Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

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CHPRC Recd: 12/12/2011

12-EMD-0015

DEC 0 9 2011

Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company
Richland, Washington 99352

Dear Mr. Lehew:

CONTRACT NO. DE-AC06-08RL14788 – TRANSMITTAL OF REVIEW OF THE 100K INFRASTRUCTURE UTILITIES UPGRADE PROJECT SURVEILLANCE S-11-EMD-PRC-001

The purpose of this letter is to transmit Surveillance Report S-11-EMD-PRC-001 (Surveillance Report), which evaluates the integration of environmental and safety requirements into the performance of the 100K Infrastructure and Utilities Upgrade Project (Project). The Surveillance Report examines the performance of CH2M HILL Plateau Remediation Company (CHPRC) in complying with contractual requirements, State and Federal environmental requirements, Department of Energy (DOE) requirements, other applicable codes and standards, and CHPRC policies and procedures. One Concern, 15 Findings, and four Observations are documented in the Surveillance Report.

As more fully discussed in the Surveillance Report, CHPRC did not obtain several required regulatory agency or other required approvals prior to commencing construction of the Project. DOE notes however, that all required approvals were ultimately obtained prior to placing constructed systems into operation. In addition, CHPRC properly obtained written approval from the Washington State Department of Health to operate the drinking water system constructed by the Project prior to beginning operations. While substantial redesign and some rework of the fire protection system was required during Project execution, it appears that CHPRC delivered fully functional fire and drinking water systems at Project completion.

The foregoing facts notwithstanding, the Surveillance Report documents a breakdown in CHPRC's implementation of Integrated Safety Management requirements. DOE understands that the Project was subject to schedule pressures, but it does not condone the execution of the Project in a manner that created risk of regulatory agency enforcement action. CHPRC is not, nor has it ever been authorized to unilaterally create, or to accept such risk on behalf of DOE, and must not do so in the future. In similar fashion, failure to operate an effective Lockout/Tagout Program, and to obtain required permits from the Hanford Fire Marshall's Office suggest CHPRC did not sufficiently analyze and control hazards, develop appropriate feedback, and apply lessons learned during execution of the Project.

CHPRC is directed to process the enclosed Surveillance Report through the CHPRC established corrective action management system and provide a corrective action plan in accordance with SCRD 470.2B (Supp. Rev. 2) within 45 day of receipt of this letter.

If you have any questions, please contact us, or your staff may contact Ray J. Corey, Assistant Manager for Safety and Environment, on (509) 376-0108.

Doug S. Shoop
Deputy Manager

Jenise C. Connerly
Contracting Officer

EMD:DEJ

Enclosure

cc w/encl:
M. V. Bang, CHPRC
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Department of Energy
Richland Operations Office
Surveillance Report

Divisions: Environmental Management Division (EMD)
Safety and Engineering Division (SED)

Surveillance Team Members: Dale E. Jackson, RL-EMD, Physical Scientist
Dale C. West, RL-SED, Fire Protection Engineer
Gregory Z. Morgan, RL-SED, Nuclear Safety Engineer
Clifford Ashley, RL-SED, Electrical Safety (Retired)
David T. Evans, PAI Corp (DOE GSSC Contractor), Team Member
Walter R. Brown, CHPRC Environmental QA, Team Member

Surveillance Number: S-11-EMD-PRC-001

Date Field Work Completed: May 2, 2011 **Date Initial Report Completed:** June 25, 2011

Contractor: CH2M HILL Plateau Remediation Company

Facility: 100K Water Treatment Facility and Fire Water Distribution System

Title: Review of the 100K Infrastructure Utilities Upgrade Project

Guides: FPS 12.2, Fire Protection and Prevention
ISM 5.4, Continuous Improvement
OPS 9.9, Lockouts and Tagouts
OPS 9.6, Investigation of Abnormal Events and Occurrence Reporting

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Surveillance Scope:

The objective of this surveillance was to evaluate the performance of CH2M HILL Plateau Remediation Company (herein after "CHPRC") Infrastructure Utilities Upgrade Project (herein after "100K IUUP" or "Project") fire water and drinking water systems subproject compliance with contractual requirements, State and Federal environmental requirements, U.S. Department of Energy (DOE) requirements, DOE Richland Operations Office (RL) requirements, other applicable codes and standards, and CHPRC policies and procedures.

Surveillance Summary:

This surveillance reveals that CHPRC did not meet all requirements applicable to 100K IUUP activities. Multiple examples of not meeting requirements involving several different disciplines were noted. The surveillance activities resulted in the identification of one Concern, fifteen Findings, and four Observations. The Table of Content of this Surveillance Report summarizes the nature of each finding and observation.

Surveillance Results:

Concern: S-11-EMD-PRC-001-C01

The Surveillance identified numerous examples of contractual and regulatory requirements that were not complied with prior to start of 100K IUUP construction. CHPRC's corrective action efforts did not recognize or otherwise address this pattern of activities and extent of condition.

Discussion:

CHPRC did not meet several contractual requirements during the construction of the 100K Water Treatment Facility and the Fire and Potable Water Distribution System. CHPRC procedures and policies did not fully integrate environmental and fire protection program requirements into project design and construction. CHPRC work management procedures that were used to initiate, implement, and perform work did not adequately identify and integrate environmental and fire protection contractual requirements. This reveals a weakness in the implementation of the CHPRC Integrated Safety Management System (ISMS) Program for the 100K IUUP. The CHPRC engineering program, project management, construction, project control, and work management, did not fully integrate contractual requirements into their activities. Some contractual requirements identified in CHRPC Procedures and Policies were not followed by the 100K IUUP.

The objective of ISMS is to incorporate environment, safety, and health into management and work practices at all levels, addressing all types of work and all types of hazards to ensure safety

for the workers, the public, and the environment. Line management is responsible and accountable for safety, safety management, and the integration of safety into business and operations at a site.

It is noteworthy that a similar Concern was stated in the previous RL *Assessment of the CH2M Hill Plateau Remediation Company Fire Protection Program* (A-10-SED-PRC-23) of May 27, 2010, which stated "CHPRC Procedures and Policies, D4 activities, and subcontractor activities, have not fully integrated FPP requirements. CHPRC Work Management Procedures that initiate, implement, and perform work do not have adequate integration of Fire Protection Procedures. This is a significant weakness in the CHPRC Integrated Environment, Safety, and Health Management System (ISMS) Program." The Assessment was transmitted to the Contractor by RL letter 10-SED-0128 of August 19, 2010.

Findings 1 through 15 support this concern.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F01

CHPRC did not apply to the Washington State Department of Health (WDOH) for approvals required by the Washington Administrative Code (WAC) prior to commencing construction of the 100K IUUP Potable Water System.

Requirement(s):

1. RCW Chapter 70.119A, *Public Water Systems — Penalties and Compliance*

2. WAC Chapter 246-290, *Group A Public Water Supplies*

3. DOE O 226.1A, *Implementation of Department of Energy Oversight Policy,* and *Contractor Requirements Document* (CRD) attached thereto.

4. DOE M 231.1-1A, Chg 2 (Supp Rev 1), *Environment, Safety, and Health Reporting Manual,* and CRD attached thereto.

5. DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets,* and CRD attached thereto.

6. DOE O 414.1C, *Quality Assurance,* and CRD attached thereto.

7. DOE Contract Number DE-AC06-08RL14788, Section H.19, *Environmental Responsibility,* and Attachment J.2, *Requirements Sources and Implementing Documents*, Tables J.2.1 through J.2.8.

