | 20,622 | 21,253 | 1.38% | 1.60% | 3.12% | 4.78% |
| 2. CRUDE AND PRODUCT EXPORTS | 243 | 333 | 321 | 263 | 265 | 23.39% | 26.54% | 45.67% | 46.82% |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 0 | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 0 | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |
| 5. CRUDE LOSSES | 16 | 20 | 33 | 39 | 35 | 183.48% | 201.39% | 259.95% | 250.61% |
| SUPPLY - TOTAL | 18,690 | 19,879 | 20,473 | 20,855 | 21,496 | 1.34% | 1.88% | 3.56% | 5.17% |
| 1. PRODUCTION - TOTAL | 9,861 | 10,129 | 9,886 | 9,484 | 9,293 | 4.23% | 5.70% | 8.91% | 13.02% |
| CRUDE AND LEASE CONDENSATE | 8,244 | 8,622 | 8,435 | 8,128 | 8,065 | 4.57% | 5.90% | 9.10% | 13.83% |
| NGL | 1,617 | 1,507 | 1,451 | 1,355 | 1,228 | 4.47% | 6.45% | 10.37% | 15.22% |
| 2. RECEIPTS FROM OTHER DISTRICTS | 0 | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |
| CRUDE, NGL, AND UNFINISHED | 0 | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |
| PRODUCTS | 0 | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |
| 3. PROCESSING GAIN, ETC. | 569 | 548 | 560 | 546 | 546 | 12.85% | 14.88% | 21.04% | 26.33% |
| 4. IMPORTS - TOTAL | 8,808 | 9,294 | 10,099 | 10,867 | 11,510 | 3.91% | 4.58% | 10.04% | 13.17% |
| CRUDE AND UNFINISHED | 6,646 | 7,153 | 7,751 | 8,383 | 8,767 | 4.29% | 6.25% | 10.02% | 13.09% |
| FROM OVERLAND | 279 | 174 | 114 | 65 | 57 | 50.71% | 58.53% | 92.82% | 119.18% |
| FROM OFFSHORE | 6,367 | 6,805 | 7,425 | 7,070 | 7,341 | 3.69% | 5.86% | 38.31% | 38.26% |
| NGL | 42 | 98 | 112 | 175 | 235 | 128.63% | 119.69% | 129.65% | 128.88% |
| FINISHED PRODUCTS | 2,120 | 2,021 | 2,209 | 2,254 | 2,417 | 13.67% | 18.62% | 20.10% | 28.65% |
| 5. SYNCRUDE | 0 | 0 | 3 | 43 | 256 | 0% | 282.84% | 92.21% | 51.84% |
| FROM SHALE | 0 | 0 | 3 | 39 | 220 | 0% | 234.52% | 105.19% | 65.25% |
| FROM COAL | 0 | 0 | 0 | 1 | 51 | 0% | 0% | 234.30% | 112.41% |
| 6. FROM INVENTORY | -548 | -59 | -27 | -15 | -15 | 235.86% | 229.42% | 247.02% | 247.02% |
| CRUDE | -170 | -93 | -64 | -12 | -14 | 195.13% | 178.79% | 257.72% | 265.03% |
| PRODUCTS | -378 | -34 | -3 | -8 | -9 | 134.41% | 264.58% | 361.32% | 309.47% |
| 7. CRUDE RUNS | 14,602 | 15,582 | 15,904 | 16,413 | 16,979 | 2.56% | 3.08% | 3.09% | 3.54% |

Date: 09/28/79

TABLE IV-INPUT -- PETROLEUM SUPPLY & DEMAND BALANCE -- TOTAL U.S.
THOUSAND BARRELS DAILY

All Respondents
Median

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 18,690 | 19,833 | 20,515 | 20,992 | 21,300 |
| 1. LOCAL PRODUCT DEMAND | 18,431 | 19,462 | 20,088 | 20,649 | 21,100 |
| 2. CRUDE AND PRODUCT EXPORTS | 243 | 347 | 328 | 230 | 225 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 0 | 0 | 0 | 0 | 0 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 0 | 0 | 0 | 0 | 0 |
| 5. CRUDE LOSSES | 16 | 15 | 15 | 15 | 15 |
| SUPPLY - TOTAL | 18,690 | 19,833 | 20,515 | 20,992 | 21,300 |
| 1. PRODUCTION - TOTAL | 9,861 | 9,980 | 9,670 | 9,447 | 9,305 |
| CRUDE AND LEASE CONDENSATE | 8,244 | 8,490 | 8,243 | 8,100 | 8,235 |
| NGL | 1,617 | 1,505 | 1,445 | 1,375 | 1,266 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 0 | 0 | 0 | 0 | 0 |
| CRUDE, NGL, AND UNFINISHED | 0 | 0 | 0 | 0 | 0 |
| PRODUCTS | 0 | 0 | 0 | 0 | 0 |
| 3. PROCESSING GAIN, ETC. | 569 | 550 | 574 | 555 | 570 |
| 4. IMPORTS - TOTAL | 8,808 | 9,204 | 10,072 | 10,970 | 11,634 |
| CRUDE AND UNFINISHED | 6,646 | 7,040 | 7,731 | 8,288 | 8,582 |
| FROM OVERLAND | 279 | 160 | 90 | 55 | 28 |
| FROM OFFSHORE | 6,367 | 6,790 | 7,363 | 8,151 | 8,398 |
| NGL | 42 | 38 | 33 | 32 | 45 |
| FINISHED PRODUCTS | 2,120 | 2,045 | 2,257 | 2,370 | 2,398 |
| 5. SYNCRUDE | 0 | 0 | 0 | 45 | 274 |
| FROM SHALE | 0 | 0 | 0 | 40 | 250 |
| FROM COAL | 0 | 0 | 0 | 0 | 49 |
| 6. FROM INVENTORY | -548 | -5 | 0 | 0 | 0 |
| CRUDE | -170 | 0 | 0 | 0 | 0 |
| PRODUCTS | -378 | -5 | 0 | 0 | 0 |
| 7. CRUDE RUNS | 14,602 | 15,444 | 15,718 | 16,168 | 16,679 |

Date: 09/28/79

TABLE IV-INPUT -- PETROLEUM SUPPLY & DEMAND BALANCE -- PADS I-IV
THOUSAND BARRELS DAILY

All Respondents
High

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 16,139 | 17,562 | 17,910 | 18,547 | 20,205 |
| 1. LOCAL PRODUCT DEMAND | 15,817 | 17,309 | 17,670 | 18,309 | 19,424 |
| 2. CRUDE AND PRODUCT EXPORTS | 172 | 335 | 335 | 316 | 315 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 126 | 175 | 167 | 171 | 172 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 9 | 10 | 50 | 15 | 20 |
| 5. CRUDE LOSSES | 15 | 123 | 197 | 332 | 296 |
| SUPPLY - TOTAL | 16,139 | 17,562 | 17,910 | 18,547 | 20,205 |
| 1. PRODUCTION - TOTAL | 8,413 | 8,555 | 8,285 | 7,765 | 6,960 |
| CRUDE AND LEASE CONDENSATE | 6,820 | 6,918 | 6,683 | 6,210 | 5,535 |
| NGL | 1,593 | 1,637 | 1,602 | 1,555 | 1,425 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 68 | 521 | 721 | 899 | 1,815 |
| CRUDE, NGL, AND UNFINISHED | 47 | 496 | 700 | 865 | 1,745 |
| PRODUCTS | 21 | 45 | 36 | 60 | 125 |
| 3. PROCESSING GAIN, ETC. | 535 | 555 | 600 | 650 | 720 |
| 4. IMPORTS - TOTAL | 7,594 | 9,050 | 9,909 | 16,691 | 12,554 |
| CRUDE AND UNFINISHED | 5,547 | 6,970 | 7,453 | 8,474 | 10,350 |
| FROM OVERLAND | 259 | 280 | 223 | 172 | 172 |
| FROM OFFSHORE | 5,288 | 6,606 | 7,340 | 8,231 | 8,460 |
| NGL | 38 | 270 | 320 | 483 | 680 |
| FINISHED PRODUCTS | 2,009 | 2,334 | 2,402 | 2,865 | 3,511 |
| 5. SYNCRUDE | 0 | 0 | 25 | 150 | 355 |
| FROM SHALE | 0 | 0 | 25 | 150 | 500 |
| FROM COAL | 0 | 0 | 0 | 9 | 93 |
| 6. FROM INVENTORY | -471 | 0 | 0 | 0 | 0 |
| CRUDE | -103 | 0 | 0 | 0 | 0 |
| PRODUCTS | -368 | 0 | 0 | 17 | 1 |
| 7. CRUDE RUNS | 12,279 | 13,518 | 14,289 | 14,289 | 15,010 |

Date: 09/28/79

TABLE IV-INPUT -- PETROLEUM SUPPLY & DEMAND BALANCE -- PADS I-IV
THOUSAND BARRELS DAILY

All Respondents
Low

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 16,139 | 16,347 | 16,692 | 17,102 | 17,588 |
| 1. LOCAL PRODUCT DEMAND | 15,817 | 16,400 | 16,846 | 16,825 | 17,328 |
| 2. CRUDE AND PRODUCT EXPORTS | 172 | 130 | 120 | 100 | 100 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 126 | 85 | 95 | 75 | 80 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 9 | 0 | 0 | 0 | 0 |
| 5. CRUDE LOSSES | 15 | 0 | 0 | 0 | 0 |
| SUPPLY - TOTAL | 16,139 | 16,347 | 16,692 | 16,967 | 17,588 |
| 1. PRODUCTION - TOTAL | 8,413 | 7,189 | 6,444 | 5,381 | 4,195 |
| CRUDE AND LEASE CONDENSATE | 6,820 | 5,789 | 5,204 | 4,361 | 3,371 |
| NGL | 1,593 | 1,400 | 1,240 | 1,020 | 824 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 68 | 355 | 430 | 296 | 95 |
| CRUDE, NGL, AND UNFINISHED | 47 | 330 | 350 | 275 | 60 |
| PRODUCTS | 21 | 20 | 18 | 15 | 15 |
| 3. PROCESSING GAIN, ETC. | 535 | 279 | 303 | 309 | 178 |
| 4. IMPORTS - TOTAL | 7,594 | 8,410 | 8,981 | 9,759 | 9,890 |
| CRUDE AND UNFINISHED | 5,547 | 6,304 | 6,416 | 6,587 | 7,362 |
| FROM OVERLAND | 259 | 40 | 40 | 0 | 0 |
| FROM OFFSHORE | 5,288 | 6,005 | 6,193 | 6,415 | 7,190 |
| NGL | 38 | 17 | 0 | 0 | 0 |
| FINISHED PRODUCTS | 2,009 | 1,825 | 1,911 | 1,909 | 2,149 |
| 5. SYNCRUDE | 0 | 0 | 0 | 0 | 0 |
| FROM SHALE | 0 | 0 | 0 | 0 | 0 |
| FROM COAL | 0 | 0 | 0 | 0 | 0 |
| 6. FROM INVENTORY | -471 | -480 | -200 | -100 | -100 |
| CRUDE | -103 | -480 | -314 | -107 | -129 |
| PRODUCTS | -368 | -75 | -16 | -80 | -80 |
| 7. CRUDE RUNS | 12,279 | 12,680 | 12,845 | 13,170 | 13,666 |

