



## The Strategic Petroleum Reserve: Life Extension 2 and Managing Uncertainty

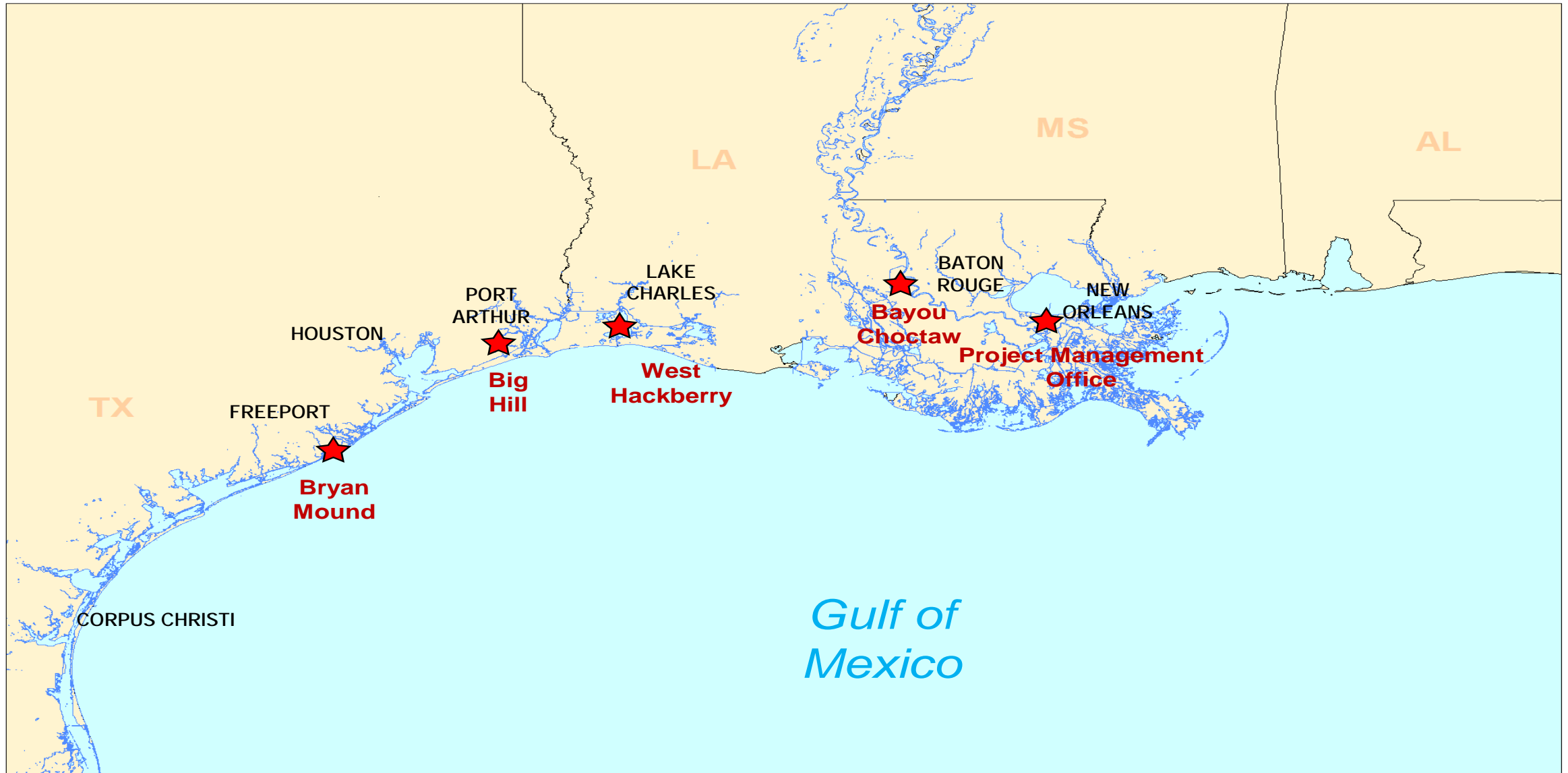
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# Strategic Petroleum Reserve Authorization