8. PRC-PRO-EP-15333, *Environmental Protection Processes*

9. PRC-RD-EP-15332, *Environmental Protection Requirements*

10. PRC-PRO-EP-15335, *Environmental Permitting and Documentation Preparation*

11. PRC-POL-EP-5054, *CH2MHILL Plateau Remediation Company Environmental Policy*

Guidance:

DOH 331-123 (Rev. 12/09), *Water System Design Manual*

Discussion:

Group A public drinking water systems in the State of Washington are subject to regulation pursuant to WAC Chapter 246-290.[1] More specifically, relevant regulations state:

> The project report is a written document that describes why a project is being proposed and includes engineering design calculations showing how the project will meet its objectives. . . . Purveyors shall submit project reports to the department and obtain written approval prior to installation or construction of any new water system, water system extension, or improvement. . . .

WAC 246-290-110(1), -110(2). The regulations also state:

> Construction documents shall identify how specific projects will be constructed while satisfying the requirements and conditions established in the project report and/or the water system plan. . . . Purveyors shall submit construction documents to the department and obtain written approval prior to construction of any new water system, or water system extension or improvement.

WAC 246-290-120(1), -120(2).

On May 6, 2009 the "100K Infrastructure Project Charter Workshop," was held to define the scope, objectives, and deliverables of the 100K IUUP. The workshop was also intended to define the schedule, cost estimate basis, roles and responsibilities, key interfaces, and requirements necessary to successfully complete the Project. Exhibits 2, 3, 4, 5, and 6.

[1] The 100K IUUP provided upgrades to infrastructure that were necessary to support a variety of ongoing response actions being performed in the 100K Area pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 USC § 9601, et seq. The Project may have been entitled to exemption from Federal, State or local laws requiring permits or approvals if the Project had elected to proceed under CERCLA and such a decision had been incorporated in a CERCLA Record of Decision or other decision document. *See* 42 USC § 121(e).

The project scope adopted as a result of the Workshop Study for the 100K IUUP included, among other things, construction of a cross site raw water transfer line, a new Group A public drinking water treatment plant and water delivery lines, installation of a new fire water pumping system and new fire water delivery lines, and major modifications of fire water mains in the vicinity of the 105K W Reactor.

DOE has recognized, and has instructed its contractors since at least 1995, that WDOH Drinking Water Regulations are applicable to public drinking water systems operated on the Hanford Site.[2] This includes regulations requiring approval of drinking water system designs and construction specifications prior to commencement of construction activities. CHPRC is expressly obligated by its contract to comply with the requirements of WAC Chapter 246-290. *See* Contract Number DE-AC06-08RL14788, Section H.19, and Attachment J.2, Tables J.2.1 through J.2.8.

In June 2009, CHPRC's 100K Area ECO began an analysis to identify environmental regulatory requirements that would apply to the 100K IUUP by completing an Environmental Activity Screening (EAS) form.[3] CHPRC environmental protection procedures require that: " . . . [b]efore starting any . . . [n]ew construction projects . . . [e]xcavations or disturbances to soil . . . " a cognizant ECO must perform " . . . an environmental review and documents [sic] it using an EAS form . . . ." PRC-PRO-EP-15333, Sec. 5.3.[4] Because a drinking water system was involved in the project, the same procedures required the ECO to evaluate and " . . . determine permitting needs and develop an application for an operating permit . . . in accordance with WAC 246-290 . . . . " *Id.* Sec. 5.7. The EAS form completed by the 100K Area ECO identified that the project involved construction of a public drinking water system subject to State regulations, and would also require a determination (sometimes referred to as a clearance) pursuant to NEPA regulations. Exhibit 7.

On August 24, 2009, the 100K Area ECO again considered 100K IUUP permitting needs. On that date, the ECO sent an e-mail titled "100K Follow Up" to the EP Manager in CHPRC's central environmental organization. The e-mail quoted the requirements of the then existing

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[2] On April 11, 1995 the Director of DOE-RL's Site Infrastructure Division sent a letter to the President of Westinghouse Hanford Company stating: "The U.S. Department of Energy, Richland Operations Office (RL) is the owner of several Group A and Group B water systems, and Westinghouse Hanford Company and ICF Kaiser Hanford Company operate the water systems for RL. The purpose of this letter is to clearly state that the water systems on the Hanford Site are subject to the State of Washington Department of Health Drinking Water Regulations under Washington Administrative Code and the water systems will operate in accordance with these regulations. These regulations apply to the operation of the drinking water systems as well as to construction/modification on any system." Exhibit 1.

Since that time all Group A and B water systems on the Hanford Site have been required to be operated and constructed/modified in compliance with the above noted Washington State Department of Health regulations. This has included the system that was constructed and maintained at the 100K Area in the years immediately following the issuance of the above noted letter, and the construction and operation of the upgraded system just recently completed.

[3] About the time the EAS form was completed, the former 100K Area ECO (now the 100K Sludge Treatment Project (STP) ECO) provided the 100K IUUP Potable Water Project Engineer, and the 100K Area ECO, the working file of the existing 100K water system. This file contained the letter referred to in footnote 1, and most, if not all, of the existing documentation and historical information on the 100K Area water system, including numerous correspondence exchanges with the WDOH over the years concerning that system. *See* 100K Area water system documents from April 1995-June 2002 (STP ECO's files).

[4] Reference is to PRC-PRO-EP-15333, version dated: June 29, 2010.

PRC-PRO-EP-15333, Sec. 5.7, and requested assistance in meeting the specified requirements. Exhibit 8. During an interview, the ECO stated that his e-mail was not responded to. The assessment team requested, but was not provided any information contradicting the ECO's statement.

On October 6, 2009 CHPRC met with WDOH officials at that agency's office in Spokane, Washington. The parties discussed the permitting requirements to install a new water treatment plant at 100K Area to replace the then existing water system, and finalizing the preferred method to dispose of the filter backwash water that would be generated by the new water plant. Attendees at this meeting were the 100K Area Water Purveyor, RL Site Infrastructure Representative, ARES Corporation engineer, 100K IUUP Potable Water Project Engineer, and the 100K Area ECO. Exhibit 9. The following day (October 7, 2009) the RL Site Infrastructure Representative who attended the meeting wrote an e-mail message to the RL project representative opining that the meeting went "very well" and stating that: "Your contractor staff were very well organized, well spoken and professional." Exhibit 10.

During the fall of 2009, planning for the 100K IUUP continued. On November 9, 2009, the 100K IUUP Construction Manager sent an e-mail message "Subject: Draft SOW for 100K Water Infrastructure Project," to numerous individuals stating that:

> The PRC-PRO-AC-123 Functional & Project Concurrence Checklist has identified you as a potential required reviewer/SME of this SOW due to content of the work scope. Please review and provide comments. The Submittal Register is being developed, please identify potential submittal requirements. I am requesting comments be returned to me 11/16/09. Also, please identify if you will require approval signature on the final SOW.

Exhibit 11 and Exhibit 12 "Attachment 5 Functional & Project Concurrence Checklist."

Although the Checklist contains a question regarding whether "the service" involves "Ecology, Department of Health, or EPA requirements, investigations, or remediation," in response the CHPRC EP Manager provided "Yes" in the Applicability section of the form and "No Comment" in the Project Contact/Reviewer section of the checklist. Subsequently, on December 21, 2009, the 100K IUUP Construction Manager sent an e-mail message to the 100K IUUP Controls Clerk stating: "All SME approvals have been received and all comments have been incorporated into the SOW-Scott Story." Exhibit 13.

On December 16, 2009, the 100K IUUP Potable Water Project Engineer wrote an e-mail message to the 100K Area ECO and copying the 100K IUUP Project Manager, Project Director, and Project Construction Manager, asking permission to discuss: " . . . a potential risk related to the Department of Health permitting process . . . " and seeking assistance in the matter. The message also stated: ". . . a project report will need to be submitted and approved by the Department of Health prior to construction of the water system (per WAC 246-290-110) . . . . " Exhibit 14.

The e-mail goes on to explain:

> The purpose of contacting you and potentially . . . [the 100K D&D Project Environmental Director] is to determine if the environmental group has any issue with the 100K project moving forward with this approach. If so, please contact the project management team . . . [100K IUUP Project Manager, Project Director, and Project Construction Manager] to discuss the issue further.