Date: 09/28/79

TABLE IV-INPUT -- PETROLEUM SUPPLY & DEMAND BALANCE -- PADS I-IV
THOUSAND BARRELS DAILY

All Respondents
AVERAGE & STANDARD DEVIATION

| | AVERAGE | | | | | STANDARD DEVIATION AS A % OF THE MEAN | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1977 | 1980 | 1982 | 1985 | 1990 | 1980 | 1982 | 1985 | 1990 |
| DEMAND - TOTAL | 16,139 | 16,974 | 17,432 | 17,880 | 18,571 | 2.09% | 2.39% | 2.62% | 4.49% |
| 1. LOCAL PRODUCT DEMAND | 15,817 | 16,728 | 17,227 | 17,680 | 18,230 | 1.44% | 1.46% | 2.44% | 4.07% |
| 2. CRUDE AND PRODUCT EXPORTS | 172 | 204 | 190 | 166 | 167 | 27.94% | 35.99% | 43.76% | 48.79% |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 126 | 134 | 130 | 117 | 123 | 19.97% | 17.47% | 25.78% | 24.49% |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 9 | 2 | 11 | 2 | 3 | 187.48% | 166.36% | 244.95% | 223.61% |
| 5. CRUDE LOSSES | 15 | 23 | 34 | 47 | 43 | 154.01% | 184.54% | 217.15% | 211.03% |
| SUPPLY - TOTAL | 16,139 | 16,974 | 17,432 | 17,857 | 18,571 | 2.09% | 2.39% | 3.21% | 4.49% |
| 1. PRODUCTION - TOTAL | 8,413 | 7,709 | 7,255 | 6,689 | 6,043 | 5.11% | 7.09% | 9.01% | 12.76% |
| CRUDE AND LEASE CONDENSATE | 6,820 | 6,223 | 5,839 | 5,350 | 4,858 | 5.69% | 7.50% | 9.16% | 13.79% |
| NGL | 1,593 | 1,486 | 1,416 | 1,339 | 1,185 | 4.08% | 6.55% | 9.96% | 14.72% |
| 2. RECEIPTS FROM OTHER DISTRICTS | 68 | 428 | 534 | 618 | 967 | 12.64% | 21.24% | 30.99% | 73.76% |
| CRUDE, NGL, AND UNFINISHED | 47 | 401 | 482 | 587 | 921 | 12.78% | 25.45% | 31.44% | 75.63% |
| PRODUCTS | 21 | 26 | 27 | 31 | 46 | 29.58% | 22.13% | 44.55% | 79.73% |
| 3. PROCESSING GAIN, ETC. | 535 | 441 | 450 | 463 | 460 | 15.05% | 17.55% | 18.57% | 30.48% |
| 4. IMPORTS - TOTAL | 7,594 | 8,684 | 9,517 | 10,974 | 11,170 | 2.66% | 2.91% | 18.67% | 7.69% |
| CRUDE AND UNFINISHED | 5,547 | 6,560 | 7,125 | 7,736 | 8,294 | 3.05% | 4.45% | 6.56% | 10.36% |
| FROM OVERLAND | 259 | 167 | 109 | 65 | 47 | 52.54% | 60.10% | 91.06% | 131.24% |
| FROM OFFSHORE | 5,288 | 6,317 | 6,912 | 7,574 | 7,886 | 3.50% | 5.99% | 7.38% | 5.39% |
| NGL | 38 | 88 | 136 | 178 | 190 | 105.24% | 102.76% | 114.92% | 137.16% |
| FINISHED PRODUCTS | 2,009 | 2,011 | 2,239 | 2,329 | 2,554 | 7.74% | 7.05% | 11.70% | 17.38% |
| 5. SYNCRUDE | 0 | 0 | 3 | 48 | 231 | 0% | 264.58% | 91.13% | 46.20% |
| FROM SHALE | 0 | 0 | 4 | 47 | 241 | 0% | 218.58% | 91.50% | 56.25% |
| FROM COAL | 0 | 0 | 0 | 2 | 35 | 0% | 0% | 196.66% | 97.20% |
| 6. FROM INVENTORY | -471 | -72 | -30 | -16 | -16 | 203.55% | 217.74% | 203.65% | 203.65% |
| CRUDE | -103 | -113 | -73 | -16 | -19 | 170.12% | 163.47% | 220.84% | 226.73% |
| PRODUCTS | -368 | -22 | -2 | -8 | -10 | 135.06% | 244.95% | 353.31% | 268.42% |
| 7. CRUDE RUNS | 12,279 | 12,977 | 13,308 | 13,670 | 14,226 | 1.80% | 3.04% | 2.89% | 3.12% |

Date: 09/28/79

TABLE IV-INPUT -- PETROLEUM SUPPLY & DEMAND BALANCE -- PADS I-IV
THOUSAND BARRELS DAILY

All Respondents
Median

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 16,139 | 16,951 | 17,509 | 17,902 | 18,405 |
| 1. LOCAL PRODUCT DEMAND | 15,817 | 16,666 | 17,227 | 17,785 | 18,007 |
| 2. CRUDE AND PRODUCT EXPORTS | 172 | 205 | 159 | 130 | 128 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 126 | 130 | 135 | 105 | 115 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 9 | 0 | 2 | 0 | 0 |
| 5. CRUDE LOSSES | 15 | 14 | 15 | 15 | 15 |
| SUPPLY - TOTAL | 16,139 | 16,951 | 17,509 | 18,024 | 18,405 |
| 1. PRODUCTION - TOTAL | 8,413 | 7,646 | 7,143 | 6,628 | 6,295 |
| CRUDE AND LEASE CONDENSATE | 6,820 | 6,154 | 5,665 | 5,295 | 5,157 |
| NGL | 1,593 | 1,473 | 1,406 | 1,380 | 1,251 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 68 | 427 | 458 | 571 | 944 |
| CRUDE, NGL, AND UNFINISHED | 47 | 402 | 426 | 550 | 914 |
| PRODUCTS | 21 | 25 | 29 | 30 | 35 |
| 3. PROCESSING GAIN, ETC. | 535 | 445 | 453 | 475 | 477 |
| 4. IMPORTS - TOTAL | 7,594 | 8,649 | 9,575 | 10,310 | 11,114 |
| CRUDE AND UNFINISHED | 5,547 | 6,530 | 7,211 | 7,800 | 8,139 |
| FROM OVERLAND | 259 | 184 | 73 | 55 | 20 |
| FROM OFFSHORE | 5,288 | 6,360 | 7,150 | 7,737 | 7,857 |
| NGL | 38 | 35 | 35 | 43 | 45 |
| FINISHED PRODUCTS | 2,009 | 1,954 | 2,267 | 2,280 | 2,406 |
| 5. SYNCRUDE | 0 | 0 | 0 | 50 | 274 |
| FROM SHALE | 0 | 0 | 0 | 50 | 250 |
| FROM COAL | 0 | 0 | 0 | 0 | 48 |
| 6. FROM INVENTORY | -471 | -5 | 0 | 0 | 0 |
| CRUDE | -103 | 0 | 0 | 0 | 0 |
| PRODUCTS | -368 | -3 | 0 | 0 | 0 |
| 7. CRUDE RUNS | 12,279 | 12,938 | 13,125 | 13,622 | 14,095 |

Date: 09/28/79

TABLE IV-INPUT -- PETROLEUM SUPPLY & DEMAND BALANCE — PAD V
THOUSAND BARRELS DAILY

All Respondents
High

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 2,754 | 3,415 | 3,718 | 3,976 | 5,299 |
| 1. LOCAL PRODUCT DEMAND | 2,614 | 2,803 | 2,931 | 3,017 | 3,339 |
| 2. CRUDE AND PRODUCT EXPORTS | 71 | 226 | 197 | 200 | 140 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 21 | 45 | 36 | 60 | 125 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 47 | 496 | 700 | 865 | 1,745 |
| 5. CRUDE LOSSES | 1 | 20 | 32 | 54 | 46 |
| SUPPLY - TOTAL | 2,754 | 3,415 | 3,718 | 3,976 | 5,299 |
| 1. PRODUCTION - TOTAL | 1,448 | 2,903 | 3,098 | 3,422 | 4,255 |
| CRUDE AND LEASE CONDENSATE | 1,424 | 2,846 | 3,042 | 3,351 | 4,180 |
| NGL | 24 | 57 | 62 | 90 | 175 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 135 | 175 | 167 | 171 | 172 |
| CRUDE, NGL, AND UNFINISHED | 9 | 10 | 50 | 15 | 20 |
| PRODUCTS | 126 | 175 | 167 | 171 | 172 |
| 3. PROCESSING GAIN, ETC. | 34 | 140 | 140 | 140 | 140 |
| 4. IMPORTS - TOTAL | 1,214 | 804 | 862 | 1,078 | 1,072 |
| CRUDE AND UNFINISHED | 1,099 | 675 | 657 | 920 | 955 |
| FROM OVERLAND | 20 | 20 | 20 | 20 | 20 |
| FROM OFFSHORE | 1,079 | 540 | 534 | 920 | 955 |
| NGL | 4 | 10 | 10 | 10 | 10 |
| FINISHED PRODUCTS | 111 | 136 | 203 | 288 | 499 |
| 5. SYNCRUDE | 0 | 0 | 0 | 0 | 0 |
| FROM SHALE | 0 | 0 | 0 | 0 | 50 |
| FROM COAL | 0 | 0 | 0 | 0 | 0 |
| 6. FROM INVENTORY | -77 | 0 | 0 | 0 | 0 |
| CRUDE | -67 | 0 | 0 | 0 | 0 |
| PRODUCTS | -10 | 0 | 0 | 0 | 0 |
| 7. CRUDE RUNS | 2,323 | 2,763 | 2,803 | 2,850 | 3,190 |

Date: 09/28/79

TABLE IV-INPUT -- PETROLEUM SUPPLY & DEMAND BALANCE -- PAD V
THOUSAND BARRELS DAILY

All Respondents
Low

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| DEMAND - TOTAL | 2,754 | 3,105 | 3,285 | 3,455 | 3,105 |
| 1. LOCAL PRODUCT DEMAND | 2,614 | 2,668 | 2,765 | 2,815 | 2,677 |
| 2. CRUDE AND PRODUCT EXPORTS | 71 | 64 | 64 | 56 | 48 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 21 | 20 | 18 | 15 | 15 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 47 | 330 | 350 | 275 | 0 |
| 5. CRUDE LOSSES | 1 | 0 | 0 | 0 | 0 |
| SUPPLY - TOTAL | 2,754 | 3,105 | 3,285 | 3,455 | 3,105 |
| 1. PRODUCTION - TOTAL | 1,448 | 2,230 | 2,399 | 2,125 | 1,730 |
| CRUDE AND LEASE CONDENSATE | 1,424 | 2,192 | 2,385 | 2,100 | 1,680 |
| NGL | 24 | 12 | 14 | 19 | 24 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 135 | 85 | 110 | 75 | 80 |
| CRUDE, NGL, AND UNFINISHED | 9 | 0 | 0 | 0 | 0 |
| PRODUCTS | 126 | 85 | 95 | 75 | 80 |
| 3. PROCESSING GAIN, ETC. | 34 | 52 | 59 | 63 | 34 |
| 4. IMPORTS - TOTAL | 1,214 | 420 | 319 | 290 | 220 |
| CRUDE AND UNFINISHED | 1,099 | 300 | 204 | 180 | 100 |
| FROM OVERLAND | 20 | 0 | 0 | 0 | 0 |
| FROM OFFSHORE | 1,079 | 300 | 204 | 180 | 100 |
| NGL | 4 | 0 | 0 | 0 | 0 |
| FINISHED PRODUCTS | 111 | 7 | 8 | 0 | 84 |
| 5. SYNCRUDE | 0 | 0 | 0 | 0 | 0 |
| FROM SHALE | 0 | 0 | 0 | 0 | 0 |
| FROM COAL | 0 | 0 | 0 | 0 | 0 |
| 6. FROM INVENTORY | -77 | -15 | -5 | -25 | -25 |
| CRUDE | -67 | -16 | 0 | -25 | -5 |
| PRODUCTS | -10 | -12 | -6 | -20 | -20 |
| 7. CRUDE RUNS | 2,323 | 2,261 | 2,337 | 2,389 | 2,352 |