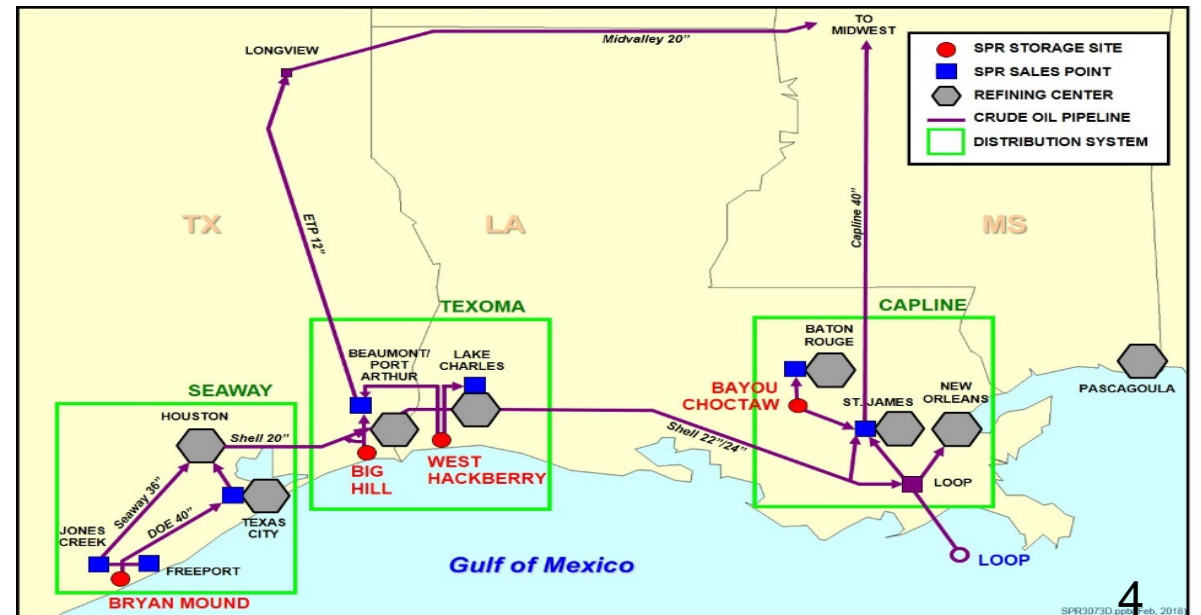
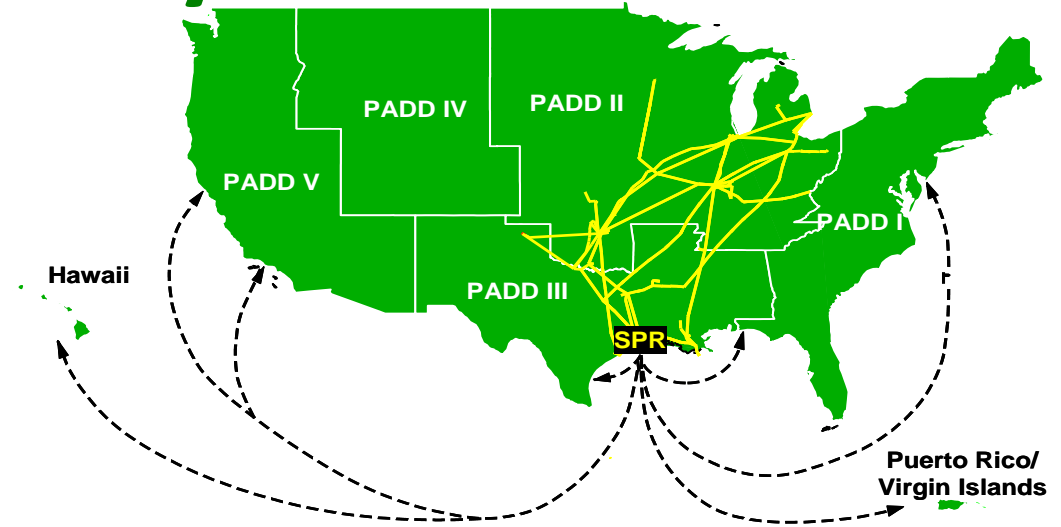
- Established by Congress Energy Policy & Conservation Act (EPCA) 1975
- Mission:
  - Protect from Potential Disruptions in Critical Oil Supplies
  - Meet Requirements under International Energy Program (IEP)

