



Preliminary Project Execution Plan

*KANSAS CITY RESPONSIVE INFRASTRUCTURE
MANUFACTURING AND SOURCING*

*at the
Kansas City Plant*

*Revision 0
March 9, 2007*

*For the U.S. National Nuclear Security Administration
Kansas City Site Office
Kansas City, Missouri*

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List of Acronyms & Abbreviations

AIA	American Institute of Architect's Standards
DOD	Department of Defense
DOE	Department of Energy
DSW	Directed Stockpile Work
ESHMS	Environmental Safety & Health Management System
EVMS	Earned Value Management System
F&ORs	Functional & Operational Requirements
FM	Factory Mutual
FM&T	Honeywell International, Federal Manufacturing & Technologies
FPU	First Production Unit
FY	Fiscal Year
FYNSP	Future Years Nuclear Security Program
GSA	General Services Administration
IPT	Integrated Project Team
JLL	Jones Lang LaSalle
KCP	Kansas City Plant
KCRIMS	Kansas City Responsive Infrastructure Manufacturing & Sourcing
LEP	Life Extension Program
M&O	Manufacturing & Operations
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NNSA	National Nuclear Security Administration
NPR	Nuclear Posture Review
NWC	Nuclear Weapons Complex
R&D	Research & Development
RRW	Reliable Replacement Warhead
sf	square feet
SEAB	Secretary of Energy Advisory Board
SMRI	Stockpile Management Restructuring Initiative
VPP	DOE's Voluntary Protection Program
WBS	Work Breakdown Structure

1. INTRODUCTION

The Kansas City Responsive Infrastructure, Manufacturing, and Sourcing Facility (KCRIMS) Preliminary Project Execution Plan (PPEP) has the following purpose:

- Provides the preliminary project baseline for scope, cost and schedule;
- Provides a technical description of the scope of work for the project;
- Documents the plans, organization, structure and systems that will be employed to manage the project;
- Guides the technical, managerial and administrative participants in the project.

The Preliminary Project Execution Plan content is consistent with guidance provided in Project Management for the Acquisition of Capital Assets, DOE M 413.3-1. The level of content was prepared and assembled based on a graded approach by considering the technical complexity of the project work and the associated risks.

The Preliminary Project Execution Plan describes the scope of work to construct a new facility and relocate the Kansas City Plant to that facility. The new facility targets a reduction in operational space from nearly 3.0M to 1.0M sf. Occupancy of a new facility will produce cost savings from reduced facility maintenance and operating expenses consistent with a smaller footprint. Another goal of the new facility is to incorporate maximum operational and configuration flexibility to allow for integration of future capabilities and decommissioning of obsolete ones in a rapid and cost effective manner.

A Bannister Complex Redeployment team has been chartered to analyze the possible future disposition of the site. The Redeployment team is a joint NNSA / GSA team that is developing future scenarios and execution strategies for the disposition of the existing facility. The KCRIMS Facility Project does not include the demolition and disposition of the existing Bannister Complex.

2. MISSION NEED / BACKGROUND

In January 2002, the executive branch announced the completion of a congressionally mandated review of U.S. nuclear capabilities. The *Nuclear Posture Review* (NPR) unveiled a new strategic triad consisting of nuclear and precision nonnuclear strike forces, passive and active defenses, and a revitalized, responsive defense infrastructure. Consequently, the National Nuclear Security Administration (NNSA) recognized the need to transform the existing Nuclear Weapons Complex (NWC) into one more aligned with the *NPR*.

In July 2005, the Secretary of Energy Advisory Board (SEAB)'s NWC infrastructure task force report, *Recommendations for the Nuclear Weapons Complex of the Future*, envisioned a consolidated complex producing a Reliable Replacement Warhead (RRW) largely composed of commercially available nonnuclear components. The report recommended that nonnuclear components be outsourced "to the extent possible." However, early RRW conceptual designs suggest that nonnuclear components will be comparable in complexity to the earlier designs and will likely

have higher levels of classification to support use control enhancements. Irrespective of the RRW, the legacy stockpile will be required for some time and will require life extension programs (LEPs) and limited-life components not available commercially.

The NNSA prepared a response to the SEAB task force recommendations, *Complex 2030 – An Infrastructure Planning Scenario for the Nuclear Weapons Complex*. In that report, the NNSA recommends “A new, modern and efficient nonnuclear production facility would be in operation by 2012 and sized to produce components and conduct operations that cannot be purchased commercially (e.g. use control components and component final assembly).” The driving force for this schedule is not just to align with potential first production of an RRW, but also to begin realizing substantive savings and providing a more responsive, adaptable infrastructure in the most aggressive schedule possible.

On April 19th, 2006, Tom D’Agostino, NNSA Deputy Administrator for Defense Programs, authorized the Kansas City Site Office (KCSO) to direct Honeywell FM&T to begin planning and implementing changes to significantly reduce the overall operating cost for accomplishing the nonnuclear mission work, leverage commercial production, and provide a smaller more responsive facility for nonnuclear production. KCSO authorized Honeywell FM&T to further develop and analyze the transformation business case, including an evaluation of facility acquisition options. KCSO also named the KCP transformation program as “Kansas City Responsive Infrastructure, Manufacturing, and Sourcing” or KCRIMS.



The NNSA's principal site for nonnuclear component procurement and manufacturing is the KCP. The KCP is situated on approximately 136 acres of the 300-acre Bannister Federal Complex, located within the city limits 12 miles south of downtown Kansas City, Missouri. The plant shares the site with other federal agencies. In contrast to some other

NNSA plants, the KCP resides on a very compact, highly developed site. Low hills nearly encircle the plant, which is situated in the Blue River Valley approximately 800 feet above sea level. A 500 year flood protection system protects the federal complex. The current 3.1 million square feet of space is significantly larger than the amount of square footage required by the KCRIMS transformation.

NNSA's M&O contractor has operated the plant since 1949. The plant capitalizes on over 60,000 cumulative years of experience to supply approximately 85 percent of the components that compose a typical nuclear weapon. The KCP has a long-term performance record of over 99 percent quality and delivery performance. To achieve this performance level, the plant has maintained the depth and breadth of capabilities and inventory necessary to support multiple legacy weapon programs, LEPs, and a

variety of replacement and limited-life components. This approach has resulted in maintaining a facility operational footprint of over three million square feet.

A change to the KCP posture is required to dramatically reduce costs and improve responsiveness.

3. PROJECT STATEMENT

The KCRIMS Facility Transformation project vision includes a new modern, agile facility that will meet Complex 2030 goals, fulfill mission requirements, and be approximately 1/3 the size of the current facility.

The transformation will include a new smaller, state-of-the-art production facility located in the Kansas City metro area. With process-based production lines, this agile facility will be designed for rapid and cost effective reconfiguration to meet the changing production requirements of the NWC. The new facility should realize significant cost savings from reduced facility maintenance and operating costs consistent with a smaller footprint. The project includes the planning, design, construction, occupancy, and oversight activities required to construct a new facility and move existing operations into the facility.

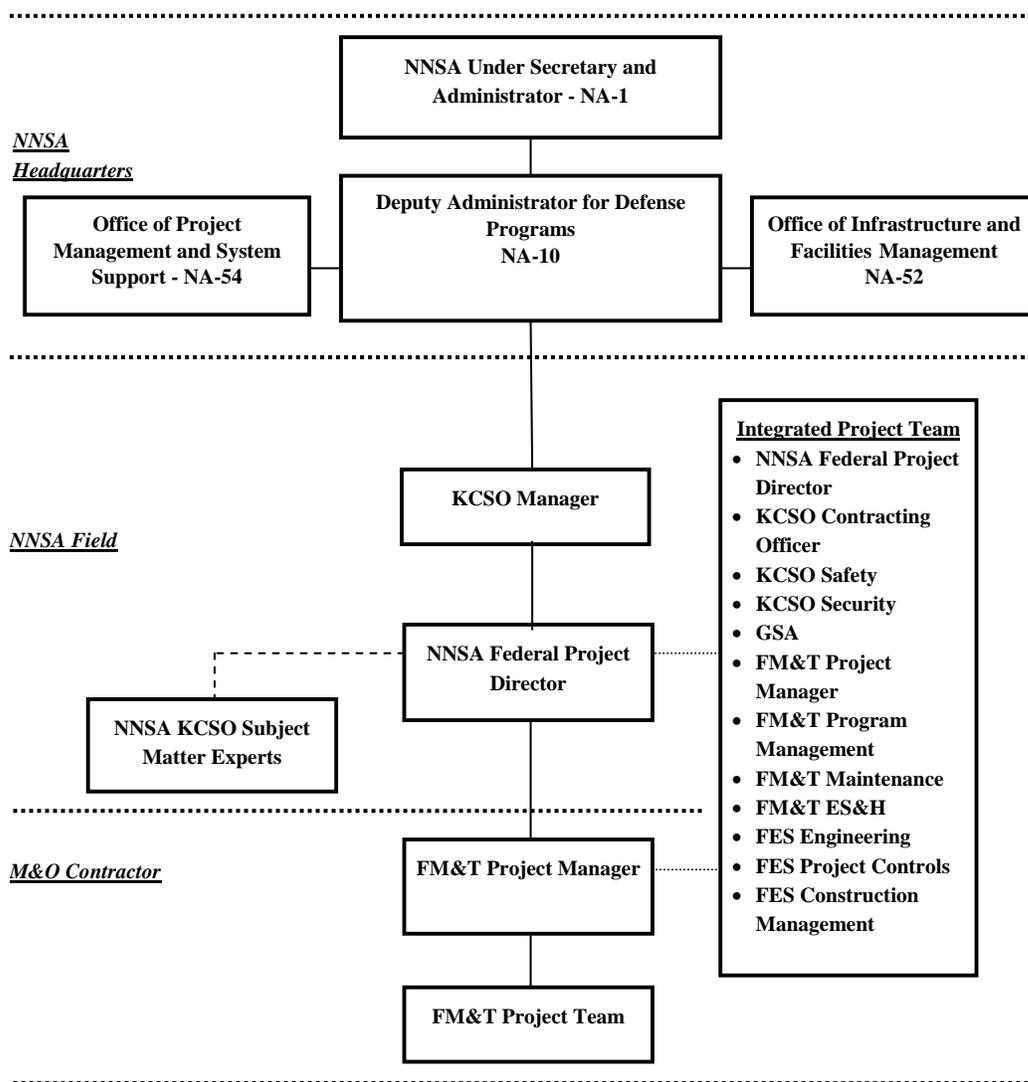
4. PROJECT MANAGEMENT

4.1. Project Management Tailoring Strategy

The project is organized to provide project management through three primary entities: NNSA-HQ, NNSA-KCSO, and the M&O Contractor (Honeywell FM&T). The KCRIMS project is not being executed as a Line Item project and therefore does not fall under the Critical Decision process of DOE order 413.3 after CD-1. The project will, however, follow the project management principles as set forth in the order including establishment of a performance measurement baseline, utilization of earned value management techniques, risk management, and a formal closeout process.

4.2. Project Organization

Figure 1 – Project Management Organizational Chart



4.3. Roles and Responsibilities:

NNSA Headquarters

NNSA Headquarters will act in an oversight role.

NNSA Site Office Manager

The Site Office Manager will ensure the contractor manages the authorized cost within the limits established by the Baseline Change Control (BCC) thresholds. NNSA Site Office Manager concurrence approvals will include baseline changes as outlined in the Project Execution plan. The Site Office Manager responsibilities include.

- Line accountability for contract management of all site project execution.

- Serves as the Chairperson on the NNSA/Site Office Baseline Change Control Board (BCCB) for any Level 1 BCP needing Site Office endorsement.

NNSA Site Office Federal Project Director (FPD)

The FPD is responsible for the day-to-day oversight of project management activities associated with the project. The FPD is responsible and accountable for achieving project cost, schedule, and technical performance goals by monitoring the project from project authorization to project close-out. The FPD is the point of contact for information flow to DOE/NNSA/HQ. All actions, recommendations, and decisions of the FPD will be in accordance with approved project-specific documents.

Responsibilities include the following.

- As delegated by the Site Manager, serves as the chairperson on the NNSA/Site Office BCCB for Baseline Change Proposals (BCP).
- Responsible and accountable for planning, implementing, and completing a project using a systems engineering approach.
- Oversees the design, construction, ES&H, and quality efforts performed by various contractors are in accordance with the contract, public law, and regulations.
- Oversees timely, reliable, and accurate integration of contractor performance data into the project's scheduling, accounting, and performance measurement systems.
- Evaluates Earned Value Management System (EVMS) data at least monthly.
- Evaluates and verifies reported progress; makes projections of progress and identifies trends.
- Serves as the single point of contact between Federal and contractor staff for all matters relating to the project and its performance.
- Serves as the Contracting Officer's Technical Representative, when appointed.
- Leads the IPT.
- Responsibility to insure the PEP is updated as required.

M&O Contractor

The M&O is responsible to KCSO for project technical direction and program coordination. The M&O develops the basis for the approved baseline, and is responsible for quality assurance.

Contractor Project Manager

The Contractor Project Manager manages the day-to-day execution of the project in a cost effective manner, in accordance with requirements and standards as set forth in the contract. The responsibilities include the following.

- Responsible and accountable for success of the project.
- Executes the project within approved cost, schedule and scope baselines as defined in the PEP.
- Assists with the development of the PEP and ensures that customer requirements are understood and documented.
- Negotiates and organizes the project team including the customers, system engineers, the construction firm, ES&H interfaces, security, etc.
- Negotiates and organizes the design team, including A-E consultants.
- Negotiates engineering cost and schedule.

- Serves as the focal point for communication on the project from project authorization to project close-out.
- Implements project management policies, procedures, and methodologies.
- Manages project finances.
- Reports monthly on project status (performance, cost, and schedule).
- Obtains customer requirements.
- Responds to Requests for Information (RFI).
- Develops the Work Breakdown Structure (WBS) and the corresponding WBS Dictionary.
- Maintains all official BCP records.
- Manages the project Quality Assurance (QA) processes.
- Provides all BCPs, the BCP Log, and any PEP changes to FPD.

4.4. Integrated Project Team (IPT):

All Project Management Team members share a set of responsibilities that they must fulfill to assure success in the project. IPT members share the following responsibilities.

- Provide input for the PEP by identifying work, specifying performance objectives, estimating costs and schedules, and identifying interfaces.
- Provide and/or critique criteria.
- Attend or send delegates to project meetings.
- Evaluate technical progress at project meetings.
- Provide peer review.
- Promote teamwork.
- Review and approve (or disapprove) documentation and configuration change requests.

IPT members include the functional areas of safety, program, and project management. The IPT will receive support from other functional areas such as budget, finance, contracting, environmental, quality, security, and operations as required. As the project progresses, the Federal Project Director may modify the IPT as necessary to support each project phase.

Federal IPT Members

Federal IPT members have the following responsibilities as defined by the roles below.

- Helps ensure the success of the project.
- Coordinates with DOE/HQ through the FPD on current technical requirements and ensures the proposed project meets these requirements.
- Reviews design and construction as appropriate to ensure actions meet technical requirements.
- Reviews proposed design/construction changes, as appropriate, to ensure changes do not adversely impact technical capability.
- Participates in internal and external reviews.

- Provides expertise in their subject area when requested.

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4.5. Interagency Cooperation

NNSA is teaming with the General Services Administration (GSA) to develop a proposal to deliver the new facility using GSA's Lease process. GSA will be responsible for delivering a new facility that meets the requirements developed by NNSA. NNSA will be involved in the GSA process to the extent required to ensure the facility meets requirements.

5. PROJECT BASELINES

5.1. Technical Baseline

The KCRIMS facilities project scope consists of:

- New facility construction (to be executed by GSA)
- Facility Program Management:
 - Includes developing functional requirements for use by GSA to procure a developer to design and build a new facility, and project management associated with the new facility.
 - Oversight of the GSA procurement, design, and build process
- Occupancy of the new facility

5.1.1. Facility Program Management

Facility Program Management includes general project management required to support the KCRIMS program. Two major components of this effort are development of Functional and Operating Requirements for the new facility and oversight of the GSA process.

5.1.1.1. Functional & Operational Requirements

The Functional and Operational Requirements (F&OR's) will be developed to define the attributes the facility must have in order to meet the mission need. The F&OR's consist of narrative descriptions and conceptual plans including site selection criteria that communicate the needs of the facility. The developer will use the F&OR's as guidance for design and construction of the new facility. F&OR's are being developed by a team of facilities experts familiar with commercial industry practices and familiar with the current operations at KCP, as well as the desired future state for the new facility. The process to develop the requirements entails data collection and validation as well as development of conceptual site and building layouts.

Detailed functional and operational requirements for the new facility will be used in the Solicitation for Offer phase of the process to provide the developer sufficient information to design and build a facility to meet the mission needs of the Kansas City Plant. Functional and Operating considerations include:

- Codes and Standards
- Utility System Requirements
- Capital Equipment Needs

- Facility Relationship Lay-outs
- Conceptual Department Lay-outs
- Product Requirements
- Occupancy logistics requirements

Description of F&ORs

Facility Sizing has been determined based upon the identification of critical spaces and associated square footages for each. The new complex will provide administrative and manufacturing space for the production of mechanical and electrical components. The manufacturing portion of the project includes the materials processing, machining, component manufacturing, cleaning, inspection, clean rooms, and special manufacturing operations as well as the storage and inventory control functions.

Critical functional spaces include the following areas:

- Administration and Support
- Assembly & Electrical Fabrication
- Excess & Reclamation
- Labs & Engineering Labs
- Manufacturing & GTS
- Maintenance
- Packaging
- Paint & Heat Treat
- Purchases & Other Inspection
- Refurbishment & Dismantlement
- Rubber & Plastics
- Special Material Production
- Stores
- TE, Gage & Metrology
- Trailers

The total area is 1,000,000 useable sf.

Operations and Types of Spaces identified in each of the options are generally described as follows:

- *Administration and Support* – includes offices, conference rooms, restrooms, fitness center, data center, patrol headquarters/command center, cafeteria and vending, break rooms, waste management, industrial waste pretreatment facility, reverse osmosis facility, medical and printer/file/storage rooms.
- *Assembly & Electrical Fabrication* – includes electronic manufacturing and assembly areas along with inspection and testing of small and medium sized electrical components. Class 100, Class 10,000 and Class 100,000 Clean Rooms are also included in the area.
- *Excess & Reclamation* – contains shredding, grinding, milling machines and furnaces to process materials for reclamation and excess.

- *Labs & Engineering Labs* - Includes lab furniture, fume hoods ovens and testing equipment for chemical, mechanical, vibration and shock testing.
- *Machining and Gas Transfer Services* – Machining and Gas Transfer Services involves heavy machining, welding and other material production operations. Temperature and humidity controlled modular rooms are required for Inspection areas.
- *Maintenance* – Maintenance is the support operations for the entire complex, maintaining and reconstructing facilities and equipment in support of the mission. Area includes battery dock, mechanical & electrical cribs, janitorial closets, and maintenance shops.
- *Packaging and Shipping* – Packs and ships large and small parts.
- *Paint and Heat Treat* – Paint and Heat Treat involves the preparation of parts for painting. Paint requires special temperature and humidity requirements with several paint booths. Heat Treat requires media blast booths with dust collectors, heat treat and quenching operations.
- *Purchase and Other Inspection* – Purchase and Other Inspection inspects incoming and in process production material, parts and equipment. The area requires modular rooms with special temperature and humidity requirements, a leak test and x-ray area. A bulk inspection area will have small amounts of explosives and precious materials that will require a higher security.
- *Refurbishment and Dismantlement* – Refurbishment and Dismantlement includes bench top disassembly areas along with inspection and testing of small and medium sized electrical components.
- *Rubber & Plastics* – Rubber and Plastics includes injection molding, presses, ovens and autoclaves to produce parts.
- *Special Materials Production* - Special Material Production includes chemical labs, material processing areas, oven rooms, foam processing, and raw and finished material storage areas. Some areas will have a high hazard classification that will also require a deluge system for fire protection and spill containment within the area.
- *Stores* – Stores includes the inventory and storage management including pallet racking and automated storage retrieval system. Stores will also manage an ancillary outdoor covered storage facility used to contain large materials stored on site. Chemical stores will require chemical several bunkers/rooms with different temperature and humidity requirements for the storage various chemicals.
- *TE, Gage and Metrology* – TE, Gage & Metrology includes Test Equipment Prove-in, Maintenance and equipment Calibration. Rooms are required for Prototyping, Potting, Engraving, CMM Labs, Main Gage Lab, Dimensional Lab, Laser and Optics and Shaker areas.
- *Trailers* – Trailers includes a large modular paint booth with special air filtration, a Generator Room, Door Room, Welding Room, Foam Room, Machining Room and a Storage Room.
- *White Space (Office)* – This space is available for expansion of the office and support areas.
- *White Space (Manufacturing)* – This space is available for expansion for the manufacturing departments or for new operations.

Usable Square Footage

The area calculations are based on the program square footage for the facility and are identified in ‘Useable’ square footage, which includes the useable floor area for that department. In deriving a rentable square footage, which includes circulation corridors, aisles, mechanical equipment spaces, and egress in addition to useable area, a 15% gross up factor is applied. This equates to 1,000,000 sq. ft. of usable space and 1,150,000 sq. ft. of rentable space. The planned separation of the space is approximately 650,000 sq. ft. of manufacturing space and 350,000 sq. ft. of administration and support space.

The following tables detail the space plan that has been developed to date. This plan is preliminary, and subject to change as more detailed analyses of the areas are performed. The table is under configuration control.

Manufacturing Space Plan

Function	Area	Useable Ft ²	White Space allocation	Total Useable Ft ²
Plating	General factory	0	5,000	5,000
Refurbishment & Dismantlement	General factory	10,000	2,000	12,000
Rubber & Plastics	General factory	34,400	4,000	38,400
Paint & Heat Treat	General factory	10,000	0	10,000
Machining	GTS & Sam	91,500	6,000	97,500
Machining	Plastics Machining	5,000		5,000
Assembly & Electrical Fabrication	General factory	86,000	0	86,000
Assembly & Electrical Fabrication	Class 100	5,000	0	5,000
Assembly & Electrical Fabrication	Class 10,000	7,300	0	7,300
Assembly & Electrical Fabrication	Class 100,000	18,700	2,000	20,700
Labs & Engr Labs	K- Lab	2,750		2,750
Labs & Engr Labs	Labs & Engr Labs	75,850		75,850
TE, Gauge, Metrology	General factory	29,100	0	29,100
Trailers	General factory	29,000	2,000	31,000
Purchased & other Inspection	General factory	36,000	0	36,000
Special Material Production	General factory	20,300	2,000	22,300
Packaging & Shipping	General factory	20,400	0	20,400
Stores	General factory	60,000	0	60,000
Stores	Stores Trailers	6,000		6,000
Stores	Chemical Stores	12,000	0	12,000
Excess & Reclamation	General factory	8,800		8,800
White Space	General factory		67,700	67,700
TOTAL MANUFACTURING SPACE		568,100	90,700	658,800

Admin/Support Space Plan

Function	Area	Sq Ft	White Space allocation	Total Sq Ft
Office Space	Office Space	201,000		201,000
IT	Common Support Space	40,000		40,000
Maintenance	Common Support Space	38,000		38,000
Break Rooms	Common Support Space	12,000		12,000
Other	Common Support Space	39,000		39,000
White Space	White Space	11,200		11,200
TOTAL NON MANUFACTURING SPACE		341,200		341,200

NNSA Site Selection Criteria

The following table summarizes the site selection guidelines employed by NNSA in identifying a site to support the development of a new facility for KCRIMS. NNSA has developed a list of site attributes that will be applied in considering the suitability of a potential site according to the following: (1) Mandatory; and (2) Desirable.

Items in column 1 are non-negotiable. Items in column 2, which are considered to be desirable, should be considered according to varying levels of strategic importance as they relate to NNSA’s planned mission and operations at the new facility.

1. Mandatory	2. Desirable
1. Within a 25 mile radius of the intersection of Interstate 470 and US Highway 71	1. Within a 12.5 mile radius of the intersection of Interstate 470 and US Highway 71
2. 150 developable acres of land	2. Adjacent vacant land
3. Topography suitable for 1 M sq ft of single elevation buildings with minimal earth work	3. Railroad access or right of way to rail access within 1 mile
4. Major (4 lane) road access/adjacent within 1/2 mile	4. Redundant utility feeds – water, power, gas, fiber
5. Above 100 year flood plain	5. No retail/commercial uses adjacent to site
6. Zoned industrial or agricultural, contingent on the ability to change zoning to meet the new facility’s requirements	6. Ability to obtain no-cost or limited cost option on site for period of 12-18 months during due diligence
7. No existing remediation or contamination from current or prior uses on the site that cannot be addressed to the purchaser’s approval	8. No existing structures for demolition prior to development
8. Fair and reasonable market purchase	9. Existing road or other infrastructure to

price	support new facility
9. Available access to utilities, including power, water, sewer, gas, fiber fed to the site with reasonable cost implications to the site	10. Entry point to complex outside of residential area
	11. Minimize concerns of local residents, business and land owners.

5.1.1.2. Oversight of the GSA Process

NNSA shall perform oversight functions throughout the GSA process of procuring the KCRIMS Facility to insure that Functional & Operating Requirements are achieved. GSA will hold the contract with the developer and ultimately be responsible for execution of all activities associated with the construction of the new facility. NNSA will be acting in a customer role in their oversight functions, providing an appropriate level of involvement to ensure their requirements are being met and that a new facility can be delivered within the estimated lease cost. The oversight will include review of the following items:

- Facility Design
- Developer Offers
- Developer Selection
- Construction Execution
- Facility Commissioning
- Lease Negotiations

5.1.2. Occupancy (Transition / Relocation)

Occupancy includes all activities associated with the transfer of equipment and material from the Kansas City Plant (KCP) to the new Kansas City Responsive Infrastructure, Manufacturing and Sourcing Facility (KCRIMS Facility).

Occupancies for each of the functional groups shall include the following elements.

- Preparation of KCP equipment and material for movement.
- Movement of the KCP equipment and material to the designated KCP shipping terminal.
- Shipment of the KCP equipment and material to the designated KCRIMS receiving terminal.
- Receipt of KCP equipment and material at the designated KCRIMS receiving terminal.
- Movement of equipment and material to its designated location within the KCRIMS Facility.
- Installation of equipment and material at the designated location.
- Pre-start reviews and return of equipment to operation.

In addition to the relocation of equipment, this project will include the installation of items such as workbenches, furniture, and other miscellaneous equipment. Any new capital equipment purchased and installed for the new facility will be funded out of the plant operating budget for basic capital equipment. This equipment does not constitute a new capability, but replaces existing equipment that was due for replacement due to its condition and age.

The NNSA Chief Financial Officer, Office of Field Financial Management, has determined that the movement of existing equipment in support of the relocation to the new facility and the installation of new capital equipment and low value equipment associated with the relocation is an expense item which would not be funded as a Line Item appropriation. The occupancy work will be executed as an expense funded project.

The occupancy work will be managed in three major work packages: relocation of existing equipment and materials, procurement and installation of new basic capital equipment (BCE), plus procurement and installation of new low-value capital equipment (LVCE) and expense-funded items.

5.1.2.1. Relocation of Existing Equipment and Materials

All items at the KCP that are identified to be moved to the new KCRIMS facility will be relocated. This will include basic capital equipment, low-value capital equipment, tools, fixtures, gages, raw materials, stored components, product in process, records, supplies, etc. Approximately 2,000 pieces of “large” capital equipment (significant footprint and/or utility user) will be disconnected from utilities, disassembled, crated, transported, reassembled, installed, calibrated, and returned to operation at the new facility. Where appropriate, support of equipment manufacturers will be used to relocate complex machinery. In addition, “small” capital equipment (non-significant footprint and/or utility user) will also be relocated.

The strategy for managing plant production during the relocation phase has not been determined at this time. Two possible options or a combination there of are:

- Shut down factory production while each department is relocated to the new facility.
- Maintain factory production during the relocation phase. This will require moving manufacturing departments in phases to support operation at both the old and new facilities during the transition period.

5.1.2.2. New Basic Capital Equipment

New basic capital equipment (BCE) will be purchased and installed at the new facility. Purchase of this equipment is incidental to the migration from the existing KCP to the new KCRIMS facility. The new equipment does not constitute a new capability, but replaces existing equipment that was due for replacement due to its condition or age. Where appropriate, support of equipment manufacturers will be used to install complex machinery.

5.1.2.3. New Low-Value Capital Equipment and Expense-Funded Items

New low-value capital equipment (LVCE) and expense-funded items will be purchased and installed at the new facility to replace existing equipment/items that are aged, inefficient, or bulky. Furniture, workbenches, and shelves will be purchased to facilitate transition to the new facility in order to minimize downtime that would be required if existing furniture, workbenches, and shelves were relocated. As with BCE, purchase of new LVCE and expense items will be incidental to the relocation, and will not provide new capabilities.

It is anticipated that some of the new LVCE and expense-funded items will be purchased ahead of the required installation dates to assure that it will be available when needed. The new items will be stored at the existing KCP in the interim period and transported to the new facility when needed. The new LVCE and expense items will be assembled, installed, and put into service at the new facility.

5.1.3. Applicable Codes and Requirements

The design and construction of this project shall conform to the latest revisions, supplements, and amendments, of the codes, standards, and recommendations of the professional organizations, including those as required or referenced in the succeeding design documents.

Federal and DOE regulatory standards that shall be followed are as follows.

- 29 CFR Part 1910, "Occupational Safety & Health Standards"
- Americans with Disabilities Act Accessibility Guidelines (ADAAG)
- National Fire Protection Association Codes and Standards
- International Building Code, latest edition
- International Plumbing Code, latest edition
- International Fire Code, latest edition
- National Fire Protection Association
- Factory Mutual Loss Prevention Data Sheets
- UFC 4-010-01, DOD Minimum Antiterrorism Standards for Buildings

In examining the uncertainties of regulation changes and code updates during the project design and construction phases, modifications to design and construction contract language shall be made so contract requirements comply with the latest codes. Additional funds for these changes may be required through the baseline change process.

5.2. Schedule Baseline

The KCRIMS Facility schedule aligns with the WBS and describes the duration to the logical sequence of activities required to accomplish the KCRIMS Facility scope as defined in the WBS dictionaries. The baseline schedule employs a Critical Path Method, and identifies interface points among activities, constraints, decision points, and milestones. It also provides the basis for variance reporting and documenting schedule commitments. Project key milestones are noted below. Key milestone dates

shown do not include schedule contingency. Schedule contingency will be assessed and applied prior to establishing the performance measurement baseline (PMB). A detailed project schedule is included in Appendix D.

Project Key Milestones

Milestone	Date
Receive CD-0 approval	12/28/2006
Receive CD-1 approval	03/28/2007
Lease Award	03/31/2008
Construction Completion	09/30/2010
Occupancy Completion	09/30/2012

Timeline

Description

The project schedule is designed to be used with the GSA Lease process. The basic design of the project schedule is a prospectus-level, two-phase developer selection competition. GSA will develop a prospectus and obtain Congressional approval for a leased facility using GSA’s standard leasing authority for a green field site.

Once the prospectus is sent to Congress for approval, GSA will commence the two-phase developer selection. During Phase I of the lease competition, GSA and the selection team will short list the Phase I submissions to approximately 5 bidders. Phase II will require facility design and pricing from each of the short-listed bidders. GSA and the selection team will select the best offer using a best value procurement process, considering price and other technical factors in a trade-off or best value for the Government. A lease will be executed consistent with the winning offer and design and construction will ensue. Occupancy work will overlap new construction and must be coordinated with the various contracts.

5.3. Cost Baseline

The monetary value of all the resources needed to accomplish the work scope on the project schedule is the cost. Estimated costs are included in the KCRIMS Facility resource loaded schedule for each task and are integrated with the KCRIMS facility scope and schedule via the WBS. The element of the baseline is developed as part of the integrated schedule and reflects the resource loaded schedule. This cost estimate also provides the basis for budgeting and contractor variance reporting. The KCRIMS Facility Estimated cost for the life cycle of the project is summarized below.

Special Considerations / Assumptions for the Cost Estimate

Title I and II costs were estimated using a parametric computer estimating program which bases cost on historical A-E contracts at the KCP, proposed schedule, and complexity of design. The Title III costs were estimated using the parametric program which bases cost on proposed schedule, level of effort, and historical average wage rates from previously contracted services. Historical data shows that this parametric estimating program has a high level of accuracy for estimating the cost of Engineering Design & Inspection at the KCP.

Additional assumptions included:

- Building developer will provide a warm, lit shell with all interior walls and utility services down to main distribution lines along every-other column line.
- The plant operating budget for basic capital equipment will cover all new equipment and furnishings for the new building, including installation costs.
- Occupancy will include relocation of existing equipment, including connection to utility systems. Storage, transportation, and tracking of equipment
- Removal of dividing walls, utility services, etc. at the existing plant will be performed as part of Legacy Management activities.
- Security and production operations will be maintained at the old and new facility during the transition period.

Using the GSA Lease acquisition strategy, costs for the facility design and construction will not be part of the project cost, but will be lease payments. Current estimates show that base lease costs including maintenance, utilities, taxes, and fees is approximately \$40-45M in FY11.

Project costs include all elements of work and associated support costs such as project management, construction management, and security. Estimate summaries are included in Appendix C.

KCRIMS Facilities Project Cost Summary

	Cost \$1,000s
Building Design Construction & Site Work	\$0 ^a
Relocation of Existing Equipment & Materials	\$125,000 ^b
New Basic Capital Equipment	\$43,000 ^{c,e}
New Low Value Capital & Expense Items	\$38,000 ^c
Facilities Program Management	\$9,000 ^d
Project Cost	\$215,000

Notes:

^a Cost of building construction and site work will be paid through a property lease. Annual lease is estimated to be approximately \$40-45million in FY11 dollars (including all fees, expenses, and taxes).

^b Includes relocation, design, inspection, project management, security escorts, project support (OPC), escalation, burden (16%), and contingency (30%).

^c Includes procurement, installation, design, inspection, project management, security escorts, project support (OPC), escalation, burden (16%), and contingency (30%).

^d Includes project management, oversight of GSA real property development process with escalation, 16% burden, and 30% contingency.

^e New capital equipment is being purchased to replace equipment that has reached the end of its useful life and does not constitute a new capability. The NNSA Chief Financial Officer, Office of Field Financial Management has determined that the procurement and installation of new capital equipment during the time frame of the KCRIMS project would not be funded as a Line Item appropriation, but should be executed as an operating expense.

Total Project Budget Profile (\$ in thousands)

	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	Total
Relocation			\$10,300	\$76,000	\$38,700			\$125,000
BCE			\$14,500	\$21,600	\$6,900			\$43,000
LVE/Expense			\$19,800	\$6,500	\$6,200	\$5,500		\$38,000
PM	\$3,400	\$2,600	\$1,000	\$800	\$200	\$200	\$800	\$9,000
Total Cost	\$3,400	\$2,600	\$45,600	\$104,900	\$52,000	\$5,700	\$800	\$ 215,000

5.4. Work Breakdown Structure (WBS)

A Work Breakdown Structure (WBS) is used to organize and integrate the KCRIMS Baseline. Listed below are the top levels of the KCRIMS Facility WBS.

The project involves the installation of the equipment indicated on the attached layouts and Equipment Tables. Facility and Utility features of the new KCRIMS facility shall be provided as described in the KCRIMS Work Package Design Specification Criteria.

See Appendix A for work breakdown structure dictionary.

WBS Element	Element Title
1.6	Facility Transformation
1.6.1	New Facility
1.6.1.1	Facility Program Management
1.6.1.1.1	Facility Acquisition Report
1.6.1.1.2	Functional & Operating Requirements (F&ORs)
1.6.1.1.2.1	70% F&OR
1.6.1.1.2.2	95% F&OR
1.6.1.1.2.3	100% F&OR
1.6.1.1.3	Critical Decision (CD) Process
1.6.1.1.3.1	CD-0 Approve Mission Need
1.6.1.1.3.2	CD-1 Alternative Selection and Cost Range
1.6.1.1.4	Regulatory Permitting
1.6.1.1.5	Project Management
1.6.1.1.6	Project Close-Out
1.6.1.1.7	GSA Oversight
1.6.1.1.7.1	Scoring Analysis OMB A-11/A-96
1.6.1.1.7.2	Occupancy Agreement
1.6.1.1.7.3	Prospectus
1.6.1.1.7.4	Design & Build
1.6.1.1.7.5	National Environmental Policy Act (NEPA)
1.6.1.1.7.6	Lease
1.6.1.2	Occupancy
1.6.1.2.1	Relocation of Existing Equipment

1.6.1.2.1.1	Design
1.6.1.2.1.2	Install
1.6.1.2.1.3	Project Management
1.6.1.2.2	Basic Capital Equipment (BCE)
1.6.1.2.2.1 – 1.6.1.2.2.XXX	Equipment No. XXX
1.6.1.2.2.1.1	Design
1.6.1.2.2.1.2	Procurement
1.6.1.2.2.1.3	Install
1.6.1.2.2.1.4	Project Management
1.6.1.2.2.1.5	Project Support
1.6.1.2.3	Low Value Capital Equipment (LVCE) &
Expense	
1.6.1.2.3.1 – 1.6.1.2.3.XXX	Equipment No. XXX
1.6.1.2.3.1.1	Design
1.6.1.2.3.1.2	Procurement
1.6.1.2.3.1.3	Install
1.6.1.2.3.1.4	Project Management

6. PROJECT CONTROLS AND REPORTING

6.1. Controls

The implementation of project controls will be performed by the Facilities Engineering Services organization with oversight by Honeywell FM&T and NNSA-KCSO management. Honeywell FM&T has developed and uses an integrated project management methodology on all projects. Honeywell FM&T recognizes the value of implementing an earned value-based project management approach for major projects. This methodology, referred to as the Project Planning and Controls System (PPCS) is responsive to the needs of Honeywell and customer management, and conforms to the Earned Value Management System (EVMS), as documented in ANSI/EIA-748A.

The PPCS establishes formal procedures for planning, authorizing, reporting, analyzing, and controlling project work within technical, schedule and cost constraints. The core of the PPCS is the concept of Earned Value Management. As such the system is designed for flexible application, based upon project requirements, in consonance with the guidelines defined in ANSI/EIA-748A, Earned Value Management System (EVMS). The PPCS is written around the execution of a Line Item project that is under the guidelines of 413.3. This project will not be a DOE capital acquisition and will not use 413.3 as the project management and execution guideline. The project will, however, follow the project management principles as set forth in the order including establishment of a performance measurement baseline, utilization of earned value management techniques, risk management, and a formal closeout process. As such, application of the PPCS will be on a tailored approach to align with the project management principles of the document. See Appendix F for Project Planning and Control System (PPCS) for Earned Value Management System.

KCRIMS is not being executed as a Line Item project and therefore does not fall under the 413.3 CD process after CD-1. KCRIMS execution will however follow similar phase gates as outlined in the CD process.

- The project has already received an approved CD-0 and is in the process of obtaining CD-1.
- A performance measurement baseline will be established for the project (CD-2 equivalent).
- Approval from the Federal Project Director (FPD) will be obtained prior to starting construction (CD-3 equivalent).
- A formal close-out process will be followed and approved by the FPD (CD-4 equivalent).

Technical Control will be maintained through the design and construction contracts including: (1) engineering review of project documents for definition of technical objectives, (2) engineering review of design for translation of technical objectives into workable plans and specifications, and (3) field surveillance to verify the completed project meets the technical objectives.

Cost and Schedule Control will be accomplished using project management software with earned value techniques and logic that includes critical path method (CPM) scheduling. This schedule will be integrated to provide both detailed and summary level information about the project. This schedule will contain the network model of the project dependencies that will be used to calculate the effect of each task on the overall project.

Document Control will be maintained by following existing Command Media site guidelines that define hard copy and electronic filing requirements.

6.2. Reporting

Internal and Customer reporting is based upon a monthly cycle. The cycle requires the statusing of work, updating and forecasting the schedules, assigning the actual costs to the appropriate charge number and control account, incorporating internal and external changes, and updating the Estimate at Completion. The status, forecasting, and assignment of actual costs originate at the detail level and are summarized to the total project level. For managing, monitoring, and reporting purposes, Honeywell FM&T will utilize the site monthly Project Status Report (PSR) along with detailed accounting cost reports. The PSR report is a project management tool that is utilized to report the most up to date cost and schedule information from the Project Manager.

The Project Manager is also responsible for reviewing any variances to the plan. This includes the review of cost variances, schedule variances, and variances at completion. The variance analysis thresholds are identified as part of the Project PSR and quad chart reporting. The standard thresholds are identified in the quad chart instructions, see Appendix F.

6.3. Baseline Change Control Management

Establishment and approval of baseline change proposals are one of the most important aspects of project control. Change control procedures should ensure proper management notification of changes and that if necessary, corrective action is taken to regain the project cost, scope and schedule. Action on all change requests must be deliberate and timely, and carried out without interfering disproportionately with project progress. The scope, schedule, and technical impacts of proposed changes should be developed and considered by all appropriate stakeholders. All appropriate parties will be informed in a timely way regarding proposed changes and their disposition. Baseline documentation should be controlled and updated as appropriate to reflect approved changes.

Changes introduced to the Project which require implementation of the change control process include items such as the following.

Technical - Significant changes from the authorized scope of work including such items as the following.

- Any potential change in programmatic purpose (with a significant effect on physical parameters, operation capacity, or total estimated costs).
- Any significant change in operational capacity (productive capacity, number of people, energy, footprint effect on facility, storage capacity, etc.).
- Changes in the features of the facility affecting the end purpose of the project.
- Substantial increase in one functional area and a corresponding decrease in another
- Adding capacity for the express purpose of providing for expansion when such expansion was not planned in the budget cycle or originally included in the project budget documents.

Schedule – changes in the baseline schedule elements as defined by the project authorization to the extent shown in Table 1.

Cost - Changes in the baseline cost elements as defined by the project authorization to the extent shown in Table 1.

The approval levels for baseline changes are as follows.

- Level 1, NNSA Headquarters
- Level 2, NNSA Site Office – KCSO Federal Project Director
- Level 3, Honeywell FM&T – FM&T Project Director
- Level 4, Facility Engineering Services – FES Control Account Manager

The following table summarizes the change control thresholds.

Table 1: Change Control Process Thresholds				
KCRIMS Facility Transformation Project	Level 1	Level 2	Level 3	Level 4
Technical/ Scope	Any change in work scope that introduces a new technology or capability or any changes that would increase the total useable square footage in the new facility.	Any change in work scope that requires a transfer of contingency funds into the PMB.	Any change in work scope that requires management reserve.	Changes in work packages or planning packages but do not affect the control account.
Schedule	Greater than 6 months delay in scheduled baseline milestone dates.	Any later date for Occupancy completion milestone. Greater than 3 months delay in other scheduled baseline milestone dates.	Change of baseline milestone dates less than 3 months except for Occupancy completion milestone.	Internal schedule changes that do not impact milestone dates.
Cost	Any changes in the project cost that could not be funded out of the KCP Operations Budget.	Changes that require a transfer of contingency funds into the PMB.	Changes that require management reserve (impact the control account but not the total project).	Changes that do not require either contingency or management reserve.

7. RISK MANAGEMENT

The project team has identified a number of project challenges and risks associated with the successful delivery of a new facility to support the KCP mission. These risks are based upon several key project assumptions that underlie the project scope, and therefore, apply broadly to all site options considered in this report.

The identified project assumptions include:

- **Commercialization:** The objective of a proposed acquisition of a new facility is to *adopt commercial best practices* and to affect organizational & facilities transformation for the purpose of supporting and modernizing NNSA’s KCP operations
- **Efficiency:** The transformation plan calls for a more efficient facility to support a modern operation at KCP, which includes efficient layouts, and a condensed footprint of approximately 1,000,000 useable SF

- **State of the art facility:** The transformation plan also identifies the need for a modern, state of the art facility which enables enhanced work processes and streamlined manufacturing practices
- **Flexibility:** The new facility and site plan should support flexible processes and an ability to reconfigure with minimal financial impacts to NNSA operations
- **Occupancy by 2012:** The new facility shall support NNSA's requirement for occupancy by 2012 (which necessitates substantial completion and possession by NNSA in 2010 to attend to installation and commissioning of critical equipment and systems)
- **Security:** A new facility for NNSA must support appropriate levels of security both externally (setbacks, perimeter controls, guard stations) as well as internally (screening, security zones) for the sensitive mission carried out at the KCP
- **Cost reduction:** Through a reduction in square footage, and improved operating efficiencies, the new facility will support a net reduction in annual expenditures to support KCP operations

Discussion of Challenges & Risks

The following is a high level list of identified challenges and risks based upon the risk assessment performed to date:

- Institutional changes proposed for the transformation are not accepted.
- Poor planning, communication, and coordination lead to re-design, re-work, and cost/schedule increases.
- Unfavorable economic conditions result in higher than expected bids for the new facility lease and occupancy work.
- Various events cause schedule delays in design, construction, and occupancy.
- Adequate resources for various critical skills are not available.
- Accidents and mistakes cause injury, property damage or loss, or compromise the security of classified information.
- External factors such as security threats and strikes disrupt the project.
- Exceeding GSA Lease prospectus allowance for construction of the new facility.

Schedule Consideration/Risk

There are several schedule considerations associated with the project, including lease award and project design, land acquisition and environmental considerations, as well as entitlements and development schedule of the new facility.

The timeline for the Greenfield Option entails 30 months to support design and new construction. While the construction component of this represents 20 months according to the proposed schedule, this timeframe leaves only 10 months for design completion and environmental work, entitlements and site preparation. While this timeframe is supportable, it must be supported by front loading of critical path items, such as land due diligence, design development and NEPA processes.

Under the proposed plan for development on a Greenfield Site, GSA would acquire an assigned purchase option on a site which shall be determined by NNSA and GSA to be most appropriate to support the new KCP facility.

However, until due diligence has been conducted on the site, the project team will not be certain regarding zoning and entitlement risks, environmental factors, and utility/water/sewer capacity.

Mitigation Strategies

Lease Award & Design: GSA and NNSA can control the timing risk associated with lease award and project design by ensuring that the final F&ORs and facility specifications are well defined in conjunction with Phase 2 procurement. If the final F&ORs are comprehensive and clear, they will enable Offerors to establish an accurate estimate for facilities construction costs which will form the basis of their economic offers to the government and will ensure a more timely issuance of 20-30% design documents required during Phase 2 of the procurement. Directly following lease award, it will be critical that GSA and NNSA work closely with the selected developer to facilitate design review and approvals in a timely manner.

NEPA & Environmental Due Diligence: This work should commence as soon as possible in the process in order to prevent any possible delays resulting from site issues. A favorable Environmental Assessment (EA) will likely signal a Finding of No Significant Impact (FONSI) and will therefore be a good indicator of potential schedule risk early in the site selection process. Additionally, the site survey will help NNSA identify capacity of existing utilities/water/sewer and projected timing and costs associated with required upgrades (if applicable). GSA and NNSA should be sensitive to site zoning in order to prevent delays in entitlements to support future use by NNSA (e.g. commercially zoned land will be preferable to agriculturally zoned land). Additional discussion on NEPA requirements is included in later sections of this report.

See the attached Risk Management Plan for a detailed discussion of the risks and risk management strategy for the project.

8. ACQUISITION STRATEGY

The acquisition approach discussed in this section is based on the recommended acquisition strategy of utilizing the GSA Lease process for the development of the new facility and executing the occupancy or relocation/transition project as an expense funded project.

See the Legacy Management section of this document for discussion of disposition of the current facility.

