Department of Energy
Washington, DC 20585

June 30, 2010

The Honorable Peter S. Winokur
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW, Suite 700
Washington, DC 20004-2901

Dear Mr. Chairman:

This letter transmits the Project Execution Plan (PEP) for K-Basin sludge as discussed in our January 27, 2010, letter to the Defense Nuclear Facilities Safety Board. The enclosed PEP will be used as a basis to revise the Implementation Plan (IP) for Recommendation 2000-1. Environmental Management Headquarters and the Richland Operations Office will continue dialog with your staff during development of the revised IP.

If you have any further questions, please contact me or Dr. Steven L. Krahn, Deputy Assistant Secretary for Safety and Security Program at (202) 586-5151.

Sincerely,

Inés R. Triay
Assistant Secretary for
Environmental Management

Enclosure

OFFICE OF ENVIRONMENTAL MANAGEMENT
RICHLAND OPERATIONS OFFICE

K WEST BASIN

SLUDGE TREATMENT PROJECT

Preliminary

PROJECT EXECUTION PLAN

Environmental Management Operating Project

for Stabilization and Disposition

of Spent Nuclear Fuel

100 - K BASIN CLOSURE

(PBS RL-0012)

Revision 0

Issued: **June 2010**

Approved:

David Brockman, Manager
Richland Operations Office

6/15/2010
Date

Recommended:

Thomas Teynor, Federal Project Director
K Basins Closure Project

June 15, 2010
Date

Prepared:

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6/15/10
Date

Revision 0

Change Synopsis

Revision	Effective Date	Summary of Change
0	15 June 2010	Initial issue

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1.0 INTRODUCTION

This Preliminary Project Execution Plan (PPEP) describes the management approach, organizational roles and responsibilities, integrated baseline, and project management systems used to execute the Sludge Treatment Project (STP) at the Hanford Site. The primary purpose of the PPEP is to support approval of Critical Decision (CD)-1 for Phase 1 of the STP Engineered Container / Settler Tank (EC/ST) sludge disposition subproject. The scope of the PPEP includes all of the subprojects of the Sludge Treatment Project (STP) as described in Section 1.3 and is also intended to assist the Federal Project Director and Integrated Project Team to effectively manage all aspects of the project.

The PPEP has been prepared in accordance with DOE O 413.3A, and identifies the tailoring strategy for satisfying the Order requirements for CD-1. The PPEP will be updated as the project progresses through its various stages engineering and design, testing, construction, and operations startup.

The U.S. Department of Energy (DOE) Richland Operations Office (RL) is cleaning up the environmental legacy from over 40 years of nuclear weapons materials production at the Hanford Site. One of the primary objectives at Hanford is cleanup of the Columbia River Corridor[1]. This area is being given priority relative to other areas of contamination because it borders the Columbia River and is contained within the confines of the Hanford Reach National Monument. Ongoing activities include remediating waste sites and groundwater contamination plumes.

One of the last facilities near the Columbia River containing stored nuclear material is the K West Basin where highly radioactive sludge materials are stored under water. Removal of K Basins sludge material will enable demolition and removal of the K West Basin, conversion of the K West reactor to interim safe storage, and allow access to remediate the underlying subsurface and groundwater contamination, with the ultimate goal of releasing the surface area to the Hanford Reach National Monument (managed by the United States Fish and Wildlife Service).

Expediting removal of the sludge from the K West Basin and transferring it away from the Columbia River Corridor provides a lower-risk path forward in support of the Department's 2015 Vision, removes an environmental, safety and health (ES&H) risk to the public and the Columbia River, and supports EM's Environmental Strategic Goal 4.1, "*Environmental Cleanup: Complete cleanup of nuclear weapons manufacturing and testing sites across the United States; completing cleanup of 100 contaminated sites by 2025*." [2]

1.1 PROJECT BACKGROUND

The K Basins were used to store spent nuclear fuel (SNF) from the Hanford N Reactor (beginning in 1975 for the K East Basin, and 1981 for the K West Basin) until 2004 when removal of the fuel contained in canisters was completed. Highly radioactive sludge accumulated in the basins during fuel storage operations, most notably in the KE Basin where the

[1] Hanford Control Point 2012: Accelerating Cleanup and Shrinking the Site (DOE/RL-2000-62)
[2] Department of Energy Five Year Plan FY 2008 - FY 2012, Environmental Management, February 2007, Office of the Chief Financial Officer

fuel was stored in open-topped, and in many cases, open-bottomed canisters. The K Basins sludge consists of a radioactive mix of fuel corrosion products (including fission and activation product nuclides), small fuel fragments, iron and aluminum oxides, concrete grit sand, dirt, and operational and biological debris. As a result of the sludge generation and consolidation processes, there are three sludge streams: knock-out pot (KOP) sludge, settler tank (ST) sludge, and sludge that is consolidated into engineered containers (EC), as described below.

In the period of December 2000 to October 2004, spent fuel contained in fuel canisters in the KW Basin was removed to interim dry storage on the Hanford Central Plateau. During the same period, spent fuel stored in the KE Basin was transferred to the KW Basin for washing and repackaging and was also removed to interim dry storage. Fuel processing operations performed at the KW Basin, which included cleaning and packaging of the fuel in Multi-Canister Overpacks (MCOs), produced additional sludge in the KW Basin. Sludge from the spent fuel storage canisters, consisting of both coarse and fine materials, accumulated in the KOP and settler tank components, respectively, of the Integrated Water Treatment System (IWTS). The IWTS maintained the K West Basin water clarity during the SNF cleaning and repackaging process. KOP material is nominally sized between ¼ inch and 600 microns and settler tank material is nominally less than 600 microns.

In 2007, the remaining sludge that was distributed on the K East and K West Basin floors and pits was consolidated in ECs at the K West Basin for interim storage. K East Basin sludge material was transferred to EC SCS-CON-240, -250, and -260 located in the K West Basin. Most of the K West Basin floor and pit sludge was collected in EC SCS-CON-210 and -220, located in K West Basin alongside the containerized K East sludge. A second campaign is scheduled in 2010 to collect the final residual floor and pit sludge in K West Basin and consolidate it in SCS-CON-210. Also in 2010, the settler tank sludge will be retrieved and transferred into EC SCS-CON-230 and managed in a manner similar to the other containerized sludge materials but not comingled.

The containerized sludge staged in K West Basin requires retrieval, treatment, packaging and ultimately, shipment to a national repository. The goal for the Sludge Treatment Project (STP) is to have all of the sludge materials removed from the K West Basin by 2014 at which point the basin will be deactivated and then removed. In this document, reference to the total inventory of sludge material from K West Basin and K East Basin is referred to as "K Basins sludge material." Sludge is defined as any K Basins submerged material that has passed through ¼-inch size screen. Current estimated sludge volumes are shown in Table 1-1 below.

The STP faces significant challenges to successfully retrieve, treat, package and dispose of K Basin sludge material. The highly radioactive K Basins sludge poses several technical challenges unique to the Hanford Site and DOE. To date, no known technology has been developed and demonstrated successfully that addresses all the issues associated with the safe disposition of the K Basins sludge material. DOE has attempted several different technical approaches to disposition this material, using different technologies and contracting approaches. None have proven mature enough to successfully deal with this unique material. Previous technical approaches have been abandoned prior to demonstration of technical feasibility and adequate technical maturity or failed to operate as designed.

Table 1-1, Estimated Sludge Volumes [3]

	KE Originating			KW Originating		Settler Tubes
Container	EC240	EC250	EC260	EC210	EC220	EC230
Volume [(a)]	2.6 m^3	7.7 m^3	8.1 m^3	4.1 m^3 [(b)]	1.0 m^3	5.4 m^3 [(c)]

Notes:
(a) Each EC volume is considered accurate to +/- 0.4 m^3
(b) Includes an estimated 1.3 m^3 of sludge still present on the KW floor that will be retrieved into EC 210 late FY 2010.
(c) Settler Tube volume is estimated. Retrieval to EC 230 is currently in progress. The bounding estimated volume is 7.6 m^3.

1.2 JUSTIFICATION OF MISSION NEED

The DOE Environmental Management (EM) mission[4] is the safe and successful cleanup of the Cold War legacy brought about from five decades of nuclear weapons development and government-sponsored nuclear energy research. DOE-RL's local mission is to expedite clean up of the Hanford Site to protect the Columbia River. To accomplish this mission, sludge must be removed from the basin to:

- enable the removal of K West Basin and
- perform the subsurface remediation.

Therefore, there exists a need to treat and package the K Basin sludge in a form suitable for transportation to and final disposal at a national repository. This capability for treatment and packaging does not exist within the DOE or commercial complex.

A Mission Need Statement[5] (MNS) for the STP has been issued. The MNS document identifies the need to design, procure, construct, test and commission an integrated set of process/systems to:

- Remove radioactive sludge currently stored in the 105K West Basin to enable the achievement of DOE 2015 Vision for the River Corridor and waste consolidation on the 200 Area Plateau, and
- Process and package the sludge in approved containers suitable for transportation to a national repository

EM's strategic planning and analyses is focused, in part, in "footprint reduction opportunities and near-term completion"[6]. The Department's vision is to clean up and shrink the Hanford Site footprint from approximately 586 square miles to an approximately 75 square miles represented as the 200 Area Plateau. To accomplish this, work is focused on cleaning up the Columbia River Corridor, which is expected to be complete by roughly 2015, while transitioning the Central

[3] HNF-41051, 2009, *Preliminary STP Container and Settler Sludge Process System Description and Material Balance*, Rev. 5, CH2M Hill Plateau Remediation Company, Richland, WA, December 2009
[4] *DOE-EM, Five Year Plan FY 2008 - FY 2012*, Office of the Chief Financial Officer, February 2007
[5] HNF-34695, Rev. 5, *Sludge Treatment Project Mission Need Statement*
[6] *Report to Congress, Status of Environmental Management Initiatives to Accelerate the Reduction of Environmental Risks and Challenges Posed by the Legacy of the Cold War*, January 2009, United States Department of Energy, Office of Environmental Management, Submitted Pursuant to Section 3130 of the National Defense Authorization Act For Fiscal Year 2008

Plateau from primarily waste storage areas to waste characterization, treatment, storage and disposal activities. Disposition of the K West Basin, which is located within the Columbia River Corridor and is a threat to the environment, is clearly on the critical path for achieving this 2015 Vision. The STP mission will implement the K Basin Interim Remedial Action, Record of Decision[7] to remove and treat sludge for offsite disposal at a national repository. The K Basin sludge material must be removed to enable removal of the K West Basin facility, thus enabling soil and groundwater remediation activities below the facility and the cocooning of the K West reactor.

1.3 PROJECT DESCRIPTION

The STP is sub-divided into two subprojects;

(1) the KOP Disposition Subproject
(2) the EC/ST Disposition Subproject

KOP Disposition Subproject

The KOP Disposition Subproject addresses material generated by SNF washing operations at the K West Basin nominally sized between 0.25 inch and 600 microns. The KOP material stream[8] consists of primary clean machine (PCM) strainer material, material less than 0.25 in. from the primary process table collected during fuel processing, IWTS strainer material, and material collected in the KOPs. The subproject will a) retrieve, wash and inspect the KOP material; b) develop, design, and install equipment in K West Basin; c) size and density sort the KOP material, load the product fraction into MCOs; d) transport the MCOs to the CVDF; e) dry the contents of the loaded MCOs; and f) transport the MCOs to CSB for off-loading and interim storage. Figure 1-1 below provides a diagram of the KOP activities. These processing activities are similar to ongoing K West Basin operations and are discussed further in Section 2, Tailoring Strategy.

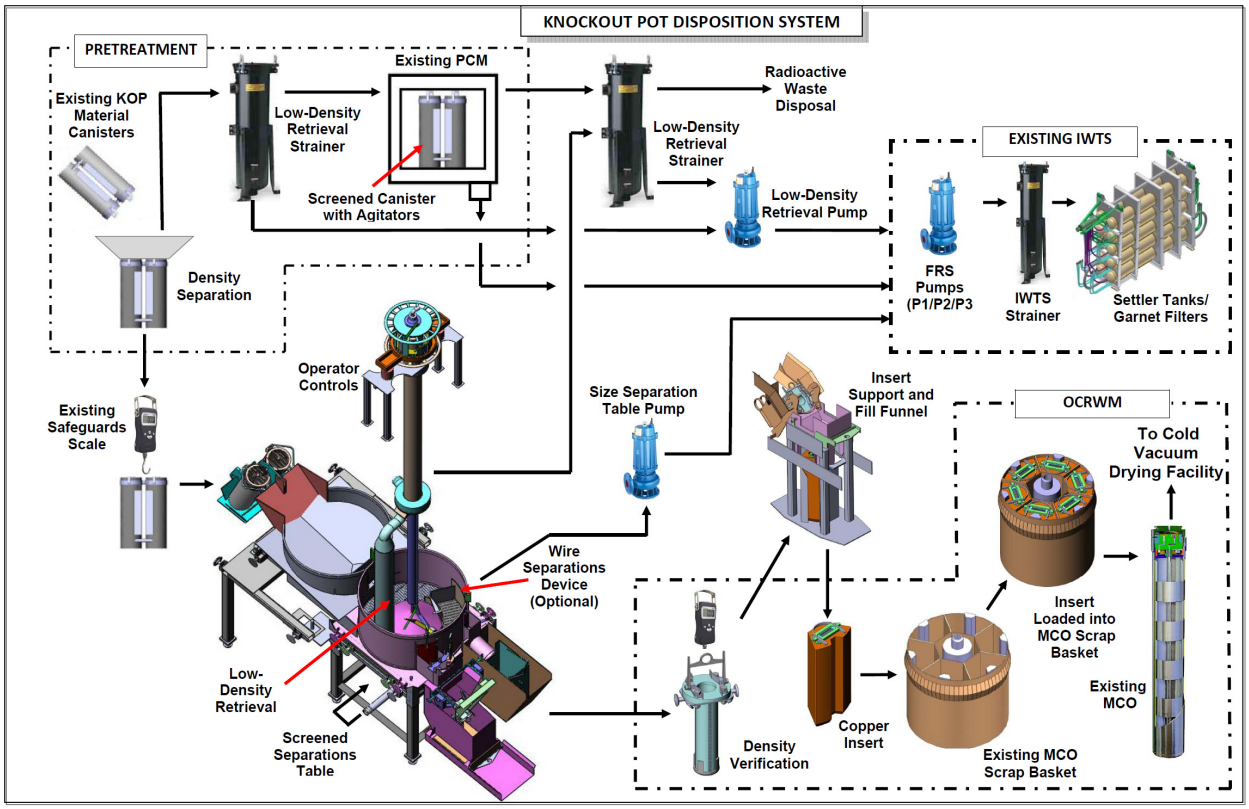
EC/ST Disposition Subproject

The EC/ST Disposition Subproject addresses the Engineered Container sludge contained in SCS-CON-210, -220, -240, -250 and -260, and Settler Tank (ST) sludge to be contained in SCS-CON-230. In its Alternatives Analysis Summary Report[9], the contractor proposed a two-phased approach for the disposition of EC and ST sludge materials. DOE-RL approved[10] the contractor's recommendations as the project's path forward and this PPEP is based on those recommendations. In order to implement the two phased approach, the EC/ST Disposition Subproject is further sub-divided into Phase 1 and Phase 2.

Figure 1-2 provides a diagram of the EC/ST activities showing both phases. Phase 1 includes retrieval of the EC sludge from its current location in the K West Basin, loading of the sludge into Sludge Transport Storage Containers (STSC) and transport to T Plant for interim storage. EC/ST Phase 1 activities have been defined as existing

[7] U.S. Environmental Protection Agency (EPA) Interim Remedial Action Record of Decision Amendment, June, 2005
[8] 08-AMCP-0196, *K Basin Knock Out Pot Accelerated Disposition Direction, June 6, 2008*
[9] HNF-39744, Revision 0, *Sludge Treatment Project Alternatives Analysis Summary Report*
[10] 09-AMRC-0173, External Technical Review (ETR) of the Hanford K Basins Sludge Treatment Project (STP), dated August 19, 2009 from J. Osso, Contracting Officer to J. G. Lehew, President and CEO

Figure 1-1, KOP Disposition Subproject

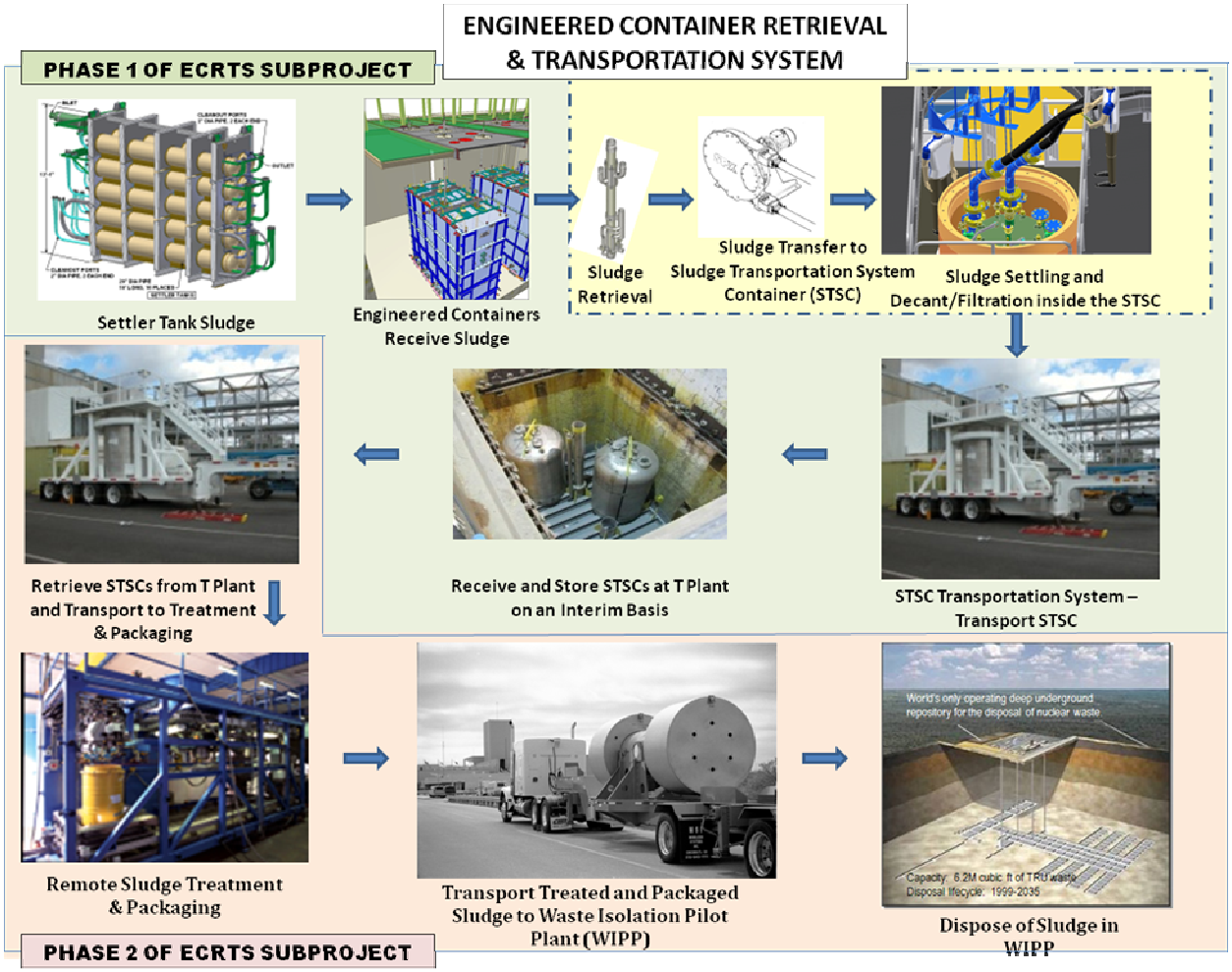


operations[11] in the Stabilization and Disposition (S&D) of the K West Basin sludge. For existing S&D operations, adherence to the requirements of DOE O 413.3A is not mandatory[12] but project management principles still apply. DOE-RL has chosen[13] to implement the requirements of DOE O 413.3A, tailored to EC/ST Phase 1 Subproject, in order to reduce project risks. The application of Critical Decisions and DOE approval authorities has been tailored to ensure that the benefits of the DOE O 413.3A are realized, reducing project performance risks.

Phase 2 addresses the final disposition of the sludge that will be placed in interim storage at the conclusion of Phase 1, including sludge retrieval from interim storage, treatment and packaging, and shipment to the Waste Isolation Pilot Plant (WIPP). Figure 1-2 includes a general description of the currently envisioned Phase 2 activities. Phase 2 alternative analysis and selection is complicated by the need to integrate the K Basins sludge processing requirements with the mission requirements of other RH-TRU waste streams at the Hanford site. As

[11] DOE letter from Triay to Teynor, Approval for Establishing "Operations" Activities for RL-0012.01, Spent Nuclear Fuel Stabilization and Disposition (K Basin Closure Project), Richland Operations Office, WA; August 31 2009
[12] DOE letter from Chung to Distribution, Office of Environmental Management's Operations Programs Protocol, April 21, 2010
[13] DOE letter 08-AMCP-0151, Jarnigan to Murphy, K Basin Sludge Disposition Direction, March 28 2008

Figure 1-2, Engineered Container / Settler Tube Disposition Subproject



documented in the External Technical Review Report[14] (ETR), the K Basins sludge material accounts for about 1% by pre-treated volume, 11% by curies, and 15% of the certified package volume of the total RH-TRU on the Hanford site.

Currently, Phase 2 activities are limited to performing an alternative analysis of treatment and packaging technologies. Future updates of this document will include more detail on Phase 2 as it becomes more defined.

1.3.1 Project Vision

The project vision for the STP is to expedite K West D&D and 100K Area groundwater remediation activities in support of the DOE-RL Vision 2015. The two phased approach, shown in Figure 1-2 above, is designed to affect this by removing the EC/ST sludge materials from the basin as early as possible. This involves first gathering sufficient information from sludge

[14] External Technical Review of the Hanford K Basins Sludge Treatment Project, June 2009

sampling and characterization activities. Characterization information will be used to design the retrieval and transfer methods which will move the EC/ST sludge materials from 100K Area to a location on the Central Plateau. For the KOP materials, this is accomplished by handling KOP material in the same manner as SNF and placing the materials in interim storage on the Central Plateau.

1.3.2 Major System Components and Their Functions

The major systems for accomplishing the processes are being developed at this time. They include the equipment and systems to support the following process:

KOP Disposition Subproject

The baseline KOP material functions are (see Figure 1-1):

- Retrieve KOP material (originally from KOP vessels and Primary Cleaning Machine (PCM) and IWTS strainers) and transfer to open-top canisters.
- Inspect and wash the KOP sludge to decontaminate the KOP material of polychlorinated biphenyls (PCBs).
- Perform size and density separation to produce a KOP material stream with less than a predefined amount of sub 600-micron particles and less than a predefined amount of non-metallic uranium material (hydrates). The sub 600-micron amount will be based on thermal stability and particulate generation calculations that establish material at risk (MAR) for hazards analysis.
- Package KOP material into multi-canister overpacks (MCO) scrap baskets.
- Load baskets into MCOs.
- Transfer loaded MCOs to Cold Vacuum Drying Facility (CVDF).
- Dry MCOs containing KOP material at CVDF.
- Transfer dried MCOs to CSB for interim storage, including monitoring as required.

EC/ST Disposition Subproject

The basic steps in the disposition process for sludge retrieval, packaging and disposition are illustrated in Figure 1-2. The major systems and components identified for the Phase 1 activities include:

- Sludge Retrieval System
- Sludge Transfer System
- Sludge Container Loading System
- Loaded Sludge Transportation system
- Loaded Container Offloading System
- Loaded Container Placement in Interim Storage System

As previously mentioned in Section 1.3 above, Phase 2 of the project is performing an alternative analysis for treatment and packaging of the EC/ST sludge material so that it can be certified and transported for disposal in the WIPP facility. Subsequent Phase 2 activities will be planned upon completion of the Phase 2 alternatives analysis, and future revisions of this PPEP will capture updated information as appropriate.

1.3.3 Major Project Assumptions and Uncertainties

The following list represents a set of Mission Level assumptions related to the STP:

- The EC/ST sludge materials can be packaged and disposed as RH TRU
- The KOP material can be stored in the CSB for ultimate disposal with spent fuel
- Washing KOP material will be adequate to remove the PCB contaminants to the extent that it will not be regulated under Toxic Substances Control Act (TSCA) of 1976 so that the CSB storage criteria can be met.
- The Hanford Safeguards and Security Program is being implemented consistent with the requirements of DOE O 4704, Safeguards and Security Program. No requirements beyond those established by the order and the Hanford Program will need to be established.
- Approval of an Explanation of Significant Differences or amendment of the K Basins CERCLA ROD can be accomplished and will successfully integrate NEPA into the CERCLA process for the storage of EC/ST sludge at T Plant to meet the intent of DOE's NEPA policy.
- Evaluation of the K Basins SNF Environmental Impact Statement (DOE/EIS-0245F) and preparation of a Supplement Analysis, if needed, can be accomplished for the storage of KOP material at the CSB.
- Implementation of DOE-STD-1189 and DOE O 413.3A within the STP will be accomplished utilizing the guidance provided in DOE G 413.3-8. Both will be tailored considering the current status of the STP. Specific tailoring addresses these documents.

1.3.4 Project Requirements

The key project requirements for the STP are as follows:

- The project requirements for the disposition of the engineered container sludge are being developed in HNF-40475, Functional Design Criteria, Sludge Treatment Project-Phase 1 - Project A-21C.
- The project requirements for Settler Tank sludge retrieval to Engineered Container SCS-CON-230 are described in KBC-37271, Conceptual Design Requirements, Description, and Evaluation for IWTS Settler Tube Retrieval System
- The project requirements for the disposition of the KOP sludge material are identified in PRC-STP-00014, Functional Design Criteria KOP Material Disposition Project A-21C.

1.3.5 Key Performance Parameters

The key performance parameters for the STP are as follows:

- Remove the respective sludge materials currently staged in the 100K West Basin away from the Columbia River Corridor
- Treat, package and transport the respective K Basin sludge materials to an approved national repository/repositories.

Additionally, TPA Milestone M-016-140 requires DOE to submit revised Remedial Design/Remedial Action (RD/RA) Work Plan(s) to perform, in part, the following STP-related activities:

- Complete removal of all sludge (includes container, settler tank sludge) from K West Basin except KOP contents.
- Complete removal of KOP contents
- Complete treatment and packaging of first container of TRU sludge waste certifiable for disposal at WIPP
- Complete treatment and packaging of sludge for disposal at WIPP

The revised RD/RA Work Plan(s) must be submitted by March 31, 2011.

1.3.6 Project Scope

The STP scope is to retrieve, treat, and package the sludge material currently staged in the K West Basin for ultimate shipment to an approved national repository. This includes interim safe storage of the sludge materials at a location at the Hanford Central Plateau.