# Strategic Petroleum Reserve

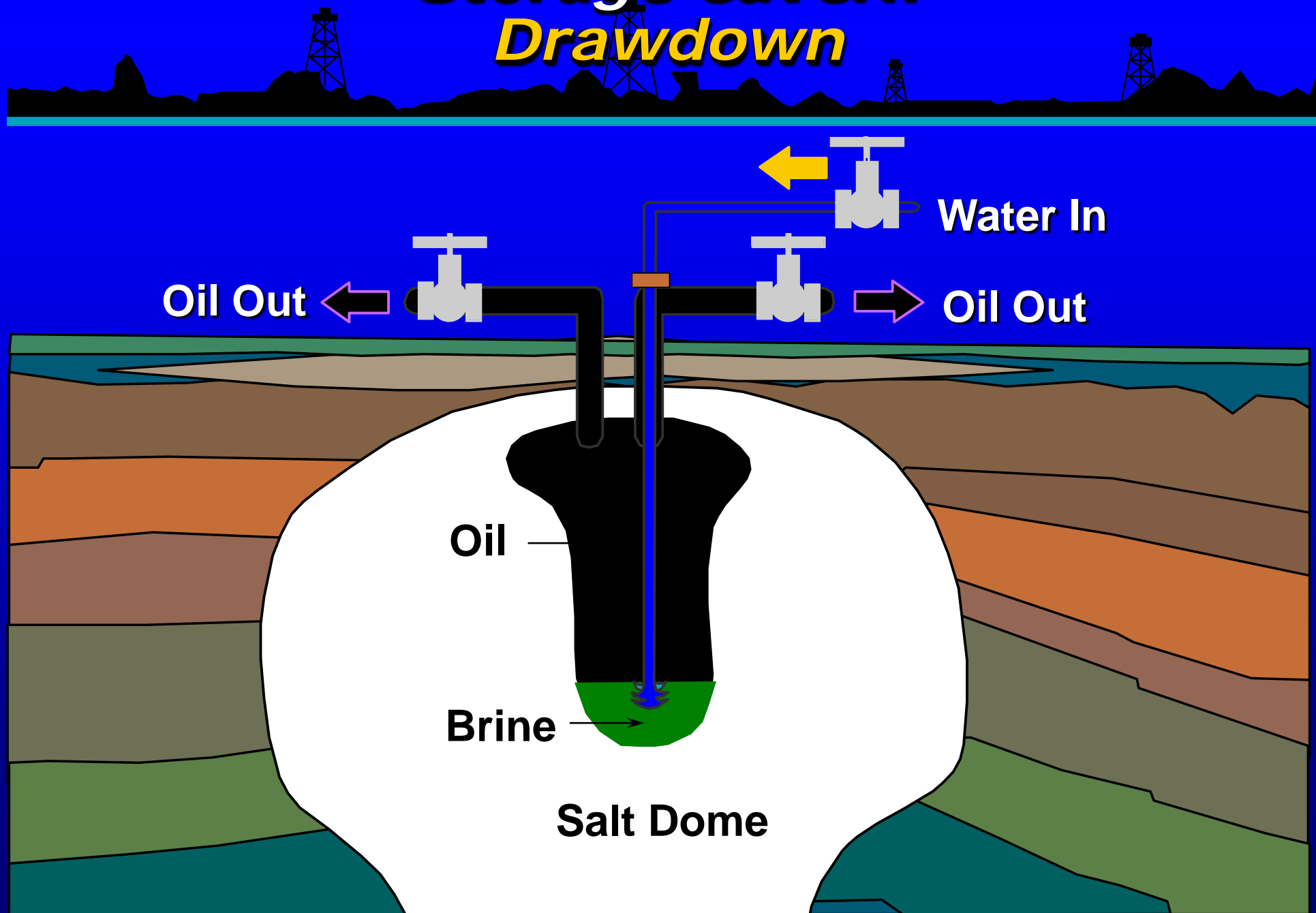


# Strategic Petroleum Reserve Distribution System

- **Centralized in the Gulf Coast**
  - Major U.S. refinery region
  - Point of entry for half of U.S. imports
  - Maximum flexibility in response to potential supply interruptions
- **Crude Oil Storage Only**
  - Light Low-Sulfur Crude (38%)
  - Light Med-Sulfur Crude (62%)
- **Physical Distribution Capabilities**
  - Pipeline connected to 30 refineries in the GC refining region
  - Pipeline connected to 15 Midwest refineries via the Midvalley and Capline pipelines
  - Marine distribution via 4 marine terminals (Marine capability of 2.4 Million B/D)