8.1. Acquisition and Contract Types

8.1.1. KCRIMS New Facility – GSA Lease Process

This process relies on GSA to secure the facility and lease it to the government for mission operation. GSA will manage and administer all aspects of the bid, design, and construction of the new facility. GSA responsibilities include developing the Solicitation for Offer (SFO), issuing bid documents, lease development and negotiation, design reviews, construction management, and closeout activities.

NNSA, through the IPT will maintain surveillance that the functional requirements, schedule, cost, and quality assurance requirements are being met. NNSA will also provide final approval of lease terms. Honeywell FM&T has hired a full service commercial real estate advisor, Jones Lang LaSalle (JLL), to assist in the execution of the GSA process. JLL will assure there is competitive commercial market influence on the project and offer professional guidance to NNSA/Honeywell throughout facility acquisition.

8.1.2. KCRIMS Occupancy

The KCRIMS occupancy scope, cost, and schedule are in the conceptual planning phases. An extensive amount of planning has been performed to determine the equipment relocation requirements. Planning efforts include:

- a database has been developed to disposition the existing equipment in order to determine what equipment must be relocated to the new facility
- conceptual layouts of all planned manufacturing areas have been performed to validate the future space requirements
- each area team has developed conceptual relocation schedules to establish an upper boundary schedule time frame for the relocation effort
- a combination of detailed and analogous cost estimates along with an assessment of any required new equipment has been performed to establish an estimate for the occupancy scope

The occupancy effort is not scheduled to begin until the fourth quarter of FY2010. Additional planning to better define the scope, cost, schedule, and execution method of the work will be performed over the next several months. This planning will include acquisition alternative analysis that will allow the project team to make an informed decision on the proper acquisition strategy for the relocation effort. Therefore, an acquisition strategy for the occupancy work will not be presented at this time, but will be recommended at a later date that aligns with the project schedule requirements.

8.1.3. KCRIMS Program Management and Planning Services

Honeywell FM&T under terms of their contract with Burns & McDonnell Engineering, Facility Engineering Services (FES) has a captive architectural engineering firm that provides engineering services. This existing contract will be used for KCRIMS program management and planning efforts such as development of the Functional & Operating Requirements and planning of the occupancy scope. Honeywell FM&T will provide additional project management resources from their existing staff.

The NNSA KCSO will provide federal oversight and project director resources from the existing staff and within current budgets.

8.2. Competition

The developer for the new facility will be selected through a competitive process based on a combination of qualification and price factors. All contracts issued by the

developer for design and construction of the new facility will also be competitively bid.

The facilities design contract with Burns & McDonnell Engineering was negotiated in 2001 for five years with five one year options. This contract is currently in place, and the terms of this contract will be used for the KCRIMS planning efforts.

9. VALUE MANAGEMENT

The Value Management standard is the systematic application of recognized techniques which identify the functions of the product or service, establish worth of the functions, and provide the necessary functions to meet the required performance at the lowest overall life cycle cost. These value management principles have been applied to the KCRIMS planning efforts performed to date and will continue to be applied to all project development activities. Value engineering has been applied to determine the best alternative to achieve the project's necessary and desired functions at the best value to the government.

Areas in which value management principles have been applied include:

- Development of Facility Alternatives: A master planning process was used for development and analysis of alternate facility options. This master planning effort was the basis for the Facility Acquisition Report that provided detailed analysis of each facility option including cost estimates, financial analysis, schedules, advantages, disadvantages, and risks.
- Functional Requirement Key Decisions: Many of the requirements that define the functions of the new facility have been developed with a value engineering approach using a structured decision making process that included evaluations of factors such as: product and process flow in the facility, construction cost, future flexibility, operating cost, maintenance cost, security, energy considerations, and life cycle costs analysis. Decisions that have been evaluated include:
 - Recommended number of buildings for the new facility
 - Central utility plant or distributed utilities
 - LEED certification recommendations
 - Department layout affinities
 - Office Standards
 - Building management system
 - Prefabricated or built in place modular/specialty rooms
 - Utility uptime requirements
 - The need for and type of industrial waste treatment

Assuming the project is executed with the GSA Lease process acquisition strategy, additional value engineering opportunities will be exercised by the successful developer during project design and construction. Market factors and commercial standards will drive the developer to provide the lowest cost alternative that meets the functional requirements of the facility throughout the design development and construction process. Formalized design reviews will provide NNSA the opportunity to verify the developer selected options are indeed providing the best value to the government.

As the project progresses into future phases, value management will continue to be applied to the project. All project deliverables including guidance documents and design drawings will be reviewed by individuals within and external to the project team. These reviews will provide external verification and recommendations on project executions.

10. QUALITY ASSURANCE

The quality process encompasses four basic project components of cost, scope, schedule, and safety. If these factors are managed with quality in mind, opportunities for a successful project and customer satisfaction are maximized.

QA management will specifically address design and construction activities. These activities include conceptual engineering and budgeting, technical design, design procurement, cost estimating, design and field construction management, construction contracting and plant configuration control.

Project reviews will be performed at critical milestones in the project schedule. Reviews will be performed on the Scope of Work, design drawings and specifications, calculations, schedule, and cost estimate. Review comments will be evaluated, resolved, and included in the applicable final document.

Construction oversight and inspection will be provided during the construction phase to ensure conformance with the drawings and specifications.

FM&T and NNSA-KCSO personnel will participate in the GSA final inspection process for the new facility. For the occupancy portion of the project, established guidelines for beneficial occupancy inspections will be followed. The final inspections will be used to ensure all technical objectives defined in the drawings and specifications have been achieved and the completed construction project is safe and operational.

The procedures utilized for quality assurance are outlined in Honeywell FM&T's Command Media Work Instructions which include the facilities Quality Control Plan. The plan divides projects into phases of development that include planning, conceptual design, preliminary design, final design, bidding or negotiating, and construction.

11. ENVIRONMENTAL SAFETY & HEALTH

Environment, Safety & Health is an integral part in the transformation of nonnuclear production operations for a new Kansas City Plant. As described in the preferred option recommendation, the new facility will be acquired via a GSA lease option. As such, the GSA and their lessors will be accountable for the ES&H aspects of new facility construction and are expected to comply with ES&H codes and standards applicable to design and construction of a commercial facility. Honeywell FM&T will be accountable for the relocation activities associated with the occupancy of the new facility. The following sections describe Honeywell FM&T ES&H processes which will be followed for the execution of this phase of the project. A proposed

federal action has yet to be determined for the decontamination and decommissioning of the existing NNSA facility. When a proposed action is determined, it is anticipated the NNSA and their contractors will be accountable for compliance with all applicable ES&H requirements.

11.1. Integrated Safety Management

KCP is a nonnuclear manufacturing facility and does not engage in special nuclear material handling, storage, or high-risk activities.

No new hazards or processes are anticipated with the transition of operations to a new, modern, more efficient facility. The Honeywell FM&T organization responsible for operation of the facility will create work directions or instructions that will identify hazards and controls. Typically, this would be in the format of process descriptions, work instructions, engineering and manufacturing work directives, job hazard analyses (JHA), and/or other safety related documentation.

Integrated safety management (ISM) programs and processes currently in place at the KCP will be applied to the transformation activities associated with the relocation of operations to a new facility. The proposed operations of the facility and the associated relocation project design documents will be assessed through Honeywell FM&T Preliminary Hazard Analysis (PHA) process. The hazards associated with the operation of the new facility are anticipated to be similar to those already encountered at the KCP. The existing hazards and their controls are included in the Site Safety Assessment for the Kansas City Plant. The stated conclusion in the Site Safety Assessment is, "operations at the KCP involve hazards of the type and magnitude routinely encountered in industry and are generally accepted by the public." As no new hazards or processes are anticipated with the transition, a similar conclusion of "low hazard/general industry" is assumed.

Control of hazards identified through the PHA process will occur during occupancy construction phases through the facilities construction specification and safety programs. The construction specifications and work packages will require contractors to follow and implement controls applicable to the project. These hazards and controls will be addressed in the Safety Plan developed by the contractor awarded the contract. Assurance that contractors and future operators follow the work directions will occur through the construction safety program and routine training and assessment programs for operators

Occupancy design provisions will incorporate the necessary structures, equipment, and detection devices required to meet all ES&H codes and regulations for personnel safety and fire protection. In all cases, project design and construction will comply with Occupational Safety and Health Administration (OSHA) requirements.

11.2. Preliminary Hazard Analysis

For the purposes of this Project Execution Plan, the appendix titled *2007 Federal Manufacturing & Technologies Environmental Safety & Health Management Plan* is the basis for the management of ES&H aspects of the transition of operations into a new, modern, more efficient facility. This Plan identifies ES&H programs and

processes designed to identify and control hazards and describe the FM&T Preliminary Hazard Analysis process.

11.3. NEPA

As described in the preferred option recommendation, the proposed federal action is to acquire a new facility via a GSA lease option. The GSA and their approved NEPA subcontractor, with technical support provided by NNSA and Honeywell FM&T, will be accountable for the NEPA process relative to the new facility and its occupancy. GSA will be initiating the NEPA process in early 2007 and will have completed the process prior to award of a contract with a developer.

A proposed federal action has yet to be determined for the decontamination and decommissioning of the existing NNSA facility. When a proposed action is determined, it is anticipated the NNSA and their subcontractors will be accountable for NEPA compliance relative to the proposed action.

11.4. Waste Management

As described in the preferred option recommendation, the proposed federal action is to acquire a new facility via a GSA lease option. The GSA and their approved contractor will be accountable for the waste management/minimization processes relative to the design/construction of a new facility.

For the transition of operations into the new facility, Honeywell FM&T will follow existing processes and procedures to address waste management associated with the physical occupancy of the new facility. Equipment, materials, and chemicals involved in relocation activities are not anticipated to introduce any new waste streams beyond those currently experienced and managed at the KCP.

A proposed federal action has yet to be determined for the decontamination and decommissioning of the existing NNSA facility. When a proposed action is determined, it is anticipated the NNSA and their subcontractors will be accountable for waste management relative to the proposed action.

Appendix A - Work Breakdown Structure Dictionary

WBS Element Title	WBS Element Definition
1.6 Facility Transformation	This element represents the new modern flexible manufacturing facility that is the cornerstone of the KCRIMS Transformation Program.
1.6.1 New Facility	This item describes the new facility which will be more adaptable than the current facility, allowing changes to the capability and capacity quickly and economically. This approach is in strategic alignment with NNSA's Responsive Infrastructure vision.
1.6.1.1 Facility Program Management	This item establishes program technical direction for the integration and coordination effort to provide overall accountability for program success.
1.6.1.1.1 Facility Acquisition Report (FAR)	This item represents the culmination of preliminary planning and feasibility studies, cost projections, lease cost estimates, schedule, and implementation alternatives for the various scenarios developed for the future KCP facility.
1.6.1.1.2 Functional & Operating Requirements (F&ORs)	This element establishes a comprehensive set of operating requirements. Development of the F&ORs occurs in phases. Initial high level requirements such as total space, clear height, major operational demarcations, and plant environments will be established and will continue to be refined in the phases.
1.6.1.1.2.1 70% F&OR	This item establishes the 70% effort in the F&OR process. The 70% F&OR shall consist of baseline facilities requirements, ranging from size, massing, types of spaces to functional specifications for the new facility as well as functional layouts and more specifics regarding building performance criteria and specifications. The 70% F&OR will be used in refining project cost projections for the project as required.
1.6.1.1.2.2 95% F&OR	This item establishes the 95% effort in the F&OR process. The 95% F&OR will be used in defining the design narrative that will accompany the procurement documents that are issued to all potential bidders.
1.6.1.1.2.3 100% F&OR	This item represents the final design narrative that will be submitted to the short listed Offerors as part of Phase 2 of the solicitation process. The F&OR must be comprehensive and clear to enable Offerors to establish an accurate estimate for facilities construction costs which will form the basis of their economic offers to the government.
1.6.1.1.3 Critical Decision (CD) Process	This element defines the Tailoring Strategy or the Preliminary Project Execution Plan; the Federal Project Director will identify those areas a project plans to tailor and an explanation/discussion of each tailored area. The Preliminary Project Execution Plan/Tailoring Strategy is updated prior to each Critical Decision request.
1.6.1.1.3.1 CD-0 Approve Mission Need	This element includes the effort to provide a CD-0, or Justification of Mission Need document for NNSA approval that states the role

WBS Element Title	WBS Element Definition
	the project plays in meeting NNSA's long-range plans in Complex 2030 to dramatically reduce costs and improve responsiveness while implementing an infrastructure appropriate for the new triad.
1.6.1.1.3.2 CD-1 Approve Alternative Selection and Cost Range	This item identifies the concept and requirements for fulfilling the KCRIMS facility transformation. The documents present alternative solutions and an analysis of the alternatives. Based on the analysis, a recommended alternative along with its requirements and key performance parameters is clearly presented. The report provides the basis for a decision to select a facility option that meets the transformation vision.
1.6.1.1.4 Regulatory Permitting	This item includes the effort to provide Air and water permits for the new facility.
1.6.1.1.5 Project Management	This item includes all activities associated in management oversight for the above mentioned deliverables along with document initiation and review, project cost and schedule control and integration of all components of the facility program management.
1.6.1.1.6 Project Closeout	This item involves bringing the project to a planned and orderly conclusion, with as much care and attention as other project phases. An administrative and financial closeout verifies and documents project results to formalize acceptance of a project by the user.
1.6.1.1.7 GSA Oversight	This item represents activities that pertain to the General Services Administration's (GSA's) facility and construction management services.
1.6.1.1.7.1 Scoring Analysis OMB A-11/A-96	This item provides the scoring analysis which will be conducted according to OMB A-11 and A-96 guidelines to determine how the lease term and rate shall be structured to avoid treatment as capital lease; the scoring analysis shall be conducted to ensure that the net present value of the lease payments do not exceed 90% (85% of GSA's internal approval) of the project cost associated with construction of the new facility.
1.6.1.1.7.2 Occupancy Agreement	This element will define the terms of NNSA's commitment as a future tenant of the facility which GSA is procuring on behalf of NNSA. The Occupancy Agreement will outline the commitment, fees, and anticipated lease terms as it relates to the new facility.
1.6.1.1.7.3 Prospectus	This element defines a comprehensive planning document that the federal government uses to identify capital project requirements. The Prospectus will be submitted to GSA office of Portfolio Management before it is submitted to the GSA Administrator for submission to OMB and Congress. The prospectus is developed to summarize the needs of NNSA, the size, timing, and expense associated with the intended acquisition of the new KCP facility.
1.6.1.1.7.4 Design & Build	This item is broken down into two parts: Design includes all major phases such as the blocking and stacking diagram, bubble diagram, initial space plan, design intent drawings, and construction drawings. The lessor's architect will prepare the drawings for the

WBS Element Title	WBS Element Definition
	Government's approval at each phase. All decisions about the space will be made at this time, including finishes of the space and any special equipment accommodations. Build refers to the construction of the KCP facility based upon the construction drawings with respect to the shell, tenant improvements, and occupancy. Other activities also include construction management, guards, equipment purchase and installation.
1.6.1.1.7.5 National Environmental Policy Act (NEPA)	This element consists of completing the Environmental Assessment (EA) as required by NEPA. Responsibility for NEPA compliance will be part of GSA's role as facility provider.
1.6.1.1.7.6 Lease	This element is comprised of a legal binding contract between the awardee and the Government's Contracting Officer. The process is initiated through a development and approval period for the Solicitation for Offers (SFO). The SFO is developed using mostly standard GSA lease language and customized GSA language for large projects. The SFO package is issued to the parties who have expressed interest in the federal requirement through the advertisement. The proposals will go through 2 phases to get to a short list of offerors. The government is required by the Competition in Contracting Act (CICA) to notify the market that final offers are due and negotiations will be closed. A final evaluation by the Source selection panel selects a prospective awardee. The awardee remains prospective because the lease package must be reviewed and a final lease must be prepared and signed by the offeror and the Government.
1.6.1.1.7.7 Project Management	This item includes all activities associated in management oversight during the execution of the GSA alternate financing process.
1.6.1.2 Occupancy	This element identifies the effort in preparing work packages to transfer equipment and material from the Kansas City Plant (KCP) to the new KCRIMS Facility. Also included is the installation of new equipment and material at the KCRIMS Facility.
1.6.1.2.1 Relocation of Existing Equipment	This item includes the Preparation of KCP equipment and material for movement which includes the following: Movement of the KCP equipment and material to the designated KCP shipping terminal. Shipment of the KCP equipment and material to the designated KCRIMS receiving terminal.
1.6.1.2.1.1 Design	Work package design to meet relocation of existing equipment.
1.6.1.2.1.2 Installation	This item describes the installation of the relocated equipment.
1.6.1.2.1.3 Project Management	This element provides for management oversight during the design and installation of the relocated equipment.
1.6.1.2.2 Basic Capital Equipment (BCE)	This item includes the preparation of design, procurement and installation of new equipment and material at the new KCRIMS Facility.
1.6.1.2.2.1 – 1.6.1.2.2.XXX Equipment	This item will identify each piece of capital equipment which will

WBS Element Title	WBS Element Definition
No. XXX	include the design, procurement, installation and project management and support activities for the new facility.
1.6.1.2.2.1.1 Design	Develop design packages for each piece of new equipment for the new facility.
1.6.1.2.2.1.2 Procurement	Develop and execute the project procurement management plan which includes the acquisition of each piece of new equipment required for the new facility.
1.6.1.2.2.1.3 Install	This item describes each piece of new equipment that will need to be installed at the new facility.
1.6.1.2.2.1.4 Project Management	This element provides for management oversight during the procurement, design and installation of each piece of new equipment.
1.6.1.2.2.1.5 Project Support	This item provides for project support from the manufacturing sourcing divisions during the procurement, design and installation of the relocated equipment
1.6.1.2.3 Low Value Capital Equipment (LVCE) & Expense	This element includes the design, procurement and installation of LVCE and expense items for the new facility.
1.6.1.2.3.1 – 1.6.1.2.3.XXX Equipment No. XXX	This item will identify each piece of LVE equipment which will include design, procurement, installation and project management activities for the new facility.
1.6.1.2.3.1.1 Design	Develop design packages for each piece of new equipment for the new facility.
1.6.1.2.3.1.2 Procurement	Develop and execute the project procurement management plan which includes the acquisition of each piece of new equipment required for the new facility.
1.6.1.2.3.1.3 Project Management	This element provides for management oversight during the procurement, design and installation of each piece of new equipment.

Appendix B - Risk Management Plan

Risk Management Plan

KCRIMS Project

(Kansas City Responsive Infrastructure, Manufacturing & Sourcing Project)

at the
Kansas City Plant

For the U.S. National Nuclear Security Administration
Kansas City Site Office
Kansas City, Missouri

Project No. 1118

Prepared by Facilities Engineering Services for
Honeywell International,
Federal Manufacturing & Technologies

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1.0 INTRODUCTION

The Risk Management Plan for the KCRIMS (Kansas City Responsive Infrastructure, Manufacturing, and Sourcing) project defines the scope and processes for identification, evaluation of impact and management of risks applicable to the project. Risk Management will include assessable risks that potentially jeopardize facility construction, occupancy, and operation. The risk assessment is based on the entire project scope, both programmatic and technical project risks.

The objective of this plan is to define the strategy to manage project-related risks throughout the remainder of the project's life cycle, such that there is acceptable, minimal impact on the project's cost and schedule as well as on the conduct of the facility's operational performance.

1.1 Risk Management History

This Risk Management Plan and subsequent risk assessments will be based on up-to-date project cost, schedule, and scope information. The risks, ratings, and handling strategies will be updated as the project matures.

Revisions to this Plan are recorded in the risk management plan change log contained herein.

1.2 Risk Management Purpose and Scope

The purpose of this Risk Management Plan is to assure that the KCRIMS project incorporates appropriate, efficient, and cost effective measures to mitigate project-related risks. This plan describes the concept and the process for risk management for the project. The responsibilities of project personnel and process steps for management of construction risk at the KCP are shown in Work Instruction 04.01.01.04.43, *How to Perform Risk Management for Construction*.

The product of this risk analysis will be a one-page summary for each moderate and high level risk, showing their classification, handling strategies, impact on cost and schedule, and project action items. The risk summary sheets are included in Section 4 of this report.

The risk management process will:

- Identify potential sources of risk and the mechanisms forming these risks
- Assess individual risks and their potential impact on project and facility performance, cost, and schedule
- Evaluate alternative approaches to mitigate high and moderate risks
- Develop action plans to handle individual risks
- Interface risks with other projects/programs

This Risk Management Plan will remain valid for the life cycle of the project and will be under project configuration control.

2.0 PROJECT BACKGROUND AND RISK MANAGEMENT TEAM

2.1 Background

The KCRIMS Project has a broad mission to transform the Kansas City Plant into a more responsive, reliable, cost-efficient manufacturing facility. It involves changes in all aspects of plant operation: more manufacturing components and services will be provided by vendors; manufacturing equipment and personnel will be reconfigured based on processes; and the KCP will be housed in a new, smaller, more adaptable manufacturing facility. This risk management plan is focused on the procurement and occupancy of the new manufacturing facility.

The new manufacturing facility will be designed and constructed by a private developer under a contract with the US General Services Administration (GSA). It will be located within the Kansas City metropolitan area, and NNSA will lease it from GSA. NNSA will provide functional and operating requirements (F&ORs) to GSA prior to design of the new facility.

GSA's contract with the developer will cover construction of basic factory and office buildings, and will provide an allotment for additional real property items that are necessary for a functional facility based on NNSA's needs. Examples of additional items include floor and wall finishes, building security system, interior walls, cafeteria, and power and utility branch lines. There is a risk that GSA's allotment may not be adequate to pay for all of the additional items identified by NNSA. Based on the current status of project development, and cost estimates that have been produced to date, that risk is assessed as low. The mitigation strategy for this risk will be to either reduce the scope of additional items, or seek additional funding to cover them.

Because NNSA will not be directly responsible for design and construction of the new facility, this risk management plan will assess risks associated with NNSA activities regarding design and construction, such as planning, preparation of F&ORs, and oversight. Because GSA will be responsible for development of the new facility, GSA will also be responsible for assessing environmental risks through the NEPA process.

A risk analysis was performed in December 2006 for the overall KCRIMS Project. It addressed a wide variety of risks grouped in the following categories: overall program, establish feasibility, develop transition strategy, plan transition, execute transition, and close transition phase. The moderate and high risks from that analysis that may affect procurement of the new facility are summarized in Section 4 of this plan.

NNSA will be responsible for occupancy of the new building, including relocation of equipment and materials from the existing plant and installation of new

furnishings. This risk management plan will assess risks associated with those activities. A second risk analysis was performed in January 2006 for the occupancy phase of the project. The moderate and high risks from that analysis are summarized in Section 4 of this plan.

Integrated safety management programs currently in place at the KCP will be applied to the occupancy phase of this project. Plans for installation of equipment and furnishings at the new facility will be reviewed using the Honeywell FM&T Preliminary Hazard Analysis (PHA) process. Control of the hazards identified through the hazards analyses will occur during the occupancy phase through the facilities safety program. The occupancy work packages will require subcontractors to follow and implement controls applicable to the work. These hazards and controls will be addressed in the Site Specific Safety Plan developed by each contractor who is awarded a work package contract. Assurance that the work directions are followed will occur through Honeywell's construction safety program. Feedback and improvement of these programs is an ongoing initiative for Honeywell FM&T.

Disposition of the existing KCP facility, after operations are moved to the new facility, has yet to be determined. Thus, this risk management plan does not address issues regarding disposition of the existing facility.

2.2 Risk Management Team

The risk management team for the KCRIMS project is comprised of KCP personnel who are stakeholders and/or knowledgeable of the project and/or knowledgeable of construction risks. One member is the KCP risk management process owner, who facilitates the process and the meetings.

J.R. Breed KCSO Transformation Program Manager	816-997-3918	jbreed@kcp.com
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R.A. Elliot FES Cost Engineer	816-997-2994	belliot@kcp.com
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S.D. Karney FES Project Controls Engineer	816-997-4554	skarney@kcp.com

3.0 RISK MANAGEMENT PROCESS

3.1 Risk Management Planning

The KCP uses a standardized process to analyze risks associated with construction. The process requirements are prescribed in the KCP's Command Media within Work Instruction 04.01.01.04.43, *How to Perform Risk Management for Construction*.

A set of risks that could affect construction at the KCP have already been identified and entered on an electronic spreadsheet. The spreadsheet includes a risk scoring mechanism and formulae to quantify residual risks, potential cost impact, and potential schedule impact.

3.2 Risk Identification

A unique risk analysis team is assembled for each project. The team convenes and reviews the list of risks that could affect construction projects at the plant. If additional risks are identified, they are added to the project-specific list.

3.3 Risk Quantification

When reviewing each listed risk, the risk analysis team discusses the risk as it applies to the project and jointly assigns values to the likelihood of occurrence and consequence of occurrence. Values and selection criteria for likelihood of occurrence and consequence of occurrence are shown in the following tables.

Likelihood of Occurrence:

Value	Criteria
1 Very Unlikely	Less than 3% chance of occurring
2 Unlikely	3 to 10% chance of occurring
3 Low	11 to 25% chance of occurring
4 Likely	26 to 60% chance of occurring
5 Very Likely	Greater than 60% chance of occurring

Consequence of Occurrence:

Value		Criteria
1	Negligible	Minimal consequence to program Some potential for transfer of money Slight potential for schedule change with in float
2	Marginal	Small reduction in program performance Cost estimates marginally exceed budget Minor slip in schedule with milestones impacted
3	Moderate	Moderate reduction in program performance Cost estimates moderately exceed budget Moderate slip in schedule that affect mission
4	Critical	Goals of program cannot be achieved Cost estimates seriously exceed budget Unacceptable schedule slip affecting mission
5	Crisis	Project cannot be completed Cost estimates unacceptably exceed budget Catastrophic threat to mission, facility, people.

For each risk, a risk rating is calculated from the values assigned to its likelihood and consequence of occurrence. The level (high, moderate, or low) is assigned to the risk based on the risk rating, per the graded chart shown below.

Risk Level Matrix:

		Severity of Consequence				
		Negligible	Marginal	Significant	Critical	Crisis
Likelihood	Very Likely	Moderate	Moderate	High	High	High
	Likely	Low	Moderate	High	High	High
	Low	Low	Moderate	Moderate	High	High
	Unlikely	Low	Low	Moderate	Moderate	Moderate
	Very Unlikely	Low	Low	Low	Low	Moderate

3.4 Risk Handling

For risks with moderate and high levels, the risk analysis team discusses options for risk handling and develops strategies to implement those options. The options for risk handling are to accept the risk, mitigate the risk, or transfer the risk to another entity (this option is rarely used).

Risks with low levels are accepted, and mitigation strategies for them are not developed.

3.5 Risk Management Monitoring

Evaluation of the status and mitigation progress of identified risks, and any additional identification of new potential risks, and the closure of acceptable risks will be performed at key points in the project cycle, including:

- Prior to design
- Prior to construction
- Prior to occupancy
- Prior to pre-start reviews

Additional risk assessments may be performed in support of the procurement, construction, and occupancy schedules, as appropriate.

4.0 SUMMARY OF MODERATE AND HIGH RISKS

Descriptions of the moderate and high risks that have been identified, along with handling or mitigation strategies, appear on the following pages.

Risk ID:	Con-13
Project Phase:	Construction
Risk Title:	Customer does not accept revised security and safety standards
Statement of Risk:	The KCRIMS transformation plan calls for simplified security practices. Failure of NNSA to accept changes in existing security practices could increase the scope, cost, and schedule of new facility construction.
Risk Type:	Cost, Schedule, Scope
Risk Rating:	High
Risk Level:	15
Likelihood of Occurrence:	5
Consequence of Occurrence:	3
Risk Handling Strategies:	Identify desired changes to existing orders and directives, and decision makers who could allow changes. Develop and implement a plan for obtaining those changes.
Cost Impact:	\$10,000,000
Schedule Impact:	17.3 weeks

Risk ID:	Con-47
Project Phase:	Construction
Risk Title:	Wrong level of detail in Functional & Operating Requirements
Statement of Risk:	Too much detail in F&ORs will reduce adaptability of new facility; too little detail will not provide for customer needs.
Risk Type:	Cost, Schedule, Scope
Risk Rating:	Medium
Risk Level:	9
Likelihood of Occurrence:	3
Consequence of Occurrence:	3
Risk Handling Strategies:	Use an independent consultant to monitor development of F&ORs.
Cost Impact:	\$3,000,000
Schedule Impact:	0 weeks

Risk ID:	Con-48
Project Phase:	Construction
Risk Title:	Lack of agreement on facility moving strategy
Statement of Risk:	Several strategies are available for planning migration to the new facility. If a strategy is not selected in time, planning for the move and accelerated product schedules will be delayed.
Risk Type:	Cost, Schedule
Risk Rating:	High
Risk Level:	12
Likelihood of Occurrence:	3
Consequence of Occurrence:	4
Risk Handling Strategies:	Present this issue to project management personnel to reach a decision.
Cost Impact:	\$0
Schedule Impact:	4.3 weeks

Risk ID:	Con-59
Project Phase:	Construction
Risk Title:	Best and final bids exceed GSA prospectus
Statement of Risk:	Bids to GSA for design and construction of the new facility could exceed the cost estimate in the prospectus.
Risk Type:	Cost, Schedule, Scope
Risk Rating:	Medium
Risk Level:	6
Likelihood of Occurrence:	2
Consequence of Occurrence:	3
Risk Handling Strategies:	If bids are high, seek higher spending authority from Congress or re-evaluate the F&ORs to decrease scope.
Cost Impact:	\$0
Schedule Impact:	8.7 weeks

Risk ID:	Con-64
Project Phase:	Construction
Risk Title:	Failure of design/build contractor to meet planned schedule
Statement of Risk:	Late completion of new facility construction will delay occupancy phase and future production schedules.
Risk Type:	Cost, Schedule
Risk Rating:	Medium
Risk Level:	6
Likelihood of Occurrence:	2
Consequence of Occurrence:	3
Risk Handling Strategies:	Encourage GSA to include incentives in the design-build contract to reward timely completion.
Cost Impact:	\$3,000,000
Schedule Impact:	4.3 weeks

Risk ID:	Occ-01
Project Phase:	Occupancy
Risk Title:	Change in scope requirements
Statement of Risk:	Project is in conceptual development stage. Scope could increase as project definition matures.
Risk Type:	Cost, Schedule, Scope
Risk Rating:	High
Risk Level:	25
Likelihood of Occurrence:	5
Consequence of Occurrence:	5
Risk Handling Strategies:	Continue scope development with active communication between Facilities and customers.
Cost Impact:	\$1,993,000
Schedule Impact:	2.6 weeks

Risk ID:	Occ-02
Project Phase:	Occupancy
Risk Title:	Scope detail inadequate
Statement of Risk:	Project is in conceptual development stage. Scope detail is not adequate for execution at this time.
Risk Type:	Cost, Schedule, Scope
Risk Rating:	High
Risk Level:	25
Likelihood of Occurrence:	5
Consequence of Occurrence:	5
Risk Handling Strategies:	Apply quality assurance process to scope development activities.
Cost Impact:	\$1,993,000
Schedule Impact:	2.6 weeks

Risk ID:	Occ-03
Project Phase:	Occupancy
Risk Title:	Construction schedule not adequate
Statement of Risk:	It is not known at this point in project development if the target timeframe for occupancy is adequate. Further project development may indicate that more time is required.
Risk Type:	Cost, Schedule
Risk Rating:	High
Risk Level:	20
Likelihood of Occurrence:	5
Consequence of Occurrence:	4
Risk Handling Strategies:	Evaluate construction schedule as project scope is developed. Present options to management for resolution of scheduling issues.
Cost Impact:	\$797,000
Schedule Impact:	1.3 weeks

Risk ID: Occ-04

Project Phase: Occupancy

Risk Title: Cost estimate not adequate

Statement of Risk: Cost estimates made to date were based on low scope detail.

Risk Type: Cost

Risk Rating: High

Risk Level: 15

Likelihood of Occurrence: 3

Consequence of Occurrence: 5

Risk Handling Strategies: Refine cost estimates as scope is developed.

Cost Impact: \$325,000

Schedule Impact: 0.4 weeks

Risk ID:	Occ-07
Project Phase:	Occupancy
Risk Title:	Space is not adequate
Statement of Risk:	Further refinement of layouts or changes to sourcing plans may require more space in new building.
Risk Type:	Cost, Scope
Risk Rating:	Medium
Risk Level:	8
Likelihood of Occurrence:	2
Consequence of Occurrence:	4
Risk Handling Strategies:	If space increases are justified, utilize unallocated (white) space.
Cost Impact:	\$325,000
Schedule Impact:	0.4 weeks

Risk ID:	Occ-09
Project Phase:	Occupancy
Risk Title:	Time is not adequate
Statement of Risk:	This is a large, complex project requiring much planning. Time currently allowed for planning and design may be short.
Risk Type:	Cost, Schedule
Risk Rating:	Medium
Risk Level:	9
Likelihood of Occurrence:	3
Consequence of Occurrence:	3
Risk Handling Strategies:	Add planning resources to meet schedule targets.
Cost Impact:	\$325,000
Schedule Impact:	0.4 weeks

Risk ID:	Occ-12
Project Phase:	Occupancy
Risk Title:	Construction personnel are not available
Statement of Risk:	Occupancy may require multiple shift operation, which may be difficult to staff.
Risk Type:	Cost, Schedule
Risk Rating:	High
Risk Level:	25
Likelihood of Occurrence:	5
Consequence of Occurrence:	5
Risk Handling Strategies:	Consider options such as extended working hours (overtime or multiple shifts) or longer occupancy schedule.
Cost Impact:	\$4,386,000
Schedule Impact:	5.2 weeks

Risk ID:	Occ-16
Project Phase:	Occupancy
Risk Title:	Processing equipment is not available
Statement of Risk:	Factory departments may not release equipment for relocation on planned dates.
Risk Type:	Cost, Schedule
Risk Rating:	High
Risk Level:	25
Likelihood of Occurrence:	5
Consequence of Occurrence:	5
Risk Handling Strategies:	Develop a detailed occupancy schedule showing equipment release dates and communicate it with customers so they can accelerate production schedules ("build-ahead").
Cost Impact:	\$4,386,000
Schedule Impact:	5.2 weeks

Risk ID:	Occ-17
Project Phase:	Occupancy
Risk Title:	Equipment Engineering is not available
Statement of Risk:	Demand for Equipment Engineering support may be greater than current staff can provide.
Risk Type:	Cost, Schedule
Risk Rating:	High
Risk Level:	25
Likelihood of Occurrence:	5
Consequence of Occurrence:	5
Risk Handling Strategies:	Contract with equipment manufacturers for their support in relocating equipment.
Cost Impact:	\$1,993,000
Schedule Impact:	2.6 weeks

Risk ID:	Occ-18
Project Phase:	Occupancy
Risk Title:	Equipment Maintenance personnel are not available
Statement of Risk:	Demand for Maintenance support may be greater than current staff can provide.
Risk Type:	Cost, Schedule
Risk Rating:	High
Risk Level:	25
Likelihood of Occurrence:	5
Consequence of Occurrence:	5
Risk Handling Strategies:	Use contractor personnel to augment Maintenance resources.
Cost Impact:	\$1,993,000
Schedule Impact:	2.6 weeks

Risk ID: Occ-20

Project Phase: Occupancy

Risk Title: Guards are not available

Statement of Risk: Demand for security escorts may be greater than current staff can provide.

Risk Type: Cost, Schedule

Risk Rating: High

Risk Level: 25

Likelihood of Occurrence: 5

Consequence of Occurrence: 5

Risk Handling Strategies: Use Q-cleared personnel to augment Security resources.

Cost Impact: \$1,993,000

Schedule Impact: 2.6 weeks

Risk ID:	Occ-34
Project Phase:	Occupancy
Risk Title:	Construction has heat or spark producing features
Statement of Risk:	Installation of piping, structural supports, etc will require use of saws, cutting torches, and welders; all potential fire sources.
Risk Type:	Cost, Schedule
Risk Rating:	High
Risk Level:	15
Likelihood of Occurrence:	5
Consequence of Occurrence:	3
Risk Handling Strategies:	Use existing safety requirements for hot work permits. Require contractors to provide safety personnel.
Cost Impact:	\$797,000
Schedule Impact:	1.3 weeks

Risk ID:	Occ-40
Project Phase:	Occupancy
Risk Title:	Customer needs change during design
Statement of Risk:	Factory departments may need to change equipment layouts and/or equipment to be relocated/installed.
Risk Type:	Cost, Schedule, Scope
Risk Rating:	Medium
Risk Level:	10
Likelihood of Occurrence:	5
Consequence of Occurrence:	2
Risk Handling Strategies:	Maintain communication with customers. Use change control to verify need for change. Use existing quality assurance process to get customer feedback.
Cost Impact:	\$797,000
Schedule Impact:	1.3 weeks

Risk ID:	Occ-41
Project Phase:	Occupancy
Risk Title:	Customer needs change during construction
Statement of Risk:	Factory departments may need to change equipment layouts and/or equipment to be relocated/installed.
Risk Type:	Cost, Schedule, Scope
Risk Rating:	High
Risk Level:	20
Likelihood of Occurrence:	5
Consequence of Occurrence:	4
Risk Handling Strategies:	Use change control to verify need for change.
Cost Impact:	\$1,993,000
Schedule Impact:	2.6 weeks

Risk ID:	Occ-43
Project Phase:	Occupancy
Risk Title:	Customer needs change during equipment installation design
Statement of Risk:	Factory departments may need to change equipment layouts and/or equipment to be relocated/installed.
Risk Type:	Cost, Schedule, Scope
Risk Rating:	Medium
Risk Level:	10
Likelihood of Occurrence:	5
Consequence of Occurrence:	2
Risk Handling Strategies:	Maintain communication with customers. Use change control to verify need for change. Use existing quality assurance process to get customer feedback.
Cost Impact:	\$199,000
Schedule Impact:	0.4 weeks

Risk ID:	Occ-44
Project Phase:	Occupancy
Risk Title:	Customer needs change during equipment installation
Statement of Risk:	Factory departments may need to change equipment layouts and/or equipment to be relocated/installed.
Risk Type:	Cost, Schedule, Scope
Risk Rating:	High
Risk Level:	20
Likelihood of Occurrence:	5
Consequence of Occurrence:	4
Risk Handling Strategies:	Use change control to verify need for change.
Cost Impact:	\$1,993,000
Schedule Impact:	2.6 weeks

Risk ID:	Occ-54
Project Phase:	Occupancy
Risk Title:	Security increase to close plant to uncleared sub-contractors
Statement of Risk:	National security level could be raised at any time, possibly closing the plant to uncleared personnel.
Risk Type:	Cost, Schedule
Risk Rating:	Medium
Risk Level:	6
Likelihood of Occurrence:	2
Consequence of Occurrence:	3
Risk Handling Strategies:	None. Accept risk and proceed. Evaluate options to regain schedule.
Cost Impact:	\$1,000
Schedule Impact:	0.4 weeks

Risk ID:	Occ-58
Project Phase:	Occupancy
Risk Title:	Construction accident
Statement of Risk:	A construction accident could delay work, require repairs, or cause a stand-down.
Risk Type:	Cost, Schedule
Risk Rating:	Medium
Risk Level:	5
Likelihood of Occurrence:	1
Consequence of Occurrence:	5
Risk Handling Strategies:	Use existing requirements for construction safety to minimize accident potential.
Cost Impact:	\$0
Schedule Impact:	0.4 weeks

Risk ID:	Occ-67
Project Phase:	Occupancy
Risk Title:	Other project interferences - building construction
Statement of Risk:	Some items, such as office furniture, will be installed before building construction is complete. Will require coordination between construction and occupancy forces.
Risk Type:	Cost, Schedule
Risk Rating:	Medium
Risk Level:	10
Likelihood of Occurrence:	5
Consequence of Occurrence:	2
Risk Handling Strategies:	Give construction and occupancy contractors requirements for coordination in contract documents. Maintain communication during construction.
Cost Impact:	\$199,000
Schedule Impact:	0.4 weeks

Risk ID:	Occ-68
Project Phase:	Occupancy
Risk Title:	Government furnished equipment
Statement of Risk:	New government furnished equipment could arrive at plant with different configuration or utility requirements than shown on vendor drawings.
Risk Type:	Cost, Schedule
Risk Rating:	Medium
Risk Level:	5
Likelihood of Occurrence:	5
Consequence of Occurrence:	1
Risk Handling Strategies:	Keep facilities personnel aware of new capital equipment procurement through Buyers.
Cost Impact:	\$199,000
Schedule Impact:	0.4 weeks

Risk ID:	Occ-70
Project Phase:	Occupancy
Risk Title:	Work in small, congested area with significant overhead work
Statement of Risk:	Occupancy will require working within temporary visual barriers. Utility services will originate from mains located 25 feet above the floor.
Risk Type:	Cost, Schedule
Risk Rating:	High
Risk Level:	15
Likelihood of Occurrence:	5
Consequence of Occurrence:	3
Risk Handling Strategies:	Coordinate occupancy work to reduce congestion. Ensure that contractors are preparing and using safety plans.
Cost Impact:	\$797,000
Schedule Impact:	1.3 weeks

Risk ID:	Occ-71
Project Phase:	Occupancy
Risk Title:	Work in a classified area with higher access requirements
Statement of Risk:	Work could be delayed if certain areas will not allow access to uncleared construction personnel, even with security escorts.
Risk Type:	Cost, Schedule
Risk Rating:	Medium
Risk Level:	10
Likelihood of Occurrence:	5
Consequence of Occurrence:	2
Risk Handling Strategies:	Plan with customers and security personnel to avoid surprises.
Cost Impact:	\$199,000
Schedule Impact:	0.4 weeks

Risk ID: Occ-72

Project Phase: Occupancy

Risk Title: Construction labor strike

Statement of Risk: A labor strike could delay the occupancy work.

Risk Type: Cost, Schedule

Risk Rating: Medium

Risk Level: 9

Likelihood of Occurrence: 3

Consequence of Occurrence: 3

Risk Handling Strategies: None. Accept risk and proceed. Evaluate options to regain schedule.

Cost Impact: \$834,000

Schedule Impact: 1.1 weeks

Risk ID:	Occ-73
Project Phase:	Occupancy
Risk Title:	Transportation risks
Statement of Risk:	Transportation between the old and new facilities will bring risk of traffic accidents or damage to goods, which could delay work or require repair or replacement of equipment, materials, etc.
Risk Type:	Cost, Schedule
Risk Rating:	Medium
Risk Level:	6
Likelihood of Occurrence:	2
Consequence of Occurrence:	3
Risk Handling Strategies:	Require transport contractor to prepare and execute safety plan. Require insurance.
Cost Impact:	\$130,000
Schedule Impact:	0.2 weeks

Risk ID:	Occ-74
Project Phase:	Occupancy
Risk Title:	Internal labor issues
Statement of Risk:	Current labor agreements may need to be modified to allow timely, economic completion of occupancy.
Risk Type:	Cost, Schedule
Risk Rating:	High
Risk Level:	12
Likelihood of Occurrence:	4
Consequence of Occurrence:	3
Risk Handling Strategies:	Work during planning phase to resolve any potential labor issues that could negatively impact the occupancy.
Cost Impact:	\$834,000
Schedule Impact:	1.1 weeks

Risk ID:	Occ-75
Project Phase:	Occupancy
Risk Title:	Logistics - moving risks
Statement of Risk:	Significant planning effort will be required to have an orderly migration (to prevent loss of property, damage to the existing structures, etc.).
Risk Type:	Cost, Schedule
Risk Rating:	Medium
Risk Level:	6
Likelihood of Occurrence:	3
Consequence of Occurrence:	2
Risk Handling Strategies:	Form an integrated team to plan the migration, including movement of property from existing department location to new department location. Track individual shipping item with bar code system. Store new items in a bonded warehouse. Shore suspended floor s
Cost Impact:	\$130,000
Schedule Impact:	0.2 weeks

Risk ID:	Occ-76
Project Phase:	Occupancy
Risk Title:	Logistics - packaging resources
Statement of Risk:	Equipment, product, materials, tools, etc. could be damaged in shipment to the new facility.
Risk Type:	Cost, Schedule
Risk Rating:	Medium
Risk Level:	9
Likelihood of Occurrence:	3
Consequence of Occurrence:	3
Risk Handling Strategies:	Form an integrated team to plan for packaging of items to be moved. Hire contractor to perform packaging.
Cost Impact:	\$325,000
Schedule Impact:	0.4 weeks

Risk ID:	Occ-78
Project Phase:	Occupancy
Risk Title:	Logistics - classified items lost
Statement of Risk:	Classified items could be lost in movement between existing and new locations.
Risk Type:	Cost, Schedule
Risk Rating:	Medium
Risk Level:	5
Likelihood of Occurrence:	1
Consequence of Occurrence:	5
Risk Handling Strategies:	Involve internal security and production personnel in planning relocation of classified items. Use tracking/accountability systems.
Cost Impact:	\$204,000
Schedule Impact:	0.2 weeks

Risk ID:	Occ-79
Project Phase:	Occupancy
Risk Title:	Logistics - relocation of classified / security infraction
Statement of Risk:	The integrity of classified information could be compromised in movement between existing and new locations.
Risk Type:	Cost, Schedule
Risk Rating:	Medium
Risk Level:	9
Likelihood of Occurrence:	3
Consequence of Occurrence:	3
Risk Handling Strategies:	Involve internal security and production personnel in planning relocation of classified items. Use tracking and accountability systems. Ensure that visual barriers, where required, are substantial, secured.
Cost Impact:	\$325,000
Schedule Impact:	0.4 weeks

Risk ID: Occ-83

Project Phase: Occupancy

Risk Title: Unknown risks to project

Statement of Risk: Something not identified in the risk analysis process.

Risk Type: Cost, Schedule, Scope

Risk Rating: Medium

Risk Level: 9

Likelihood of Occurrence: 3

Consequence of Occurrence: 3

Risk Handling Strategies: Convene risk management team and others, as needed, to mitigate newly-identified risks.

Cost Impact: \$834,000

Schedule Impact: 1.1 weeks

Appendix C - Cost Estimates

KCRIMS Facilities Project Cost Summary

	Cost \$1,000s
Building Construction & Site Work	\$0 ^a
Relocation of Existing Equipment & Materials	\$125,000 ^b
New Basic Capital Equipment	\$43,000 ^{c,e}
New Low Value Capital & Expense Items	\$38,000 ^c
Facilities Program Management	\$9,000 ^d
Project Cost	\$215,000

Notes:

^a Cost of building construction and site work will be paid through a property lease. Annual lease is estimated to be approximately \$40-45million in FY11 dollars (including all fees, expenses, and taxes).

^b Includes relocation, design, inspection, project management, security escorts, project support (OPC), escalation, 16% burden, and 30% contingency.

^c Includes procurement, installation, design, inspection, project management, security escorts, project support (OPC), escalation, 16% burden, and 30% contingency.

^d Includes project management, oversight of GSA real property development process with escalation, 16% burden, and 30% contingency.

^e New capital equipment is being purchased to replace equipment that has reached the end of its useful life and does not constitute a new capability. The NNSA Chief Financial Officer, Office of Field Financial Management has determined that the procurement and installation of new capital equipment during the time frame of the KCRIMS project would not be funded as a Line Item appropriation, but should be executed as an operating expense.