After removal of the K West Basin sludge material is complete, the project will turn over associated installed equipment located in K West Basin and CVDF to the 100K Project for D&D disposition along with other facility waste and debris. The Waste Management organization will be responsible for interim storage of the EC/ST material in T Plant, as well as the interim storage of the KOP material in CSB.

KOP Disposition Subproject

The project will retrieve, wash and inspect the KOP material; develop, design, and install equipment in K West Basin; size and density sort the KOP material, load the product fraction into MCOs; transport the MCOs to the CVDF; dry the contents of the loaded MCOs; then transport the MCOs to CSB for off-loading and interim storage.

EC/ST Disposition Subproject

As part of the EC/ST Disposition Subproject, Phase 1 of the project will perform the following:

- Characterize the EC/ST sludge material
- Develop, design, and install equipment in K West Basin and T Plant
- Retrieve The EC/ST sludge material
- Package The EC/ST sludge material
- Transport the packaged EC/ST sludge material to T-Plant
- Place the packaged EC/ST material in interim storage

As previously mentioned in Section 1.3 above, Phase 2 of the project is performing an alternative analysis for treatment and packaging of the EC/ST sludge material so that it can be certified and transported for disposal in the WIPP facility. Subsequent Phase 2 activities will be planned upon completion of the Phase 2 alternatives analysis, and future revisions of this PPEP will capture updated information as appropriate.

1.3.7 Major Interfaces

STP design interfaces are identified under the following headings:

- STP - EC/ST Subproject and 100K Project (K West Basin)
- STP - EC/ST Subproject and Waste and Fuels Management Project (T Plant)
- STP – KOP Disposition Subproject and 100K Project (K West Basin)
- STP – KOP Disposition Subproject and 100K Project (Cold Vacuum Drying Facility)
- STP – KOP Disposition Subproject and Waste and Fuels Management Project (Canister Storage Building)

These preliminary design interfaces are currently identified for the EC/ST Sub-project in PRC-STP-0006, *KW Basin and Sludge Treatment Project Interface Control*. The CHPRC interface management process governing implementation of technical, administrative and regulatory interfaces is described in PRC-PRO-MS-10472, *Interface Management*. This process is augmented for Office of Civilian Radioactive Waste Management (OCRWM)-related interface control process described in 100K Project Administrative Procedure EN-6-021, *Interface Control Process (OCWRM).*

Site technical support programs that interface with the STP include Nuclear Safety, Transportation Safety, Fire Protection, Radiological Safety and Quality Assurance. Programmatic support is managed through the Integrated Project Teams. Both the contractor's IPT and the federal IPT draw from expertise available as the project needs develop. Routine IPT meetings with core team members on both IPTs provide the contractor project manager and the STP subproject director / KBCP FPD the information necessary to identify programmatic support needs.

DOE EM Headquarters (HQ) programmatic support interfaces with STP include EM-50 and EM-20. EM-50, Program and Site Support is a resource for project related activities and issues such as preparations for critical decisions and technology readiness assessments that reduce project uncertainties and risks. EM-50 functions as a principle point of contact for the project where coordination with other DOE sites such as WIPP is necessary to address waste receiver issues. EM-20, Safety and Security Support provide resources through the availability of resident RL Site Representatives. They function as points of contact for HQ monitoring and involvement with project activities that rely on HQ participation and approvals when necessary. They also are a resource when support is needed for independent reviews that are periodically required.

1.3.8 Required Site Development, Permits and Licensing

1.3.8.1 Required Site Development

The site development required for all of the activities associated with KOP disposition and retrieval, removal, and interim storage of sludge is discussed for each of the subprojects as follow.

<u>KOP Disposition Subproject</u>

The details of removing those portions of the KOP sludge that will be managed as spent nuclear fuel and those portions that will be managed as radioactive waste will not require any associated site development work based on current project planning. The affected areas of site development work include 100-K Area (105-K West Basin, Cold Vacuum Drying Facility); Canister Storage Building for KOP material that will be managed as SNF; and the 200 Area Solid Waste

Management Facilities including ERDF for that portion of the KOP material that will be managed as radioactive waste.

EC/ST Disposition Sub-project

The affected areas of site development work supporting Phase 1 activities include 100-K Area and T Plant. This sludge stream will be removed from the 105-K West Basin and placed in interim storage in T Plant. Based on current planning this sludge stream will be removed utilizing sludge transfer and storage containers (STSCs) and an associated cask similar to the large diameter containers used in the past.

As previously mentioned in Section 1.3 above, Phase 2 of the project is performing an alternative analysis for treatment and packaging of the EC/ST sludge material so that it can be certified and transported for disposal in the WIPP facility. Subsequent Phase 2 activities will be planned upon completion of the Phase 2 alternatives analysis, and future revisions of this PPEP will capture updated information as appropriate. Required site development for Phase 2 activities cannot be assessed at this time because this work has not yet progressed in sufficient detail.

1.3.8.2 Required Permits and Licensing

The removal of sludge from the K Basins is within scope of the K Basin Interim Remedial Action, a CERCLA response action, and is being managed consistent with the Hanford Federal Facility Agreement and Consent Order. Specifics for each subproject are discussed below.

KOP Sludge Disposition Subproject

Prior to removal from the 105-K West Basin, the KOP sludge will undergo a separations process by which there will be a sludge stream that will be managed as spent nuclear fuel, and a sludge stream that will be managed as radioactive waste.

The management of the KOP sludge stream that will be managed as spent nuclear fuel will no longer be a part of the CERCLA response action following its removal from the 105-K West Basin as defined in the 1999 CERCLA ROD. Therefore, permits and licenses will be required only for those conditioning activities being conducted at the Cold Vacuuming Drying Facility and interim storage activities at the Canister Storage Building associated with this KOP sludge stream. These permits and licenses are currently in place and may require changes in environmental documentation and agency approval.

The management of the KOP sludge stream that will be managed as radioactive waste will remain a part of the K Basin CERCLA response action following its removal through disposal as defined in the 2005 CERCLA ROD amendment. The sludge management activities in the 200 Area involving receipt, interim storage, and possibly disposal, will require an “off-site” determination from EPA. For example, if the sludge that will be managed as radioactive waste is sent to T Plant, T Plant would likely be designated an off-site facility would require applicable permits and licenses for the interim storage of K Basin sludge as T Plant is already a permitted facility under RCRA. If the KOP sludge that will be managed as radioactive waste is determined to be low level waste, disposal of the sludge at ERDF is already recognized as an option in the 1999 CERCLA ROD. K Basins and ERDF are considered onsite, and waste may be transferred between and managed at these facilities without requiring a permit.

EC/ST Disposition Subproject

The EC/ST sludge removal activities at 100-K Area are considered onsite for CERCLA response purposes for which permits and licenses are not required. The sludge management activities in the 200 Area involving the receipt and interim storage of sludge pending treatment will require an "off-site" determination from EPA. For example, if sludge from the ECs is sent to T Plant for interim storage, T Plant would likely be designated an off-site facility and would require applicable permits and licenses for the interim storage of K Basin sludge as T Plant is already a permitted facility under RCRA.

As previously mentioned in Section 1.3 above, Phase 2 of the project is performing an alternative analysis for treatment and packaging of the EC/ST sludge material so that it can be certified and transported for disposal in the WIPP facility. Subsequent Phase 2 activities will be planned upon completion of the Phase 2 alternatives analysis, and future revisions of this PPEP will capture updated information as appropriate. Required permits and licensing for Phase 2 activities cannot be assessed at this time because this work has not yet progressed in sufficient detail.

1.3.9 Major Safety Systems Assumptions and Uncertainties Related to Safety

An uncertainty that applies more to EC/ST sludge relates to the distribution of sludge uranium metal particulate within any particular vessel or container. Variations from the sampled bulk condition may be introduced by transfer mechanisms and settling properties, leading to higher potential for uranium-water reaction, heat up and vessel pressurization.

Criticality control is a potential hazard for both KOP and EC/ST, although it is mostly related to the metallic component of the sludge and the sludge streams are approaching inherently safe due to the limited amount of metal particles remaining. Characterization of the EC/ST sludge as well as reduction of the amount of KOP sludge remaining will clarify this potential concern.

KOP Disposition Subproject

The KOP sludge is similar to the EC/ST sludge, but contains much coarser metal particulate, so that postulated spray or splash and splatter do not lead to as large a dispersal potential if hydraulically transferred. The uranium-water reaction can still lead to hydrogen generation and vessel pressurization. Reaction rates can be of concern during drying of the KOP material in MCOs. The bound water in KOP sludge can lead to release of hydrogen and/or oxygen in storage, pressurizing vessels such as the MCO based on repository analyses.

Controls include temperature and pressure during loading, transportation and drying to prevent particulate release. In storage, the control that is relied upon is a limitation of free water and on bound water (water of hydration). The latter results in limits on contaminants that may be present with the KOP uranium metal particles.

EC/ST Disposition Subproject

EC/ST sludge has normally been moved by hydraulic transfer leading to the potential for spray or splash and splatter release for transfer piping or vessels vents that rise above the basin surface. The uranium in the sludge also reacts with water to produce hydrogen at a rate dependent upon the temperature and the surface area of the metal particles. The hydrogen results in potentially flammable conditions in atmospheres and potential over-pressurization of vessels. The

exothermic uranium-water reaction can lead to increased reaction rates depending on heat transport configuration. During transportation of sludge, the thermal flux from the Hanford summers can lead to high uranium-water reaction rates. Handling vessels of sludge can lead to drops, and a structure collapse onto vessels containing sludge can lead to sludge dispersal.

The safety systems that control the above release mechanisms are secondary confinement for piping systems or vessel vents, purge or exhaust systems to control hydrogen buildup, thermally stable vessel designs to prevent very high reaction rates, vessel vents to prevent overpressure and reflective coatings or other protection to prevent excess heat-up in transportation. The atmosphere in the storage configuration will also need to be controlled to prevent flammable conditions. The potential for drops or impacts requires hoisting and rigging controls, and may require secondary confinement. Direct dose, primarily from the cesium in the sludge, requires shielding and the alpha component of the radionuclide in the sludge result in significant airborne contamination hazard.

1.3.10 Key Stakeholders

The Sludge Treatment Project is being executed in an environment where many alternatives to address the material have been attempted and have not been successful. Many regulatory, technical and project performance milestones have not been met. Since the material is ultimately going to be transported offsite and disposed of elsewhere, there are many constituencies that have a legitimate interest in the approach, progress, and performance of the STP.

A primary result of this project history is that disposition of the K-Basin sludge materials is now on the critical path for the completion of the River Corridor cleanup. In response to the current situation, DOE has placed high priority on getting the material removed from the River Corridor, with a high confidence approach that enables the completion of other important site cleanup milestones.

To ensure ongoing support for the project approach and schedule, the STP focuses on communication of the following key information to a variety of customers, interested parties, and stakeholder groups and their representatives. Key topical areas requiring ongoing stakeholder communication include:

- Progress of the characterization and inspection of the K-Basin sludge materials to ensure that a firm technical basis is in place for regulatory evaluation, ongoing design, and safety evaluations.
- Progress with the ongoing technology development and demonstration program to ensure a strong technical underpinning for the proposed cost and schedule
- Progress of the ongoing design activities to ensure that key performance milestones have been met
- Progress of the Safety in Design activities which are ongoing as part of the design effort
- Timely update and revision of the controlling regulatory documents, ensuring that the regulatory authorities are able to exercise their regulatory responsibilities in a timely manner

The Hanford stakeholders are comprised of groups of government representatives and individuals generally listed under the following headings:

- Citizen Advisory Boards

- Federal Agencies
- Hanford Natural Resource Trustee Council
- Local/State Government and Related Agencies
- Native American Tribes
- Public Interest Groups
- Individual Citizens

The key stakeholder groups for the STP are comprised of the U.S. Environmental Protection Agency (EPA) (lead regulatory agency), the Washington Department of Ecology, along with the Hanford Advisory Board.

A complete listing of the member organizations belonging to the Hanford Stakeholders is provided on the Hanford Site DOE Internet Web Site (http://www.hanford.gov/). To view the listing, first select the "Information" link from the listings in the left margin, and then select "Related Links" from the next set of listings in the left margin. The current individual stakeholder organizations information regarding project communications with the various stakeholders is included in this PPEP as part of Appendix C, *STP Communication Management Plan*.

1.4 DOE MANAGEMENT STRUCTURE AND INTEGRATED PROJECT TEAM

1.4.1 RL Project Organization

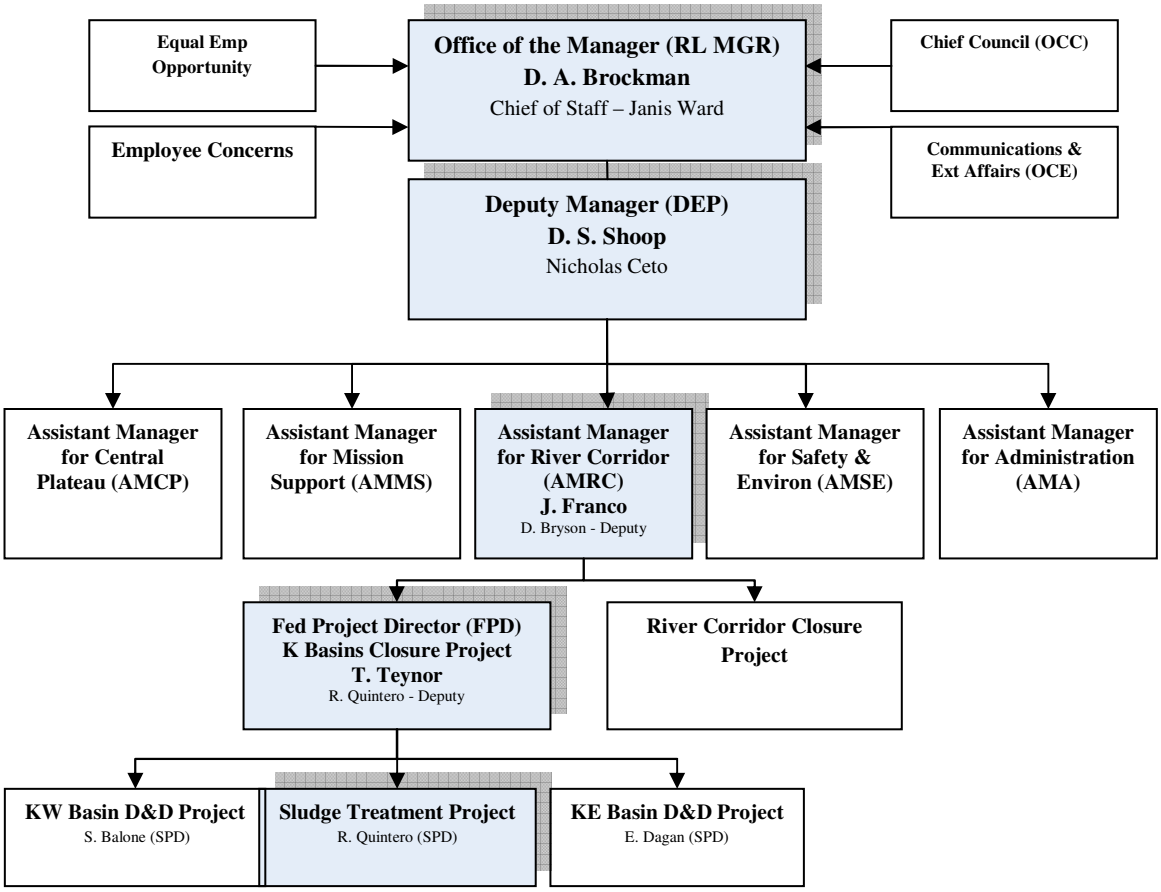
Project oversight responsibilities for the STP within DOE-RL are assigned under the DOE-RL Federal Project Director (FPD) for the K Basin Closure Project (KBCP). The mission of the KBCP is to remediate the 100K Area, including the former fuel storage basins and the basin contents, ancillary structures and facilities, and associated waste sites. Cleanup of the K Basins includes removal, treatment, and disposal of the sludge currently stored in the K West Basin (i.e., the Sludge Treatment Project [STP]). The STP is a sub-project of the KBCP, currently at CD-0 (since July 2007), that is managed as an individual project in accordance with DOE Order 413.3A, *Program and Project Management for the Acquisition of Capital Assets.* Figure 1-3 presents the DOE-RL organization chart as it relates to KBCP and the STP subproject.

1.4.1.1 Federal Integrated Project Team

The KBCP FPD delegates STP specific responsibilities to the STP Sub-Project Director (SPD). The STP SPD is also assigned the position of Deputy FPD for the KBCP FPD. The STP SPD has established a Federal Integrated Project Team (FIPT) that is described in Appendix A, the Sludge Treatment Project Federal Integrated Project Team Charter.

The STP FIPT shares resources from the KBCP for consistency and efficiency. The team is composed of permanent staff assigned to the Office of the Assistant Manager for River Corridor (AMRC), and other support staff matrixed from other RL mission element and support organizations. Contractor personnel participate on the FIPT as requested to provide specific expertise or information needed to execute the project.

Figure 1-3, Richland Operations Office Organization



1.4.1.2 Safety and Operations Oversight and Project Support

Safety and Operations oversight responsibilities of the STP are assigned through the DOE-RL Assistant Manager for Safety and Engineering (AMSE) to the Safety and Engineering Division (SED) and the Operations Oversight Division (OOD). Specific responsibilities are denoted in the DOE-RL Functions, Responsibilities, and Authorities Manual.

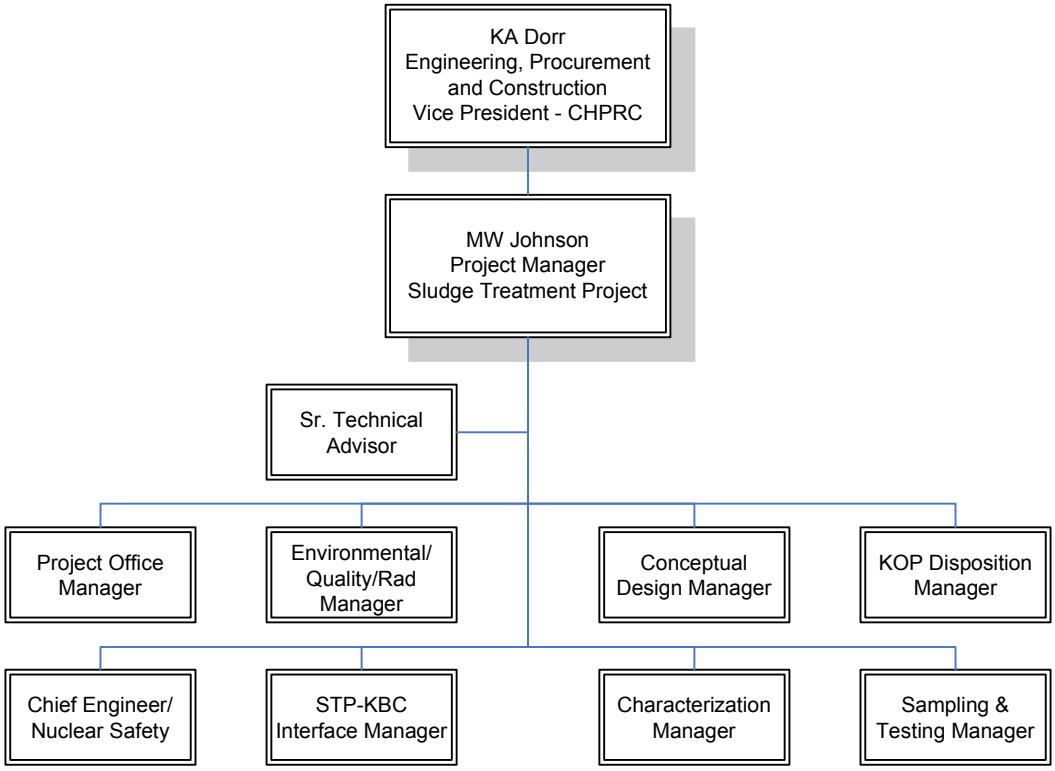
In particular, qualified and experienced Facility Representatives (FRs) from the Operations Oversight Division (OOD) are resident at facilities involved with key activities in the STP. On an as needed basis, the KBCP and STP SPD identify technical and organizational interfaces, and integration with other projects and activities. Additional details are provided in the STP Federal Integrated Project Team Charter, Appendix A.

1.5 CHPRC PROJECT MANAGEMENT

1.5.1 Management Structure

PRC-MP-MS-19361, Section 5.0, describes the CHPRC management structure and associated responsibilities. A project-specific organization structure has been developed to clearly show areas of responsibility and communication reporting paths. These reporting relationships were developed to orchestrate project implementation through formal approval of CD-1. Thereafter, the project organization will most likely be revised to reflect the acquisition strategy/plan for obtaining formal approval of CD-2/CD-3. Figure 1-3, below, illustrates the STP management structure and its link to CHPRC executive line management.

Figure 1-4, Project Management Organization



1.5.2 Contractor Integrated Project Team

The project-specific organization structure has been developed to clearly show areas of responsibility and communication reporting paths. These reporting relationships were developed in accordance with PRC-MP-PM-40187, *Engineering, Procurement & Construction Integrated Environment, Safety, and Health Management Roles, Responsibilities, and Functions*, and orchestrate project implementation through the formal approval of CD-1 of the EC/ST Subproject. Analogous to the IPT, the Contractor Integrated Project Team (CIPT) is led by the STP Project Manager. The roles of the STP Project Manager and the responsibilities for the STP

managers are discussed in PRC-MP-PM-40187 describing how the Engineering, Procurement, and Construction (EPC) organizations perform their responsibilities to implement the Integrated Safety Management System (ISMS) core functions and Environmental Management System (EMS) core elements, consistent with the ISMS guiding principles and the EMS standards and requirements. PRC-MP-PM-40187 also describes the ISMS/EMS roles, responsibilities, and functions within the EPC, and documents how the EMS requirement and three ISMS guiding principles related to responsibilities are implemented within the EPC. In addition, PRC-MP-PM-40187 outlines how responsibilities flow from senior management to the worker.

2.0 TAILORING STRATEGY

The Sludge Treatment Project (STP) in an operating activity within PBS RL-0012, Spent Nuclear Fuel (SNF) Stabilization & Disposition[15]. In accordance with the DOE-EM Protocol for Operations Programs[16], operating activities are not subject to the DOE Order 413.3A requirements and Critical Decisions (CD) are not required, but the project management principles contained in the Order will be applied in a tailored manner. However, because previous technical approaches to disposition the sludge material proved unsuccessful, DOE-RL has chosen to go beyond the minimum requirements of the Protocol[17] and fully apply the requirements of DOE O 413.3 and DOE-STD-1189 to the STP in order to provide a formal project management approach and reduce the risk of project failure. Both directives allow for tailoring of their respective requirements, as described in this section below.

2.1 DOE O 413.3A

Using the guidance in DOE G 413.3-8, *Environmental Management (EM) Cleanup Projects*, STP is considered to be an existing Stabilization and Disposition (S&D) subproject within PBS RL-12, SNF Stabilization and Disposition. Based on this guidance, the DOE O 413.3A tailoring strategy for the STP features the following elements.

2.1.1 Subproject Breakdown

As previously discussed, the execution of STP is divided between two subprojects, each addressing its dedicated waste stream:

(1) KOP Disposition subproject
(2) EC/ST Disposition subproject

The KOP Disposition Subproject has been evaluated [18] and determined to be an existing operation performed by the K West Basin management. As an existing operation, the planning and preparations are conducted in accordance with the existing K West Basin programs and

[15] DOE letter from Triay to Teynor, Approval for Establishing "Operations" Activities for RL-0012.01, Spent Nuclear Fuel Stabilization and Disposition (K Basin Closure Project), Richland Operations Office, WA; August 31 2009
[16] DOE letter from Chung to Distribution, Office of Environmental Management's Operations Programs Protocol, April 21, 2010
[17] DOE letter 08-AMCP-0151, Jarnigan to Murphy, K Basin Sludge Disposition Direction, March 28 2008

[18] DOE Letter, 09-SED-0099, dated May 27, 2009, from Brockman to Lehew, approval of Knock-Out Pot Major Modification Determination for K West Basin, CVDF and CSB.

procedures. The existing safety and engineering processes accomplish the elements of DOE O 413.3A but formal implementation of the Order is not mandatory for this subproject activity.

As discussed in the Project Description Section 1.3, the EC/ST Disposition subproject is further sub-divided into two phases. The EC/ST Phase 1 subproject, comprised of sludge retrieval, transport, and storage, has a well defined path forward which is currently being implemented. The EC/ST Phase 1 subproject will follow the formal critical decision (CD) process in accordance with DOE O 413.3A as described below.

2.1.2 CD Process

Guidance provided in DOE G 413.3-8 states that a clean-up subproject with a Near Term Baseline (NTB) of $100M or more should follow a formal CD process, appropriately tailored.

KOP Disposition Subproject

The KOP Disposition Subproject has a NTB of $57 million and will not follow a formal CD process requiring DOE approvals. However the KOP subproject will follow the formal project management requirements established in internal CHPRC procedures in accordance with the CHRPC Project Execution Plan[19] .

EC/ST Disposition Subproject

The EC/ST Disposition Subproject has a NTB $175 million for its Phase 1 work scope and $50 million for the Phase 2 planning (see Tables 3-2 and 3-3). Phase 1 will follow a formal CD process requiring DOE approvals as described below.

- CD-0, Approve Mission Need
- CD-1, Approve Alternative Selection and Cost Range
- CD-2/3, Approve Performance Baseline and Start Fieldwork
- CD-4, Approve Project Completion

CD-0 is considered complete for the EC/ST Disposition subproject. Documentation of the STP Critical Decision status as being between CD-0 and CD-1 is provided in 07-KBC-0048[20]. An updated Mission Need Statement[21] was developed by the project to describe the recommended path forward. CD-1 approval for EC/ST Disposition Subproject is expected in June 2010.

The guidance recommends that for EM Stabilization and Disposition cleanup projects CD-2 and CD-3 be combined for approval of the baseline and start of fieldwork. For the EC/ST Disposition Subproject Phase 1, a combined CD-2/3 will mean authorization to start construction of facility modifications and following an appropriate readiness review, the subsequent material processing operations at the K West Basin and T Plant. This approach is justified for the following reasons. First, the EC/ST sub-project will involve only modifications to existing facilities, installation of new systems within those facilities, or utilization of existing facilities with project specific operational controls. While the subproject activities have been characterized as Hazard Category 2 because of the nuclear material inventory, they don't

[19] CHPRC Project Execution Plan, PRC-MP-MS-19361, Revision 2, dated 29 January 2010

[20] DOE letter, Weis to Murphy, 07-KBC-0048, dated July 3, 2007, Path Forward Recommendations for Sludge Treatment Project

[21] HNF-34695, Rev 5, issued March 30, 2009; Sludge Treatment Project Mission Need Statement, Project A-21C

represent a large, first-of-a-kind nuclear facility operation. Secondly, the project plans to utilize a full-scale test and demonstration strategy to reduce or eliminate any scale-up or sizing issues. Using this strategy will result in full scale integrated testing of components and systems installed in the KW Basin as part of the detailed final design process. This will result in TRL-6 demonstration being completed as part of the traditional CD-2 preliminary design process. Since the entire system will be prototypical and demonstrated as a fully integrated process within a test facility that replicates the actual basin, most of the detailed design will be completed prior to start of construction. Therefore a combined CD-2/3 decision process is appropriate.