# Storage Cavern Drawdown



# Strategic Petroleum Reserve Site Information (February 2018)



**Bryan Mound**



**Big Hill**



**West Hackberry**

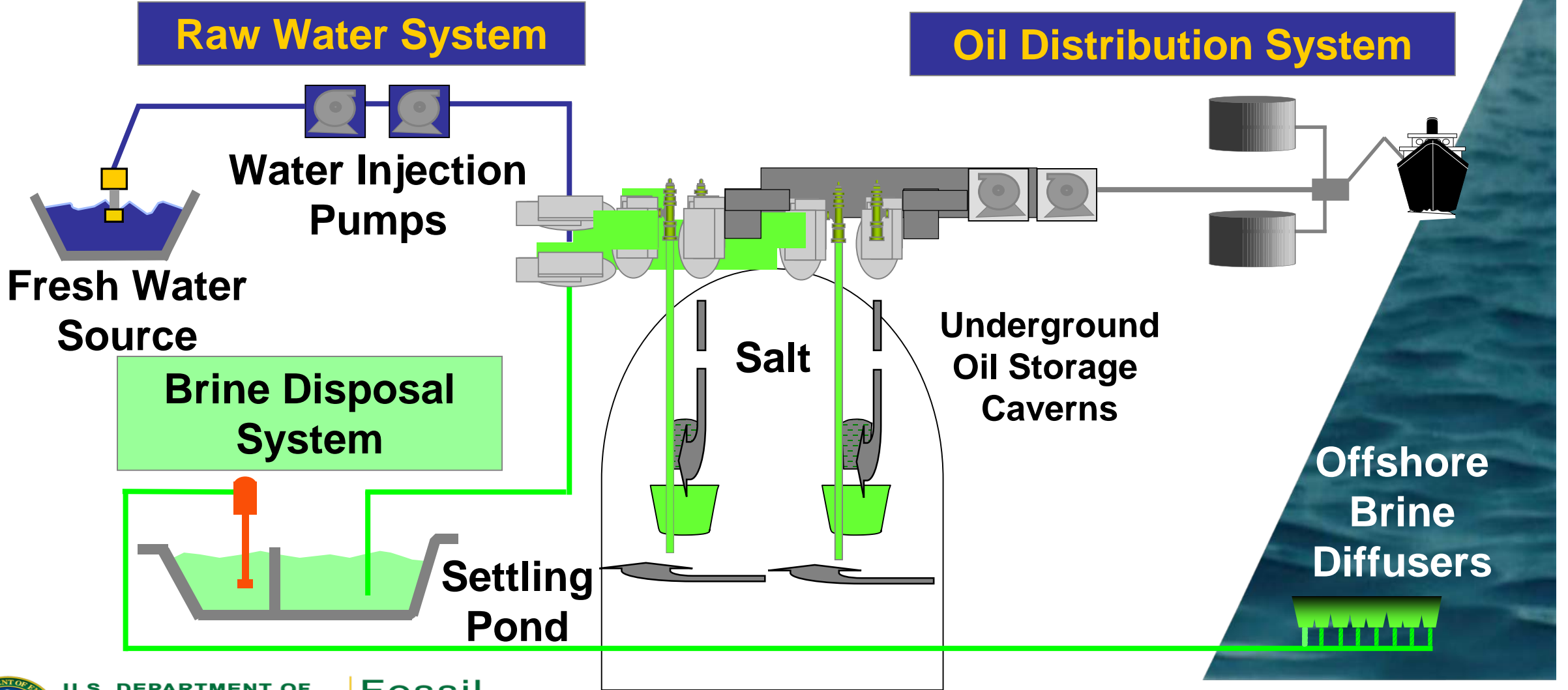


**Bayou Choctaw**

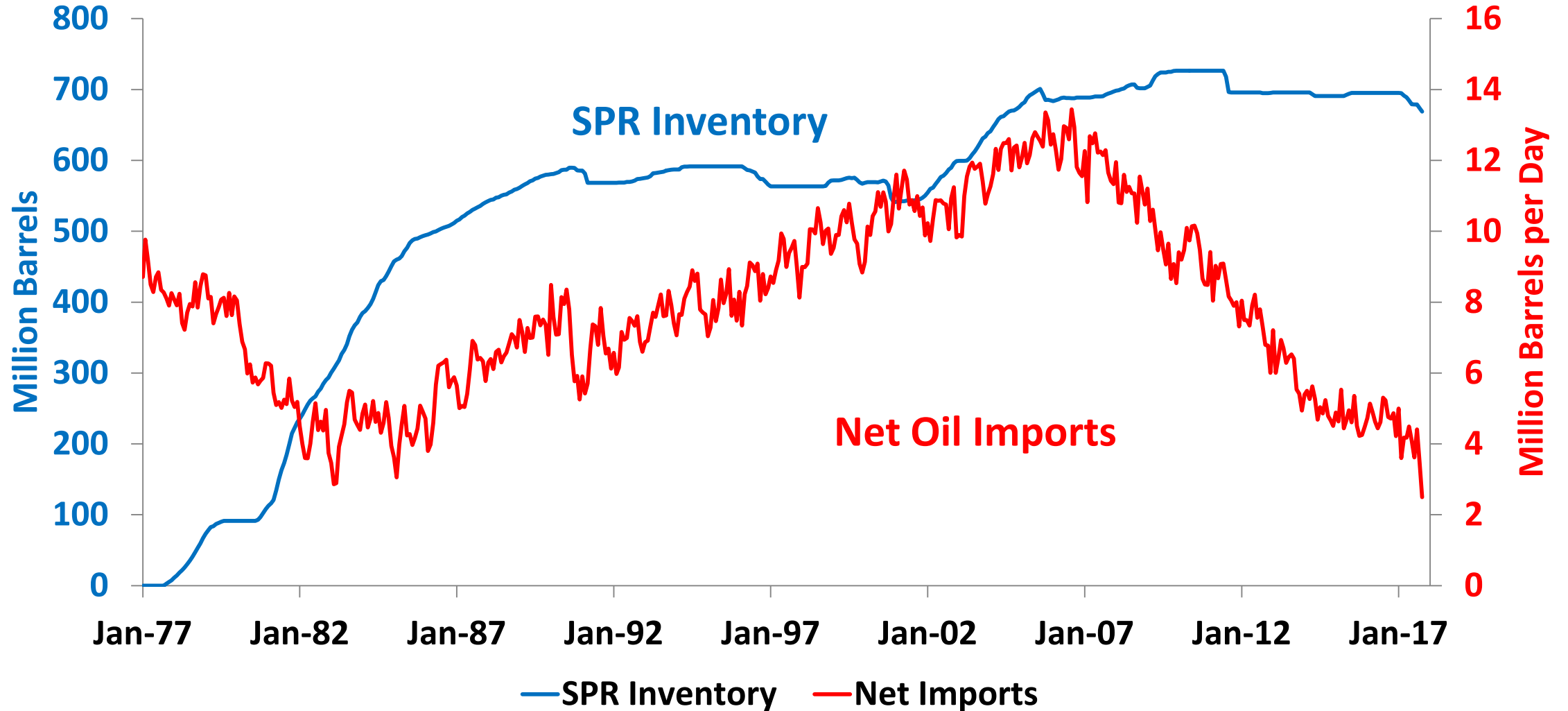
<u>SPR Site</u>	<u>Operational Caverns</u>	<u>Design Capacity</u>	<u>Current Inventory</u>	<u>Drawdown Rate</u>
Bryan Mound	19	247.1 MMB	237.3 MMB	1.5 MMB/d
Big Hill	14	170.0 MMB	155.4 MMB	1.1 MMB/d
West Hackberry	21	220.4 MMB	200.6 MMB	1.3 MMB/d
Bayou Choctaw	6	76.0 MMB	70.8 MMB	0.5 MMB/d
Pipeline Fill and Tanks			0.9 MMB	
<b>SPR - Total</b>	<b>60</b>	<b>713.5 MMB</b>	<b>665.0 MMB</b>	<b>4.4 MMB/d</b>