Date: 09/28/79

TABLE IV-INPUT -- PETROLEUM SUPPLY & DEMAND BALANCE -- PAD V
THOUSAND BARRELS DAILY

All Respondents
AVERAGE & STANDARD DEVIATION

| | AVERAGE | | | | | | STANDARD DEVIATION AS A % OF THE MEAN | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1977 | 1980 | 1982 | 1985 | 1990 | * 1980 | 1982 | 1985 | 1990 |
| DEMAND - TOTAL | 2,754 | 3,283 | 3,447 | 3,656 | 3,957 | 2.75% | 3.99% | 5.29% | 21.47% |
| 1. LOCAL PRODUCT DEMAND | 2,614 | 2,730 | 2,829 | 2,932 | 2,990 | 1.52% | 1.71% | 2.34% | 6.47% |
| 2. CRUDE AND PRODUCT EXPORTS | 71 | 128 | 107 | 102 | 92 | 44.22% | 37.67% | 39.60% | 31.51% |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 21 | 26 | 26 | 30 | 43 | 29.72% | 22.14% | 43.17% | 79.52% |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 47 | 407 | 471 | 561 | 789 | 12.43% | 24.92% | 33.25% | 91.33% |
| 5. CRUDE LOSSES | 1 | 4 | 5 | 8 | 7 | 156.74% | 189.26% | 214.68% | 198.63% |
| SUPPLY - TOTAL | 2,754 | 3,283 | 3,447 | 3,656 | 3,957 | 2.75% | 3.99% | 5.29% | 21.47% |
| 1. PRODUCTION - TOTAL | 1,448 | 2,491 | 2,664 | 2,856 | 3,240 | 7.03% | 8.09% | 11.41% | 22.36% |
| CRUDE AND LEASE CONDENSATE | 1,424 | 2,459 | 2,629 | 2,812 | 3,171 | 6.87% | 7.77% | 11.13% | 22.62% |
| NGL | 24 | 32 | 36 | 44 | 69 | 40.16% | 43.15% | 54.77% | 64.61% |
| 2. RECEIPTS FROM OTHER DISTRICTS | 135 | 137 | 143 | 125 | 132 | 18.58% | 11.94% | 27.02% | 25.90% |
| CRUDE, NGL, AND UNFINISHED | 9 | 4 | 10 | 3 | 4 | 113.72% | 162.74% | 177.76% | 169.97% |
| PRODUCTS | 126 | 134 | 132 | 122 | 127 | 18.05% | 16.33% | 25.38% | 23.58% |
| 3. PROCESSING GAIN, ETC. | 34 | 106 | 108 | 110 | 106 | 20.32% | 21.17% | 20.27% | 29.81% |
| 4. IMPORTS - TOTAL | 1,214 | 576 | 558 | 615 | 626 | 20.03% | 29.97% | 37.67% | 46.84% |
| CRUDE AND UNFINISHED | 1,099 | 470 | 436 | 489 | 477 | 24.78% | 34.28% | 44.49% | 57.86% |
| FROM OVERLAND | 20 | 11 | 9 | 6 | 6 | 77.31% | 88.89% | 143.57% | 143.57% |
| FROM OFFSHORE | 1,079 | 410 | 370 | 487 | 495 | 23.10% | 38.50% | 54.30% | 62.72% |
| NGL | 4 | 3 | 3 | 4 | 3 | 116.06% | 102.65% | 105.62% | 127.48% |
| FINISHED PRODUCTS | 111 | 105 | 123 | 130 | 162 | 37.48% | 47.48% | 60.15% | 85.42% |
| 5. SYNCRUDE | 0 | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |
| FROM SHALE | 0 | 0 | 0 | 0 | 5 | 0% | 0% | 0% | 300.00% |
| FROM COAL | 0 | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% |
| 6. FROM INVENTORY | -77 | -3 | -1 | -3 | -3 | 172.05% | 264.58% | 234.52% | 234.52% |
| CRUDE | -67 | -3 | 0 | -3 | -1 | 202.42% | 0% | 253.15% | 218.58% |
| PRODUCTS | -10 | -3 | -1 | -3 | -3 | 139.71% | 244.95% | 203.95% | 227.71% |
| 7. CRUDE RUNS | 2,323 | 2,449 | 2,530 | 2,631 | 2,670 | 5.10% | 4.60% | 5.36% | 8.46% |

Date: 09/28/79

TABLE IV-INPUT -- PETROLEUM SUPPLY & DEMAND BALANCE -- PAD V
THOUSAND BARRELS DAILY

All Respondents
Median

| | | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|---|
| DEMAND | - TOTAL | 2,754 | 3,285 | 3,405 | 3,560 | 3,740 |
| 1. | LOCAL PRODUCT DEMAND | 2,614 | 2,733 | 2,835 | 2,955 | 3,022 |
| 2. | CRUDE AND PRODUCT EXPORTS | 71 | 120 | 103 | 100 | 88 |
| 3. | PRODUCT SHIPMENTS TO OTHER DISTRICTS | 21 | 25 | 28 | 28 | 35 |
| 4. | CRUDE, NGL & UNF. SHIPMENTS TOD | 47 | 410 | 421 | 524 | 480 |
| 5. | CRUDE LOSSES | 1 | 2 | 2 | 2 | 2 |
| SUPPLY | - TOTAL | 2,754 | 3,285 | 3,405 | 3,560 | 3,740 |
| 1. | PRODUCTION - TOTAL | 1,448 | 2,498 | 2,611 | 2,954 | 3,441 |
| | CRUDE AND LEASE CONDENSATE | 1,424 | 2,465 | 2,589 | 2,907 | 3,310 |
| | NGL | 24 | 28 | 30 | 30 | 60 |
| 2. | RECEIPTS FROM OTHER DISTRICTS | 135 | 141 | 146 | 119 | 115 |
| | CRUDE, NGL, AND UNFINISHED | 9 | 2 | 3 | 0 | 0 |
| | PRODUCTS | 126 | 134 | 135 | 119 | 115 |
| 3. | PROCESSING GAIN, ETC. | 34 | 109 | 113 | 118 | 112 |
| 4. | IMPORTS - TOTAL | 1,214 | 555 | 569 | 554 | 648 |
| | CRUDE AND UNFINISHED | 1,099 | 497 | 468 | 460 | 450 |
| | FROM OVERLAND | 20 | 13 | 10 | 0 | 0 |
| | FROM OFFSHORE | 1,079 | 395 | 388 | 460 | 505 |
| | NGL | 4 | 2 | 2 | 3 | 0 |
| | FINISHED PRODUCTS | 111 | 122 | 110 | 109 | 111 |
| 5. | SYNCRUDE | 0 | 0 | 0 | 0 | 0 |
| | FROM SHALE | 0 | 0 | 0 | 0 | 0 |
| | FROM COAL | 0 | 0 | 0 | 0 | 0 |
| 6. | FROM INVENTORY | -77 | 0 | 0 | 0 | 0 |
| | CRUDE | -67 | 0 | 0 | 0 | 0 |
| | PRODUCTS | -10 | 0 | 0 | 0 | 0 |
| 7. | CRUDE RUNS | 2,323 | 2,416 | 2,524 | 2,658 | 2,665 |

Date: 10/11/79

TABLE V-INPUT -- WORLD OIL CONSUMPTION ESTIMATES

All Respondents
High

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| UNITED STATES | 18.40 | 20.00 | 20.90 | 21.80 | 23.00 |
| WESTERN EUROPE | 14.20 | 15.50 | 16.40 | 17.60 | 19.70 |
| JAPAN | 5.30 | 6.30 | 6.70 | 8.60 | 9.40 |
| OTHER OECD | 2.60 | 5.10 | 3.30 | 6.90 | 8.40 |
| NON-OECD | 9.30 | 13.00 | 14.10 | 16.30 | 19.80 |
| NON-COMMUNIST COUNTRIES | 49.80 | 56.50 | 59.40 | 64.60 | 72.10 |
| USSR | 8.00 | 9.50 | 10.10 | 11.70 | 13.80 |
| EAST EUROPE | 2.10 | 2.80 | 3.10 | 3.40 | 3.90 |
| CHINA | 1.50 | 2.30 | 2.80 | 3.80 | 5.30 |
| COMMUNIST COUNTRIES | 11.60 | 14.50 | 15.40 | 18.10 | 21.20 |
| TOTAL CONSUMPTION | 61.40 | 70.30 | 73.30 | 79.90 | 89.10 |

Date: 10/11/79

TABLE V-INPUT -- WORLD OIL CONSUMPTION ESTIMATES

All Respondents
Low

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| UNITED STATES | 18.40 | 17.20 | 17.30 | 17.30 | 17.10 |
| WESTERN EUROPE | 14.20 | 14.00 | 14.10 | 14.20 | 14.30 |
| JAPAN | 5.30 | 5.10 | 5.40 | 5.60 | 5.50 |
| OTHER OECD | 2.60 | 2.50 | 2.60 | 2.70 | 2.40 |
| NON-OECD | 9.30 | 9.50 | 9.70 | 10.30 | 11.40 |
| NON-COMMUNIST COUNTRIES | 49.80 | 51.00 | 52.60 | 55.20 | 55.70 |
| USSR | 8.00 | 8.80 | 9.10 | 9.60 | 10.10 |
| EAST EUROPE | 2.10 | 2.10 | 2.30 | 2.40 | 2.60 |
| CHINA | 1.50 | 1.70 | 1.90 | 2.20 | 2.80 |
| COMMUNIST COUNTRIES | 11.60 | 12.70 | 13.40 | 14.30 | 15.50 |
| TOTAL CONSUMPTION | 61.40 | 64.40 | 66.40 | 69.90 | 74.90 |

Date: 10/11/79

TABLE V-INPUT — WORLD OIL CONSUMPTION ESTIMATES

All Respondents
AVERAGE AND STANDARD DEVIATION

| | AVERAGE | | | | | STANDARD DEVIATION AS A % OF THE MEAN | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1977 | 1980 | 1982 | 1985 | 1990 | 1980 | 1982 | 1985 | 1990 |
| UNITED STATES | 18.40 | 19.25 | 19.68 | 20.28 | 20.89 | 3.8% | 4.8% | 5.1% | 7.3% |
| WESTERN EUROPE | 14.20 | 14.75 | 15.38 | 16.17 | 17.26 | 2.8% | 3.7% | 5.1% | 8.4% |
| JAPAN | 5.30 | 5.69 | 6.07 | 6.75 | 7.41 | 5.4% | 6.4% | 10.0% | 13.6% |
| OTHER OECD | 2.60 | 2.92 | 2.82 | 3.26 | 3.50 | 22.2% | 6.7% | 31.0% | 39.5% |
| NON-OECD | 9.30 | 11.17 | 11.99 | 13.73 | 16.72 | 8.9% | 9.7% | 11.8% | 15.2% |
| NON-COMMUNIST COUNTRIES | 49.80 | 53.37 | 55.78 | 59.47 | 64.74 | 2.7% | 3.5% | 4.6% | 7.0% |
| USSR | 8.00 | 9.07 | 9.57 | 10.31 | 11.39 | 2.4% | 3.5% | 6.3% | 10.3% |
| EAST EUROPE | 2.10 | 2.38 | 2.58 | 2.86 | 3.26 | 8.4% | 9.3% | 10.7% | 14.3% |
| CHINA | 1.50 | 2.13 | 2.49 | 3.03 | 3.85 | 9.1% | 10.5% | 15.8% | 22.2% |
| COMMUNIST COUNTRIES | 11.60 | 13.65 | 14.67 | 16.22 | 18.46 | 3.0% | 4.0% | 6.5% | 9.7% |
| TOTAL CONSUMPTION | 61.40 | 67.15 | 70.23 | 75.51 | 82.15 | 2.3% | 3.0% | 4.3% | 6.1% |