CD-4 is identified as being the project completion, which for EC/ST Disposition Subproject Phase 1, will mean turnover of equipment left behind to the K West Basin facility management for transition to deactivation and decommissioning.

2.1.3 Acquisition Executive Authority

Given that the application of DOE 413.3A to the STP has been self-imposed by RL and is not required by the DOE-EM Protocol for Operations Programs, the RL Site Manager is the appropriate approval authority for all EC Sludge Disposition Subproject CDs.

2.2 DOE STANDARD 1189

Tailoring of DOE Standard 1189 requirements for safety design development and safety documentation is permitted based on the level of risk posed by the facility radiological and chemical hazards, the complexity of the processing operations, and the scope of the hazards analysis required. Facility modifications determined to be major modifications as described in the DOE-STD-1189 require full implementation of the requirements within the Standard. The tailoring approach for implementing DOE Standard 1189 is fully described in the Sludge Treatment Safety Design Strategy [22] (SDS) and is summarized below.

2.2.1 EC/ST Disposition Subproject

The EC/ST Disposition Subproject involves modifications to the 105K West Basin and the T Plant facility. Preliminary determinations indicate the modifications to 105K West Basin will be classified as a major modification and the T Plant modifications will be classified as not major. The basis for the K West Basin determination is that the modifications which install new equipment and operations to transfer sludge from the ECs in the basin facility result in substantial changes to the existing safety basis. The SDS provides a detailed discussion of this determination. The basis for the T Plant determination is that the planned activities (receipt and storage of STSCs containing EC/ST sludge) and associated controls is very similar to those previously implemented in the facility for other K-Basin sludge materials. A final major modification determination has been approved [23] for the T Plant to support final design.

The STP will perform safety analysis activities and develop safety analysis deliverables for each project phase of the EC/ST subproject activities to be performed at KW Basin. A Preliminary

[22] PRC STP Phase 1 Safety Design Strategy (SDS), HNF-34374, Revision 3 submitted to RL for approval 22 February 2010.

[23] DOE Letter, 10-SED-0037, dated Jan 29, 2010, from Brockman to Lehew, Approval of Sludge Treatment Project Major Modification Determination for T Plant Major Modification

Safety Design Report (PSDR) will not be prepared because of the combined CD-2/3, and as allowed by DOE O 413.3A. The Documented Safety Analysis / Technical Safety Requirements (DSA/TSR) will be prepared and approved early in the period between CD-3 and CD-4, prior to readiness activities and operation. Table 2-1 below, summarizes the safety-related documentation to be prepared and identifies documents that are to be submitted for approval.

Table 2-1, EC/ST Safety Documentation

Conceptual Design Phase (CD-1)	Final Design Phase (CD-2/3)	Project Closeout Phase (CD-4)
• Preliminary Hazard Analysis (PHA) • Preliminary Fire Hazard Analysis (pFHA) • Preliminary Criticality Safety Evaluation Report (pCSER) • Design Basis Accident Analysis (DBA) • Conceptual Safety Design Report (CSDR) • Updated Safety Design Strategy (SDS) • Risk and Opportunity Assessment (RAOA)	• Preliminary Documented Safety Analysis (pDSA) • Updated Safety Design Strategy (SDS) • Final Hazard Analysis (HA) • Final Fire Hazard Analysis integrated with KW FHA • Final Criticality Safety Evaluation Report (CSER)	• Documented Safety Analysis (DSA) • Technical Safety Requirements (TSR)

2.2.2 KOP Disposition Subproject

The KOP Disposition subproject involves modifications to the 105K West Basin, the Canister Vacuum Drying Facility (CVDF), and the Canister Storage Building (CSB). As discussed in 2.1.1 above, the modifications for all three facilities have been determined to not be major modifications, primarily because the hazards involved with handling KOP material are very similar to previous handling of the spent nuclear fuel and fuel scrap at the facilities. The placement of the KOP material into Multi Canister Overpacks in the KW Basin, drying in CVDF, and storage at CSB will all be analyzed, documented, and approved by DOE. Controls will be implemented in accordance with approved revisions to the existing facility DSAs and TSRs. Additional safety documentation will not be prepared.

2.3 TAILORING

The detailed tailoring for each sub-project element is presented in the following two appendices:

Appendix B - EC/ST Disposition Tailoring Checklist

Appendix C - KOP Disposition Tailoring Checklist

Each of the above appendices B and C are organized into Sections A through D as follows:

- **Section A**: Lists Contractor deliverables identified in CRD O 413.3A. The Contractor requirements associated with DOE-STD-1189 are included.
- **Section B**: Lists DOE-RL project deliverables identified in DOE O 413.3A
- **Section C**: Lists deliverables associated with the Technology Readiness Assessment and Technology Readiness Level processes.

- **Section D**: Lists other deliverables associated with the CD-1 through CD-4, as deemed applicable based on initial PDRI review and critical designs for this project. These are activities that CHPRC will support the Federal Project Director in completing project documentation requirements.

3.0 INTEGRATED BASELINE

The integrated baseline for the STP is included within the contractor's Performance Management Baseline (PMB), in PBS RL-0012 – Spent Nuclear Fuel (SNF) Stabilization & Disposition, WBS element 12.16 – Sludge Treatment Project. A Level 4 work breakdown structure (WBS) for STP, Figure 3-1, is provided below.

DOE-RL has authorized the contractor to conduct work in accordance with the PMB Revision 2. Approval of the PMB is pending and baseline dates are subject to change pursuant to DOE approval. The integrated baseline serves as the primary basis for determining whether technical performance, schedule performance, and cost performance objectives and measures are being met to assure successful completion of the project.

3.1 SCOPE BASELINE

As described in Section 2, Tailoring Strategy, the STP is comprised of two distinctly different sub-projects, (1) KOP Disposition and (2) EC/ST Disposition which is comprised of two phases. Phase 1 transfers the sludge to interim storage and Phase 2 treats and packages the sludge for final disposal.

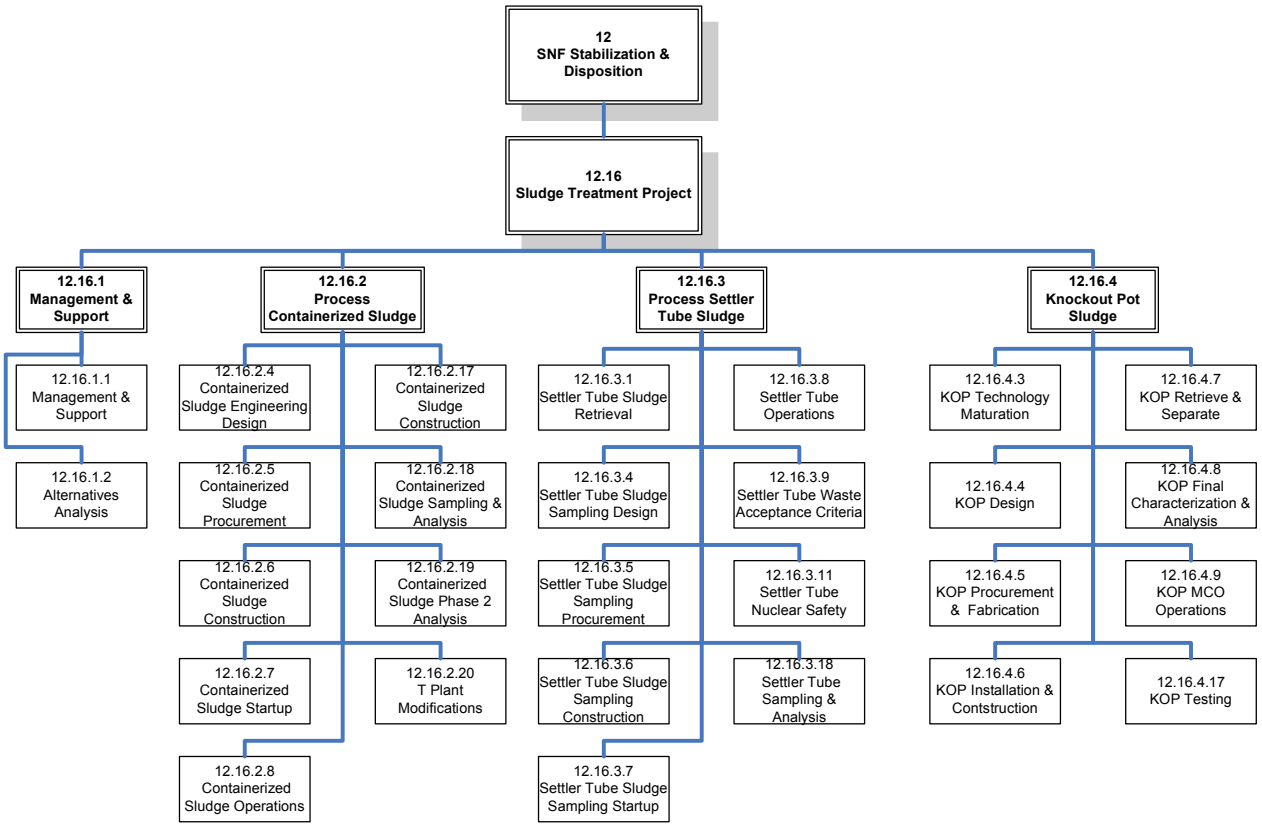
The KOP Disposition subproject provides equipment, systems and facility modifications to the K West Basin to retrieve and process approximately 0.26 cubic meters of KOP material within a period of approximately 6 months[24]. The material is separated, retaining material between 600 microns and 1/4 inch, and then processed to separate high density material from lower density material. Additional sorting will remove other debris. The high density material will be packaged in multi-canister overpacks (MCOs), conditioned (dried) at the Cold Vacuum Drying Facility (CVDF) to meet storage requirements, and then transported to the Canister Storage Building (CSB) for interim storage pending final disposal at an approved national repository.

Each MCO will be limited[25] to a maximum of 4.84 kilograms of bound and free water inventory in order to match the same conditions for previous MCOs processed with SNF retrieved from K Basins. The final number of MCOs will be based upon actual material volume obtained following the separation and sorting processes. Any installed KOP equipment remaining within K West Basin will be turned over to the 100K Project organization for disposition along with debris and ultimate D&D of the K West facilities.

[24] HNF-SD-SNF-TI—015, Volume 2, Sludge, Figure 3

[25] KBC-41692, Rev. 0, *Hydrate Analysis for Knock Out Pot Material*, Section 4.0, Technical Requirement

Figure 3-1, STP Work Breakdown Structure



The EC/ST Disposition subproject provides equipment, systems and facility modifications to K West Basin to retrieve approximately 30 cubic meters of sludge material from the engineered containers (EC)and transfer the sludge into approximately 25 Sludge Transportation and Storage Containers (STSCs). The EC/ST retrieval system is capable of filling each STSC with its respective payload in one week or less. The STSCs are suitable for onsite transportation to T Plant and interim storage therein until retrieved for sludge treatment, packaging and formal acceptance for final disposal at Waste Isolation Pilot Plant (WIPP). The final number of STSCs is subject to change based on results of the associated EC/ST sludge material sampling and characterization activities. The 100K organization will operate the retrieval and loading equipment after the completion of construction and the required readiness reviews. At the completion of the planned Phase 1 activities (CD-4), the 100K organization will dispose of the STP project facilities remaining along with associated debris for ultimate D&D of the K West facilities.

3.2 SCHEDULE BASELINE

The STP schedule baseline is established in the Performance Measure Baseline (PMB). The baseline schedule supports the Hanford 2015 Vision, expediting removal of the K Basins sludge material from the Columbia River Corridor. A summary level schedule identifying key project activities is provided in Figure 3-2. The dates shown in the summary schedule are from the PMB and do not include DOE schedule contingency.

A list of the STP key project milestones is provided below. An Early Finish date (i.e., the PMB date) and a Late Finish date (PMB date plus DOE schedule contingency) is shown for each milestone.

STP Subproject	Milestone	Early Finish	Late Finish
EC/ST Phase 1	Complete TRA #1	Completed Oct 2009	
	Approve CD-1	Jun 2010	Jun 2010
	Complete TRA #2	Jul 2012	*TBD
	Approve CD-2/3	Jan 2013	*TBD
	Begin Sludge Removal from KW Basin	Aug 2013	Dec 2013
	Complete Sludge Removal from KW Basin	Dec 2014	Dec 2015
EC/ST Phase 2	Submit Technology Alternatives Eval to DOE	Mar 2011	Apr 2011
KOP Disposition	Begin KOP Material Transfer from KW Basin	Jun 2011	Jul 2011
	Complete KOP Material Transfer from KW Basin	May 2012	July 2012

Early Finish = PMB
Late Finish = PMB plus DOE Contingency (80% confidence level)
*TBD – to be determined later, insufficient data to determine an 80% confidence level date

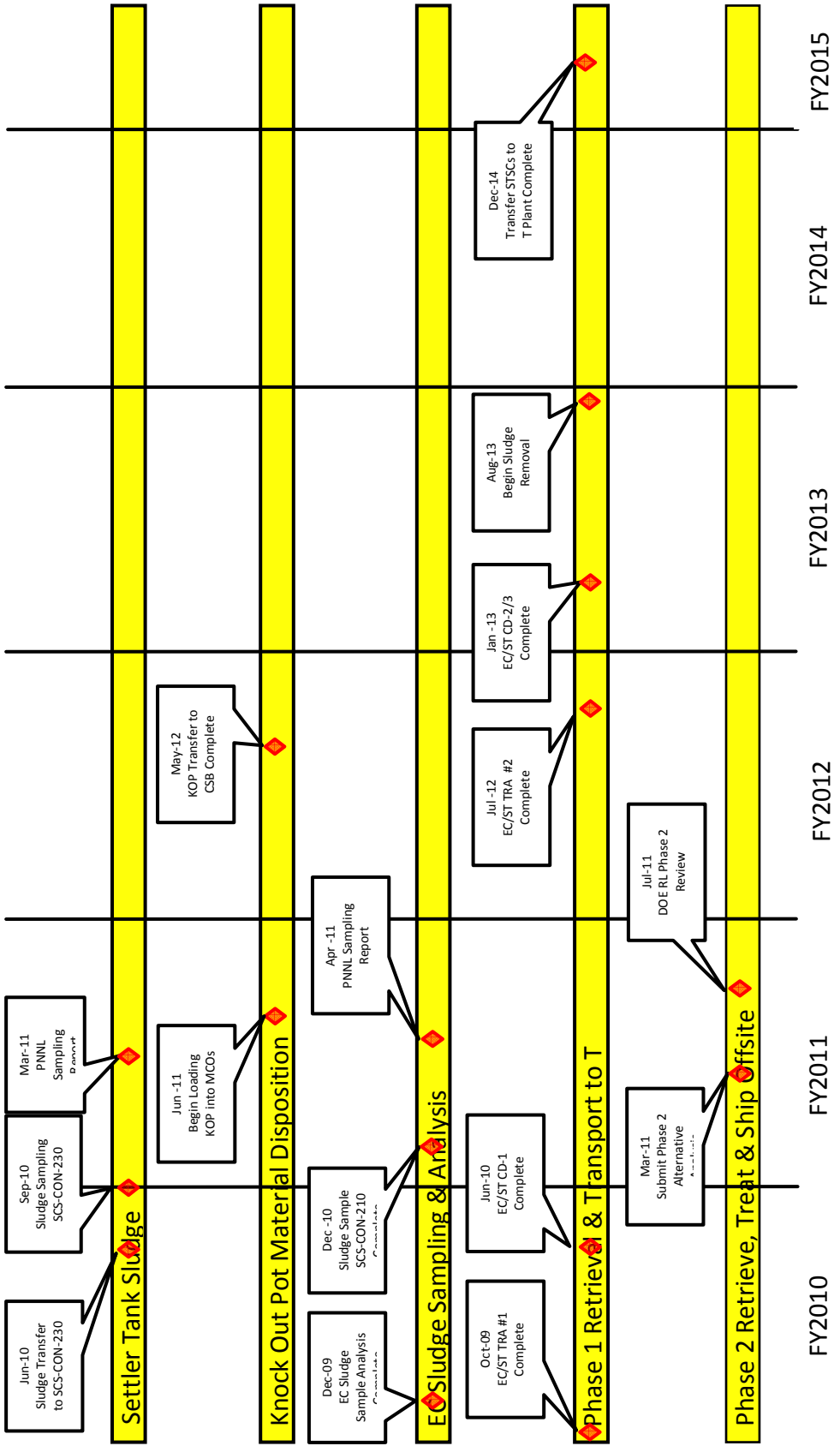


Figure 3-2, Integrated Summary Level Schedule for the Sludge Treatment Project
(Dates shown are Early Finish or PMB Dates)

3.3 COST BASELINE

The STP uses a Basis of Estimate (BOE) which is traceable to the Work Breakdown Structure (WBS). The project also uses standard estimating methods for establishing a cost baseline that supports the development of the Total Project Cost (TPC). The STP implements PRC-PRO-PC-400732, *Cost Estimating Procedure*, and PRC-GD-PC-40075, *Cost Estimating Implementation Guide*, to ensure that costs and budgets for labor, services, and materials are defined and time-phased to support project planning, budgeting and reporting activities. Table 3-1 shows the Sludge Treatment Project Total Project Cost (at Level 3 of the WBS) that was included with the CHPRC Performance Measurement Baseline (PMB) Revision 2 submittal in February 2010. Tables 3-2 through 3-4 breakout the respective Near Term Baselines (NTB) for the EC/ST Disposition Phase 1, Phase 2, and KOP Disposition subprojects.

Table 3-1 Total Project Cost ($M)

WBS	Title	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16 thru FY18	TOTAL
12.16.1	STP Mgmt & Support	$6.3	$4.4	$4.7	$4.4	$4.4	$4.3	$0.9	$0.0	$29.4
12.16.2	Process Container Sludge – Phase 1	$14.2	$19.7	$11.2	$22.8	$22.7	$29.0	$7.1	$0.0	$132.7
12.16.2	Process Container Sludge – Phase 2	$0.0	$3.4	$3.4	$0.0	$0.0	$0.0	$0.0	$35.9	$42.7
12.16.3	Process Settler Tank Sludge	$3.5	$3.6	$2.9	$0.7	$0.2	$0.0	$0.0	$0.0	$10.9
12.16.4	Knock Out Pot Acceleration	$4.8	$11.4	$11.6	$8.9	$0.0	$0.0	$0.0	$0.0	$36.7
Subtotal		$28.8	$42.5	$33.8	$36.8	$33.3	$33.3	$8.0	$35.9	$216.5
Escalation		$0.0	$0.0	$0.9	$1.9	$2.4	$3.1	$0.9	$6.3	$15.5
Performance Mgmt Baseline		$28.8	$42.5	$34.7	$38.7	$35.7	$36.4	$8.9	$42.2	$267.9
Staffing Levels		117.4	143.1	132.5	134.1	52.6	26.1	5.1	0.0	

* Management Reserve is held at the PBS level, not at the project level

Table 3-2 Near Term Baseline
EC/ST Phase 1 Subproject Cost (includes escalation, $M)

WBS	Title	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16 thru FY18	TOTAL
12.16.01*	STP Mgmt & Support	$5.0	$2.7	$2.3	$3.4	$4.7	$4.8	$1.0	$0.0	$23.9
12.16.02	Process Container Sludge – Phase 1	$14.2	$19.7	$11.5	$24.0	$30.8	$31.8	$7.9	$0.0	$139.9
12.16.03	Process Settler Tank Sludge	$3.5	$3.6	$2.9	$0.8	$0.2	$0.0	$0.0	$0.0	$11.0
Totals EC/ST Sludge Phase 1 Scope		$22.7	$26.0	$16.7	$28.2	$35.7	$36.6	$8.9	$0.0	$174.8

** allocation of the STP PM account based on total project dollars between subprojects*

Table 3-3 Near Term Baseline
EC/ST Phase 2 Subproject Cost (includes escalation, $M)

WBS	Title	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16 thru FY18	TOTAL
12.16.01*	STP Mgmt & Support	$0.0	$0.4	$0.6	$0.0	$0.0	$0.0	$0.0	$0.0	$1.0
12.16.02	Process Container Sludge – Phase 2	$0.0	$3.4	$3.5	$0.0	$0.0	$0.0	$0.0	$42.0	$48.9
Totals EC/ST Sludge Phase 2 Scope		$0.0	$3.8	$4.1	$0.0	$0.0	$0.0	$0.0	$42.0	$49.9

** allocation of the STP PM account based on total project dollars between subprojects*

Table 3-4 Near Term Baseline
KOP Subproject Cost (includes escalation, $M)

WBS	Title	FY09	FY2010	FY11	FY12	FY13	FY14	FY15	TOTAL
12.16.01 *	STP Mgmt & Support	$1.3	$1.3	$1.9	$1.3				$5.8
12.16.04	Knock Out Pot Sludge	$4.8	$11.4	$11.9	$9.3	$0.0	$0.0	$0.0	$37.4
TOTALs for KOP Sludge		$6.1	$12.7	$13.8	$10.6	$0.0	$0.0	$0.0	$43.2

** allocation of the STP PM account based on total project dollars between subprojects*

3.3.1 Total Estimated Costs

The total estimated cost (TEC) for the completion of EC/ST Phase 1, Phase 2, and KOP sludge material removal is $267.9 M, for the period of performance between October 1, 2008 and December 31, 2015. This period is considered the project's NTB period. This includes a small activity supporting Phase 2 which is to perform an alternatives analysis of the treatment process for the EC/ST sludge material.

3.3.2 Other Project Costs

As defined in DOE G 430.1, Guide for Cost Estimating Definitions, Appendix 1, Definitions, 'Other Project Costs' are all other costs related to a project that are not included in the Total Estimated Costs, such as supporting research and development, pre-authorization costs prior to start of Title I design, plant support costs during construction, activation, and startup. For the STP, there are no other project costs because STP is an expense funded project.

Table 3-5 STP Cost by Resource Type ($M)

Resource Type	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16 thru FY18	TOTAL
Labor	$18.2	$21.2	$18.7	$17.5	$7.6	$3.8	$0.8	$0.0	$87.8
Materials	$3.4	$2.1	$1.2	$2.9	$2.7	$0.3	$0.0	$0.0	$12.6
Subcontractors	$7.0	$19.2	$13.9	$15.9	$23.0	$29.3	$7.2	$35.8	$151.3
Other Direct Cost	$0.2	$0.0	$0.0	$0.5	$0.0	$0.0	$0.0	$0.0	$0.7
Other Originated Cost	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Management Reserve*	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Subtotal	$28.8	$42.5	$33.8	$36.8	$33.3	$33.4	$8.0	$35.8	$252.4
Escalation	$0.0	$0.0	$0.9	$1.9	$2.4	$3.1	$0.9	$6.3	$15.5
TOTALS	$28.8	$42.5	$34.7	$38.7	$35.7	$$36.5	$8.9	$42.1	$267.9

** Management Reserve is held at the PBS level, not at the project level*

3.3.3 Management Reserve

CHPRC has identified $26.8 M of expense funds for Management Reserve (MR) for all CHPRC PBS-RL12 activities during the contract period, through 2019. This reserve achieves a 50% confidence level for schedule and a 65% confidence level for the cost baseline. MR is held at the PBS level, by CHPRC management, to deal with emerging work requirements, and other work performance issues typically addressed with MR for projects of this nature.

3.3.4 Contingency

Using the RL Project Risk Management process provided in the RL Integrated Management System (RIMS), the KBCP Federal Integrated Project Team performed a risk analysis on the Contractor's PMB. From the DOE perspective, risks were identified and assessed to address project needs beyond what the contractor has included in both direct costs and Management Reserve. These risks are characterized as being outside of the contractor's ability to control and a summary of the most significant STP risks are provided in Section 4.2.2, Risk Management. The risk assessment is conducted at the PBS RL-0012 level and the risks are quantified to support a contingency value that is funded to a 50% level of confidence level.

DOE cost contingency for the KOP Disposition and STP EC/ST Disposition work scope through FY-19 is set at $26,387 K. Schedule contingency established by DOE is discussed in Section 3.2.

3.3.5 Total Project Cost

Total Project Cost for EC/ST Disposition and KOP Disposition is $267.9 M. Since STP is an expense funded project, Total Project Cost (TPC) is equal to the Total Estimated Cost (TEC) to complete. As discussed in Section 3.3.1, TEC is $267.9M.

3.3.6 Life Cycle Cost

The life-cycle cost for the entire STP cannot yet be determined because the EC/ST Phase 2 subproject is only at the pre-conceptual stage. The contractor is expected to prepare a baseline change request to address EC/ST Phase 2 in late 2010. Future updates to this PEP will incorporate the EC/S Phase 2 baseline once it becomes defined.

3.4 BASELINE CHANGE CONTROL

Baseline change control is maintained using the RL Integrated Baseline Management process in RIMS. Project controls for the STP are implemented using management processes provided in the DOE-RL approved CHPRC-0003, *Project Control System Description*. The project control system complies with the requirements of DOE O 413.3A and ANSI/EIA-748, *Earned Value Management Systems*, and identifies the requirements and processes for planning, managing, controlling, and reporting performance against the PMB.

4.0 PROJECT MANAGEMENT / OVERSIGHT (STRATEGY)

4.1 ACQUISITION STRATEGY

Purpose

This section describes the project's approach to procurement and the acquisition of resources to perform the Sludge Treatment Project (STP). Incorporating the Acquisition Strategy into this preliminary Project Execution Plan (PPEP), applies the tailoring of DOE O 413.3A requirements while addressing the intent of the Order requirement for an Acquisition Strategy.

Summary Project Information

The STP is a Stabilization and Disposition operations activity which removes sludge from the K West Basin and transports it to interim storage on the Central Plateau to await final treatment and disposition. The primary office of responsibility for the project is Assistant Secretary for Environmental Management (EM-1) with authorities as delegated to the Richland Operations Office Manager (RL). PBS RL-0012 was established as an Operations Activity by DOE Memorandum[26]. STP activities are limited to the disposition of Knock Out Pot materials and the disposition of the Engineered Container / Settler Tank sludge. The Tailoring Strategy, Section 2.0 describes the delegation of Acquisition Executive (AE) authority to the RL Manager for this subproject. Since the STP subproject is not a Capital Asset Project, a formal Acquisition Strategy is not required. However, DOE G 413.3–13, Acquisition Strategy Guide for Capital

[26] DOE letter from Triay to Teynor, Approval for Establishing "Operations" Activities for RL-0012.01, Spent Nuclear Fuel Stabilization and Disposition (K Basin Closure Project), Richland Operations Office, WA; August 31 2009

Asset Projects, was considered in developing this section of the PPEP, rather than developing a stand alone Acquisition Strategy (AS) document. The Guide provides information useful for project acquisition planning and the content of this PPEP is intended to address the applicable portions of the Guide.

Strategy

DOE RL has contracted CH2M-Hill, Plateau Remediation (PRC) to perform the STP as a sub-project within the K Basins Closure Project, PBS RL 012. PRC will subcontract and/or self perform the various planning, development and operations to accomplish the STP. RL will monitor all acquisition activities performed by PRC as a function of its oversight role for the project.