Id.

Several minutes later the ECO forwarded the message to the D&D Project Environmental Director requesting her assistance in this matter, and copied the Project Construction Manager, Construction Manager, Project Director, Project Engineer, and EP water subject matter expert.[5] Exhibit 15.

On January 11, 2010 the President and Chief Executive Officer of CHPRC sent a letter to Mr. M.D. Wilson, WDOH Regional Engineer titled, "Request For Waiver Of Pilot Study For New 100k Potable Water Facility." Accompanying this letter was an attachment with documentation supporting a waiver of pilot testing requirements of the PALL potable water treatment system proposed to be installed at the 100K Area. The conclusion of the attachment contains the following statement:

> A project report meeting the requirements of WAC 246-290-110, and tailored to fit the Hanford Site context, will be submitted to you as soon as the required information is obtained/developed and in advance of construction of the new 100K Potable Water Facility. Preliminarily, we expect that this will occur in the February 2010 timeframe. The project report will also include a section addressing the scope, protocols, and sampling/monitoring requirements associated with the Operational Testing phase introduced above.

Exhibit 16.

On January 28, 2010 CHPRC issued a letter to Watts Construction, Inc. for the "100K River Water Isolation Project Import Water Line Notice to Proceed." This letter stated that all work was to be performed under this task no later than June 30, 2010 and to notify the CHPRC Contracts Office if that deadline could not be achieved. Exhibit 17.

On February 17, 2010, Mr. Wilson of WDOH wrote a letter to the CHPRC 100K Area Potable Water Engineer with responses to the CHPRC submission of January 11, 2010 in which he stated:

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[5] No written response to this e-mail has been provided, although the surveillance team requested that the D&D Project Environmental Director search her files and disclose any response that she may have retained.

> As outlined in your request, a project report, meeting the requirements of WAC 246-290-110, will be submitted in advance of the construction documents and will include the scope, protocols, and sampling/monitoring requirements for the testing of the full-scale facility. This project report shall include the rational for selecting the Pall [sic] membrane.

Exhibit 18.

On March 16, 2010, the 100K Area ECO signed a Hanford Site Excavation Permit authorizing initiation of construction activities for the 100K IUUP.[6] The Excavation Permit authorized: "Installation of approximately 900 linear meters of new 12 [inch] potable and fire water lines." This permit was signed by, among others, the Design Authority/Technical Representative, ECO, Water Utilities Representative and the Facility/System Owner. Exhibit 19.

On April 7, 2010 a CHPRC Contracting Officer, sent a letter to George A. Grant, Inc. regarding "Contract Number 36534-31 ARRA-Potable Water Treatment Facility Contract Award Documents Transmittal." The purpose of the letter was to formally authorize George A. Grant, Inc. to proceed with the work scope defined as "ARRA – Potable Water Treatment Facility." The letter also stated that "Construction work shall be complete by July 23, 2010." Exhibit 20.

Also on April 7, 2010 and again on April 21, a Project Review Board (PRB) for the 100K IUUP was convened and evaluated the Project's readiness to proceed. Materials presented to the PRBs contained no mention of applicable regulatory requirements. Exhibits 55 and 57. Actual construction activities on the potable and fire water lines portion of the project inside 100K Area began on April 13, 2010. Exhibit 21. Construction on the Import Raw Water Line (outside of the fence) began on April 28, 2010. Exhibit 22. Construction on the Potable Water Treatment Facility by Grant Construction began on May 14, 2010. Exhibit 23.

On May 18, 2010, CHPRC's EP & SP Vice President and members of his staff travelled to Spokane, Washington to meet with WDOH and discuss water system construction in Hanford's 200 Area that had commenced without WDOH approvals. While in route, the EP & SP Vice President was contacted by the 100K IUPP Potable Water Project Engineer and was informed that work had begun on the 100K Area's new potable water delivery and treatment system prior to obtaining written approval from WDOH. He was also informed that the Project Report and construction documents required by regulations had not yet been completed and sent to WDOH. Upon learning this information, the CHPRC EP & SP Vice President advised 100K IUUP management to immediately issue a STOP WORK order and the Project was halted.

Upon arriving in Spokane later that morning, the EP & SP Vice President explained that CHPRC had requested the meeting that day with WDOH "in the interest of developing a better working relationship." According to the Spokane meeting summary, later prepared by the CHPRC EP

[6] While the ECO signed the Excavation Permit on March 16, 2011, it did not become effective until March 18, 2011 when all other required signatures had been secured.

Environmental Compliance Manager, discussion then followed concerning the use of the PALL Membrane Filter Technology, appropriate content of a project report, and "General Discussion."

Based on meeting summary notes, WDOH reiterated that while the PALL system is considered alternative filtration technology, WDOH was comfortable with the technology based on its use elsewhere in the State. WDOH then discussed the requirements for a project report and indicated they were expecting the Project Report for their review and approval. "CHPRC noted [to WDOH] that "some construction" was initiated prior to formal approval." Exhibit 24. CHPRC then asked for clarification about water purveyor responsibilities and how WDOH "would like to see roles and responsibilities implemented at a large DOE site with multiple drinking water systems and contractors." *Id.*

There was also some discussion about what constitutes the "commencement" of construction. WDOH confirmed that while construction is not defined it is intended to mean to "build or install any component that is part of the drinking water system" and that "WAC regulations do not allow for construction prior to written approval from WDOH." *Id.* WDOH further advised CHPRC that if construction began before a project report was approved, it would be "assuming risks, including the risk of needing to remove a component that is not approved in the project report. *Id.* WDOH policy prohibiting construction prior to obtaining required approvals is clear in official documents. WAC 246-290-110(2) and DOH 331-123 (Rev. 12/09), *Water System Design Manual*, Sections 2.1 and 3.1. Statements of the WDOH Regional Engineer made during this meeting are also documented in an October 19, 2010[7] CHPRC Root Cause Analysis Report which states:

> CHPRC Environmental Protection Vice President . . . and Environmental Director . . . met with WDOH on May 18, 2010. Results of meeting were that even though in the past, WDOH informally allowed construction of a water system to commence prior to formal receipt of approvals for the Project Report, per WAC 244-290-110(2), [sic] approval must be received prior to installation or construction of a water system. Therefore, noncompliance with WAC 246-290-110(2) had occurred.

Exhibit 25 at p.16.

During the return trip on May 18, 2010 to the Hanford Site, the CHPRC EP and SP Vice President contacted the 100K IUUP Project Manager and reported the results of the meeting with WDOH. 100K IUUP personnel then met and a decision was made to restart construction on the water delivery and treatment system. Later that day, the 100K IUUP Project Manager wrote an e-mail message to the CHPRC D&D Vice President copying the 100K IUUP Project Director, D&D Project Environmental Director, and the 100K IUUP Water Project Engineer giving them a brief history and status of the Project. The e-mail states in part:

[7] The Report date is listed as October 19, 2010, but the last approval signature is November 2, 2010, suggesting the latter date is that of the Report's adoption.

> . . . State Code WAC 246-290-110 requires that a project report to be [sic] submitted prior to water system construction, expansion, or improvement. . . . [W]e are not compliant with requirement WAC 246-290-110.

Exhibit 26. The message also states:

> Following CHPRC senior management's meeting earlier today with DOH, we have been directed to continue with our construction activities. Whereas it is apparent that DOH may not be fully pleased with commencing construction prior to the receipt and concurrence with the project report, it is not a critical misstep. Therefore, at this time we will thoroughly review all of our project requirements, work to submit our project report as early as possible, and engage DOH further on our project status.

Id.