Date: 10/11/,,

TABLE V-INPUT -- WORLD OIL CONSUMPTION ESTIMATES

All Respondents
Median

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| UNITED STATES | 18.40 | 19.45 | 19.95 | 20.45 | 21.10 |
| WESTERN EUROPE | 14.20 | 14.75 | 15.30 | 16.25 | 17.30 |
| JAPAN | 5.30 | 5.65 | 6.10 | 6.65 | 7.25 |
| OTHER OECD | 2.60 | 2.80 | 2.80 | 2.90 | 3.20 |
| NON-OECD | 9.30 | 10.90 | 11.60 | 13.65 | 17.15 |
| NON-COMMUNIST COUNTRIES | 49.80 | 53.30 | 55.50 | 59.25 | 64.85 |
| USSR | 8.00 | 9.00 | 9.50 | 10.20 | 11.00 |
| EAST EUROPE | 2.10 | 2.40 | 2.50 | 2.80 | 3.40 |
| CHINA | 1.50 | 2.20 | 2.60 | 3.10 | 3.95 |
| COMMUNIST COUNTRIES | 11.60 | 13.70 | 14.90 | 16.40 | 18.35 |
| TOTAL CONSUMPTION | 61.40 | 67.80 | 70.30 | 76.60 | 82.70 |

Date: 10/11/79

TABLES VI AND VII -- WORLD OIL AND NATURAL GAS LIQUIDS SUPPLY
MILLION BARRELS/DAY

All Respondents
High

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| OECD | | | | | |
| U.S. | 9.8 | 11.4 | 10.8 | 11.2 | 12.1 |
| CANADA | 1.6 | 1.9 | 2.1 | 2.1 | 2.3 |
| W. EUROPE | 1.5 | 3.7 | 4.2 | 5.1 | 5.7 |
| JAPAN, AUSTRALIA, NEW ZEALAND | 0.5 | 0.8 | 1.1 | 1.0 | 1.5 |
| SUB-TOTAL | 13.4 | 17.3 | 17.8 | 18.3 | 19.2 |
| OPEC | | | | | |
| VENEZUELA | 2.3 | 2.5 | 2.4 | 2.6 | 2.5 |
| ECUADOR | 0.2 | 0.3 | 0.4 | 0.6 | 0.5 |
| INDONESIA | 1.7 | 1.9 | 2.0 | 2.3 | 2.2 |
| AFRICA | 5.6 | 6.8 | 7.2 | 7.3 | 6.5 |
| ALGERIA | 1.2 | 1.5 | 1.9 | 2.1 | 2.3 |
| LIBYA | 2.1 | 2.6 | 2.7 | 2.6 | 2.7 |
| NIGERIA | 2.1 | 2.8 | 2.7 | 2.6 | 2.9 |
| GABON | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 |
| MIDDLE EAST | 22.1 | 25.0 | 28.6 | 30.9 | 34.0 |
| IRAN | 5.7 | 6.0 | 6.6 | 6.8 | 6.0 |
| KUWAIT | 1.9 | 2.2 | 2.7 | 2.9 | 2.9 |
| S. ARABIA | 9.2 | 9.4 | 12.8 | 14.3 | 15.5 |
| IRAQ | 2.5 | 3.4 | 4.1 | 4.7 | 5.1 |
| UAE | 2.0 | 2.1 | 2.4 | 3.2 | 3.7 |
| QATAR | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 |
| NEUTRAL ZONE | 0.4 | 0.6 | 0.7 | 0.8 | 0.8 |
| SUB-TOTAL | 31.9 | 35.0 | 38.8 | 41.2 | 44.2 |
| NON-OPEC (EXCL. USSR, E. EUROPE, CHINA) | | | | | |
| MEXICO | 1.1 | 2.4 | 3.3 | 4.2 | 6.4 |
| OTHER L. AMERICA | 1.2 | 1.5 | 1.9 | 2.4 | 2.7 |
| AFRICA | 0.7 | 1.2 | 1.4 | 1.6 | 2.9 |
| MIDDLE EAST | 0.6 | 0.8 | 0.8 | 0.8 | 1.0 |
| ASIA | 0.7 | 1.1 | 1.3 | 1.5 | 1.8 |
| SUB-TOTAL | 4.3 | 6.8 | 9.2 | 9.9 | 12.4 |
| USSR | 10.9 | 12.4 | 13.4 | 14.8 | 15.9 |
| EAST EUROPE | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 |
| CHINA | 1.8 | 2.7 | 3.2 | 4.2 | 6.5 |
| SUB-TOTAL | 13.1 | 15.3 | 16.3 | 18.2 | 22.0 |
| REFINERY PROCESSING GAINS | | | | | |
| U.S. | 0.5 | 0.6 | 0.6 | 0.6 | 0.7 |
| OTHER | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 |
| SUB-TOTAL | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 |
| TOTAL SUPPLY | 63.2 | 70.6 | 81.3 | 83.5 | 90.7 |

Date: 10/11/79

TABLES VI AND VII -- WORLD OIL AND NATURAL GAS LIQUIDS SUPPLY
MILLION BARRELS/DAY

All Respondents
Low

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| OECD | | | | | |
| U.S. | 9.8 | 9.7 | 9.5 | 8.8 | 7.6 |
| CANADA | 1.6 | 1.5 | 1.5 | 1.5 | 1.6 |
| W. EUROPE | 1.5 | 2.6 | 3.2 | 3.5 | 3.8 |
| JAPAN, AUSTRALIA, NEW ZEALAND | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 |
| SUB-TOTAL | 13.4 | 14.0 | 14.4 | 14.6 | 15.5 |
| OPEC | | | | | |
| VENEZUELA | 2.3 | 2.1 | 2.2 | 1.9 | 1.8 |
| ECUADOR | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 |
| INDONESIA | 1.7 | 1.5 | 1.4 | 1.4 | 0.9 |
| AFRICA | 5.6 | 5.3 | 5.6 | 5.1 | 4.7 |
| ALGERIA | 1.2 | 1.1 | 1.0 | 0.9 | 0.7 |
| LIBYA | 2.1 | 2.0 | 2.0 | 2.0 | 1.5 |
| NIGERIA | 2.1 | 2.0 | 1.8 | 1.6 | 1.4 |
| GABON | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 |
| MIDDLE EAST | 22.1 | 19.9 | 21.0 | 21.1 | 20.7 |
| IRAN | 5.7 | 3.0 | 3.3 | 3.6 | 3.7 |
| KUWAIT | 1.9 | 1.7 | 1.9 | 1.8 | 2.0 |
| S. ARABIA | 9.2 | 6.3 | 8.9 | 7.6 | 7.3 |
| IRAQ | 2.5 | 2.5 | 2.8 | 3.2 | 3.5 |
| UAE | 2.0 | 1.8 | 1.9 | 1.9 | 1.8 |
| QATAR | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 |
| NEUTRAL ZONE | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 |
| SUB-TOTAL | 31.9 | 29.8 | 31.2 | 31.6 | 31.3 |
| NON-OPEC (EXCL. USSR, E. EUROPE, CHINA) | | | | | |
| MEXICO | 1.1 | 1.8 | 2.2 | 2.5 | 3.5 |
| OTHER L. AMERICA | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |
| AFRICA | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| MIDDLE EAST | 0.6 | 0.5 | 0.5 | 0.4 | 0.4 |
| ASIA | 0.7 | 0.8 | 0.9 | 1.0 | 0.9 |
| SUB-TOTAL | 4.3 | 5.2 | 5.8 | 6.6 | 7.6 |
| USSR | 10.9 | 11.7 | 11.9 | 11.5 | 11.5 |
| EAST EUROPE | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 |
| CHINA | 1.8 | 2.3 | 2.5 | 2.8 | 3.2 |
| SUB-TOTAL | 13.1 | 14.2 | 15.0 | 14.6 | 15.0 |
| REFINERY PROCESSING GAINS | | | | | |
| U.S. | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| OTHER | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SUB-TOTAL | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| TOTAL SUPPLY | 63.2 | 64.5 | 67.7 | 71.4 | 74.8 |

Date: 10/11/79

TABLES VI AND VII -- WORLD OIL AND NATURAL GAS LIQUIDS SUPPLY
MILLION BARRELS/DAY

All Respondents
AVERAGE AND STANDARD DEVIATION

| | AVERAGE | | | | | STANDARD DEVIATION AS A % OF THE MEAN | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1977 | 1980 | 1982 | 1985 | 1990 | 1980 | 1982 | 1985 | 1990 |
| OECD | | | | | | | | | |
| U.S. | 9.8 | 10.3 | 10.2 | 10.0 | 10.1 | 4.13% | 4.37% | 7.19% | 11.34% |
| CANADA | 1.6 | 1.7 | 1.7 | 1.8 | 1.8 | 6.75% | 8.22% | 10.09% | 12.29% |
| W. EUROPE | 1.5 | 3.2 | 3.8 | 4.3 | 4.7 | 9.08% | 8.59% | 9.82% | 10.97% |
| JAPAN, AUSTRALIA, NEW ZEALAND | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 17.61% | 28.64% | 29.00% | 42.97% |
| SUB-TOTAL | 13.4 | 15.6 | 16.2 | 16.6 | 17.2 | 4.72% | 5.08% | 5.82% | 6.84% |
| OPEC | | | | | | | | | |
| VENEZUELA | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 4.48% | 3.24% | 6.11% | 9.19% |
| ECUADOR | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 12.28% | 25.14% | 42.14% | 42.79% |
| INDONESIA | 1.7 | 1.7 | 1.7 | 1.7 | 1.6 | 6.76% | 9.57% | 13.59% | 20.09% |
| AFRICA | 5.6 | 5.9 | 6.2 | 6.1 | 5.8 | 5.37% | 7.01% | 8.80% | 9.98% |
| ALGERIA | 1.2 | 1.2 | 1.4 | 1.3 | 1.3 | 9.77% | 20.33% | 25.80% | 29.51% |
| LIBYA | 2.1 | 2.2 | 2.3 | 2.3 | 2.2 | 6.71% | 7.89% | 8.37% | 14.51% |
| NIGERIA | 2.1 | 2.3 | 2.3 | 2.3 | 2.2 | 9.09% | 9.85% | 10.44% | 14.60% |
| GABON | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 16.33% | 26.45% | 25.77% | 28.64% |
| MIDDLE EAST | 22.1 | 21.3 | 22.8 | 25.2 | 27.4 | 6.20% | 9.46% | 11.73% | 14.20% |
| IRAN | 5.7 | 4.0 | 4.3 | 4.5 | 4.6 | 20.08% | 19.76% | 19.03% | 15.58% |
| KUWAIT | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 | 7.43% | 9.02% | 11.34% | 11.90% |
| S. ARABIA | 9.2 | 8.7 | 9.7 | 10.2 | 11.6 | 8.38% | 11.14% | 15.76% | 19.27% |
| IRAQ | 2.5 | 3.1 | 3.5 | 3.9 | 4.4 | 8.67% | 10.37% | 10.77% | 11.68% |
| UAE | 2.0 | 1.9 | 2.1 | 2.4 | 2.6 | 6.21% | 7.82% | 13.72% | 19.38% |
| QATAR | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 8.44% | 10.01% | 11.98% | 17.30% |
| NEUTRAL ZONE | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 11.40% | 13.89% | 18.47% | 24.87% |
| SUB-TOTAL | 31.9 | 31.5 | 33.4 | 35.7 | 37.6 | 4.54% | 6.79% | 8.32% | 10.78% |
| NON-OPEC (EXCL. USSR, E. EUROPE, CHINA) | | | | | | | | | |
| MEXICO | 1.1 | 2.1 | 2.6 | 3.2 | 4.3 | 9.48% | 13.51% | 14.47% | 17.43% |
| OTHER L. AMERICA | 1.2 | 1.4 | 1.5 | 1.7 | 2.0 | 8.80% | 13.67% | 18.04% | 22.43% |
| AFRICA | 0.7 | 1.0 | 1.1 | 1.3 | 1.5 | 14.45% | 16.65% | 21.40% | 32.96% |
| MIDDLE EAST | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 11.13% | 15.13% | 17.20% | 21.96% |
| ASIA | 0.7 | 0.9 | 1.1 | 1.3 | 1.5 | 9.01% | 10.68% | 13.48% | 17.32% |
| SUB-TOTAL | 4.3 | 6.0 | 7.1 | 8.2 | 10.0 | 6.50% | 12.34% | 10.38% | 12.65% |
| USSR | 10.9 | 12.1 | 12.5 | 13.0 | 13.9 | 1.87% | 3.51% | 6.70% | 9.79% |
| EAST EUROPE | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 1.93% | 1.98% | 14.31% | 14.43% |
| CHINA | 1.8 | 2.5 | 2.8 | 3.6 | 4.8 | 4.81% | 8.99% | 14.24% | 23.17% |
| SUB-TOTAL | 13.1 | 14.9 | 15.7 | 16.8 | 18.9 | 1.91% | 2.96% | 6.10% | 9.75% |
| REFINERY PROCESSING GAINS | | | | | | | | | |
| U.S. | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 7.00% | 9.13% | 9.13% | 11.13% |
| OTHER | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0% | 0% | 300.00% | 200.00% |
| SUB-TOTAL | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 32.22% | 36.62% | 32.93% | 36.67% |
| TOTAL SUPPLY | 63.2 | 67.7 | 72.2 | 76.6 | 82.3 | 2.71% | 5.64% | 5.12% | 6.21% |