COST ESTIMATE

Date 2/13/2007

TITLE KCRIMS RELOCATION (25 MILES FROM KCP)

SUBTITLE LEASE OPTION, WITHOUT OVERTIME INCLUDED

Cost file location KCRIMS\EQUIP4

Cost Engineer RAE

Project Eng. JHF

Team Leader DJL

Reference Number NONE

Estimate Type Feasibility

Funding Type Expense

All Costs in \$1000's

Estimate	Start	Complete	Burden rate	Contingency Pct.	Base Cost	Escal	Burden	Subtotal	Cont.	Total
	Jan 30, 2007									
Design Phase										
Title I	Oct 1, 2009	Mar 31, 2010	16%	30 %	1553	136	270	1959	588	2547
Title II	Apr 1, 2010	Sep 30, 2011	16%	30 %	2695	326	483	3504	1051	4555
Design Mgt.	Oct 1, 2009	Sep 30, 2011	16%	30 %	958	108	171	1237	371	1608
Project Mgt.	Oct 1, 2009	Sep 30, 2010	16%	30 %	958	100	169	1227	368	1595
Design Phase					6164	670	1093	7927	2378	10305
Construction										
Construction	Oct 1, 2010	Sep 30, 2012	16%	30 %	51840	8077	9587	69504	20851	90355
Standard Equipment										
Procurement			16%	20 %	0	0	0	0	0	0
Install Eng.			16%	20 %	0	0	0	0	0	0
Installation			16%	20 %	0	0	0	0	0	0
Title III	Oct 1, 2010	Sep 30, 2012	16%	30 %	1104	172	204	1480	444	1924
Construction										
Guards	Oct 1, 2010	Sep 30, 2012	16%	30 %	8820	1374	1631	11825	3548	15373
Management	Oct 1, 2010	Dec 30, 2012	16%	30 %	2871	447	531	3849	1155	5004
Project Mgt.	Oct 1, 2010	Dec 30, 2012	16%	30 %	1077	168	199	1444	433	1877
Construction Phase					65712	10238	12152	88102	26431	11453
TOTAL ESTIMATED COST (TEC)					71876	10908	13245	96029	28809	124838

COST ESTIMATE

Date 2/21/2007

TITLE KCRIMS BASIC CAPITAL EQUIPMENT

SUBTITLE LEASE OPTION, WITHOUT OVERTIME INCLUDED

Cost file location None

Cost Engineer RAE

Project Eng. JHF

Team Leader DJL

Reference Number none

Estimate Type Feasibility

Funding Type Capital

All Costs in \$1000's

Estimate	Start	Complete	Burden rate	Contingency Pct.	Base Cost	Escal	Burden	Subtotal	Cont.	Total
	Feb 16, 2007									
Design Phase										
Title I	Jan 1, 2009	Jun 30, 2009	16%	20 %	0	0	0	0	0	0
Title II	Jul 1, 2009	May 20, 2010	16%	20 %	0	0	0	0	0	0
Design Mgt.	Jan 1, 2009	May 20, 2010	16%	20 %	0	0	0	0	0	0
Project Mgt.	Jan 1, 2009	Jun 30, 2010	16%	20 %	0	0	0	0	0	0
Design Phase					0	0	0	0	0	0
Construction										
Construction	Jul 1, 2010	Sep 28, 2012	16%	20 %	0	0	0	0	0	0
Standard Equipment										
Procurement	Jan 1, 2009	May 20, 2010	16%	30 %	19079	1513	3295	23887	7166	31053
Install Eng.	Jan 1, 2009	May 20, 2010	16%	30 %	1468	116	253	1837	551	2388
Installation	Jul 1, 2010	Sep 28, 2012	16%	30 %	4892	720	898	6510	1953	8463
Title III	Jul 1, 2010	Sep 28, 2012	16%	30 %	208	31	38	277	83	360
Construction										
Guards	Jul 1, 2010	Sep 28, 2012	16%	30 %	80	12	15	107	32	139
Management	Jul 1, 2010	Dec 28, 2012	16%	30 %	230	34	42	306	92	398
Project Mgt.	Jul 1, 2010	Dec 28, 2012	16%	30 %	230	34	42	306	92	398
Construction Phase					26187	2460	4583	33230	9969	43199
TOTAL ESTIMATED COST (TEC)					26187	2460	4583	33230	9969	43199
Pre-Title I										
CDR			16%	30 %	0	0	0	0	0	0
Other Pre TI		Jan 1, 2009	16%	30 %	0	0	0	0	0	0
Proj Support	Jan 1, 2009	Dec 28, 2012	16%	30 %	52	6	9	67	20	87
TOTAL OPERATING COST (OPC)					52	6	9	67	20	87
TOTAL PROJECT COST (TPC)					26239	2466	4592	33297	9989	43286

COST ESTIMATE

Date 2/21/2007

TITLE KCRIMS LVCE & EXPENSE

SUBTITLE LEASE OPTION, WITHOUT OVERTIME INCLUDED

Cost file location None

Cost Engineer RAE

Project Eng. JHF

Team Leader DJL

Reference Number none

Estimate Type Feasibility

Funding Type Capital

All Costs in \$1000's

Estimate	Start	Complete	Burden rate	Contingency Pct.	Base Cost	Escal	Burden	Subtotal	Cont.	Total
	Feb 16, 2007									
Design Phase										
Title I	Jan 1, 2009	Jun 30, 2009	16%	20 %	0	0	0	0	0	0
Title II	Jul 1, 2009	May 20, 2010	16%	20 %	0	0	0	0	0	0
Design Mgt.	Jan 1, 2009	May 20, 2010	16%	20 %	0	0	0	0	0	0
Project Mgt.	Jan 1, 2009	Jun 30, 2010	16%	20 %	0	0	0	0	0	0
Design Phase					0	0	0	0	0	0
Construction										
Construction	Jul 1, 2010	Sep 28, 2012	16%	20 %	0	0	0	0	0	0
Standard Equipment										
Procurement	Jan 1, 2009	May 20, 2010	16%	30 %	20304	1610	3506	25420	7626	33046
Install Eng.	Jan 1, 2009	May 20, 2010	16%	30 %	521	41	90	652	196	848
Installation	Jul 1, 2010	Sep 28, 2012	16%	30 %	1735	255	318	2308	692	3000
Title III	Jul 1, 2010	Sep 28, 2012	16%	30 %	208	31	38	277	83	360
Construction										
Guards	Jul 1, 2010	Sep 28, 2012	16%	30 %	80	12	15	107	32	139
Management	Jul 1, 2010	Dec 28, 2012	16%	30 %	230	34	42	306	92	398
Project Mgt.	Jul 1, 2010	Dec 28, 2012	16%	30 %	230	34	42	306	92	398
Construction Phase					23308	2017	4051	29376	8813	38189
TOTAL ESTIMATED COST (TEC)					23308	2017	4051	29376	8813	38189
Pre-Title I										
CDR			16%	30 %	0	0	0	0	0	0
Other Pre TI		Jan 1, 2009	16%	30 %	0	0	0	0	0	0
Proj Support	Jan 1, 2009	Dec 28, 2012	16%	30 %	20	2	4	26	8	34
TOTAL OPERATING COST (OPC)					20	2	4	26	8	34
TOTAL PROJECT COST (TPC)					23328	2019	4055	29402	8821	38223

KCRIMS CD-1 Estimate

Lease Option

Facilities Program Management

Activity	Year	Base	Escalation	Escalated Cost	Burden 16%	Subtotal	Contingency 30%	Total
Facilities Program Management	2007	\$2,262,988	\$0	\$2,262,988	\$362,078	\$2,625,066	\$787,520	\$3,412,586
Facilities Program Management	2008	\$1,725,450	\$53,489	\$1,778,939	\$284,630	\$2,063,569	\$619,071	\$2,682,640
Facilities Program Management	2009	\$698,409	\$43,973	\$742,382	\$118,781	\$861,163	\$258,349	\$1,119,511
Facilities Program Management	2010	\$461,296	\$44,244	\$505,540	\$80,886	\$586,427	\$175,928	\$762,355
Facilities Program Management	2011	\$119,106	\$15,470	\$134,576	\$21,532	\$156,108	\$46,833	\$202,941
Facilities Program Management	2012	\$119,106	\$19,642	\$138,748	\$22,200	\$160,948	\$48,284	\$209,232
Closeout	2013	\$473,748	\$95,235	\$568,983	\$91,037	\$660,020	\$198,006	\$858,027
Total		\$5,860,103	\$272,053	\$6,132,156	\$981,145	\$7,113,301	\$2,133,990	\$9,247,291

Scope of Work:

- Facilities Program Management Provide program management including oversight of GSA's real property development process. 4 FTEs (2 Honeywell and 2 FES) & real estate consultant contract for 9 months in FY07, for 12 months in FY08, for 12 months in FY09, and for 12 months in FY10. For conceptual planning prior to Title I design. 6 FTEs (1 Honeywell and 5 FES) for for 12 months in FY08.

- Closeout Provide administrative and financial closeout verification, to document project results, and to formalize acceptance of the project by the user. 3FTEs (1 Honeywell and 2 FES) for 9 months in FY13.

Appendix D – Project Schedule

Task Name	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Preliminary F&ORs			9/1/06	9/15/06								
Cost Model Validation			8/1/06	12/8/06								
Facility Acquisition Report			10/13/06	12/15/06								
CD-0 Approval				12/28/06								
Scoring Analysis			3/1/07	3/1/07								
Develop Draft CD-1 Documents			1/2/07	3/8/07								
Submit CD-1 to HQ for Pre-ESAAB Review				3/9/07								
Preliminary Occupancy Agreement (GSA/NNSA)			3/2/07	3/14/07								
Prospectus to GSA Central Office				3/15/07								
Initiate SFO Development			3/15/07	3/15/07								
Pre-ESAAB				3/27/07								
Resolve/Incorporate Comments From Pre-ESAAB			3/26/07	3/30/07								
70 % Functional & Operating Requirements (F&OR's)			1/1/07	3/2/07								
ESAAB / CD-1 Approval				4/4/07								
Prospectus to OMB				4/16/07								
Complete EA/FONSI			1/16/07	8/31/07								
Develop Procurement Documents			3/16/07	6/1/07								
95% Functional & Operating Requirements (F&OR's)			3/28/07	5/31/07								
Prospectus to Congress				6/15/07								
Advertisement			6/15/07	6/15/07								
Receive Responses to AD			6/18/07	6/29/07								
SFO Revisions/Final Approval			6/4/07	7/6/07								
SFO Mailing - Phase 1			7/9/07	7/9/07								
Offer due Date - Phase 1				8/6/07								
Reference Checks			8/7/07	8/15/07								
Evaluate Phase 1 & Short List			8/7/07	8/31/07								
100% Functional & Operating Requirements (F&OR's)			6/4/07	8/31/07								
Request Phase 2 Offers			9/7/07	9/7/07								
Pre-Proposal Conference & Tour			9/14/07	9/14/07								
Offer Due Date - Phase 2			10/15/07	10/15/07								
Evaluate Phase 2			10/16/07	11/9/07								
Presentations/Negotiations			11/12/07	12/10/07								
BAFO Request			12/14/07	12/14/07								
BAFO Receipt			2/1/08	2/1/08								
Final Evaluation & Selection			2/4/08	3/3/08								
Final Occupancy Agreement			3/4/08	3/14/08								
Lease File Prep/Review /Approval			3/3/08	3/31/08								
Lease Award				3/31/08								
Occupancy Design				1/2/09			5/20/10					
Design and Construct New Facility				4/1/08			9/30/10					
Transition to New Facility						6/29/10			9/28/12			
Close and Document									10/1/12		6/20/13	

Preliminary F&ORs

The preliminary Functional & Operational Requirements (F&ORs) will be developed by Burns & McDonnell under the guidance of Honeywell and Jones Lang LaSalle. The F&ORs shall consist of baseline facilities requirements, ranging from size, massing, types of spaces, types of systems, and functional and performance specifications for the new facility. The F&ORs will be used in defining preliminary project cost projections for the project.

Cost Model Validation

The construction cost model for the future development scenarios for the Kansas City Plant (KCP) will be estimated using market standards for similar construction size and type. Costs are

projected for overall construction based on preliminary F&OR data, as well as current and projected financing, market and lease terms to determine a projected rental and operating cost model for the new facility.

Facility Acquisition Report

The facility acquisition report represents the culmination of preliminary planning and feasibility studies, cost projections, lease cost estimates, schedule, and implementation alternatives for the various scenarios developed for the future KCP facility.

DOE CD-0 Approval

CD-0 approval was received on 12/28/06.

Scoring Analysis Completed

Scoring analysis is conducted according to OMB A-11 and A-96 guidelines to determine how the lease term and rate shall be structured to avoid treatment as a capital lease; the scoring analysis shall be conducted to ensure that the net present value of the lease payments do not exceed 90% (85% for GSA's internal approval) of the project cost associated with construction of the new facility.

Preliminary Occupancy Agreement Signed by NNSA

The Preliminary Occupancy Agreement is a non-binding agreement developed by GSA consistent with GSA's Pricing Policy and will define the terms of NNSA's commitment as a future tenant of the facility which GSA is procuring on behalf of NNSA. The Occupancy Agreement will outline the commitment, fees, and anticipated lease terms as it relates to the new facility.

Prospectus to GSA Central Office

The Prospectus package is a comprehensive planning document that the federal government uses to identify capital project requirements. The Prospectus will be submitted to GSA Office of Portfolio Management before it is submitted to the GSA Administrator for submission to OMB and Congress as the first step in the chain of federal funding review and approvals in support of the KCP facility. The prospectus is developed to summarize the needs of NNSA, the size, timing, and expense associated with the intended acquisition of the new KCP facility.

Initiate SFO Development

This is the development and approval period for the Solicitation for Offers ("SFO" AKA: Request for Proposals). The SFO is developed using a combination of standard and customized GSA lease language. Lastly, the SFO includes general requirements from NNSA that affect the structure of the building. These would include limiting requirements that a building must have or be able to construct to meet the minimum needs of the user. (I.E. amount of space, special spaces requiring column free areas or upgraded floor loading, minimum floor plate sizes or maximum number of floors, etc.)

70% F&ORs

The 70% F&ORs shall consist of baseline facilities requirements, ranging from size, massing, types of spaces to functional specifications for the new facility as well as functional layouts and more specifics regarding building performance criteria and specifications. The 70% F&ORs will be used in refining project cost projections for the project as required.

Prospectus to OMB

Following GSA review and approval, the Prospectus package will be submitted to OMB which is the second step in the chain of federal funding review and approvals in support of the KCP facility.

Develop Procurement Documents

While the Prospectus process proceeds, a Source Selection Plan will be developed that will identify the criteria for best value selection, and the procurement documents are reviewed and redrafted in preparation for issuance once the Prospectus is sent to Congress for approval.

95% F&ORs

The 95% F&ORs will be used in defining the design narrative that will accompany the procurement documents that are issued to all potential bidders.

Prospectus to Congress

Prospectus submission to Congress is the final step in the chain of federal funding review and approvals in support of the KCP facility. Once the Prospectus is sent to Congress, GSA can proceed with the lease procurement; however, no Government contracts/lease can be signed until Congress authorizes the prospectus through Congressional Resolutions.

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The advertisement is a one-time run on www.fedbizopps.gov, which identifies the requirements, location, and the Government point of contact and asks for interested parties to respond.

Receive Responses to Ad

This is a reasonable period of time during which the interested parties can submit expressions of interest to the Government for this federal requirement. The initial ad response time is used to establish who the primary participants are.

SFO Revisions/Final Approval

This is the final submission of the SFO for approval before it is released to the public. Sometimes, expressions of interest provide new information that will help finalize revisions to the procurement documents.

SFO Mailing – Phase 1

This is the date that the SFO package is issued to the parties who have expressed interest in the federal requirement.

Offer Due Date

This is the time the offerors (interested parties who received SFO's who are reasonably considered to respond with an offer) have to prepare their offers in response to the SFO requirements.

Reference Checks

A standard past performance questionnaire shall be submitted to the references for each Offeror's team, and NNSA's technical advisor shall follow up with telephone contact to complete the questionnaire determining the past performance and quality of references provided.

Complete EA/FONSI

NEPA & Environmental Due Diligence: This is the date targeted for completion of the environmental assessment process. A favorable Environmental Assessment (EA) will likely signal a Finding of No Significant Impact (FONSI) and will therefore be a good indicator of

potential schedule risk early in the site selection process. Additionally, the site survey will help NNSA identify capacity of existing utilities/water/sewer and projected timing and costs associated with required upgrades (if applicable).

Evaluate Phase 1 & Short List

A Source Selection panel, supported by technical experts, will be formed of Government personnel only (being usually 5 people comprising GSA, Tenant and other agency staff). This panel will evaluate the received Phase 1 proposals in accordance with pre-determined and pre-approved evaluation factors as described in the SFO and the Source Selection Plan. Offers will be considered according to their performance within each factor, such that a short list of Offerors may be generated to determine which Offerors will be further considered for Phase 2 of the procurement.

100% F&ORs

The Final F&ORs represent the final design narrative that will be submitted to the short listed Offerors as part of Phase 2 of the solicitation process. They must be comprehensive and clear to enable Offerors to establish an accurate estimate for facilities construction costs which will form the basis of their economic offers to the government.

Request Phase 2 Offers

This is the date that the Phase 2 is issued to the short list of Offerors. The request for Phase 2 offers includes the date the response/offer is due as well as any additional evaluation factors and relative weighting information. All Offerors will receive the same request and will be granted an opportunity to issue questions, which NNSA will respond to in written format for all Offerors to review prior to submitting their Phase 2 offers.

Pre-proposal Conference and Tour

The pre-proposal conference is an opportunity for the offerors to be briefed by the government regarding the solicitation, to tour the Bannister and Greenfield option site, and to ask questions of NNSA in a public setting that supports equal dissemination of information (per procurement guidelines) to all interested parties. It is also a good opportunity for NNSA to gauge the level of interest among offerors and to identify potential sticking points in the procurement.

Offer Due Date – Phase 2

The Phase 2 offers will be received, time stamped and secured.

Evaluate Phase 2

The Source Selection panel, supported by technical experts, will evaluate and score the Phase 2 proposals in accordance with the pre-determined evaluation factors as described in the SFO and the Source Selection Plan. Offers will be considered according to their performance within each factor, and a detailed summary of strengths and weaknesses for each team will be assembled in order to determine which developer/Offeror has proposed the best value to the government.

Presentations and Negotiations

This round of negotiations/discussions is first an opportunity for the offeror to present their offer and plans to meet the Government's requirements. Moreover, GSA may notify offerors of missing information, ask questions of materials submitted, and allow offerors to get clarifications on any aspect of the SFO that they are having difficulty with. Price negotiations will occur.

Request BAFO

The Government is required by the Competition in Contracting Act (CICA) to notify the market that final offers are due and negotiations will be closed. A letter is issued notifying all of the offerors of the due date of the BAFO.

BAFO Receipt

Best and final offers (BAFO) include final materials to ensure the offer is responsive to the SFO and final pricing that is proposed. If a BAFO is not received from a party that has not withdrawn from the procurement, their previous offer stands as their final offer. Once final offers are received, the Government will not conduct any further negotiations or discussions with any offerors. Only minor clarifications may be done if there is any unclear aspect of the final offer. Otherwise, the BAFO period must be reopened to provide all offerors an opportunity to resubmit/revise their BAFO.

Final Evaluation & Selection

This is the period of final offer evaluation. The Source Selection panel meets a final time to make a final evaluation of all offers and select a prospective awardee. The awardee remains prospective because the lease package must be reviewed and a final lease must be prepared and signed by the offeror and the Government.

Final Occupancy Agreement (OA)

The Occupancy Agreement is developed by GSA and defines the terms of NNSA's commitment as a future tenant of the facility which GSA is procuring on behalf of NNSA. The Occupancy Agreement outlines the commitment, fees, and negotiated lease terms of the lease document associated with the new facility. This OA will have to be signed by NNSA before GSA will sign the lease with the prospective awardee.

Lease File Preparation, Review, and Approval

After an awardee is selected, the lease file is completed and is reviewed by GSA legal counsel and management. The review focuses on completeness of the procurement, legality and appropriateness of all procurement decisions made, and whether or not the final selection was made consistent with the advertisement, the SFO and any amendments issued. The final Source Selection evaluation will be scrutinized because GSA legal counsel will want to make sure that if any protest is filed, the decision can be supported. Additionally, final clearances will be required from other sources such as budget authority, EEOC and SBA.

Lease Award

The award occurs with the final execution of the lease. After the awardee has signed the lease, the Government's Contracting Officer will sign the lease. An original copy of the leased is retained by the Government and the other original is returned to the Lessor. Copies of the lease will be made for NNSA and other entities responsible for the design and construction of the space.

Design

This is a general step, which includes major phases such as the blocking and stacking diagram, bubble diagram, initial space plan, design intent drawings, and construction drawings. The Lessor's architect will prepared the drawings for the Government's approval at each phase. All decisions about the space will be made at this time, including finishes of the space and any special equipment accommodations.

Construction

This is the general step that refers to the construction of the Government's tenant improvements. A detailed construction schedule will be developed by the Lessor during the bidding process and will be finalized after lease award. The Lessor will be responsible for managing the construction schedule. Each of the different facility options would have different construction schedules.

Occupancy Design

This is a general step, which includes design drawings and construction drawings to support the relocation of equipment from the existing facility to the new facility.

Transition to New Facility

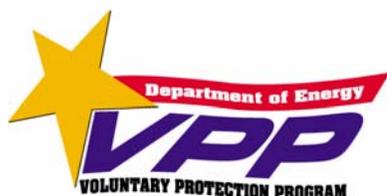
This is the project step that refers to the occupancy / relocation efforts that includes the relocation of existing operations into the new facility. A detailed schedule for each area will be developed during the occupancy design effort.

Appendix E - Environmental Safety and Health Management Plan

2007 Federal Manufacturing and Technologies (FM&T)

Environment, Safety & Health Management Plan and Worker Safety & Health Program

December 8, 2006



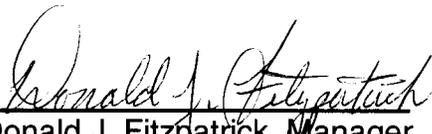
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FY2007
ENVIRONMENT, SAFETY & HEALTH
MANAGEMENT PLAN
and
WORKER SAFETY & HEALTH PROGRAM

Honeywell
Federal Manufacturing & Technologies
Date: December 8, 2006

ES&H Management Plan¹

Honeywell Approval:



Donald J. Fitzpatrick, Manager
FM&T, ES&H Operations

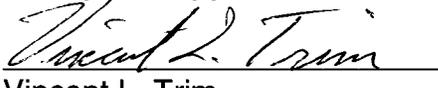
NNSA Approval:



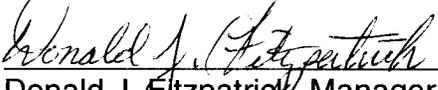
Gregory A. Betzen, Assistant Manager
KCSO, Office of Operations

Worker Safety & Health Program²

Honeywell Approval:



Vincent L. Trim
FM&T, President



Donald J. Fitzpatrick, Manager
FM&T, ES&H Operations

NNSA Approval:

Steve C. Taylor, Manager
Kansas City Site Office

Gregory A. Betzen, Assistant Manager
KCSO, Office of Operations

¹ Approval authority for the ES&H Management Plan lies with the Contracting Officer as specified in Contract No. DE-ACO4-01AL66850. Revisions to this plan are subject to formal change control procedures as delineated by the Contracting Officer.

² Approval authority for the Worker Safety & Health Program lies with the Head of DOE Field Element as specified in 10 CFR 851, §851.11. Revisions to this plan are subject to formal change control procedures as delineated by the Contracting Officer.

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**FY2007
ENVIRONMENT, SAFETY & HEALTH MANAGEMENT PLAN
and
Worker Safety & Health Program**

**Honeywell
Federal Manufacturing & Technologies
Date: December 8, 2006**

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Note: The FM&T Worker Safety & Health Program and the Chronic Beryllium Disease Prevention Program have been removed from this document for the purpose of the KCRIMS CDR only.

1.0 INTRODUCTION

This Environment, Safety & Health Management Plan (Plan) is prepared and maintained by Honeywell Federal Manufacturing & Technologies, LLC (FM&T) in accordance with the requirements of Contract No. DE-ACO4-01AL66850. The Plan defines the overall scope of operations, risk, and systems implemented by FM&T to assure worker safety, protection of the public and the environment as required by the following contractual and regulatory requirements:

- Department of Energy Acquisition Regulation 48 CFR 970.5204-2, Laws, Regulations and Directives: The plan identifies those laws, regulations, and directives applicable to FM&T operations.
- Department of Energy Acquisition Regulation 48 CFR 970.5223-1, Integration of Environment, Safety, and Health into Work Planning and Execution: The Plan establishes commitments by FM&T to integrate ES&H requirements into work activity.
- 10 CFR 850 – Chronic Beryllium Disease Prevention Program: The requirements of the rule are applicable to FM&T/KC operations only and are specifically outlined in Attachment 2, “FM&T Chronic Beryllium Disease Prevention Program.”
- 10 CFR 851 – Worker Safety and Health Program (WSHP): Specific to requirements outlined in 10 CFR 851, the Worker Safety and Health Program has been established for FM&T operations. Attachment 1 of this ES&H Management Plan outlines the 10 CFR 851 program compliance expectations and FM&T implementing mechanisms associated with Subpart C and Appendix A of the Rule. The WSHP represent the basis for compliance assessment and enforcement by DOE.

The Plan defines FM&T’s ES&H Management System (ESHMS), work planning and control, ES&H programs and processes employed to ensure that applicable standards, processes and programs are identified, communicated, implemented, and assessed.

1.1 ES&H Policy

Senior leadership has established the following Operating policies to document its commitments relative to ES&H at KC & NM.

FM&T/KC OPERATING POLICY

We will be preeminent in:

- Providing products and services valued by our customers;
- Complying with regulations and requirements;
- Respecting individuals and the environment by preventing injury, illness and pollution; and
- Continuously improving all processes.

FM&T/NM OPERATING POLICY

FM&T/NM commits to:

- Being preeminent in providing products and services valued by our customers;
- Respecting individuals;
- Protecting the safety and health of our employees by integrating safety and environmental protection into our business processes;
- Minimizing our environmental footprint;
- Complying with legal and other requirements; and
- Assessing performance for continual improvement.

2.0 SCOPE, OPERATING BASIS & REQUIREMENTS

Operating in Missouri, New Mexico, and Arkansas, FM&T is considered to operate one facility (for the purposes of this Plan) whose processes are accepted as non-nuclear, low hazard, and of the type found in general industry. Reference to FM&T locations and activities is defined as follows:

- Honeywell International – All references to Corporate influence or performance expectations are identified as Honeywell.
- FM&T – All references to FM&T are considered inclusive of both FM&T/KC and FM&T/NM operations.
- FM&T/KC – All references to FM&T/KC are specific to operations performed at Kansas City, MO.
- FM&T/NM – All references to FM&T/NM are specific to operations performed at Albuquerque, NM; Los Alamos, NM; and Ft. Chaffee, AR.

2.1 SCOPE OF WORK

FM&T sites are non-nuclear and provide manufacturing and technical support to the NNSA's Nuclear Weapons Complex – primary customers include the NNSA, Department of Defense, National Laboratories, and the Office of Secure Transportation. FM&T does not engage in special nuclear material handling, storage, or high-risk activities.

- FM&T/KC - FM&T/KC's primary mission is the production of mechanical, electrical and plastic components that ensure a safe and effective stockpile.
- FM&T/NM – FM&T/NM provides technical products, services, production, and field support.

2.2 ES&H THRESHOLDS

FM&T is authorized to conduct activities as a non-nuclear, low hazard, general industry facility. ES&H Thresholds serve to define the operating parameters, by which, FM&T is authorized to perform work.

The following documents serve as the baseline for risk identification at FM&T.

- FM&T/KC Site Safety Assessment (approved by DOE in September 1995): Classifies FM&T/KC as a low hazard, non-nuclear facility.
- FM&T/NM Hazard Survey (approved by DOE in January 1997): Concludes that FM&T/NM does not meet or exceed any thresholds that would require a hazard assessment – a low hazard, non-nuclear facility.

Imminent risks identified through the Site Safety Assessment process have been eliminated from FM&T operations by the application of engineering controls or process elimination. ES&H issues are evaluated and managed according to their actual severity and risk potential to ensure that concerns are corrected with the appropriate level of formality and in a timely manner.

The hazardous materials used or stored at FM&T are managed in accordance with appropriate federal, state and local regulations and applicable DOE Orders and Directives. Hazardous materials are divided into three categories, and thresholds are identified to determine when additional regulatory or program requirements may be required to ensure operations are within acceptable risk limits. The categories and thresholds for FM&T operations are listed below:

1. **Energetic Material:** The storage, handling, testing, use and shipping of explosives (energetic materials) by FM&T will be limited to materials shipped as United Nations Organization (UNO) Hazard Class 1, Divisions 3 (1.3) or 4 (1.4). Departmental explosive limits are established by whether the explosive device is non-propagating/non-mass detonating or propagating/mass detonating. If the explosive devices are non-propagating/non-mass detonating, department explosive limits are based on the number of devices needed to support production or development schedules. If a device is propagating/mass detonating, explosive limits are based on containing the maximum credible event within the operating area.
2. **Radiological Material:** FM&T operates a non-nuclear, radiological facility. Limited quantities of radioactive material are maintained for equipment calibration, analytical use, non-destructive testing, and incorporation into product at FM&T/KC. These materials are not present at FM&T/NM; however, New Mexico employees may perform radiation work, off-site, in conjunction with other organizations, for example, Los Alamos National Laboratory. Any radiation work performed at off-site locations is managed and monitored by the host organization. The FM&T/KC inventory will not meet or exceed threshold quantities of radionuclides for higher hazard class categories 2 and 3. Table A.1 of the DOE-STD-1027-92 Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Report lists the threshold quantities by radionuclide.
3. **Hazardous Chemicals:** The standards establishing hazardous chemical use/storage thresholds are OSHA's Process Safety Management (OSHA 1910.119, Appendix A) and EPA's Risk Management Rule (40 CFR 68).

These thresholds are included in lieu of Safety Basis or Safety Authorization requirements. In accordance with DEAR requirements listed in Section 1.0 above; introduction of new or modified processes exceeding the identified thresholds require NNSA Contracting Officer or his/her delegated representative review and approval prior to process start-up.

Continued operation as a low hazard, non-nuclear, general industry facility is managed through the risk management/preplanning process, specifically, the Preliminary Hazard Analysis (PHA) process. This change management process requires an ES&H review of new or significantly changed operations prior to activity commencement and may include NNSA review in accordance with National Environmental Policy Act (NEPA) requirements

2.3 Operating Requirements

Compliance with federal, state, and local regulations represents the baseline for operations at FM&T facilities. FM&T's ESHMS, based on ISO 14001 and VPP criteria, requires establishment of programs that exceed compliance with regulatory requirements and assure continuous improvement.

FM&T operates under agreed upon DOE and industry standards. These are defined in the FM&T Operating Requirements database. FM&T maintains the database in conjunction with KCSO following joint decisions on which requirements are applicable to FM&T operations. Maintenance of the Operating Requirements database is a contractual obligation. Formal review and approval is required from both parties prior to additions or deletions to the database.

3.0 ES&H Management Systems (ESHMS)

3.1 Management Assurance System

FM&T's Management Assurance System (MAS) oversight model integrates and provides a means for NNSA and FM&T leadership to monitor the health of the business. The MAS provides the methodology for identifying, implementing, measuring, and sustaining the critical quality needs necessary for desired performance. ES&H performance and issues management are fully integrated to the MAS, which includes the following components.

- Management Operating System (MOS) – The MOS defines the functional execution of Management responsibility at FM&T. Systematic evaluation activities taken by leadership to determine the adequacy and effectiveness of systems are defined.
- Business Operations Review/Monthly Operations Review (BOR) – The BOR includes leadership review of performance-related and issues management information associated with functional performance at FM&T.

The MAS is simply how FM&T executes Management responsibility to assure performance and customer expectations are met. The four key components of Management responsibility are: Management Responsibility, Resource Management, Product / Service Realization, and Measurement Analysis & Improvement. By evaluating these components leadership is better able to assure system adequacy and customer satisfaction.

3.2 ESHMS Summary

FM&T has established and maintains an ESHMS. This ESHMS is based upon ISO 14001-2004, Environmental Management System and DOE VPP STAR program requirements and criteria. The ESHMS is compliant with Honeywell International and Aerospace requirements and expectations, DEAR 48 CFR 970.5223-1 requirements on Integration of ES&H into work planning and execution, and applicable directives. These standards and expectations together provide for a formal, organized process whereby FM&T plans, manages, performs, assesses, and improves the ES&H aspects of its operations.

The FM&T ESHMS encompasses environment, safety and health, including pollution prevention and waste minimization. FM&T's ESHMS is founded and established on the following nationally recognized standards and Honeywell protocols:

- International Organization for Standardization (ISO) 14001-2004, Environmental Management Systems – FM&T's environmental management system is certified through an independent third-party registrar. Semi-annual and triennial periodic and certification assessments are performed to validate adherence to standard requirements. Specific ISO 14001 Environmental Management System documentation is contained in the FM&T Environmental Management System Manuals.
- DOE's Voluntary Protection Program (VPP STAR) - DOE VPP Star certification is received from the DOE Office of Environment Safety and Health. FM&T's annual VPP self-assessments and triennial DOE re-certification assessment of the VPP program are performed to assure performance and program requirements are sustained.
- Honeywell Governance - Honeywell (Corporate and Aerospace) ES&H policy, programs and management system requirements contribute industry-leading and best-in-class programs and opportunities for continuous improvement. The Honeywell expectation, world-wide, is to implement an ES&H management system at all sites. FM&T is a leader in ES&H management systems within Honeywell and has been instrumental in the development of the Honeywell ES&H management system. Due to this maturity, FM&T

does not totally rely on specific Honeywell processes (including wholesale adoption of Honeywell ES&H procedures) to comply with DOE/NNSA requirements, FM&T is functionally aligned with Honeywell and uses Honeywell systems, where applicable, to satisfy Honeywell requirements and support DOE/NNSA expectations. Examples are: goal setting, metrics management, event tracking and causal analysis, self-assessment and Honeywell assessment. These processes are further described in applicable sections of this Plan.

FM&T's ESHMS approach and performance is comparable to "best-in-industry" and has proven effective in protecting workers, the public and the environment.

The adopted standards that form the basis for the ESHMS are delineated in the DOE VPP guidelines and the ISO 14001-2004 Environmental Management System standard. The following summarizes the correlation of the DEAR 970.5223-1 safety management system requirements to the elements of ISO 14001 and VPP.

DEAR 970.5223-1	VPP				
	Management Leadership	Employee Involvement	Worksite Analysis	Hazard Prevention and Control	Safety and Health Training
Define Scope of Work	X				X
Identify and Analyze Hazards	X	X	X	X	X
Develop and Implement Hazard Controls	X	X	X	X	X
Perform Work within Controls	X	X		X	X
Provide Feedback and Continuous Improvement	X	X			X

DEAR 970.5223-1	ISO 14001 Elements																	
	Planning					Implementation and Operation						Checking						
	4.1 General Requirements	4.2 Environmental Policy	4.3.1 Environmental Aspects	4.3.2 Legal and Other	4.3.3 Objectives, Targets and	4.4.1 Resources, Roles, Responsibility and Authority	4.4.2 Competence, Training, and Awareness	4.4.3 Communication	4.4.4 Documentation	4.4.5 Control of Documents	4.4.6 Operational Control	4.4.7 Emergency Preparedness and Response	4.5.1 Monitoring and Measurement	4.5.2 Evaluation of Compliance	4.5.3 Nonconformity, Corrective Action and Preventive Action	4.5.4 Control of Records	4.5.5 Internal Audit	4.6 Management Review
Define Scope of Work	X			X	X		X											
Identify and Analyze Hazards			X				X					X						
Develop and Implement Hazard Controls		X		X	X		X	X		X						X		
Perform Work within Controls					X	X	X	X	X	X		X				X		
Provide Feedback and Continuous Improvement							X	X				X	X	X	X	X	X	X

3.3 Third-Party Certification – ISO / VPP History

FM&T/KC

- VPP STAR certification - April 1996
- VPP STAR recertification - August 1999
- VPP STAR recertification - August 2002
- VPP STAR recertification - May 2005
- ISO 14001 certification - May 1997
- ISO 14001 certification extension - April 2000
- ISO 14001 certification extension - May 2003
- ISO 14001-2004 certification extension – May 2006

FM&T/NM

- VPP MERIT certification at FM&T/NM – July 2004
- VPP STAR certification at FM&T/NM – April 2005
- ISO 14001 certification at FM&T/NM - June 2001
- ISO 14001 certification extension – May 2004

Burns & McDonnell, LLC (Facilities Engineering Services – subcontractor))

- VPP STAR certification – August 2006

3.4 ES&H Management System (ESHMS) Elements

The ESHMS is comprised of the following elements.

1. **ES&H Policy** – The Honeywell Health Safety and Environment (HSE) and FM&T Operating Policy is the cornerstone of the ESHMS. It is used to communicate policy to the workforce, contractors, stakeholders and the public. Leadership commitment, accountability, performance and continuous improvement are endorsed and effectively communicated to all employees. Implementation of an effective ESHMS assures ES&H business integration, value, and effective risk assessment and management.
2. **Risk Assessment** – Application of risk assessment methodology provides a pathway to define evaluate, prioritize and control operational risk. FM&T employs a variety of risk assessment tools to systematically identify hazards and assure appropriate risk reduction and abatement actions are taken.
3. **Legal and Other Requirements** – Legal and other ES&H requirements are identified and implemented to assure compliance. Compliance with legal and other requirements is the foundation of an effective ESHMS. Defining operational risk and associated requirements enables effective management of resources and a focused approach to establish and maintain the ESHMS.
4. **Structure and Responsibility** – The establishment of clear ESHMS roles and responsibilities enables effective management system implementation; assures control of ES&H risks; and, drives commitment and accountability throughout the workforce. Culture, behaviors and performance are enhanced by clearly defined roles, responsibilities and accountabilities.
5. **Document Control and Records** – The effective management of ES&H documents and records assures the right information is available to those who need it, and managed according to policy and legal and other requirements.
6. **Operational Control** - Operational control is achieved by a variety of methods such as training, engineering specifications, preventive maintenance programs and documented operating procedures. FM&T uses the information gathered during the hazard identification and risk assessment process to identify and manage risk.
7. **Management of Change** - Risks associated with temporary and permanent changes to the organization, materials, equipment, facilities, processes, and applicable requirements must be assessed to safeguard people, the environment and property. The systematic involvement of personnel with appropriate knowledge, skills and tools in the design, analysis and execution of change is essential to hazard identification and risk management.
8. **Training** - Training is a necessary and fundamental component of an effective ESHMS, shaping employee behaviors and organizational culture. The systematic identification and delivery of ES&H training assures legal and other requirements are met and that employees are qualified to perform work in a safe manner. FM&T's scope of operations, risks, hazards, controls and legal and other requirements serve as the foundation for the identification of training needs.
9. **Communications** - Internal and external communication channels must be effectively established at all organizational levels and include defined responsibilities. A consistent process to engage key internal and external stakeholders assures accurate and effective communications.

10. **Corrective and Preventive Action** - The systematic management of corrective and preventive actions will assure effective and timely management of ES&H risk. Development and communication of lessons learned and analysis of data trends are key components of this system. A nonconformance is often an indication of weakness in the management system that requires corrective and/or preventive actions. It is critical that systems are established to assure the most effective and feasible corrective actions are selected, responsibility assigned, appropriate timeframes defined and effective completion confirmed.
11. **Monitoring, Measurement and Self-Assessment** - A system to periodically monitor, measure and self-assess ES&H activities and performance is an essential element of an effective ESHMS. Feedback generated from this standard provides a mechanism to measure system effectiveness and management of significant ES&H risk. This process provides the means for detecting and correcting system or control weaknesses in order to prevent adverse events and regulatory non-conformances.
12. **Objectives, Targets and Management Plans** – ES&H objectives and targets are established at appropriate organizational levels and are derived from the FM&T and Honeywell Policies, historical performance, hazards and risks, and legal and other requirements. Objectives and target are effectively integrated into the FM&T Management Assurance System.
13. **Management Review** – ES&H management review is designed to ensure Senior Leadership (FM&T President, Vice-Presidents and Division Directors/Managers) assesses continuous improvement opportunities for the ESHMS. FM&T has integrated ESHMS management review into the Management Assurance System.

4.0 ROLES, RESPONSIBILITIES, & ACCOUNTABILITY

4.1 Roles and Responsibilities

Line accountability for ES&H performance and clear roles and responsibilities are key elements of the FM&T ESHMS. The FM&T designated representative responsible for all ES&H issues is the President of FM&T. The FM&T/KC Manager, ES&H Operations, has primary responsibility for FM&T/KC ES&H activities and reports directly to the FM&T President. The FM&T/NM Manager of ES&H, Quality and Facilities has primary responsibility for FM&T/NM ES&H activities and reports directly to the Director, New Mexico Operations who reports directly to the FM&T President.

FM&T's leaders and employees at all levels have integrated ES&H into their work activities, including business planning and operations. Responsibilities for each level are summarized below:

President:

- Providing a place of employment that is free from recognized hazards that are causing or have the potential to cause death or serious physical harm to workers.
- Adopting and ensuring adherence to policies, goals and objectives for ES&H performance.
- Maintaining a work environment wherein ES&H performance is recognized as a value by all employees.

Senior Leadership Team – General Management:

- Building awareness by explaining and communicating its commitment to FM&T's policies and values relative to ES&H performance.
- Ensuring that activities conform to the ESHMS, ES&H related policies, laws, regulations, and internal procedural requirements.
- Assigning work and measuring performance.

Manager, ES&H Operations:

- Ensuring that ES&H systems requirements are established, implemented, and maintained in accordance with VPP, ISO 14001, 10 CFR 851, and any Compliance Order issued by the Secretary of Energy pursuant to 10 CFR 851.4.
- Providing mechanisms to involve workers and their elected representatives in development of the Worker Safety and Health Program, its goals, objectives, and performance measures.
- Providing mechanisms to involve workers and their elected representatives in the identification and control of hazards in the workplace.
- Establishing procedures for workers to report without reprisal job-related fatalities, injuries, illnesses, incidents, and hazards and make recommendations about appropriate ways to control those hazards.
- Providing for prompt response to such reports and recommendations.
- Using qualified worker safety and health staff to direct and manage the program.
- Reporting on the performance of the ESHMS to Senior Leadership for review and as a basis for improvement of the system.
- Providing regular communication with workers about workplace safety and health matters;
- Establishing procedures to permit employees to stop work or decline to perform an assigned task because of a reasonable belief that the task poses an imminent risk of death, serious physical harm, or other serious hazard.
- Informing employees of their rights and responsibility by appropriate means, including posting the DOE-designated Worker Protection poster in the workplace where it is accessible to all workers.
- Providing a copy of the approved Worker Safety and Health Program, upon written request, to workers or their designated representatives.

Functional Managers/ Managers/Team Managers:

- Accepting responsibility and accountability for ES&H performance associated with the work performed under their direct supervision.
- Determining and allocating the resources necessary to comply with ES&H related policies, laws, regulations, and program requirements;
- Ensuring that employees operate in compliance with the policies and applicable procedural requirements in command media and other applicable work direction;
- Making employees aware of their roles and responsibilities relative to the ES&H programs, including emergency preparedness and response;
- Evaluating employee performance of roles and responsibilities relative to the ES&H programs and holding employees accountable for same;
- Determining and ensuring completion of training requirements for their employees;
- Encouraging employees to make suggestions to improve ES&H performance and recognizing associated improvements; and
- Controlling processes, including suspension of operations for ES&H reasons.

All Employees:

- Committing and adhering to ES&H related policies, values and requirements
- accepting accountability, within the scope of their responsibilities, for ES&H performance;
- taking responsibility for ES&H improvements;
- anticipating and initiating action including suspension of operations to preclude nonconformance to ESHMS requirements;
- identifying ES&H concerns;
- initiating, recommending, or providing solutions within the scope of their responsibilities, to ES&H concerns and verifying the implementation of solutions;
- controlling further ES&H program activities related to an area of nonconformance until the deficiency or unsatisfactory condition has been corrected; and
- complying with 10 CFR 851, Subpart C, Specific Program Requirements, applicable to their own actions and conduct, including participation in activities described in this section on official time; observing monitoring or measuring of hazardous agents; accompanying the Director (leader of FM&T business group) or his authorized personnel during physical inspection of the workplace for the purpose of aiding the inspection; requesting results of inspections and accident investigations; and declining to perform an assigned task because of a reasonable belief that the task poses an imminent risk of death or serious physical harm

4.2 Safety Accountability Policy

All employees are held accountable for adherence to established ES&H procedures and requirements. The Safety Accountability Policy is designed to provide consistent corrective and disciplinary action guidelines associated with unsafe acts and conditions. Severity levels, accountability, and corresponding disciplinary actions are identified to assure consistent application of the policy. Disciplinary actions range from “coach and fix system issue” to “termination” based on severity of a given event.

Cardinal Safety Rules – Defined as, a set of rules that if violated have a high potential for serious injury or environmental/property damage, include but or not limited to:

- Actions or failure to act that endangers or injures employees and/or causes damage to company property or the environment
- Bringing into any company location or company sponsored event firearms, explosives, or other weapons
- Knowingly bypassing or operating equipment without established safety devices in place or removing safeguards during the course of normal operations
- Violation of any life safety permit procedure such as confined space, hot work, line breaking, LOTO, etc.
- Ignoring or endorsing violation of any ES&H procedure, directive, warning or training requirement.

5.0 ES&H BUDGET / FUNDING

NNSA allocates funding as directed by Congress and in accordance with NNSA programmatic objectives. The majority of the ES&H activities are indirectly funded through the plant's primary funding source, Defense Programs (Readiness in Technical Base Facilities - RTBF). The labor and operating expenses for DP-funded ES&H activities are forecast through internal divisional budgets, which are consolidated into plant requirements.

Formulation of the RTBF budget involves development of fiscal year Implementation Plan for ES&H. RTBF reports are prepared by FM&T and provided to NNSA throughout the fiscal year to ensure visibility of RTBF cost and performance.

FM&T/KC's Environmental Restoration (ER) activities have reached steady state and transitioned to Long Term Stewardship (LTS) in FY2007. These activities are funded through NA-56, Office of Environmental Projects and Operations. Funding will be received as a "fenced" line item under the Weapons Budget. Annual work plans fully describe the scope, cost, and schedule of the ER LTS program – RCRA Post-Closure Permit requirements.

The workload prioritization process is conducted consistent with NNSA budget guidance for submission of an ER Budget Prioritization plan. This process is designed to provide a defensible basis for funding decisions on environmental management programs, and to effectively manage risk and achieve compliance. Budget estimates are prepared based on regulatory compliance, significant aspects, policy, and continuous improvement consistent with the ESHMS. ES&H funding targets are derived for each functional area by forecasting the operating expenses necessary to support programs. Funds are allocated to ES&H functions and issues based on NNSA and FM&T senior leadership priorities. This guidance has as its top priority - "maintain facilities in a safe, secure, and legal status."

Long-term stewardship costs are reflected in the Ten-Year Site Plan (TYSP) which is updated annually. The TYSP provides the foundation for the NNSA's Strategic Plan for facilities and infrastructure. The TYSP incorporates the program's technical requirements, performance measures, and budget and cost projections within the Future-Years Nuclear Security Program constraints. The applicable major ES&H-related projects contained within the TYSP are also reported annually in the ES&H Compliance Liability Statement (formerly NNSA ES&H Five-Year Site Plan).

6.0 EMPLOYEE INVOLVEMENT

Employee involvement at all levels assures commitment, accountability, and overall performance of ES&H programs, initiatives and goals. The following programs and activities exemplify the manner and degree to which leaders and employees are involved in ES&H program development, implementation, review, and continual improvement at FM&T. Programs specific to only FM&T/KC or FM&T/NM are designated as such.