PRC has issued PRC-STP-0087, Sludge Treatment Project Acquisition Strategy (AS) which provides a detailed account of the activities that will be self-performed and/or contracted out. The scope of work includes Phase 1 and supporting activities which remove the sludge from the K West Basin and transfers the sludge to interim storage locations on the Central Plateau.

The AS also includes Phase 2 activities which will treat, package and transport the sludge to final disposal repositories. Phase 2 planning is at the pre-conceptual planning phase and is limited to soliciting subcontractors for alternative treatment options. Further Phase 2 details are not included in the current STP AS but will be incorporated as this portion of the project is developed.

A summary of the STP scope and strategy is provided in Table 4-1 below.

Table 4-1 Acquisition Strategy

Activity	Strategy
Project Management	Self Perform
Project Controls	Subcontract
Nuclear Safety	Self Perform & Subcontract
Quality Assurance	Self Perform & Subcontract
ES&H	Self Perform
Radiological Controls	Self Perform
Expert Review Panels	Subcontract
Sampling and Characterization of EC Sludge	
Lab Analysis of SCS-Con 220, 240, 250 & 260	Subcontract
Install Sampling Equip on SCS-Con-210	Subcontract
Vacuuming to SCS-Con-210	Self Perform
Sample Retrieval & Shipping	Self Perform
Lab Analysis of SCS-Con 210	Subcontract

Table 4-1 Acquisition Strategy

Activity	Strategy
Disposal of Sludge Samples	Subcontract
EPC and Ops of Retrieval, Transport and Storage of EC/ST Sludge	
STSC Conceptual Design	Self Perform
Design, Testing of Optional Small Container System	Subcontract
K West Preliminary Design	Subcontract
K West Final Design	Subcontract
T Plant Interim Storage Design	Self Perform
T Plant Modifications	Self Perform & Subcontract
K West Modifications	Self Perform & Subcontract
Retrieval, Transport & Storage Systems Equipment Fabrication	Subcontract
R&T Construction & Installation	Subcontract
Readiness Reviews	Self Perform & Subcontract
RTS Operations	Self Perform
Settler Tank Sludge Retrieval and Sampling	
Retrieval System Fabrication & Installation	Subcontract
Retrieval System Readiness	Self Perform & Subcontract
Retrieval System Operations	Self Perform
Sampling System Installation	Subcontract
Sampling System Readiness	Self Perform & Subcontract
Sampling System Operations & Shipping	Self Perform
Settler Sludge Analysis & Characterization	Subcontract
Settler Sludge Disposal	Subcontract
KOP Disposition	
Perform RSSS and MCO Basket Designs	Self Perform
Test & Train Operators on the KOP Equipment / Systems	Self Perform
Fabricate KOP Equipment	Subcontract
Install KOP Equipment	Subcontract

Table 4-1 Acquisition Strategy

Activity	Strategy
Perform KOP Readiness Reviews	Self Perform & Subcontract
K West, CVDF and CSB Operations	Self Perform
Vacuum Sludge as Needed	Self Perform
Phase 1 EC/ST Sludge Retrieval and Transport Testing and Training	
Component Testing at MASF	Self Perform & Subcontract
Full Scale Testing at MASF	Self Perform & Subcontract
MASF Modifications	Subcontract
Fabrication of Test Equipment	Self Perform & Subcontract
Installation of Test Equipment	Self Perform & Subcontract
Systems Training	Self Perform
Phase 2 EC/ST Sludge Treatment, Packaging & Shipment	
Decision Plan & Project Support	Self Perform & Subcontract
Perform Bench Scale Testing w/ K Basin Sludge and Develop Sludge Simulants	Subcontract
Treatment System Evaluations	Subcontract
Recommendation Report	Self Perform

4.2 PROJECT MANAGEMENT APPROACH

STP controls ensure that work performed by the project is adequately planned, executed, and controlled, and that performance is measured, analyzed, and reported in a timely manner to support project execution. The STP accomplishes these tasks in accordance with the associated requirements and processes described in CHPRC-00003, *Project Control System Description*.

4.2.1 Project Reporting

PRC-GD-PC-40094, *Monthly Reporting Implementation Guide*, describes the monthly reporting process the CHPRC will use to report to DOE-RL.

The monthly process for reporting and reviewing begins with the Control Account Managers (CAMs) evaluating work progress against their assigned portions of the baseline schedule with status, using documented earned value techniques. The Project Control Leads compile monthly performance data, including key accomplishments, major issues affecting performance, variance analysis and recovery actions if necessary, and estimates to complete, etc.

Compilations of the CHPRC Monthly Performance Report representing the prior month's performance data is compiled by the second Wednesday of the month to support preparation,

management review and approval, and submittal of the report to DOE RL by the last Tuesday of the month.

Forms included in the monthly reporting of cost and schedule performance use five Office of Management and Budget (OMB) Contract Performance Report formats from DI-MGMT-81466A, *Contract Performance Report (CPR)*, and from Appendix C – CPR Formats 1 to 5 Overview of DOE G 413.3-10, *Earned Value Management System (EVMS)*.

DOE HQ/OECM performed an independent audit on the CHPRC EVMS system to certify that it complies with the criteria of ANSI/EIA-748-A, and subsequent certification [27] has been received.

4.2.2 Risk Management

Risk management is an integral part of the project management function. In order to effectively identify risks that apply to the contractor and DOE, both plan and perform their risk identification and analysis in a collaborative manner using separate processes. This process addresses risks that are unique to DOE and the contractor individually. The results of a quantitative analysis of the risks provide input into the Management Reserve (MR) for contractor risks and Contingency for DOE risks. This approach collectively identifies and allocates resources to achieve project goals within an acceptable level of risk.

Project risk management for the STP is performed as a function of the K Basin Closure Project Integrated Project Team. The K Basin Closure Project consists of two subprojects: PBS RL-0012 – SNF Stabilization and Disposition, and PBS RL-0041K – 100K Area Remediation. Formal project risk management is required by DOE O 413.3A for all major system projects which are those exceeding $1 billion. The Total Project Cost (TPC) for the K Basin Closure Project exceeds this threshold. Because the STP is a component of the K Basin Closure Project and being managed as a subproject, its risks are tracked at the PBS level for integration with other RL subprojects within the K Basin Closure Project. RL has one integrated Federal Risk Management Plan [28] (F-RMP) for the K Basin Closure Project and maintains two subproject risk registers, one register for tracking STP risks and one that tracks 100K Remediation risks. CHPRC manages the STP as a standalone project and has a contractor Risk Management Plan [29] (C-RMP) for STP and maintains a dedicated risk register for the STP. RL incorporates the C-RMP information into the RL PBS risk register for completeness. Both programs are discussed below.

Contractor Risks

The CHPRC corporate level Project Execution Plan [30] describes how all CHPRC projects implement its risk management process to identify, analyze, set priorities, and appropriately respond to uncertainties in the execution of the project. The risk management process includes evaluating potential impacts to scope, schedule, and cost in future work, change proposals and

[27] DOE Letter dated September 18, 2009, from Paul Bosco, DOE-HQ, to JG Lehew, CHPRC President and CEO, Subject: DOE-HQ Approval of CHPRC Earned Value Management System

[28] K Basins Closure Project Federal Risk Management Plan, April 2010

[29] PRC-STP-00040, *Sludge Treatment Project Risk Management Plan, issued August 2009*

[30] PRC-MP-MS-19361, Revision 1, Change 1, CH2M Hill Plateau Remediation Company Project Execution Plan, 23 October 2009

project investments such as innovative remedial alternatives. The majority of the risk management process focuses on the assessment of the baseline using consistent evaluation criteria to achieve an objective basis for status reporting and management decision making. CHPRC uses a risk management process that integrates with other Hanford contractors at a summary level. Process specifics of project risk management are documented in PRC-GD-PC-40080, *Risk Management Implementation Guide*, and used to develop the C-RMP.

PRC-PRO-PC-40079, *Risk Management Procedure*, provides the process and tools to develop STP risk management. It complies with the CHPRC risk management process, identifying events that could have an adverse impact on performance against the cost and schedule baseline, as well as opportunities that can have a positive impact on the cost and schedule baseline. The process includes planning and executing actions to avoid the occurrence of negative events or reduce the likelihood and/or consequences of negative events. The process takes input from the Risk and Opportunity Assessment provided by the hazards assessment activities under DOE-STD-1189. The process also quantifies residual risk and provides the basis for management reserve and contingency planning.

Using the processes outlined in PRC-PRO-PC-40079, the C-RMP presents the CHPRC risk management strategy, approach and risk analysis results for the STP. The C-RMP is the contractor's primary tool for communicating STP risks, including defined areas of uncertainty, potential risk events, and planned risk handling actions. The C-RMP implements the requirements of DOE G-413.3-7, *Risk Management*; CHPRC-00002, *CHPRC Risk Management Process Manual;* PRC-GD-PC-40080, *Risk Management Implementation Guide* and PRC-MP-PC-40167, CHPRC *Risk Management Plan*.

The STP baseline information associated with the C-RMP was evaluated in detail in order to identify technical and programmatic risks that, if left unmitigated, would very likely have a significant impact to both the cost and schedule baseline. The C-RMP identifies both critical and non-critical risks that have been identified by the project personnel.

Table 4-2 lists the most significant contractor critical risks that have a potential near-term impact to the project baseline[31]. As described in their plan, the project assesses risks on a monthly basis for changes (positive or negative) and updates the risk registers as needed. On no less than an annual basis, CHPRC updates the Risk Analysis.

Table 4-2 Key Contractor Managed Critical Risks

Risk Document	Risk Title	Risk Statement	Risk Mitigation Strategy
STP-002	STP Uncertainties	The Sludge Treatment Project has many uncertainties due to the lack of a definitive path forward, planning based upon pre-conceptual designs, and utilization of technologies not yet proven in field conditions.	Force design parameters to limit control systems to the extent practicable. Test multiple components /systems concurrently to ensure technologies are transferable to the basin application/environment. Provide early determination of critical technology elements. Demonstrate TRL-3 at CD-1 and TRL-6 at CD-2 and CD-3.

[31] Table 4-1 is taken from PRC-STP-00040, *Sludge Treatment Project Risk Management Plan*

Table 4-2 Key Contractor Managed Critical Risks

Risk Document	Risk Title	Risk Statement	Risk Mitigation Strategy
STP-006B	Sludge Different Than Simulant - Retrieval	Sludge retrieval technologies will be tested using a simulant designed to emulate sludge properties. There is a risk that the actual sludge properties will be different than the simulant properties.	The simulant is based upon the Sludge Data-book (SNF-TI-015). Use a range of simulants during testing. Obtain samples to compare to the simulant; modify simulant to more closely match sludge sample properties. Modify retrieval system design and test using adjusted simulant.
STP-008C	Sludge Sampling Delays - Settler Tank Technology	Settler tank sludge sampling does not progress as planned due to technical challenges during sampling.	Train the NCO's on the actual PAS-1 cask prior to implement sampling in the basins and update the memorandum of agreement with Washington Closure Hanford to utilize two PAS-CASKs assigned to WCH. Include in the design of the guide frames and provide enough spare equipment for an alternate sampling location to mitigate the potential for delays resulting from plugging. Use same system as was used for other EC.
STP-009A	Sludge Retrieval Delays – Retrieval Technology	Sludge retrieval does not progress as planned due to issues with retrieval system technology.	Review the following types of technology: hydraulic technology; bottom-cleanout retrieval; two-phased retrieval. Include operations in review and testing of design. Develop a technology maturation plan and execution strategy in accordance with the DOE Technical Readiness Assessment/Technology Maturation Plan (TRA/TMP) Process Guide, March 2008. Perform sludge capture testing using simulant. Establish an independent external review panel to review the technology prior to implementation.
STP-039	KOP Separations Process Qualification	Mechanical separations process may not sufficiently separate the KOP material.	The mechanical separations process will be tested at MASF prior to deployment in the basin. Conduct an alternatives study to evaluate alternate KOP disposition in the event the separations process is not successful.

DOE Risks

The K Basins Closure Project Federal Risk Management Plan [32] (F-RMP) presents the DOE RL risk management strategy and approach. The STP is a sub-project within the K Basins Closure Project (KBCP). Using this approach, RL provides integration of STP planning with other KBCP subproject activities ensuring that related risks directly resulting from shared resources and programs are identified and addressed.

The F-RMP is developed using the guidance in DOE G 413.3-7, Risk Management Guide, Section 5.2, *Risk Management Plan* and the *RIMS Project Risk Management Program Description* and other associated crosscutting procedures contained in RIMS. The F-RMP and assessment results are updated periodically and the F-RMP document is revised at least annually.

The F-RMP outlines the methodology and documentation developed by the FPD and the STP Federal Integrated Project Team (FIPT) reviews. DOE managed risks are identified and tracked by the STP FIPT and where appropriate, incorporated into the contractor's schedules for integration / coordination purposes. Risks are ranked and prioritized in combination with the contractors managed risks in order to determine the projects overall confidence levels in meeting

[32] K Basins Closure Project Federal Risk Management Plan, April 2010

the schedule and budget goals. The KBCP Risk Analysts' perform a quantitative analysis as outlined in the RIMS Crosscutting Processes in order to track and implement the risk mitigation actions and also to establish the contingency values for the project. DOE contingency is discussed in Section 3.3.4. Table 4-3 lists the most significant DOE managed critical risks for the STP.

Table 4-3 Key DOE Managed Critical Risks

Risk Document	Risk Title	Risk Statement (Description)	Risk Mitigation (Management) Strategy
RL-STP-004B	KOP Material not having disposal pathway	KOP material >600 microns not managed as fuel, thus would not have a disposal pathway	Reduce 1) Maintain communication with HQ 2) Reduction of the volume of KOP materials by sorting, and screening for <600 microns, leaving fuel scrap which creates a new waste stream to ERDF. 3) four - phased material inspection 4) Implementing testing conceptual design Comments 1) This risk will be continuously monitored quarterly in the Risk Monthly Reports starting June 2010 2) Should remove small particulates to reduce likelihood of not being managed as fuel.
RL-STP-009C	Sludge Retrieval Delays - Nuclear Safety	Sludge retrieval delays due to more stringent nuclear safety and/or transportation safety requirements than in the prior approved safety analysis resulting in changes to design and operational controls.	Reduce 1) Maintain communications with CHPRC to ensure nuclear and transportations safety requirement are incorporated in the design. 2) Maintain communications with RL-NS and RL-TS to ensure appropriate standards and requirements are applied to STP.
RL-STP-021	413.3A Tailoring for KOP	Tailoring for KOP not accepted by DOE HQ and a more stringent approach will be required.	Reduce 1) Minimizing the volume of KOP materials by sorting, and screening for <600 microns, leaving fuel scrap which creates a new waste stream to ERDF.
RL-STP-050	Technical uncertainties with sludge processes, controls and approvals	Unanticipated events and concerns beyond what is planned that originate from technical inadequacies and stakeholder expectations.	Reduce 1) Continue to closely monitor, identify risks early and develop avoidance / mitigation methods

4.2.3 Technical Readiness

Engineering and technology readiness is being conducted in parallel for the EC/ST Disposition Phase 1 Subproject and the KOP Disposition Subproject. As described in Section 2, *Tailoring Strategy*, the two subprojects are different in terms of how they affect the technical safety basis and as a result are using different approaches to achieving readiness. The EC/ST Disposition Phase 1 Subproject is using the processes prescribed in DOE 413.3A and DOE STD 1189, whereas the KOP Disposition Subproject is using the existing CHPRC engineering and operations programs processes and procedures.

Technical readiness for the STP includes developmental work for new processes, equipment and procedures as well as preparations for Critical Decisions required by DOE 413.3A. The two sub-projects are managed individually but in a very integrated manner because activities in both sub-projects have both information and resource dependencies which require close coordination.

Technical readiness requirements are much more rigorous for the STP activities because the work is a major modification to existing facilities. Detail relating to the tailoring of the requirements are discussed in the Section 2.0, *Tailoring Strategy,* and more detailed discussions of readiness activities is provided in the paragraphs below for the STP sub-projects.

KOP Disposition Subproject

STP is developing the process and designing necessary technologies to remove small particles (greater than 600 microns in size) and low-density, non-uranium components and debris from the KOP material. This non-uranium fuel waste stream will be collected in the Settler Tubes or other process filtration / collection containers for disposal as low level radiological waste. The remaining KOP material will be packaged in Multi-Canister Overpacks (MCOs) in the K West Basin and transported to the Cold Vacuum Drying Facility (CVDF) where the MCOs containing KOP material will be dried out and purged with an inert gas. The MCOs containing KOP material will then be transferred to the Canister Storage Building (CSB) for interim storage. Figure 1-1 provides a diagram of the process.

In-basin inspections of KOP material are currently being conducted in four phases to gain insight into the physical characteristics of the material. The four phases are listed with the inspection method below:

Phase	*Location*	*Inspection Method*
1	PCM & IWTS Strainer Material	Volume & Radiation Data
2	PCM & IWTS Strainer Material	Particle size, Temperature, Penetrability and Color Video
3	PCM & IWTS Strainer Material	
4	KOP Unit Materials	Particle Size Distribution & Density

Phases 1-3 have been completed, and have provided details supporting the development of a conceptual process to prepare, treat, and package the KOP material in MCO's for transport and storage at the CSB. Phase 4 activities are underway, with 11 of the Knock Out Pots opened and their contents, referred to as KOP material, transferred to canisters.

These inspections are expected to provide information to establish an estimate of material that might be removed from the base KOP stream via size and density separation processes to validate the feasibility of using MCOs to dispose of KOP material.

These processes have been identified as the required technologies for the KOP Disposition Subproject to support technology maturation planning. A TRA is not required for the KOP Disposition Subproject and as discussed in Section 2 Tailoring, this sub-project is not performed under DOE O 413.3A and Critical Decision approvals are not required. Technical readiness will be achieved through the implementation of the existing engineering programs, processes and procedures. The project is also implementing an integrated test and development strategy to address testing needed to support design development, and this is described further in Section 4.2.13.2, *KOP Disposition Subproject Testing*.

EC/ST Disposition Subproject

STP is developing the necessary technologies for designing a process for Phase 1 of the EC/ST Disposition Subproject to support CD-1 - to retrieve and handle the EC/ST sludge, and transport it to T Plant for interim storage. Implementation of the DOE TRA/TMP Process Guide [33] is described in Section 2.0 and Appendix A. PRC-STP-00010, *Technology Testing Plan for the Sludge Treatment Project*[34], addressed technology development testing to support CD-1 for Phase 1 of the EC/ST Disposition Subproject. It described the framework for the activities conducted by the EC/ST Subproject in preparation for the Technology Readiness Assessment (TRA) conducted by DOE for CD-1. A testing program was completed by the contractor to support completion of conceptual design and will continue in support of preliminary and final design. The objective of this testing program for conceptual design was to assure a Technology Readiness Level (TRL) of at least 3 for all critical technologies so that Phase 1 planning could proceed into preliminary design. DOE conducted a TRA to determine the maturation levels of the identified EC/ST Critical Technology Elements. The TRA Report [35] identified four Critical Technology Elements and determined that each Critical Technology Element was at a TRL of 4. Thereafter, a technology maturation plan (TMP)[36] was developed to layout the activities and technology development schedule for the activities required to raise the maturation levels of critical technology elements in the EC/ST design. The testing plan contained in the TMP will develop the critical technology elements to TRL 6 or higher, which is required for the incorporation of a technology into the final design. STP will use DOE G 413.3-4, *Technology Readiness Assessment Guide*, to prepare for the TRA that will precede CD-2/3 approval.

To support existing K West Basin operations and consolidate the settler tank sludge into the Engineered Containers (EC), the Settler Tank Retrieval System (STRS) was designed, fabricated, acceptance tested and installed in the K West Basin. The design and technology development and testing was managed principally under PRC-PRO-EN-2001, *Facility Modification Package Process*, and PRC-PRO-EN-286, *Testing of Equipment and Systems* and the technical readiness was verified using the existing engineering program instructions. Operational readiness supporting system startup consisted of the contractor performing a Management Self Assessment (MSA) and RL performed routine oversight of the MSA. Operation of the STRS in K West Basin, to retrieve sludge from the ten IWTS Settler Tanks and transfer the sludge material into SCS-CON-230, was initiated in December 2009. This task is expected to be completed by June 2010. Settler Tank sludge transfer is a prerequisite for the EC/ST Disposition subproject.

Concurrent with the technology development are the sludge sampling and characterization activities. Characterization of the EC sludge is necessary to confirm testing assumptions and adjust sludge simulants that were used to test the equipment developed for EC/ST Phase 1. Sampling equipment has been developed and deployed to sample sludge in the Engineered

[33] DOE Office of Engineering & Technology, *Technology Readiness Assessment (TRA)/Technology Maturation Plan (TMP) Process Guide*, March 2008. NOTE: DOE G 413.3-4, *Technology Readiness Assessment Guide*, has been released by the DOE as a draft for review, and will most likely supersede this process guide.

[34] PRC-STP-00010, Technology Testing Plan for the Sludge Treatment Project

[35] DOE-EM TRA Report, 351 0-AMRC-0063, *K Basins Sludge Treatment Project Phase 1 – Technology Readiness Assessment Report,* 2009, Department of Energy, Office of Environmental Management, February 2010.

[36] PRC-STP-00113, *Sludge Treatment Project – Engineered Container and Settler Tank Subproject Technology Maturation Plan*

Containers (EC)s. The Table 4-4 shows the status (as of the CD-1 submittal) of the sampling activities for the respective EC.

Table 4-4 Engineered Container Sampling

ENGINEERED CONTAINER NO.	SAMPLING COMPLETED
SCS-CON-210	NO
SCS-CON-220	YES
SCS-CON-230	NO
SCS-CON-240	YES
SCS-CON-250	YES
SCS-CON-260	YES

SCS-CON-210 will receive K West Basin floor and pit sludge from the final sweep after the small debris removal campaign is completed the first quarter of 2011. SCS-CON-230 received the Settler Tank sludge, and is discussed above.

Figure 4-1, the STP Phase 1 material handling/process for the EC/ST sludge, illustrates the interrelationships between the identified technology elements (TEs) in the system that have been identified by STP and DOE-RL.

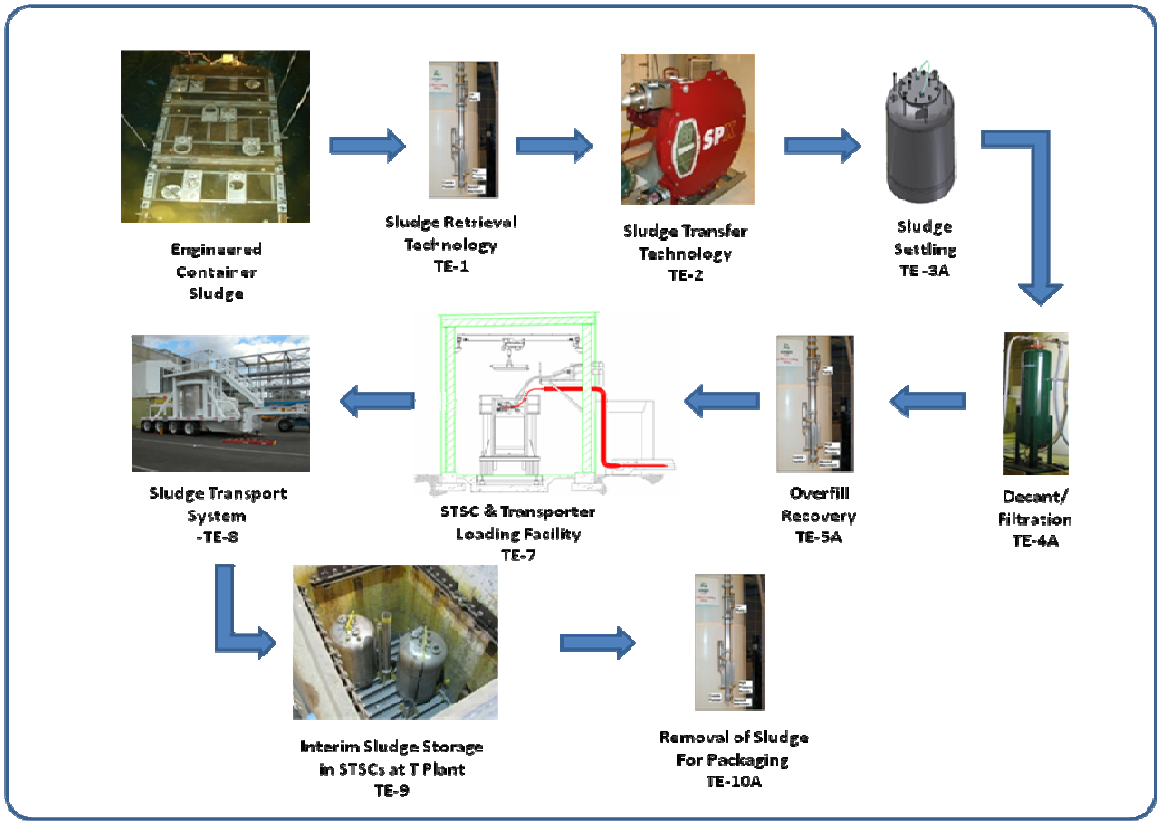
An assessment of technical readiness performed by the STP in advance of the DOE-EM TRA evaluated all of these technology elements as if they were all Critical Technical Elements (CTE)s. In October 2009, a DOE-EM-TRA was performed to independently assess the technical maturity of the CTEs using the Technology Readiness Level (TRL) scale established in the DOE Technology Readiness Assessment / Technology Maturation Plan Process Guide[37]. The results of the TRA indicated that the CTEs identified in the Phase 1 process met TRL maturity values (TRL-4) necessary for CD-1. The DOE-EM-TRA Report[38] identified areas of potential vulnerability for the STP to consider as technology development progresses. This feedback is input into the EC/ST Disposition subproject's Technology Maturation Plan (TMP) to be developed by STP to support CD-2/3 readiness.

Project readiness for CD-1 and CD-2/3 approval requests are verified by the performance of Project Definition Rating Index (PDRI) evaluations, performed using the guidance provided in the EM PDRI Manual which was implemented by EM February 12, 2001[39]. For CD-1, the contractor performed a PDRI Self Assessment which was monitored by RL. RL also performed a Reviewer PDRI independent from the contractor's evaluation. Both PDRIs determined that the Phase 1 project preparations met the CD-1 criteria.

[38] DOE-EM-TRA Report for STP Phase 1, Critical Decision 1 process. 16 November 2009

[39] EM-6 Letter to Distribution, Environmental Management Project Definition Rating Index, dated February 2001.

Figure 4-1, STP Phase 1 Material Handling/Process



DOE O 413.3A requires a Technical Independent Project Review (TIPR) be performed for CD-1 approval. This is in addition to the STP Phase 1 TRA and the DOE ETR, which are both considered a TIPRs. In May 2010, the STP FPD administered a TIPR which included the participation of DOE EM Chief of Nuclear Safety. This review validated the adequacy of the STP implementation of DOE STD 1189 for STP Phase 1 CD-1. Review results were provided to the contractor for feedback to support the development of the safety basis in the Phase 1 final design.