Date: 10/11/79

TABLES VI AND VII -- WORLD OIL AND NATURAL GAS LIQUIDS SUPPLY
MILLION BARRELS/DAY

All Respondents
Median

| | 1977 | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| OECD | | | | | |
| U.S. | 9.8 | 10.2 | 10.4 | 10.0 | 10.0 |
| CANADA | 1.6 | 1.7 | 1.7 | 1.7 | 1.7 |
| W. EUROPE | 1.5 | 3.2 | 3.8 | 4.4 | 4.8 |
| JAPAN, AUSTRALIA, NEW ZEALAND | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 |
| SUB-TOTAL | 13.4 | 15.7 | 16.2 | 16.6 | 17.0 |
| OPEC | | | | | |
| VENEZUELA | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| ECUADOR | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| INDONESIA | 1.7 | 1.7 | 1.7 | 1.6 | 1.6 |
| AFRICA | 5.6 | 5.8 | 6.1 | 5.9 | 6.0 |
| ALGERIA | 1.2 | 1.3 | 1.4 | 1.3 | 1.3 |
| LIBYA | 2.1 | 2.1 | 2.2 | 2.3 | 2.2 |
| NIGERIA | 2.1 | 2.2 | 2.3 | 2.3 | 2.3 |
| GABON | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| MIDDLE EAST | 22.1 | 20.9 | 22.1 | 23.9 | 26.5 |
| IRAN | 5.7 | 4.0 | 4.1 | 4.1 | 4.3 |
| KUWAIT | 1.9 | 2.0 | 2.1 | 2.1 | 2.2 |
| S. ARABIA | 9.2 | 8.8 | 9.2 | 10.0 | 11.3 |
| IRAQ | 2.5 | 3.2 | 3.4 | 3.9 | 4.4 |
| UAE | 2.0 | 1.9 | 2.0 | 2.4 | 2.5 |
| QATAR | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 |
| NEUTRAL ZONE | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 |
| SUB-TOTAL | 31.9 | 30.9 | 32.3 | 34.6 | 36.9 |
| NON-OPEC (EXCL. USSR, E. EUROPE, CHINA) | | | | | |
| MEXICO | 1.1 | 2.1 | 2.6 | 3.1 | 4.1 |
| OTHER L. AMERICA | 1.2 | 1.4 | 1.5 | 1.8 | 2.0 |
| AFRICA | 0.7 | 1.0 | 1.1 | 1.3 | 1.4 |
| MIDDLE EAST | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 |
| ASIA | 0.7 | 0.9 | 1.1 | 1.3 | 1.6 |
| SUB-TOTAL | 4.3 | 6.0 | 6.9 | 8.2 | 9.8 |
| USSR | 10.9 | 12.2 | 12.5 | 12.8 | 13.9 |
| EAST EUROPE | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| CHINA | 1.8 | 2.5 | 2.9 | 3.7 | 4.7 |
| SUB-TOTAL | 13.1 | 15.0 | 15.6 | 16.6 | 18.7 |
| REFINERY PROCESSING GAINS | | | | | |
| U.S. | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 |
| OTHER | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| SUB-TOTAL | 0.5 | 0.5 | 0.5 | 0.6 | 0.5 |
| TOTAL SUPPLY | 63.2 | 68.0 | 72.2 | 77.0 | 83.3 |

# TECHNICAL NOTES

## SOURCE OF DATA

The data employed for the purposes of this project were obtained from responses to a survey constructed by the National Petroleum Council (NPC). The survey, a series of nine blank tables, requested an assortment of supply and demand projections for the years 1980, 1982, 1985, and 1990. Included were more aggregate world supply and consumption figures and a more detailed U.S. breakdown. The survey was mailed to 32 institutions including both domestic and foreign oil companies and consulting research groups. Of this group, 22 responded in some form and 20 were determined to be usable. Of this total, 12 were domestic oil companies, three were foreign oil companies, and five were non-oil companies.

The completeness of the surveys received varied substantially. Some were totally complete with each cell on each table answered, while others were nearly empty. The total number of responses in each cell also varied considerably. Therefore, the first task upon receiving the responses was to check for the completeness, consistency, and correctness of the data. The purpose of this task was twofold. First, incorrect or inconsistent data would obviously enter bias into the sample and thus could not be used. Second, if not using these data resulted in a situation where insufficient responses remained in any given cell, it was necessary to make a determination of why the respondent reported incorrectly and to make the appropriate adjustments if feasible. For example, in certain instances, respondents aggregated two (or more) cells into a given cell. On Table I, for instance, non-energy and industrial uses were combined by many respondents. In these instances, the combined total was broken out into the individual sectors on the basis of the 1977 split between these two sectors. The feasibility of adjusting the data was determined through a process involving checking the respondent's own notes, examining how other respondents reported, and, if necessary, contacting the respondent. If this determination could not be made, the data element(s) in question were eliminated.

## DATA BASE CREATION

The data on the completed surveys were keypunched, read into the computer, and put into a format compatible with Executive Information Service (EIS), the software utilized for this project. EIS is a package allowing for data base manipulation, data analysis, and report writing. As additional surveys were received, the data base was updated.

## DATA ANALYSIS AND PRESENTATION

The first set of tables of interest to the committee consisted of tables containing the high, low, median, mean, and standard

deviation of various totals and subtotals from the survey for all respondents, oil companies, and non-oil companies. The computation of the high, low, median, mean, and standard deviation was performed by the EIS software package and the results were put into report formats. A succeeding set of tables were generated also, involving similar computations for each cell of every survey table for which there were sufficient responses to maintain confidentiality.

On the first set of tables, the highs and lows were identified as being either first quarter 1979 projections or 1978 projections. It was originally thought that this timing aspect might account for differences in the projections. However, this did not seem to be the case. Both 1978 projections and first quarter 1979 projections were made before the shortage which began to appear in the second quarter of 1979. Thus, it was decided not to make a split on a timing basis for succeeding runs of the tables.

## OIL COMPANY, NON-OIL COMPANY SPLIT

Similarly, the committee desired different sets of tables for all respondents, oil companies only and non-oil companies only, to determine if there were significant differences between oil and non-oil. Preliminary results indicated that in some instances there were significant differences, notably in natural gas production. In general, however, differences between oil companies and non-oil companies were slight or nonexistent. Furthermore, the number of responses from non-oil companies in many cells are not sufficient to maintain confidentiality. Therefore, it was decided not to make this split in reporting the balanced tables. However, the structure for doing so is in place if at some time such a split may be desirable.

## PAD DETAIL

Balanced tables are being generated for PAD V and PADs I-IV inclusive for survey Tables III and IV. It was originally hoped that individual PAD detail could be provided, but the response rate does not allow for that level of detail. Since PAD V has a basically distinct market, it is thought that a PAD V and PADs I-IV inclusive will provide significant information.

## HANDLING OF SYNTHETIC CONVERSION LOSSES

When one energy form is changed to another, i.e., synthetic gas from coal or from petroleum liquids, or synthetic crude from coal or from shale, some primary energy is used up in the process. In previous NPC studies this process was accounted for as follows.

In Table I (Total U.S. Energy Consumption by Fuels and by Consuming Sectors) the net amount of primary energy lost was shown in

the Synthetic Conversion Losses Sector under coal and petroleum liquids. The amounts of synthetic gas and synthetic crude gained were included within the petroleum liquids and natural gas columns, but not shown specifically.

In Table II the amounts of synthetic gas and synthetic crude gained from the process were shown specifically, and these amounts were consistent with the net loss data in Table I.

In the current (1979) NPC survey two methods were used to account for the conversion process. Six respondents used the method described above (Method A), four respondents used a more detailed method (Method B), while the remainder did not attempt to break out conversion losses.

Respondents who used the more detailed method show in the oil and coal columns within the synthetic conversion sector of Table I the primary inputs to synthetic gas production. In the natural gas column the resulting natural gas production is shown as a negative figure. Resulting syncrude production is similarly placed in the petroleum liquids column. The residue in the Total Primary Energy column is energy lost in conversion.

Since the two methods are not additive, one method needs to be converted to the other for purposes of accumulating the data. The advantages of Method A lie in the fact that conversion losses are accounted for in a simplified manner in Table I while synthetic oil and gas production is described adequately in Table II. A disadvantage is that in the coal and petroleum liquids columns, primary energy is understated while in the natural gas column primary energy is overstated.

Method B provides more specific data in Table I on what actually happens when coal and oil are converted to gas. The primary energy distortion among the oil, gas, and coal columns is eliminated. Also, the negative data in the natural gas column directly ties into the synthetic gas numbers in Table II. It should be pointed out that in the past and in the immediate future, synthetic conversion losses are not significant compared with energy used. By 1990, however, synthetic conversion losses are projected to be significant.

Based on the above, Method B was chosen in comparing the final tables. Data supplied by those respondents who used Method B were recorded as given. For those respondents using Method A, Table I was adjusted in accordance with data provided in Table II on syncrude and syngas production and coal produced for synthetic oil and gas plants. Where usable data were provided in Table II but not in Table I, conversion adjustments were developed by using a loss factor of 15 percent in converting from oil to gas and a loss factor of 35 percent in converting from coal to oil and from coal to gas.

## DISTILLATE FUEL OIL BREAKDOWN

The requested distillate breakdown on survey Table III included a four-way sulfur split on #4 oil. The breakdown desired was 0 to 0.5 percent sulfur, 0.51 to 1.0 percent, 1.1 to 2.0 percent, and greater than 2 percent sulfur. The number of respondents with this split was too low to sufficiently guarantee respondent confidentiality. However, a sufficient number of respondents reported a total domestic demand for a #4 oil.