# Strategic Petroleum Reserve Storage Facility Operations

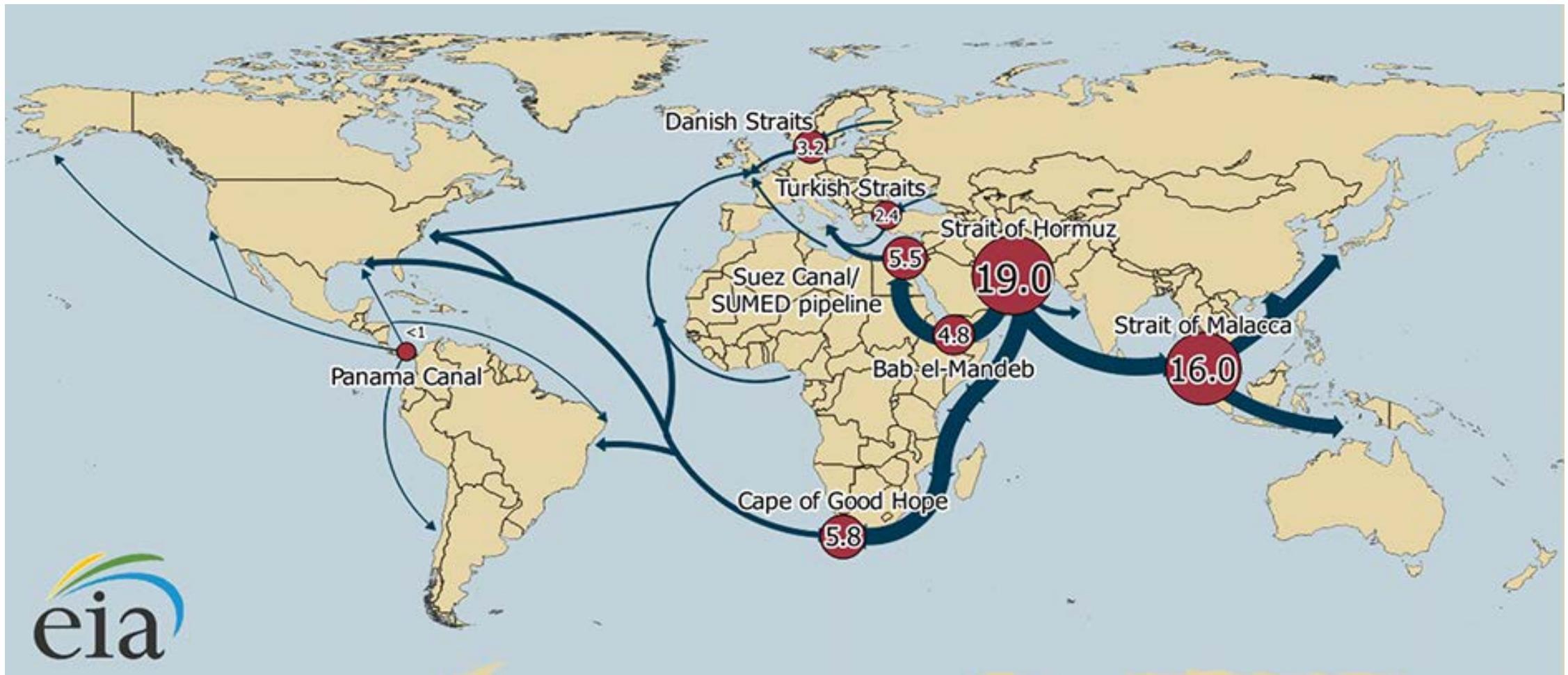


# SPR Inventory Level vs. Net Oil Imports





# Need to replace global loss, not just U.S. net imports, to reduce prices



# Past Emergency SPR Oil Releases

- **SPR Drawdowns (IEA Actions):**
  - 2011 Libya Crisis: 30.6 MMB
  - 2005 Hurricane Katrina: 11.0 MMB
  - 1991 Iraq War: 17.3 MMB
- **Emergency Exchanges (Loans):**
  - Hurricane Harvey (2017): 5.0 MMB
  - Hurricane Isaac (2012): 1.0 MMB
  - Hurricane Gustav/Ike (2008): 5.4 MMB
  - Ship Channel Closures (2006): 1.6 MMB
  - Hurricane Katrina (2005): 9.8 MMB
  - Hurricane Ivan (2004): 5.4 MMB
  - Time Exchange 2000: 30.0 MMB
  - Ship Channel Closure (2000): 1.0 MMB
  - Seaway Emergency (1996): 0.9 MMB



# Other Past SPR Oil Releases

- **SPR Test Sales:**

- 2014 Test Sale: 5.0 MMB
- 1990 Test Sale: 3.9 MMB
- 1985 Test Sale: 1.0 MMB

- **Other Exchanges:**

- Establish NEHHOR (2000): 2.8 MMB
- Maya Exchange (1999): 11.0 MMB

- **Legislative Sales:**

- Sec. 30204 of 2018 BBA\* (2022-2027): 100.0 MMB
- Sec. 20003 of P.L. 115-97 (2026-2027): 7.0 MMB
- FAST\*\* Act (2023-2025): 66.0 MMB
- 2015 BBA\* (2017-2025): 64.4 MMB + TBD
- 21<sup>st</sup> Century Cures Act (2017-2019): 25.0 MMB
- 1997 Budget Deficit Reduction Sale: 10.2 MMB
- 1996 Budget Deficit Reduction Sale: 12.8 MMB
- Weeks Island Sale (1996): 5.1 MMB