- **Preliminary Hazard Analysis (PHA):** This change management program establishes the requirement that management or management designees describe and document proposed or modified work processes, equipment, and chemicals. Then submit the documentation for review by ES&H subject matter experts for hazard identification and control prior to initiation of the work. Management is responsible for incorporating recommended controls prior to initiating work.

- **Six Sigma Plus:** Six Sigma Plus is an overall continuous improvement methodology used to accelerate process, product and service improvements at FM&T. This methodology includes ES&H processes and programs. Six Sigma Plus relies on teams to apply various tools to improvement opportunities.
- **Incident Analysis:** Natural teams of employees investigate events, such as, recordable injuries and illnesses at FM&T as part of the MAS Issues Management process.
- **Job Hazard Analysis (JHA):** This program establishes the requirement to identify and document serious risk work practices within JHAs. The program requires development of appropriate JHAs or related documentation to ensure hazards are identified and controls are in place and communicated prior to work being conducted.
- **Safety & Housekeeping Implementation Needs Everyone (SHINE) (FM&T/KC):** This program is one of the elements from the FM&T's "5S Visual Workplace" (Sort, Store, Shine, Standardize, and Sustain) and establishes scheduled, ES&H-related tours of department physical conditions, focusing on housekeeping. This inspection program requires involvement from ES&H, departmental management and departmental employees. Employee work behaviors are also observed during the SHINE process. This program is an example of a mechanism to involve employees in the identification and control of hazards in the workplace.
- **Safety & Health Committees:** These committees, as established for various shifts and topical areas, address issues that have global impact to FM&T/KC. The use of committees provides an opportunity to expand involvement in ES&H through increased employee participation; facilitate enhanced communication among all parties involved in ES&H activities; and guide associated continuous improvement initiatives. Examples of active committees include the VPP Steering Committee and the Awareness and Recognition Committee. This program is an example of a mechanism to involve employees in the identification and control of hazards in the workplace.
- **Senior Leadership ES&H Review (FM&T/NM):** This program requires management to periodically walk their areas to reinforce observed safe behaviors and practices and to facilitate interaction between employees and Senior Leadership.
- **Environmental Self-Assessment Program (FM&T/NM):** This program requires the completion of modules/questions by "line" operations on an established frequency evaluating conformance to ES&H requirements.
- **Safety Process Steering Commission (FM&T/NM):** A group of senior managers including the Director which meets weekly to assure continuous improvement of ES&H programs, overcome barriers, and recognize superior safety performance.
- **VPP Occupational Safety Advocates Steering Committee (FM&T/NM):** Promotes and facilitates employee participation in the FM&T/NM ES&H programs and collect ideas and suggestions from employees regarding safety concerns or improvements.
- **Integrated Safety Committee (FM&T/NM):** Binds together all the various elements of the FM&T/NM ES&H Programs and Committees to foster better integration, communication, identify barriers and provide program performance metrics to the Safety Process Steering Committee as well as any barriers that need their attention.
- **Technical Safety Committees (FM&T/NM) for Laser, Explosives and Electrical Safety:** Manages and oversees Laser, Explosives and Electrical Safety programs and initiatives.

- **BSAFE (Behavioral Safety for Everyone) Steering Committee (FM&T/NM):** Oversees the implementation and operation of the behavior-based safety program.

This listing of employee involvement activities is not all inclusive, but is representative of the type and nature of activities for which employees at all levels of the organization are involved in FM&T's ESHMS.

7.0 WORK PLANNING AND CONTROL

The FM&T ESHMS assures effective application of work planning and control process at the site, operations and worker levels. Utilizing a graded approach, commensurate with risk, FM&T has integrated the following work planning and control elements into processes and work performed.

- Define Scope of Work
- Analyze Hazards
- Develop & Implement Controls
- Perform Work Safely
- Feedback & Improvement

The following sections describe how work planning and control is integrated and controlled at the site, facility, department, and subcontractor level.

7.1 Work Planning & Control – Site Level

7.1.1 Define Scope of Work – Site Level

The scope of work at FM&T sites is defined in the contract. FM&T operates within the assigned mission and adheres to requirements as defined in the contract. The NNSA's Performance Evaluation Plan expectations and objectives, and the Performance Evaluation Report are used to establish performance objectives and provide overall performance feedback, including ES&H Operations.

7.1.2 Analyze Hazards – Site Level

FM&T operations are non-nuclear and the operational hazards presented are classified as low hazard or typical of those encountered in general industry.

FM&T/KC completed an Operation Safety Assessment and received DOE approval of the assessment and conclusions in September 1995. FM&T/NM completed a Hazards Survey and received DOE approval in January 1997. These documents constitute the operation level hazards analysis at the site level. Based on these assessments and incident analyses performed at FM&T operations, no Technical Safety Requirements, Safety Limits, Limiting Conditions for Operations or Surveillance Requirements have been defined. New processes or modifications to existing processes are reviewed in accordance with PHA criteria to ensure that the operations do not exceed identified ES&H thresholds. If these thresholds are to be exceeded, NNSA review and approval will be obtained prior to process start-up. (Reference - Section 2.2 ES&H Thresholds)

All FM&T operations are subject to requirements under the National Environmental Policy Act (NEPA). This requirement applies to new operations and activities or changes to existing processes and activities. A NEPA determination to assess environmental impacts must be made prior to funds being expended on the project

7.1.3 Develop and Implement Controls – Site Level

Federal, state, and local regulations, DOE Orders, and industry standards (including ISO 14001 and VPP) collectively define the ES&H operating requirements and hazard controls for FM&T operations. FM&T is also governed by Honeywell and Aerospace requirements for ES&H management.

At the site level, regulatory permits are also a part of the ES&H operating requirements and assure environmental controls are in place. These permits are generally NNSA held, but apply to operations of FM&T. FM&T's major environmental permitting activities are summarized as follows:

Sanitary/Industrial Wastewater and National Pollutant Discharge Elimination System (NPDES) Permits:

- The FM&T/KC Sanitary/Industrial Wastewater Discharge Permit issued by the City of Kansas City, Missouri, is a comprehensive wastewater permit addressing all plant discharges to the sanitary sewer system. These discharges, systems and facilities, include routine sanitary wastewater, Industrial Wastewater Pretreatment Facility, Reverse Osmosis Industrial Wastewater Treatment System, and Groundwater Treatment Facility.
- The NPDES Permit issued by the Missouri Department of Natural Resources (MDNR) addresses plant discharges to the storm sewer system through four permitted outfalls.
- FM&T/NM operations do not require NPDES or sanitary sewer wastewater discharge permits. The NC-135 Compound is covered by existing Air Force NPDES and sanitary sewer discharge permits. Also, no wastewater permits are specifically required for FM&T/NM operations conducted at remote locations (Los Alamos and Ft. Chaffee). These permits are managed by the landlord facility.

Air Operating Permits:

- FM&T/KC has an annual permit to operate issued by the City of Kansas City, Missouri. This permit applies to existing air pollution sources at the KCP. An FM&T/KC Title V Air Operating Permit Application has been provided to the MDNR and the Kansas City, Missouri, Health Department for approval and issuance of the operating permit.
- FM&T/NM operations in Bernalillo County are included as Volume III of NNSA/AL's permit application. FM&T/NM operations outside of Bernalillo County do not require an Air Operating Permit.

Waste Management Permits:

- FM&T/KC operates as a 90-day RCRA Large Quantity Generator. A Missouri Hazardous Waste Management Facility Permit was issued by the MDNR. This permit requires post-closure care of three RCRA hazardous waste management units and addresses the continuing implementation of RCRA corrective action requirements to address releases from other solid waste management units.
- FM&T/NM operates as a Small Quantity Generator which does not require a RCRA operating permit.

FM&T does not manage environmental permits at its off-site locations.

7.1.4 Perform Work Safely – Site Level

FM&T's ESHMS, as defined in section 3.0, describes the overall systematic approach and elements to assure ES&H is systematically integrated across the business. Sections 7.2 and 7.3 summarize work planning control at the facility and department/worker levels.

The FM&T Leadership Team is ultimately responsible for ensuring that FM&T is operated in a safe and environmentally protective manner. Employees, at all levels, are responsible for their own safety and the protection of the environment. This is reflected in Section 4.1 of this Plan, Roles and Responsibilities.

7.1.5 Feedback & Improvement – Site Level

NNSA provides a Performance Evaluation Report annually with interim reports also provided to FM&T. These reports provide feedback at the site level detailing any problems, concerns, or issues and also document accomplishments.

DOE-HQ and NNSA-HQ audit the operations for ES&H compliance and Safety Management System implementation. Independent, third party assessments are also performed on the ES&H management and quality systems, such as ISO 14001, ISO 9001 and DOE-HQ review of the FM&T VPP program. KCSO performs ES&H program reviews to identify system deficiencies and identify opportunities for improvement.

FM&T and Honeywell senior leadership hold “Town Hall” meetings for all plant personnel sharing site and company performance and plans. The FM&T ES&H Executive Committee meeting is held quarterly for senior leadership, KCSO and employees. Also, an ES&H Business Operations Review is conducted quarterly – for general management. At these meetings FM&T performance data, NWC and Honeywell operating experience and improvement initiatives are shared. Honeywell Aerospace ES&H holds periodic (minimum monthly teleconferences or face-to-face) meetings with the FM&T Manager, Environment Safety and Health to review business-level performance against Honeywell Aerospace (ES&H) Annual Operating Plan goals at the site level.

7.2 Work Planning & Control – Facility / Operations Level

7.2.1 Define Scope of Work – Facility / Operations Level

Work at FM&T locations is typically classified as traditional or non-traditional work. The Design Agencies/National Laboratories provide the traditional scope of work in support of NNSA nuclear weapon mission work. This constitutes the major mission function for FM&T.

FM&T operates under agreed upon DOE and industry standards. These are defined in the FM&T Operating Requirements database. FM&T maintains the database in conjunction with KCSO following joint decisions on which requirements are applicable to FM&T operations. This maintenance is a contractual obligation and signatures are required from both parties prior to additions or deletions to the database.

FM&T's President and Senior Leadership, including the Manager of ES&H Operations, develop an annual Strategic Plan. The strategic plan documents the strategies and tactics developed to improve FM&T performance, including performance against the NNSA contract. ES&H strategies, tactics and objectives are then developed to support the Strategic Plan and are derived from consideration of relevant legal and other requirements, environmental aspects analysis, and safety and health focus areas. FM&T ES&H leadership considers technological options; financial, operational and business requirements; and the views of interested third parties prior to finalizing ES&H strategies, tactics and objectives. These objectives are assigned to the appropriate level and function of the organization and ultimately generate specific individual improvement actions. FM&T documents and maintains these strategies, tactics and objectives and monitors performance against them with regular ES&H Management Operating System (MOS) reviews as part of the MAS. The MOS includes systemic periodic evaluation

taken by leadership to determine system adequacy and effectiveness and obtain performance-related information. ES&H is a core functional area at FM&T.

Through this top-down approach, lower-tier actions are developed to ensure the ES&H organization is positioned to support plant goals. Tactics and actions flow down through the Honeywell Performance and Development process to ensure employees are establishing personal goals that support the overall ES&H mission. This process influences all ES&H disciplines to tie improvement initiatives to the plant Strategic Plan, meet Honeywell objectives, and NNSA expectations. Responsibility is assigned, as appropriate, to each initiative. Periodic assessment of progress is conducted by ES&H and senior leadership. As a result of these assessments, lower-tier actions may change and resources may be reallocated as issues emerge or priorities change.

7.2.2 Analyze the Hazards – Facility Level

The following processes / programs (examples, not all inclusive) are used to identify and evaluate ES&H hazards, risks, and impacts at FM&T.

- Environmental Aspects Analysis
- Preliminary Hazard Analysis
- Trend Analysis
- Exposure Assessments
- Safety and Health Focus Areas
- Emergency Management - Hazard Survey and Hazard Assessment
- Lessons Learned

Environmental Aspects Analysis - FM&T conducts an annual analysis of environmental hazards through the ISO 14001 environmental aspects analysis process. The environmental aspects analysis process uses data from environmental releases to air and water, waste generation, and energy consumption as the basis for ranking and prioritizing environmental aspects. The process results in the establishment of significant environmental aspects and performance goals. A team of FM&T environmental staff and other disciplines, as needed, performs this analysis and prioritization process. The scoring is conducted using the data collected, a set of aspect definition documents, and a detail and summary scoring document. Activities, products, and services are scored for each aspect based on normal and abnormal operations, and scenario notes are kept for the scoring process to document the decisions reached. The scores are tabulated and a significance threshold established by the team. Those aspects scoring above the threshold are considered significant and a business considerations form is completed for each of these. ES&H Leadership pursues recommended actions and establishes objectives and targets for the next year.

Preliminary Hazard Analysis - the focus of the Preliminary Hazard Analysis (PHA) program is to analyze hazards and develop controls to mitigate those hazards. This process is also a means of feedback to the individual, as well as, management. Basically, the PHA allows the customer (process owners, engineers, project coordinators, etc.) to describe proposed changes in their process to ES&H to ensure appropriate administrative, so that we can then communicate action items or awareness back to them. ES&H also compiles the PHA information to look at overall issues related to facility operations and worker safety (e.g. environmental aspects, pollution prevention, life safety, fire protection). These operational level issues may be reviewed by management to assure safe performance of the work in accordance with the ESHMS.

Trend Analysis – Safety and health performance data is trended to identify statistically significant change in performance measures which is unlikely to be due to a random variation, or spike, in the related processes. Both leading and lagging indicators are reviewed, including incidents, near-misses, ES&H concerns, and audit data. The trending analysis data is used to understand current and past conditions of performance, to predict and improve future results. It is used to make business decisions on the best course of action to take and the level of resources required to address the area of concern.

Exposure Assessments – The purpose of this program is to assist Honeywell Federal Manufacturing and Technologies (FM&T) in the development, implementation, and integration of recognized industrial hygiene associate practices of exposure assessments within the industrial hygiene program. An exposure assessment program that is properly implemented and followed should protect all employees who are required to comply with Honeywell's FM&T's safety and health guidelines. This program includes documented evaluations of surveys conducted to determine occupational health hazards at FM&T. There are five different types of surveys conducted to determine occupational exposures: initial/baseline, periodic, change in process, government mandated, and associate concern. The frequency that evaluations are performed depends on the potential of exposure. Honeywell's management is required to ensure that all surveys and evaluations are conducted, as appropriate. Once controls for hazards are identified, operating department management implements the controls identified to ensure associates performing the work remain protected from unnecessary risks. Potential and current exposure risk level, requirement for biological monitoring, medical surveillance, and reassessment is determined and based on professional judgment after considering all parameters.

Safety and Health Focus Areas - An analysis of safety and health is also conducted by FM&T throughout the year to determine the safety and health focus areas for the next year. This process is less formalized but relies on data from OSHA recordable injuries and less severe injuries or illnesses requiring only first aid treatment. A team analyzes the data to determine where most injuries are occurring. This analysis allows for the establishment of focus areas, plans and actions designed to improve safety performance.

Emergency Management - Emergency planning is conducted based on hazard surveys and a hazard assessment which are updated annually. These documents identify the hazards associated with potential emergency events and the possibility of off-site release of hazardous materials and impacts to surrounding community members. The documents are then used to plan emergency response actions, train emergency responders, and ensure timely and appropriate responses in the event of a real emergency.

Lessons Learned - The FM&T lessons learned program analyzes hazards and develops actions based on the risk ranking of the information. Lessons learned information is received from the DOE lessons learned listserv and Honeywell Health Safety & Environment staff email of Honeywell Incident Bulletins. Honeywell FM&T ES&H subject matter experts risk rank actual and potential incident severity on the impact to safety, environment or property and determine the applicability of the information. Actions are taken to analyze the hazards based on the risk ranking. Identified issues require that Honeywell ES&H perform data collection and analysis and then provide immediate hazard abatement and specific corrective actions.

7.2.3 Define and Implement Controls – Facility Level

Facility level compliance controls are documented by a set of procedures collectively titled Command Media. This ES&H Management Plan, the Environmental Management System Manual, the FM&T Business Model and Command Media provide the basis of the ESHMS. The FM&T MAS provides a means by which FM&T leadership and the NNSA customer can monitor business performance. The MAS is the methodology for identifying, implementing, measuring and sustaining the Critical to Quality (CTQ) needs necessary for desired performance. ES&H management is an integral component of the FM&T MAS.

The FM&T Command Media describes functional area procedures within FM&T and include ES&H. Each of these functional areas contains detailed procedures-process descriptions and work instructions.

- **Process Descriptions** - Describe a single process with sufficient detail to establish 'what' is to be accomplished.

- initiate, recommend, or provide solutions through designated channels;
- verify the implementation of solutions; and
- suspend an operation in the event of an out-of-control process, or to control further program activities related to an area of non-conformance until the deficiency or unsatisfactory condition has been corrected.

Line Management and employees are held accountable for ES&H at FM&T. ES&H requirements are communicated to employees and management through site-specific ES&H Process Descriptions and Work Instructions. These documents identify accountability and assigned responsibilities for employees and management to effect and maintain ES&H compliance. Identified deficiencies or non-compliant ES&H items are assigned to the responsible organization for corrective action. Responsibility and accountability for ES&H performance at FM&T is further reinforced through the following means:

- Objectives & Targets: FM&T establishes documents, maintains and monitors performance toward ES&H objectives and targets at all levels of the organization. ES&H expectations, goals, and objectives are integrated and reviewed through the ES&H MOS.
- Salaried employee performance appraisals are conducted through the Honeywell Performance Development process which may include individual performance relative to ES&H goals and behaviors.
- Expected Conduct: All employees can electronically access FM&T guidelines and policies, which contains the disciplinary policy. Examples of unacceptable ES&H conduct that could result in disciplinary action are identified in these documents, including:
 - a. Non-compliance with ES&H policies, regulations, rules and work instructions;
 - b. Contributing to the falsification of records;
 - c. Failure to observe good housekeeping practices; and
 - d. Taking a negative action against an individual for exercising his/her right and responsibilities to report legitimate concerns, especially in the area of ethics, EEO, ES&H, and security.
- Collective Bargaining Agreements: Collective Bargaining Agreements, applicable only to FM&T/KC, require that all represented employees comply with ES&H requirements. Furthermore, collective bargaining unit contracts and the Labor Relations Manual describe general and specific provisions for progressive and non-progressive disciplinary actions for ES&H reasons.
- FM&T has instituted the Honeywell Aerospace Safety Accountability Policy which describes expected behavior and progressive discipline for employees and managers regarding ES&H compliance.
- Management and employees participate in periodic ES&H self-assessment activities to ensure their areas and operations are properly maintained (see Section 3.5).
- Job Descriptions: ES&H responsibility is incorporated into all job descriptions for bargaining unit and salaried employees.

New employees, visitors, and subcontractors at FM&T are provided general site orientation and/or other information relative to ES&H as summarized below:

- Visitor Orientation: Visitors to FM&T/KC receive a brochure when entering the facility which covers security, safety and health, emergency evacuation routes, general plant information, pollution prevention, and emergency and useful telephone numbers. Visitors at FM&T/NM receive an orientation which covers similar topics. The visitor's host is responsible to ensure this communication is completed.

- New Hire Orientation: New hire orientation is provided to all newly hired/rehired FM&T employees consisting of a general ES&H overview including information on the OSHA Hazard Communication Standard, Lockout/Tagout (LOTO), emergency telephone numbers, appropriate responses to emergency announcements and ES&H incident reporting. FM&T's orientation also includes ISO 14001 and VPP information.
- Subcontractor Safety: ES&H requirements for construction and service subcontractors are summarized in separate Construction and Service Subcontractor Safety Handbooks as provided to subcontractors performing work at FM&T/KC. Construction and service subcontractors at both FM&T/KC and FM&T/NM receive safety orientations, which include construction safety, in-plant vehicle safety and emergency/evacuation procedures. Additionally, LOTO and confined space safety training is provided at FM&T/KC for subcontractors performing this specific work.

Current versions of approved documents are available in close proximity to functions and/or operations where they are essential to the effective functioning of the ESHMS. When documents are not directly distributed to functions and or operations, they are made available at centralized locations. Obsolete documents retained for legal and/or knowledge preservation are identified as obsolete or inactive for current use. Responsibility for control of obsolete documents is delegated to each system where these documents and data are promptly removed from all points of issue or use to prevent unintended use.

7.2.5 Feedback and Improvement – Facility Level

The FM&T MAS describes the use of benchmarking, third party assessments, internal audits and self assessments plus the integration of lessons learned to assure feedback is effectively used to improve performance and assure customer expectations are met.

Honeywell requires a Self-Assessment Tool and Assurance Letter process annually for all operations including FM&T/KC and FM&T/NM to assure compliance with regulatory and management system requirements. The Self-Assessment Tool is a comprehensive ES&H questionnaire based on site compliance to Honeywell ES&H procedures. The questions are based on regulatory and Honeywell expectations. Upon completion of the questionnaire, FM&T submits these questionnaires for FM&T/KC and FM&T/NM to Honeywell Aerospace. As part of the process, the Assurance Letter is prepared and ultimately signed by the President of FM&T ensuring senior leadership awareness and concurrence. This letter outlines ES&H compliance issues requiring upper management attention. This is submitted to the Vice President, Honeywell Aerospace, HSE and Facilities for promotion upward through Honeywell management.

As a business driver, ES&H has established key performance indicators around safety and health, waste generation, environmental performance, and property loss. These measurements and associated trend data are monitored by Honeywell, reviewed regularly by senior leadership and made available to the KCSO in accordance with the MAS.

ES&H Executive Committee meetings are conducted quarterly involving ES&H leadership and staff, Bargaining Unit leadership and workers, subcontractors, FM&T senior leadership and NNSA leadership and staff. FM&T/NM participates in this meeting via teleconference or videoconference. The purpose of the meeting is to share information and provide the foundation for review and continual improvement. Consideration is given, but is not limited to, the items from the following list in selecting topics to be discussed at the ES&H Executive Committee meetings.

- ESHMS and changes to the system,
- ES&H requirement changes,
- ES&H performance data relative to objectives, targets and metrics,
- changes to ES&H programs,
- changes in FM&T activities affecting ES&H programs,
- corrective action and lessons learned from ES&H incidents,

- advances in ES&H technologies,
- internal audit results,
- concerns of customers or other interested parties,
- ES&H awards and recognition.

Records of the ES&H Executive Committee meetings are maintained in accordance with records management requirements.

FM&T also holds Business Operation Review meetings as required by ISO 9001 & 14001. The general purpose of these reviews is to assess and report on the performance of the management systems to senior leadership, to ensure the continued suitability, adequacy, and effectiveness of the systems in satisfying requirements and to serve as the basis for continuous improvement of the systems. Assessment of the overall ESHMS is included in these management reviews. Continuous improvement activities are identified and tracked.

The management review process is documented in Section 4.6 of the ISO 14001 *Environmental Management System Manual*. Records of these management reviews are also maintained in accordance with the Records Management process.

FM&T plans, performs, and documents ESHMS audits in accordance with established procedures. Audits validate system and program-specific performance and identify opportunities for improvement. These processes cover the audit scope, frequency and methodologies, as well as the responsibilities and requirements for conducting audits and reporting results. These audits are carried out in order to:

- Determine whether or not the ESHMS:
 - a) conforms to planned arrangements for ES&H management including the requirements of ISO 14001 and VPP;
 - b) has been properly implemented and maintained; and
- Provide information on the results of the audit to management for review.

An audit schedule is maintained to ensure ongoing evaluation of the ESHMS.

Assessment of the ESHMS is also performed at FM&T through the following programs and processes:

- VPP program self-evaluations ,
- subcontract third-party assessments of specific functions as directed by ES&H management including ISO 14001 certification/periodical audits,
- evaluation of specific ES&H programs,
- Honeywell including ES&H compliance audits; and
- third party assessments funded or conducted by Honeywell including validation of the annual Honeywell Self-Assessment Tool.

FM&T has established and maintains procedures, programs and other formal mechanisms for internal and external communications of ES&H performance, goals, issues and general information. These mechanisms facilitate:

- internal communication between the various functions and levels of the organization, and
- external interactions, including receipt, documentation and response to communication received from external interested parties, for example, regulators.

Internal and external communication is accomplished using the following approaches:

- ES&H Concern Lines ({816} 997-3181 at FM&T/KC and {505} 844-2009 at FM&T/NM) which allow employees to express concerns or ask questions regarding ES&H issues. Questions and/or concerns received via the concern line are forwarded to the appropriate

ES&H professional or facility subject matter expert for response and feedback. This system is also available to employees electronically (FM&T/KC). FM&T/NM maintains an on line Near Miss and "Ask Wally" reporting system that allows employees to raise safety concerns.

- Emergency Management which communicates hazard assessment results, emergency plans and toxic release reports to local agencies, response organizations and community planning committees as required.
- NEPA reviews, in conjunction with KCSO, which provide for external stakeholder involvement in consideration of operational changes which could have an environmental impact, except for changes which are categorically excluded under the corresponding NEPA requirements.
- ES&H Committees which address ES&H issues that impact FM&T. These committees provide an opportunity to expand employee involvement and facilitate communication among all parties involved in ES&H activities.
- DOE-VPP administered by a joint labor-management team, including KCSO, that works to increase the collective understanding and awareness of ES&H throughout FM&T/KC and maintain DOE-VPP STAR status.
- Community Involvement: FM&T/KC participates in the Environmental Excellence Campaign sponsored by the Kansas City, Missouri, Office of Environmental Management and Waste Minimization.
- Agreement In Principle: The NNSA and the Missouri Department of Natural Resources have signed an Agreement in Principle which provides for additional state oversight of FM&T/KC's environmental monitoring, environmental management, emergency response and public awareness programs. This Agreement can also be used to facilitate communication and coordination between the NNSA and various state agencies.
- Incident Analysis Program: Results of accident and incident (injury/illness, property damage, and near miss) investigations are shared with target audiences, using ES&H communication alerts, presentations in the ES&H Executive Committee meetings, and through the FM&T lessons learned program, as appropriate.
- ES&H Web Page: The ES&H web page is located on the FM&T Intranet. This resource provides access to listings of ES&H services, ES&H information, command media, lessons learned, ES&H performance data, safety alerts, ES&H plans, an ES&H calendar, presentations, and ES&H contacts. It also provides a mechanism for employees to provide feedback to ES&H.
- Emergency Hotlines: At FM&T/KC, hotline numbers are provided for spills (7745 or "SPIL") and other emergencies (3600 to reach Patrol HQ) which are answered 24 hours a day to facilitate immediate emergency response actions. Security and ES&H pager numbers are provided at FM&T/NM for 24-hour notification and assistance. FM&T/KC operates a Facility Manager program as part of the Emergency Management process for 24/7 event response and notification. This includes an Incident Command structure for formal response to ES&H events, as necessary.
- Information Centers and Federal Bulletin Boards: ES&H posters and information are displayed in information centers located throughout FM&T/KC & NM including:
 - a) Poster for "Occupational Safety and Health Protection for DOE Contractor Employees at Government-Owned Contractor-Operated Facilities" which identifies employees rights to report unsafe acts or conditions without fear of reprisal,
 - b) Posters for state workers' compensation programs encouraging employees to contact the state with concerns related to occupational injuries/illnesses including:
 - Missouri Department of Labor and Industrial Relations Division of Workers' Compensation (FM&T/KC)
 - New Mexico Worker's Compensation Administration (FM&T/NM)
 - State of Arkansas Worker's Compensation Commission (FM&T/NM - Fort Chaffee), and
 - c) The Honeywell Commitment to Health, Safety & the Environment.
- Complaints: If employees feel their concerns are not being adequately answered, they may either file a written complaint to the local NNSA office and/or telephone the Office of

- the Inspector General and the Assistant Secretary for Environment, Safety, and Health, in Washington, D. C.
- Near-Miss Reporting System (FM&T/NM): Allows FM&T/NM employees to report potentially unsafe acts or conditions that could have been a more severe event.
 - Ask Wally Reporting System (FM&T/NM): a safety issue/concern system managed by employees.
 - Various other ES&H communication activities are also coordinated by the Public Affairs organization, including, but not limited to:
 - a) Community relations, involving public release of information about environmental concerns including publication of a quarterly *Focus* newsletter which is widely distributed throughout the local Kansas City community and made available to employees;
 - b) Internal communication, including *Newsstand* and *Connections* publications, Info Channel, closed-circuit TV, a management 'Managers Update' program, information centers and bulletin boards located throughout the plant, and *Comments, Please!*, an employee concern line where the caller may elect to remain anonymous;
 - c) Media relations, involving communication with external news media, including Emergency Press Center capabilities for emergency operations; and
 - d) Periodic special events such as Earth Day activities and other community involvement and awareness campaigns.

Positive feedback is provided on both a formal and informal basis. All employees are eligible to receive any number of awards under FM&T's rewards and recognition program. ES&H performance and contributions are among the eligibility criteria for various types of the awards, including the following:

- Jack A. Knuth Award – Every year Honeywell FM&T presents the Jack A. Knuth Continuous Improvement Award to an outstanding employee. Named for Knuth, who was president of the business from 1985 to 1990 and who began FM&T's continuous improvement efforts, it is the highest individual award presented at FM&T.
- Significant Technical Achievement Rewards and Recognition (STARR) Program
- Special Recognition
- Employee Recognition

7.3 Work Planning & Control – Department / Task / Worker Level

7.3.1 Define Scope of Work – Department / Task / Worker Level

The scope of work at the department or activity level is well defined. The specific format for the scope of work depends on the organization performing the work. FM&T has three basic functions with defined scope of work formats.

Production and related services: Manufacturing, Engineering and associated support organizations are responsible for performing processes used to provide product and services to customers. This work is defined by the Program Control Documents (PCD) Schedule, work authorizations, design drawings in combination with the Manufacturing Execution System (MES), Process Engineering Specifications (PES), and General Process Instructions (GPI). At FM&T/NM, work is defined and authorized through funding documents and attached Scopes of Work. Additional project definition is developed through the Project Management and Engineering Processes and ultimately down to the task level.

Maintenance and construction: Facility Management Services performs maintenance and facility upgrades, including construction and administration of construction subcontractors, at FM&T operations. Maintenance work is conducted at FM&T/KC in accordance with the Maintenance Standard. Work is planned and executed through the electronic MAXIMO maintenance work request system. The requestor submits the request and a maintenance planner prepares a work order within the system identifying, as appropriate, ES&H concerns

and personal protective equipment (PPE) needs. This system also initiates facility projects that require engineering design work. Third-party contractors working to a set of design documents typically perform facility upgrades. These design documents, the Construction Management Guide, the Construction Safety Handbook, and the contractor's job specific safety plan, define the scope of work for these activities.

Analytical laboratory operations: FM&T laboratory operations perform work specified in laboratory test requests and follow established laboratory test methods. These documents combine to define the scope of work.

FM&T employs a highly trained and skilled workforce commensurate with the level and complexity of assigned work. This training and skill set ("skill of the craft") are relied upon on a daily basis to ensure safe performance of routine job assignments. Employees are encouraged to question the task/scope of work assigned to them should they have an ES&H concern. The expectation is that each employee understands the scope of the work to be undertaken. Should the scope be unclear or perceived as outside the worker's knowledge, skills or abilities, the employee is expected to stop work and request additional guidance from their management. In accordance with the FM&T VPP Bill of Rights, employees have the right to stop work if they believe the work is unsafe or could be performed in a safer manner. FM&T policy not only allows the "stop work" right but also encourages employee intervention if potential unsafe conditions or behaviors are observed.

FM&T has established an electronic Learning Management System (eLMS) to manage employee training. This system documents training requirements and training history including completion dates for training activities. The eLMS defines training as Qualification, Mandated and Developmental for all FM&T employees. Employees may be assigned Qualification training, which must be completed prior to performing the task at hand. If training is not up-to-date and current in accordance with requirements, employees must adhere to a qualification training plan prepared by their management stating the controls required for safe performance of work until the Qualification training is completed. Mandated training, is training directed by management that employees must also complete by an assigned date, but which is not required to perform assigned tasks. The third category of training is Developmental training. This training is assigned to promote individual learning and career development. It is management's responsibility to identify training requirements based on employee classification and assignment (scope of work) and monitor employee training records to ensure completion of qualification and mandated training for employees in their organization.

Further, managers or their designees conduct safety meetings, job orientations, or "tool box talks" to ensure a complete understanding of the scope of work. Managers are responsible for raising awareness to hazards employees might face in performing new, infrequent, or higher risk tasks. Work directions, such as, department safety procedures and task-specific "job aids" are also used by workers to supplement training and management direction.

7.3.2 Analyze the Hazards – Department / Task / Worker Level

FM&T maintains an electronic Hazard Identification and Control system. The system is used to store and deliver PHAs, NEPA compliance documentation, Exposure Assessments, and on-site reviews requested by ES&H prior to process changes or start-up. FM&T/NM uses analogous processes; however, there is no electronic system used to track and store information.

The PHA process constitutes the change management hazards assessment at FM&T. A requestor or employee wanting to add or modify equipment, facilities, processes, or materials submits a PHA to ES&H staff for review. At FM&T/KC this is the electronic Hazard Identification and Control system. FM&T/NM uses a paper-based request system. ES&H staff will review the request and determine what hazards might be present and identify the controls necessary to minimize risk. Implementation of the controls or elimination of the hazard is then the responsibility of the requestor or operating department with support from ES&H staff. Information

related to the identification of ES&H hazards, risks and impacts is kept current through PHA reviews of new or modified processes, equipment and hazardous materials.

The JHA program documents hazards and controls that employees may encounter as they perform higher risk activities at FM&T. JHAs offer guidance to line management in establishing training requirements for employees who are responsible to perform these tasks. Employees reading and following the guidance provided in the JHA can then control these risks through application of engineering controls, administrative controls, or wearing of PPE. These JHAs are provided to the workers electronically and may be linked directly to the Manufacturing Execution System (MES) at FM&T/KC. The MES provides electronic instructions on how to perform the various manufacturing, testing and assembly operations within FM&T/KC.

FM&T/KC maintains a documented Departmental Hazard Assessment for higher hazard FM&T/KC departments. These assessments are stored in the Hazard Identification and Control system and are maintained by the FM&T/KC ES&H organization. These assessments provide a consistent tool for documenting general hazards and controls within these departments. FM&T/KC plans to expand the use of this tool in FY2007.

FM&T/NM completes an annual hazard assessment of areas to identify or validate protective equipment requirements. This information is used to generate hazard awareness posters that are placed in work areas. Exposure assessments, surveys and evaluations have been, and continue to be, conducted. Assessments validate the effectiveness of controls and assure employee exposures are maintained as low as reasonably achievable (ALARA). Assessments include, but are not limited to, the following types of ES&H hazards, risks and impacts:

- Noise
- Lead in construction/maintenance
- Drinking water quality
- Asbestos
- Confined spaces
- Musculo-skeletal disorders
- Beryllium and other carcinogenic materials

Employees have the right to observe monitoring or measuring of hazardous agents and have the results of their own exposure monitoring. FM&T takes all prudent precautions to limit employee exposure.

FM&T/NM maintains an Industrial Hygiene exposure assessment plan identifying areas in the facility where exposures to physical, chemical and biological health hazards may be encountered. The plan includes the frequency of necessary exposure monitoring.

In accordance with VPP at FM&T, every employee has the right to input as the scope of work is defined and hazards are analyzed prior to the commencement of work. Employees have the right to willingly participate in resolving safety and health issues including becoming actively involved to improve processes both from a quality and ES&H perspective. Hazard analysis program components at the worker level are executed through the programs described above designed for task-specific execution.

ES&H staff works with line management, technical support staff, and the worker throughout the work definition and execution process to analyze hazards and incorporate hazard controls. Certified ES&H personnel have the education, training, and experience, to provide effective support to FM&T's operations. In-house resources are augmented with subcontract personnel to meet certain requirements or special needs, such as non-routine ES&H sampling or special clean up/decontamination work. Appropriate selection criteria are developed and applied to ensure that all subcontractors hold the appropriate accreditations, licenses, certifications, or other prerequisite qualifications.

Hazard analysis information is readily accessible to FM&T employees through a variety of mechanisms. Workers have access to the on-line Material Safety Data Sheet (MSDS) system. This system is updated through the PHA process whenever new chemicals are introduced into the operation. At FM&T/NM, the system is updated through the Hazardous Material Acquisition Process. Employees can access MSDSs for chemicals they will be in contact with and use the data to help analyze the hazards.

FM&T maintains approximately 150 ES&H-related training programs. Specific hazard analysis is an integral component of ES&H training. For example, training for confined space entry includes recognition of potential unsafe conditions (hazardous atmospheres, space configuration, and physical condition assessments). Another prime example of hazard analysis and recognition at the worker level is the FM&T/KC beryllium awareness training program. The major focus of this effort is recognition of beryllium hazards and exposure effects.

FM&T also relies on the skill of the craft, and experience of employees to perform low hazard routine work.

7.3.3 Define and Implement Controls – Department / Task / Worker Level

Work direction systems for higher risk level activities in production, maintenance and construction include hazard control information. Department/task/worker level hazard controls, where appropriate, are defined and implemented in applicable FM&T systems including MES, MAXIMO, Laboratory Test Methods, JHAs, chemical carcinogen control plans, chemical hygiene plans, Waste Acceptance Certifications (WACs), and Waste Identification Tables (WITs).

The MES work directives also contain warnings and controls for employees to follow while manufacturing product. Work directives for higher risk departments and processes are being upgraded to include hazard identification and control information directly in the work packages. For instance, MAXIMO work orders (maintenance) contain controls for identified hazards and PPE to be worn while performing the specific maintenance work. Laboratory test methods have limited controls built into the test methods to prevent adverse chemical reactions, chemical burns, inhalation of vapors, and other related safety and health concerns. Construction work performed by FM&T subcontractors is controlled through contractual language, the Construction Management Handbook, the Construction Safety Handbook, Safe Work permit, job specific safety plans, activity-level hazard analysis and routine pre-job safety briefings. Required permits for specific types of higher hazard work encountered during construction (and demolition) are also identified.

The JHAs define hazards and the controls to be implemented during the task performance. The JHAs cover hazards and associated controls such as training needed, personal protective gear to be worn, chemical warnings, and proper equipment to be used.

Controls for chemicals are established within Carcinogen Control Plans and Chemical Hygiene Plans. The carcinogen plans are documented within the JHA system. Chemical Hygiene plans pertain mainly to laboratory operations and are paper based.

FM&T/KC controls on disposal of chemicals are documented in Waste Acceptance Certifications (WACs) within the JHA system for operations or in Waste Identification Tables (WITs) for construction projects. Waste containers are issued for both types of activities through the Environmental Operations department. The containers are controlled with barcodes and issued based on the WACs or WITs previously prepared. The PHA process is the mechanism to trigger development of or modifications to the WACs or WITs.

FM&T/NM controls disposal of chemicals through their environmental staff and the generating department. An evaluation is conducted prior to waste being generated and containers are issued based on this evaluation. When the waste is ready to be shipped for disposal, the environmental staff and the generating department complete a Waste Evaluation Form.

Operational controls have been established within Process Descriptions and Work Instructions and routine monitoring is performed relative to ES&H hazards, risks and impacts as discussed in Section 3.5.

Workers are expected to adhere to the controls defined in the department/task/worker level documentation. Part of this documentation includes Lockout / Tagout instructions for electrical safety, and internal permits (e.g., Hot Work, Energized Electrical work, Excavation, Aisle Impairment), and ES&H/process control checksheets.

FM&T also relies on the skill of the craft, training, and experience to protect workers. The workers have the right to stop work and question the controls. Hazard identification and control is also supplemented through the use of job aids and safety briefings and meetings.

7.3.4 Perform Work Within Controls – Department / Task / Worker Level

The responsibility, authority, and interrelationship of all employees for ES&H performance is defined and documented in Section 3.0. All employees are expected to follow the requirements set forth in Command Media.

Procedures associated with each of the established ES&H and related programs are delineated in Command Media including, but not limited to, the following topics.

Chemical Carcinogen Control	Chemical Hazard Evaluation
Clean Air Act & Local Air Regulation Compliance	Combustible & Flammable Materials
Confined Spaces	Construction Contractor Safety
Control of Radioactive Material and Sources	Dose Limits, Occupational Exposure & ALARA
Electrical Safety	Emergency Management
Emergency Wash Stations	Environmental Compliance
Environmental Restoration	Equipment Safety
Ergonomics	ES&H Committees
Explosives	Exposure Assessment
Fire Protection	Hand/Portable Power Tools
Hazard Abatement	Hazard Communications
Hoisting & Rigging	Incident Analysis & Reporting
Job Hazard Analysis	Laboratory Safety
Laser Safety	Life Safety
Lockout/Tagout (LOTO)	Machine Guarding/Tagging
NEPA Review	Noise Control & Hearing Conservation
Occupational Medicine	Pesticides/Toxic Substances
Personal Protective Equipment	Pressure Safety
Radiation Generating Devices	Radiation Safety Training, Posting & Labeling
Respiratory Protection	Risk Management Pre-Planning (PHA)
Safety Tags	Sanitation & Health
Service contractor Safety	Temperature Extremes
Vehicles	Ventilation
Walking / Working Surfaces	Waste Management
Wastewater discharge	Workers' Compensation

Additionally, FM&T maintains a series of internal permits to ensure control of specific hazards during performance of work. Most of these permits are used exclusively at FM&T/KC but those noted are also used at FM&T/NM. These permits require ES&H approval prior to the work being performed. Permits or checksheets in use include:

Excavation permits/blind penetration	Permit for Energized Electrical Task (Electrical
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	work permit – FMNT/NM
Construction safe work	Hot work (FM&T/KC and FM&T/NM)
Life safety aisle/exit impairment	Fire protection shutdown request (Impairment Permit – FM&T/NM)
Confined space	Unattended equipment operating
Drain connection/new discharge approval	Radiation work authorization
High Voltage Pre-Job Safety Briefing	Beryllium work
Safety monitoring system (fall protection)	

The responsibility, authority, and interrelationship of all employees who manage, perform, and verify work affecting ES&H performance is defined and documented in Section 3.0.

Honeywell has established clear expectations for employees to follow the documented procedures to assure compliance with ES&H requirements and the protection of employees, the plant, the community, and the environment. Employees have expectations established in their job descriptions that state:

"Conducts activities in a safe and healthy manner and works in accordance with established ES&H requirements to ensure protection of employees, the public, and the environment. Takes actions necessary to "stop" work when an unsafe condition or action is identified. Every employee has the right and responsibility to stop work when unsafe conditions or actions are identified."

FM&T is committed to providing a safe and healthy environment for its employees. Employees are trained to do their jobs correctly, to use required safety and health equipment properly, and to perform work in a safe manner. Employees must follow ES&H requirements, which are identified in Command Media and specific instructions including JHAs, Process Engineering Specifications (PES), General Process Instructions (GPI), job aids, Material Safety Data Sheets, high voltage work switching instructions, and manufacturer's operating instructions.

Disciplinary action – up to and including termination – may be taken for violations of ES&H regulations and work rules. The severity of the discipline is discretionary and will depend on many factors including the nature and cause of the violation. FM&T has established the Employee Accountability Policy based on Honeywell Aerospace requirements describing employee responsibilities to adhere to ES&H requirements and defining disciplinary guidelines.

Personnel whose work may present ES&H hazards, risks, or impacts receive appropriate training. Line management determines required training with the assistance of ES&H subject matter experts. The competency of personnel performing tasks which relate to ES&H hazards, risks or impacts is established on the basis of appropriate education, training, and/or experience. Associated training records are maintained.

Management emphasis has been placed on employee intervention regarding ES&H issues. FM&T/KC employees have been trained on intervention skills and expectations when potentially unsafe behaviors or conditions are observed. The focus of this training program is to ensure employees know that safety intervention is a management expectation and that they are capable of giving and receiving this information when performing or observing a potential unsafe activity or condition. This training includes a skills practice component to ensure feedback, both given and received, is accomplished in a professional and non-punitive manner.

FM&T/NM's behavior-based safety, titled BSAFE (Behavioral Safety for Everyone) is a proactive program where employees regularly observe specific on-the-job behaviors that have the potential to be precursors to incidents and injuries. A "no name, no blame" system, this process and

observations strive to encourage safe behaviors and discourage at-risk behaviors. In this way, positive reinforcement is given with the intention to prevent incidents before they happen.

7.3.5 Feedback and Improvement – Department / Task / Worker Level

The Quality Assurance program also includes auditing of FM&T's ES&H programs and activities and operations. This program includes independent oversight audits of ES&H activities and FM&T operations to assess adequacy and conformance to established requirements, procedures, specifications, and quality objectives. The frequency of these audits is based on applicable requirements, the importance of the activity concerned, identified needs of the organization to be audited, and the results of previous audits.

The auditing organization is independent of organizations having direct responsibility for the activity being audited. Each activity is audited against requirements found in the Operating Requirements Database and documented in command media. Audit results are documented in formal reports and associated records are maintained. Both management and responsible employees are notified of audit results and timely cause analysis and corrective action is required for deficiencies. When corrective action is required, follow-up verification audit activities record the implementation and effectiveness in accordance with documented processes.

Corrective actions from compliance monitoring activities and ESHMS self-assessments are formally identified, tracked and documented in the MAS through the Issues Management Process. This process provides for team-based Root Cause Analysis, identification of related issues through assessment of global impacts, and the issuance and tracking of Corrective Action Reports (CARs) through closure. ES&H program revisions and projects initiated as a result of audits, inspections, self-assessments and/or to close-out associated CARs are administered through the requirements identification and communication, prioritization, and financial systems as needed to ensure compliance with applicable ES&H requirements. All assessment results from the FM&T internal audit organization are transmitted to the NNSA. Associated corrective action initiatives are made available to the NNSA through the internal eCATS system .

Procedures for corrective, preventive, or systemic action include:

- effective handling of customer complaints and reports of ES&H nonconformities;
- investigation of the causes of nonconformities relating to ES&H concerns/near misses, personal injury property damage, suspended operation or activity, permit excursions, fires, spills, ES&H physical condition inspections, self assessments, internal/external audits, lessons learned, safety alerts, customer complaints and trends identified during the management review/Business Operations Review process;
- determination of the corrective action needed to eliminate the cause of nonconformity; and
- application of controls to ensure that the corrective action is taken and that it is effective.
- use of appropriate sources of information as needed to detect, analyze, and eliminate potential causes of nonconformities using a formal lessons learned process that ties to the DOE-wide lessons learned system;
- determination of the steps needed to manage issues requiring preventive action;
- initiation of preventive action and application of controls to ensure effectiveness; confirmation that relevant information on action taken is submitted for management review; and
- classification of nonconformities based on severity to ensure the corrective actions are commensurate with the impact to the employees, facility, public, and environment.

Formal ES&H programs include many types of surveys and inspections and designed to measure conformance and monitor activities relative to ES&H hazards, risks and impacts.

Noise Evaluation: Specific locations requiring use of hearing protection have been identified at FM&T. Routine annual monitoring is performed in production areas and after any change in

production, process or equipment which could significantly change noise exposure. Monitoring results can initiate the requirement for additional area mapping or personal dosimetry to be performed.

Lead in Construction/Maintenance: At FM&T/KC, comprehensive surveys and monitoring are conducted to assess exposure potential to lead from maintenance and construction activities. Results of the assessment are used to ensure identification and proper use of PPE or that engineering controls are implemented.

Safety & Housekeeping Implementation Needs Everyone (SHINE): FM&T/KC, These inspections are conducted by a multi-disciplinary team of ES&H, line management, and departmental employees. These inspections include a walk-through of departments and areas to review the physical condition of the area and equipment and may include worker observation, as necessary. Remarks and findings are documented on the SHINE Tour Checksheet. Findings are risk ranked in accordance with the Issues Management process. Findings scoring Level 3 or 4 issues are entered into corrective action tracking system for tracking to completion.