In the interviews conducted with the 100K IUUP Project Manager, he stated his recollection that a teleconference was conducted on or about May 19, 2010 involving himself, the CHPRC President and CEO, CHPRC D&D Vice President, and the 100K IUUP Project Director concerning the future direction of the Project. At the conclusion of the teleconference the participants jointly decided to continue with construction activities on the potable water delivery system even though required WDOH approvals had not been obtained. He also stated that this decision was unilateral, as no approval of this decision was sought from any DOE representative.

On June 1, 2010, CHPRC submitted the "Project Report For 100K Potable Water Facility" to the WDOH for its review and approval. Exhibit 27. In the two weeks immediately following the meeting on May 18, 2010 with WDOH, the CHPRC EP group conducted an analysis of the applicable WAC potable water regulations with respect to fire system applicability. These activities resulted in the CHPRC EP and SP Vice President sending an e-mail message on June 2, 2010, to the CHPRC President and CEO, CHPRC D&D Vice President, and the 100K IUUP Project Director concerning the fire system applicability issue. This message states, in relevant part:

> Based on the review below, we can confirm that the Fire System is <u>not</u> under [W]DOH's authority. There are parts of this system that have dual purpose (both potable water and Fire System), those have to comply with the Safe Drinking Water regulations. This does not change our path forward as discussed yesterday. We need to get this Project Report (permit) into DOH's hands as soon as possible and within a week should be talking to [W]DOH in person. In the mean time we can go ahead with the Fire System installation (including the building) but should slow down on the drinking water system, until we have [W]DOH's approval.

Exhibit 28.

In the interviews conducted with the 100K IUUP Project Director and the Project Manager, when asked what the phrase "slow down on the drinking water system until we have [W]DOH's approval" meant to each of them, they both stated they didn't know, and acknowledged that construction continued.

On June 5, 2010, the CHPRC 100K IUUP Project Manager requested that the CHPRC 100K IUUP Potable Water Project Engineer contact the WDOH Regional Engineer to arrange a time to meet with him to discuss the recently submitted Project Report. According to a June 7, 2010 e-mail sent by the CHPRC 100K IUUP Potable Water Project Engineer to the 100K IUUP Project Director (copying the CHPRC D&D Vice President, CHPRC EP Director, CHPRC D&D Environmental Director, and the 100K IUUP Project Manager) the WDOH Regional Engineer did not see a need for a meeting until after he and a colleague had had time to review the Project Report. This e-mail also addresses the ARRA funding nature of the Project stating:

> Due to the fact that the 100K Infrastructure project is funded by the American Recovery and Reinvestment Act (ARRA), CHPRC is moving forward with certain activities in order to meet the aggressive schedule requirements. I stated the 100K project is moving forward with site preparatory work for the 750,000 gallon dual use water tank, foundation work and underground piping for the water treatment facility building, installation of the fire and potable water system with approximately 25% of the fire main and 20% of the potable water distribution system already installed. Mr. Wilson explained that CHPRC construction activities are being performed at risk. Based upon the review of the project report and construction documents, the Department of Health may request changes to the system and those would be at project cost. It is Department of Health's expectation that the changes would be made by CHPRC to correct any outstanding issues and issuance of the final permit.

Exhibit 29. The Assessment Team asked the CHPRC IUUP Project Potable Water Engineer if the WDOH Project Engineer noted above had supplied any written confirmation of the content and understandings contained in the above e-mail. He told the Assessment Team he had not received any such confirmation from the WDOH Regional Engineer.

On June 16, 2010, the WDOH Regional Engineer wrote back to the 100K IUUP Potable Water Project Engineer acknowledging receipt of the report and assigning a project report tracking number. Exhibit 30. The following week the 100K IUUP Project Manager submitted to WDOH construction documents (drawings and specifications) for the following components of the water delivery and treatment system: 1) 100K Area Water Line; and Water Filtration Drawings, 2) 100K Area Water Treatment Facility Plan Drawings, 3) 100K Export Water Line Drawings, 4) Construction Specification for 100K Fire Protection and Water Lines, 5) Construction Specification for 100K Water Export Line, 6) Construction Specification for 100K Water Line

and Filtration System, 7) Procurement Specification for Water Storage Tank, 8) Procurement Specification for Microfiltration System. Exhibit 31.

On July 8, 2010, the WDOH sent its formal response to the submission of the Project Report addressed to the 100K IUUP Potable Water Project Engineer. This letter provided comments to the Project Report and addressed the timing of work on the Project vis-à-vis formal written approval by WDOH. Paragraph 8 of this letter states:

> The schedule indicates that some potable water components have been or are being installed. Please note that anyone who begins construction on a project without all required approvals may be subject to a penalty of up to $5,000 per service [WAC246-290-050(7)], and may be required to expose system components for our inspection, at their expense. DOH may be unable to accept any component that is installed or constructed prior to approval.

Exhibit 32.

The Assessment Team conducted interviews with the 100K IUUP Potable Water Project Engineer and the CHPRC D&D Environmental Director. Both of these individuals stated that there had been verbal communications between the WDOH Regional Engineer and the 100K IUUP Potable Water Engineer on the issue of construction prior to WDOH approval. These communications were said to have occurred on or about July 8, 2010 and that the WDOH Regional Engineer had told the 100K IUUP Potable Water Engineer that the warning language contained in paragraph 8 of the July 8, 2010 letter from WDOH to CHPRC was "standard language" that WDOH was required to put in the letter. However, the warning language notwithstanding, WDOH reported it was satisfied with how the Project was progressing and the communications that were occurring between CHPRC staff and the WDOH. The CHPRC D&D Environmental Manager told the Assessment Team members she believed she saw, or possessed, an e-mail from the WDOH Regional Engineer memorializing this understanding that WDOH would not bring an enforcement action. She told the Assessment Team she believed she might be able to produce and deliver that e-mail. However, to date, she has not provided such an e-mail to the Assessment Team.[8]

On July 22, 2010 WDOH acknowledged receipt on July 1, 2010 of the construction documents that had been sent to WDOH by CHPRC on June 23, 2010. Exhibit 33. Also on July 22, 2010 the 100K IUUP Project Manager sent a letter to the WDOH Regional Engineer acknowledging CHPRC's receipt of WDOH's comments on the Project Report "dated June 8, 2010 and discussed with WDOH in subsequent conversations on July 8, 2010." This letter then responds to WDOH's comments as enumerated by WDOH. Under comment #8 about early construction

[8] A significant number of CHPRC employees stated that no violation of regulatory requirements had occurred as CHPRC had WDOH staff's verbal permission to start construction without normally required formal approvals, and that no enforcement action would occur. Any WDOH representation notwithstanding, persons holding or needing a permit have an absolute duty to comply with permit requirements. This duty remains regardless of oral or written representations by the permitting agency allegedly excusing compliance with permit requirements.

penalties, noted in the preceding paragraph of this report, the response is, "Comment noted." Exhibit 34.

On August 3, 2010 WDOH sent a letter addressed to the 100K IUUP Potable Water Project Engineer with its comments concerning the "new membrane facility." Exhibit 35. Then, on August 5, 2010, WDOH sent a letter addressed to the 100K IUUP Potable Water Project Engineer approving the Project Report received June 3, 2010. Exhibit 36. Finally, on September 15, 2010 WDOH sent a letter addressed to the 100K IUUP Potable Water Project Engineer approving the construction documents received on July 1, 2010. Exhibit 37. Construction began on April 14, 2010. The WDOH approval to proceed to construction was not obtained until 155 days after the start of construction.