Upon discussion with the committee, it was therefore decided that, in the presentation of the results, Arthur Young & Company would report only the total #4 oil demand projections. The distillate breakdown was thus:

#2 Oil
#4 Oil
Diesel
    On Highway
    Off Highway
Other Distillate
    Total Distillate.

## RESIDUAL FUEL OIL BREAKDOWN

As in the case with distillate, survey Table III requested a breakdown of the demand for residual fuel oil by percent sulfur content. A sufficient number of respondents reported the breakdown as requested for total U.S. demand. However, fewer than were required to ensure confidentiality reported that breakdown for PAD V, and consequently for PADs I-IV inclusive.

Since a sulfur split in the case of residual oil was highly desired by members of the committee, an attempt was made to find a solution to this problem. A single respondent reported a breakdown as follows: 0 to 0.5 percent, 0.51 to 2.0 percent, and greater than 2.0 percent for both the U.S. total and for PAD V. To conform to the other responses, and to allow for the reporting of the residual breakdown at the PAD level, it was necessary to separate out that respondent's projections for the 0.51 to 2.0 percent cell into 0.51 to 1.0 and 1.1 to 2.0 percent cells. It was decided that this should be done on the basis of the relative shares of these two cells as reported by the respondents who gave the full requested breakdown. Thus, for example, if the other respondents indicated the 55 percent of the total that would fall in the 0.51 to 1.0 percent cell in 1980, then the total reported for the other respondent would be multiplied by 0.55 to generate an estimated projection for that cell. The remainder would be assigned to the 1.1 to 2.0 percent cell.

BALANCING METHODOLOGY

The basic procedure employed in balancing the tables utilizes the mean and standard deviation of each cell. The mean values for each cell in a row or column are summed. This sum is compared to the value of the appropriate total or subtotal of that row or column. Due to the fact that different numbers of respondents answered each individual cell, these numbers will coincide only by accident. When these numbers don't coincide, the difference between the sum of the individual cells and the total is taken. This difference is then apportioned to the individual cells on the basis of their absolute standard deviation, and the total is taken. For example, consider the row of numbers below. Numbers in parentheses represent their associated standard deviations.

| 100 | 200 | 500 | 750 |
|---|---|---|---|
| (10) | (50) | (40) | |

Suppose the first three numbers should add to the fourth. In this case they add to 800. Thus, taking the 750 as a given, the other numbers must be adjusted downward.

The total standard deviation of the three numbers is equal to 100. The first number's standard deviation accounts for 10 percent of the total, the second number's for 50 percent, and the third number's for 40 percent. Thus 10 percent of 50 (the difference between 800 and 750) = 5 is subtracted from the first number, 50% x 50 = 25 is subtracted from the second, and 40% x 50 = 20 is subtracted from the third. The balanced series is thus:

95 + 175 + 480 = 750.

This technique assigns the variation in proportion to the standard deviation. If the standard deviation is thought of as the "agreement index," then this system assigns a larger share of the difference to cells where there is less agreement among respondents.

The theme governing the table balancing is the observed fact that the more aggregate the cell in question, the more agreement shown. This leads to a table balancing starting from totals, back through subtotals, and finally to individual cells.

(1) Table I

In Table I, the lower right-hand corner, "Total Energy Consumption," was taken as given. "Total Primary Consumption" was then forced to equal this total since "Electricity Distributed to Sector" is, by definition, equal to zero for all sectors combined.

The next step involved balancing the "Total" row with the determined value of "Primary Energy." The first seven columns, from "Petroleum Liquids" to "Other" were then balanced on the

basis of their standard deviations. The rows were then summed across to derive values for the "Total Primary Energy" column. The "Electricity Distributed to Sector" column was then balanced and summed across the row with "Total Primary Energy" to generate the values for total "Energy Consumption."

Table I had to be balanced in two directions and the process was thus more involved. It must be noted that a different procedure on this table would result in slightly different numbers.

(2) Tables II, III, V, and VI

These tables were all balanced by column. The most aggregated number(s) in each table were taken as given. This total was then used to balance its component subtotals. This process was continued until all cells were balanced.

Another requirement was that these tables be consistent with each other. That is, consumption or supply figures on any table must equal corresponding figures on any other table. Thus "Petroleum Liquids," "Natural Gas," and "Coal" totals from Table I must equal the corresponding memos on Table II. "Total Oil Supply" on Table II must in turn equal "Total Domestic Demand" on Table III and similarly "Oil Consumption" on Table V. "Domestic Production" on Table II must be set to the sum of "U.S. Production of Crude and NGL" on Tables VI and VII.

Balanced tables for PAD districts are generated for Table III as follows. Total U.S. and PAD V tables are balanced independently. Each cell for PAD V is then subtracted from the corresponding cell for the U.S. total to derive values for PADs I-IV inclusive.

(3) Table IV

Table IV is a special case since all entries for the U.S. total are determined previously. Once Tables I and II are determined, they are simply summed to derive a total supply, total demand figure.

Balanced tables for PAD level detail are generated using the same method as in Table III.

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TOTAL U.S. ENERGY CONSUMPTION BY FUELS AND BY CONSUMING SECTORS
(TRILLION BTU S)

ALL RESPONDENTS
CELL COUNT

| | | PETROL. LIQUIDS | NAT. GAS (DRY) | COAL | NUCLEAR | HYDRO-ELEC. | GEO-THERMAL | OTHER | TOTAL PRIMARY ENERGY | ELEC. DIST. SECTOR | TOTAL ENERGY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDENTIAL/COMMERCIAL: | 1980 | 13 | 14 | 13 | 12 | 12 | 12 | 13 | 14 | 13 | 12 |
| | 1982 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 10 | 9 | 9 |
| | 1985 | 14 | 14 | 14 | 12 | 12 | 12 | 13 | 15 | 13 | 13 |
| | 1990 | 14 | 14 | 14 | 12 | 12 | 12 | 13 | 15 | 13 | 13 |
| TRANSPORTATION: | 1980 | 14 | 10 | 12 | 12 | 12 | 12 | 12 | 14 | 11 | 12 |
| | 1982 | 10 | 6 | 9 | 9 | 9 | 9 | 9 | 10 | 9 | 9 |
| | 1985 | 15 | 10 | 12 | 12 | 12 | 12 | 12 | 15 | 12 | 13 |
| | 1990 | 15 | 10 | 12 | 12 | 12 | 12 | 12 | 15 | 12 | 13 |
| INDUSTRIAL: | 1980 | 13 | 14 | 14 | 12 | 5 | 12 | 12 | 14 | 13 | 12 |
| | 1982 | 9 | 9 | 9 | 9 | 4 | 9 | 9 | 10 | 9 | 9 |
| | 1985 | 14 | 14 | 14 | 12 | 5 | 12 | 12 | 15 | 13 | 13 |
| | 1990 | 14 | 14 | 14 | 12 | 5 | 12 | 12 | 15 | 13 | 13 |
| ELECTRIC UTILITY: | 1980 | 14 | 14 | 14 | 14 | 14 | 9 | 11 | 15 | 13 | 13 |
| | 1982 | 9 | 9 | 9 | 9 | 9 | 7 | 8 | 10 | 9 | 9 |
| | 1985 | 14 | 14 | 14 | 14 | 14 | 9 | 12 | 15 | 13 | 13 |
| | 1990 | 14 | 14 | 14 | 14 | 14 | 9 | 12 | 15 | 13 | 13 |
| NON-ENERGY & OTHERS: | 1980 | 14 | 14 | 14 | 12 | 12 | 12 | 12 | 14 | 12 | 12 |
| | 1982 | 10 | 9 | 9 | 9 | 9 | 9 | 9 | 10 | 9 | 9 |
| | 1985 | 15 | 14 | 14 | 12 | 12 | 12 | 12 | 15 | 12 | 13 |
| | 1990 | 15 | 14 | 14 | 12 | 12 | 12 | 12 | 15 | 12 | 13 |
| SYNTHETIC CONVERSION ADJUST | 1980 | 10 | 10 | 10 | 12 | 12 | 12 | 12 | 10 | 12 | 10 |
| | 1982 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 8 | 9 | 8 |
| | 1985 | 11 | 11 | 11 | 12 | 12 | 12 | 11 | 11 | 12 | 11 |
| | 1990 | 11 | 11 | 11 | 12 | 12 | 12 | 12 | 11 | 12 | 11 |
| TOTAL: | 1980 | 15 | 15 | 15 | 15 | 14 | 8 | 11 | 16 | 12 | 16 |
| | 1982 | 10 | 10 | 10 | 10 | 10 | 7 | 8 | 11 | 9 | 11 |
| | 1985 | 15 | 15 | 15 | 15 | 14 | 8 | 11 | 16 | 12 | 16 |
| | 1990 | 15 | 15 | 15 | 15 | 14 | 8 | 11 | 16 | 12 | 16 |

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TABLE 1A -- ECONOMIC ASSUMPTIONS

ALL RESPONDENTS
CELL COUNT

| | | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|---|
| GNP ASSUMPTION | (BILLION 1972 $) | 15 | 13 | 15 | 15 |
| FRB INDEX OF IND. PROD. | (1967=100) | 14 | 12 | 14 | 14 |
| POPULATION | (MID-YEAR, 000) | 15 | 13 | 15 | 15 |
| DISPOSABLE PERSONAL INCOME | (BILLION 1972 $) | 11 | 11 | 12 | 12 |

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TABLE II -- Energy Supplies

ALL RESPONDENTS
CELL COUNT

| | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|
| **OIL (Million Barrels/Year)** | | | | |
| DOMESTIC PRODUCTION - TOTAL | 16 | 12 | 16 | 16 |
| CRUDE & LEASE CONDENSATE | 14 | 11 | 14 | 14 |
| NGL | 14 | 10 | 14 | 14 |
| IMPORTS - TOTAL | 16 | 12 | 16 | 16 |
| CRUDE | 13 | 9 | 13 | 13 |
| PRODUCTS (INCL. NGL & UNFINISHED) | 13 | 9 | 13 | 13 |
| EXPORTS | 14 | 10 | 14 | 14 |
| PROCESSING GAIN, ETC. | 14 | 10 | 14 | 14 |
| SYNCRUDE | 13 | 9 | 13 | 13 |
| FROM SHALE | 13 | 10 | 13 | 13 |
| FROM COAL | 13 | 9 | 12 | 12 |
| FROM INVENTORY | 13 | 9 | 13 | 13 |
| CRUDE | 11 | 8 | 12 | 12 |
| PRODUCTS | 11 | 8 | 12 | 12 |
| TOTAL OIL SUPPLY | 15 | 11 | 15 | 15 |
| MEMO: TRILLION BTU'S/YR. | 15 | 11 | 15 | 15 |
| **GAS (Billion Cubic Feet/Year)** | | | | |
| PRODUCTION | 14 | 11 | 14 | 14 |
| EXTRACTION LOSS, TRANSFERS OUT | 12 | 9 | 12 | 12 |
| IMPORTS - TOTAL | 14 | 10 | 14 | 14 |
| EXPORTS | 13 | 9 | 13 | 13 |
| FROM INV., TRANSMILLION LOSS & UNACCOUNTED | 14 | 10 | 14 | 14 |
| TOTAL DRY NATURAL GAS | 14 | 10 | 14 | 14 |
| SYNGAS | 12 | 9 | 12 | 12 |
| FROM COAL | 13 | 10 | 13 | 13 |
| FROM LIQUIDS | 13 | 10 | 13 | 13 |
| TOTAL GAS SUPPLY | 15 | 11 | 15 | 15 |
| MEMO: TRILLION BTU'S/YR. | 15 | 11 | 15 | 15 |
| **COAL (ANTHRACITE, BITUMINOUS, & LIGNITE): THOUSAND SHORT TONS PER YEAR** | | | | |
| PRODUCTION - TOTAL | 14 | 8 | 14 | 14 |
| FOR CONVENTIONAL DOMESTIC MARKETS | 11 | 6 | 10 | 11 |
| FOR SYNTHETIC OIL &/OR GAS PLANTS | 13 | 8 | 13 | 13 |
| NET EXPORTS | 14 | 8 | 14 | 14 |
| FROM INV., LOSSES, GAINS, & UNACCOUNTED FOR | 12 | 7 | 12 | 12 |
| TOTAL COAL SUPPLY | 14 | 8 | 14 | 14 |
| MEMO: TRILLION BTU'S/YR. | 16 | 10 | 16 | 16 |
| NUCLEAR: TRILLION BTU'S/YR. | 15 | 10 | 14 | 15 |