Weekly Walks: (FM&T/KC) This program includes weekly inspections performed by line management that include an ES&H, and workplace organization/housekeeping component built on the principles of Sort, Store, Sweep, Standardize and Sustain (5S). Line management includes plant leadership, managers, and team leaders. Departmental employees participate, and employees to identify and correct unsafe acts and conditions and to reinforce safe work conditions and behaviors.

Environmental Self-Assessment Program (FM&T/NM): This program requires the completion of modules/questions by "line" operations on an established frequency evaluating conformance to ES&H requirements.

Senior Leadership ES&H Review (FM&T/NM): This program requires management to periodically walk their areas to reinforce observed safe behaviors and practices and to facilitate interaction between employees and senior leadership.

Subcontractor Safety: Oversight, coordination and enforcement of subcontractor safety are managed by FM&T Facility Management Services and Facilities Engineering Services, ES&H at KC and by ES&H and Facilities at FM&T/NM. The subcontractor is also required to perform job-site inspections and to correct any violations.

On-Site Reviews/Beneficial Occupancy Inspections: After the completion of major renovations or construction projects, a multidisciplinary inspection involving ES&H is performed prior to occupancy.

Ventilation Reviews: Ventilation systems used for health protection are surveyed for adequacy by the Safety & Health departments.

Radioactive Material/Ionizing Radiation: Users of radioactive material and ionizing radiation-generating devices at FM&T/KC are subject to semiannual (radioactive materials) or annual (ionizing radiation-generating devices) surveys by Health Physics personnel. Off-site FM&T/NM workers are monitored by the host organization, such as Los Alamos National Laboratory, when performing radiation work.

Medical Surveillance Examinations: Medical surveillance examinations are conducted to address a variety of potential occupational exposures. In addition, consistent with the Americans with Disabilities Act requirements, physical examination and worksite evaluations ensure that work can be performed in a safe manner. The following are examples of surveillance examinations conducted for applicable workers:

- Beryllium
- Cadmium
- Chromium
- Hazardous Materials (OSHA Emergency Response)
- Laser (Eye exams)
- Lead
- Respiratory Protection
- Department of Transportation – driver
- Noise Exposure

FM&T/NM contracts for medical surveillance at all three remote locations (Sandia National Labs, Albuquerque, Concentra, Los Alamos and Cooper Clinic, Ft. Chaffee. Similar surveillance activities are performed at FM&T/NM based on employee exposure assessment data.

Exposure Assessments: At FM&T operations, substantive changes in processes, equipment and chemical use, as identified through the PHA process, are subject to an exposure assessment at the discretion of the ES&H subject matter experts. This process assesses the potential for employee exposure to chemical/physical hazards and identifies necessary controls such as PPE, engineering controls and/or personnel monitoring.

Environmental Monitoring: Routine monitoring is conducted with respect to environmental program activities at FM&T/KC, including:

- hazardous waste storage
- wastewater discharges
- air emissions
- groundwater contamination

Air emissions are monitored at the FM&T/NM paint facility (NC-135) by keeping a log record with emissions calculated quarterly. These calculations are subsequently compared to the permit limits for the facility.

A review of occupational injuries/illnesses trend analysis is conducted on an annual basis to determine focus areas needed to further reduce injury/illness rates.

Employees are empowered to take immediate action to correct identified hazardous conditions, stop work, and to notify line management. Employees have the option of reporting directly to an ES&H employee, through the ES&H Concern telephone line (x3181), providing input via the ES&H web page, or submitting a written report to ES&H or line management.

Maintenance employees have the opportunity to provide feedback on each maintenance work order within MAXIMO. At the completion of a work order, a feedback screen is available for the employee to input any issues, concerns, or suggestions that could be addressed the next time the work is to be completed.

Employees are required to complete an annual review of all JHAs that apply to their work. As part of this review, they have the ability to provide suggestions for modifications to assure the JHA adequately covers the hazards and controls of the specified task.

Anytime there is an ES&H concern, employees are encouraged to contact ES&H directly or through their management. ES&H uses the Issues Management process to prioritize, track and ensure responses are made when concerns are received. Concerns may also be directed to FM&T Senior Leadership through the general facility comments line (“Comments,

Please!" x3999), directly to the FM&T President "Ask Vince" email process, or directly to the KCSO.

Command Media Process Descriptions and Work Instructions has been upgraded to provide an auto email feature for users to provide feedback to the process owner.

7.4 Subcontractor Safety

FM&T is responsible for the performance of contracted work activity performed at its locations. Flow down of FM&T/KC ES&H requirements to on-site construction and service contractors is accomplished through standard Terms and Conditions language in accordance with NNSA and Honeywell contracting procedures. On-site contractors are contractually bound to adhere to specified FM&T ES&H requirements and follow the FM&T Worker Safety and Health Program. Thus, subcontractors are included in the FM&T Worker Safety and Health Program and will not submit a separate Worker Safety and Health Program.

For FM&T/KC subcontractors that are subject to 10 CFR 851, either the Construction Safety Handbook or the Service Subcontractor Safety Handbook serves as the implementing mechanism. Utilizing a graded approach, commensurate with risk, ES&H requirement flow-down varies based on ES&H risk with the subcontracted services provided. This philosophy is consistent with "balanced priorities" concepts as defined in referenced DEAR clauses.

Construction contracts at FM&T/KC specify ES&H requirements through the FM&T/KC Construction Safety Handbook, set forth in FM&T standard Terms and Conditions. In addition, each general construction contractor must provide a Safety Plan, subsequently reviewed and approved by FM&T/KC, that addresses the requirements of the Construction Safety Handbook. Flow-down of safety and health requirements to lower tier subcontractors is also addressed in the Construction Safety Handbook. Details of contractor construction safety requirements are discussed in relevant sections of the ES&H Management Plan.

Construction engineering, project management and field work oversight responsibility is contracted by FM&T/KC to Burns and McDonnell Facilities Engineering Services (FES), LLC. FES is contractually bound to perform this function in accordance with the Construction Management Guide to Effective Contracting. This Guide clarifies that FM&T/KC "owns" safety initiatives within FM&T/KC and FES supports the integration and contractor execution of these expectations in their routine project management role. FM&T ES&H staff provides guidance, clarification and oversight of construction subcontractor ES&H programs and on-site project execution. FES functions as both a "service" and "construction" contractor:

- Construction Contractor - Those FES engineers, planners and support personnel directly supporting construction activity - safety plan required.
- Service Contractor - Those FES engineers and administrative people providing office / desk-top engineering support - no safety plan required.

Service contractors performing higher hazard work and/or longer term contracts are required to develop and submit a project-specific safety plan in accordance with the FM&T/KC Service Subcontractor Safety Handbook. FM&T ES&H staff provides guidance, clarification and oversight of service subcontractor ES&H programs and on-site project execution.

Subcontractors follow a similar process at FM&T/NM. The Contractor Safety and Health Program describes how FM&T/NM addresses safety with its subcontractors at all FM&T/NM locations including Ft. Chaffee and Los Alamos. Each contractor is required to complete a Contractor ES&H Questionnaire and a Health and Safety Plan prior to starting any work at FM&T/NM. The contractor is also given written ES&H and Security Guidelines that they are contractually bound to follow. Once the questionnaire and Health and Safety Plan have been reviewed and approved by ES&H, the contractor must also sign a Contractor Environmental,

Safety & Health Declaration certifying that they understand all the hazards and controls associated with the work they are about to perform and have communicated those hazards and hazard controls to the persons that will be performing the work. The sponsor (entity bringing in subcontractor to perform the work, e.g., Facilities Services) and ES&H monitor contractor activities to verify they are safely performing their work. Temporary contractors that do not have an on-site supervisor must receive a general orientation from the FM&T/NM ES&H organization and a site-specific ES&H orientation from the manager the contractor will be working under using an ES&H Contractor Orientation Checklist. Contractors who employ on-site supervision are expected to flow down FM&T/NM Contractor Safety and Health Program requirements through their management chain. The FM&T/NM's Contractor Safety & Health Program serves as the implementing mechanism for contractors subject to 10 CFR 851 requirements.

8.0 REFERENCES

1. 48 CFR (DEAR) 970.5204-2, Laws, Regulations and DOE Directives (December, 2000).
2. 48 CFR (DEAR) 970.5223-1, Integration of Environment, Safety, and Health Into Work Planning and Execution, (December 2000).
3. The International Standard ISO 14001-2004, (September 15, 2004).
4. DOE/EH-0433 Voluntary Protection Program (VPP) - Part I: Program Elements (October 1994).
5. 10 CFR 851 Worker Safety and Health Program (February 9, 2006).

9.0 ES&H MANAGEMENT PLAN MAINTENANCE, CHANGE CONTROL, AND REVIEW PROCESS

The FM&T “ES&H Management Plan” is developed, maintained, reviewed and approved in accordance with the requirements of Contract No. DE-ACO4-01AL66850. The following process documents the methodology by which FM&T maintains the “ES&H Management Plan” (Plan).

A. Plan Maintenance

1. The Plan will be maintained in accordance with established procedures and controls outlined in the FM&T Business Model and Contractual requirements.
2. The Plan will be revised to reflect FM&T operations risk to the environment and safety and health of employees and the public, as necessary.
3. Revisions and/or modifications to the plan will be reviewed and approved by the NNSA Contracting Officer or his/her delegated representative prior to incorporation.
4. The FM&T/KC ES&H Organization is accountable for maintaining the Plan.

B. Plan Modification

1. Revisions to the Plan will be made, as appropriate, during the Fiscal Year to reflect ongoing modifications of the FM&T ESHMS.
2. Annually, the ES&H Organization will perform a comprehensive review of the Plan to ensure the Plan adequately reflects operations and controls.

C. Plan Revision and Approval

1. The Manager, ES&H Operations, will review and approve all modifications to the Plan prior to submittal to NNSA.
 - a. Minor revisions - Editorial or minor process improvements that do not change context or concept will be reviewed, approved, and incorporated to the Plan without NNSA approval. Reference to these changes/revisions will be identified and communicated to the NNSA during the annual Plan review process.
 - b. Major revisions – Significant operational changes and/or issues impacting approved ES&H Thresholds will require written NNSA Contracting Officer approval.
 - c. Annual review – In accordance with contractual requirements, the Plan will be reviewed and submitted for NNSA Contracting Officer approval annually.
2. The Manager, ES&H Operations, will transmit major revisions and annual Plan updates to the NNSA-KCSO for review and approval.
 - a. Major revisions – Operational modifications or management system modifications that impact ES&H Thresholds or represent significant risk will be formally transmitted to NNSA for review and approval prior to implementation. The transmittal will include a summation of the process modification or operational change and mitigating factors and plans.
 - b. Annual review – The ES&H Organization will perform the annual Plan review and submit a revised Plan or notification of no change to NNSA/KCSO by July 15 of each year. The final Plan will be submitted by September 1.

- c. Incorporate any changes, conditions, or workplace safety and health standards directed by DOE consistent with the requirements of 10 CFR 851, Subpart B, and DEAR 970.5204-2, Laws, Regulations and DOE Directives (December, 2000) and associated contract clauses.
- d. Give the labor organization timely notice of the development and implementation of the worker safety and health program and any updates thereto.
- e. Upon timely request, bargain concerning development and implementation of this Plan, consistent with the Federal labor laws, as necessary.

Appendix F – Project Planning and Control System for Earned Value Management

Honeywell FM&T

Project Planning and Control System for Earned Value Management

System Description For Facilities Management Services

Document Owner: Daniel Fritts, March 28, 2006.

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1.0 Introduction

Honeywell FM&T has developed and uses an integrated project management methodology on all its major projects. This methodology, referred to as the Project Planning and Control System (PPCS) is responsive to the needs of Honeywell and customer management, and conforms to the Earned Value Management System (EVMS), as documented in ANSI/EIA-748A. The PPCS establishes formal procedures for planning, authorizing, reporting, analyzing, and controlling project work within technical, schedule and cost constraints. It is the result of Honeywell FM&T's continuous improvement of all management control techniques. The core of the PPCS is the concept of Earned Value Management (EVM). As such the system is designed for flexible application, based upon project requirements, in consonance with the guidelines defined in ANSI/EIA-748A, Earned Value Management Systems (EVMS).

The Honeywell FM&T's PPCS system is designed to support the DOE Acquisition Management System as shown in Figure 1-1.

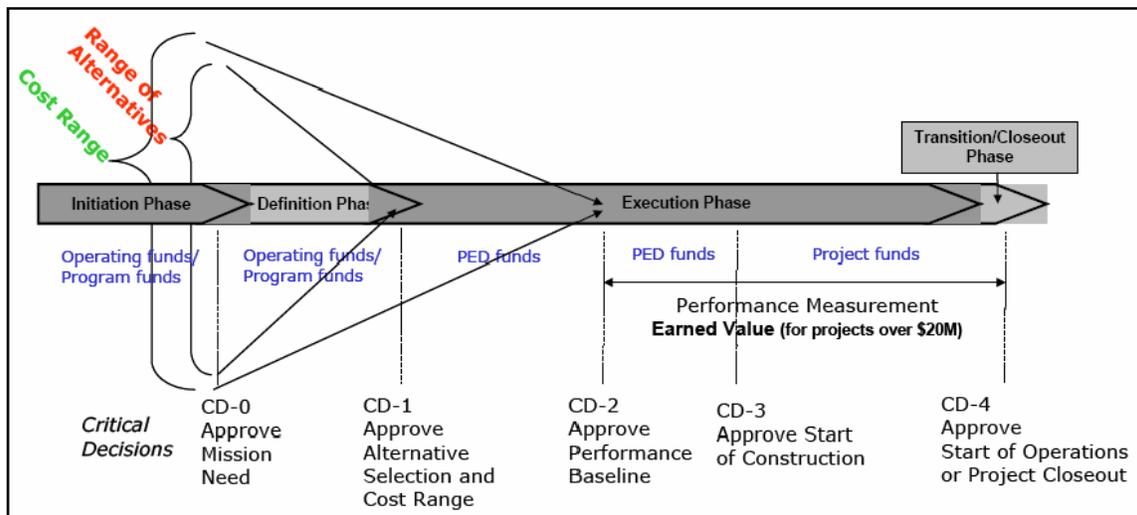


Figure 1-1

1.1 Project Planning and Control System and Earned Value Management – Overview and Benefits

The *Earned Value* metric is an "early warning" project management tool that enables managers to identify and correct problems before they become irrecoverable. Earned Value Management is an enhancement over traditional accounting oriented progress measures. Those methods only compare *planned expenditures* with how much has been spent. Earned Value goes one step further and provides an objective indication of *actual accomplishment*. This assessment of actual accomplishment and its translation into a metric called Earned Value, gives managers greater insight into both progress and potential risk areas. It also provides a foundation for more accurate estimates of projected completion costs.

Earned Value isn't simply a metric, however. For the benefits of Earned Value to be fully realized, an integrated process must be implemented that involves thorough planning combined with the establishment and disciplined maintenance of a baseline for performance measurement. The combination of advance planning, baseline maintenance and Earned Value analysis yields earlier and better visibility into project performance than is provided by non-integrated methods of planning and control.

1.2 System Description – Purpose and Structure

This document provides a description of the earned value-based PPCS in terms of its processes, its application and its use. As such, its uses include providing: a description of the application details for the project personnel who use the EVMS; supplemental training documentation for people new to the system; and an overview description for customers.

The system description is structured consistent with the Project Management Life Cycle (See Figure 1-2) that is a best practice employed by Honeywell FM&T. This model is an integrated approach to planning and managing projects and is integral to the processes employed by the EVMS. The Sections 2 through 6 describe the system in terms of each of the five stages of the Project Management Life Cycle. Figure 1-2 depicts the process flow and the responsibilities associated with the various steps in the process.

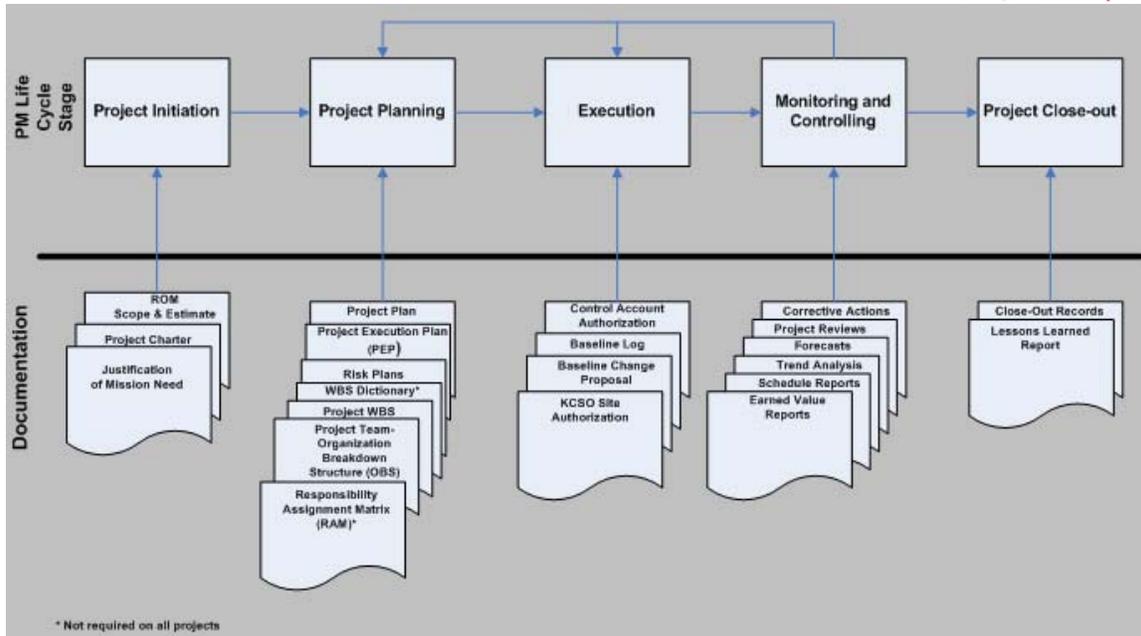


Figure 1-2

 This provides useful information added to enhance clarity and depth of understanding. It reinforces key concepts too. Or it may warn that a particular action can have less than optimal effects or describes a pitfall to watch out for.

To enhance the utility of this document, notes, cautions and other visual aids supplement the basic descriptive information.

1.3 Honeywell FM&T Organizational Approach

Honeywell FM&T has delegated the authority for the facilities operations to the Facilities Management Services (FMS) division. FMS Project Engineering is responsible for providing the overall Project

Management for the Line Item (LI) projects, the General Plant Projects (GPP), and Expense Projects.

A Project Director (PD) (Project Director as utilized in this manual is a member of the Honeywell FM&S organization. The title does not refer to any DOE/customer function) is assigned to each LI project and that individual is ultimately responsible for the successful completion of the projects. The PD is responsible for the scope, schedule, and budget as authorized by the KCSO Site Authorization and the applicable Project Execution Plan (PEP). The Project Director is responsible for appointing the Project Manager(s) who in turn is responsible for the day to day management of the Project. The Project Director issues the Control Account Authorization(s) (CAA) to the Project Manager. The CAA(s) provides the responsibility and authority for the management of the scope, schedule, and budget for each control account (Figure 1-3). In most cases the Project Manager fulfills the Control Account Manager (CAM) role as defined by the ANSI/EIA-748A guidelines. It would only be on major LI projects where there could possibly be multiple CAMs contributing to a project.

Honeywell		Control Account Authorization Document	
Project Title: Location:		Change Level:	KCSO Authorization Modification Number:
Project Authorization No.		Type of work:	
Facilities Project No.		Program/Funding:	
Federal Project No.	Control Account Title & No.	Date:	
Honeywell FM&T Project Director:	Project Manager:	Project Manager/CAM:	
Purpose of Modification			
Control Account Scope of Work Description			
Change Justification			

Figure 1-3

Remarks									
Control Account Schedule									
PREVIOUS					CURRENT (Revised)				
Milestone	Start	Complete	Milestone	Start	Complete				
Design			Design						
Construction			Construction						
Install. Engineering			Install. Engineering						
Installation			Installation						
Control Account Budget									
Description	Prior Authorization			This Change			Current Authorization		
	TEC			TEC			TEC		
	Design	Construction	Total	Design	Construction	Total	Design	Construction	Total
Program Management			\$ -			\$ -	\$ -	\$ -	\$ -
Construction Contract			\$ -			\$ -	\$ -	\$ -	\$ -
Title III Inspection			\$ -			\$ -	\$ -	\$ -	\$ -
Construction Management			\$ -			\$ -	\$ -	\$ -	\$ -
Security			\$ -			\$ -	\$ -	\$ -	\$ -
Standard Equipment			\$ -			\$ -	\$ -	\$ -	\$ -
Installation Engineering			\$ -			\$ -	\$ -	\$ -	\$ -
Installation			\$ -			\$ -	\$ -	\$ -	\$ -
Management Reserve			\$ -			\$ -	\$ -	\$ -	\$ -
TEC Authorization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OPC Authorization			\$ -			\$ -			\$ -
Total Authorization			\$ -			\$ -			\$ -
Reviewed By Project Controls			Accepted by Control Account Project Manager			Authorized by Project Director			
Signature and Date			Signature and Date			Signature and Date			

Figure 1-3 (continued)

There may be Projects that due to their size or multiple facility locations, the PD appoints a Senior Project Manager (SPM). The specific roles and responsibilities for the Senior Project Manager will be provided in a Project Directive.

1.4 EVM Scalability

Honeywell FMS implements the Earned Value Management System as directed in **DOE Order 413.3**. The order states “Contracts with project TPCs of \$20M or more — except for time-and-materials contracts, firm fixed-price contracts, or level-of-effort support contracts — must use Earned Value Management Systems.”

Further DOE guidance is provided in the **DOE Manual 413.3-1** “Project Management for the Acquisition of Capital Assets.” The manual provides the following directive:

“For projects with a total projected cost greater than \$20M, the performance management system shall be an Earned Value Management System that is certified as compliant with ANSI/EIA-748. For projects executed under time-and-material contracts, firm fixed-price contracts, or level of effort support contracts, the Acquisition Executive may approve an alternative performance management system. The alternative performance management system must be described in the Project Execution Plan.”

Honeywell FMS recognizes the value of implementing an earned value-based project management approach for projects that do not meet the \$20M threshold. It is the practice of Honeywell FM&T to implement a “tailored” EV process as shown in Figure 1-4 on smaller Line Item Projects and General Plant Projects, as well. This allows Honeywell FM&T to derive the value of earned value management and manage at a reasonable level without the potential of overburdening the project. Even a tailored application, however, conforms to the spirit of EVMS in that it requires adequate scoping, scheduling, budgeting, earned value assessments, forecasting of results and baseline maintenance.

Earned Value Management System Scalability	
Project Size	Earned Value Management System Level
Line Item Projects Greater than \$20 Million in TPC	Honeywell FM&T Earned Value Management System compliant with ANSI/EIA-748.
Line Item Projects equal to or greater than \$5 Million and less than or equal to \$20 Million in TPC	Earned Value Management System compliant with ANSI/EIA-748 or a tailored version based upon the Honeywell FM&T EVMS
Projects less than \$5 Million and greater than or equal to Kansas City Site Authorization Level in TPC	Tailored EVMS based upon the Honeywell FM&T Earned Value Management System

Figure 1-4

The PPCS is applied to a broad range of projects at the Kansas City Plant. An enterprise work breakdown structure has been established for Facilities projects, organized consistent with the project sizes listed above. Not only does this serve as the basis for scaling the rigor of the PPCS applied to a given project, it provides a structure for summarizing project performance information for internal reporting for all authorized projects.

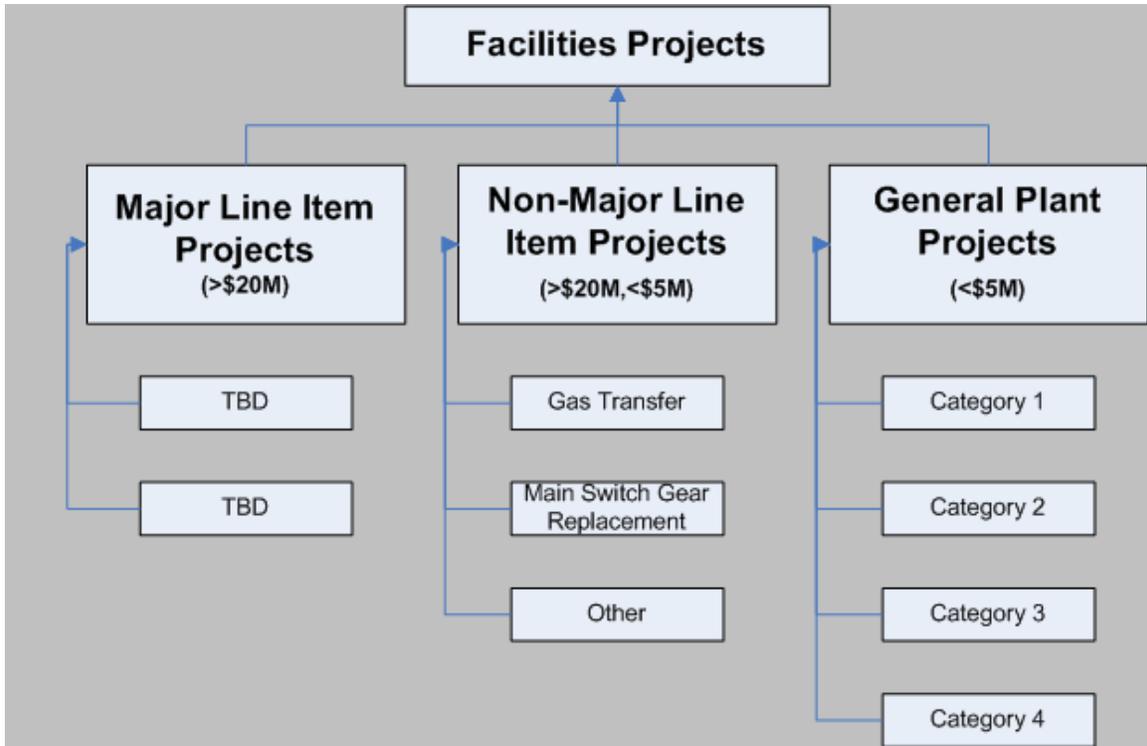


Figure 1-5

1.5 System Surveillance

The Honeywell FM&T Quality organization is responsible for conducting on-going system surveillance. This process ensures that the policies and procedures as identified in this System Description are applied and maintained. The surveillance process may also be utilized to identify enhancements to the approved system.

1.6 System Description Revisions

The Project Controls organization is responsible for maintaining the System Description. The Project Controls organization will notify the NNSA Kansas City Site Office (KCSO) of changes to be incorporated into the System Description and applied to Honeywell FM&T Projects. Project Controls will maintain a complete change log for the System Description. KCSO will review the change and will either approve it for use or will defer to the Office of Engineering and Construction (OECM) for guidance. Whichever approach is taken, Honeywell will not implement any substantive change to the PPCS without prior approval from KCSO.

1.7 Honeywell FM&T PPCS System Flow

The overall Honeywell PPCS flow is shown in Figure 1-6. It commences in Project Initiation with the Budget Call to identify KCP needs, incorporation into the 10-Year Plan, development of estimates and preparation of the package to be submitted to NNSA for their consideration. Upon receipt of a KCSO authorization it continues through the project planning phase where the overall project structure is established, work scope and associated budget is assigned to control accounts, and thereafter broken down into work and planning packages, work scheduled and budgeted, earned value methods defined, and charge numbers assigned. Then it shows the performance of work, collection of cost, measuring the work completed, forecasting the completion dates for remaining work, and estimating the cost to complete. Performance is evaluated, corrective action plans are developed, and management data are provided to the customer. When work not within the control account scope is discovered, requests for change are proposed and, if approved, the work plans are modified. The project is closed out when all the project work is complete and the final liabilities have been paid.