On January 27, 2011 the 100K IUUP Project Manager sent the Operational Performance Testing Report and associated attachments to WDOH for its review and approval. Exhibit 38. In response, on February 1, 2011, WDOH sent a letter addressed to the 100K IUUP Project Manager acknowledging receipt of the Operational Performance Testing Report. Exhibit 39. On February 18, 2011 WDOH sent its approval of the Operational Performance Testing Report and associated attachments which it had received on August 10, 2010 and January 27, 2011.[9] Exhibit 40. On March 10, 2011 WDOH again wrote to the 100K IUUP Project Manager acknowledging its receipt of the Operation and Maintenance Manual. Exhibit 41. Five days later the WDOH Regional Engineer wrote an e-mail addressed to the 100K IUUP Potable Water Project Engineer and the CHPRC 100K Area Water Purveyor which states: "O & M Manual Review (sic) We completed our review of the O&M manual that was received in this office on March 4, 2011. I have two comments, but nothing that will prevent the start-up of the new membrane WTP." Exhibit 42.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F02

CHPRC did not apply for a categorical exclusion determination (CX determination) pursuant to requirements of the National Environmental Policy Act (NEPA) prior to commencing construction of the100K IUUP facilities.

Requirement(s):

1. National Environmental Policy Act, 42 U.S.C.A. § 4321, et seq.

2. 10 CFR 1021, *National Environmental Policy Act Implementing Procedures*

[9] This letter incorrectly states that WDOH received some of these documents on January 27, 2010. This is inaccurate as the subject documents had not been generated by that date. Therefore WDOH must be referring to the Operational Performance and Testing Report submitted January 27, 2011 not January 27, 2010.

3. DOE Contract No. DE-AC06-08RL14788, Sec. H.19 (a), and Attachment J.2, Table J.2.1.

4. PRC-PRO-EP-15333, *Environmental Protection Processes*

5. PRC-RD-EP-15332, *Environmental Protection Requirements*

Discussion:

On June 18, 2009 the100K Area Environmental Compliance Officer (ECO), sent an e-mail message with an attached Environmental-Activity Screening Form (EASF) to the CHPRC NEPA subject matter expert stating that: "Because this is stimulus funded . . . we will need to obtain a [sic] activity-specific CX for our NEPA coverage." Exhibit 7.

The ECO also requested a meeting to discuss the contents of the EASF and asked when the activity-specific CX could be expected. This e-mail message was also copied to the 100K IUUP Project Director, 100K IUUP Construction Manager, D&D Project Environmental Director, and the CHPRC EP Manager. The EASF identified that the activities to be undertaken involved the constructing or modifying of a public water, raw water, or export water system. *Id.*

On April 23, 2010 the CHPRC D&D Project Environmental Director wrote an e-mail message to the 100K Area ECO asking whether the "ecological review" had been completed for the Project. Exhibit 43. Three days later (April 26, 2010) the ECO forwarded the Environmental Director's e-mail to the CHPRC NEPA Subject Matter Expert (SME) who wrote back the same day stating that now he needed to "close with . . . [the DOE Hanford NEPA Compliance Officer] on the CX" and also stated that he would "follow-up with you and . . . [the CHPRC D&D Project Environmental Director] this week." Exhibits 44 and 45. Then on April 28, 2010, the CHPRC SME wrote an e-mail message to the DOE Hanford NEPA Compliance Officer requesting approval of the ". . . activity specific CX for 100K Area Utilities Reroute." The DOE Hanford NEPA Compliance Officer did not respond, and the CHPRC SME did not make further inquiry about the status of the NEPA determination until May 24th and 25th, 2010. Exhibits 46 and 47. By that time construction, which started on April 14, 2010, had been ongoing for nearly six weeks without receiving a NEPA CX determination. On May 26, 2010, the RL NEPA Compliance Officer signed the CX for the Project. Exhibit 48.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F03

Upon discovery of its failure to meet environmental regulatory requirements, CHPRC did not recognize the extent of condition, to timely perform an analysis of causes, and to implement corrective actions.

Requirement(s):

1. DOE M 231.1-2 (Supp Rev 8), *Occurrence Reporting and Processing of Operations Information,* and CRD attached thereto.

2. DOE O 414.1C, *Quality Assurance,* and CRD attached thereto.

3. DOE O 413.3A Chg 1, *Program and Project Management for the Acquisition of Capital Assets,* and CRD attached thereto.

4. PRC-PRO-QA-052, *Issues Management*

5. DOE Contract Number DE-AC06-08RL14788, Attachment J.2, *Requirements Sources and Implementing Documents*, Tables J.2.1 through J.2.8.

Discussion:

On July 20, 2010 a team was assembled and convened to determine the root cause(s) of the failure to obtain WDOH written approval prior to commencing construction activities on the 100K potable water delivery and treatment system. A follow on session was performed on August 3, 2010 to further evaluate the conditions and identify the root causes. The Root Cause Analysis Report (RCA Report) was released on November 2, 2010, five months after the team was first assembled.[10]

The RCA Report contains several factual errors. First, the report states that on May 26, 2010 the CHPRC NEPA SME determined that the NEPA CX had not been obtained and that the CX approval was obtained on May 27, 2010. Realization of the lack of NEPA CX approval occurred on May 24, 2010 and actual approval from RL was obtained on May 26, 2010. The RCA Report also states that work was suspended during the week of June 1, 2010 on portions of the project "that clearly required WDOH approval." There is no evidence that any suspension of activities occurred on the project except for a few hours on May 18, 2010. In fact, CHPRC ARRA weekly reports for the weeks of April 14, 2010 to July 21, 2010, clearly detail in both text and photographs that work continued without interruption on the project during that period. Exhibit 21.

The RCA Report further states that the combination of two separate events (one at 200 East Area and one at the100K Area) was determined to be a significant issue because of noncompliance with several WAC Chapter 246-290 and Code of Federal Regulations (CFR) requirements, and CHPRC procedures. The RCA Report did not identify WAC 246-290-120, *Construction Documents,* which is a critical WAC requirement applicable to the 100K IUUP. Furthermore, the Report also does not address CHPRC requirements identified in PRC-PRO-PM-25000 which require completion of a Project Execution Plan prior to start of construction. The RCA Report also does not acknowledge applicability of DOE O 413.3A Chg 1 CRD to the project.

[10] During July, August, and the first half of September 2010 construction continued on the project without receiving the required WDOH approval, and without completion of the RCA Report.

The RCA team identified two root causes for the failure to obtain WDOH approval prior to the start of construction. The Phoenix Analysis process and the "Five Whys" were employed to identify the adverse conditions. With regard to Root Cause #1 the report states, in relevant part:[11]

> Management expectations were not clearly understood concerning unacceptability of proceeding at risk concerning environmental, regulatory approvals . . . , and, Furthermore, the Environmental Activity Screening Form (EASF) checklist did not have the drinking water requirements checked as applicable to the 100K project.

Neither of the conclusions contained in the quote above were correct. CHPRC's official correspondence with the WDOH prior to commencing construction establishes that management understood the applicable requirements. In its letter of January 11, 2010 CHPRC requested a waiver by the WDOH of the pilot study for the Potable Water Treatment Facility and acknowledged in the attachment to that letter that:

> A project report meeting the requirements of WAC 246-290-110, and tailored to fit the Hanford Site context, will be submitted to you as soon as the required information is obtained/developed and in advance of construction of the new 100K Potable Water Facility.

Exhibit 16, p. 8 Attachment to Letter.

In response to the above letter the WDOH Regional Engineer acknowledged this understanding was correct by stating in his letter of February 17, 2010 addressed to the CHPRC's 100K IUUP Potable Water Project Engineer:

> As outlined in your request, a project report, meeting the requirements of WAC 246-290-110, will be submitted in advance of the construction documents and will include the scope, protocols, and sampling/monitoring requirements for the operational testing of the full-time facility. . ."

Exhibit 18.

Thus, as early as January 11, 2010, CHPRC conveyed its understanding that construction could not commence on this Project until it received WDOH's formal written approval. The author of that letter was the 100K IUUP Potable Water Project Engineer, and the D&D Environmental

[11] According to the RCA Report the above statement correlates to the Phoenix Analysis #A4B1C01-Management policy guidance/expectations not well-defined understood or enforced. Exhibit 25, pp. 6-7 of 17, Section 6.3 RC-01.