Phase 2 of the EC/ST Disposition sub-project is at the pre-conceptual stage of planning and there is insufficient information available at this stage to discuss technical readiness.

4.2.4 Alternatives Analysis and Selection

In March, 2008, the STP [40] was directed by DOE RL to evaluate alternatives and propose the path forward for removal of the sludge contained in the K West Basin Engineered Containers, settler tanks, and knock-out pots. The direction included the implementation of DOE Order 413.3A and DOE-STD-1189-2008 for project planning and preparations for CD-1. In

[40] 08-AMCP-0151, dated March 28, 2008, from L. K. Jarnagin, Contracting Officer, DOE-RL to C. M. Murphy, President and CEO, *Contract No. DE-AC06-96RL13200 – K Basin Sludge Disposition Direction*, Fluor Hanford Inc.

subsequent direction [41] KOP sludge was formally removed from the scope of this alternatives analysis.

KOP Alternatives Analysis

The Knockout Pot (KOP) material is a portion of the sludge that contains a greater fraction of un-reacted, irradiated uranium metal as compared with the EC/ST material. The project is developing methods to segregate the KOP material and load this portion of the sludge material into specially designed baskets that fit into a number of multi-canister overpacks (MCOs). The loaded MCOs will be drained, dried and transported for interim storage with the spent fuel in the CSB. This approach is based on the premise that this material could ultimately be disposed along with the Spent Fuel in a federal geologic repository.

As a risk reduction measure, the project is performing an abbreviated KOP Alternative Study to identify an option to be considered as a fallback position in the event that problems are encountered in the implementation of this base line approach. The study will identify, define, and evaluate alternatives for KOP material and provides a relative ranking of a set of alternatives that might satisfy the STP mission.

EC/ST Alternatives Analysis

An alternatives analysis summary report[42] was completed for the EC/ST sludge material. In order to meet DOE's 2015 vision a two-phase strategy was developed for K Basin cleanup to provide adequate development and demonstration assurance for the retrieval, treatment, and packaging technologies. During Phase 1, the EC/ST sludge material is retrieved and transferred to Sludge Transport and Storage Containers (STSCs) and moved to an interim storage location in the 200 Area of the Central Plateau. During Phase 2, the sludge is treated and packaged for shipment to WIPP as remotely-handled transuranic (RH-TRU) waste after development and demonstration of the treatment and packaging technology.

Phase 2 requires development and demonstration of technologies to (1) oxidize the remaining uranium metal content of the sludge material to limit hydrogen generation rates in the packaged material in order to meet shipping requirements; and (2) to develop and demonstrate a treatment and packaging system that produces transport-ready disposal containers. Development, design, and construction of the necessary systems cannot be completed in a timely fashion to support meeting the 2015 Vision target date without taking on an unacceptable technology risk. DOE is determined that this approach must be successful and has established rigorous technology demonstration requirements for the STP to support the project lifecycle. A Phase 2 alternatives analysis is currently being performed of feasible technologies for treating and packaging EC and ST sludge streams.

[41] 08-AMCP- 0196, dated June 6, 2008, from S. A. Sieracki, Contracting Officer, DOE-RL to C. M. Murphy, President and CEO, *Contract No. DE-AC06-96RL13200 – K Basin Sludge Knock Out Post Accelerated Disposition Direction*, Fluor Hanford Inc.

[42] HNF-39744, Rev. 0, *Sludge Treatment Project Alternatives Analysis Summary Report*

An additional assessment[43] was conducted to evaluate two alternatives for interim Phase 1 storage of the EC/ST sludge material on the Central Plateau; (1) T Plant and (2) a newly constructed Alternate Storage Facility. Based on the results of the assessment, T Plant is recommended for Phase 1 interim storage of sludge. The key elements supporting the recommendation were that T Plant has a proven process for storing sludge, T Plant storage can be implemented at a lower incremental cost, and T Plant has a more favorable schedule profile. A key basis for this recommendation is the assumption that T Plant will retain an extended, durable mission independent of the STP mission. DOE-RL has reviewed and approved[44] STP's alternatives recommendations noted above. As a programmatic risk reduction mitigation action, DOE-RL recommended that the project also initiate work on the conceptual design for an alternate (to T Plant) interim sludge storage option, and the project is proceeding accordingly. DOE-RL stated that sometime in FY 2010 they will reevaluate the parallel paths for interim storage and decide if development beyond a conceptual design should be continued for the alternate interim storage option.

4.2.5 Environment, Safety, and Health

The CHPRC Integrated Environment, Safety and Health Management System for the PRC, provides the institutional structure for incorporation of environment, health, and safety into all aspects of the CHPRC business and operating units.

The STP will protect the health and safety of facility workers, collocated workers, and the public by designing safe and effective facilities that comply with applicable environmental, safety, and health regulatory requirements specified in the Plateau Remediation Contract with DOE-RL, including but not limited to:

- 10 CFR 830, *Nuclear Safety Management*
- 10 CFR 835, *Occupational Radiation Protection*
- 10 CFR 851, *Worker Safety and Health Program*
- 29 CFR 1910, *Occupational Safety and Health Standards*
- 29 CFR 1926, *Safety and Health Regulations for Construction*
- Contract Requirements Document (CRD) O 420.1B (Supplement Rev. 1), *Facility Safety*
- DOE M 450.4-1, *Integrated Safety Management System Manual*
- CRD O 226.1 (Supplement Rev. 0), *Implementation of Department of Energy Oversight Policy*

<u>Environmental Protection</u>

The environmental documentation for the STP project is based on the regulatory framework under which the work is being performed. The removal and treatment of K Basin sludge is a part of a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) cleanup action governed by the Hanford Federal Facility Agreement and Consent Order, or Tri-Party Agreement (TPA). This order ensures that environmental impacts associated with past and

[43] HNF-40917,,Sludge Treatment Project Phase 1 Sludge Storage Options Assessment of T Plant versus Alternate Storage Facility

[44] 09-AMRC-0173, External Technical Review (ETR) of the Hanford K Basins Sludge Treatment Project (STP), dated August 19, 2009 from J. Osso, Contracting Officer to J. G. Lehew, President and CEO

present activities at the Hanford Site are thoroughly investigated and appropriate response action is taken as necessary to protect the public health, welfare and the environment.

The cleanup process is described in the *Comprehensive Environmental Response, Compensation and Liability Act Past-Practice Unit Process,* Section 7.3 of the Work Plan for the TPA. Environmental documentation associated with cleanup actions is described in Section 9.0, *Documentation and Records*, of the Work Plan.

The K Basin CERCLA Record of Decision (ROD) and amendments define the scope of work and selected remedy for the removal and disposition of K Basin sludge. Environmental permits are not required for CERCLA response actions; however, not all aspects of the disposition of sludge are a part of the CERCLA response action. For example, the interim storage of untreated sludge in the 200 Area, and treatment and interim storage of that portion of KOP sludge that will be managed as spent nuclear fuel are not within the scope of the CERCLA response action. In this case permitting documentation will be required for these aspects of the STP.

T Plant is an already permitted facility under RCRA and the Clean Air Act (CAA), and is included in the Hanford Site Air Operating Permit. It also has a Risk Based Disposal Approval for the management of PCBs. The CSB is a permitted facility under the CAA and is included in the Hanford Site Air Operating Permit. This regulatory documentation will be assessed to determine the need for any modification and any regulatory involvement. If necessary, activities will be included in the STP schedule for planning and providing status of the modifications to these regulatory documents.

National Environmental Policy Act (NEPA) compliance is met by the incorporation of NEPA values in the CERCLA documentation for those aspects of the STP that are within the scope the CERCLA response action. For those aspects of the STP that are outside the scope the CERCLA response action, NEPA compliance is met by demonstrating the work is covered by existing NEPA documentation; e.g., Environmental Impact Statements, Environmental Assessments, or is Categorically Excluded. Those aspect of the STP that are outside the scope of the CERCLA response action are the interim storage of sludge at T Plant, processing of that portion of KOP materials that will be managed as SNF at the CVDF, and the interim storage of that portion of the KOP materials that will be managed as SNF at the CSB.

Integrated Safety Management System / Environmental Management System

CHPRC uses the Integrated Safety Management System (ISMS)/Environmental Management System (EMS) process to facilitate safe, compliant work by implementing safety and environmental management into each facet of work planning and execution. The ISMS/EMS process is managed in accordance with DOE M 450.4-1, Integrated Safety Management System Manual and DOE O 450.1, Environmental Protection Program. CHPRC is committed to performing work safely and efficiently and in a manner that ensures protection of the workers, the public, and the environment. The ISMS/EMS establishes an Environmental, Safety, and Health Management System that integrates requirements into work planning and execution and identifies requirements reflecting CHPRC commitment to a “standards based” program and the corresponding safety concepts. Figure 4-2 illustrates the ISMS/EMS principles, core functions and core elements.

Figure 4-2. ISMS/EMS Principles, Core Functions and Core Elements.

Integrated Environment, Safety and Health Management System (ISMS) requirements are implemented through numerous procedures that govern the work planning and execution processes to effectively protect the workers, public, and the environment. A complete listing of ISMS implementing procedures is available on the CHPRC Hanford Local Area Network server.

Safety and Health

The Sludge Treatment Project embraces the overall safety goals of zero injuries and occupational illnesses, providing and maintaining a safe and healthy working environment, maintaining personnel exposure to As Low As Reasonably Achievable (ALARA), and promoting a culture in which all employees follow safe work practices and have the right and responsibility to participate in the safety programs. Continuous improvement in employee safety and health is driven by implementing the ISMS expectations.

Specific requirements for subcontractors, including safety requirements, are documented during the procurement process. Subcontracts are written and managed within two major categories: products that include materials, supplies, equipment and commercial items; and technical services obtained from subcontractors. These subcontracts contain standard provisions and may include the ISMS DEAR Clause 970.5223-1, depending upon the magnitude and complexity of the task order. Regardless of the type of contract issued, each element of work is issued to the

subcontractor via a task order, which includes a specific SOW governed by the following procedures: CHPRC Procurement of Services, or CHPRC Procurement of Items.

Nuclear Safety

The nuclear safety function is integrated into the design process as described in DOE-STD-1189. STP Safety Design Strategy provides the strategy for implementation of DOE-STD-1189, *Integration of Safety Into the Design Process*, by describing the overall STP safety strategy; the strategy for certain high-cost, safety-related design decisions; identification of key assumptions or inputs that may represent potential risks to those design decisions; and the expected safety deliverables throughout the duration of the project. Planned safety analysis activities and deliverables for the various project phases for container and settler sludge removal are presented in Table 4-5:

Table 4-5. Planned Safety Analysis Activities

Project Phase	Planned Safety Analysis	Deliverables
Conceptual Planning	• Scoping hazard analysis • Scoping hazard categorization	• Safety Design Strategy (SDS)
Conceptual Design	• Preliminary hazard analysis • Preliminary hazard categorization • Select and analyze facility level design basis accidents (DBAs) • Preliminary Fire Hazards Analysis • Preliminary Criticality Safety Evaluation • Risk and Opportunity Assessment.	• Updated SDS • Conceptual Safety Design Report
Preliminary Design/Final Design	• System level hazard analysis • Finalize DBAs, Unmitigated/Mitigated Accident analysis • Develop and classifying controls for facility worker hazards • Update facility hazard categorization, FHA, Criticality Safety Evaluation Report (CSER) • Update risk and opportunity assessment • Finalize classification of safety SSCs and demonstrate the adequacy of the controls	• Updated SDS • Preliminary Documented Safety Analysis
Transition to Operation	• Update hazard analysis to address operational hazards and any design changes during construction • Develop Technical Safety Requirements (TSRs)	• Documented Safety Analysis • TSRs

As described in DOE-STD-1189, a Safety-in-Design Integration Team (SDIT) has been established to support the STP by ensuring integration of safety into the design process. The SDIT includes the key members of the contractor project team who implement Safety-in-Design for the project STP SDIT Charter, describes the mission, composition, responsibilities, and decision making process for the SDIT.

Hazard Analysis

The hazards analyses performed for STP major modifications will meet the requirements of DOE-STD-3009, *Preparation Guide for U.S Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses,* and DOE-STD-1189. Hazards analyses will be provided for the EC/ST Disposition Subproject sludge removal from K Basin (Phase 1) as described above. Hazards analyses for T Plant receipt of sludge and for management of KOP sludge will be provided as described in the STP SDS.

Value Management Process

The STP value management (VM) process complies with CRD O 413.3A, Item 10, which specifies that a "Value Management/Engineering process" be used "that identifies high-cost project activities in order to realize a maximum return on investment through the use of systems engineering tradeoffs and functional analyses that identify alternate means of achieving the same function at a lower life cycle cost." In the DOE O 413.3A definition, "Value Management encompasses Value Engineering." In other words, DOE defines all function-based and value-oriented activities collectively as Value Management.

The STP VM process utilizes Systems Engineering and other techniques and tools such as formal alternatives analyses and Value Engineering (VE) to perform more rigorous reviews of project activities. This formal process ensures that a recommended alternative (outcome) provides the essential functions and capability at optimum life cycle cost, consistent with required performance, scope, cost, schedule, security, and ES&H considerations. The STP VM process is implemented *throughout* the project life cycle to ensure the most effective solutions are implemented, starting with the definition phase, and continuing through project execution phase. Analysis results are integrated into the decision process for determining the path forward for the STP to pursue for the benefit of the DOE, the user, and other stakeholders.

HNF-34682, *Sludge Treatment Project Systems Engineering Management Plan*, describes how STP will implement the systems engineering approach during the life cycle of the project. HNF-RD-32801, *Value Engineering*, describes the requirements for performing formal VE activities. Refer to the following PEP section for a discussion of VE.

The STP Value Management process ensures that DOE, the user, and other stakeholders receive a product that provides the "greatest value" or return on the investment made without penalty to functional and performance requirements.

Value Engineering

The STP utilizes value engineering to evaluate alternative approaches or processes to meeting the project end objectives. This is supported further by STP management implementation of HNF-RD-32801, *Value Engineering*.

4.2.6 Safeguards and Security

As described in PRC-MP-MS-19361, DOE RL, with support from the Mission Support Contractor, has the security lead for the Hanford Site and establishes specific requirements for personnel and property protection. CHPRC complies with requests/instructions as provided by the DOE RL and the Mission Support Contractor. CHPRC ensures the successful protection of

safeguards and security interests and the management and accountability of nuclear materials. CHPRC ensures programmatic plans and procedures are in place and will integrate program requirements into operations implementing procedures. This integration includes activities such as material surveillance, inventories of nuclear material and documents, and material transfers.

The CHPRC Security Plan addresses the physical security design, protective force, operations security requirements, and administrative controls for the STP based on DOE directives. As part of the STP safeguards and security program a Limited Security Vulnerability Assessment Report, as defined in DOE M 470.4-1, will be prepared for CD-1. In January, 2010, DOE RL approved a deviation authorization request which outlined the material accountability requirements for sludge materials, including the KOP materials located in the K West Basin. Conditions to be maintained and met are identified until the sludge is terminated from safeguards controls as it is transferred to the waste management organization.

4.2.7 Configuration Management

PRC-PRO-EN-20050, *Engineering Configuration Management*, defines the CHPRC engineering configuration management processes for managing configuration of structures, systems, and components (SSCs). The STP Chief Engineer, through his assigned Design Authorities, is responsible for maintaining the design configuration baseline.

Configuration Management for Sludge Treatment Project complies with the requirements identified in PRC- MP-QA 599, Quality Assurance Program and PRC-RD-EN-1819, CHPRC Engineering Requirements. Configuration management mechanisms and tools consist of the five following elements:

- Planning and administration: Includes maintaining procedures and standards that are easy to access on the CHPRC website; use of administrative software, staffing, and infrastructure
- Identification: Design data is uniquely identified so it can be recovered (e.g., drawing system codes, document numbers, etc.)
- Change Control: Ensuring accurate revision and control of changes
- Status accounting: Ability to easily identify the current revision of a drawing or document
- Assessments: Management and independent reviews to ensure compliance and identify improvements.

4.2.8 Records Management/Document Control

The STP is implementing the provisions of PRC-MP-IRM-40119, *Document Control and Records Management Plan*, which is a company-wide collection of standards and implementing documents. This program description defines the document control and records management processes for CHPRC. The document control and records management program is based on a broad spectrum of regulatory requirements and contract direction. CHPRC Contract DE-AC06-08RL14788 and PRC-MP-QA-599, *Quality Assurance Program*, require the management of documents and records which are the primary drivers behind the establishment and maintenance of the program. The document control and records management plan is comprised of a collection of document control and record systems and processes that use a graded approach for

the preparation, review, approval, distribution, use and revision of documents generated directly by CHPRC or as directed by contract in support of CHPRC work.

4.2.9 Systems Engineering

Engineering requirements as they pertain to the application of systems engineering for CHPRC are prescribed in PRC-RD-EN-1819, *CHPRC Engineering Requirements.* HNF-34682, *Sludge Treatment Project Systems Engineering Management Plan*, describes how STP will implement the systems engineering approach in accordance with DOE O 413.3A and its associated guide, DOE G 413.3-1, *Managing Design and Construction Using Systems Engineering*.

4.2.10 Earned Value Management System (EVMS)

STP implements the CHPRC project control system described in CHPRC-00003, which describes the implementation of the Earned Value Management System for CHPRC work. This project control system description identifies the requirements and processes for planning, managing, controlling and reporting performance against the project baseline, thereby meeting the requirements and commitments of the CHPRC, Contract Number DE-ACO6-O8RL 14788. The CHPRC Project Control system has undergone initial EVMS verification and certification has been received[45] from DOE.

CHPRC-00003, *Project Controls System Description*, which contains the ANSI/EIA-748-A compliance guidelines and compliance matrix, defines the CHPRC project controls systems. These systems are the tools the project managers and project controls personnel use to develop project baselines, report performance and implement baseline change control. Cost and schedule performance is reported to DOE RL on a monthly basis, using DOE RL approved WBS elements and data formats. Monthly reporting includes both current month and cum-to-date cost and schedule variance analyses. If any variance exceeds the CHPRC establish thresholds, as documented in the Project Controls System Description, the report will also include corrective actions plans. Besides cost and schedule analysis, also included in the monthly report are key accomplishments, baseline change control activity, potential problems and/or issues and current status of key risk areas (trending).

Project planning and performance reporting is accomplished by a combination of the Project Manager, the Project Controls Analyst, and other various performing organizations as required. The Project Manager has overall responsibility for planning and reporting against the project baseline. The EVMS requirements are flowed to major subcontractors, as required. All subcontracts are required to input accruals to the CHPRC accounting systems on a monthly basis. For major equipment or material purchases, performance is earned when the items are received on site or when progress payments are made to vendors according to procurement or fabrication progress.

Each month the performing organizations report progress to the Project Controls Analyst, who reviews the reports and forwards them along with earned value data to the Project Manager.

[45] DOE Letter dated September 18, 2009, from Paul Bosco, DOE-HQ, to JG Lehew, CHPRC President and CEO, Subject: DOE-HQ Approval of CHPRC Earned Value Management System

Earned value data is the basis for assessing performance of the project and is used by Project Management in execution decisions.

Section 4.2, *Baseline Performance System*, of CHPRC-00003 describes the process that Project Managers, Control Account Managers (CAMS) and Project Controls Analysts are following in determining and claiming earned value.

4.2.11 Quality Assurance

STP applies quality assurance (QA) to project activities in accordance with PRC-MP-QA-599, *Quality Assurance Program*, which, in turn, implements DOE O 414.1C, Contractor Requirements Document, *Quality Assurance*, and Title 10, *Code of Federal Regulations* (CFR), Part 830, *Nuclear Safety Management*, Subpart A, *Quality Assurance Requirements*. PRC-MP-QA-599 includes the quality requirements applicable to work performed by CHPRC using a graded approach. PRC-MP-QA-599 is compliant with the additional requirements prescribed by the OCRWM and is described in QAPP-OCRWM.

These QA requirements are imposed on the project through the CHPRC Prime Contract, DE-AC06-08RL14788, and are augmented by additional requirements described as follows:

- KOP design activities are subject to additional requirements prescribed by the OCRWM, and are described in QAPP-OCRWM-1.
- STP sludge sampling and sludge characterization activities are also subject to the requirements prescribed by HNF-2599, *Hanford Site Transuranic Waste Characterization Quality Assurance Project Plan*, and HNF-23333, *CH2M HILL Plateau Remediation Company Environmental Quality Assurance Program Plan*.
- EC/ST design activities that will be associated with the Transuranic (TRU) Waste Program (e.g., waste characterization, certification, and transportation of remote-handled (RH) TRU waste for disposal at the Waste Isolation Pilot Plant (WIPP)) will be subject to additional requirements prescribed by the DOE/Carlsbad field Office (CBFO), and are described in DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*, Section 5.0, *Quality Assurance Requirements.*

4.2.12 Communication Management Plan

The STP Communication Management Plan, Appendix D to this document, lists the Hanford Stakeholders and captures all regularly scheduled and most “periodic” and/or ad-hoc communications where the STP project will need to provide presentation, data, or reports to an identified audience outside the project. It is not intended to capture project internal communication.

4.2.13 Testing and Evaluation

The CHPRC process for testing is described in PRC-PRO-EN-286, *Testing of Equipment and Systems*. The test program to support STP technology maturation activities is described in PRC-STP-00010, *Technology Testing Plan for the Sludge Treatment Project*.

Testing will be conducted to (1) develop/mature technology used in the STP design, and (2) provide data for STP design verification and validation. Test activities will be time-phased to provide input to key project design stages; e.g., pre-conceptual, conceptual, preliminary, and final. Testing activities will also be aligned with the client decision and approval processes, which are essentially the Critical Decision points and the PDRI elements.

Engineering is responsible for defining test needs and configuration control of test requirements and acceptance criteria. Proof-of-principle and development test activities is being conducted during pre-conceptual and conceptual design phases (CD-0 and CD-1). Qualification testing will be conducted as needed during the preliminary design through the final design (CD-2/CD-3). Acceptance testing will be conducted following final design. Factory acceptance testing (FATs) will be performed on furnished equipment in accordance with specified procurement requirements. Following construction installation of equipment and systems, construction acceptance testing (CATs) will be conducted. Prior to approval to start operations, integrated acceptance testing (IAT) will be conducted to support startup and commissioning activities.

KOP Disposition Subproject Testing

PRC-STP-00017, *KOP Disposition Integrated Test and Demonstration Strategy*, is currently being prepared to support development of the processes described in Section 4.1.3.2. The key aspects of the testing strategy are an extension of previous investigations and associated engineering development. The KOP test program will ensure that the selected technologies will perform KOP sludge processes as follows:

1. Effectively performs size reduction of the low density (non-uranium) material to meet process requirements.
2. Separates material less than 600 microns in size from larger KOP material to meet process requirements.
3. Effectively separates light-density material from the KOP material to meet process requirements.
4. Effectively operates with a varying range of operating parameters.
5. Effectively operates with variations in the process feed stream.
6. Responds to and recovers from process upsets

EC/ST Disposition Subproject Testing

As discussed in the STP Alternatives Analysis Summary Report development and demonstration of technology is required to implement the Phase 1 strategy for the following:

1. Retrieve Settler Tube sludge material and transfer to a dedicated Engineered Container
2. Sample and characterize sludge material from each Engineered Container
3. Retrieve sludge material from Engineered Containers and load into Sludge Treatment Storage Containers (STSCs)
4. Transport the STSCs to interim storage located on the Hanford Central Plateau
5. Facilitate interim storage within the existing Hanford T Plant facility, or construct a new storage facility to achieve a lower operating cost for the interim storage period

4.2.14 Project Reviews

In accordance with PRC-PRO-PM-24889, *Project Initiation and Execution*, the STP Project Manager is responsible for coordination of all required project reviews and approvals. To support development of the conceptual planning, an External Technical Review and Technology Readiness Assessment was performed. Both reviews supported the preferred alternative approach and the selected technologies. Prior to CD-1 approval and in accordance with DOE O 413.3A, the Project Manager will coordinate with DOE in their performance of a Technical Independent Project Review. The purpose of the review is to ensure safety and security is effectively integrated into design and construction for high risk, high hazard, and Hazard Category 1, 2, and 3 nuclear facilities. The review will ensure safety documentation is complete, accurate, and reliable for entry into the next phase of the project. Additional independent DOE project reviews are required to support the formal CD-2/CD-3 process.

In addition, the STP will utilize, in accordance with PRC-PRO-PM-24889, a Project Review Board to conduct reviews of the preliminary design leading to the CD-2/CD-3 approval. In addition, Safety, Health, Security, and Quality (SHS&Q) and EM will provide project independent representatives for participation in the EPC Project Review Boards to ensure that all ISMS/EMS requirements have been met on a project prior to proceeding to the next phase of project execution.

4.2.15 Transition to Operations

The operation of STP systems and equipment will be carried out by available facility resources at K Basins, CVDF, T Plant and CSB. The STP will execute the processes described in PRC-PRO-OP-055, *Startup Readiness*, for attaining and verifying readiness for the installed STP systems. The associated startup processes will be implemented to established criteria and guidance for startup reviews, including Operational Readiness Reviews (ORR) and Readiness Assessments (RA), as applicable. PRC-MP-QA-599, *Quality Assurance Program*, and DOE/RW-0333P, *Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance Requirements and Description*, will be applied to the respective subprojects, as applicable. Specific responsibilities for conducting readiness review activities within the CHPRC will be identified. The responsibility for making preparations for startup and declaration of readiness resides with the facility managers for activities being started or restarted will also be identified. PRC-PRO-OP-055 assigns responsibility and specifies the process for preparing the Startup Notification Report (SNR) and assigns the responsibility to CHPRC Director, Quality and Performance Assurance.

The STP will support K Basins, CVDF, T Plant and CSB operator training, procedure development and associated readiness activities, and oversee and coordinate maintenance trials and demonstrations. The STP will support K Basins, CVDF, T Plant and CSB to ensure successful completion of associated readiness reviews.

K Basins and T Plant resources will be employed as needed to operate Phase 1 EC/ST Disposition Subproject systems and equipment to retrieve and containerize sludge at K West Basin, and to transport and deliver containerized sludge to the designated location at T Plant for interim storage. Other plant resources will be identified and employed as needed for the Phase 2

sludge retrieval from T Plant, subsequent treatment, repackaging and staging pending shipment to WIPP for final disposition.

K Basins, CVDF and CSB resources will be employed as needed to operate KOP Disposition Subproject systems and equipment to retrieve, process and package KOP material in MCOs at K Basins, transport the MCOs to CVDF for KOP material drying and water removal, and transport and deliver MCOs to CSB for interim storage, pending shipment to a national repository for final disposition.

4.2.16 Project Closeout

According to DOE G 413.3-8, formal approval at the completion of S&D projects is CD-4, *Approve Project Completion*. This process will be formalized for the EC/ST Disposition Subproject after the final sludge container has been delivered to and placed in the designated location in T Plant (Phase 1) and after the final container of treated and packaged sludge has been approved for shipment to WIPP (Phase2). Actual closeout activities are completed with the turnover of the associated SSCs to the 100K Project for D&D activities.