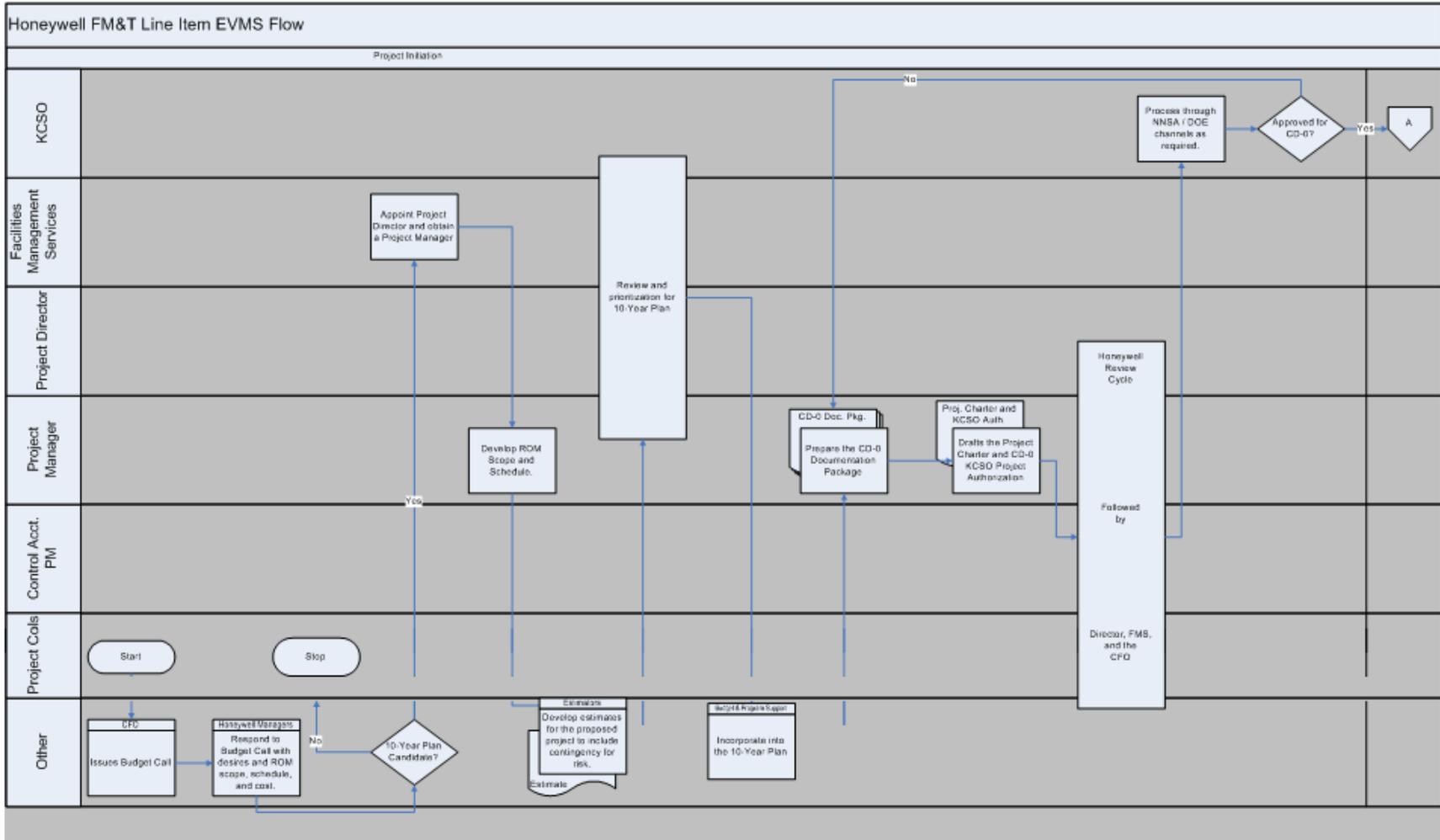


Figure 1-6

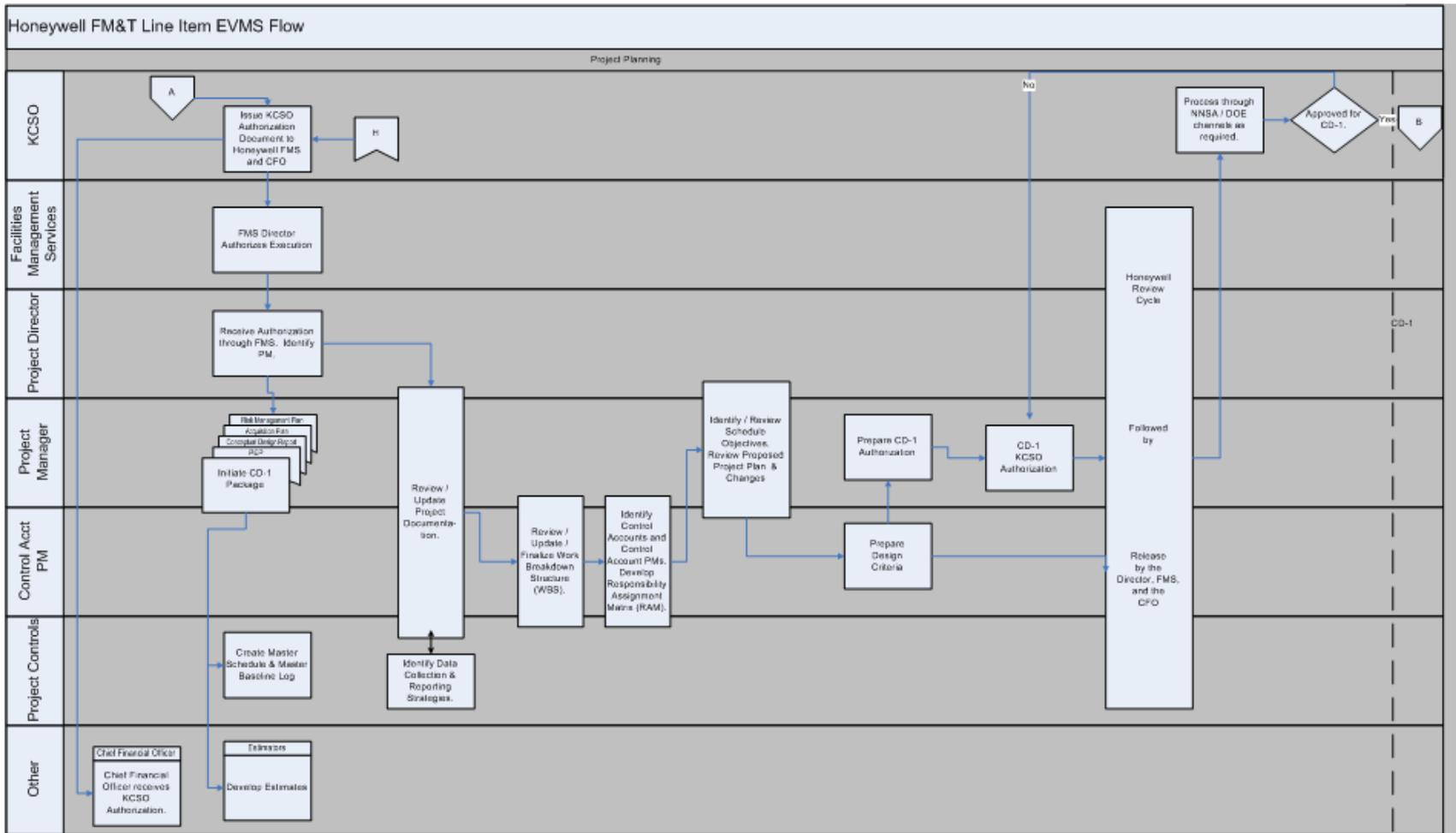


Figure 1-6

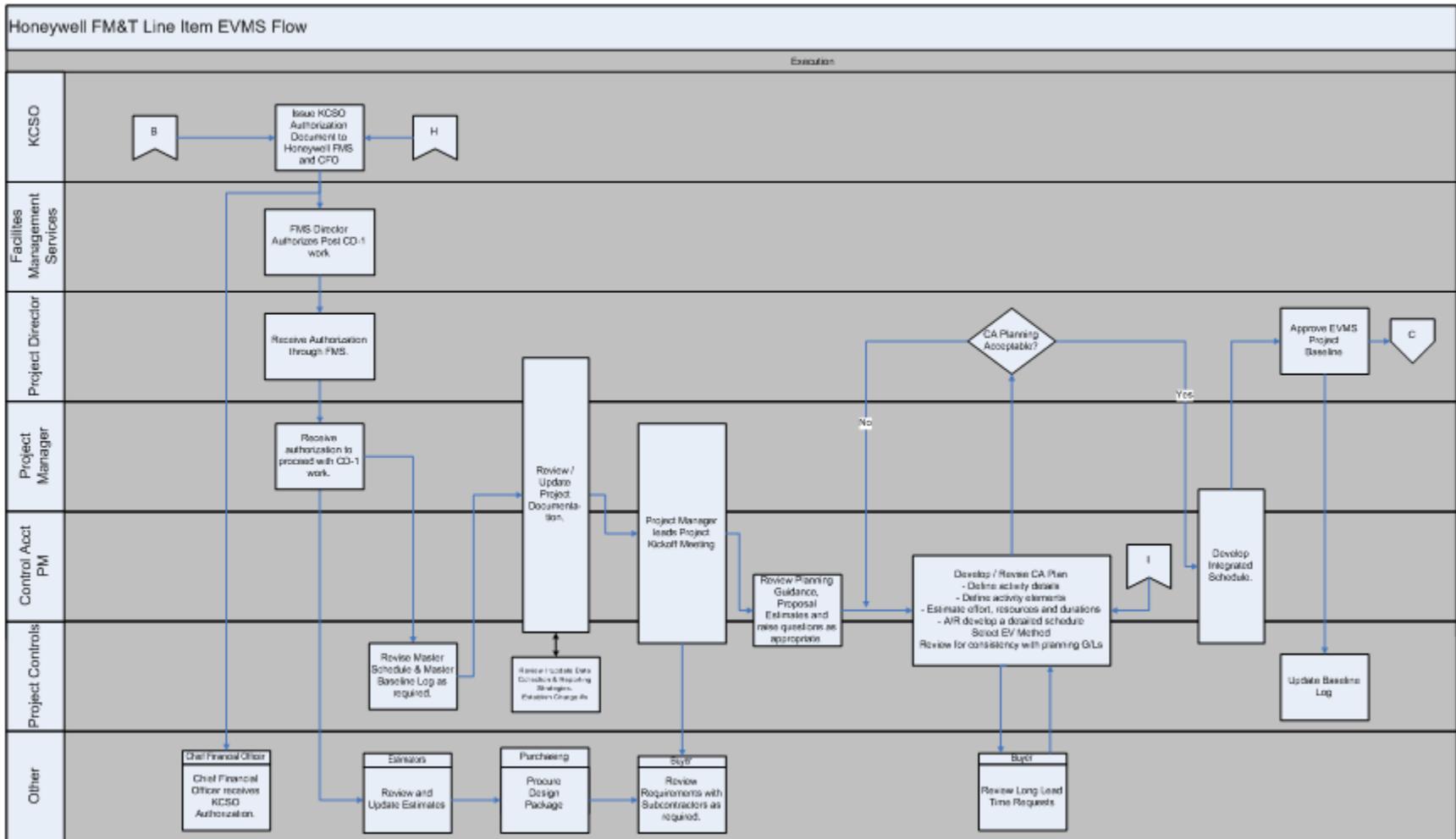


Figure1-6

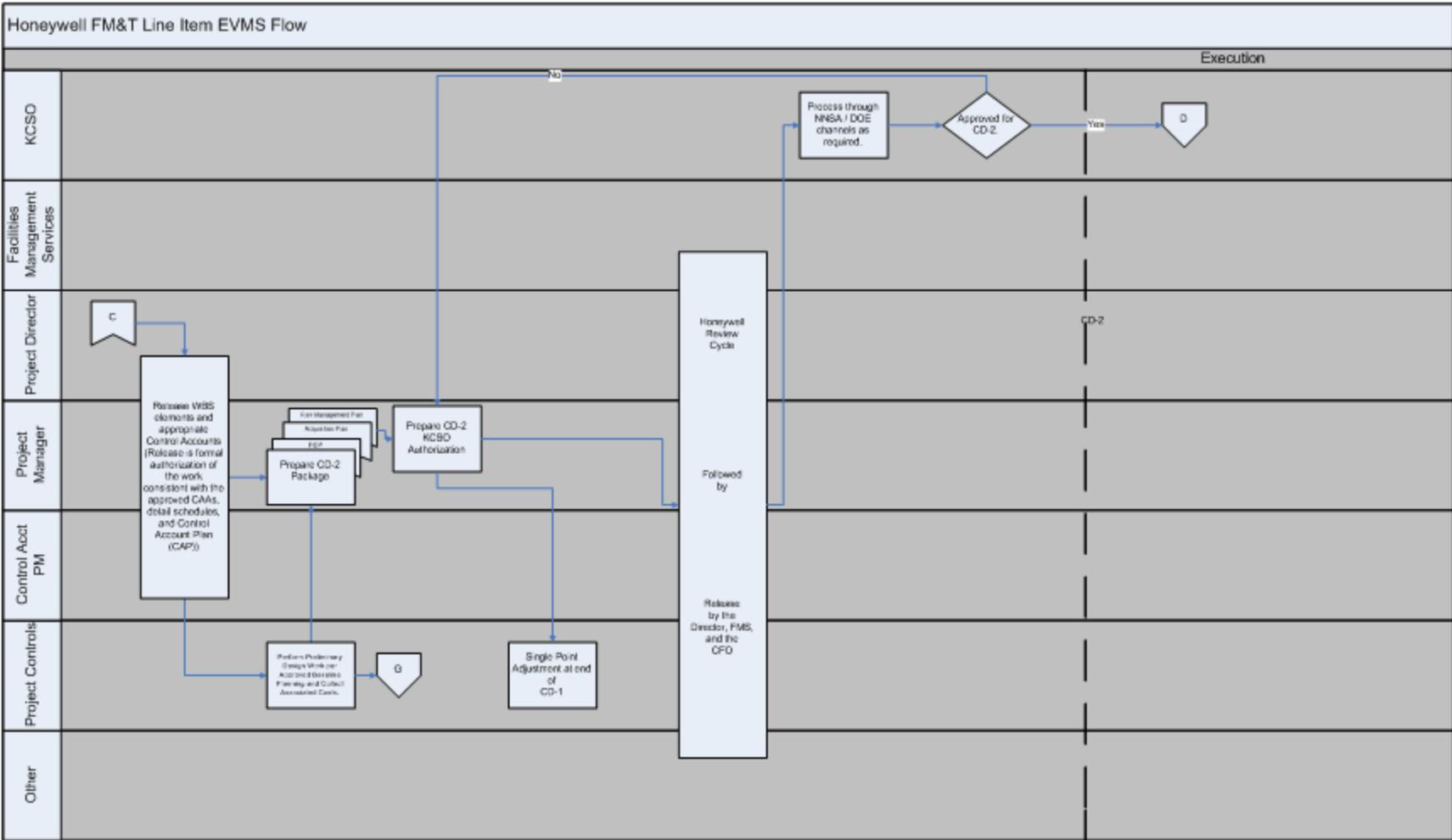


Figure 1-6

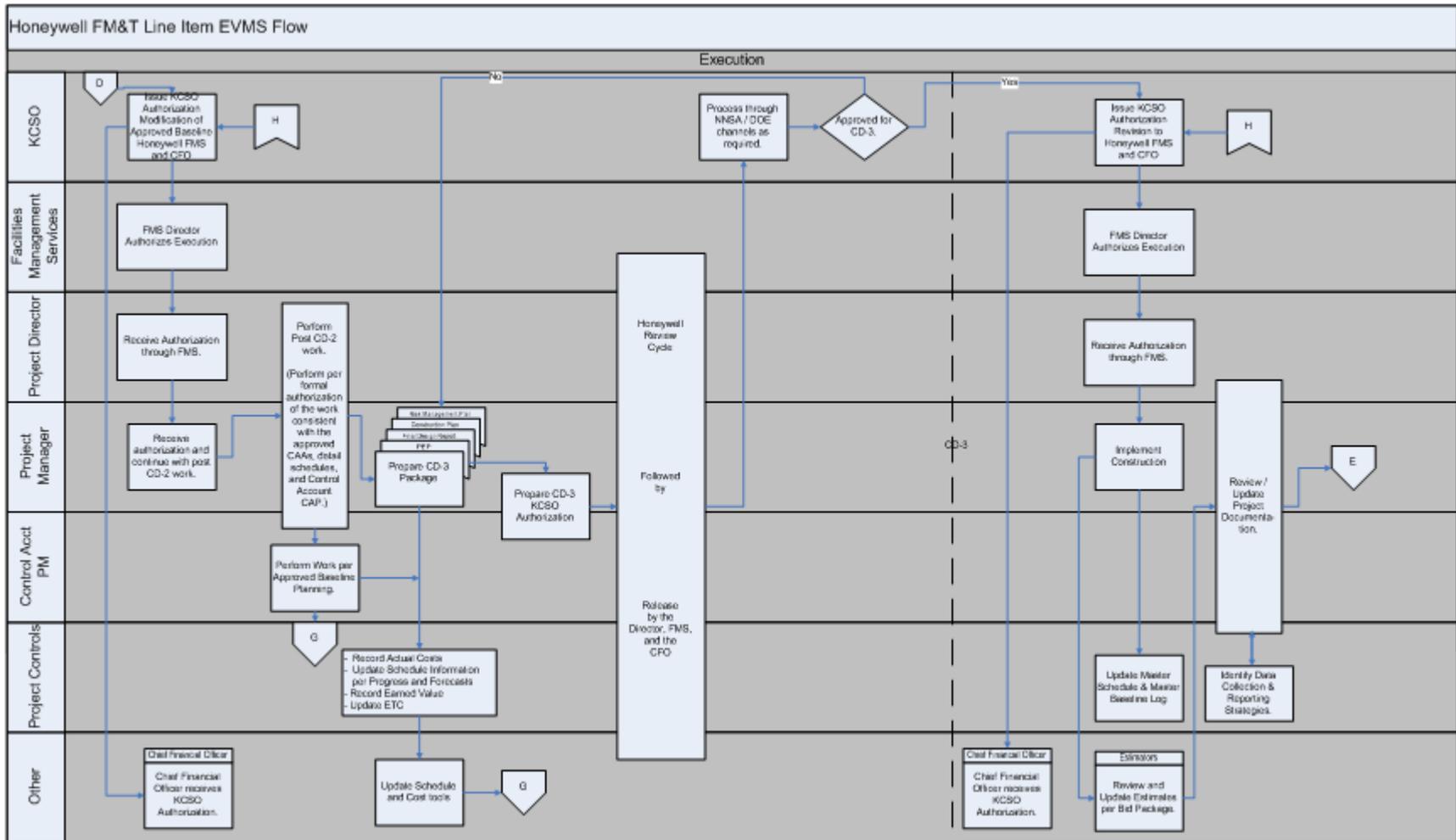


Figure 1-6

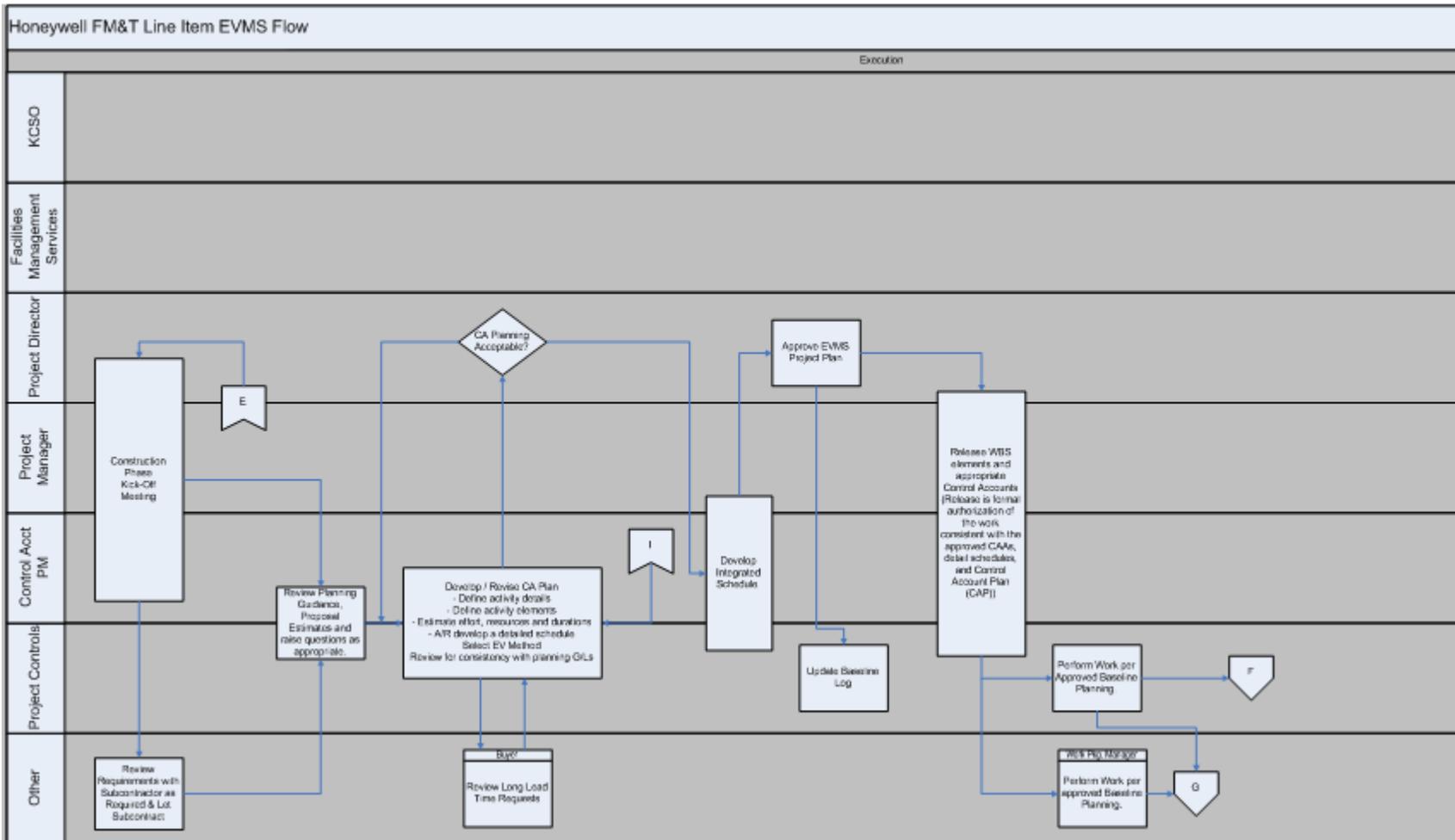


Figure 1-6

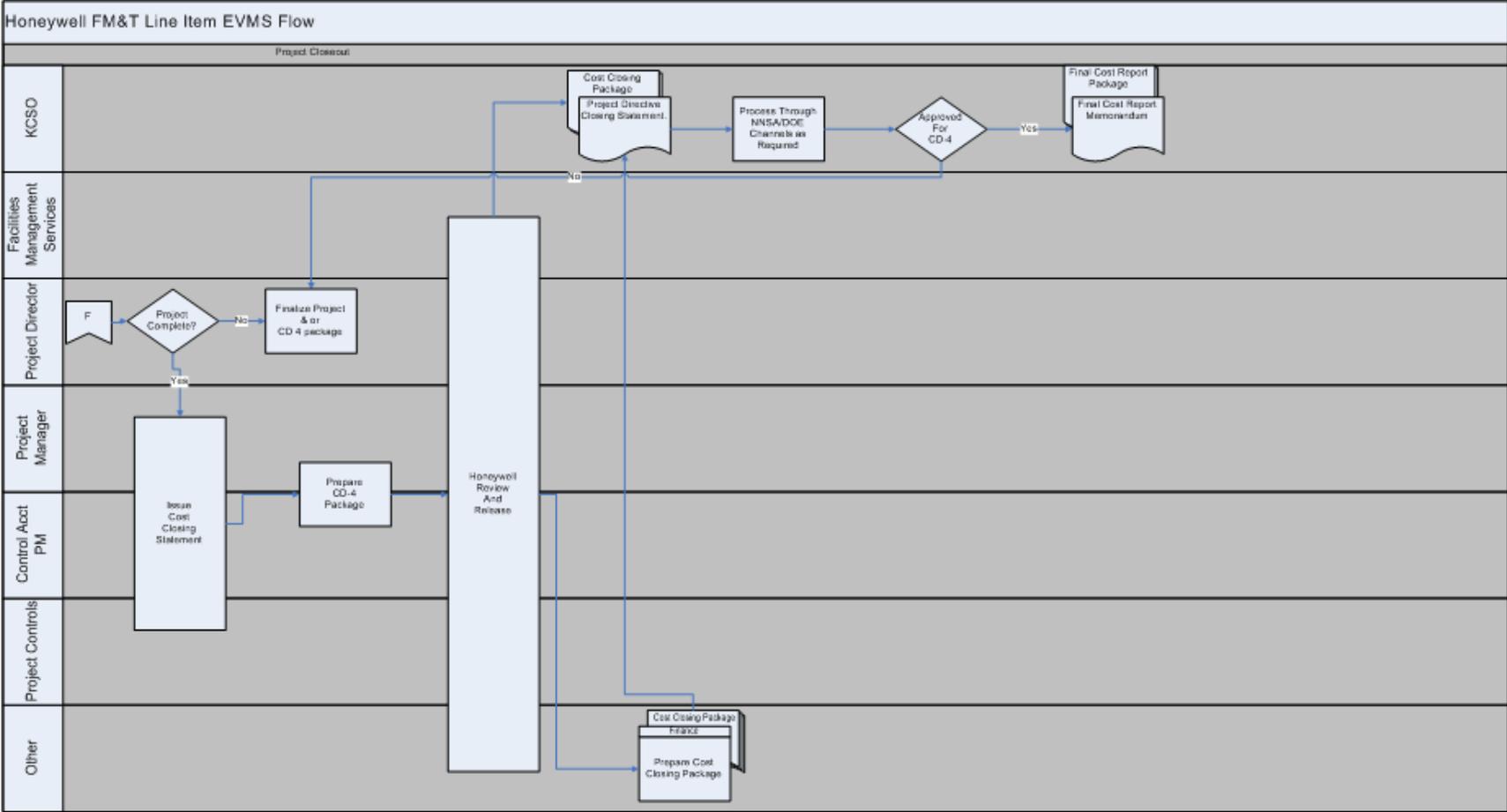


Figure 1-6

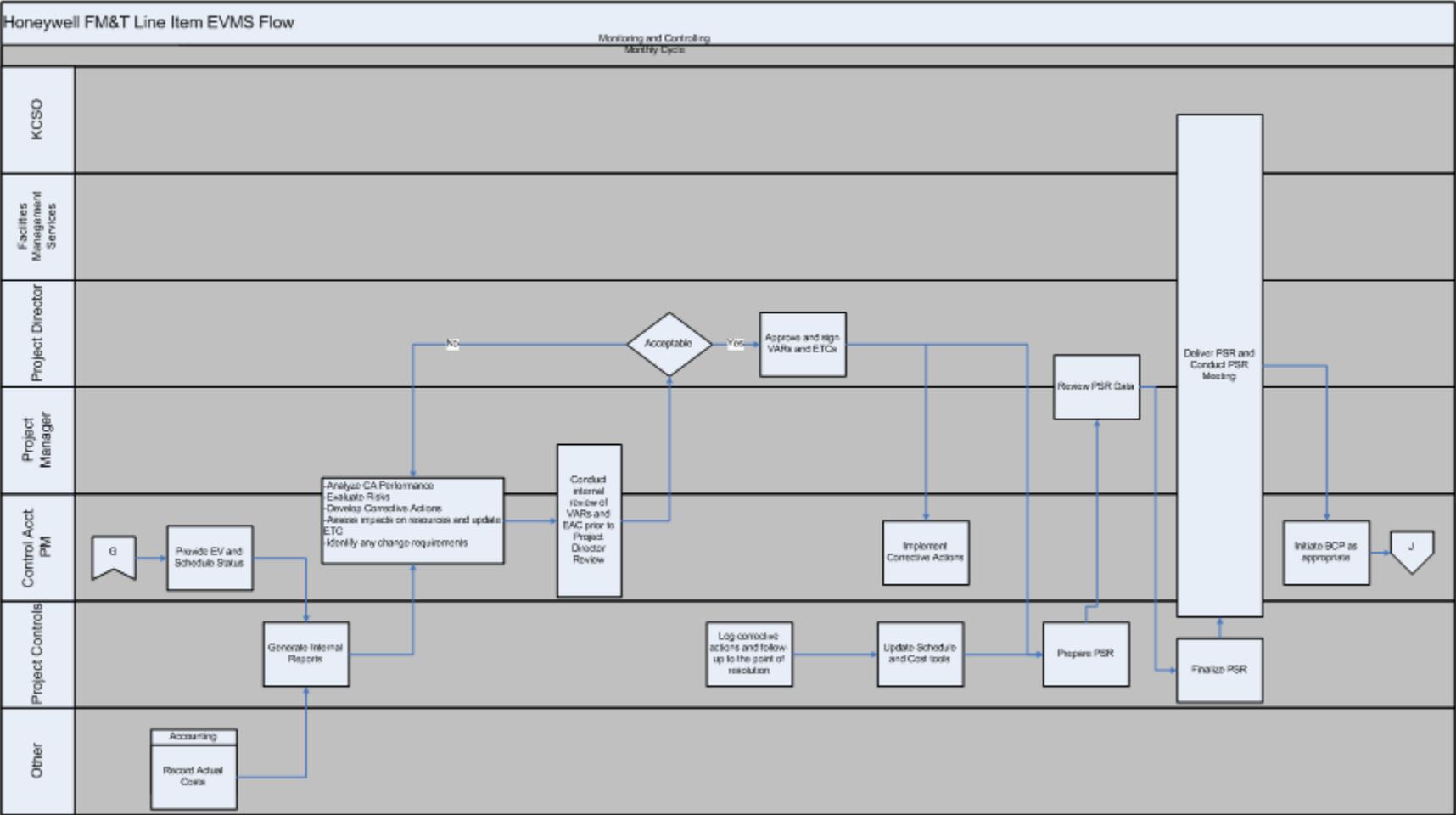


Figure 1-6

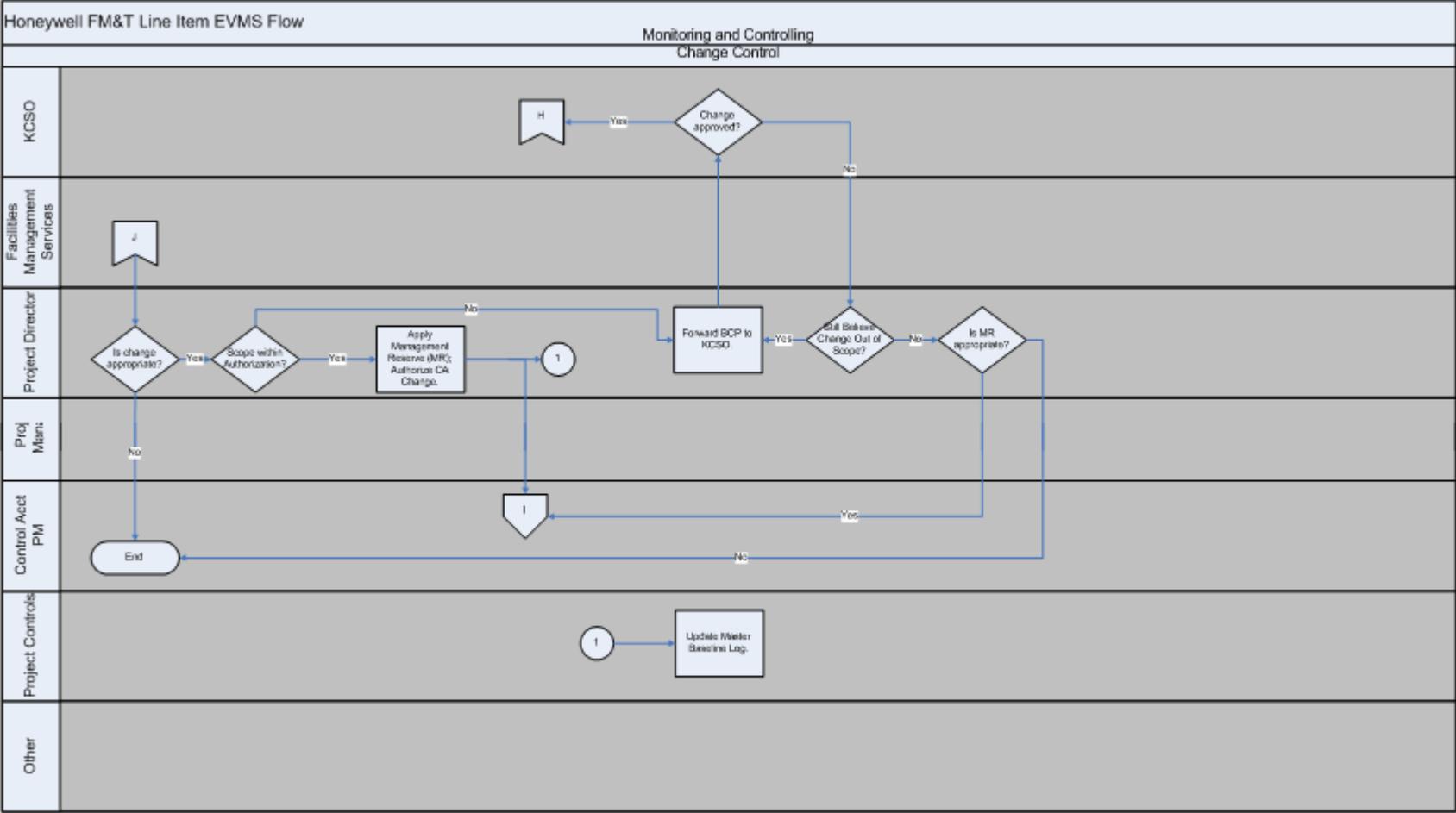


Figure 1-6

2.0 Project Initiation

2.1 Process Overview

The activities associated with Project Initiation represent part of the on-going process of managing the Ten Year Comprehensive Site Plan (TYCSP) for the Kansas City Plant coupled with the annual “budget call” that results in a refinement of the near-term portion of that TYCSP. Once a project has been selected for execution by the Kansas City Site Office (KCSO), project definition is further refined leading to the establishment of the budget level scope, cost, and schedule for the project. During this, the initial phase of the Project Management Life Cycle following the Project Director (PD) confirms the identity of the Project Manager (PM) and other project team members. The PM then proceeds with work definition and assignment efforts that are part of the Project Initiation.

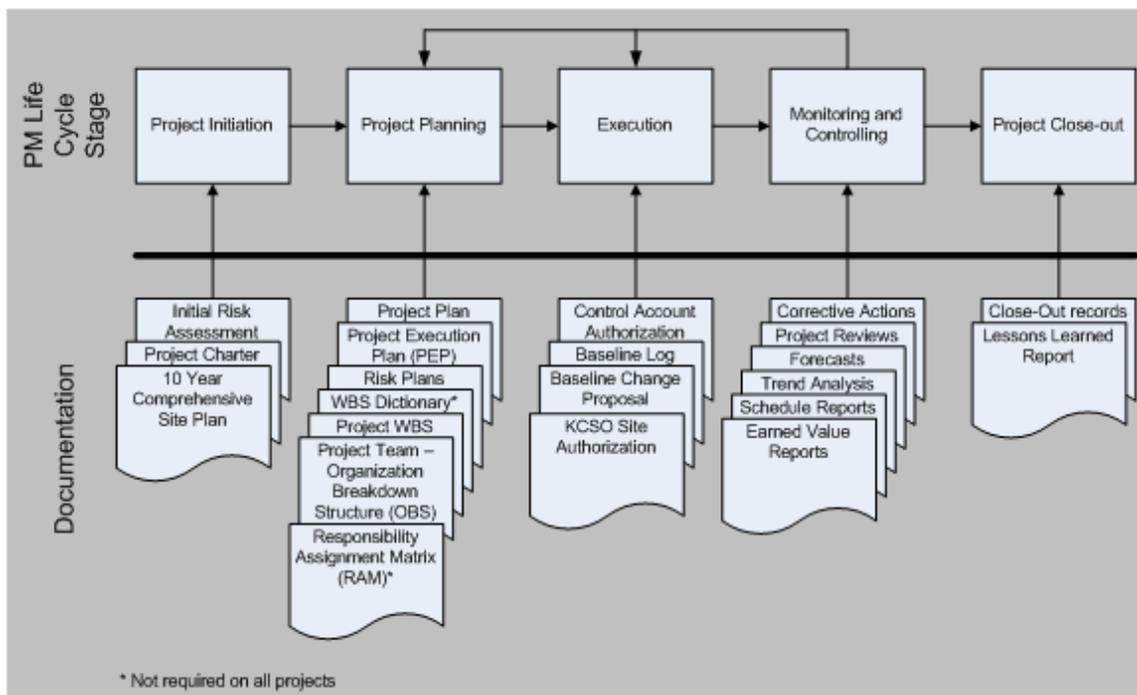


Figure 2-1

As a general rule, Project Initiation work is performed before CD-0. The Project Planning work is done primarily between CD-0 and CD-1, and the Execution occurs following CD-1 and CD-3. The Project Closeout stage follows CD-4. Changes in the project scope schedule, or budget causes revisiting these stages on an as needed basis.

3.0 Project Planning

3.1 Process Overview

The project planning process is an iterative process throughout the life cycle of a project. The Honeywell FM&T project planning process begins during the project initiation phase and continues to be refined during the CD-0 and CD-1 project phases. The initial activities that commence with the authorization of CD-1 include preliminary data with respect to the Project Execution Plan (statement of work), the preliminary baseline range consisting of the cost, schedule, and scope for the design phase, and a range for the cost, schedule, and scope for the remainder of the project. As the project accomplishes the requirements of the post CD-1 phase, Honeywell FM&T prepares documentation for CD-2 authorization. The CD-2 phase establishes the Performance Baseline as well as the Performance Measurement Baseline against which earned value performance is measured.

As shown in Figure 2-1, the Kansas City Site Office authorizes the commencement of the project. For Line Item Projects there is a separate and distinct authorization for each Critical Decision phase (0-4).

Upon receiving the KCSO Site Authorization, the Honeywell FM&T efforts are oriented to organizing the project as rapidly as possible and to begin implementing the Project Execution Plan. Thus, the project description developed during the Critical Decision Approval process is reviewed to determine if there have been any changes that influence the work scope, technical requirements, schedule objectives, funding and/or assumptions.

Once the elements of the project description are confirmed/captured, the work breakdown structure (WBS) is completed and extended to the level of detail that provides for optimal integration with the organizational breakdown structure (OBS), and control accounts are established for management control purposes. Some projects develop a WBS dictionary to provide a succinct, clear definition of the work scope associated with particular WBS elements. Regardless of whether a WBS dictionary is developed, the focus is to assure that the authorized work scope is clearly understood, before any actions are taken to assign it to the appropriate organizational elements.

Once the WBS is completed it is integrated with the OBS and responsible managers for each element of work are identified. On many projects a Responsibility Assignment Matrix (RAM) (see figure 3-1) is used to identify the control accounts and their respective managers. The assignments of Project Managers (PMs) are confirmed with the appropriate Project Director (PD). The PMs along with the PD form the overall Honeywell FM&T Integrated Project Team.

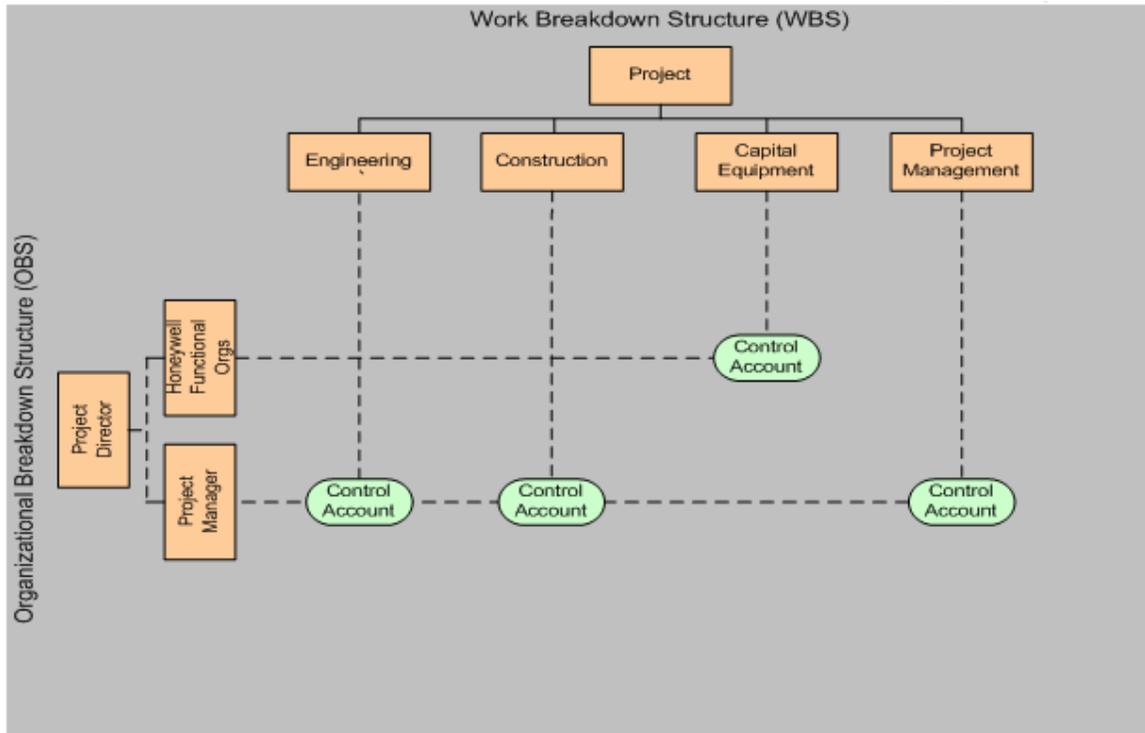


Figure 3-1

In order to complete the WBS and identify responsibilities, the PM identifies/confirms related project issues such as data collection and reporting strategies. These aren't used to force a structure, but they are considered in its development.

3.2 Work Definition

No meaningful plan can be developed without a clear, unambiguous definition of what the scope of the project includes, and excludes. Thus, one of the first things the PM does is to review all of the documentation associated with the Project. All of this will have been developed prior to CD-0. This includes the basic project “charter” information (e.g. problems/opportunities from Honeywell FM&T’s perspective, customer needs, scope, assumptions, and risks) and related detail created for the authorization package. Once this backdrop of information has been considered the process of developing a structure for the work begins.

3.2.1 Work Breakdown Structure: A single unique work breakdown structure (WBS) is developed for each project and is used to organize, define, and display the products to be produced and the tasks to produce them. A WBS example is shown as part of the horizontal structure in Figure 3-1. The best practice WBS is a product-oriented



An effective project WBS meets these standards:

- ◆ It is product- or deliverable-oriented
- ◆ It reflects ALL work scope associated with the project or contract (even far-term effort that is not planned in detail)
- ◆ Every element is clearly identified as to content and is distinguishable from all other elements
- ◆ Every element correlates to the Project Execution Plan It is detailed enough to support effective management
- ◆ It provides necessary framework to identify the effort to be accomplished by the performing organizations.

family of hardware, software, services and other project elements that collectively represent the total scope of the project. Typically a work breakdown structure is developed during the pre-authorization phase. The PM works to both ensure that all revisions made during the authorization process are incorporated and to further decompose (i.e. extend) it to the

level of detail that best supports effective management control.

The number of levels on the WBS is determined by the number of levels of decomposition required to establish manageable Control Accounts. On larger projects this may require 3, 4 or 5 levels, whereas on smaller projects perhaps only one or two levels.

The WBS identifies all project line items, goods, and services, major subcontracts, and all WBS elements specified for customer reporting. In addition, WBS elements identified as risk areas by the PM are separated out for visibility and closer management. Breaking the WBS down into lower-level tasks and giving them unique task designations may accomplish this. Finally, the WBS contains all elements to be subcontracted (with an identification of subcontractors), and all the control accounts (see Section 3.3.1).

3.2.2 WBS Dictionary: In conjunction with the development of the work breakdown structure, the PM may elect to prepare a WBS dictionary (see Figure 3-2). If it is a customer requirement, a dictionary is always developed. The dictionary defines the work encompassed in each WBS customer-reporting element and is a tool to help ensure that all authorized work is included in the WBS and subsequent work assignments

The work descriptions contained in a WBS dictionary are specific and relate to the work requirements to accomplish the statement of work. When completed, the sum of all work statements from all the WBS reporting elements reflects the full project statement of work.

3.2.3 Organization: Honeywell FM&T is organized by functional disciplines (e.g. Facilities Management Services, Quality Assurance, Procurement and Materials Management, Project Management, etc.) The appropriate staffing is assigned to a project and the various functional areas are matrixed to the Project Manager for the duration of project execution. This forms the Organizational Breakdown Structure (OBS), or a structure of contributors. This is shown in the vertical structure in Figure 3-1. The Honeywell FM&T OBS identifies the organizational entity that is responsible for major subcontracts.

3.3 Responsibility Assignment

3.3.1 Control Accounts: Within the PPCS, the control account (CA) is a management control point defined by the integration of an element of the statement of work, as identified by the WBS, with a single organizational element responsible for the execution of that work. The CA serves as the focal point for project planning and control. Control accounts are established based on the following criteria:

- ◆ The work is distinguishable from all other efforts and is a natural extension of the WBS to the point where a single organizational element is assigned the responsibility for that work. There may be more than one performing organization, but the organization assigned responsibility performs the majority of the work within the control account.
- ◆ A control account is a subset of one, and only one, WBS element.
- ◆ Each control account is assigned one or more unique project activity (charge) number(s).
- ◆ When control accounts are assigned in this manner, there may be multiple control accounts within a WBS element, depending on the number of organizations authorized to do work within the scope of that WBS element.
- ◆ On major LI projects there may be several CAs, while on smaller LI and General Plant Projects (GPP) there may be as few as a single CA representing the project.

For most facilities projects, control accounts are identified for the entire project statement of work at the outset of the project; however, it may be that some future portions of the scope of work cannot be sufficiently well defined to establish control accounts. Such undefined portions are usually planned as summary level planning elements (i.e., at higher levels in the WBS than where the control account is defined). This work is planned to the extent possible and its budget is time-phased as is the case with control accounts, but there is less detail. As soon as sufficient information becomes available, the scope and budget is decomposed into one or more control accounts, and responsibility

is assigned. Summary Level Planning elements are not used simply to defer appropriate detailed planning, but rather are used to accommodate project uncertainties that obviate the need for detailed planning at the time

Sometimes project scope and budget cannot be immediately assigned to control accounts or summary level planning elements. In such a case it may be treated as “undistributed” rather than as a summary level planning element or control account. In such a case, its budget is not time-phased and is held as Undistributed Budget. This is never done simply to avoid planning the work. This is only done when the time available is too short to complete the planning process before the end of the reporting period; or where information is missing and therefore is restricting the ability to define the work into control accounts (or summary level planning elements), but it is expected to be available within a short period of time. The short time cycle effect is typically associated with the development of planning after the customer has authorized new work. Missing information might relate to the customer knowing when funding will be available for a specific task or it may be associated with the negotiation of a subcontract; if negotiations are underway with a subcontractor whose work hasn’t already been planned and which isn’t scheduled to start in the near-term, the PM may elect to wait to incorporate planning for the effort into the time-phased portion of the baseline until after negotiations are completed. In such a case the effort will be treated as undistributed. Whether the work is planned in a summary level planning elements or is categorized as undistributed, it should be planned within the appropriate control account(s) as soon as adequate information is available to do so.

3.3.2 Project Managers: Since the control account is the key management control point in the PPCS, particular care is taken in assigning responsibility to specific individuals as (Control Account) Project Managers (PMs). The PM has the responsibility and authority for planning, performing, and controlling the work defined within the control account. In choosing the PM, consideration is given to whether the individual is capable of close management of all tasks included within the control account, i.e., the individual must be close enough to the day-to-day performance of the work to effectively plan and control the effort.

3.4 Planning Information Review: The Project definition phase concludes with a review and assessment of existing planning information that may influence the activities of the next phase, Risk Assessment. Specific planning guidance isn’t defined at this point, but technical, schedule and budget information is reviewed to ensure that all of the needed inputs for the Execution phase are available.

3.5 Assess Risks

Once the Project definition activities have been completed and before beginning to develop the execution project plan, risks are assessed and alternatives developed (Figure 3-3).

 *Risks and alternatives can't be properly assessed until the scope, schedule, budget estimates and responsibilities have been clearly defined. The plan can't yet be developed because risks and alternative handling decisions will influence elements of the plan.*

The risk and alternative assessment involves the Project Director (PD) and the Project Managers (PMs). This may be done with everyone working together in a single room or, if

the Honeywell FM&T Integrated Project Team is too large for this to be practical, sub teams associated with various elements of the WBS work separately. The first step is to review the assessment done as part of the pre-authorization activity (See Figure 3-3).

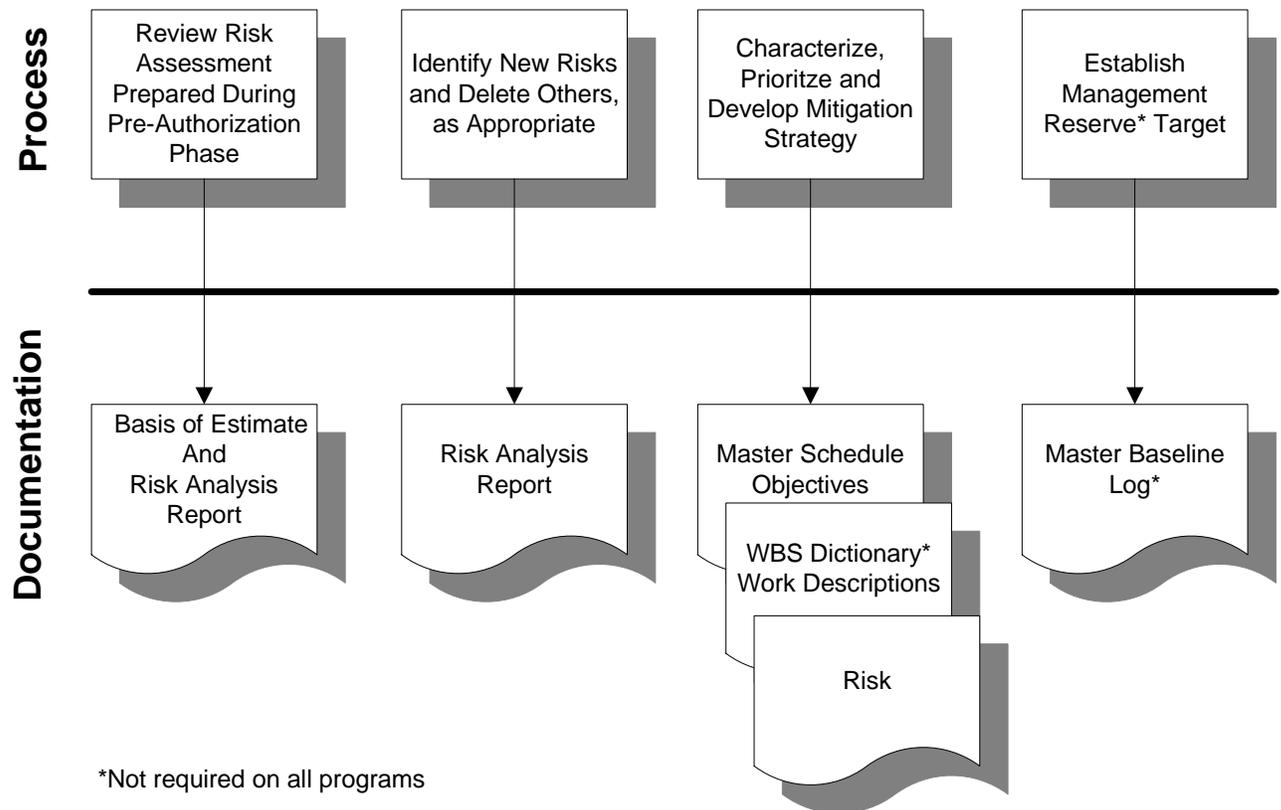


Figure 3-3

The project initiation risk assessment as well as the basis of estimate is reviewed by the Honeywell FM&T Integrated Project Team to determine if there are any additions, deletions or clarifications. The PMs take a major role in this aspect of the process.

Once the risks and alternatives have been identified they are characterized in terms of impact (i.e. effect of the risk item on project technical, schedule and/or cost) and probability (i.e. likelihood of occurrence).

Once the risks and alternatives have been characterized, they are prioritized. This is accomplished by “multiplying” the impact and probability factors for each risk event. Not all risks or alternatives are of equal significance to the project. The prioritization step in the process allows the Honeywell FM&T Integrated Project Team as a whole to come to an agreement about where management attention needs to be focused and what level of action is appropriate for each risk event.

- 
- *In analyzing the impact, each risk is evaluated as if it were going to occur.*
 - *Additionally, the analysis of impact is done without any consideration of priority.*
 - *The impact is assessed on a qualitative basis (e.g. low, medium, high)*
 - *Once impacts have been estimated and weighted, the probability of occurrence is estimated.*
 - *This too is generally done on a qualitative basis*

3.6 Management Reserve

On most projects, a portion of the Total Allocated Budget (TAB) is set aside as “Management Reserve (MR).” It is a budget reserve that is established to provide budget for work that may be identified over the life of the project as being in scope to the project (controllable by Honeywell), but out of scope to the approved baseline plan. It may also be used to provide budget for anticipated rate changes in future periods, and for other project issues. Management Reserve is used for current and future needs and is not used to offset accumulated overruns or under runs at the CA or other levels. Management Reserve is established as a function of risk on the project, with riskier projects having a higher (percentage) MR than less risky ones. The Risk Analysis Report distinguishes between MR and Contingency, which is controlled by the KCSO. Contingency is used to provide budget for scope/requirements changes and funds to cover estimating uncertainty.

The Project Director establishes the MR with inputs from the PM. The amount that is set aside is a reflection of the degree of uncertainty that the Project Director believes is associated with the project. The method used to determine the appropriate amount of (MR) may be based exclusively on the Project Director’s experience with similar projects or it may be a detailed quantification of the risk and alternative circumstances of the project.

The Project Directors may apply their experiences along with the understanding of the existing risks and alternatives to establish the MR as a percentage of the total value of the project. The estimate, however, may also be built on a bottom up basis, where individual risks are considered and an estimate, based on the probability with mitigation and the impact is developed. These individual estimates are then added together. Finally, the Project Director, with inputs from the other project team members, as appropriate, establishes the target for management reserve.

The total value of MR authorized on the KCSO Authorization document is arrived at through an analysis of the Risk Analysis Report (Figure 3-4). The Site Office and the Honeywell Project Director analyze the Risk Analysis Report and identify responsibility (Site Office vs. Honeywell FM&T) to each “Risk Item.” The “split” of responsibility then provides an overall percentage of responsibility to each group. The budget being held in reserve is not to be viewed by KCSO as a source of funding for added work scope to the project. Rather, MR is intended to give the Project Director the ability to authorize necessary changes that may arise, without having to seek KCSO approval, that represent in-scope effort to the SOW (PEP).

Risk Analysis Report Project XYZ 15-Dec-09		Risk		Risk Handling Strategies				Residual Risks						Contingency				
Risk Number	Risk Name	Likelihood of Occurrence 0 to 5	Consequence of Occurrence 1 to 5	Number	Rating	Strategy	Mitigation Activity or Comment	Mitigation Cost Impact \$	Mitigation Schedule Impact Weeks	Residual Likelihood of Occurrence 1 to 5	Residual Probability of Occurrence	Residual Consequence of Occurrence 1 to 5	Residual Cost Impact	Residual Schedule Impact Weeks	Residual Risk Value	Residual Risk Rating	Cost Impact	Schedule Impact Weeks
1	Scope of Work Not Adequate	2	2	4	low	Accept				2	7%	2	\$ 17,100	2	4	low	\$ 1,197	0.14
2	Working Schedule Not Adequate	2	2	4	low	Accept				2	7%	2	\$ 17,100	2	4	low	\$ 1,197	0.14
3	Cost Estimate Not Adequate	2	2	4	low	Accept				2	7%	2	\$ 17,100	2	4	low	\$ 1,197	0.14
4	Project Authorization Not Current	0	0	0	low	Accept				0	0%	0	\$ -	-	0	low	\$ -	-
5	Project Status Report Not Current	0	0	0	low	Accept				0	0%	0	\$ -	-	0	low	\$ -	-
6	Space is not adequate	3	3	9	med	Mitigate	Continue discussion with GSA through NNISA			2	7%	3	\$ 42,750	3	6	med	\$ 2,993	0.21
7	Funding and scope not in alignment	0	0	0	low	Accept				0	0%	0	\$ -	-	0	low	\$ -	-
8	Time is not adequate	1	2	2	low	Accept				1	2%	2	\$ 17,100	2	2	low	\$ 342	0.04
9	Project management is not available	1	3	3	low	Accept				1	2%	3	\$ 42,750	3	3	low	\$ 855	0.06
10	Design personnel are not available	1	3	3	low	Accept				1	2%	3	\$ 42,750	3	3	low	\$ 855	0.06
11	Construction personnel are not available	0	0	0	low	Accept				0	0%	0	\$ -	-	0	low	\$ -	-
12	Construction material is not available	0	0	0	low	Accept				0	0%	0	\$ -	-	0	low	\$ -	-
13	Construction management is not available	0	0	0	low	Accept				0	0%	0	\$ -	-	0	low	\$ -	-
14	Construction Inspector is not available	0	0	0	low	Accept				0	0%	0	\$ -	-	0	low	\$ -	-
15	Processing equipment is not available	0	0	0	low	Accept				0	0%	0	\$ -	-	0	low	\$ -	-
16	Equipment installation engineering is not available	0	0	0	low	Accept				0	0%	0	\$ -	-	0	low	\$ -	-
17	Equipment installation personnel are not available	0	0	0	low	Accept				0	0%	0	\$ -	-	0	low	\$ -	-
18	Equipment installation planner is not available	0	0	0	low	Accept				0	0%	0	\$ -	-	0	low	\$ -	-
19	Guards are not available	2	2	4	low	Accept				2	7%	2	\$ 17,100	2	4	low	\$ 1,197	0.14

Figure 3-4

3.7 Contingency:

Contingency is the portion of project budget that is available for uncertainty within the project scope but outside the scope of the contract. That is, contingency is budget that is not placed on contract. Contingency is budget withheld by the government for management control purposes. It is not part of the Total Allocated Budget (TAB) in EVMS terms, and is controlled by KCSO. It represents the balance of the project risk budget after Honeywell FM&T MR has been segregated out.

4.0 Execution

4.1 Process Overview

Once the Project Definition and Risk Assessment have been completed the development of the detailed baseline plan can begin. This is the first step in the Execution phase (See Figure 4-1). The development of this baseline planning involves the entire Honeywell FM&T Integrated Project Team. The Project Manager initiates the detailed planning process by conducting either a full performance planning session or a project kickoff meeting after which the Control Account Managers (or work package managers in the case of a limited number of Control Accounts that are each the responsibility of the Project Manager) individually develop their detailed plans.

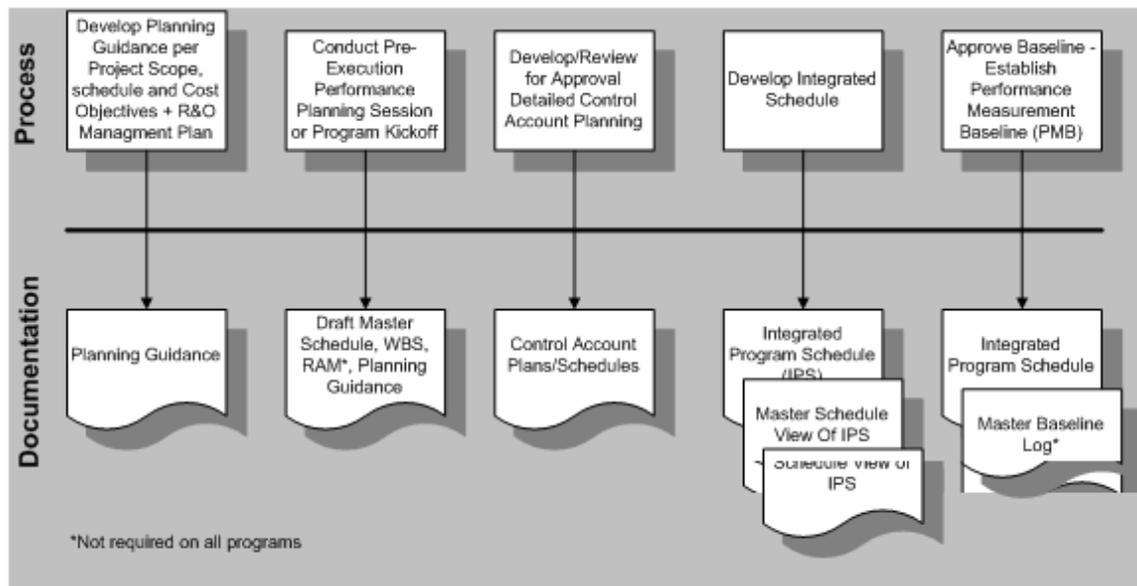


Figure 4-1

The project planning approach generally used is based on the concept of top down planning followed by the development of planning at the detail level that is subsequently rolled back up to confirm consistency with overall project objectives. Thus, the PD develops Planning Guidance prior to initiating the detailed planning process. This is done to assure that the Project Manager(s) all have the same set of requirements relative to scope, schedule and cost objectives of the project.



Planning Guidance Elements:

- Total project budget, management reserve target and undistributed budget, if any
- Project deliverables plus other pivotal schedule milestones and their dates
- Work scope description by control account or the WBS elements immediately above the CAs
- Project budget targets by control account or WBS element
- Risk and alternative strategies by WBS element for each risk/alternative event
- Subcontract planning information

Once the planning guidance has been assembled, a Honeywell FM&T Integrated Project Team meeting is conducted. At this meeting the work breakdown structure (WBS) and the responsibility assignment matrix (RAM), and the planning guidance are reviewed with the team. These are reviewed and discussed with the goal of establishing a common understanding of the objectives of the project. For most projects, this will be the Project Kickoff meeting and once it has been completed, the control account Project Manager(s) (PMs) will develop their individual control account planning. On other projects this might be the first part of a joint baseline planning session. In these cases, the entire detail planning process is done on a team basis. Regardless of which scenario it is, the objective of the next steps is to develop individual control account planning that will collectively become the approved baseline.

Based on the planning guidance the PM(s) develop a detail plan for each control account. In those instances where the planning is to be developed above the control account level (i.e. as a summary level planning elements), the Project Director is responsible for developing the planning. While the summary level planning elements contain only overall scope, key schedule parameters, and time-phased budget, the detail planning in control accounts includes:

- ◆ Define scope of work and activities for the work packages
- ◆ Estimate effort, resources and time durations
- ◆ Select earned value method and define milestones, as appropriate
- ◆ A detailed schedule comprised of scheduled work packages and/or activities
- ◆ A time-phased resource plan at least at the work package level

The PMs then work with the Project Controls group to ensure that the CA planning information is entered into the cost and schedule management software correctly. Project Controls ensures that the appropriate horizontal interfaces, or logic constraints are established to link CA Plans together, as appropriate. This integrated schedule is called the Integrated Project Schedule (IPS). Once the PM(s) have completed their individual plans/schedules they are reviewed for general adequacy and consistency with the planning guidance (e.g. schedule logic, definition of milestone completion criteria, and appropriateness of the selected earned value method). This is typically an iterative process that continues until the PD and the PM(s) reach a mutual agreement.

Part of the approval process involves reviewing all of the individual control account and summary level planning element plans into a single Integrated Project Schedule (IPS). The IPS reflects the baseline schedule for all Honeywell FM&T effort as well as all subcontractor schedules developed consistent with the scheduling requirements established in the following Honeywell FM&T scheduling specifications:

- o Section 01320 – Design and Construction Schedules
- o Section 01321 – Simple/Short Duration Projects

- o Section 01330 – Submittal Procedures
- o Section 01240 – Environmental Remediation Studies and Work
- o Section 01270 – Civil Site Work

The IPS is a critical path method schedule that identifies all of the authorized scope in the form of activities; the logical relationships among activities; and durations for each activity. The final approval of the control account plans is also a reflection of the fact that the collective whole of the planning that the IPS represents shows an achievable schedule that is consistent with the project schedule objectives and the available resources to accomplish the work. As necessary there may be further iterations of some of the control account planning in order to arrive at an IPS that is wholly consistent with project targets.

Once the IPS has been established it is reviewed for conformance to higher level schedule commitments as reflected in the KCSO Project Authorization document. Once confirmed, final approval of the control account planning is granted. The associated IPS is “saved to baseline.” This reflects that the baseline is established and the planning process is complete.

4.2 Detailed Planning of the Work

A control account is a key management control point within the PPCS and therefore the planning of the work of the control account is central to the establishment of a meaningful performance measurement baseline. Developing the control account planning requires that a level of detail be established that allows for a meaningful measure of progress as the work of the control account is performed. Control Account planning represents the detail necessary to effectively manage the CA work, and thus the CA will at a minimum be comprised of lower level subdivisions, or work packages. In some cases the CAM may need to have yet a lower level of planning in order to have appropriate schedule visibility; consequently in these cases a natural grouping of activities are established in the scheduling system and are directly linked to the work package. The essential difference between a major Line Item project and a GPP is not necessarily the level of granularity of the planning, but rather the number of CAs and the number of work packages and activities required to represent the total project effort. All work package and planning package schedules must be supportive of the overall control account schedule. The sum of all budgets for work packages and planning packages equals the control account budget.

4.2.1 Work Packages: A work package is a natural subdivision of the control account work scope. It represents a detailed, short-span task which, when viewed with all other work packages in the CA, describes how the control account work will be accomplished. It is established at a level of detail required to effectively manage the work and to maintain appropriate visibility of performance. It is the level at which all work is planned, progress is measured, earned value is calculated, and performance data are

generated for the control account. The following are the characteristics of a work package:

- ◆ It represents a working level (a normal level of control for internal management) for jobs, tasks, or processes that are natural to Honeywell FM&T operations.
- ◆ It is clearly distinguishable from all other work packages.
- ◆ It has scheduled starting and completion dates, and completion criteria that represent physical accomplishments.
- ◆ It has budgets that are expressed in labor, material, and other direct cost (ODC) dollars as appropriate and meaningful for measurement or performance.
- ◆ It has a relatively short duration, typically 2 to 6 months, (This is not meant to exclude exception possibilities outside of this range) to facilitate objective work measurement.
- ◆ It has a single earned value method.
- ◆ It may be represented by one or more detailed activities captured in the IPS.

Work packages are internal control points within control accounts. The number, content, size, and duration of work packages in each control account will depend on the size and complexity of the job, and on internal management needs. As described above, in some cases, it may be possible to plan and control a control account without breaking the work into multiple work packages. A work package may equate to either an activity or a natural grouping of activities in the IPS. And rather than assigning a charge code at either the Control Account level (too high) or the detailed activity level (too low), oftentimes establishing the charge code at the work package level provides the CAM with an appropriate level of visibility for understanding cost variances.