\*BBA = Bipartisan Budget Act

\*\*FAST = Fixing America's Surface Transportation



# Planned Sales from the SPR

Drawdown Legislation	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Total
Bi-partisan Budget Act 2015 (Public Law 114-74 Section 404) ESIM Sale	6.3	5.8	5	7								24.1
Bi-partisan Budget Act 2015 (Public Law 114-74 Section 403)		5	5	5	5	8	10	10	10			58
Surface Transportation Reauthorization and Reform Act on 2015 (Public Law 114-94)							16	25	25			66
21st Century Cures Act (Public Law 114-255)	9.9	9	6									24.9
Tax Cuts and Jobs Act of 2017 (Public Law 115-97)										3.5	3.5	7
Bi-partisan Budget Act 2018						7.5	7.5	7.5	7.5	35	35	100
<b>Total Annual Drawdown Volume</b>	<b>16.2</b>	<b>19.8</b>	<b>16</b>	<b>12</b>	<b>5</b>	<b>15.5</b>	<b>33.5</b>	<b>42.5</b>	<b>42.5</b>	<b>38.5</b>	<b>38.5</b>	<b>280</b>

\* For ESIM sales in the future, quantities are based upon \$60/barrel

Projected SPR inventory in 2028 is 415 MMB

# LE2 Mission Need

- Mission Need
  - Critical infrastructure and process equipment can no longer sustain required drawdown readiness
  - Delays to, and deferral of, maintenance and remedial activities has reduced drawdown capability
  - Aging infrastructure requires substantial modernization, to include systems upgrades and equipment replacement