The work associated with the KOP Disposition Subproject will be closed out in accordance with the final project reporting requirements associated with OCRWM documentation that will accompany the individual shipments to CVDF and then the CSB. Thereafter, closeout activities are completed with the turnover of the associated SSCs to the 100K Project for D&D activities.

Appendix A

FIPT Team Charter

Appendix A

Sludge Treatment Project

Federal Integrated Project Team Charter

A subproject of the K Basin Closure Project
PBS RL-012

December 2009

U.S. Department of Energy
Richland Operations Office

Record of Changes

Change	*Description*	*Date*
0	Original Issue	8 Dec '09
1	Added RL scheduler to the Federal IPT, Table 1 & corrected spelling of team member names	14 JUN '10

Approved by:

Tom Taynor, Federal Project Director
K Basin Closure Project

June 14, 2010
Date

Prepared by:

Roger Quintero
Roger Quintero, Sub-Project Director
Sludge Treatment Project

6/14/15
Date

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1. 0 INTRODUCTION

The Federal Integrated Project Team (FIPT) Charter defines and integrates the roles and responsibilities of the U. S. Department of Energy (DOE) Richland Operations Office (RL) and its associated team members. The Charter constitutes the agreement among the FIPT members on the management of the Sludge Treatment Project (STP) and the communication, cooperation, and coordination among team members required for the success of the project. The Charter also establishes organizational relationships through which the Federal Project Director (FPD), Sub-Project Director (SPD) and the STP FIPT will conduct business.

The STP is a sub-project of the RL K Basin Closure Project (KBCP) and is currently at CD-0 (since July 2007). All aspects of the KBCP, including the STP subproject, are operating expense funded. The mission of the KBCP is to remediate the Hanford K Basins, which includes demolition of the K East Basin; removal treatment and disposal of the sludge in the K West Basin; demolition of the K West Basin and remediation of potentially contaminated soil beneath both K Basins. The removal, treatment, and disposal of the sludge stored in the K West Basin is the mission of the STP.

The SPD is responsible for the success of the STP, working under the delegated authority of the KBCP FPD. The STP FIPT members are responsible for supporting the SPD to assure successful project execution. Direct and open communication is expected among FIPT members, the SPD, and the FPD.

This FIPT Charter has been prepared in accordance with the requirements of DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, and DOE G 413.3-18, Integrated Project Teams Guide for Use with DOE O 413.3A

2.0 MISSION AND OBJECTIVES

The RL mission is to clean up the Hanford Site to protect the Columbia River. To accomplish this, work is focused on cleaning up the Columbia River Corridor, which is expected to be complete by 2015. Disposition of the K West Basin, which is located within the Columbia River Corridor and is a threat to the environment, is critical to achieving the 2015 Vision.

To accomplish the RL mission, sludge must be removed from the K West Basin to enable removal of the basin and perform the subsurface remediation. Therefore, the mission of the STP is to design, procure, construct, test and commission an integrated set of processes/systems to:

- Remove radioactive sludge currently stored in the 105K West Basin to enable the achievement of DOE 2015 Vision for the River Corridor and waste consolidation on the 200 Area Plateau, and
- Process and package the sludge in approved containers suitable for transportation to a national repository.

The STP is organized into two sub-projects – the Engineered Container / Settler Tube (EC/ST) disposition subproject, and the Knockout Pot (KOP) disposition subproject. A two-phase approach is being followed for the EC/ST disposition subproject. Phase 1 includes EC and ST sludge retrieval and transport to T Plant for interim storage. Phase 2 includes EC and ST sludge

retrieval from interim storage, treatment and packaging, and preparations for shipment to the Waste Isolation Pilot Plant.

Currently the project is executing both EC/ST and KOP subprojects. The EC/ST Phase 1 and KOP activities are at the conceptual design stage with EC/ST Phase 2 at pre-conceptual.

3.0 PROJECT ORGANIZATION

The Sludge Treatment Project is managed as a sub-project under the KBCP. The STP FIPT is organized to support the STP SPD with three major components, the FIPT Core Team, FIPT Support and the CHPRC Project Manager. The FIPT Core Team meets regularly with the SPD to plan and coordinate execution of the project. The primary focus of the IPT is the technical execution of the project and completion of project deliverables. The FIPT Support members periodically interface with the Core Team on an 'as needed' basis and keep the Support members informed during periods when their active support is not necessary. Additional support for other functional areas is provided under the umbrella of the full KBCP IPT, under the direction of the FPD. The CHPRC Project Manager periodically is called upon to support the SPD with technical and planning information needed to coordinate execution of the project. Figure 1 below shows the relationships of these members of the STP FIPT.

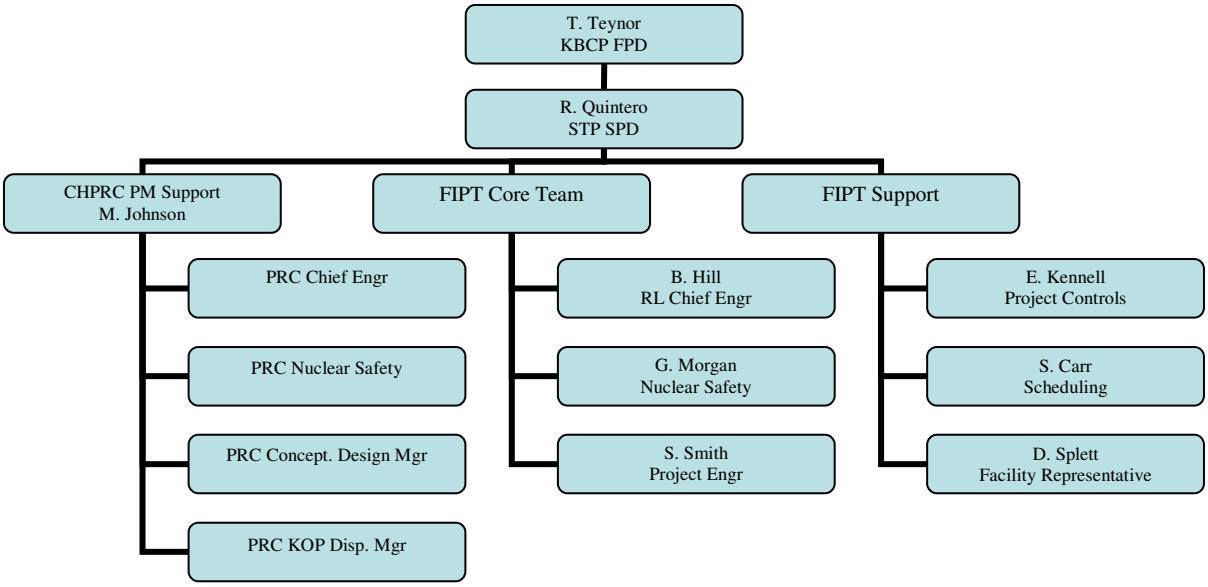

Figure 1

4.0 RESPONSIBILITIES AND AUTHORITIES

4.1 Federal Project Director (FPD), K Basin Closure Project

The FPD is responsible for the overall success of the KBCP which is comprised of multiple sub-projects, including the STP. The FPD has specific responsibilities outlined in DOE O 413.3A, Section 6. The FPD delegates authorities to the SPDs, as appropriate, to execute the project. Generally, with respect to execution of the STP sub-project, the FPD retains the following responsibilities:

- Providing strategic and technical direction to ensure the STP is integrated with the KBCP and supports the KBCP mission.
- Ensuring DOE-EM headquarters and RL senior managers are kept informed of project issues and resolution.
- Establishing and maintaining external (to RL) interfaces with regulators, stakeholders, and the Defense Nuclear Facilities Safety Board.
- Requesting and allocating budget.
- Functioning as Contracting Officer Representative.
- Delegates necessary authority to the SPD and supports the SPD in carrying out the FIPT Charter.

4.2 Sub-Project Director (SPD), Sludge Treatment Project

The SPD has overall responsibility for the STP and provides daily direction and leadership to the STP FIPT. The SPD has the following decision-making authorities delegated from the FPD:

- Develop and manage the Federal Integrated Project Team (FIPT)
- Prepare and maintain the STP FIPT Charter
- Provide the STP FIPT with project guidance and technical direction and delegate project decision-making authority based on each members responsibilities and authorities
- Schedule, conduct, and document regular STP FIPT meetings
- Serve as the primary point of contact with the contractor and other RL projects
- Monitors preparation of Critical Decision documentation and submittal for approval
- Ensuring project management requirements are tailored utilizing a systematic process that incorporates comments by the FIPT members
- Other duties as delegated by the FPD

4.3 Federal Integrated Project Team

The FIPT consists of federal staff from the Assistant Manager for River Corridor (AMRC), and other staff matrixed from within DOE-RL, assigned to perform key functions and tasks in support of the project. Similar to the relationship that the STP SPD has to the KBCP FPD, the STP FIPT is a sub-organization to the KBCP FIPT. Resources for the STP FIPT are drawn from the KBCP FIPT but for STP support, the STP FIPT report to and take direction from the STP SPD.

The STP FIPT members support the SPD by performing assigned duties. FIPT members are expected to attend and participate in team meetings, and maintain communication with the FPD, other FIPT members, and contractor personnel. Key functions and responsibilities include:

- Ensure safety is fully integrated into design.
- Plan and implement the project using a systems engineering approach.
- Prepare project planning documents such as the project execution plan and the risk management plan.
- Identify functional and operational requirements and develop strategies to achieve requirements.
- Identify and define project technical scope, schedule and cost parameters
- Identify and manage project interfaces.
- Monitor project performance.
- Review and approve project deliverables.
- Reviewing all CD packages for completeness and recommending approval/disapproval
- Interface with the contractor and provide oversight of contractor activities.
- Support development and maintenance of the project risk management plan, ensure that adequate risk management strategies are developed and applied.
- Perform periodic reviews of project performance.
- Support the FPD in evaluating baseline change requests.

4.4 Contractor Project Manager

The Contractor Project Manager supports the FPD and STP SPD in executing the project within the scope and requirements of the contract. The STP FIPT includes the Contractor Project Manager and key direct reporting managers as recommended in DOE G 413.3-18, *Integrated Project Teams Guide for use with DOE 413.3A*. The FPD or STP SPD may invite the Contractor Project Manager or certain other contractor personnel to FIPT meetings, as appropriate. Close communications, facilitated by the FIPT structure, between the contractor and federal team members reduces differences in expectations for deliverables.

5.0 FIPT MEMBERSHIP

The FIPT members provide technical expertise and assistance to support achieving project objectives. Their assignment establishes a priority to support the project and maintain an awareness of project progress in order to efficiently and effectively apply their expertise and ensure success of the project. The FIPT members, their functions and expertise are shown in Table 1.

Table 1 Sludge Treatment Project – Federal Integrated Project Team

Name	*Functional Area*	*Expertise*
Roger Quintero	Sub-Project Director	Project Management
Earle Kennell	Project Control Officer	Project Management
Sean Carr	Scheduler	Schedule
Burt Hill	RL Chief Engineer	Engineering / Maintenance
Greg Morgan	Nuclear Safety / Safety Basis	Nuclear Safety / Waste Management
Sahid Smith	Project Engineer	Engineering
Dale Splett	Facility Representative	Operations Oversight

6.0 OPERATING GUIDELINES

This section provides the operating guidelines for the conduct of the STP FIPT. General guidance is provided for communication, meetings, contractor oversight, dispute resolution processes and recordkeeping requirements. Other operating guidelines, such as change control are provided in the STP preliminary Project Execution Plan.

6.1 Communications

Each FIPT member is encouraged to communicate with other FIPT members, RL support staff, and contractor staff as necessary to accomplish and fulfill his or her roles and responsibilities. Each FIPT member's views are important in the overall success of this project, and as a result, open discussion is encouraged so that each member's views are heard and considered. STP SPD and/or KBCP FPD approved agreements and decisions will be formally documented by the FIPT members and maintained in the project administrative record as appropriate.

The KBCP FPD has primary responsibility for external communications, which may be delegated to the SPD or an FIPT member. The SPD has primary responsibility for communication with other RL projects and mission support elements, and with the contractor. The STP SPD will maintain frequent communication with the KBCP FPD, AMRC and RL Manager regarding DOE policy and guidance ensuring that the latest information impacting the project is provided to the FIPT members and contractors in a timely manner.

6.2 FIPT Meetings

The STP SPD will hold weekly meetings with the STP FIPT members and, as needed, SMEs, contractor personnel, regulatory support, and DOE matrix support staff. These meetings are used to plan project work, review status of project deliverables, and discuss project issues, solutions, actions, requirements, and tailoring strategies. Individual team members are encouraged to bring issues to the attention of the entire FIPT. STP FIPT weekly meetings will be documented by the STP SPD.

Ad hoc FIPT meetings will be held when directed by the STP SPD. Ad hoc meetings may be called to address critical project issues DOE management concerns. Ad hoc meetings may be documented as referenced above for the FIPT weekly meetings.

6.3 Contractor Oversight

Day to day monitoring of contractor performance will include attending routine and non-routine contractor meetings. These meetings include but are not limited to contractor planning, progress and status reporting meetings. Special meetings may be called for information or to seek clarification from the contractor. FIPT members will also review contractor draft and final documents which will include but not be limited to, deliverables to RL and other STP stakeholders as required. STP FIPT members are expected to periodically observe and evaluate contractor field activities.

Informal communications between the FIPT and contractor staff occur in the course of conducting routine oversight. Informal communication can occur between FIPT members and any contractor employee. This type of communication is non-binding for both the DOE and the contractor and does not constitute formal direction. All formal direction to the contractor must be issued by the Contracting Officer, or the FPD and the SPD within their designated authority as Contracting Officer Representatives.

Oversight may result in formal or informal reports which document the purpose and results of the monitoring. Such reports will be provided to the STP SPD for information or action as appropriate. At the discretion of the FIPT member performing the monitoring and in consultation with the STP SPD, the results of monitoring may be provided to the contractor for feedback information.

6.4 Dispute Resolution

FIPT members are encouraged to openly raise and discuss issues at the earliest possible opportunity and to resolve issues within the team, seeking additional expertise when needed. The FIPT will typically operate by consensus to reach agreements and decisions, lead by the SPD. The SPD or FPD may be required occasionally to provide specific project direction to achieve project goals. The STP SPD will communicate to the team the decision-making strategy used for specific issues.

If disputes arise, FIPT members are expected to make reasonable efforts to resolve disputes internally. When an issue cannot be resolved within the STP FIPT, the STP SPD or FIPT members will raise the issue to a decision-making level where resolution can be achieved, starting with the KBCP FPD. Dispute resolution between DOE and contractors will be managed in accordance with the contract.

6.5 Documents and Records

This STP FIPT Charter and all records generated by the team, including FIPT meeting minutes and internal and external written communications, will be retained according to RL records retention requirements.

Updates and revisions to this FIPT Charter and other project deliverables will be maintained under a configuration control system. The STP FIPT will review this Charter annually or after significant changes occur and when the project moves to the next Critical Decision phase to reflect the appropriate team composition required to successfully execute the project. Revisions of the FIPT Charter will be approved by the STP SPD, unless the project is undergoing a new CD level in which case, the KBCP FPD will approve.

Appendix B

Tailoring Strategy Checklist for EC/ST Disposition Subproject

SLUDGE TREATMENT PROJECT

Preliminary PROJECT EXECUTION PLAN

APPENDIX B

TAILORING STRATEGY CHECKLIST

FOR THE

EC/ST DISPOSITION SUBPROJECT

Tailoring Strategy Checklist for the EC/ST Retrieval and Interim Storage Subproject

SECTION A: CONTRACTOR REQUIREMENTS DOCUMENT CRD, DOE O 413.3A PRC STP Project Management will comply with the Contractor Requirements identified in CRD O 413.3A		
ITEM	**Requirement**	**How Requirement is Met**
A-1	The industry standard for Performance Management Systems, described in ANSI/EIA-748-A-1998, must be implemented and self-certified on all projects with a Total Project Cost greater than $20M. For projects not required to utilize an Earned Value Management System (e.g., firm fixed-price contract projects), an alternative Performance Management System must be described in the Project Execution Plan and utilized. For projects with Total Project Cost equal to or greater than $50M, the Earned Value Management System must be validated by the Office of Engineering and Construction Management. It is to be used for control and reporting of project performance as defined in the Project Execution Plan and no later than CD-2.	The EC/ST Disposition Subproject will use the CHPRC Project Controls System described in CHPRC-00003, Rev. 1. CHPRC-00003, Rev. 1 complies with ANSI/EIA-748.

Tailoring Strategy Checklist for the EC/ST Retrieval and Interim Storage Subproject

SECTION A: CONTRACTOR REQUIREMENTS DOCUMENT CRD, DOE O 413.3A

PRC STP Project Management will comply with the Contractor Requirements identified in CRD O 413.3A

ITEM	Requirement	How Requirement is Met
A-2	Cost and schedule performance, milestone status, and financial status no later than CD-2 must be reported to DOE on a monthly basis using DOE-approved work breakdown structure elements and data elements for all projects with a Total Project Cost greater than or equal to $20M, except firm fixed-priced contracts. The report must also include variance analyses and corrective action plans that integrate cost, schedule, and scope if variances exceed DOE-established reporting thresholds. Analyses of cost and schedule trends, financial status, and baseline change control activity, including the allocation of management reserve, potential problems, and critical issues will also be reported. Reporting by the contractor may be required earlier than CD-2 as specified by the Contracting Officer.	The EC/ST Disposition Subproject will use the CHPRC Integrated Planning, Accountability, and Budgeting System (IPABS) project status reporting process (PRC-PRO-PC-40093) and the Work Breakdown Structure (WBS) and WBS dictionary sheet development process in PRC-MP-MS-10361. CHPRC Project Control prepares project status reporting data for uploading by ORP into the DOE complex Integrated Planning, Accountability, and Budgeting System – Information Systems (IPABS-IS). Miscellaneous other monthly reports, such as the Plateau Remediation Contractor Monthly Performance Report, are also prepared and submitted with summary performance data.
A-3	For project contracts to be awarded as subcontracts by the contractor, the contractor must have a written Acquisition Plan that is appropriate for the requirement and dollar value of each subcontract and consistent with its contract's provisions. The Acquisition Plan for a project contract to be awarded by the contractor is to be developed by a team of contractor employees including, at a minimum, the prospective Project Manager and Contract Negotiator. The Acquisition Plan must receive the concurrence of both the Federal Project Director and the DOE Contracting Officer.	The EC/ST Disposition Subproject will use PRC-PRO-AC-123, *Requesting Material and Services*, to develop a dedicated acquisition plan for each subcontract to be awarded by EC/ST Disposition Subproject. PRC-PRO-AC-123 covers the scope of project acquisition activities. An Acquisition Planning Document form (A-6004-882) will be completed when required.

Tailoring Strategy Checklist for the EC/ST Retrieval and Interim Storage Subproject

SECTION A: CONTRACTOR REQUIREMENTS DOCUMENT CRD, DOE O 413.3A

PRC STP Project Management will comply with the Contractor Requirements identified in CRD O 413.3A

ITEM	Requirement	How Requirement is Met
A-4	Technical performance analyses and corrective action plans must be reported to DOE for variances to the project baseline objectives resulting from design reviews, component and system tests, and simulations.	The EC/ST Disposition Subproject will use the CHPRC Integrated Planning, Accountability, and Budgeting System (IPABS) project status reporting process (PRC-PRO-PC-40093). Corrective actions will be reported and managed per PRC-PRO-QA-052, *Issues Management*. Project status input includes variance reporting and the ability to report technical performance. PRC-PRO-QA-052, *Issues Management System* is used for evaluation of adverse conditions and corrective actions for quality, safety, health, operability, and the environment.
A-5	A critical path schedule and a project master schedule must be developed and maintained.	The EC/ST Disposition Subproject will perform project scheduling and use the CHPRC project controls system process to maintain the critical path schedule in accordance with PRC-PRO-PC-40073. Lower level subcontractor schedules will be prepared where required, with all schedules capable of depicting a critical path. The Summary Life-Cycle Schedule (SLCS) and Integrated Mission Execution Schedule (IMES)] will be maintained in accordance with PRC-GD-PC-40077, *Scheduler's Guidance*. Construction subcontractor scheduling is performed in accordance with PRC-PRO-PC-40073. The SLCS will be maintained as the project master schedule.
A-6	Cost estimating must be an integral part of cost baseline including life cycle cost development and maintenance, budget request development, and estimates at completion.	The EC/ST Disposition Subproject will use the CHPRC Work Scope Planning Guide (PRC-GD-PC-40071) for budget request development/submission and develop project cost estimates using PRC-PRO-PC-40072. The baseline cost and schedule will be developed for CD-2 approval. The CHPRC project controls system and cost estimate process to integrate cost estimating into the life-cycle cost development and maintenance. Use the information as the basis for budget request development and estimates at completion.

Tailoring Strategy Checklist for the EC/ST Retrieval and Interim Storage Subproject

SECTION A: CONTRACTOR REQUIREMENTS DOCUMENT CRD, DOE O 413.3A

PRC STP Project Management will comply with the Contractor Requirements identified in CRD O 413.3A

ITEM	Requirement	How Requirement is Met
A-7	Project technical, cost, and schedule risks must be identified, quantified, and mitigated throughout the life of the project. Risks must be identified, evaluated, and mitigation strategies developed and implemented.	The EC/ST Disposition Subproject will apply the CHPRC risk management process documented PRC-PRO-PC-40079 to identify, analyze, and manage project risks. The project risk list will be updated annually Note: The EC/ST Disposition Subproject RMP will be reviewed annually; however, near-term critical risk lists are monitored on a monthly basis. The EC/ST Disposition Subproject will also apply PRC-STP-00034, *Sludge Treatment Project Risk Management Plan*, which implements PRC-PRO-PC-40079. PRC-PRO-PC-40079 risk management procedure includes processes to identify, quantify, and mitigate project risk and develop/implement risk mitigation strategies. A formal risk management process will be used. PRC-STP-00034 describes a risk management process that is tailored for the EC/ST Disposition Subproject, consistent with PRC-GD-PC-40080, *Risk Management Implementation Guide*, and PRC-PRO-PC-40079, *Risk Management Procedure*.
A-8	An integrated contractor technical, cost, and schedule baseline must be developed and maintained using a contractor-level Change Control Board.	The STP will use the CHPRC Project Controls System described in CHPRC-00003, Rev. 1 and implemented by PRC-PRO-PC-40074 (Baseline Change Control Procedure) to manage project baseline changes. CHPRC-00003, Rev. 1 and PRC-PRO-PC-40074 contains a DOE-RL approved fully integrated DOE-RL and CHPRC process to maintain project baselines using a change control board.
A-9	A configuration management process must be established that controls changes to the physical configuration of project facilities, structures, systems, and components in compliance with ANSI/EIA-649, National Consensus Standard for Configuration Management. This process must also ensure that the configuration is in agreement with the performance objectives identified in the technical baseline and the approved quality assurance plan.	The EC/ST Disposition Subproject will manage the physical configuration of project facilities, structures, systems, and components in accordance with PRC-PRO-EN-20050, *CHPRC Engineering Configuration Management*, and use design reviews in accordance with PRC-PRO-EN-8336, *Design Verification*, to ensure performance objectives are attained. Design configuration is controlled in accordance with PRC-PRO-EN-20050, *CHPRC Engineering Configuration Management*. PRC-PRO-EN-20050 complies with the requirements of ANSI/EIA-649. PRC-PRO-EN-8336 describes the design review process and criteria, including design performance. PRC-PRO-EN-20050 describes the design change control process.

Tailoring Strategy Checklist for the EC/ST Retrieval and Interim Storage Subproject

SECTION A: CONTRACTOR REQUIREMENTS DOCUMENT CRD, DOE O 413.3A

PRC STP Project Management will comply with the Contractor Requirements identified in CRD O 413.3A

ITEM	Requirement	How Requirement is Met
A-10	Value Management/Engineering process must be used that identifies high-cost project activities in order to realize a maximum return on investment through the use of systems engineering tradeoffs and functional analyses that identify alternate means of achieving the same function at a lower life cycle cost.	The EC/ST Disposition Subproject VM process utilizes Systems Engineering and other techniques and tools such as formal alternatives analyses and Value Engineering (VE) to perform more rigorous reviews of project activities. EC/ST Disposition Subproject uses HNF-34682, *Sludge Treatment Project Systems Engineering Management Plan*, to implement the systems engineering approach during the life cycle of the project. EC/ST Disposition Subproject uses HNF-RD-32801, *Value Engineering*, for performing formal VE activities. In DOE O 413.3A, DOE defines Value Management as all function-based and value-oriented activities collectively. HNF-34682 is an acceptable tool that implements VM processes. An alternatives analysis is an accepted VM tool.
A-11	A quality assurance program must be developed and implemented for the contract scope of work when the contractor's requirements include DOE O 414.1C, *Quality Assurance* or 10 CFR 830 Subpart A, *Quality Assurance Requirements* (as applicable).	The EC/ST Disposition Subproject will use the CHPRC quality assurance program described in PRC-MP-QA-599, *Quality Assurance Program*. PRC-MP-QA-599 complies with the requirements of DOE O 414.1A and covers the scope of project activities.
A-12	Develop and implement an integrated safety management system for the contract scope of work in compliance with DEAR 48 CFR 970-5204-2, "Integration of Environmental, Safety, and Health into Work Planning and Execution."	The EC/ST Disposition Subproject will use the CHPRC integrated safety management system (ISMS) described in HNF-MP-003, *Integrated Environment, Safety, and Health Management system Description*, and implemented through PRC-POL-SH-5033, *CHPRC Safety, Health, Security, Quality, and Environmental Policy*, PRC-MP-SH-32219, *10 CFR 851 PHMC Worker Safety and Health Program Description*, PRC-POL-EP-5054, *CH2M HILL Plateau Remediation Company Environmental Policy*. HNF-MP-003 complies with DEAR 48 CFR 970-5204-2 and covers the scope of project activities. PRC-POL-SH-5033, *PRC Safety Management Programs*, and PRC-POL-EP-5054, *PRC Environmental Management Program*, will be used as applicable.
A-13	Contractors performing design for projects must at a minimum conduct a Preliminary and Final Design Review, in accordance with the Project Execution Plan. For nuclear projects, the design review will include a focus on safety and security systems.	The EC/ST Disposition Subproject will follow PRC-PRO-EN-8336, *Design Verification,* to perform project design reviews. PRC-PRO-EN-8336 defines the CHPRC design review process and contains checklists to assist reviewers. Checklist items address safety and security.