Manager approved release of the letter prior to its being sent to WDOH. WDOH acknowledged and confirmed that requirement in its response letter dated February 17, 2010.[12] *Id.*

Furthermore, the statement under Root Cause #1 concerning the EASF not addressing the applicability of the drinking water requirements is incorrect. Under the section entitled "Constructing or Modifying Facilities, Equipment, or Processes" subsection 5.7 "Constructing or Modifying Public Water, Raw Water, or Export Water Systems" is clearly marked on the EASF. In checking that box the 100K Area ECO, acknowledged that the WDOH drinking water requirements were applicable. When the ECO sent the EASF to the CHPRC NEPA SME and copied the CHPRC EP Manager, he clearly indicated the project involved the construction of a potable water system. Furthermore, on August 24, 2009, the ECO sent an e-mail message to the CHPRC EP Manager requesting assistance in obtaining the necessary WDOH approval for this new system. Exhibit 8. The Assessment Team, in its interviews with the ECO, asked if he had received any response to his August 24, 2009 e-mail, and he stated he had not.

Root Cause #2 suggests that inexperience of some personnel, and lack of familiarity with regulatory requirements led to a belief that it was acceptable to commence construction without all WDOH approvals. It also discloses that proceeding at risk was necessary to meet project schedule. Root Cause #2 of the RCA Report states:[13]

> Individuals relied on past experience with WDOH regulators and previous drinking water installation projects outside of Hanford and the DOE Complex. Due to this experience individuals believed that:
>
> - WDOH would informally allow the simultaneous preparation and review of the Project Report while construction activities such as excavations and placement of material commenced
> - An environmental "at-risk" position was acceptable to the regulators and CHPRC
> - The "at-risk" position was also considered necessary to meet the fast-track project schedule. WDOH confirmed to CHPRC that they know and may informally allow projects to proceed at-risk even though the regulations do not allow for this interpretation.

Exhibit 25.

However, other information establishes that the project staff were fully informed that proceeding at risk was not an acceptable practice from WDOH's perspective. In order to assess historic

[12] WDOH reconfirmed its position on this issue in its letter addressed to the CHPRC 100K IUUP Potable Water Project Engineer dated July 8, 2010.

[13] The above statement is noted in the RCA Report as correlating to the Phoenix Analysis #A3B3C06-Individuals underestimated the problem using past events as a basis.

WDOH enforcement postures, a former Hanford Site Water Purveyor was interviewed. According to this individual a WDOH Regional Engineer made it clear on many occasions that it was a violation of WDOH regulations to proceed with construction prior to obtaining WDOH approval, that such practice was not endorsed or condoned by WDOH. The former Hanford Site Water Purveyor stated that he had had discussions with the 100K IUUP Potable Water Project Engineer and the Project Manager prior to and during construction, and conveyed to the them that proceeding "at risk" was not endorsed or condoned by WDOH and could result in an enforcement action.

Finally, while CHPRC performed a root cause analysis, it did not do so in a timely fashion. Considering the guidance contained in DOE M 231.1-2, timely or prompt completion of the RCA Report would have been within forty-five days of discovery of the issues on May 18, 2010. Furthermore, the title of the RCA Report, *Root Cause Analysis Report EM-RL-CPRC-GENLAREAS-2010-0013* suggests it was prepared in connection with *Occurrence Report EM-RL-CPRC-GENLAREAS-2010-0013,* in which case it should have been published within forty-five days of the event covered by the occurrence report. *See* DOE M 231.1-2 (Supp Rev 8).

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F04

CHPRC identified environmental compliance requirements (WDOH permitting and NEPA determinations), but it did not include actions necessary to timely comply with the NEPA requirements in its Project Execution Plan (PEP) and Field Execution Schedule (FES).

Requirement(s):

1. DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets,* and CRD attached thereto.

2. DOE O 414.1C, *Quality Assurance,* and CRD attached thereto.

3. PRC-PRO-PM-24889, *Project Initiation and Execution*

4. PRC-PRO-PM-25000, *Project Execution Plans*

5. PRC-PRO-CN-14990, *Construction Management*

6. PRC-POL-EP-5054, *CH2MHILL Plateau Remediation Company Environmental Policy*

Discussion:

While CHPRC accurately identified environmental regulatory requirements that would need to be met during construction of the 100K IUUP, it did not address those requirements in project execution plans in a manner consistent with applicable CHPRC procedures. While 100K IUUP FES documents included schedules for obtaining approvals for the construction of the drinking water system from the WDOH, the schedules were unrealistically short and hence unachievable.

The 100K Area ECO completed a CHPRC EAS Form in July, 2009, and at that time accurately identified the need to obtain a NEPA determination and that the 100K IUUP involved construction of a drinking water system requiring approvals from WDOH. This early identification of environmental regulatory requirements is both consistent with guidance and procedures, and is expected. Exhibit 7. Unfortunately, neither the draft nor final 100K PEPs contained a strategy for meeting these requirements.

As noted under Finding 13 below, the 100K IUUP didn't adopt a final PEP until July 29, 2010. It operated under a draft PEP from approximately January 2010 until July 2010, during which period there was little or no updating occurring, nor change control exercised. CHPRC procedures preclude start of field work until a PEP has been approved. *See* PRC-PRO-CN-14990, *Construction Management,* Sec. 3.3.3.1 2.

CHPRC procedures require that environmental and other regulatory requirements be identified and PEPs prepared during the conceptual design phase (CD-1) of projects. Relevant procedures direct that during conceptual design:

> [T]he initial environmental documents applicable to the project need to be prepared including National Environmental Policy Act (NEPA) strategies, analysis, and permit applications.
>
> . . . The project manager needs to work in close coordination with the CHPRC environmental management organization to develop these strategies and documents. Failure to adequately recognize these requirements can result in lengthy and costly delays to the project.

See PRC-PRO-PM-24889, *Project Initiation and Execution*, Sec. 6.2.8. Functional design criteria documents should also be developed at this state of the project. *Id.*, Sec. 6.2.3.[14]

Initial PEPs developed at conceptual design are required to include: " . . . a description of the project's tailoring strategy for implementation of CDR O 413.3 documentation for each phase of project execution and the strategy for execution of the project phases and CD decisions by the CHPRC PRB, if applicable. *Id.* at Sec. 6.2.9. To meet these requirements, a PEP must contain an Environmental Regulatory Strategy. The Strategy must:

[14] The functional design criteria document for the 100K IUUP was not adopted and effective until April 19, 2010 at which time construction had already started. *See* PRC-EDC- 10- 45986.

> Provide a reference or identify documents that establish the environmental regulatory strategy for the project. The section should include the following: . . . Description of the governing environmental regulatory requirements for the project (e.g., RCRA, CERCLA) . . . A brief description of environmental regulatory documents and permits required for the project . . . Status and plans for National Environmental Policy Act (NEPA) compliance [sic]

See PRC-PRO-PM-25000, *Project Execution Plan.* Neither the draft nor final PEP adopted by the 100K IUUP meet the requirements specified in the preceding paragraphs. Furthermore, inaccuracies contained in the tables at the end of the 100K IUUP PEP are misleading. The PEP tables indicate no drinking water permits or approvals were needed, which was incorrect. The January 2010 version tables also state that NEPA determination had been obtained, when in fact the determination was not secured until May 26, 2010.

While FES design and construction documentation included a schedule for obtaining WDOH approval of the drinking water system, they made no provisions for obtaining required NEPA determinations.[15] It is unclear when provisions for obtaining WDOH approval were first included in the FES documentation; however it is clear that such provisions were present as of January 7, 2010. The schedule for completing these activities to support a May start of construction, as they appear in the January FES were unreasonably short and unachievable. Given the time allocated to WDOH to perform documentation reviews, address comments exchanged between the State and the permit applicant, and for the State to issue construction approvals, a process that can require at least 60 days or more, the Projects proposed submission of its application on March 9, 2010 and its expectation of obtaining required approvals by April 5, 2010 was unreasonable. It should also be noted that the same January FES scheduling submission of an application for approval to WDOH on March 9, 2010, also schedules start of construction of drinking water system components on January 29, 2010, more than a full month before even making the application for approval.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F05

CHPRC proceeded with the installation of the IUUP fire sprinkler system knowing that the design did not meet applicable codes and standards.