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TABLE III-- DOMESTIC DEMAND FOR PRODUCTS-U.S. TOTAL
MILLION BARRELS/DAY

ALL RESPONDENTS
CELL COUNT

| | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 8 | 8 | 8 | 8 |
| - NON-PREMIUM | 8 | 8 | 8 | 8 |
| S.TOTAL | 9 | 9 | 9 | 9 |
| UNLEADED - PREMIUM | 7 | 7 | 7 | 7 |
| - NON-PREMIUM | 7 | 7 | 7 | 7 |
| S.TOTAL | 9 | 9 | 9 | 9 |
| TOTAL MOTOR GASOLINE | 15 | 12 | 15 | 15 |
| AVIATION GASOLINE | 14 | 12 | 14 | 14 |
| JET FUEL: NAPTHA TYPE | 11 | 10 | 11 | 11 |
| KEROSINE TYPE | 11 | 10 | 12 | 12 |
| TOTAL JET FUEL | 14 | 12 | 14 | 14 |
| SPECIAL NAPTHA | 13 | 11 | 13 | 13 |
| KEROSINE | 14 | 12 | 14 | 14 |
| DISTILLATE FUEL OIL: NO.2 OIL | 4 | 4 | 4 | 4 |
| NO.4 OIL | 5 | 5 | 5 | 5 |
| DIESEL - ON HIGHWAY | 10 | 9 | 10 | 10 |
| - OFF HIGHWAY | 6 | 6 | 6 | 6 |
| OTHER DISTILLATE | 5 | 5 | 5 | 5 |
| TOTAL DISTILLATE FUEL OIL | 15 | 12 | 15 | 15 |
| RESIDUAL FUEL OIL: 0 - .5%S | 5 | 5 | 5 | 5 |
| .51 - 1.0%S | 5 | 5 | 5 | 5 |
| 1.1 - 2.0%S | 5 | 5 | 5 | 5 |
| 2.0%S + | 5 | 5 | 5 | 5 |
| TOTAL RESIDUAL FUEL OIL | 15 | 12 | 15 | 15 |
| LIQUEFIED GASES: ETHANE | 8 | 7 | 8 | 8 |
| PROPANE | 6 | 6 | 6 | 6 |
| BUTANE | 6 | 6 | 6 | 6 |
| PROPANE/BUTANE MIX | 6 | 6 | 6 | 6 |
| TOTAL LIQUEFIED GASES | 14 | 12 | 15 | 15 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 8 | 6 | 8 | 8 |
| 400 EP NAPTHA | 8 | 6 | 8 | 8 |
| OTHER | 9 | 7 | 9 | 9 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 13 | 11 | 13 | 13 |
| LUBRICANTS | 13 | 11 | 13 | 13 |
| WAXES | 13 | 11 | 13 | 13 |
| COKE | 13 | 11 | 13 | 13 |
| ASPHALT & ROAD OIL | 13 | 11 | 14 | 14 |
| STILL GAS FOR FUEL | 13 | 11 | 14 | 14 |
| MISCELLANEOUS PRODUCTS | 13 | 11 | 14 | 14 |
| TOTAL DEMAND | 15 | 12 | 15 | 15 |
| ETHANE | 8 | 8 | 8 | 8 |
| PROPANE | 7 | 7 | 7 | 7 |
| BUTANE | 7 | 7 | 7 | 7 |
| PROPANE/BUTANE MIX | 7 | 7 | 7 | 7 |
| TOTAL | 10 | 10 | 10 | 10 |

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TABLE III-- DOMESTIC DEMAND FOR PRODUCTS-PAD V
MILLION BARRELS/DAY

ALL RESPONDENTS
CELL COUNT

| | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 3 | 3 | 3 | 3 |
| LEADED - NON-PREMIUM | 3 | 3 | 3 | 3 |
| LEADED S.TOTAL | 4 | 4 | 4 | 4 |
| UNLEADED - PREMIUM | 3 | 3 | 3 | 3 |
| UNLEADED - NON-PREMIUM | 3 | 3 | 3 | 3 |
| UNLEADED S.TOTAL | 4 | 4 | 4 | 4 |
| TOTAL MOTOR GASOLINE | 10 | 9 | 10 | 10 |
| AVIATION GASOLINE | 9 | 9 | 9 | 9 |
| JET FUEL: NAPTHA TYPE | 7 | 7 | 7 | 7 |
| KEROSINE TYPE | 7 | 7 | 7 | 7 |
| TOTAL JET FUEL | 9 | 9 | 9 | 9 |
| SPECIAL NAPTHA | 8 | 8 | 8 | 8 |
| KEROSINE | 9 | 9 | 9 | 9 |
| DISTILLATE FUEL OIL: NO.2 OIL | 4 | 4 | 4 | 4 |
| NO.4 OIL | 3 | 3 | 3 | 3 |
| DIESEL - ON HIGHWAY | 5 | 5 | 5 | 5 |
| DIESEL - OFF HIGHWAY | 4 | 4 | 4 | 4 |
| OTHER DISTILLATE | 4 | 4 | 4 | 4 |
| TOTAL DISTILLATE FUEL OIL | 10 | 9 | 10 | 10 |
| RESIDUAL FUEL OIL: 0 - .5%S | 3 | 3 | 3 | 3 |
| .51 - 1.0%S | 3 | 3 | 3 | 3 |
| 1.1 - 2.0%S | 3 | 3 | 3 | 3 |
| 2.0%S + | 3 | 3 | 3 | 3 |
| TOTAL RESIDUAL FUEL OIL | 10 | 9 | 10 | 10 |
| LIQUEFIED GASES: ETHANE | 4 | 4 | 4 | 4 |
| PROPANE | 3 | 3 | 3 | 3 |
| BUTANE | 3 | 3 | 3 | 3 |
| PROPANE/BUTANE MIX | 3 | 3 | 3 | 3 |
| TOTAL LIQUEFIED GASES | 9 | 9 | 9 | 9 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 3 | 3 | 3 | 3 |
| 400 EP NAPTHA | 3 | 3 | 3 | 3 |
| OTHER | 3 | 3 | 3 | 3 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 8 | 8 | 8 | 8 |
| LUBRICANTS | 8 | 8 | 8 | 8 |
| WAXES | 8 | 8 | 8 | 8 |
| COKE | 8 | 8 | 8 | 8 |
| ASPHALT & ROAD OIL | 8 | 8 | 8 | 8 |
| STILL GAS FOR FUEL | 8 | 8 | 8 | 8 |
| MISCELLANEOUS PRODUCTS | 8 | 8 | 8 | 8 |
| TOTAL DEMAND | 10 | 9 | 10 | 10 |
| ETHANE | 5 | 5 | 5 | 5 |
| PROPANE | 4 | 4 | 4 | 4 |
| BUTANE | 4 | 4 | 4 | 4 |
| PROPANE/BUTANE MIX | 4 | 4 | 4 | 4 |
| TOTAL | 8 | 8 | 8 | 8 |
| | 9 | 9 | 9 | 9 |

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TABLE III-- DOMESTIC DEMAND FOR PRODUCTS-PADS I-IV
MILLION BARRELS/DAY

ALL RESPONDENTS
CELL COUNT

| | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|
| MOTOR GASOLINE: LEADED - PREMIUM | 3 | 3 | 3 | 3 |
| - NON-PREMIUM | 3 | 3 | 3 | 3 |
| S.TOTAL | 4 | 4 | 4 | 4 |
| UNLEADED - PREMIUM | 3 | 3 | 3 | 3 |
| - NON-PREMIUM | 3 | 3 | 3 | 3 |
| S.TOTAL | 4 | 4 | 4 | 4 |
| TOTAL MOTOR GASOLINE | 10 | 9 | 10 | 10 |
| AVIATION GASOLINE | 9 | 9 | 9 | 9 |
| JET FUEL: NAPTHA TYPE | 7 | 7 | 7 | 7 |
| KEROSINE TYPE | 7 | 7 | 7 | 7 |
| TOTAL JET FUEL | 9 | 9 | 9 | 9 |
| SPECIAL NAPTHA | 8 | 8 | 8 | 8 |
| KEROSINE | 9 | 9 | 9 | 9 |
| DISTILLATE FUEL OIL: NO.2 OIL | 3 | 3 | 3 | 3 |
| NO.4 OIL | 3 | 3 | 3 | 3 |
| DIESEL - ON HIGHWAY | 5 | 5 | 5 | 5 |
| - OFF HIGHWAY | 4 | 4 | 4 | 4 |
| OTHER DISTILLATE | 4 | 4 | 4 | 4 |
| TOTAL DISTILLATE FUEL OIL | 10 | 9 | 10 | 10 |
| RESIDUAL FUEL OIL: 0 - .5%S | 3 | 3 | 3 | 3 |
| .51 - 1.0%S | 3 | 3 | 3 | 3 |
| 1.1 - 2.0%S | 3 | 3 | 3 | 3 |
| 2.0%S + | 3 | 3 | 3 | 3 |
| TOTAL RESIDUAL FUEL OIL | 10 | 9 | 10 | 10 |
| LIQUEFIED GASES: ETHANE | 4 | 4 | 4 | 4 |
| PROPANE | 3 | 3 | 3 | 3 |
| BUTANE | 3 | 3 | 3 | 3 |
| PROPANE/BUTANE MIX | 3 | 3 | 3 | 3 |
| TOTAL LIQUEFIED GASES | 9 | 9 | 9 | 9 |
| PETROCHEMICAL FEEDSTOCKS: STILL GAS | 3 | 3 | 3 | 3 |
| 400 EP NAPTHA | 3 | 3 | 3 | 3 |
| OTHER | 3 | 3 | 3 | 3 |
| TOTAL PETROCHEMICAL FEEDSTOCKS | 8 | 8 | 8 | 8 |
| LUBRICANTS | 8 | 8 | 8 | 8 |
| WAXES | 8 | 8 | 8 | 8 |
| COKE | 8 | 8 | 8 | 8 |
| ASPHALT & ROAD OIL | 8 | 8 | 8 | 8 |
| STILL GAS FOR FUEL | 8 | 8 | 8 | 8 |
| MISCELLANEOUS PRODUCTS | 8 | 8 | 8 | 8 |
| TOTAL DEMAND | 10 | 9 | 10 | 10 |
| ETHANE | 5 | 5 | 5 | 5 |
| PROPANE | 4 | 4 | 4 | 4 |
| BUTANE | 4 | 4 | 4 | 4 |
| PROPANE/BUTANE MIX | 4 | 4 | 4 | 4 |
| TOTAL | 8 | 8 | 8 | 8 |
| | 9 | 9 | 9 | 9 |