Tailoring Strategy Checklist for the EC/ST Retrieval and Interim Storage Subproject

SECTION A: CONTRACTOR REQUIREMENTS DOCUMENT CRD, DOE O 413.3A PRC STP Project Management will comply with the Contractor Requirements identified in CRD O 413.3A		
ITEM	**Requirement**	**How Requirement is Met**
A-14	High performance sustainable building principles must be applied to the site selection, design, construction, and commissioning of new facilities and major renovations of existing facilities.	The EC/ST Disposition Subproject will follow PRC-RD-EN-1819, *CHPRC Engineering Requirements*, for overall management of the project design and apply PRC-PRO-EN-097, *Engineering Design and Evaluation (Natural Phenomena Hazard)*, along with PRC-PRO-EN-20050, *PRC Engineering Configuration Management*, and other industry codes and standards as applicable. PRC-RD-EN-1819 defines the strategy for management of the PRC engineering program and describes the PRC design baseline and how it is managed. HNF-EN-PRO-097 ensures buildings are designed to withstand natural phenomenon hazards. PRC-PRO-EN-8336 includes checklists to verify sustainable design principles. Use of other industry codes and standards also helps ensure building sustainability.
A-15	For projects including Hazard Category 1, 2, and 3 nuclear facilities or for projects including major modifications thereto (as defined in 10 CFR Part 830), the requirements in DOE-STD-1189, as amended, must be fully implemented. The following documents must be submitted: Safety Design Strategy (CD-1), Conceptual Safety Design Report (CD-1), Preliminary Safety Design Report (CD-2), Preliminary Documented Safety Analysis (CD-3), and Documented Safety Analysis with Technical Safety Requirements (CD-4). For major modifications, the Conceptual Safety Design Report and the Preliminary Safety Design Report may either be separate documents or be subsumed within the Preliminary Documented Safety Analysis.	The EC/ST Disposition Subproject will prepare a Safety Design Strategy (SDS) (CD-1) per PRC-PRO-NS-700. The EC/ST Disposition Subproject will prepare a Conceptual Safety Design Report (CSDR) (CD-1) per PRC-PRO-NS-700. The EC/ST Disposition Subproject will ***not*** prepare a Preliminary Safety Design Report (PSDR). The EC/ST Disposition Subproject will prepare a Preliminary Documented Safety Analysis (PDSA) (CD-3) per PRC-PRO-NS-700. The EC/ST Disposition Subproject will prepare a Documented Safety Analysis (DSA) with Technical Safety Requirements per PRC-PRO-NS-700. PRC-PRO-NS-700 complies with the requirements for Hazard Category 1, 2, and 3 nuclear facilities or for projects including major modifications thereto (as defined in 10 CFR Part 830) and the requirements in DOE-STD-1189 for preparing an SDS, a CSDR, a PSDR, a PDSA and a DSA. PSDR is not included because EC/ST Disposition Subproject is submitting a combined CD-2/CD-3 package.

SECTION B: DOE RL FEDERAL PROJECT DIRECTOR PROJECT MANAGEMENT PROCESS REQUIREMENTS

This section lists DOE O 413.3A deliverables that DOE-RL is responsible for producing.

ITEM	Requirement	How Requirement is Met
B-1	Prepare a Safety Design Strategy (SDS) for projects subject to DOE-STD 1189, as amended.	A SDS is prepared by CHPRC in accordance with DOE-STD-1189 and submitted to RL for review and approval. RL issues a SER for implementation with the SDS.
B-2	Prepare a Conceptual Design Report (CDR) which is an integrated systems engineering effort that results in a clear and concise definition of the project.	A CDR is prepared by CHPRC and submitted to RL as a component of the CD-1 package. The CDR is based on application of the EM Project Definition Rating Index (PDRI).
B-3	Prepare an Acquisition Strategy (AS) that describes the high-level business and Technical management approach designed to achieve project objectives Within specified resource constraints.	An AS is prepared by CHPRC to address subcontracted activities and is included in the CDR. A federal AS is not applicable for STP and a brief discussion is included in the Preliminary PEP.
B-4	Comply with the One-for-One Replacement legislation (excess space/offset requirement) as mandated in House Report 109-86.	Not applicable for the STP.
B-5	Prepare a preliminary Project Execution Plan (PEP), including a Risk Management Plan (RMP) and Risk Assessment, that establishes the initial policy and procedures to be followed to manage and control project execution.	A preliminary PEP (pPEP) is prepared by RL which is based on KBC-30811, Rev 3, STP PEP. The pPEP includes a discussion about the contractor and federal RMPs and incorporates the results of both Risk Assessments into project estimates.
B-6	Approve appointment of the Federal Project Director.	The FPD is identified in the KBCP PEP (May 2008) and the RL Integrated Safety Management System Description (February 2008). A brief discussion identifying the STP Sub-project Director (SPD) with roles / responsibilities is provided in the STP pPEP.

Tailoring Strategy Checklist for the EC/ST Retrieval and Interim Storage Subproject

SECTION B: DOE RL FEDERAL PROJECT DIRECTOR PROJECT MANAGEMENT PROCESS REQUIREMENTS

This section lists DOE O 413.3A deliverables that DOE-RL is responsible for producing.

ITEM	Requirement	How Requirement is Met
B-7	Establish and charter an Integrated Project Team (IPT). An IPT, led by the Federal Project Director, is a multi-disciplinary team, which includes safety expertise. The Charter includes membership, roles and responsibilities, decision making authority and operating guidance. The Charter may be included in the Project Execution Plan.	The IPT Charter is included as an attachment to the pPEP.
B-8	Conduct a Design Review (DR) of the conceptual design. Design Reviews are performed to determine if a product (drawings, analyses, or specifications) is correct and will perform its intended functions and meet requirements. As part of the Design Review, for high-risk, high-hazard, and Hazard Category 1, 2, and 3 nuclear facilities, conduct a Technical Independent Project Review (TIPR), the focus of which is to determine that the safety documentation is sufficiently conservative and bounding to be relied upon for the next phase of the project.	A DR and a TIPR are performed in sequence. The DR includes independent assessments and project reviews performed by STP and RL both collaboratively and independently as appropriate. The DR for STP includes the ETR and TRA, both performed at appropriate periods in planning, allowing recommendations to affect conceptual design. The final components of the DR are included in the Design Review / Readiness Plan for CD-1 which includes PDRI assessments and the TIPR. The scope of the DR is based on the documentation provided in the CDR and other relevant documents in the CD-1 package which includes the safety basis and responses to the ETR and TRA as appropriate. As mentioned in Requirement #2 above, the CDR content is based on the PDRI criterion. The STP PDRI assessment confirms project readiness. The results of the Design Review / Readiness Plan for CD-1 are documented in a final Report from the STP SPD to the FPD / TIPR Team Leader. Following completion of the DR Report, the TIPR performs an independent review, focusing on the safety documentation, ensuring that it is sufficiently conservative and bounding to be relied on for the next phase of the project.
B-9	Prepare a Project Data Sheet for Line Item Projects to request Project Engineering and Design funds for preliminary and final design.	Not applicable for the STP.
B-10	Approve Long-Lead Procurements, if necessary	No Long-Lead Procurements are identified for the STP Phase 1 activities.
B-11	Implement Integrated Safety Management into management and work process planning at all levels per DOE P 226.1.	See the RL Integrated Safety Management System (ISMS), and the CHPRC Integrated Safety Management System/ Environmental Management System Description (ISMSD), PRC-MP-MS-003.

Tailoring Strategy Checklist for the EC/ST Retrieval and Interim Storage Subproject

SECTION B: DOE RL FEDERAL PROJECT DIRECTOR PROJECT MANAGEMENT PROCESS REQUIREMENTS

This section lists DOE O 413.3A deliverables that DOE-RL is responsible for producing.

ITEM	Requirement	How Requirement is Met
B-12	Prepare environmental documents including National Environmental Policy Act strategy and analyses, and permit applications.	Environmental documents are identified through the PDRI process, discussed in the CDR and tracked to completion in the STP Field Execution Schedule.
B-13	Document High Performance Sustainable Building considerations, also referred to as "sustainable environmental stewardship" per DOE O 450.1, chg 2, is documented in the Conceptual Design Report and Acquisition Strategy, as appropriate.	High Performance Sustainable Building considerations are incorporated into the CDR.
B-14	Prepare a Preliminary Security Vulnerability Assessment Report as defined in DOE M 470.4-1.	A Preliminary VA is not required for STP and KW Basin because they are < Category II. Categorization is defined in the RL approved MC&A Plan. A Limited Security Assessment (LSA) report is prepared by CHPRC and included in the CDR for information as appropriate for the Safeguards and Security program. The TIPR included a confirmation of the appropriateness of the LSA.
B-15	Prepare an Initial Cyber Security Plan for Information Technology projects in accordance with DOE O 205.1.	Not applicable for the STP.
B-16	Prepare a Conceptual Safety Design Report (CSDR) for Hazard Category 1, 2, and 3 nuclear facilities.	A CSDR is prepared by the STP and submitted to RL for review and approval.
B-17	Prepare a Preliminary Hazard Analysis Report (PHAR) for facilities that are below Hazard Category 3 threshold as defined in 10 CFR 830, Subpart B and obtain DOE approval (field level).	A PHAR is prepared by the STP and delivered to RL for review.
B-18	Prepare a Conceptual Safety Validation Report (CSVR) on the DOE review of the Conceptual Safety Design Report for Hazard Category 1, 2, and 3 nuclear facilities.	RL prepares a CSVR that is responsive to the STP Phase 1 CSDR that is identified in Requirement #16.
B-19	Determine that the Quality Assurance Program is acceptable and continues to apply. The Quality Assurance Program must fully address all applicable Quality Assurance Criteria as defined in 10 CFR 830 Subpart A and DOE O 414.1C.	The PRC QAP has been reviewed and found to be acceptable for compliance with 10 CFR 830, Subpart A. *RL approval is documented in 19-AMSE-0030, May 14, 2009*

Tailoring Strategy Checklist for the EC/ST Retrieval and Interim Storage Subproject

SECTION C: IMPLEMENTATION OF DOE G 413.3-4, U.S. DEPARTMENT OF ENERGY TECHNOLOGY READINESS ASSESSMENT GUIDE			
ITEM	**Requirement**	**Approach**	**Basis**
C-1	Develop supporting information to support EM TRA-1 determination of TRL 3 for CD-1 approval Package	The EC/ST Disposition Subproject will prepare preliminary CTE's and supporting preliminary TRA evaluation information for the TRA team's use.	Basis: The approved STP Transition Plan established a target of TRL-3 for EC/ST Disposition Subproject CD-1 Approval Package. EM will conduct a formal TRA on the EC/ST subproject prior to CD-1 Submittal
C-2	Develop Technology Maturation Plan to address technology activities needed to support TRL-6 by CD-2 and any outstanding technology issues identified by TRA-1.	The EC/ST Disposition Subproject will develop an interim EC/ST Technology Testing plan prior to the EM-TRA to guide planning and development. After completion of the TRA, the Technology Maturation Plan for the subproject will be prepared.	Basis: DOE-RL Guidance to STP directs implementation of TRA/TMP process. TMP is a vehicle for technology development planning
C-3	Develop supporting information to support EM TRA-2 determination of TRL-6 for CD-2 approval package	The EC/ST Disposition Subproject will prepare updated CTEs and supporting TRA-2 evaluation information for the TRA team's use.	Basis: TRA/TRM Process guide suggest achievement of TRL-6 at CD-2
C-4	Update/Revise Technology Maturation Plant to address any outstanding technology issues identified in TRA-2	The EC/ST Disposition Subproject will update the Technology Maturation Plan based on input from the TRA-2 Team. No update to the TMP is required if all CTEs are at TRL-6 or above at the conclusion of TRA-2.	Basis: TRA-2 may identify remaining issues to be resolved to fully achieve TRL-6.

Tailoring Strategy Checklist for the EC/ST Retrieval and Interim Storage Subproject

SECTION D: SUPPORT THE FEDERAL PROJECT DIRECTOR AND PROVIDE DESIGN, PROJECT DOCUMENTS, AND PROJECT INFORMATION			
ITEM	**Requirement**	**Approach**	**Basis**
D-1			
D-2	Conceptual Design	The EC/ST Disposition Subproject will submit a conceptual design report (CDR).	Basis: Required for CD-1 approval
D-3	Design Requirements Compliance Matrix (Project Functions and Requirements)	The EC/ST Disposition Subproject will provide a design requirements compliance matrix as part of the project functions and requirements document.	Basis: Required for CD-1 Approval
D-4	Hazards Analysis/Hazards Analysis Determination	The EC/ST Disposition Subproject will document a Hazards Analysis/ Hazards Analysis Determination in compliance with DOE-STD-1189. It will be referenced and summarized in the Conceptual Safety Design Report (CSDR) for CD-1 per PRC-PRO-NS-700.	Basis: Required for CD-1 Approval
D-5	Plant Forces Work Review	The EC/ST Disposition Subproject will perform and document a plant forces work review document for DOE-RL's use.	Basis: Required for CD-1 Approval
D-8	Project Risk Management Plan	The EC/ST Disposition Subproject is addressed in the STP Risk Management Plan	Basis: The EC/ST Disposition Subproject comprises part of the STP, and is discussed in the STP Risk Management Plan
D-9	Project Quality Assurance Documentation	The EC/ST Disposition Subproject is covered by the STP quality assurance documentation. The EC/ST Disposition Subproject will comply with the CHPRC Company level quality assurance program	Basis: The EC/ST Disposition Subproject comprises part of the STP, and is subject to the CHPRC Company level quality assurance program
D-11	Final Design	The EC/ST Disposition Subproject will provide a Final Design Report for use in the CD-2/CD-3 approval	Basis: Required for CD-2/CD-3 approval
D-12	Value Management Assessment and/or Value Engineering Study(s)	The EC/ST Disposition Subproject will perform a value engineering study (or studies) during design development and/or construction. CHPRC value engineering process are described in HNF-RD-32801, *Value Engineering*	Basis: Value Management identified is a best management practice by DOE
D-13	Safety Analysis Documents	The EC/ST Disposition Subproject will prepare a Preliminary Documented Safety Analysis (PDSA) (CD-3) per PRC-PRO-NS-700	Basis: Required for CD-2/CD-3 approval

Tailoring Strategy Checklist for the EC/ST Retrieval and Interim Storage Subproject

SECTION D: SUPPORT THE FEDERAL PROJECT DIRECTOR AND PROVIDE DESIGN, PROJECT DOCUMENTS, AND PROJECT INFORMATION			
ITEM	**Requirement**	**Approach**	**Basis**
D-14	Fire Hazard Analysis	The EC/ST Disposition Subproject preliminary fire hazards analysis will be summarized and referenced in the PDSA	Basis: Required for compliance with DOE-STD-1189
D-15	Project Turnover Document	The EC/ST Disposition Subproject will provide project turnover documentation D4 as required by CHPRC Project procedures	Basis: Required by CHPRC project procedures
D-19	CERCLA Work Plan	Remedial Action Plan with TPA M-16-140 (March 2011)	Basis: CERCLA & TPA
D-20	CERCLA Design	Remedial Action Plan with TPA M-16-140 (March 2011)	Basis: CERCLA & TPA
D-21	Data quality Objectives	Ongoing	Basis: CERCLA
D-22	Sample Analysis Plan	Ongoing	Basis: CERCLA
D-23	Sampling Verification and Closeout Plan	Part of CD-4, Project Completion	Basis: CERCLA

Appendix C

Tailoring Strategy Checklist for KOP Disposition Subproject

SLUDGE TREATMENT PROJECT

Preliminary PROJECT EXECUTION PLAN

APPENDIX C

TAILORING STRATEGY CHECKLIST

FOR THE

KNOCKOUT POT DISPOSITION SUBPROJECT

Tailoring Strategy Checklist for the Knock-Out Pot Disposition Subproject

SECTION A: CONTRACTOR REQUIREMENTS DOCUMENT CRD O 413.3A The STP Project Management System shall comply with the Contractor Requirements set forth in CRD O 413.3A, and listed below.			
	Requirement	**Approach**	**Basis**
A-1	The industry standard for Performance Management Systems, described in ANSI/EIA-748-A-1998, must be implemented and self-certified on all projects with a Total Project Cost greater than $20M. For projects not required to utilize an Earned Value Management System (e.g., firm fixed-price contract projects), an alternative Performance Management System must be described in the Project Execution Plan and utilized. For projects with Total Project Cost equal to or greater than $50M, the Earned Value Management System must be validated by the Office of Engineering and Construction Management. It is to be used for control and reporting of project performance as defined in the Project Execution Plan and no later than CD-2.	The KOP Disposition Subproject will use the CHPRC project controls system described in CHPRC-00003, Rev. 1.	CHPRC-00003, Rev. 1 complies with ANSI/EIA-748.

Tailoring Strategy Checklist for the Knock-Out Pot Disposition Subproject

SECTION A: CONTRACTOR REQUIREMENTS DOCUMENT CRD O 413.3A The STP Project Management System shall comply with the Contractor Requirements set forth in CRD O 413.3A, and listed below.			
	Requirement	**Approach**	**Basis**
A-2	Cost and schedule performance, milestone status, and financial status no later than CD-2 must be reported to DOE on a monthly basis using DOE-approved work breakdown structure elements and data elements for all projects with a Total Project Cost greater than or equal to $20M, except firm fixed-priced contracts. The report must also include variance analyses and corrective action plans that integrate cost, schedule, and scope if variances exceed DOE-established reporting thresholds. Analyses of cost and schedule trends, financial status, and baseline change control activity, including the allocation of management reserve, potential problems, and critical issues will also be reported. Reporting by the contractor may be required earlier than CD-2 as specified by the Contracting Officer.	The KOP Disposition Subproject will use the CHPRC Integrated Planning, Accountability, and Budgeting System (IPABS) project status reporting process (PRC-PRO-PC-40093) and the Work Breakdown Structure (WBS) and WBS dictionary sheet development process in PRC-MP-MS-10361.	CHPRC Project Control prepares project status reporting data for uploading by DOE-RL into the DOE complex Integrated Planning, Accountability, and Budgeting System – Information Systems (IPABS-IS). Miscellaneous other monthly reports, such as the Plateau Remediation Contractor Monthly Performance Report, are also prepared and submitted with summary performance data.

Tailoring Strategy Checklist for the Knock-Out Pot Disposition Subproject

SECTION A: CONTRACTOR REQUIREMENTS DOCUMENT CRD O 413.3A The STP Project Management System shall comply with the Contractor Requirements set forth in CRD O 413.3A, and listed below.			
	Requirement	**Approach**	**Basis**
A-3	For project contracts to be awarded as subcontracts by the contractor, the contractor must have a written Acquisition Plan that is appropriate for the requirement and dollar value of each subcontract and consistent with its contract's provisions. The Acquisition Plan for a project contract to be awarded by the contractor is to be developed by a team of contractor employees including, at a minimum, the prospective Project Manager and Contract Negotiator. The Acquisition Plan must receive the concurrence of both the Federal Project Director and the DOE Contracting Officer.	The KOP Disposition Subproject will use PRC-PRO-AC-123, *Requesting Material and Services*.	PRC-PRO-AC-123 covers the scope of project acquisition activities. An Acquisition Planning Document form (A-6004-882) will be completed when required.
A-4	Technical performance analyses and corrective action plans must be reported to DOE for variances to the project baseline objectives resulting from design reviews, component and system tests, and simulations.	The KOP Disposition Subproject will use the CHPRC Integrated Planning, Accountability, and Budgeting System (IPABS) project status reporting process (PRC-PRO-PC-40093) Corrective actions will be reported and managed per PRC-PRO-QA-052, *Issues Management*.	Project status input includes variance reporting and the ability to report technical performance. The PRC-PRO-QA-052, Issues Management System, is used for evaluation of adverse conditions and corrective actions for quality, safety, health, operability, and the environment.
A-5	A critical path schedule and a project master schedule must be developed and maintained.	The KOP Disposition Subproject will perform project scheduling and use the CHPRC project controls system process to maintain the critical path schedule in accordance with PRC-PRO-PC-40073. Lower level subcontractor schedules will be prepared where required, with all schedules capable of depicting a critical path.	The Summary Life-Cycle Schedule (SLCS) and Integrated Mission Execution Schedule (IMES)] will be maintained in accordance with PRC-GD-PC-40077, (Scheduler's Guidance). Construction subcontractor scheduling is performed in accordance with PRC-PRO-PC-40073. The SLCS will be maintained as the project master schedule.

Tailoring Strategy Checklist for the Knock-Out Pot Disposition Subproject

SECTION A: CONTRACTOR REQUIREMENTS DOCUMENT CRD O 413.3A The STP Project Management System shall comply with the Contractor Requirements set forth in CRD O 413.3A, and listed below.			
	Requirement	**Approach**	**Basis**
A-6	Cost estimating must be an integral part of cost baseline including life cycle cost development and maintenance, budget request development, and estimates at completion.	The KOP Disposition Subproject will use the CHPRC Work Scope Planning Guide (PRC-GD-PC-40071) for budget request development/submission and develop project cost estimates using PRC-PRO-PC-40072. The baseline cost and schedule will be developed for CD-2 approval.	Use the CHPRC project controls system and cost estimate process to integrate cost estimating into the life-cycle cost development and maintenance. Use the information as the basis for budget request development and estimates at completion.
A-7	Project technical, cost, and schedule risks must be identified, quantified, and mitigated throughout the life of the project. Risks must be identified, evaluated, and mitigation strategies developed and implemented.	The KOP Disposition Subproject will apply CHPRC risk management process documented PRC-PRO-PC-40079 to identify, analyze, and manage project risks. The project risk list will be updated annually. Note: The STP RMP will be reviewed annually; however, near-term critical risk lists are monitored on a monthly basis. The KOP Disposition Subproject will use PRC-STP-00034, *Sludge Treatment Project Risk Management Plan*, which implements PRC-PRO-PC-40079.	PRC-PRO-PC-40079, *Risk Management Procedure* includes processes to identify, quantify, and mitigate project risk and develop/implement risk mitigation strategies. A Formal Risk Management process will be used. PRC-STP-00034, *Sludge Treatment Project Risk Management Plan*, describes a risk management process that is tailored for theKOP Disposition Subproject, consistent with PRC-GD-PC-40080 (Risk Management Implementation Guide) and PRC-PRO-PC-40079 (Risk Management Procedure).
A-8	An integrated contractor technical, cost, and schedule baseline must be developed and maintained using a contractor-level Change Control Board.	The KOP Disposition Subproject will use the CHPRC Project Controls System described in CHPRC-00003, Rev. 1 and implemented by PRC-PRO-PC-40074 (Baseline Change Control Procedure) to manage project baseline changes.	CHPRC-00003, Rev. 1 and PRC-PRO-PC-40074 contains a DOE-RL approved fully integrated DOE-RL and CHPRC process to maintain project baselines using a change control board.

Tailoring Strategy Checklist for the Knock-Out Pot Disposition Subproject

SECTION A: CONTRACTOR REQUIREMENTS DOCUMENT CRD O 413.3A The STP Project Management System shall comply with the Contractor Requirements set forth in CRD O 413.3A, and listed below.			
	Requirement	**Approach**	**Basis**
A-9	A configuration management process must be established that controls changes to the physical configuration of project facilities, structures, systems, and components in compliance with ANSI/EIA-649, National Consensus Standard for Configuration Management. This process must also ensure that the configuration is in agreement with the performance objectives identified in the technical baseline and the approved quality assurance plan.	The KOP Disposition Subproject will manage the physical configuration of project facilities, structures, systems, and components in accordance with PRC-PRO-EN-20050, *CHPRC Engineering Configuration Management*, and use design reviews in accordance with PRC-PRO-EN-8336, *Design Verification*, to ensure performance objectives are attained. Design configuration is controlled in accordance with PRC-PRO-EN-20050, *CHPRC Engineering Configuration Management*.	PRC-PRO-EN-20050 complies with the requirements of ANSI/EIA-649. PRC-PRO-EN-8336 describes the design review process and criteria, including design performance. PRC-PRO-EN-20050 describes the design change control process.
A-10	Value Management/Engineering process must be used that identifies high-cost project activities in order to realize a maximum return on investment through the use of systems engineering tradeoffs and functional analyses that identify alternate means of achieving the same function at a lower life cycle cost.	The KOP Disposition Subproject will perform a value management assessment to determine the need for a formal value engineering study. The KOP Disposition Subproject will consider application of value management (VM) during design development and/or construction as appropriate. CHPRC value engineering process requirements are described in HNF-RD-32801, *Value Engineering.* The KOP Disposition Subproject will implement VM processes in accordance with HNF-34682, *Sludge Treatment Project Systems Engineering Management Plan.* Perform alternatives analyses as required.	The value management assessment will determine the need for any value engineering studies. Value engineering studies can identify ways to reduce cost and/or accelerate project completion. HNF-34682 is an acceptable tool that implements VM processes. An alternatives analysis is an accepted VM tool.

Tailoring Strategy Checklist for the Knock-Out Pot Disposition Subproject

SECTION A: CONTRACTOR REQUIREMENTS DOCUMENT CRD O 413.3A The STP Project Management System shall comply with the Contractor Requirements set forth in CRD O 413.3A, and listed below.			
Requirement		**Approach**	**Basis**
A-11	A quality assurance program must be developed and implemented for the contract scope of work when the contractor's requirements include DOE O 414.1C, *Quality Assurance* or 10 CFR 830 Subpart A, *Quality Assurance Requirements* (as applicable).	The KOP Disposition Subproject will use the CHPRC quality assurance program described in PRC-MP-QA-599 (Quality Assurance Program). The KOP Disposition Subproject will use the CHPRC quality assurance program described in PRC-MP-QA-599 supplemented by additional quality assurance requirements identified in the project execution plan.	PRC-MP-QA-599 complies with the requirements of DOE O 414.1A and covers the scope of project activities. Additional quality assurance program elements/actions are needed in addition to those described in PRC-MP-QA-599 to cover the scope of the project activities.
A-12	Develop and implement an integrated safety management system for the contract scope of work in compliance with DEAR 48 CFR 970-5204-2, "Integration of Environmental, Safety, and Health into Work Planning and Execution."	The KOP Disposition Subproject will use the CHPRC Integrated Safety Management System (ISMS) described in HNF-MP-003, *Integrated Environment, Safety, and Health Management system Description*, and implemented through PRC-POL-SH-5053, *CHPRC Safety, Health, Security, Quality, and Environmental Policy*, PRC-MP-SH-32219, *10 CFR 851 PHMC Worker Safety and Health Program Description*, PRC-POL-EP-5054, *CH2M HILL Plateau Remediation Company Environmental Policy*.	HNF-MP-003 (Integrated Environment, Safety, and Health Management system Description) complies with DEAR 48 CFR970-5204-2 and covers the scope of project activities. PRC-POL-SH-5053 and PRC-POL-EP-5054.
A-13	Contractors performing design for projects must at a minimum conduct a Preliminary and Final Design Review, in accordance with the Project Execution Plan. For nuclear projects, the design review will include a focus on safety and security systems.	The KOP Disposition Subproject will perform design reviews in compliance with PRC-PRO-EN-8336 (Design Verification).	PRC-PRO-EN-8336 defines the CHPRC design review process and contains checklists to assist reviewers. Checklist items address safety and security.