4.2.2 Planning Packages: It is not always possible, at the outset, to detail plan all of the work of a control account into work packages. The goal is to achieve work package planning as far into the future as feasible. Although this will vary by project, information is usually available to plan at least the next 6 to 9 months in terms of work packages.

Work that cannot immediately be put into work packages is organized into larger aggregations of related work scope, along with associated budget. These natural groupings are called “planning packages.” Each planning package is individually identified and has its own corresponding work description and time-phased budget. Planning packages are defined in sufficient detail to demonstrate consistency between the work and its associated budget.

Under the rolling wave concept, the manager of the CA periodically reviews any planning packages in the CA and converts them into work packages. Work may not be started until it is placed in a work package, an earned value method (EVM) is selected for measuring its performance, and a charge number is opened.



As planning packages are converted to work packages, work cannot be redefined (i.e. the new work packages must reflect only the work associated with the planning package from which they were parsed).

Thus, as more information becomes available, the manager of the CA converts these planning packages to the appropriate number of detailed work packages (one or more). It is mandatory that a planning package must be “converted” once the scheduled start date for the work is within 60 days. This process of iterative detailed planning is often referred to as “rolling wave” planning.

4.2.3 Categories of Detailed Planning: All project work will eventually be detailed planned as one of the following categories of work.

- ◆ **Discrete Effort:** Work that is identifiable, schedulable, and measurable in terms of specific accomplishment criteria or end products. It is desirable to identify as much CA work as possible as discrete effort having relatively short periods of performance, because this approach provides for the most accurate assessment of work performance. (See Section 4.4.8 for earned-value methods of work measurement.)
- ◆ **Level of Effort (LOE):** Level of effort is work of a general or supportive nature for which performance cannot be measured or is impracticable to measure. Resource requirements are represented by a time-phased budget scheduled in accordance with the time the support will likely be needed. The nature of LOE is such that performance measurement of progress isn't possible. The only measure is the passage of time. Because of this, *work planned as LOE is confined to a minimum.*
- ◆ **Apportioned Effort:** Work for which the planning and progress is tied to other efforts. The budget for the apportioned account is time-phased in relation with the resource plans for the base account(s). Status and the recording of earned value are driven by the status of the base account(s).

4.3 Scheduling

Honeywell FM&T projects that employ the PPCS are planned such that all authorized work on a project is scheduled in a manner that describes the sequence of work and identifies the relationships between tasks necessary to meet project requirements. Schedule integration from the project level down to the control account/work package level is established. This integration is accomplished via the development of an Integrated Project Schedule (IPS). On major LI projects the schedule may be comprised of up to three levels: Project Master Schedule, Intermediate Schedule and Detailed Schedule. The detailed schedule is the Integrated Project Schedule and provides for summarization up to the other levels. If the PM or FMS establishes the project baseline schedule using a summary of a subcontractor schedule, then the subcontractor schedule effectively represents a potential fourth level of schedule. But it is subsidiary to the IPS and therefore is not part of the formal schedule hierarchy.

4.3.1 Project Master Schedule: The master schedule is the top level view of the Integrated Project Schedule. The Project Director defines what level of detail and the specifics that will be depicted by the Project Master Schedule. It shows the major project activities (with the exception of level of effort WBS elements for which no milestones

exist); the KCSO authorization document milestones; and milestones that the PM defined as significant/pivotal in the planning guidance. All milestones that appear on the master schedule view represent significant decision points, project constraints, or important interdependencies.

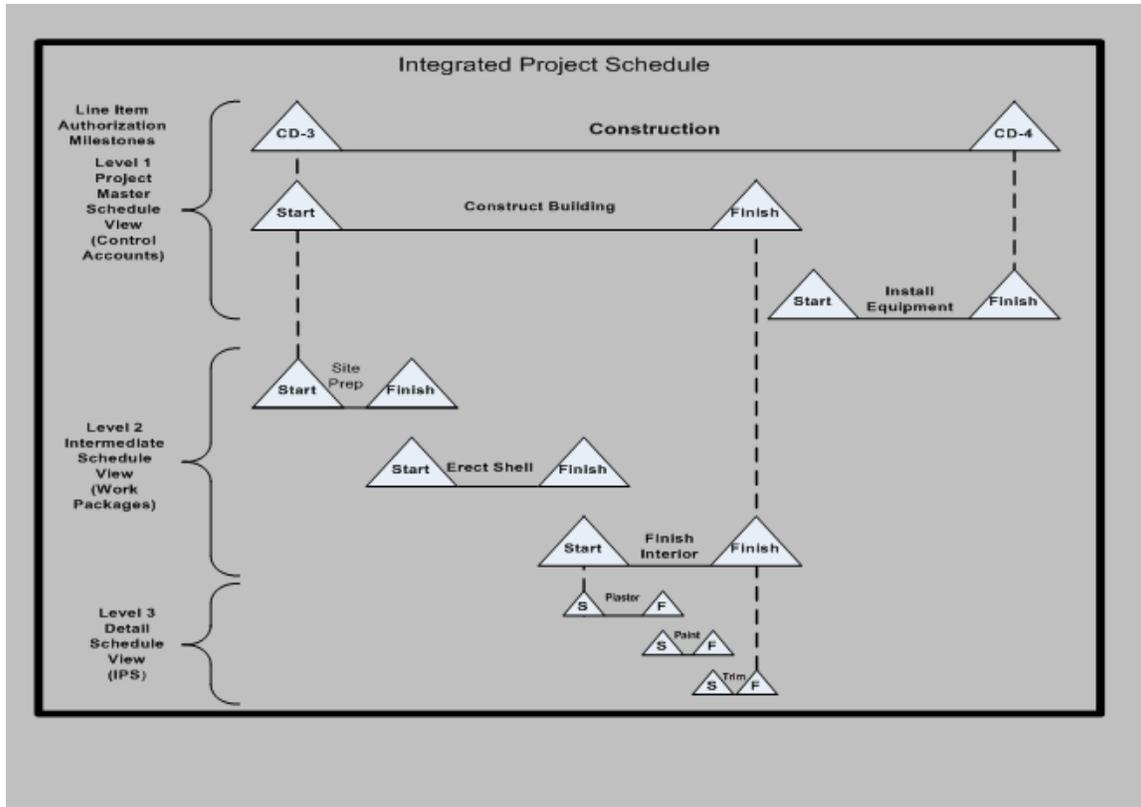


Figure 4-2

4.3.2 Project Intermediate Schedule: The intermediate schedule is a mid-level view of the Integrated Project Schedule. Not all projects are of sufficient complexity to require the use of the Intermediate Schedule view. It is, however, used when the project is of sufficient complexity to require its use as a traceability link from the master schedule to the detail schedules.

An example of how the Project Intermediate Schedule could be used is a major LI project having multiple Control Accounts. The Project Intermediate Schedule would depict the schedules for each CA (and possibly the work packages) to provide an overall perspective of plan and performance. Project Intermediate Schedules also depict project milestones, Project Management designated significant/pivotal milestones, control account interdependency milestones, and control account start and completion dates; hence these are fully integrated with all other project schedules.

4.3.3 Integrated Project Schedule: The Integrated Project Schedule (IPS) represents the lowest level of detail maintained in the formal scheduling system. It includes all activities and their logical dependencies with all other activities. The IPS then summarizes upward to the intermediate and master levels through the use of summary level activities.

 To develop a meaningful plan at the control account level, the control account Project Manager, at whatever level of detail is appropriate (i.e. multiple or single work packages):

- ◆ Uses the estimate details to define the resources required
- ◆ Estimates the size or amount of effort to accomplish the task
- ◆ Determines what the duration of the task will be based on normal availability of the resources
- ◆ Identifies interdependency milestones that reflect input and output constraints (i.e. predecessor and successor activities)
- ◆ Defines the criteria for completion of all milestones associated with the work
- ◆ For subcontracted work, uses the established subcontract elements (scope, schedule and budget) to establish meaningful and measurable activities and work packages

In those instances where the PMs independently develop their control account planning/schedules, they submit them to the PD. Part of the planning review for approval is to verify that all of the work of each control account is reflected and activity interdependencies are properly reflected. Once this and the other EVM planning quality checks are satisfactorily completed, these control account schedules are assembled to create the Integrated Project Schedule. The PD reviews the draft IPS to ensure that it reflects all work scope, identifies all interdependencies and no conflicts exist.

4.3.4 Supplemental Detailed Schedules: There may be instances where additional detail below the control account plan/schedule exists but is not maintained in the IPS. If this occurs, these are considered to be supplemental schedules. These may be used for what-if analysis, corrective action planning and/or for supporting logic detail. *Where they are used as supporting detail to the baseline planning, care is taken to ensure that they remain consistent with the baseline plan.* A good example of a supplemental schedule is a subcontractor's schedule for design or construction that is represented by a single activity (or small number of activities) in the IPS.

4.4 Budgeting

The EVMS budgeting process establishes a means for quantitatively documenting the project baseline. The budgeting element of the baseline is represented by the Project Budget Base (PBB), which is the total budget for all project authorized work, and the time-phased performance measurement baseline (PMB), which is a subset of the PBB. Figure 4-3 depicts the structure of the various components of the budget.

The budgeting process commences during the planning phase, when the work scope is identified and scheduled and a cost estimate is prepared. The post-authorization budgeting process described below incorporates any changes to the authorization.

 *The term “budget,” as used here, is not to be confused with the term “funds.” Within the EVMS, a budget represents an estimated target for the accomplishment of a given scope of work. This target remains unchanged unless the scope of work changes or an authorized change in schedule impacts the timing and therefore the estimated cost. Funds are differentiated from budgets in that they represent the actual dollars being expended in performing the work.*

4.4.1 Project Budget Base: The project budget base (PBB) represents the total budget for all authorized work. It includes all direct and indirect costs. The PBB is always equal to the currently authorized project cost plus the estimated cost of authorized but unnegotiated work (ECAUW), if any. The record of the Project Budget Base is maintained for the Project Director by Project Controls (PC); this is often accomplished using a master baseline log. All changes to the negotiated project cost and estimates for ECAUW work are tracked to reflect the current budget status of the project.

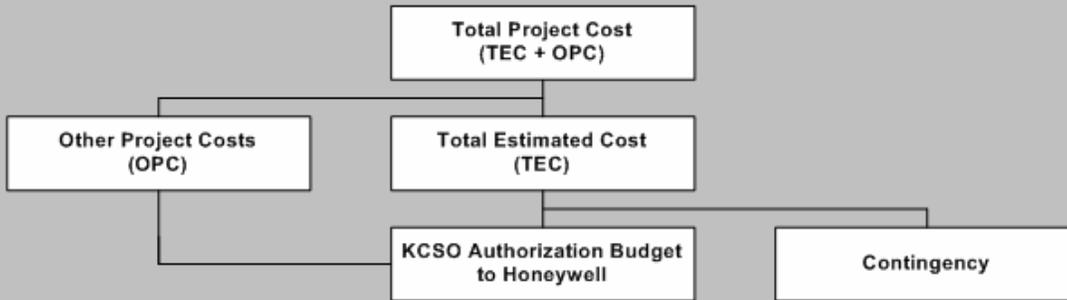


Honeywell FM&T does not receive a “contract” from their NNSA customer, *per se*. Therefore, references to a contract from the customer are not appropriate. In other EVMS environments, what is referred to here as the Project Budget Base (PBB) is called the Contract Budget Base (CBB). The PBB has the same meaning and attributes as the CBB.

4.4.2 Performance Measurement Baseline: The performance measurement baseline is the time-phased budget plan against which cost and schedule performance is measured. It is the summation of all the time-phased control account budgets and higher-level summary budgets, if any, plus any undistributed budget (UB). The work associated with the control accounts and the summary level planning elements is considered distributed and therefore the budget associated with it is called distributed budget (DB). The PMB budget is inclusive of all indirect cost elements. The PMB reconciles directly with the project budget base by adding the management reserve (MR) and various indirect cost elements. The PMB is also tracked and on some projects, a master baseline log is used to do this.

4.4.3 Management Reserve (MR): As previously described, on most projects, a portion of the Total Allocated Budget (TAB) is set aside as “Management Reserve.” It is a budget reserve that is established to provide budget for work that may be identified over the life of the project as being in scope to the project, but out of scope to the baseline planning. It may also be used for rate changes, and for other project issues. Management reserve is used for current and future needs and is not used to offset accumulated overruns or under runs. The amount and application of MR is maintained/tracked on all projects by PC. On some projects this is accomplished using a master baseline log. See section 3.3 for additional details on how MR is established and used.

NNSA Project Budget Structure
(Includes both TEC and OPC)



Honeywell Project Budget Structure
(Includes non-contingency portions of both TEC and OPC)

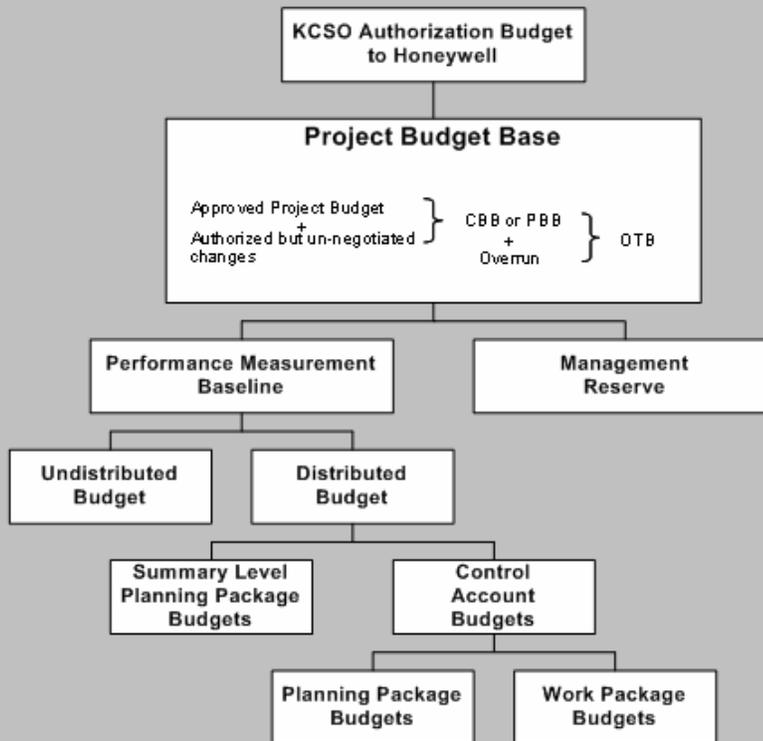


Figure 4-3

4.4.4 Undistributed Budget (UB):

Undistributed budget is budget applicable to authorized work that has not yet been allocated for planning purposes to Control Accounts or to management reserve.

 Undistributed budget is not just budget that is *left over* after the planning process is complete. Nor is it some form of a contingency or reserve. Undistributed budget is the budget associate with work that is undistributed.

Undistributed budget is not time-phased, but it is part of the PMB.

Undistributed budget often exists when a change to the project has been authorized but there has not been adequate time to prepare detail plans for the new work. In such cases, the undistributed budget associated with the project change is assigned to the appropriate WBS elements immediately and to Control Accounts as quickly as possible, usually by the end of the next accounting month.

For authorized work that has not been negotiated, the Project Manager may choose to retain work and associated budget in the undistributed category until negotiations have been concluded. In such cases, the Project Manager distributes budget only for that work which will start in the near term. The remaining budget and work are distributed after the negotiations.

Project Controls maintains a record of the undistributed budget and all transactions into and out of this category using the Master Baseline Log.

4.4.5 Budget Relationships: The structure of the components of the budget is illustrated by the formulas that appear below.

$$\text{PBB} = \text{KCSOAB} + \text{ECAUW}$$

$$\text{PMB} + \text{MR} = \text{TAB}$$

$$\text{PMB} = \text{DB} + \text{UB}$$

Where:

DB = Distributed Budget

ECAUW = Estimated Cost of Authorized, Un-negotiated Work

KCSOAB = KCSO Authorized Budget

MR = Management Reserve

PBB = Project Budget Base

PMB = Performance Measurement Baseline

TAB = Total Allocated Budget

UB = Undistributed Budget

4.4.6 Control Account Budgeting Process: Once the project budget base has been defined, and the initial management reserve established, target budgets are developed at least at the WBS element immediately above the control account. These budgets are developed by the PD based heavily on the project initiation estimates and are modified to reflect agreed upon scope changes and to provide for the establishment of a management reserve.

 *While this is being described separately from the development of the detail schedule for the control account, these efforts are clearly intertwined. To determine and establish a meaningful schedule, the required resources are identified, the amount of effort to accomplish the task is estimated and the availability of resources determines the phasing and duration of the activity. The BCWS is a direct reflection of this process.*

At the outset of the project, the PD authorizes Control Account planning based on the issuance of a Control Account Authorization (CAA). Using the target budget as a reference, the PM develops a time-phased budget for the control account based on the activities and work packages comprising the Control Account. This time-phased budget is known as the Budgeted Cost for Work Scheduled (BCWS). Once the planning and associated approval processes are completed, the

summation of the work package and planning package budgets becomes the authorized Control Account budget and it is reflected on CAA. The cumulative value of the time-phased budget through the full performance period is the Budget At Completion (BAC).

If the project is incrementally funded, directions for time phasing the budgets to meet the project milestones is also provided as part of the planning guidance so that the BCWS for any particular funding period will not exceed the funding limitations for that period (for example, government fiscal years).

 *It is important to note that planning for the entire period of project performance will be accomplished within the project schedule even in an incrementally funded situation.*

4.4.7 Earned Value Methods: Each work package has a designated earned value method for use in assessing and quantifying accomplishments while the efforts are in process. The data element that provides this quantification is referred to as Budgeted Cost for Work Performed (BCWP). It is arrived at by the application of the designated earned value method.

The various earned value methods are designed so that as work progresses, it is possible to “earn” some portion of the total budget for the work package. By carefully selecting the earned value method for each of these, the amount of budget that is earned accurately reflects the actual progress.

There is only one earned value method per work package. The earned value method selected will depend on the type of work effort. At Honeywell FM&T, the categories of efforts are discrete, apportioned or level of effort.

4.4.7.1 Discrete Effort – There are multiple methods that are applied for work that is discretely measurable. These are:

X%/Y% - The X%/Y% method is used for effort planned to start and complete within two consecutive months. "X%" credit is earned upon start and "Y%" of the value is earned upon finishing the task. Collectively, the values add up to 100%. This method includes: 0/100, 50/50, or a "user defined percent." The distribution of the X and Y amounts should be directly tied to the resources required to accomplish X and Y. Thus in a two month work package, if 75% of the work is planned for month #2, then 75% of the budget should be allocated to month #2. "Earning" budget is not based on the relative importance of the work, but rather the budget associated with the work.

Work packages coded as 50/50 should only be used where the task is two periods or less in duration; and 0/100 should only be used where the task is planned to be started and completed within a single reporting period. In all cases the percent to be earned should equate to the resources required to complete the milestone.

Milestone Method - The Milestone Method is normally used when a work package's duration is more than two months. Milestones should be established in each reporting period that can serve as benchmarks regarding whether or not work is progressing as planned. It would be best if the start milestone for a work package has no value. Earned value milestones should represent the accomplishment of defined increments of work. The sum of the all milestone values by definition must equal the budgeted value of the work package. Earned value is claimed for completed milestones. There may be one or more milestones per month. When there is a month without a milestone, the CAM may subjectively estimate a physical percent complete for the work that was planned in the month so as to be able to record an appropriate amount of earned value. However, there shouldn't be more than one month in between milestones, otherwise progress assessments have a tendency to become overly optimistic. When work has been accomplished beyond a completed milestone, a claim for earned value based upon managerial assessment of progress toward the next sequential milestone is allowed and limited to 80% of the incremental value.

Percent Complete - The percent complete method is used when the CAM determines the earned value sometimes on a more subjective basis. Where there is an underlying metric, earned value may be taken for the same percentage of the work package as supported by the metric. Approval of a payment on a firm fixed-price subcontract is an example. When there is no underlying metric and the percent complete is based upon the control account project manager's subjective assessment, the earned value percentage is limited to 80% until all work package effort has been completed. The Units Complete method is an example of a method having an underlying metric.

Units Complete. - The Units Complete method is used when there is a finite quantity of items to complete or a finite quantity of a material item to be received/consumed. Budgets are based upon the time-phased quantity times the unit budget. Earned value is claimed based upon the number of units completed/received/consumed times the unit budget. This method is frequently the underlying metric where the automated system uses a percent complete.

Schedule of Values - The Schedule of Values method is used for work orders. Each work order is a work package and is defined by a task listing with a budget for each task. The task budgets are based upon the estimates developed by the estimators and sum to the work package budget.

Earned value is calculated as a percent complete by task independent of other work orders tasks. The control account project manager determines the percent complete for each task and claims earned value as that percentage times the task budget.

4.4.7.2 Apportioned Effort (AE) - This method is used for effort that by itself is not readily measured or divisible into discrete work packages but which is related in direct proportion to the planning and performance on other measured effort. Two elements must be identified to use apportioned effort. First is the “base” which is the measurable effort upon which the apportioned effort is tied. The other is the rate or ratio of the apportioned effort to the base effort. The resource plan for apportioned efforts will be in accordance with the plans of the base accounts. The earned value will be in accordance with the earned value of the base measurable effort using the same ratio used during the planning.

4.4.7.3 Level of Effort (LOE) –LOE tasks have no product or accomplishment criteria associated with them and therefore either cannot be measured or it is impracticable to measure them on any basis other than the passage of time. Therefore, for LOE tasks, BCWP always equals BCWS. Thus, LOE tasks won’t ever have a schedule variance in earned value terms, but cost variances may still be possible. Use of LOE is kept to a minimum to avoid distorting performance measurement. As such, PMs must be able to provide justification for planning work as LOE rather than as a discretely measurable task. The ultimate test to determine if work is truly LOE is if the effort has no tangible output and if the results of the work have no downstream schedule impact, then it is probably best measured using the LOE approach.

4.5 Commencing Work

4.5.1 Commencing Work Overview

Once the baseline has been approved and Control Account Authorizations issued by the Honeywell FM&T Project Director, work can commence. This is the phase that involves the management of the work relative to executing the work, recording costs and triggering the generation of reports. This phase is depicted in Figure 4-4. It is important

to note that this phase alone does not embody all of the effort of managing the work. Many of the management decisions are generated as a consequence of the evaluation of work performance.

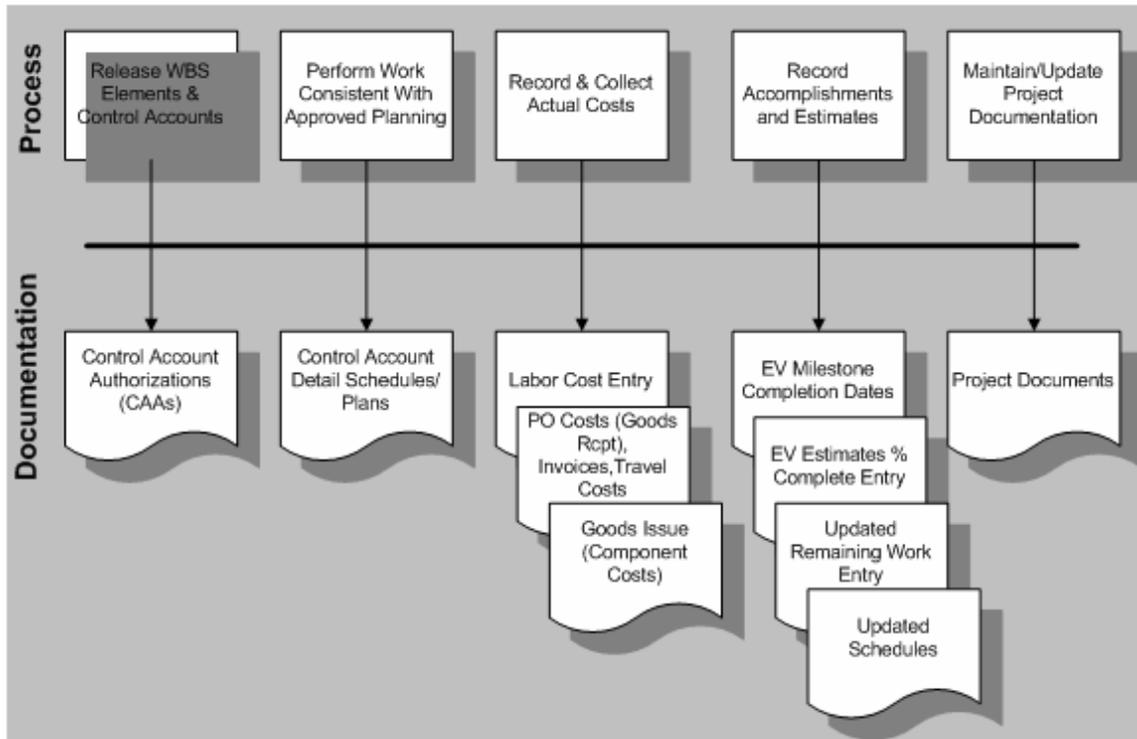


Figure 4-4

There is a formal process associated with the authorization of work. Work is authorized for performance by the release of a Control Account Authorization. The signature of the Project Director is the authorization to proceed with the work and the signature of the Project Manager, or Control Account Manager where there are multiple Control Accounts, is acceptance.

As work is performed, actual costs associated with performance of the work are recorded. The performers record labor costs in the payroll systems regularly. Material and Other Direct Costs (ODC) costs are recorded on an accrual basis as subcontractor/vendor work is performed. This includes payment of P-Card purchases. FFP Subcontract costs are accrued by percentage of purchase order cost when payments are approved. Travel costs are recorded as incurred and reported.

As work progresses, accomplishments and estimates are recorded. Earned value (i.e. BCWP) is recorded consistent with the earned value method that was selected for the specific work effort. Where the Milestone technique is identified, BCWP is recorded as earned as the PM reports the completion of the milestones. If the earned value method provides for a PM managerial estimate for work performed beyond the last milestone, the PM determines the amount as objectively as possible at the end of each month. For those

efforts being monitored based upon the work's Schedule of Values, the PM records completions of the detailed work components, calculates the percentage completion this yields and enters that percentage as the updated earned value status. For efforts utilizing the Percent Complete method, the PM updates his or her assessment of the degree of completion and enters this percent for the calculation of the BCWP. EV progress assessments are not made for Level of Effort tasks as the BCWP always, by definition, equals the BCWS in each period.

In addition to reporting the accomplishment of work for Earned Value purposes, the Project Manager also updates schedule forecasts for each activity. Actual and forecasted start dates, and actual and forecasted finish dates are established for each activity. The performance and forecast information are incorporated into management reports that are issued and used for the evaluation and analysis of performance.

4.6 Executing Work Packages

After the release of the control account and completion of the detail planning, Project Controls creates activity numbers (charge numbers), and the control account PM assigns them to work packages. Project Controls notifies Budget and Project Support (accounting) to open the charge numbers, and this allows the posting of actual costs (ACWP) to the project.

4.7 Schedule Updating and Maintenance

4.7.1 Statusing and Integration of Schedules: Schedules are periodically (at least monthly) updated to reflect accomplishments and forecasts. The PM annotates the detail schedule to reflect activity completions and forecasted completion dates for activities that are expected to be completed early or late. In such cases, the baseline schedule for the milestone remains unchanged. The PM submits the updated schedule information to Project Controls (PC) for review. PC reviews the detail schedules and asks for clarifications as appropriate. The status information is then used to update the details within the IPS.

The intermediate view is used to identify any conflicts and schedule problems between control accounts and to see the impact of these on key project milestones. This ensures that the integrity of both the horizontal integration between control accounts and the vertical integration from the lower-level detailed planning to the intermediate and master schedule level project objectives is maintained.



The detailed view of the IPS is used for evaluation of root causes of schedule issues. It is also reviewed to assess what corrective actions (e.g. revision of logic relationships from serial to parallel, compression of activities, changing of specific cost center resources, etc.) may be appropriate.

4.7.2 Maintenance of Schedule Element of Baseline: As previously described, the earned value-based PPCS is structured around development of a baseline that is predicated on project schedule objectives and the measurement of performance against that baseline. The schedule element of the baseline is reflected by the Integrated Project Schedule, but the master, intermediate and detail schedule views are what are most often reviewed. The major project milestones and key control account interdependency milestones anchor the schedule element of the baseline. To ensure the integrity of the schedule element of the baseline, disciplined change control practices are applied to these milestones. The project master schedule established for each project depicts the original calendar date for each major project milestone and any subsequent formally approved revisions to them.

Only the Project Director may approve revisions to the schedule dates for major project and/or interdependency milestones. Prior KCSO approval is required for any change to a milestone shown on the Site Office authorization document.

4.8 Data Accumulation

The Earned Value Management System provides for accurate accumulation of the five basic performance measurement data elements: time-phased budgets, earned value, actual costs, budget at completion, and estimate at completion to include a time-phased estimate to complete. These in turn provide the means to identify and quantify cost, schedule and at completion variances. Data are accumulated by control account and are summarized in the system both by project WBS elements (See Figure 4-5) and organizationally through the OBS. These data elements summarize up through the WBS and OBS without allocation of a single control account to two or more higher-tier WBS/OBS elements.

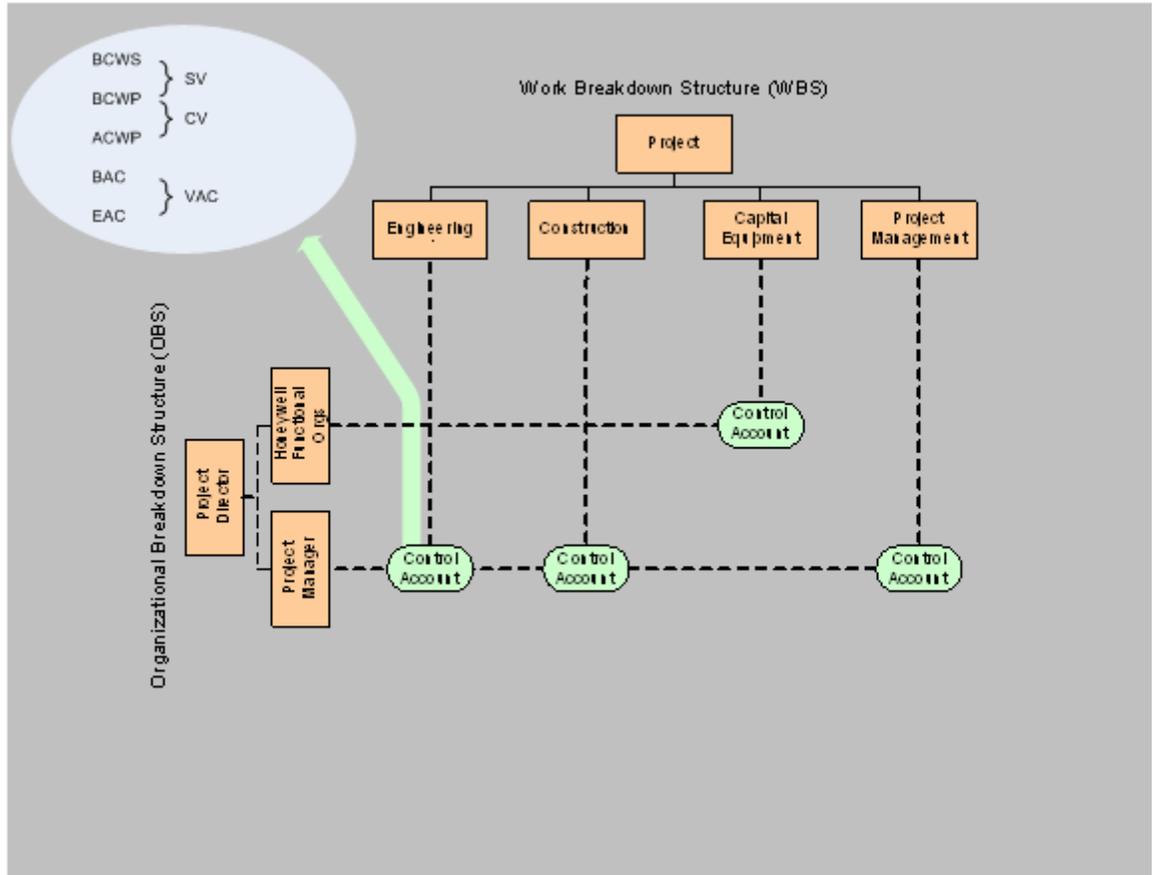


Figure 4-5

4.8.1 Actual Cost of Work Performed (ACWP): ACWP reflects the costs actually incurred and recorded in accomplishing the work performed in any given time period. These costs are accumulated and reported in the Honeywell FM&T accounting system. For material and subcontracted efforts, Project Controls enters estimated actuals as part of the ACWP when earned value is taken, even though the accounting system does not reflect the payment. This ensures that the ACWP is on the same basis upon which BCWP was taken.

4.8.2 Budgeted Cost for Work Scheduled (BCWS): The control account time phased budgets are the source of the BCWS. These budgets are a reflection of the work and planning package budgets when the control account is of a size where it is further subdivided to this level. The time phasing is by month. The BCWS is a direct reflection of the resources that are identified for the performance of the individual activities. The detailed control account planning is maintained within the PPCS cost management software.

4.8.3 Budgeted Cost for Work Performed (BCWP): The key performance measurement data element in the Earned Value Management System is the earned value metric, BCWP. It is the sum of the budget earned for completed work packages and completed portions of open work packages, plus the budget earned for level of effort and apportioned effort. BCWP is arrived at based upon status provided monthly by the PMs. Each month the PMs assess work progress and report this progress based on the earned-value method selected and approved for each work package at the time it was planned. The PM reports this to PC. PC reviews the information to ensure that the work has been correctly measured and reported in accordance with the EV method selected. If it is, the BCWP is input into the PPCS database for scheduling and cost management. There, the BCWP, or earned value, is accumulated and compared to the corresponding budget for the work that was planned to be performed, the BCWS, and to the actual cost (ACWP). These data are calculated for both the current month and cumulative to date. The resulting cost and schedule variances are calculated and reported.

4.8.4 Budget at Completion (BAC): At any project level, BAC is total budget for that project element. Thus, where there are work packages, it is the total BCWS for the entire work package. Similarly, it is the total BCWS scheduled for all of the work of the control account. At any level it is the sum of all budgets.

4.8.5 Estimate at Completion (EAC): The EAC is the actual cost to date plus the cost estimate to complete (ETC) the remaining authorized work. The project EAC is initially developed at the control account level by the individual PMs then summarized upward through the WBS to the total project. An EAC roll-up by organization is also possible. It includes the EAC for summary level planning elements and any undistributed budget.

4.9 Control Account Closure

Control accounts are closed once all of the work has been completed and the entire budget has been claimed as earned (i.e. the cumulative BCWP equals the BAC and cumulative ACWP equals EAC). Before the control account is officially closed the PM and PC confirm that:

- All actual costs have been posted;
- All invoices have been processed;
- All costs are settled to the project; and
- All planned budget has been earned as BCWP.
-

Once these conditions have been met, PC ensures that the control account is closed.

5.0 Monitoring and Controlling

5.1 Process Overview

Once work has commenced, the Honeywell FM&T Integrated Project Team begins the process of monitoring performance and taking appropriate management actions, including baseline control activities. This is the next stage “Monitoring and Controlling.” The whole point of the earlier stages, where the work is defined, the risks are assessed, and a plan is established is establishing a meaningful baseline against which to measure performance. In this stage the baseline has been established, performance of the work has begun and we now begin the process of evaluating that performance to determine what management actions may be appropriate. The activities associated with this stage are depicted in Figure 5-1.

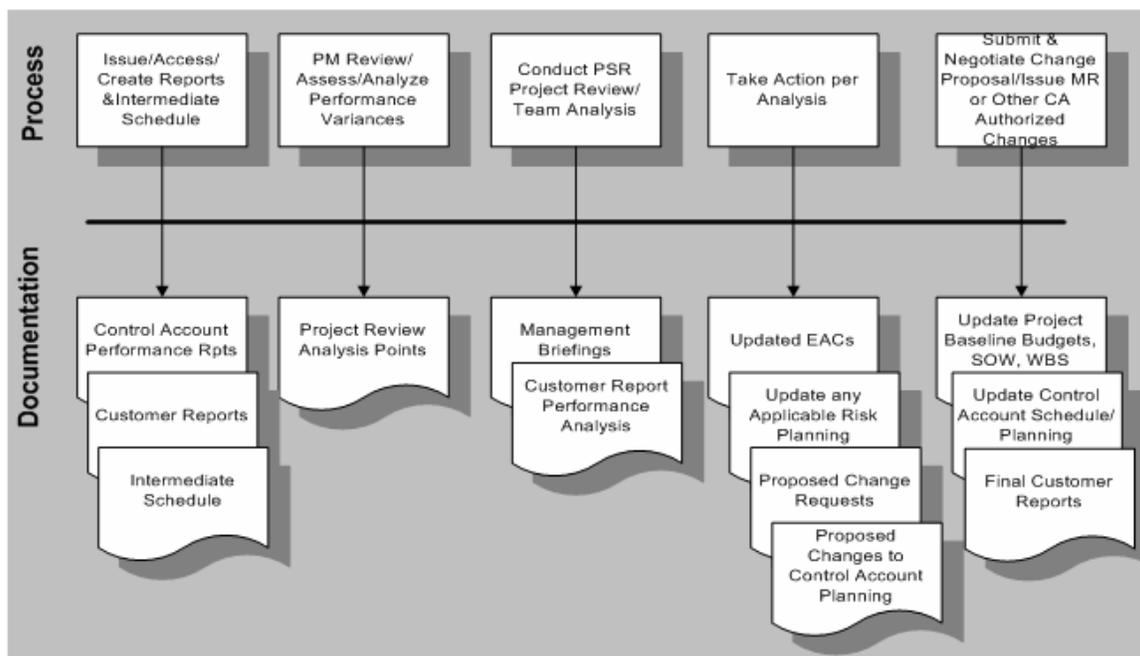


Figure 5-1

As the work of the project goes forward, the performance data elements described in Section 4-8 are generated and accumulated. These are available to the Honeywell FM&T Integrated Project Team in various report formats. These vary in levels of detail from the specific control account and, when applicable, work package, level to the summary levels reported to the customer and internal senior management. PC accesses the information and initiates the generation of any applicable customer reports. The customer reports normally have an analysis section associated with them. These are not produced at this point since they are dependent upon the analysis of control account performance.

The Project Managers (PMs) are the focal point of the evaluation process, since the performance being evaluated is that which reflects accomplishments within the control account. The PPCS accumulates and depicts the control account performance in various

control account report formats. The PMs review these as well as the detailed control account schedule.

This review takes place regardless of whether the control account has a variance that requires analysis. The purpose of this is to assess whether there are any developing trends that should be considered relative to the estimate to completion and future performance in general.

In those instances where the control account requires analysis because a threshold has been exceeded, the PM reviews the performance data and researches the cause, forecasts the impact, and develops corrective actions reported in the Variance Analysis Report (VAR).

The Project Director establishes a review cycle at the beginning of the project. Honeywell FM&T Integrated Project Teams meet to review progress and issues at least once a month. The review will include a formal analysis of significant and/or developing performance variances. During these reviews, the PM presents the analyses to the PD. These are interactive reviews where the analysis undergo further development, as required, decisions are made regarding proposed corrective actions and information is gathered for the development of any customer-required, written, project-level variance analysis that may be needed. Briefing materials for internal Senior Management Reviews are also defined/developed.

After the Project Reviews, all decisions that were made during the review are acted upon, as appropriate, the project EAC is updated, if appropriate, and any customer-required data and analysis reports are finalized. Additionally, as appropriate, any risk planning that may exist and that is affected by the events described in the analysis, is updated. Further, if the requirements for changes to the baseline planning have been identified, the appropriate actions are taken. This includes both internal changes that involve management reserve transactions impacting individual control accounts and external changes that lead to the development of change proposals that are submitted to the KCSO. Once changes have been approved, appropriate changes are made to the baseline and the actions are documented.

5.2 Analysis

The PPCS provides for objective performance measurement, analysis, and reporting of performance against the performance measurement baseline. This provides all levels of management the information needed to recognize deviations from project plans early, and positions them to initiate preventive and/or corrective action on significant developing or existing variances. The PPCS also provides for the thorough assessment and documentation of technical, cost and schedule impacts of these developing or existing issues. Further, the PPCS provides for the development of an accurate estimate of the costs and duration of the remaining work, which in turn leads to a meaningful estimate of project costs at completion and forecast of when that completion will occur.

The objective of the analysis of performance is not to simply determine and document what happened, but it is to position the Honeywell FM&T Integrated Project Team to make effective management decisions and to take appropriate action on cost and schedule issues as early as possible.

5.2.1 Variances: The three principal performance measurement variances that are calculated and reported are:

- 1) **Schedule Variance (BCWP – BCWS):** Budgeted cost for work performed compared with budgeted cost for work scheduled (BCWP – BCWS) provides schedule variance (SV) expressed in terms of hours' or dollars' worth of work accomplished vs. hours' or dollars' worth of work planned. The SV, therefore, is an indicator of schedule performance that reflects whether more or less work than was planned has been performed.

The formal, Integrated Project Schedule provides the means for determining the status of specific activities and milestones. The scheduling element of the Earned Value Management System is discussed in Section 4.3 of this document.

 *The SV is a valuable indication of work accomplishment, but it does not necessarily indicate whether or not schedule key milestones are being met because some work may have been performed out of sequence or ahead of schedule. Further, tasks that are behind schedule may or may not directly affect the project duration.*

- 2) **Cost Variance (BCWP – ACWP):** Budgeted cost for work performed compared with actual cost of work performed for the same element of work provides the cost variance. This is a true indication of cost performance in that it shows whether completed work has cost more or less than planned.
- 3) **Variance at Completion (BAC – EAC):** This variance indicates whether the total authorized work is expected to be completed within existing budgetary limits. It is calculated by comparing the budget at completion (BAC) with the estimate at completion (EAC).

5.2.2 Variance Analysis Requirements: There are various approaches that are used for determining if a variance is *significant* and therefore requires analysis. If earned value analysis is required as part of customer reporting, then supporting analysis at the control account level is necessary and required analysis at this level is based on the customer requirement. Therefore, if the customer requires analysis for all variances greater than a particular percentage and/or dollar level, the control account analysis requirements will be based upon those factors.

If there are no customer requirements, analysis of project performance is still a requirement of the PPCS. The PD establishes at the outset of the project what will constitute a significant variance. *When a percentage is selected, the PD is encouraged to use a threshold format of X % and Y \$s; both conditions must be met. The reason for this is that on small control accounts and/or early in the project, a variance can be relatively small in absolute value and still exceed the percentage.* Thus, the inclusion of the dollar threshold element, limits the likelihood of trivial variances requiring analysis. If the thresholds initially selected don't result in an effective filter for the PD, then the thresholds may be changed.

Other considerations for determining significant variances may be a "top 10" approach and one where the variance is associated with activities that are on or near the critical path; the latter obviously would only be a consideration if the PD has elected to establish a critical path method schedule. The "Top 10" approach is where the PD requires that the X largest variances based on percentage or dollars be addressed regardless of what the variance may be. If 10 were the number and the 10th largest variance was only 3 percent, a performance assessment is still required.

Where a percentage is a factor in defining whether a variance is or isn't significant, the formulas that are used are:

$$SV \% = \frac{SV}{BCWS} \times 100\% \quad CV\% = \frac{CV}{BCWP} \times 100\% \quad VAC\% = \frac{VAC}{BAC} \times 100\%$$

In the instances of the schedule and cost variances the numbers used are for either the current period or cumulative to date, as appropriate. The definition of a significant variance will be documented in either a Project Directive or the Project Execution Plan.

5.2.3 Data Analysis: The PPCS provides visibility into cost and schedule performance efficiency factors that may be used to provide insight into project performance. Specifically, these are:

- 1) **Schedule Performance Index (SPI)** – The schedule efficiency with which the work has been accomplished. It is calculated by the equation

$$SPI = \frac{BCWP}{BCWS}$$

- 2) **Cost Performance Index (CPI)** – The cost efficiency with which the work has been accomplished. It is calculated by the equation

$$CPI = \frac{BCWP}{ACWP}$$

- 3) **To Complete Performance Index (TCPI)** – The cost efficiency with which the remaining work must be performed to achieve the EAC. It is calculated by the equation

$$TCPI = \frac{BAC - BCWP}{EAC - ACWP}$$

The SPI and CPI may be calculated based on cumulative, current period or some other period (e.g. most recent 3 months) data.

In all three instances, if the index is less than 1.0, the performance has been, or for TCPI performance will be, less efficient than what the baseline plan calls for. The SPI and CPI are useful to the PMs, because they add a numeric perspective to their evaluation of existing variances. If either or both are less than 1.0, the PMs assess whether what they believe to be the cause(s) that they have identified for a given cost or schedule variance seem to be consistent with this level of performance.

These indices help the PM focus on whether the issues have been resolved. For example, if the PM believes the issue causing a variance has been overcome, the CPI and/or SPI should be expected to improve in the future.

The TCPI is a useful double check of the EAC. It indicates what the cost performance has to be for the remaining work, if the EAC is to be achieved. If the CPI has been consistently less than 1.0, but the TCPI is greater than 1.0, the PM must evaluate whether he or she has identified a corrective action plan that includes process improvements which will yield performance that is not only better than what it has been, but which will actually be better than what the baseline is based upon. This same line of reasoning is employed by PC and the PD as they evaluate individual control account EACs and the overall project EAC.

Another effective tool in evaluating EACs is the following formula for the independent calculation of an EAC (IEAC).

$$IEAC = \frac{BAC}{CPI}$$

This formula indicates what the at completion costs of the project (or individual control account) will be if the cost efficiencies (CPI) experienced in the future are the same as they have been to date. In other words, if the entire effort were performed at the level of efficiency experienced so far.

The SPI can be used in a similar fashion to evaluate the potential durations of individual activities and/or the project, if the remaining work efforts

 The formula for the IEAC has been found to be a reliable predictor of the best performance result that can be expected, unless early, effective actions are taken. It isn't necessarily an accurate predictor of the actual outcome as much as it has proven to be a good indication of the best "worst case" result, without early management intervention.

were to experience the same level of schedule efficiency as has been experienced to date.

The purpose of these factors and formulas is to add perspective to the management decision making process. *They are not used to develop the control account EACs.*

5.2.4 Control Account Variance Analysis: In advance of the Project Review, PMs with variances exceeding defined thresholds analyze/assess the variance. The control account PMs prepare a Variance Analysis Report (VAR) discussing the problem(s), cause(s), impact without action, proposed corrective action(s) and impact of those actions.

Project Controls (PC) follows up to ensure that all PMs who have significant variances are aware of it, but the PM does not need to wait to be told this.

The points that are identified on the VAR in Figure 5-2 are the ones that the PMs are to address. When impact is being addressed it isn't limited to only the effect on the project. If the PM knows that another control account(s) will be affected, this also is addressed.

The corrective action plan describes the action to be taken, resources (people, equipment, facilities, material) required, and schedule for accomplishment. Typical corrective action approaches to schedule variances might be to obtain subcontractors to perform work; shift resources; add labor shifts (overtime); or analyze and implement technical tradeoffs. Typical corrective action approaches to cost variances might be to use different resources that have a lower direct labor rate to perform the work, reduce direct hours, or alter the labor mix.

It is important to address impacts for both the with and without corrective action scenarios. The implementation of the corrective action is a business decision that the PDs have to make. Sometimes the cost implications of the corrective action plan are not worth the result, given what will occur without action.