[15] While provisions were made to perform work necessary to obtain Cultural Resources Reviews which are a prerequisite to obtaining NEPA determinations, no provision was made for activities necessary to comply with NEPA.

Requirement(s):

1. CRD 420.1B (Supplemented Rev. 4), *Facility Safety*, Section B requires that fire protection for DOE facilities will "meet or exceed applicable building codes for the region and National Fire Protection Association (NFPA) codes and standards." Section D.2 requires contractors to use DOE-STD-1066-99, Fire Protection Design Criteria. Section D.3 requires that facility design and construction comply with the DOE Fire Protection Handbook, Hanford Chapter.

2. HNF-36174, *DOE Fire Protection Handbook* – Hanford Chapter - New projects and facility design, construction and modifications involving fire alarm systems, fire suppression, or water supplies shall be designed in accordance with this Handbook. Section 4.1.5, requires that fire suppression system drawings be approved by the Hanford Fire Marshal's Office prior to installation.

3. DOE-STD-1066-99, *Fire Protection Design Criteria* – New project and facility design, construction and modifications shall comply with this Standard. All references to the word "should" in this Standard will be interpreted as a "shall" as required by SCRD 420.1B.

Discussion:

The fire sprinkler system design (drawings and calculations) for the Potable Water Treatment Facility was not approved by a Deputy Fire Marshal (DFM) before the system was installed as required by CRD 420.1B. During construction of the 100K IUUP, K-Basins was assigned a resident DFM who held delegated review and approval authority from the Hanford Fire Marshal's Office (HFMO). However, CHPRC contracted with a private fire protection engineer (FPE) for a review and approval of design drawings. This contract FPE had no delegated approval authority from the HFMO. Drawings were reviewed by the contract engineer and comments returned to ARES Engineering, the company that produced the design. Installation began prior to any approval of the design by either the DFM or HFMO.

During personal interviews, the Assessment Team was told that the 100K IUUP Director was verbally informed by the 100K DFM in April 2010, that the design for the Fire Protection System as developed by ARES Engineering was defective and would not comply with applicable code requirements if constructed as designed. This statement is supported by entries in a Review Comment Record (RCR) generated in October 2009 that documents sixty defects. Exhibit 59. Although the 100K DFM informed 100K IUUP management of the system design defects, and that it was necessary to correct the defects and obtain HFMO approval before commencing construction, construction commenced without that approval.

After participating in an inspection tour, the DFM immediately submitted the following item into the CHPRC Corrective Action System:

> On Tuesday, August 24th, 2010, the 100K Fire Protection Engineer (Deputy Fire Marshal) was notified by facilities operations personnel that the scope of work for the day for the

> 100K new water treatment facility was to include installation of the fire suppression system. The design for this system has significant comments still outstanding from 100K Fire Protection Engineering, and has not been reviewed and approved by the Fire Marshal's Office. A walk down of the facility showed that significant additional changes to the system design were being made in the field; neither Fire Protection Engineering nor 100K Project Engineering was cognizant of these changes. HNF-36174, DOE Fire Protection Handbook – Hanford Chapter, Section 4.1.5, requires that fire suppression system drawings be approved by the Hanford Fire Marshal's Office prior to installation. MSC-RD-9118, Fire Protection Design/Operations Criteria, Section 2.1.11, states that documents for new designs affecting fire protection or fire code compliance must be reviewed and approved by the Hanford Fire Marshal's Office. The [Engineering Projects and Construction] EPC construction manager was notified that the design for the system being installed was not approved for installation, and that the design as previously submitted was apparently being altered in the field to an unacceptable extent. The EPC construction manager was advised that installation activities should cease until after the revised design was resubmitted and approved by both CHPRC Fire Protection Engineering and the Fire Marshal's Office.

Exhibit 60. Work continued at the 100K IUUP without resolution of this Condition Report.

On September 28, 2010, 100K Senior Management issued a Field Stop Work order on the 100K Fire Suppression System Upgrade pending a comprehensive design document review and approval (CR-2010-3049). At that time, CR 2010-2597, written by the DFM, was screened out and rolled over to CR-2010-3049. An Apparent Cause Analysis was performed as a result of the Field Stop Work. Four of the corrective actions identified in the Apparent Cause Analysis were related to the clarification of the authority of the HFMO and interface with CHPRC. The causal analysis did not identify that CHPRC is required by contract to have a Memorandum of Understanding with the HFMO identifying its authority, responsibilities, and duties. See Finding S-11-EMD-PRC-001-F15 for details.

On October 13, 2010, a walk down of the 100-K Potable Water Treatment Facility was performed by the RL FPE to review fire protection and life safety features and was recorded in Operational Awareness (OA) Entry 33896. The following information was documented in the OA:

> Interviews were conducted with Fire Protection Engineers involved with the project and the Fire Marshal's Office. All reviews performed by the FPEs were of partial submittals, DCNs, and some drawings in draft. Some of the RCR review comments provided by the FPEs have still not been incorporated over one

> year later, yet RCR comments were dispositioned as "Comments Accepted." Portions of the fire alarm system (initiating devices and conduit) were also installed prior to any review of the system design by project fire protection engineering or the Fire Marshal's Office. A final (as-built) design package has not been issued by the Project to date. Therefore, the Project has not received approval for the design as installed. This is also in violation of HNF-36174, DOE Fire Protection Handbook, which requires that as-built drawings be approved by the HFMO prior to acceptance of the system.

The fire sprinkler system, fire pump/piping, and portions of the fire alarm/notification system have been installed on the job without prior approval of the HFMO or an authorized DFM. This is in violation of the CHPRC Fire Protection Program. MSC-RD-9118, Fire Protection Design/Operations Criteria, section 2.1.1 states:

> Installation or modification designs for all fire protection systems, water distribution systems, and life safety features as defined in NFPA 101, Life Safety Code, shall be approved and permitted by the Hanford Fire Marshal's Office prior to installation or modification in accordance with MSC-RD-8589, Hanford Fire Marshal Permits.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F06

CHPRC applied a Stop Work Order on the Potable Water Treatment Facility Project that was not properly executed, including improper use of the CRRS system for closure.

Requirement(s):

1. DOE-0342, Rev 2, *Stop Work*, Effective January 18, 2010

Discussion:

On September 28, 2010, CHPRC senior management issued a Stop Work on the 100K Fire Suppression System Upgrade activities pending a comprehensive design document review and approval. On September 29, 2010, a CHPRC Condition Report, number CR-2010-3049, was issued and screened at an Adverse Significance Level to initiate and document the investigation and corrective actions. This Condition Report replaced a previous Condition Report, CR-2010-2597, which had been "screened out" at the request of the responsible manager as stated in that report:

> Significance Level Justification: Sent back from Assignment by . . . Responsible Manager. Please screen out this CR to CR-2010-3049. Although submitted a month apart both CRs represent the exact same condition and screened at the same level as adverse.
>
> This condition was rescreened from an adverse condition to a screen out at the request of the responsible manager per above Justification. CR-2010-3049 is screened adverse will document the apparent cause analysis and corrective actions to address the condition.

The first Condition Report, CR-2010-2597, was initiated on August 24, 2010 by the CHPRC 100K Area FPE and included and identified four "Requirements Not Met." See Exhibit 60 for details. However, the replacement Condition Report, CR-2010-3049, identified the "Requirements Not Met" as "N/A." No explanation was stated why the requirements identified in the earlier Condition Report, CR-2010-2597, were not included in the replacement Condition Report, CR-2010-3049. Exhibit 61. The replacement Condition Report admits that a design document review should have been done prior to start of construction. Exhibit 61, "Significant Level Justification" section.