Tailoring Strategy Checklist for the Knock-Out Pot Disposition Subproject

SECTION A: CONTRACTOR REQUIREMENTS DOCUMENT CRD O 413.3A The STP Project Management System shall comply with the Contractor Requirements set forth in CRD O 413.3A, and listed below.			
	Requirement	**Approach**	**Basis**
A-14	High performance sustainable building principles must be applied to the siting, design, construction, and commissioning of new facilities and major renovations of existing facilities.	The KOP Disposition Subproject will use PRC-RD-EN-1819, *CHPRC Engineering Requirements*, for overall management of the project design and apply PRC-PRO-EN-097, *Engineering Design and evaluation (Natural Phenomena Hazard),* along with PRC-PRO-EN-20050, *PRC Engineering Configuration Management*, and other industry codes and standards as applicable.	Use PRC-RD-EN-1819 defines the strategy for management of the PRC engineering program and describes the PRC design baseline and how it is managed. HNF-EN-PRO-097 ensures buildings are designed to withstand natural phenomenon hazards. PRC-PRO-EN-8336 includes checklists to verify sustainable design principles. Use of other industry codes and standards also helps ensure building sustainability.
A-15	For projects including Hazard Category 1, 2, and 3 nuclear facilities or for projects including major modifications thereto (as defined in 10 CFR Part 830), the requirements in DOE-STD-1189, as amended, must be fully implemented. The following documents must be submitted: Safety Design Strategy (CD-1), Conceptual Safety Design Report (CD-1), Preliminary Safety Design Report (CD-2), Preliminary Documented Safety Analysis (CD-3), and Documented Safety Analysis with Technical Safety Requirements (CD-4). For major modifications, the Conceptual Safety Design Report and the Preliminary Safety Design Report may either be separate documents or be subsumed within the Preliminary Documented Safety Analysis.	The KOP Disposition Subproject will prepare a Safety Design Strategy (SDS) (CD-1) per PRC-PRO-NS-700 The KOP Disposition Subproject will ***not*** prepare a Conceptual Safety Design Report (CSDR) (CD-1) The KOP Disposition Subproject will ***not*** prepare a Preliminary Safety Design Report (PSDR) (CD-2) The KOP Disposition Subproject will ***not*** prepare a Preliminary Documented Safety Analysis (PDSA) (CD-3) The KOP Disposition Subproject will prepare a Documented Safety Analysis (DSA) with Technical Safety Requirements per PRC-PRO-NS-700	PRC-PRO-NS-700 complies with the requirements for Hazard Category 1, 2, and 3 nuclear facilities or for projects including major modifications thereto (as defined in 10 CFR Part 830) and the requirements in DOE-STD-1189 for preparing an SDS, a CSDR, a PSDR, a PDSA and a DSA. The CSDR, PSDR and PDSA **are not required** for KOP based upon non-major modification determination.

Project Management Process/Deliverables Support

SECTION B: SUPPORT THE FEDERAL PROJECT DIRECTOR IN IMPLEMENTING THE DOE PROJECT MANAGEMENT PROCESS REQUIREMENTS AS INDICATED.

The STP will support the Federal Project Director in implementing DOE Project Management process requirements by producing deliverables as indicated under "Requirement" heading. This section lists DOE O 413.3A deliverables that DOE-RL is required to produce.

Requirement		Approach	Basis
B-1	Justification of mission need (JMN)	The KOP Disposition Subproject prepared a justification for need document in accordance with DOE G 413.3-17, *Mission Need Statement*, and DOE G 413.3-8, *Environmental Management (EM) Cleanup Projects*	Basis: HNF-34695, STP Mission Need Statement, was revised and issued to align, in part, with elements of the KOP Disposition Subproject. This activity is complete.
B-2	Project acquisition strategy	The KOP Disposition Subproject will use PRC-PRO-AC-123, *Requesting Materials And Services*	Basis: The KOP Disposition Subproject will manage conceptual design, detail design, and construction in house
B-3	Project Data Sheet for Design	Not required	Basis: No capital money is planned for KOP
B-4	Project Data Sheet for Construction	Not required	Basis: No capital money is planned for KOP
B-5	Critical Decision 0 package	Not required	Basis: CD-0 is complete (see 08-KBC-0048 and 08-KBC-0011).
B-6	Critical Decision 1 package	A formal CD process **is not required**. The KOP Disposition Subproject will use the CHPRC Project Management approach described in CHPRC-00003, *Project Control System Description.*	Basis: The KOP Disposition Subproject has been evaluated under DOE Standard 1189 and has been determined not to be a Major Modification. Other DOE O 413.3A criteria to invoke a formal CD process are not present.
B-7	Critical Decision 2 package	A formal CD process **is not required**. The KOP Disposition Subproject will use the CHPRC Project Management approach described in CHPRC-00003, *Project Control System Description.*	Basis: The KOP Disposition Subproject has been evaluated under DOE-STD-1189 and has been determined not to be a Major Modification. Other DOE O 413.3A criteria to invoke a formal CD process are not present.
B-8	Critical Decision 3 package	A formal CD process **is not required**. The KOP Disposition Subproject will use the CHPRC Project Management approach described in CHPRC-00003, *Project Control System Description*	Basis: KOP has been evaluated under DOE-STD-1189 and has been determined not to be a Major Modification. Other DOE O 413.3A criteria to invoke a formal CD process are not present.

Tailoring Strategy Checklist for the Knock-Out Pot Disposition Subproject

SECTION B: SUPPORT THE FEDERAL PROJECT DIRECTOR IN IMPLEMENTING THE DOE PROJECT MANAGEMENT PROCESS REQUIREMENTS AS INDICATED.

The STP will support the Federal Project Director in implementing DOE Project Management process requirements by producing deliverables as indicated under "Requirement" heading. This section lists DOE O 413.3A deliverables that DOE-RL is required to produce.

	Requirement	Approach	Basis
B-9	Critical Decision 4 package	A formal CD process **is not required**. The KOP Disposition Subproject will use the CHPRC Project Management approach described in CHPRC-00003, *Project Control System Description*	Basis: The KOP Disposition Subproject has been evaluated under DOE-STD-1189 and has been determined not to be a Major Modification. Other DOE O 413.3A criteria to invoke a formal CD process are not present.
B-10	Project NEPA documentation (as required)	NEPA coverage will be reviewed to determine if any additional NEPA will be addressed as part of CERCLA document revisions	Basis: The KOP Disposition Subproject will be conducted in compliance with applicable NEPA requirements
B-11	Other (describe): None identified	N/A	N/A

SECTION C: SUPPORT THE FEDERAL PROJECT DIRECTOR IN THE IMPLEMENTATION OF DOE G 413.3-4, U.S. DEPARTMENT OF ENERGY TECHNOLOGY READINESS ASSESSMENT GUIDE

	Requirement	Approach	Basis
C-1	Develop supporting information to support EM TRA-1 determination of TRL 3 for CD-1 approval Package	No TRA for the KOP Disposition Subproject is planned since no CD process is necessary.	Basis: Per DOE O 413.3A, the KOP Disposition Subproject has been determined to not be a major modification so no CD process is required.
C-2	Develop Technology Maturation Plan to address technology activities needed to support TRL-6 by CD-2 and any outstanding technology issues identified by TRA-1.	As a graded approach, the KOP Disposition Subproject has developed an integrated test and development strategy to address testing needed to support design development.	Basis: Per DOE O 413.3A, the KOP Disposition Subproject has been determined to not be a major modification so no CD process is required.
C-3	Develop supporting information to support EM TRA-2 determination of TRL-6 for CD-2 approval package	As a graded approach, the KOP Disposition Subproject has developed an integrated test and development strategy to address testing needed to support design development. No TRA for KOP is planned since no CD process is necessary	Basis: Per DOE O 413.3A, the KOP Disposition Subproject has been determined to not be a major modification so no CD process is required.
C-4	Update/Revise Technology Maturation Plant to address any outstanding technology issues identified in TRA-2	As a graded approach, the KOP Disposition Subproject has developed an integrated test and development strategy to address testing needed to support design development. No TRA for KOP is planned since no CD process is necessary	Basis: Per DOE O 413.3A, the KOP Disposition Subproject has been determined to not be a major modification so no CD process is required.

Tailoring Strategy Checklist for the Knock-Out Pot Disposition Subproject

SECTION D: SUPPORT THE FEDERAL PROJECT DIRECTOR AND PROVIDE DESIGN, PROJECT DOCUMENTS, AND PROJECT INFORMATION AS INDICATED.			
Requirement		**Approach**	**Basis**
D-1	Project IPT Charter	The IPT Charter is a DOE-RL document. The STP is preparing a Contractor IPT charter that covers activities with the KOP Disposition Subproject. The STP Project Manager is the Contractor member of the IPT.	Basis: In accordance with DOE O 413.3A, the Contractor is a member of the IPT. The KOP Disposition Subproject is included in STP Project IPT Charter
D-2	Conceptual Design	The KOP Disposition Subproject will provide Conceptual Design Report (CDR) as part of the KOP design.	Basis: No formal CD process is required. However, the KOP Disposition Subproject will perform conceptual, preliminary and final design in-house.
D-3	Design requirements compliance matrix (project functions and requirements)	The KOP Disposition Subproject will develop design requirements as part of the design process per CHPRC engineering procedures	Basis: CHPRC engineering procedures will be used for minor facility modifications.
D-4	Hazards Analysis/Hazards Analysis Determination	The KOP Disposition Subproject will perform USQ evaluations against the existing K Basin Safety Basis.	Basis: The KOP Disposition Subproject is a minor modification, and no new DSA is required
D-5	Plant Forces Work Review	Plant forces work review will be conducted on work packages per CHPRC work control.	Basis: Most modifications and installation will be done by plant forces
D-6	Capitalization Determination	This is not applicable.	Basis: STP (includes the KOP Disposition Subproject) is expense-funded. No capitalization is planned. The project has a standing PFWR that KOP has been using. The plan is to continue using the existing review.
D-7	Project Execution Plan	The KOP Disposition Subproject is addressed in the STP PEP	Basis: The KOP Disposition Subproject is Included in STP PEP
D-8	Project Risk Management Plan	A dedicated KOP risk plan is not required. However, the KOP Disposition Subproject is included in the STP Risk Management Plan	Basis: The KOP Disposition Subproject is Included in STP Risk Management Plan
D-9	Project Quality Assurance Documentation	The KOP Disposition Subproject will utilize the CHPRC QA procedures	Basis: Project will comply with CHPRC Company level quality assurance program

Tailoring Strategy Checklist for the Knock-Out Pot Disposition Subproject

SECTION D: SUPPORT THE FEDERAL PROJECT DIRECTOR AND PROVIDE DESIGN, PROJECT DOCUMENTS, AND PROJECT INFORMATION AS INDICATED.			
Requirement		**Approach**	**Basis**
D-10	Preliminary Design	The KOP Disposition Subproject will generate preliminary design in-house using PRC-PRO-EN-2001, *Facility Modification Package Process*. Based upon design simplicity, the KOP Disposition Subproject project manager may elect to combine the preliminary and final design products.	Basis: Minor modification scope does not require CD-driven design phases
D-11	Final Design	The KOP Disposition Subproject will generate final design in-house using PRC-PRO-EN-2001, *Facility Modification Package Process.*	Basis: Minor modification scope does not require CD-driven design phases
D-12	Value management assessment and/or value engineering study(s)	The KOP Disposition Subproject will perform a value management assessment to determined if a formal value engineering study is appropriate.	Basis: Value engineering is a management best practice
D-13	Safety Analysis Documents	The KOP Disposition Subproject will perform USQ evaluations against the existing K-Basin authorization basis	Basis: KOP is not a major facility modification
D-14	Fire Hazard Analysis	The KOP Disposition Subproject will utilize the existing K-Basin fire hazards analysis in the authorization basis	Basis: KOP is not a major facility modification
D-15	Project Turnover Document	The KOP Disposition Subproject will turn over to K Basins Operations using the FMP and Work Control processes.	Basis: KOP is not a major facility modification
D-16	CERCLA Preliminary Assessment/Site Investigation	Not necessary	Basis: Post ROD not now necessary
D-17	CERCLA Remedial Investigation	Not necessary	Basis: Post ROD not now necessary
D-18	CERCLA Feasibility Study	Not necessary	Basis: Post ROD not now necessary
D-19	CERCLA Work Plan	Remedial Action Plan with TPA M-16-140 (March 2011)	Basis: Per TPA-M-16-140
D-20	CERCLA Design	Remedial Action Plan with TPA M-16-140 (March 2011)	Basis: Per TPA-M-16-140
D-21	Data quality Objectives	Already Issued	Basis: CERCLA
D-22	Sample Analysis Plan	Will be submitted	Basis: CERCLA
D-23	Sampling Verification and Closeout Plan	Part of CD-4, Project Closeout	Basis: CERCLA
D-24	Other (describe): **Non Identified**	N/A	Basis: N/A

Appendix D

STP Communication Management Plan

SLUDGE TREATMENT PROJECT

PRELIMINARY PROJECT EXECTUION PLAN

APPENDIX D

STP COMMUNICATION MANAGEMENT PLAN

Project Name: Sludge Treatment Project – Phase 1

DOE-RL Sub-Project Director (SPD): Roger Quintero **Last Revision Date:** February 17, 2010

CHPRC Project Manager (PM): Michael W. Johnson **Date Created:** February 17, 2010

HANFORD STAKEHOLDERS

STP focuses on communication with a variety of customers, interested parties, and stakeholder groups and their representatives. The following is a listing of the member organizations belonging to the Hanford Stakeholders. The Communications Matrix, included in this Plan, lists the Hanford Stakeholders and captures all regularly scheduled and most "periodic" and/or ad-hoc communications where the STP project will need to provide presentation, data, or reports to an identified audience outside the project. It is not intended to capture project internal communication.

A. Citizen Advisory Boards

- Hanford Advisory Board
- Hanford Health Effects Subcommittee (HHES)
  Contact: Lawson F. Bell, P.E., Designated Federal Official; Division of Health Assessment & Consultation, Agency for Toxic Substances and Disease Registry (ATSDR), 1600 Clifton Road, N.E. (MS-E32), Atlanta, Georgia 30333, Telephone: 404-498-0353, Fax: 404-498-0063, E-mail: LFB0@cdc.gov

B. Federal Agencies

- Defense Nuclear Facilities Safety Board (DNFSB)
- Federal Agencies & Commissions
- U.S. Department of Energy (USDOE)
- U.S. Department of Health and Human Services
- U.S. Environmental Protection Agency
- U.S. Environmental Protection Agency, Region 10 (AK, ID, OR, WA)
- U.S. Fish & Wildlife Service, Pacific Region
- **Hanford Natural Resource Trustee Council**

C. Local/State Government and Related Agencies

- Benton County
- City of Kennewick
- City of Pasco
- City of Richland
- Franklin County
- Hanford Community Health Project
- Oregon State

- Oregon Nuclear Safety Division
- Oregon Office of Energy
- Pacific Northwest National Laboratory
- Hanford Technical Library (PNNL)
- Washington State
- Washington Department of Ecology (Ecology)
- Washington Department of Health
- Washington State Patrol
- Oregon Health Division Radiation Protection Services *Contact:* Ray Paris, Oregon Health Division, Radiation Protection Services, Suite 206, 800 NE Oregon Street, Portland, OR 97232, (503) 731-4014 ext. 460, email: raydparis@state.or.us
- State of Washington Military Department Emergency Management Division Contact: State of Washington, Military Department, Emergency Management Division. Building 20, Camp Murray, WA, 98430 (253) 512-7000.

D. **Native American Tribes**

- Confederated Tribes of the Umatilla Indian Reservation
- Nez Perce Tribe

E. **Public Interest Groups**

- Alliance for Nuclear Accountability (formerly Military Production Network)--Contact: Susan Gordon, Military Production Network, 1914 N. 34th St., #407, Seattle, WA 98103, (206) 547-3175.
- American Nuclear Society
- Columbia Riverkeeper
- Environmental Defense Institute--Contact: Chuck Broscious, Environmental Defense Institute, P.O. Box 220, Troy, ID 83871, (208) 835-6152.
- Government Accountability Project
- Hanford Action of Oregon, 25-6 NW 23rd Place #406, Portland Oregon 97210 503/235-2924, Contact: Robin Klein, e-mail: robin@spiritone.com
- Hanford Downwinders Coalition--Contact: Judith Jurji, Hanford Downwinders Coalition, 916 North 36th Street, Seattle, WA 98103, (206) 547-1021.
- Hanford Downwinders Health Concerns--Contact: Lois Camp, Hanford Downwinders Health Concerns, Box 52, Lacrosse, WA 99143, or Don Carter, (206) 488-7085.

- The Hanford Family--Contact: The Hanford Family, 1620 Davison St., Richland, WA 99352, Mike Fox, (509) 376-3167 or Cliff Groff, (509) 783-8836.
- Hanford Watch, Oregon --Contact: Paige Knight, chair, Hanford Watch, 2285 SE Cypress, Portland, OR 97214, (503) 232-0848, fax: (503) 287-6329, email: paigeknight@msn.com
- Heart of America Northwest--Contact: Heart of America NW, Suite 208, Seattle, WA 98101, (206) 382-1014 (office), email: office@heartofamericanorthwest.org.
- Northeast Oregon Peace Network-- Contact: Fuji Krieder, Northeast Oregon Peace Network, 60366 Marvin Rd., LaGrande, OR 97850, (541) 963-2193, email: fkrider@orednet.org
- Northwest Environmental Advocates (NWEA)--Contact: Eugene Rosolie, Northwest Environmental Advocates, 133 SW 2nd Ave., Ste 302, Portland, OR 97204, (503) 295-0490, email: nwea@igc.apc.org
- Northwest Radiation Health Alliance (NWRHA)--*Contact:* Northwest Radiation Health Alliance (NWRHA), c/o Physicians for Social Responsibility, 921 SW Morrison, Suite 500, Portland, OR 97205, telephone/FAX: (503) 274-2720.
- Pacific Rivers Protection League/Hanford Information Network--Contact: Rob Davis, Chair; Mike Plahuta, Washington Director; Doug Riggs, Coordinator; P.O. Box 230300, Portland, Oregon 97281, (503) 702-5120, e-mail: cleanupnw@aol.com.
- The RadioActivist Campaign--Contact: Moon Callison, 7312 N.E. North Shore Rd., Belfair, WA 98528, (360) 275-1351, e-mail: mooncal@tscnet.com.
- Sierra Club Cascade Chapter--8511 - 15th Ave. NE, #201, Seattle, WA 98115-3101 Phone: (206) 523-2147, email: cascade.chapter@sierraclub.org.
- Washington Physicians for Social Responsibility (WPSR)--Contact: Martin Fleck, WPSR, 4534-12th Ave. NE, Seattle, WA 98105, (206) 547-2630, email: psrwase@igc.apc.org

Appendix D - STP Communication Management Plan

STP COMMUNICATION MATRIX						
Audience	**Delivered By**	**Vehicle of Communication**	**Method**	**Frequency**	**Purpose**	**Source**
DOE HQ Senior Management	DOE-RL Sr. Mgmt. **Lead** DOE-RL SPD, DOE-RL Sr. Mgmt., CH2M VP/Sponsor	Informal	Presentation	Quarterly	Provide cost/schedule status update (variance analysis), look-ahead, accomplishments, milestone status, issues/corrective actions	Earned value reports, schedule, various project documents
DOE HQ EM Staff (includes all EM divisions)	DOE-RL SPD **Lead** DOE-RL Sr. Mgmt., CHPRC VP/Sponsor CHPRC Project Manager	Informal	Presentation, verbal, e-mail	Monthly, or as requested	Provide cost/schedule status update (variance analysis), look-ahead, accomplishments, milestone status, issues/corrective actions	Earned value reports, schedule, various project documents
DOE-RL Senior Management	CHPRC VP/Sponsor **Lead** CHPRC Project Manager	Formal Project Performance Report	Presentation	Monthly	Provide cost/schedule status update (variance analysis), look-ahead, accomplishments, milestone status, issues/corrective actions	Earned value reports, schedule, various project documents
EPA DOE-RL DNFSB Board	CHPRC Project Manager **Lead** CHPRC Project Manager	Informal	Verbal	Bi-weekly	Project status, to Stakeholders and address comments and concerns	Various project documents
Integrated Project Team (IPT)	DOE-RL SPD **Lead** RL-CHPRC Project Teams	Informal	Verbal	Bi-weekly	Project status, Issues, Risks, Job assignments	Earned value reports, schedule, various project documents, review of draft presentations
CH2M Hill Board of Directors	CHPRC VP/Sponsor **Lead,** or designee	Formal Board of Directors Report	Presentation	Monthly	Provide cost/schedule status update (variance analysis), look-ahead, accomplishments, milestone status, issues/corrective actions	Earned value reports, schedule, various project documents
CHPRC Senior Management	CHPRC VP/Sponsor **Lead**, CHPRC Project Manager	Formal Project Performance Report	Presentation	Monthly	Provide cost/schedule status update (variance analysis), look-ahead, accomplishments, issues/corrective actions, key commitments	Earned value reports, schedule, various project documents
	CHPRC SP/Sponsor **Lead** CHPRC Project Manager	Production Control Meetings	Presentation	Weekly	Provide status on priority projects, contract deliverables	Metric Report and Action Item lists
	CHPRC Sponsor	Informal	Verbal, email	As required	Solicit ongoing project support	Various project documents, information from Project Manager
CHPRC Project Manager (PM)	Project Team	Schedule status meeting	Verbal	Weekly	Provide schedule status	Team knowledge
	Budget Analyst, Scheduler	Earned value reports, updated schedules	Email, hardcopy	Monthly	Provide earned value status	Data from financial system

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Audience	**Delivered By**	**Vehicle of Communication**	**Method**	**Frequency**	**Purpose**	**Source**
CHPRC Project Team	CHPRC Project Manager	Informal	Verbal, email, written	As required	Provide direction, issues discussion and resolution, project decisions	PM knowledge
DNFSB Board	DOE-RL FPD **Lead** CHPRC VP/Sponsor, CHPRC PM, RL-CH Safety Team	Informal	Presentation	Quarterly, or as required	Provide project and schedule status update, Results of Safety Analysis/Evaluations accomplishments, issues/corrective actions, look-ahead,	Various project documents, information from Project Manager
DNFSB Staff	DOE-RL FPD **Lead** CHPRC VP/Sponsor, CHPRC PM, RL-CH Safety Team	Informal	Presentation, Verbal, e-mail	Monthly, or as requested	Provide project and schedule status update, Results of Safety Analysis/Evaluations accomplishments, issues/corrective actions, look-ahead,	Various project documents, information from Project Manager
EPA / DOH / Ecology	CHPRC Permitting **Lead** DOE-RL SPD, CHPRC VP/Sponsor, CHPRC PM, Project Team	Informal	Presentation	Monthly, or as Requested	Provide project/schedule status update (variance analysis), look-ahead, accomplishments, issues/corrective actions, regulatory permitting	Various project documents, information from DOE-RL Project Manager
TPA Quarterly	DOE-RL FPD **Lead** CHPRC Environmental	Formal Presentation	Presentation	Quarterly	Project status, cost, and schedule information; milestone review	Financial System, Various project documents
Native American Tribal Leaders (Nez Perce, YIN, CTUIR)	DOE-RL Sr. Mgmt **Lead** DOE-RL FPD, CHPRC VP/Sponsor, CHPRC PM, CHPRC Sr. Mgmt Team	Informal	Presentation	As Requested – But at least once / yr	Informational – Provide project status update, look-ahead, accomplishments, issues/corrective actions, siting information & evaluation results	Various project documents, information from DOE-RL Project Manager
Native American Tribal Technical Staff (Nez Perce, YIN, CTUIR)	CHPRC Permitting **Lead** DOE-RL SPD, CHPRC VP/Sponsor, CHPRC PM	Informal	Presentation, verbal, e-mail	Quarterly, or as requested	Informational -- Provide project status update, look-ahead, accomplishments, issues/corrective actions, siting information & evaluations, permitting actions	Various project documents, permitting documents, information from Project Manager (s)
Hanford Advisory Board	DOE-RL FPD **Lead** CHPRC VP/Sponsor, CHPRC Project Manager	Informal	Presentation	Quarterly	Informational -- Provide project status and schedule update, look-ahead, accomplishments, issues/corrective actions, siting information, permitting actions	Various project documents, information from Project Manager
HAB Committees	DOE-RL FPD **Lead** CHPRC VP/Sponsor, CHPRC Project Manager	Informal	Presentation	Quarterly, or as requested	Informational -- Provide status and schedule update, look-ahead, accomplishments, issues/corrective actions, siting information, permitting actions	Various project documents, information from Project Manager

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Audience	**Delivered By**	**Vehicle of Communication**	**Method**	**Frequency**	**Purpose**	**Source**
Oregon Dept. of Energy	Project Team	Informal	Presentation, verbal	Quarterly	Informational -- Provide project status and schedule update, look-ahead, accomplishments, issues/corrective actions, siting information, permitting actions	Various project documents, information from Project Manager
Oregon Hanford Waste Board	DOE-RL FPD **Lead** CHPRC VP/Sponsor, CHPRC PM, Project Team	Informal	Presentation	At least twice yearly	Informational -- Provide project status and schedule update, look-ahead, accomplishments, issues/corrective actions, siting information, permitting actions	Various project documents, information from Project Manager
Congressional Delegation (WA & OR)	DOE-RL Sr. Mgmt **Lead** CHPRC Sr. Mgmt Team	Informal	Presentation	At least twice yearly	Informational -- Provide project status and schedule update, look-ahead, accomplishments, issues/corrective actions,	Various project documents, information from Project Manager
State of WA elected officials	DOE-RL SPD **Lead** CHPRC VP/Sponsor, CHPRC PM, Project Team	Informal	Presentation	At least yearly	Informational -- Provide project status and schedule update, look-ahead, accomplishments, issues/corrective actions	Various project documents, information from Project Manager
Local elected officials	DOE-RL FPD **Lead** CHPRC VP/Sponsor, CHPRC PM, Project Team	Informal	Presentation	At least yearly	Informational -- Provide project status and schedule update, look-ahead, accomplishments, issues/corrective actions, siting information	Various project documents, information from Project Manager
Hanford Communities	DOE-RL FPD **Lead** CHPRC VP/Sponsor, CHPRC PM, Project Team	Informal	Presentation, verbal	Twice annually	Informational -- Provide project status and schedule update, look-ahead, accomplishments, issues/corrective actions, siting information	Various project documents, information from Project Manager
Tri-City Herald	RL/CHPRC Communications **Lead** DOE-RL SPD, DOE-RL Sr. Mgmt., CHPRC VP/Sponsor, CHPRC PM	Informal	Written, verbal	As required	Informational – Provide project accomplishments and status	Various project documents
Weapons Complex Monitor	RL/CHPRC Communications **Lead** DOE-RL SPD, DOE-RL Sr. Mgmt., CHPRC VP/Sponsor, CHPRC PM	Informal	Written, verbal	As required	Informational – Provide project accomplishments and status	Various project documents
Inspector General	DOE-RL Budget Office **Lead** DOE-RL SPD, DOE-RL Sr. Mgmt., CHPRC VP/Sponsor, CHPRC PM	Formal Record	Written, verbal	As required	Respond to IG requests	Various project documents
General Accounting Office	DOE-RL Budget Office **Lead** DOE-RL SPD, DOE-RL Sr. Mgmt., CHPRC VP/Sponsor, CHPRC PM	Formal Record	Written, verbal	As required	Respond to GAO requests	Various project documents