Variance Analysis Report										FORM APPROVED	
										OMB No. 0704-0188	
1. CONTRACTOR			2. CONTRACT			3. PROGRAM			4. REPORT PERIOD		
a. NAME			a. NAME			a. NAME			a. FROM (YYYYMMDD)		
b. LOCATION (Address and			b. NUMBER			b. PHASE			b. TO (YYYYMMDD)		
			c. TYPE			d. SHARE RATIO			c. EVMS ACCEPTANCE		
						NO			YES (YYYYMMDD)		
5. EVALUATION											
	BCWS	BCWP	ACWP	SV in \$	SV in %	CV in \$	CV %	SPI	CPI		
Current:											
Cumulative:											
	BAC	EAC	VAC in \$	VAC in %	CPI to BAC	CPI to EAC					
At Complete:											
Explanation of Variance/Description of Problem:											
Impact:											
Corrective Action:											
Prepared by:				Date:		Approved by:				Date:	

Figure 5- 2

5.2.5 Estimate at Completion (EAC) Development: Comparisons of planned versus actual performance, combined with the variance analysis and knowledgeable projections about the future may yield indications of a need to revise current estimates for the cost at completion. Since the EAC is actually the actual costs incurred to date and an estimate of the remaining costs, it is the estimate to complete (ETC) that is developed. All ETCs are time phased estimates developed at the performance level (i.e. the most detailed level of control account planning). The development of an ETC is a rigorous, formalized process that is conducted when required by any of the following:

- 1) **Significant Variances** – Any control account that has a cost OR schedule variance that requires analysis per the PD’s guidelines, the control account project manager must address the ETC and, as appropriate, develop a revised forecast.

- 2) **Trend Projections/Risk Realization** – If the PM or PD anticipates that a significant variance is developing or it is clear that a risk event has been realized, the ETC of the effected control account(s) is updated accordingly.
- 3) **Other Factors** – Any other factors known by the control account Project Manager having an affect upon the EAC.

The PM considers a number of factors in developing the ETC/EAC. Included in these are: the amount and character of the remaining authorized work; the size of the existing variance, performance efficiency to date; historical data (including actual costs to date); anticipated cost/process improvements or problems; anticipated economic escalation, if any; schedule status and priorities; and material commitment information. The PM is expected to be able to explain, upon request of the PD, the rationale used in developing ETC/EAC. Once the PM has completed this evaluation, the resultant time phased ETC is submitted for review. PC is the first review checkpoint. Once PC has reviewed the ETC and posed appropriate questions to the control account Project Manager, the ETC is submitted for review by the PD.

Once a control account ETC (and the associated EAC) has been appropriately vetted, it is approved by the Project Director as indicated by signature on the ETC/EAC updates. The sum of approved control account EACs plus those for the summary level planning elements and undistributed budget form the Honeywell FM&T EAC for the project.

5.2.6 Project Review Meeting: Project Reviews are typically held to address issues and progress in general. The Project Manager also addresses control account variance analysis and estimates at completion. The level and substance of these analyses is consistent with what is described in section 5.2.2. As appropriate, the discussion between the PM and the audience may lead to further refinement of the analysis and the corrective action planning.

Decisions regarding corrective actions, estimate at completion updates and possible baseline changes are documented as action items. Actions items from prior reviews are monitored to ensure implementation and to evaluate the efficacy of already implemented corrective actions.

Key points associated with the individual control account analysis are noted for use in developing summary analysis for Honeywell senior management briefings and for customer reporting.

5.3 Baseline Maintenance

A typical project undergoes numerous changes during its lifetime. These changes may be KCSO directed or result from in-scope re-planning efforts. The PPCS requires all changes to be implemented in a timely and disciplined manner that allows visibility into the change as well as clear traceability back to the original baseline. Changes are planned, reviewed, and approved before they are incorporated into the performance measurement baseline (PMB). Therefore, the performance measurement baseline always reflects all current authorized work; in addition, a record is maintained of all baseline changes. This often is accomplished by use of a Master Baseline Log See Figure 5-3.

This section describes the disciplines and controls associated with the implementation of changes.

Master Baseline Log

Summary Level Planning Packages										Control Account Budgets										
OPC			TEC			TPC			OPC			TEC			TPC					
Design	Const	Total	Design	Const	Total	Design	Const	Total	Design	Const	Total	Design	Const	Total	Design	Const	Total			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Performance Measurement Baseline										Undistributed Budget										
OPC			TEC			TPC			OPC			TEC			TPC					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total Allocated Budget										Management Reserve										
OPC			TEC			TPC			OPC			TEC			TPC					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Project Budget Base										Over target baseline										
OPC			TEC			TPC			OPC			TEC			TPC					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total Project Authorization										Contingency										
OPC			TEC			TPC			OPC			TEC			TPC					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
DATE	DESCRIPTION	DOC ID	Total Project Authorization																	
			OPC			TEC			TPC			OPC			TEC			TPC		
			Design	Const	Total	Design	Const	Total	Design	Const	Total	Design	Const	Total	Design	Const	Total	Design	Const	Total
	TOTAL AMOUNT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			0																	
			0																	
			0																	
			0																	
			0																	
			0																	

Figure 5-3

5.3.1 Project Changes: Changes outside the scope of the authorized statement of work may be initiated by the KCSO or by Honeywell via a formal Baseline Change Proposal. These are referred to as Level 1 or Level 2 changes. Such a change request, if approved by the KCSO, will result in a negotiated change to the KCSO project authorization. These changes affect all aspects of the PPCS, including work definition, work authorization, schedule, budget, and estimated final cost. Changes are incorporated upon KCSO authorization. They are included within the PMB no later than the end of the accounting month following the month in which a change is effective.

Authorized budget revisions are based on the negotiated (agreed upon) cost estimate for the change. If the work is authorized/directed before the cost estimate has been approved, budget revisions can be accomplished in one of two ways. Either detailed planning can be accomplished and budgets adjusted later to reflect negotiations, or preliminary budgets can be issued to begin work, with the remainder work and budget held as undistributed until negotiations are completed.

Adjustments to reflect negotiations are accomplished by revising undistributed budget, management reserve, budgets established for work not yet started, or a combination of these. The PPCS prohibits retroactively changing budgets for completed work except for the correction of errors.

Records of all baseline changes are maintained to provide traceability to the original baseline.

On rare occasions, Honeywell management may authorize new work to begin before KCSO authorization is received. This may occur when a formal change request or an unsolicited proposal is pending but any delay may adversely impact the project schedule, or when a dispute exists as to the project scope of work that will result in a request for equitable adjustment. Under these circumstances, the PD opens new charge numbers to segregate the charges for the new work. This is intended to facilitate the subsequent negotiation of this new work and to prevent changes for KCSO unauthorized work from being incorporated into the performance measurement baseline.

5.3.2 Internal Re-planning: Changes that are not KCSO driven fall into two types. The first are those that do not affect control account constraints (i.e. scope, schedule, or budget). These are referred to as Level 4 changes. The second are those that affect one or more of these constraints. They are referred to as Level 3 changes.

All changes that affect control account constraints must be formally requested by the PM and must be approved by the PD before they can be implemented. They are documented with an explanation of what the change is, why it should be made and what the effect is on the control account constraints on a Baseline Change Proposal (BCP) document (Figure 5-4). The request may not result in a distribution of MR, but this form is used, because the PM likely views the change as one related to MR.

Honeywell		Control Account Authorization Document	
Project Title: Location:		Change Level:	KCSO Authorization Modification Number:
Project Authorization No.		Type of work:	
Facilities Project No.		Program/Funding:	
Federal Project No.	Control Account Title & No.	Date:	
Honeywell FM&T Project Director:	Project Manager:	Project Manager/CAM:	
Purpose of Modification			
Control Account Scope of Work Description			
Change Justification			

Figure 5-4

Remarks									
Control Account Schedule									
PREVIOUS					CURRENT (Revised)				
Milestone	Start	Complete	Milestone	Start	Complete	Milestone	Start	Complete	
Design			Design						
Construction			Construction						
Install. Engineering			Install. Engineering						
Installation			Installation						
Control Account Budget									
Description	Prior Authorization			This Change			Current Authorization		
	TEC			TEC			TEC		
	Design	Construction	Total	Design	Construction	Total	Design	Construction	Total
Program Management			\$ -			\$ -	\$ -	\$ -	\$ -
Construction Contract			\$ -			\$ -	\$ -	\$ -	\$ -
Title III Inspection			\$ -			\$ -	\$ -	\$ -	\$ -
Construction Management			\$ -			\$ -	\$ -	\$ -	\$ -
Security			\$ -			\$ -	\$ -	\$ -	\$ -
Standard Equipment			\$ -			\$ -	\$ -	\$ -	\$ -
Installation Engineering			\$ -			\$ -	\$ -	\$ -	\$ -
Installation			\$ -			\$ -	\$ -	\$ -	\$ -
Management Reserve			\$ -			\$ -	\$ -	\$ -	\$ -
TEC Authorization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OPC Authorization			\$ -			\$ -			\$ -
Total Authorization			\$ -			\$ -			\$ -
Reviewed By Project Controls			Accepted by Control Account Project Manager			Authorized by Project Director			
Signature and Date			Signature and Date			Signature and Date			

Figure 5-4 (Continued)

In those instances where the PM has identified work that is out of scope to the current control account plan, the PD evaluates whether the work needs to be performed. If so, and the Project Director believes the work to be out of scope to the project, a Baseline Change Proposal is prepared per paragraph 5.3.1. However, if the work is in scope to the project the new work has to be added to the control account plan. It has to be evaluated for schedule effects and a budget has to be established. Management reserve is used to provide the budget in such instances. The PD approves the BCP authorizing the change. This constitutes a formal revision to the Control Account Authorization. As with all changes, a documented record of all such changes is maintained by PC.

MR is to be used to provide budget for authorized work that due to unexpected results or possibly due to oversight is not currently reflected in the control account planning.

Internal re-planning that doesn't affect control account constraints can range from a simple conversion of a planning package (or other summary level planning element) into a work package or re-planning some portion of future work within the constraints of the control account.



Management reserve is not used to offset existing variances or to provide budget for level 1 or level 2 changes.

Re-planning may require reorganizing future work or resources to increase efficiency of operations, or require different approaches than originally contemplated. PMs are encouraged to make adjustments to plans for future work (except within the “frozen” baseline period described below) as things happen and situations change, to support overall project scope, cost, and schedule objectives and ensure that the PMB reflects the current plan for accomplishing project objectives.

To ensure that work is always planned before it is started and that the planning for future work isn't being re-planned to avoid revealing developing unfavorable conditions, the PD establishes a window of time where internal re-planning is restricted. This is a period where the baseline is considered to be “frozen.” This time frame is usually the current accounting month plus one month. No budget or schedule changes are allowed for work already in progress or for work scheduled to start during this period unless the changes are customer directed. Nevertheless, such changes are carefully controlled in order to maintain the integrity of the performance measurement baseline. Work that is beyond this period, whether new or as part of in-progress work packages, may be re-planned as long as the control account constraints are not effected and no higher level schedule milestone is impacted. Level of effort activities are not constrained by the “frozen” baseline period.

Retroactive changes to open or completed work packages (or control accounts where the control accounts are established at the work package level of detail) are prohibited except for correction of errors and normal accounting adjustments made in accordance with the Honeywell disclosed accounting practices. Once a work package is open, its selected earned value method may not be redefined unless approved by the PD.

If an analysis of the current baseline plan leads the PD to conclude that it is necessary to adopt a different course of action, a schedule change may be necessary. In this situation, all affected schedules, from the Master Schedule through the detail level of the control account are revised to reflect the new directions. No change that affects defined milestones on the Site Authorization document will be made without discussion with the KCSO. All such changes will affect the time phasing of the work and therefore the budget and the resource requirements. As such a thorough update of all baseline documentation including the record of changes is made.



Earned value methods should only be changed when the change will result in more accurate performance measurement than the method originally selected.

5.3.3 Formal Reprogramming: The most significant form of re-baselining is what is called formal reprogramming. The emphasis of Honeywell is on maintaining the PMB consistent with the authorized cost and schedule targets. However, during the life of a project, situations may arise whereby available budgets (not funds) for the remaining work are decidedly insufficient. Consequently, performance measurement against the available budgets becomes unrealistic. Under these circumstances, formal reprogramming may be necessary. As appropriate, formal reprogramming may entail re-planning future work, re-planning in-process work, or adjusting variances (cost or schedule or both). Formal reprogramming will result in a total allocated budget that exceeds the Project Budget Base and it may result in a time phasing of the effort that is later than the KCSO authorization called for dates. Such reprogramming allows the setting of more realistic budget and schedule objectives against which performance of remaining work is measured; to be justified, it must enhance measurement and control of the remaining work.

A thorough analysis of project status, including full coordination between the KCSO Project Director and the Honeywell PD, is conducted prior to implementing formal reprogramming. The PD provides a detailed estimate of all costs necessary to complete the project, taking into consideration the authorized work remaining, the estimated cost of the resources required to accomplish the remaining work, and the budget (including any management reserve) available for reallocation to the remaining work. After consulting with the KCSO and receiving Honeywell senior management approval, PC initiates the reprogramming effort.

Formal reprogramming should only be done when an over-target baseline (OTB) will provide more realistic plans for completion of the work and better insight and control into the progress of the remaining work. This form of re-baselining is only undertaken with the approval of the KCSO and is understood not to give Honeywell relief against project level cost and schedule goals. Formal reprogramming is for performance measurement purpose only and is not to be viewed as a “get well plan.”



During formal reprogramming, all changes to baseline budgets are fully documented and traceable through the project logs and files. These are revised expeditiously, and provide appropriate visibility into the project budget changes being made. If variances are adjusted, the values of the adjustments are retained to ensure traceability. This is the responsibility of PC.

6.0 Project Closeout

6.1 Process Overview

Project closeout requirements are identified in NNSA Order 413.3. Honeywell FM&T utilizes a graded approach to NNSA Order 413.3 and formalizes the Project Management control system for Line Item Projects.

The negotiated cycle time with NNSA for project closeout following physical construction completion is 3 months for the Cost Closing Statement and 3 months for the Final Cost Report. A total process time of up to 6 months after physical construction completion is allowed.

6.2 Closeout Documentation

The Project Manager is responsible for requesting the Cost Closing Statement from the Financial Accounting Specialist (FAS). FAS completes the statement and provides it to the Project Manager. The PM ensures that all necessary signatures/approvals required for the Cost Closing Statement/Package are acquired. Upon Completion of the signature cycle the PM transmits the Package to NNSA.

Within 5 months of physical construction completion the PM initiates the project Final Cost Report. This report is prepared by the Honeywell FM&T Financial Accounting Specialist. Upon completion the specialist transmits the Final Cost Report to the NNSA Area Manager. The PM files the Final Cost Report in the subject project file.

7.0 MATERIAL/SUBCONTRACT MANAGEMENT

7.1 Material

The term “material” within the Earned Value Management System is a generic label for a cost element that is purchased via a purchase requisition order, procurement card or travel charged direct to a project. The following items are classified as material per the Honeywell FM&T Disclosure statement. Capital equipment, purchased parts/supplies/construction materials, purchased services, subcontracts and travel.

7.1.1 Planning: The planning process for material is similar to that described earlier. However, there are certain aspects of the process that are unique to material.

As part of project planning, the PD plans for the categories of project costs that will be required. These influence how the WBS is developed and to whom the control accounts are assigned.

After the WBS has been developed and the control accounts defined, the individual PMs begin identifying material requirements. This includes:

- 1) Defining the requirements
- 2) The quantities needed
- 3) Need dates

The development of the planning for the BCWS is based upon the above information, an anticipated purchase order/P card cost for the item. Each capital equipment item is individually planned. The BCWS is scheduled based upon the need dates. The specific amount of BCWS that is planned in any time period is the product of the expected purchase requisition value.

Material associated with work orders may be purchased utilizing a procurement card and does not require a purchase requisition. This material is planned (BCWS) to support the associated labor (scope of work) with each individual work order.

The material supporting work orders may be segregated into two classifications of work packages. These are “hi” dollar and “low” dollar delineations. There is a separate “hi” dollar work package for each work order having material items that break the individual dollar threshold as directed by a project directive. There is a single LOE work package for each control account that has “low” dollar material.

7.1.2 Material Earned Value Methodology: As described in paragraph 4.4.8.1, the earned value method is selected for calculating the BCWP associated with material. It is equal to the budgeted cost of work scheduled (normally the purchase order value), and it is earned when the item is received and accepted. Regardless of the earned value method chosen, cost performance measurement will be no earlier than the time of progress payments or actual receipt of the material.

7.1.3 Material Actual Costs: The actual cost recorded in the Honeywell FM&T books of account is the purchase order/invoice value. Those costs are charged to the project. EVM reporting also includes estimated actual cost based upon purchase order value for material/subcontracts goods or services received but not yet paid. Advance payments to suppliers are withheld from EVMS reporting until the material is received and accepted.

7.1.4 Material Performance Measurement and Analysis: In addition to their responsibilities for analyzing cost, schedule, and at-completion variances as described in Section 6, control account project managers responsible for material are also responsible for analyzing any significant material cost and schedule variances.

The control account project manager who is responsible for the material is also responsible for analyzing variances. Such analysis is usually conducted as part of a larger analysis of an overall control account cost variance.

The PM is also responsible for monitoring progress with Procurement. If there are any delays or accelerations of planned deliveries to the project, the PM uses this information in developing schedule variance analyses for the control account as a whole and to update the time phasing of his/her estimate to complete. In addition, if there are usage issues, the PM updates the EAC to reflect them.

Records are maintained that provide the final disposition for all material purchased direct to the project including any residual material.

7.2 Subcontract Cost and Schedule Management

7.2.1 Subcontract Planning and Measurement: The subcontract work is planned as a separate control account or as separate work packages within a control account, depending on the level of detail at which control accounts are planned and on the subcontract size. The planning normally is accomplished by the responsible PM. The PM as part of the subcontract terms and conditions may include Project Controls Construction Scheduling Specification 01320 which provides requirements for developing their detail schedules.

However, if a subcontractor is required to submit a CPR to Honeywell the subcontractor's performance measurement data from these reports will be used in lieu of control account planning.

7.2.1.1 Subcontractors with EVMS Requirements – It is not typical for Honeywell to have subcontracts with flow down requirements. However, when this occurs, they are identified separately during the proposal phase (when possible) and maintained separately during project planning and performance. These subcontractors are identified on the responsibility assignment matrix as separate performing organizations and may be the only performing organization(s) on a reporting level WBS element.

The subcontractors' monthly CPR reports are used as the input mechanism for planning and performance data. When a CPR is submitted, the baseline report (CPR Format 3) is used as input to the PMB.

When there is a flow down requirement for compliance with the Guidelines defined in ANSI/EIA Standard 748-(latest revision), the subcontractor's Earned Value Management System will be reviewed by Honeywell. Representatives from PC, Subcontracts Department, and the other members will conduct these subcontractor compliance reviews. They will be supported by the KCSO as required by the authorization or upon request for such support by Honeywell.

The responsible Honeywell PM and the PD review the monthly CPR reports. Independent analyses of data is performed by PC and provided to the PD and PM to support subcontractor analyses.

7.2.1.2 Subcontracts without EVMS Requirements - When EVMS has not been flowed down but the subcontracted effort is significant or comprises exclusive WBS elements, the work is planned in a separate control account(s) or work package(s) by a PM designated with the responsibility for oversight of this work. If the subcontract requires the subcontractor to provide a schedule and time-phased budget, the PM uses this in developing the control account plan for the subcontract. If this is not required by the KCSO authorization, the PM develops the plan based on their knowledge of the requirements and the negotiated value of the subcontract.

Wherever possible, planned milestones based on interim points of measure are used for measuring progress. These can be based on information such as progress payment milestones, lot deliveries, quality inspection points, design review/acceptance points, etc. Earned value is recorded each time the subcontractor satisfies milestone completion criteria. Subcontractors may be required, by the subcontract, to report performance status. If payment is tied to subcontractor progress, the PM must approve the invoice for payment based upon verification of progress either by personal review of the subcontracted effort or on-site verification of progress by the CM, quality inspectors, design engineers, etc.

Significant problems in cost or schedule performance are researched and reported by the PM at the Project Review. The PM is also responsible for an independent estimate of costs at completion (EAC).

Figure 7-1 provides planning guidance for subcontractor efforts according to subcontract type.

Planning and Progress Measurement for Subcontractors without EVMS Requirements

Contract Type	BCWS Planning	Progress Measurement
Fixed-price (pay on delivery)	BCWS is planned in the month of delivery as one lump sum payment for one milestone	BCWP is earned on receipt
Fixed-price (milestone payment)	BCWS is planned corresponding to the payment milestone	BCWP is earned upon successful accomplishment of payment milestones
Fixed-price (equivalent unit deliveries)	BCWS is planned according to the unit price and planned units per month	BCWP is earned based on average value for each unit received
Fixed-price (progress payments)	BCWS is planned according to the time-phased expenditure plan	BCWP is earned equal to progress payment which is contingent upon Honeywell evaluation of actual progress
T&M	BCWS is planned according to the project master schedule	BCWP is based on the accomplishment and earned value method chosen for the work package
Cost-type	BCWS is planned according to the statement of work negotiated with the subcontractor and the project master schedule	BCWP is based on the accomplishment and earned value method chosen for the work package

Figure 7-1

8.0 INDIRECT COST

Indirect costs at Honeywell are planned consistent with the projected business base (sales forecast). They are forecast annually and managed monthly on an exception basis, with variances analyzed and corrective action implemented on a timely basis. These indirect costs are accumulated and allocated in a consistent manner as described in the Honeywell CAS disclosure statement and in accordance with the *Federal Acquisition Regulations* (FAR).

8.1 Responsibility for Indirect Costs

The Honeywell FM&T Chief Financial Officer (CFO) is the individual responsible for management of indirect costs at the KCP. The CFO executes this responsibility through Costing and Analysis.

The Project Director, with the assistance of Costing and Analysis, is responsible for management of indirect costs as they are allocated to the project. PC facilitates this effort.

Directors are responsible for developing indirect budgets and controlling indirect costs in conjunction with the CFO. This effort is supported by Costing and Analysis.

8.2 Management of Indirect Costs

8.2.1 Establishment of Indirect Budgets: Indirect costs on a Honeywell FM&T basis are identified to various organizations normally headed by a Director. Additionally, there are also HONEYWELL FM&T common cost center groups that provide support. G&A/ IR&D/B&P/Selling expenses are accumulated with traditional cost pools that are allocated to cost objectives based on Input to Work In Process (IWIP)

Each Director or equivalent manager is responsible to forecast the expenses for labor and material as fixed and variable costs. Costing and Analysis prepares suggested budgets for the directorates based upon the forecasted direct business base and an ongoing automated analysis of indirect using their Cost Analysis Model. These suggested budgets are sent to the Directors by Budgeting and Project Support with their request for indirect budgets. The Director/equivalent manager forecasts are based on the suggested budgets and modified to reflect the manager's knowledge of historical costs, Honeywell FM&T operating plans, expected escalation factors, and the anticipated business base. The forecasts are then accumulated.

The projected indirect costs are used to establish the Product Line Sales Factors which are used to allocate the indirect costs to projects. Once the indirect budgets and sales factors are approved by the CFO, the indirect budgets are distributed to each manager whose organization has authority to incur indirect costs. These managers assign indirect resources and approve indirect charges. They also analyze and explain significant variances from budgets which are material, upon request of Costing and Analysis.

8.2.2 Development of the Business Base: The business base forecast is prepared each year, and updated quarterly as needed. It contains the forecasted direct costs, which are the base over which the indirect costs will be allocated to determine the target indirect rates.

Projected cost data for all firm and potential projects are generated. For existing projects the forecasts are based upon the current EAC. Forecasts are developed for potential projects; these are then factored by probability of capture. These data are then accumulated to form a Honeywell FM&T sales projection.

8.2.3 Establishment of Indirect Rates: Projected indirect rates are calculated based on the budgeted/actual indirect expenses for each cost center group (as described in Section 8.2.1) and the direct cost (base) projections (described in Section 8.2.2). Costing and Analysis makes the calculation and it is approved by the CFO. The resulting rates are compared to the existing activity rates; if materially different, the activity rates are revised.

This review is performed annually as part of the yearly cycle. In addition, rates are reviewed so that timely changes can be made (if required) for actual or anticipated changes in the business base or overhead expense requirements, and to respond to organizational or accounting changes.

When new activity rates are approved, Costing and Analysis notifies managers, Project Directors, PC personnel and Contracts/Pricing personnel of the approved Product Line Sales Factors for planning, variance analysis, estimates to complete, proposals and negotiations.

8.2.4 Collection of Actual Indirect Costs: Indirect costs are collected in the accounting system in the same manner as the direct costs. The Honeywell chart of accounts specifies which accounts (i.e., which types of expenses) are allowable for each cost center groups. These groups and accounts are created consistent with the Honeywell CAS disclosure statement, the FAR, and the Cost Accounting Standards. The indirect cost center group allocations are described in the Honeywell CAS Disclosure Statement.

8.2.5 Control of Indirect Costs: Organizational Directors/Managers receive monthly financial reports that provide current month and fiscal year to date data for the indirect budget, actual expense incurred and budget variances. These statements are in the same format and level of detail as the budgets. Variances between the projected and actual direct bases to which indirect costs are allocated are identified in a report distributed by General Accounting to these managers.

General Accounting distributes a monthly variance report by cost center groups comparing year-to-date actuals to budgets. As necessary, Costing and Analysis requests analyses of indirect spending variances and corrective action plans from the responsible managers.

All variance analyses are reviewed and followed up on in subsequent months, as required, to assess the success of the corrective action plans in reducing indirect expenses. Changes in indirect requirements or applicable bases for allocation of indirect costs become apparent through variance analyses. Such changing circumstances are handled through the plan updates by reforecasting direct and indirect costs and, if necessary, by changing the target rates.

8.3 Management of Project Indirect Costs

The Project Director has full responsibility for the analysis of the effects of indirect cost on the project. This includes understanding its contribution to any project level cost variances and the development of an EAC reflecting the latest Product Line Sales Factors.

The Project Director's responsibilities also include the development of management actions to further improve performance in terms of direct resources should the Product Line Sales Factors increase (i.e. the Project Director is responsible for funds management as well as performance management).

8.3.1 Project Budgeting for Indirect Costs and Allocation of Actual Indirect Costs: The Product Line Sales Factors, established as described in Section 7.2.3, are used for all financial activities until year-end, including project budgeting. These activity rates are applied to the project direct labor and non-labor budgets at the control account level to develop the project indirect budgets and EACs. Actual indirect costs are allocated to the project at the control account level using activity rates applied to actual direct costs. Indirect budgets and actuals are summarized to the total project level within this system.

If activity rates are changed during the year, the allocated indirect costs are adjusted. Such a change would be the result of one of the business plan updates; in this way, large year-end adjustments are avoided.

PC supports the Project Director in the development of the variance analysis resulting from indirect rate adjustments.

8.3.2 Calculation of Indirect Project EAC: The indirect cost portion of the project estimate at completion is calculated using the Product Line Sales Factors in effect for current and any future years for which forecasts exist at the time the EAC is prepared. These are the same rates developed as described in Sections 7.2.3 and 7.2.4. PC is responsible for supporting the Project Director in preparing a new project EAC, if required because of indirect rate changes.

8.3.3 Control of Project Indirect Costs: The Project Director cannot control the indirect costs that are accruing to the various cost center groups, but they can take actions to attempt to reduce the direct costs against which the indirect costs are allocated. To this end, the Project Director, with the assistance of Costing and Analysis, analyzes the effect of any indirect rate changes on the Project. The analysis is oriented to an understanding

the cause(s) of the variance so that it can be explained to the KCSO and to assess its long-term impact on the project. Because of funding considerations, the principal focus of this analysis is the variance at completion and any mitigating or corrective action plans that can reduce the effect of an unfavorable rate change.

Appendix A: EVMS Glossary of Terms

The following Glossary is from EIA Standard 748-A

ACTUAL COST - The costs actually incurred and recorded in accomplishing work performed.

ACTUAL DATE - The date on which a milestone or scheduled work task is completed.

APPORTIONED EFFORT - Effort that by itself is not readily measured or divisible into discrete work packages but which is related in direct proportion to the planning and performance on other measured effort.

AUTHORIZED WORK - Effort (work scope) on contract or assigned by management.

BUDGET AT COMPLETION - The total authorized budget for accomplishing the program scope of work. It is equal to the sum of all allocated budgets plus any undistributed budget. (Management Reserve is not included.) The Budget At Completion will form the Performance Measurement Baseline as it is allocated and time-phased in accordance with program schedule requirements.

CONTROL ACCOUNT - A management control point at which budgets (resource plans) and actual costs are accumulated and compared to earned value for management control purposes. A control account is a natural management point for planning and control since it represents the work assigned to one responsible organizational element on one program work breakdown structure element.

COST VARIANCE - A metric for the cost performance on a program. It is the algebraic difference between earned value and actual cost ($\text{Cost Variance} = \text{Earned Value} - \text{Actual Cost}$.) A positive value indicates a favorable position and a negative value indicates an unfavorable condition.

CRITICAL PATH ANALYSIS - See NETWORK SCHEDULE.

DIRECT COSTS - The costs or resources expended in the accomplishment of work which are directly charged to the affected program.

DISCRETE EFFORT - Tasks that are related to the completion of specific end products or services and can be directly planned and measured. (Also may be known as work packaged effort.)

DUE DATE - The date by which a milestone or task is scheduled to be completed.

EARNED VALUE - The value of completed work expressed in terms of the budget assigned to that work.

ESTIMATE AT COMPLETION - The current estimated total cost for program authorized work. It equals actual cost to a point in time plus the estimated costs to completion (Estimate To Complete).

ESTIMATE TO COMPLETE - Estimate of costs to complete all work from a point in time to the end of the program.

ESTIMATED COST - An anticipated cost for specified work scope.

EXPECTED COMPLETION DATE - The date on which a scheduled milestone or task is currently expected to be completed.

INDIRECT COST - The cost for common or joint objectives that cannot be identified specifically with a particular program or activity. Also referred to as overhead cost or burden.

INTERNAL REPLANNING - Replanning actions for remaining work scope. A normal program control process accomplished within the scope, schedule, and cost objectives of the program.

LEVEL OF EFFORT - Unmeasured effort of a general or supportive nature usually without a deliverable end product. Examples are supervision, program administration and contract administration.

MANAGEMENT RESERVE - An amount of the total budget withheld for management control purposes rather than being designated for the accomplishment of a specific task or set of tasks.

MILESTONE - A schedule event marking the due date for accomplishment of a specified effort (work scope) or objective. A milestone may mark the start, an interim step, or the end of one or more activities.

NETWORK SCHEDULE - A schedule format in which the activities and milestones are represented along with the interdependencies between activities. It expresses the logic of how the program will be accomplished. Network schedules are the basis for critical path analysis, a method for identification and assessment of schedule priorities and impacts.

ORGANIZATION STRUCTURE - The hierarchical arrangement for the management organization for a program, graphically depicting the reporting relationships. The organizational structure will be by work team, function, or whatever organization units are used by the company.

OTHER DIRECT COSTS - Usually the remaining direct costs, other than labor and materiel, like travel and computer costs.

OVER- TARGET BASELINE - Replanning actions involving establishment of cost or schedule objectives that exceed the desired or contractual objectives on the program. An over-target baseline is a recovery plan, a new baseline for management when the original objectives cannot be met and new goals are needed for management purposes.

PERFORMANCE MEASUREMENT BASELINE - The total time-phased budget plan against which program performance is measured. It is the schedule for expenditure of the resources allocated to accomplish program scope and schedule objectives, and is formed by the budgets assigned to control accounts and applicable indirect budgets. The Performance Measurement Baseline also includes budget for future effort assigned to higher Work Breakdown Structure levels (summary level planning elements) plus any undistributed budget. Management Reserve is not included in the baseline as it is not yet designated for specific work scope.

PERFORMING ORGANIZATION - The organization unit that applies resources to accomplish assigned work.

PLANNING PACKAGE - A logical aggregation of work, usually future efforts that can be identified and budgeted, but which is not yet planned in detail at the work package or task level.

PROGRAM BUDGET - The total budget for the program including all allocated budget, management reserve, and undistributed budget.

PROGRAM TARGET COST - The program cost objective based on the negotiated contract target cost, or the management goal value of the authorized work, plus the estimated cost of authorized unpriced work.

PROJECT DIRECTIVE – Project unique instructions issued by the Project Director that supplements the Project Planning and Control System manual.

RESOURCE PLAN - The time-phased budget, which is the schedule for the planned expenditure of program resources for accomplishment of program work scope.

RESPONSIBLE ORGANIZATION - The organizational unit responsible for accomplishment of assigned work scope.

SCHEDULE - A plan that defines when specified work must be done to accomplish program objectives on time.

SCHEDULE TRACEABILITY - Compatibility between schedule due dates, status, and work scope requirements at all levels of schedule detail (vertical traceability) and between schedules at the same level of detail (horizontal traceability).

SCHEDULE VARIANCE - A metric for the schedule performance on a program. It is the algebraic difference between earned value and the budget (Schedule Variance = Earned Value - Budget). A positive value is a favorable condition while a negative value is unfavorable.

STATEMENT OF WORK - The document that defines the work scope requirements for a program.

UNDEFINITIZED WORK - Authorized work for which a firm contract value has not been negotiated or otherwise determined.

UNDISTRIBUTED BUDGET - Budget associated with specific work scope or contract changes that have not been assigned to a control account or summary level planning element.

WORK BREAKDOWN STRUCTURE - A product-oriented division of program tasks depicting the breakdown of work scope for work authorization, tracking, and reporting purposes.

WORK BREAKDOWN STRUCTURE DICTIONARY - A listing of work breakdown structure elements with a description of the work scope content in each element. The work descriptions are normally summary level and provide for clear segregation of work for work authorization and accounting purposes.

WORK PACKAGE - A task or set of tasks performed within a control account.

Project Status Report - Reporting Instructions & Definitions



Project Authorization Number, Project Title

	Scope	Cost	Schedule	Technical	VOC	Overall
Current	G	1.00	1.00	G	G	G
Future	G	G	G	G		

Project Manager: Your Name
 Funding: List funding type
 TEC: \$#,###,###

Rigor Level: H/M/L/S
 IPDS: Yes/No
 Review Date: Month Year

Project Scope

- List any scope issues
- Key changes or change requests
- Additions or deletions to scope

Schedule Performance

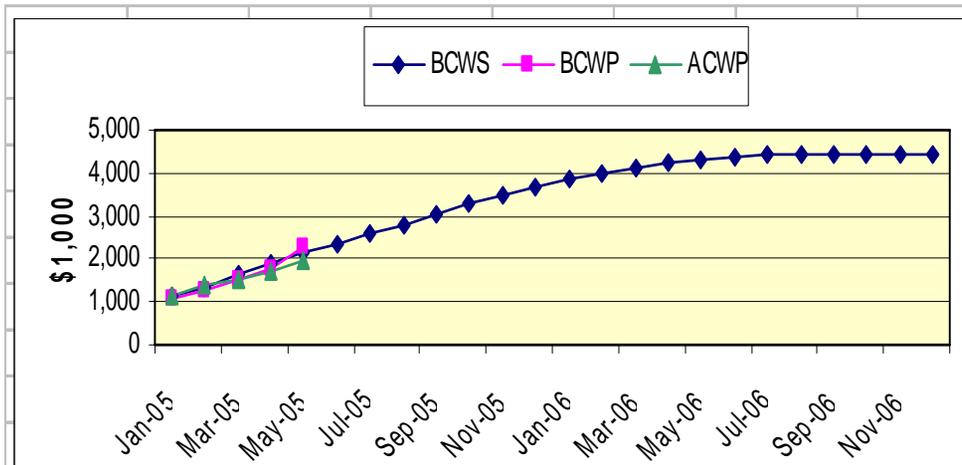
- List any schedule issues.
- List any key milestone dates.
- Forecast near term future work to be accomplished

Accomplishments:

- List accomplishments since last review

Project Costs

- Trend chart inserted below by Project Controls



Issues:

- List issues, risks, concerns or obstacles
- List any areas where the project team needs help
- Provide a variance analysis for all yellow or red conditions

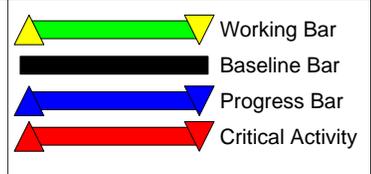
		Status (Facilities)		
		Green	Yellow	Red
Scope	Current	Scope is stable and is clearly defined and understood. Mitigation plan accomplished.	Scope is changing and mitigation plan is in place to minimize the effects of the change.	Changes in scope are severely impacting dollars or ability to deliver. Scope is not clearly defined. Changes have not been mitigated satisfactorily.
	Future	No foreseen changes in scope.	Moderate risk of scope change that will possibly cause any other category to change to a red or yellow status.	Significant risk of scope change that will likely cause any other category to change to a red or yellow status.
Cost	Current	CPI is between 0.9 and 1.15.	CPI is between 0.85 and 0.9 or between 1.15 and 1.25.	CPI is outside of yellow and green boundaries.
	Future	Minimal risk in the EAC exceeding the Performance Baseline Budget by 5% at the project execution level.	Moderate risk in the EAC exceeding the Performance Baseline Budget by 5 to 9% at the project execution level.	Significant risk in the EAC exceeding the Performance Baseline Budget by 10% or more at the project execution level.
Schedule	Current	Project is on track to meet all project milestones. SPI is between 0.9 and 1.15.	Behind schedule such that milestones that do not directly impact the customer will not be met. SPI is between 0.85 and 0.9 or between 1.15 and 1.25.	Behind schedule such that milestones that directly impact the customer will not be met. SPI is outside of yellow and green boundaries
	Future	Minimal risk in meeting project milestones.	Moderate risk in meeting project milestones.	Significant risk in meeting project milestones.
Technical		Consider the following technical aspects when assessing technical project status: engineering releases, definitions, commitment to quantity production, work instructions, test equipment availability, tooling and gages availability, ES&H compatibility, operator ability, equipment availability and capability, process maturity, security compliance, internal technical knowledge, availability of hardware/software, etc.		
	Current	No technical issues.	Technical issues that will moderately impact the scope, schedule, or cost.	Technical issues that will significantly impact the scope, schedule, or cost.
	Future	Minimal risk in having necessary technical aspects in place in time to support the project plan.	Moderate risk in having necessary technical aspects in place in time to support the project plan.	Significant risk in having necessary technical aspects in place in time to meet the project plan
		NA if project is not technical (ex: business improvement).		
VOC		Based on actual feedback from customer. NA if there is no known feedback.		
Overall		The Project is expected to meet its Schedule Performance Baseline and not exceed TEC.	The Project is at-risk of breaching its Schedule Performance Baseline and is at-risk of exceeding TEC or VOC is yellow.	The Project is expected to breach its Schedule Performance Baseline and exceed TEC or VOC is red.

Funding FIRP-GPP
 Funding Year FY2002
 Project No. 016013
 Subcontract No. 1862
 Parent Maximo No. 98403797
 Data Date 28-FEB-03
 Run Date 28-MAR-06 14:09

TEC: \$350,000
 Design: FES
 Construction:
 AALO

**Kxx, Standard Project Template
 Mod 0, Approved 10/26/2005**
Project Status Report (PSR)

NNSA/KCSO: Schmidt, R.E.
 FM&T: Ginder, M.A.
 FES: Lawson, G. W.
 CM: Williams, E. C.
 Est: Elliot, R. A.
 Buyer:



Activity Description	Completion \$ Variance	Budgeted Cost	Est at Comp	Cost to Date	ACWP %	BCWP %	BCWS %	Baseline Finish	Finish Variance	FY					
										FY06	FY07	FY08	FY09	FY10	
Kxx, Standard Project Template															
	0	4,795,000	4,795,000	0	0			28-JAN-10	0	5					
Project Budget Base															
	0	4,490,000	4,490,000	0	0			28-JAN-10	0	5					
Performance Measurement Baseline															
	0	4,240,000	4,240,000	0	0			28-JAN-10	0	5					
Design Phase															
Prepare Design	0	305,000	305,000	0	0			22-MAR-07	0						
Construction Phase															
Procure Standard Equipment	0	30,000	30,000	0	0			27-AUG-09	0						
Perform Construction Contract	0	2,450,000	2,450,000	0	0			04-MAY-09	0						
Perform Construction Inspection	0	150,000	150,000	0	0			04-MAY-09	0						
Perform Construction Management	0	250,000	250,000	0	0			03-AUG-09	0						
Design Work Order	0	90,000	90,000	0	0			05-JAN-09	0						
Perform Work Order	0	265,000	265,000	0	0			27-AUG-09	0						
Project Management															
Project Management for Design Phase	0	200,000	200,000	0	0			20-SEP-07	0						
Project Management for Construction	0	400,000	400,000	0	0			28-JAN-10	0						
Undistributed Budget, Scope TBD	0	100,000	100,000	0	0			28-AUG-09	0						
+ Management Reserve															
	0	250,000	250,000	0	0			28-AUG-09	0						
+ Contingency															
	0	305,000	305,000	0	0			26-NOV-09	0						

Scope Status: Firm.
Cost Status: Design and PM forecasts have been modified for AHU transfer.

Schedule Status: Revised construction documents due 3/14/03.
Funding is slated for FY2004, however, the schedule was prepared for possible late FY03 funding.

Project Status Report (PSR) Dictionary

1. **Funding** Source of TEC funds: General Plant Projects (GPP), Line Items (LI), Expense or Capital Equipment.
2. **Funding Year:** The year funding is received.
3. **Project Number:** The Honeywell accounting system identifier for the TEC portion of the project i.e., 016981, 60812345, 041234.
4. **Subcontract Number:** Purchasing assigned number to identify fixed price contracts for construction, i.e. 1854.
5. **Parent Maximo Number:** The highest level Maximo number identifying the project. The Parent Maximo number will be used as the controlling number for all project documents including scopes, estimates, design criteria, construction documents, and all other related project information.
6. **Data Date:** The “as of” date for the report. It is always the last day of the reporting period, i.e. month or quarter. Sometimes called the Status Date.
7. **Run Date:** The day the report was printed.
8. **TPC:** Total Project Cost. NNSA definition is $TPC = TEC + OPC$. However GPP and Expense do not include OPC so $TPC = TEC$. OPC is only applicable to Line Item projects (> \$5,000,000).
9. **TEC:** Total Estimated Cost. NNSA definition is all construction funded type work. Includes preliminary and final design, construction, equipment procurement, installation/rearrangement, installation design, contract closeout and acceptance by NNSA. For Line Items, TEC begins with NNSA approval of CD 1 and ends with contract closure or NNSA approval of CD 4.
10. **OPC:** Other Project Costs: NNSA definition is all project related work, not construction funded, that is performed by full time dedicated staff. Is only applicable to Line Item projects. Includes Conceptual Design Report, Project Execution Plan, Design Criteria, negotiate A/E contract, equipment startup, operator training, miscellaneous support and project closeout. Begins with NNSA approval of CD 0 (start of CDR) and ends with submittal of the Final Cost Report to NNSA.
11. **Design:** The contractor or organization performing Preliminary and Final Design.
12. **Construction:** The contractor performing construction work.
13. **Project Title:** Includes the Authorization number, i.e. K15-0B, and the project Title on the Authorization. May be abbreviated to fit the 48-character limit of Primavera.

Project Status Report (PSR) Dictionary

14. **Baseline Identification:** Includes the latest approved Authorization Mod number or BCP number and the date of NNSA approval.
15. **Primavera project identifier:** Four-character name of the Primavera file. Is an acronym for the project title with the fourth character always being 0 to identify the working file. The baseline files always end with 1.
16. **Activity Description:** The activities shown are all the project control accounts, work packages and Authorization milestones. Additional activities will be added, as needed, to identify the scope of major contracts.
17. **Completion \$ Variance:** Is the Baseline Cost (18) minus the Estimate at Completion (19). A positive value is “under budget”. This is an earned value measure called the EAC Variance.
18. **Bsln Cost:** The costs from the latest approved Baseline Authorization Document and Control Account Authorization. Proposed baseline changes will not be used for reporting until they are formally approved by NNSA.
19. **Est at Comp:** Project Measurement Baseline cost accounts and work packages are composed of: 1) the Cost-to-Date (20) plus, 2) the most recent estimate of remaining work, including contract commitments and approved and pending contract change orders.
20. **Cost to Date:** Also called the Actual Cost Of Work Performed (ACWP), the Cost to Date is the total of direct and indirect (burden) costs incurred or accrued in accomplishing work on an activity up to the data date. This is input from the Honeywell FM&T accounting system reports. If the accounting data needs to be adjusted, the revised amount will be reported and a note added to the report.
21. **ACWP %:** The Actual Cost of Work Performed %, also called the Spent %, is calculated by the software as $\text{Cost to Date (20)} / \text{Baseline Cost (18)} \times 100$. This is the Actuals costs booked in the accounting system as a percent of the baseline dollars. On fixed price contracts for design or construction, the accrual system is used to make the actuals representative of the work achieved.

Subtracting the ACWP %(21) from the BCWP % (22) will give the Cost Variance (CV) of earned value systems. A positive is “under budget”.

Dividing the BCWP % (22) by the ACWP % (21) will give the Cost Performance Index (CPI). A value of more than one is desirable.

22. **BCWP %:** The Budgeted Cost Of Work Performed %, also called the earned value %, or achieved %, is the percentage of the baseline scope completed on an activity up to the status date. It is input to the software based on the PM’s assessment of physical work accomplished or other EV methods as described below. For fixed

Project Status Report (PSR) Dictionary

price design or construction this is the same % used for accruals. The accrual % is based on the total contract value including approved change orders.

The different methods for determining the BCWP % are described in the PPCS or Tailored System Descriptions available in Command Media.

- 23. BCWS %:** The budgeted cost of work scheduled %, is calculated by the software and is that portion of the approved cost baseline planned (in the baseline schedule) to be spent on an activity up to the status date.

Subtracting the BCWS %(23) from the BCWP % (22) will give the Schedule Variance (SV) of earned value systems. A positive is “ahead of schedule”.

Dividing the BCWP % (22) by the BCWS % (23) will give the Schedule Performance Index (SPI). A value of more than one is desirable.

- 24. Baseline Finish:** The activity finish date from the baseline schedule. Dates with an “A” appended are “actual” dates according to the baseline schedule. These “actual” dates should not be confused with the **real** “actual” dates in the working schedule (in the bar chart area).
- 25. Finish Variance:** The Baseline Finish (24) minus the Working Schedule (26) finish. It is the number of workdays ahead or behind the baseline date. A positive value is ahead of schedule.
- 26. Working Schedule:** Shown in the bar chart area. All dates to the left of the Data Date line are actual. All dates to the right of the Data Date line are forecast.
- 27. Preliminary and final design:** Starts at NTP and completes on submittal of final package by the design firm.
- 28. Construction Start/Completion:** Starts at NTP and completes at Substantial Completion as defined by the construction contract and signified by conducting a successful Beneficial Occupancy Inspection (BOI). A successful BOI is defined as an inspection that allows the owner to achieve beneficial use (i.e. conditions allow for safe use of the equipment/facility).
- 29. Work Order Construction: Starts** at commencement of physical work and completes at Substantial Completion as defined by conducting a successful Beneficial Occupancy Inspection (BOI). A successful BOI is defined as an inspection that allows the owner to achieve beneficial use (i.e. conditions allow for safe use of the equipment/facility).

TEC Complete milestone: Equals the last BOI date plus 2 months for completion of Punch List items. This time frame should be adjusted if warranted by specific project circumstances.

Project Status Report (PSR) Dictionary

The FES Project Manager is responsible for all status updates.