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TABLE IIIA -- MOTOR GASOLINE ASSUMPTIONS

ALL RESPONDENTS
CELL COUNT

| | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|
| PASSENGER CARS IN USE (THOUSANDS) | 11 | 9 | 11 | 11 |
| NEW CAR REGISTRATION (THOUSANDS) | 12 | 10 | 12 | 12 |
| TOTAL MILES TRAVELED-MILLIONS | 14 | 11 | 13 | 13 |
| AVERAGE MILES PER CAR (ALL CARS) | 13 | 10 | 12 | 12 |
| AVERAGE MILES PER GALLON (NEW CARS) | 11 | 9 | 11 | 11 |
| AVERAGE MPG (ALL CARS) | 14 | 11 | 13 | 13 |
| DIESEL PASSENGER CAR SALES (THOUSANDS) | 10 | 8 | 10 | 10 |
| AVERAGE MILES PER GALLON (NEW TRUCKS) | 5 | 4 | 5 | 5 |
| LEADED PREMIUM | 6 | 5 | 4 | 3 |
| LEADED NON-PREMIUM | 6 | 6 | 6 | 6 |
| UNLEADED PREMIUM | 6 | 6 | 6 | 6 |
| UNLEADED NON-PREMIUM | 6 | 6 | 6 | 6 |

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TABLE IV -- PETROLEUM SUPPLY & DEMAND BALANCE -- TOTAL U.S.
THOUSAND BARRELS DAILY

All Respondents
CELL COUNT

| | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|
| DEMAND - TOTAL | 11 | 8 | 11 | 11 |
| 1. LOCAL PRODUCT DEMAND | 13 | 10 | 13 | 13 |
| 2. CRUDE AND PRODUCT EXPORTS | 13 | 10 | 13 | 13 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 12 | 9 | 12 | 12 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 12 | 9 | 12 | 12 |
| 5. CRUDE LOSSES | 13 | 10 | 13 | 13 |
| SUPPLY - TOTAL | 11 | 8 | 11 | 11 |
| 1. PRODUCTION - TOTAL | 13 | 10 | 13 | 13 |
| CRUDE AND LEASE CONDENSATE | 13 | 10 | 13 | 13 |
| NGL | 13 | 10 | 13 | 13 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 12 | 9 | 12 | 12 |
| CRUDE, NGL, AND UNFINISHED | 12 | 9 | 11 | 12 |
| PRODUCTS | 12 | 9 | 11 | 12 |
| 3. PROCESSING GAIN, ETC. | 13 | 10 | 13 | 13 |
| 4. IMPORTS - TOTAL | 13 | 10 | 13 | 13 |
| CRUDE AND UNFINISHED | 13 | 10 | 13 | 13 |
| FROM OVERLAND | 7 | 6 | 8 | 8 |
| FROM OFFSHORE | 7 | 6 | 8 | 8 |
| NGL | 12 | 9 | 12 | 12 |
| FINISHED PRODUCTS | 12 | 9 | 12 | 12 |
| 5. SYNCRUDE | 12 | 9 | 12 | 12 |
| FROM SHALE | 12 | 9 | 13 | 13 |
| FROM COAL | 11 | 8 | 12 | 12 |
| 6. FROM INVENTORY | 12 | 9 | 12 | 12 |
| CRUDE | 10 | 8 | 11 | 11 |
| PRODUCTS | 10 | 8 | 11 | 11 |
| 7. CRUDE RUNS | 13 | 10 | 13 | 12 |

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TABLE IV -- PETROLEUM SUPPLY & DEMAND BALANCE -- PAD V
THOUSAND BARRELS DAILY

ALL RESPONDENTS
CELL COUNT

| | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|
| DEMAND - TOTAL | 7 | 6 | 7 | 7 |
| 1. LOCAL PRODUCT DEMAND | 10 | 9 | 9 | 10 |
| 2. CRUDE AND PRODUCT EXPORTS | 9 | 8 | 9 | 8 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 8 | 7 | 8 | 7 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 8 | 7 | 8 | 7 |
| 5. CRUDE LOSSES | 9 | 8 | 9 | 9 |
| SUPPLY - TOTAL | 7 | 6 | 7 | 7 |
| 1. PRODUCTION - TOTAL | 10 | 9 | 10 | 10 |
| CRUDE AND LEASE CONDENSATE | 10 | 9 | 10 | 10 |
| NGL | 10 | 9 | 10 | 10 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 8 | 6 | 8 | 7 |
| CRUDE, NGL, AND UNFINISHED | 8 | 7 | 8 | 7 |
| PRODUCTS | 8 | 7 | 8 | 7 |
| 3. PROCESSING GAIN, ETC. | 10 | 8 | 9 | 8 |
| 4. IMPORTS - TOTAL | 9 | 8 | 9 | 8 |
| CRUDE AND UNFINISHED | 9 | 8 | 9 | 8 |
| FROM OVERLAND | 6 | 5 | 6 | 6 |
| FROM OFFSHORE | 6 | 5 | 6 | 6 |
| NGL | 8 | 7 | 8 | 7 |
| FINISHED PRODUCTS | 8 | 7 | 8 | 7 |
| 5. SYNCRUDE | 9 | 8 | 9 | 8 |
| FROM SHALE | 9 | 8 | 10 | 10 |
| FROM COAL | 8 | 7 | 9 | 9 |
| 6. FROM INVENTORY | 9 | 8 | 9 | 9 |
| CRUDE | 8 | 7 | 8 | 8 |
| PRODUCTS | 8 | 7 | 8 | 8 |
| 7. CRUDE RUNS | 10 | 9 | 10 | 9 |

Date: 10/15/79

TABLE IV -- PETROLEUM SUPPLY & DEMAND BALANCE -- PADS I-IV
THOUSAND BARRELS DAILY

ALL RESPONDENTS
CELL COUNT

| | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|
| DEMAND - TOTAL | 7 | 6 | 8 | 7 |
| 1. LOCAL PRODUCT DEMAND | 10 | 9 | 9 | 10 |
| 2. CRUDE AND PRODUCT EXPORTS | 9 | 8 | 9 | 8 |
| 3. PRODUCT SHIPMENTS TO OTHER DISTRICTS | 7 | 6 | 7 | 6 |
| 4. CRUDE, NGL & UNF. SHIPMENTS TOD | 7 | 6 | 7 | 6 |
| 5. CRUDE LOSSES | 9 | 8 | 9 | 9 |
| SUPPLY - TOTAL | 7 | 6 | 7 | 7 |
| 1. PRODUCTION - TOTAL | 10 | 9 | 10 | 10 |
| CRUDE AND LEASE CONDENSATE | 10 | 9 | 10 | 10 |
| NGL | 10 | 9 | 10 | 10 |
| 2. RECEIPTS FROM OTHER DISTRICTS | 7 | 5 | 7 | 6 |
| CRUDE, NGL, AND UNFINISHED | 7 | 6 | 7 | 6 |
| PRODUCTS | 7 | 6 | 7 | 6 |
| 3. PROCESSING GAIN, ETC. | 10 | 8 | 9 | 8 |
| 4. IMPORTS - TOTAL | 9 | 8 | 9 | 8 |
| CRUDE AND UNFINISHED | 9 | 8 | 9 | 8 |
| FROM OVERLAND | 6 | 5 | 6 | 6 |
| FROM OFFSHORE | 6 | 5 | 6 | 6 |
| NGL | 8 | 7 | 8 | 7 |
| FINISHED PRODUCTS | 8 | 7 | 8 | 7 |
| 5. SYNCRUDE | 9 | 8 | 9 | 8 |
| FROM SHALE | 9 | 8 | 10 | 10 |
| FROM COAL | 8 | 7 | 9 | 9 |
| 6. FROM INVENTORY | 9 | 8 | 9 | 9 |
| CRUDE | 8 | 7 | 8 | 8 |
| PRODUCTS | 8 | 7 | 8 | 8 |
| 7. CRUDE RUNS | 10 | 9 | 10 | 9 |

Date: 10/15/79

TABLE V -- WORLD OIL CONSUMPTION ESTIMATES

ALL RESPONDENTS
CELL COUNT

| | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|
| UNITED STATES | 18 | 14 | 20 | 20 |
| WESTERN EUROPE | 16 | 13 | 18 | 18 |
| JAPAN | 16 | 13 | 18 | 18 |
| OTHER OECD | 13 | 10 | 15 | 15 |
| NON-OECD | 15 | 11 | 16 | 16 |
| NON-COMMUNIST COUNTRIES | 17 | 13 | 18 | 18 |
| USSR | 9 | 9 | 9 | 9 |
| EAST EUROPE | 9 | 9 | 9 | 9 |
| CHINA | 9 | 9 | 9 | 8 |
| COMMUNIST COUNTRIES | 13 | 11 | 13 | 12 |
| TOTAL CONSUMPTION | 13 | 11 | 13 | 12 |

Date: 10/15/79

TABLES VI AND VII -- WORLD OIL AND NATURAL GAS LIQUIDS SUPPLY
MILLION BARRELS/DAY

ALL RESPONDENTS
CELL COUNT

| | 1980 | 1982 | 1985 | 1990 |
|---|---|---|---|---|
| OECD | | | | |
| U.S. | 15 | 12 | 16 | 16 |
| CANADA | 14 | 12 | 15 | 15 |
| W. EUROPE | 14 | 12 | 15 | 15 |
| JAPAN, AUSTRALIA, NEW ZEALAND | 14 | 12 | 15 | 15 |
| SUB-TOTAL | 16 | 12 | 17 | 17 |
| OPEC | | | | |
| VENEZUELA | 14 | 12 | 15 | 15 |
| ECUADOR | 14 | 12 | 15 | 15 |
| INDONESIA | 14 | 12 | 15 | 15 |
| AFRICA | 15 | 12 | 16 | 16 |
| ALGERIA | 14 | 12 | 15 | 15 |
| LIBYA | 14 | 12 | 15 | 15 |
| NIGERIA | 14 | 12 | 15 | 15 |
| GABON | 14 | 12 | 14 | 14 |
| MIDDLE EAST | 16 | 12 | 16 | 16 |
| IRAN | 14 | 12 | 15 | 15 |
| KUWAIT | 14 | 12 | 15 | 15 |
| S. ARABIA | 14 | 12 | 15 | 15 |
| IRAQ | 14 | 12 | 15 | 15 |
| UAE | 14 | 12 | 15 | 15 |
| QATAR | 14 | 12 | 15 | 15 |
| NEUTRAL ZONE | 14 | 12 | 14 | 14 |
| SUB-TOTAL | 16 | 12 | 16 | 16 |
| NON-OPEC (EXCL. USSR, E. EUROPE, CHINA) | | | | |
| MEXICO | 14 | 12 | 14 | 14 |
| OTHER L. AMERICA | 14 | 12 | 14 | 14 |
| AFRICA | 14 | 12 | 14 | 14 |
| MIDDLE EAST | 14 | 12 | 14 | 14 |
| ASIA | 14 | 12 | 14 | 14 |
| SUB-TOTAL | 16 | 12 | 16 | 16 |
| USSR | 9 | 8 | 9 | 9 |
| EAST EUROPE | 9 | 8 | 9 | 9 |
| CHINA | 9 | 7 | 8 | 8 |
| SUB-TOTAL | 12 | 9 | 11 | 11 |
| REFINERY PROCESSING GAINS | | | | |
| U.S. | 13 | 11 | 13 | 13 |
| OTHER | 10 | 9 | 10 | 10 |
| SUB-TOTAL | 11 | 9 | 11 | 11 |
| TOTAL SUPPLY | 11 | 9 | 11 | 11 |