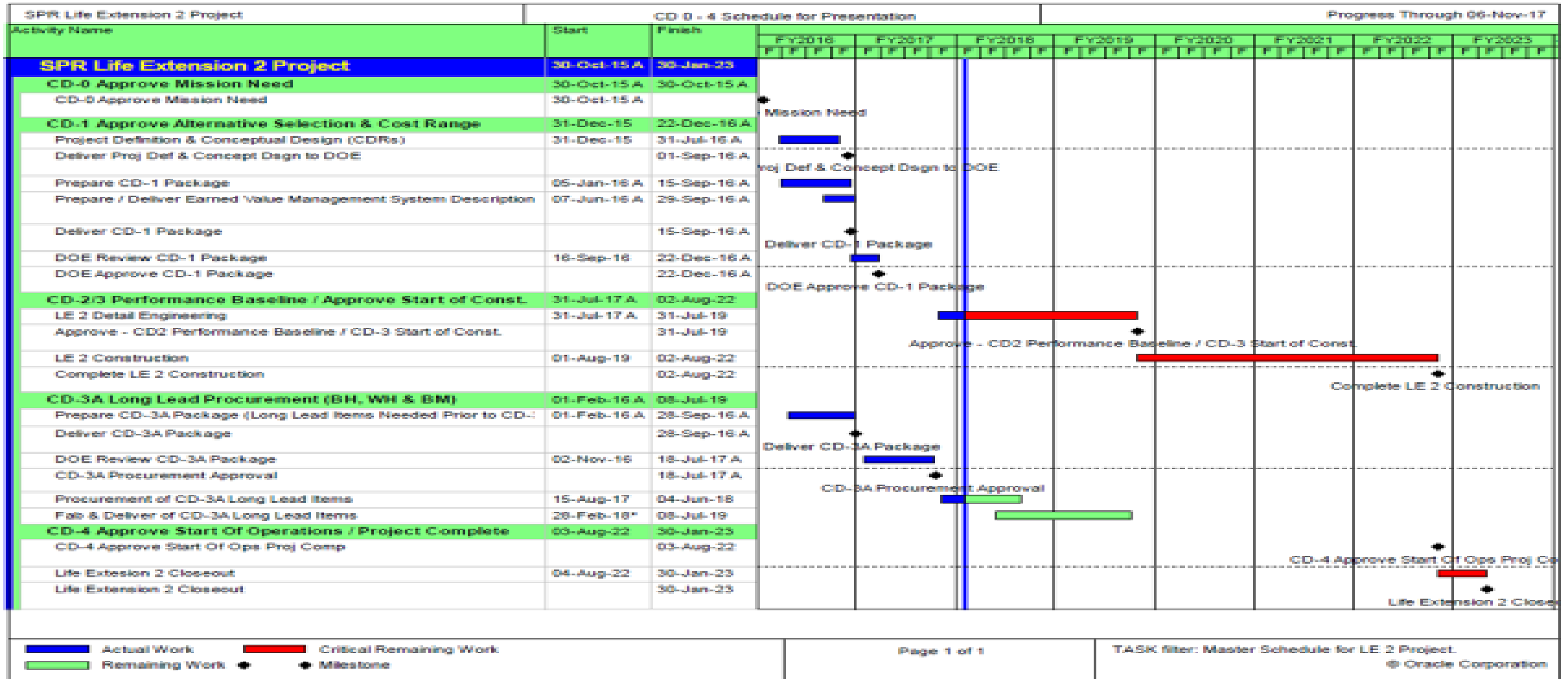
# Project Scope

- Modernize aging SPR infrastructure through systems upgrades and associated equipment replacement
- Repair or replace:
  - Crude oil transfer systems
  - Raw water systems
  - Brine disposal systems
  - Power distribution and lighting systems
  - Physical security systems

# AoA Selection Criteria

- Rigorous Analysis of Alternatives (AoA) conducted at the work package level due to the nature of the work. Selection criteria were: Cost Range \$750M to \$1.4B
  - Life Cycle Cost and Project Cost
  - Constructability [during on-going Oil Deliveries]
  - Ease of Maintenance & Operations
  - Technical Soundness
  - Sustainability
  - Safety & Security during Construction

# Preliminary CD-1 Schedule





# Accomplishments

- Received CD-1 Approval December 2016
- Received initial LE2 appropriations April 2017
  - \$13.6M on April 13, 2017
  - \$168.9M on April 25, 2017
- Completed Project Management, Planning, and Control documentation
- Awarded LE2 Architect-Engineer Contract July 28, 2017
  - Initiated Title I Design activities
- Commenced procurement of Long Lead equipment Q4 FY 2017

# Managing Uncertainty

- CD-1 Approval required additional scope analysis required for oil sales that had just been announced – resulted in brine system scope reductions in 3 of 4 sites
- Administration change resulted in one site being deleted from scope
- Oil sales required for funding LE2 as well as other administration priorities resulted in additional scope being identified
  - Almost \$100m in additional on-site piping was identified for replacement including some from the Life Extension 1 project
- Additional oil sales are being identified by Congress on a frequent basis – most recently due to tax legislation and FY18 federal budget process
  - Expect similar request from past ESAAB to review LE2 scope of work based on selling an additional 107 MMB of oil from last briefing
  - A combined HQ/PMO team has begun thinking through process for this second review as the extent will be more considerable due to the volume of oil sold

# LE2 Estimate History

LE 2 CD-1 Budget Submittal (DEC2017 with VCI Adjustments)						
WBS Level (3)	Cumulative	w/ New Scope	Minus Supp AoA	New Cumulative	Adjusted Scope	Adjusted New Cumulative
01.A.01 LE-2 New Orleans	\$64,621,968			\$64,621,968	\$0	\$64,621,968
01.A.02 LE-2 Bryan Mound BM New Work Packages	\$77,960,193	\$79,876,030		\$157,836,223	\$0	\$157,836,223
01.A.03 LE-2 West Hackberry WH New Work Packages	\$133,158,778	\$21,936,920		\$155,095,698	\$0	\$155,095,698
01.A.04 LE-2 Bayou Choctaw BC New Work Packages	\$128,637,212	\$36,250,788	(\$69,491,403)	\$95,396,597	\$4,801,557	\$100,198,154
01.A.08 LE-2 Big Hill BH New Work Packages	\$210,198,335	\$5,322,920		\$215,521,255	\$0	\$215,521,255
01.A.10 St. James Terminal	\$94,380,982			\$94,380,982	(\$94,380,982)	\$0
<b>Total</b>	<b>\$708,957,468</b>	<b>\$143,386,658</b>	<b>(\$69,491,403)</b>	<b>\$782,852,723</b>	<b>(\$89,579,425)</b>	<b>\$693,273,298</b>
Mgmt. Reserve	\$98,735,594	\$27,812,574	(\$12,409,179)	\$114,138,989	\$1,200,389	\$115,339,378
M&O Fee & A&E Fee	\$45,960,180	\$11,812,747	(\$5,651,140)	\$52,121,787	\$0	\$52,121,787
Contingency	\$119,917,129	\$25,679,864	(\$12,185,087)	\$133,411,906	\$720,234	\$134,132,140
<b>Grand Total</b>	<b>\$973,570,372</b>	<b>\$208,691,843</b>	<b>(\$99,736,810)</b>	<b>\$1,082,525,405</b>	<b>(\$87,658,802)</b>	<b>\$994,866,604</b>



# Questions?