When examined on March 11, 2011, CR-2010-3049 contained a list of "Associated Files" including the D&D Project "Apparent Cause Analysis 100K Fire Suppression Stop Work." (File: 100kFireSuppressionStopWorkACA.pdf). The fifth full paragraph of page 2 of that document states: "Closure of the Corrective Actions outlined in CR-2010-3049 is required to lift the Stop Work and resume work on the Fire Suppression System Upgrade Project."

The list of "Recommended Corrective Action Items" is then enumerated. Item 2 states:

> Obtain clarification on the authority of the Deputy Fire Marshal role. MSA currently has draft document in DOE-RL for review and Approval – Mike Koch, 1/31/2010.

The Apparent Cause Analysis is signed and dated by D&D Technical Support and the 100K IUUP Project Manager on November 10, 2010.

On January 31, 2011, D&D Engineering sent an e-mail to CHPRC Corrective Action Management requesting an extension of the due date for Item 2 noted above to April 27, 2011. On February 2, 2011, a D&D Project Senior Operations Specialist then wrote an e-mail on behalf of the 100K IUUP Project Manager to CHPRC Corrective Action Management approving the April 27, 2011 extension date for CR-2010-3049 correction action Item 2. See CA-2-Extension.pdf in CR-2010-3049 Associated Files.[16]

[16] The question of the Fire Marshal's role in approving designs prior to construction is an overarching question that should have been resolved promptly. Construction activities on most of the components of this project resumed without resolving this corrective action.

It is noteworthy that no actual written Stop Work Order is listed among the "Associated Files" in the CR-2010-3049 Condition Report. However, the Apparent Cause Analysis noted above states:

> After additional discussions the 100K Areas Senior Management extended the Stop Work to cover the Fire Suppression System Upgrade project pending a comprehensive Design Document review and approval. The extended Stop Work superseded the earlier Stop Work and was documented in CR-2010-3049.

See 100K FireSuppressionStopWorkACA.pdf second full paragraph of page 2.

The Apparent Cause Analysis contains no section that allows any work to be restarted before the completion of all the corrective action items. This is consistent with DOE-0343 Stop Work which applies to all Hanford contractor and subcontractor employees and can be accessed on the CHPRC Home Page on the Hanford Site Intranet and states, in relevant part:

> Be sure any necessary corrective or compensatory actions are taken before resuming an activity and are documented* in accordance with Contractor procedures (logbook or other established method of reporting/tracking/communicating safety issues and corrective action management). *NOTE: For resumption of radiological work, consult the Radiological Control Manual for additional approval requirement."

See DOE-0343 Stop Work Revision 2 Effective Date: January 18, 2010 page 3 of 6 third paragraph.

Work was restarted on this Project in October 2010. This restart of work was conducted prior to completion of the CR-2010-3049 D&D Project 100K Fire Suppression Stop Work Apparent Cause Analysis which evidently is the only written documentation of the terms and conditions of the Stop Work Order issued September 28, 2010.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F07

The design review process applied to 100K IUUP systems did not comply with contractual requirements and the Contractor's procedures.

Requirement(s):

1. CRD 420.1B (Supplemented Rev. 4), *Facility Safety*, Section D.3 requires that facility design and construction comply with the DOE Fire Protection Handbook, Hanford Chapter.

2. HNF-36174, *DOE Fire Protection Handbook* – Hanford Chapter requires that drawings for fire alarm systems, fire suppression systems, and water supplies must be approved by the HFMO prior to installation.

3. *100K MinSafe Administrative Procedure*, FP-4-014, Fire Protection Program, Section 1.1 states that: "this procedure applies to 100K Area facilities, including new project design and construction, modification, alteration, and demolition of 100K Area facilities. It also applies to operations performed within the 100K Area by the CHPRC D&D Project and other organizations." Section 3.14 states: "all construction, including modification of existing facilities, shall be in accordance with the requirements of MSC RD 9717, DOE-STD-1066, CRD 420.1B, HNF-36174, and applicable NFPA Codes and Standards."

4. *CH2M Hill Requirements Applicability Matrix* states: ". . . the following Requirements Applicability Matrix Reports (RAM) are compiled in accordance with PRC-PRO-MS-40117, *Requirements Management Process*, from the RAM2 database. These reports display directive (e.g. Laws, Regulations, DOE Directives, etc) information based on Attachment J.2 (Requirements Sources and Implementing Documents) of the CHPRC Contract, DE-AC06-08RL14788, and associated company level procedure data from Docs Online." The RAM lists MSC-RD-9118, Fire Protection Design/Operations Criteria as satisfying the categories of 29 CFR 1910, *Occupational Safety and Health Standards*, and CRD O 420.1B Supplemented, Rev 4, *Facility Safety*. The RAM lists MSC-RD-10606, *Fire Protection Program Requirements* as satisfying the categories of 29 CFR 1910, *Occupational Safety and Health Standards*, CRD M 231.1-1A, *Environmental, Safety, and Health Reporting Manual*, and DOE O 420.1B Supplemented, Rev 4, *Facility Safety*.

5. MSC-RD-9118, *Fire Protection Design/Operations Criteria*, Section 2.1.1 states: "Installation or modification designs for all fire protection systems, water distribution systems, and life safety features as defined in NFPA 101, Life Safety Code, shall be approved and permitted by the HMFO prior to installation or modification in accordance with MSC-RD-8589, Hanford Fire Marshal Permits."

6. MSC-RD-9118, *Fire Protection Design/Operations Criteria*, Section 2.4 states: " . . . [The Hanford Fire Marshal (HFM)], who shall be a member of the . . . [Hanford Fire Department (HFD)], shall have the authority to develop, administer and enforce the Fire Prevention Program for the . . . [Mission Support Contractor (MSC)] as directed by SCRD O 420.1B, Rev. 4, *Facility Safety*, and by RL approval of the HFM's Charter, which establishes the authority, responsibilities and duties of the HFM. The HFM's authority shall extend to all work performed under or on behalf of MSC. RL will support the HFM in enforcement of the codes and standards and execution of the HFM's duties as

described below . . . . Section 2.4.2 states: "To support the development, administration and enforcement of the Fire Prevention Program the duties of the HFM shall include but not be limited to: Review and approval of new fire protection system designs and modifications/ upgrades to existing fire protection systems per MSC-PRO-8635, Review and Approval of Technical Documents."

7. DOE O 414.1C, *Quality Assurance*, Attachment 2 , Section 3.e(1) states the contractor must, "Perform work consistent with technical standards, administrative controls, and hazard controls adopted to meet regulatory or contract requirements using approved instructions, procedures, etc." Section 3.g. paragraph (1) states: "Procure items and services that meet established requirements and perform as specified."

Discussion:

The fire sprinkler system, fire pump/piping, and portions of the fire alarm/notification system were installed on the job without prior approval of the HFMO or HFMO representative. DOE O 414.1C, *Quality Assurance*, Attachment 2, Section 3.e(1) states the contractor must, "Perform work consistent with technical standards, administrative controls, and hazard controls adopted to meet regulatory or contract requirements using approved instructions, procedures, etc."

On August 24, 2010, the CHPRC 100K FPE was notified by facilities operations personnel that the scope of work for the day for the 100K new Potable Water Treatment Facility was to include installation of the fire suppression system. The design for this system had significant comments still outstanding from 100K Fire Protection Engineering, and had not been reviewed and approved by the HFMO. A walk down of the facility showed that significant additional changes to the system design were being made in the field; neither Fire Protection Engineering nor 100K Project Engineering was cognizant of these changes. As a result, Condition Report CR-2010-2597 was generated on August 24, 2010, by the CHPRC 100K FPE.

CRD 420.1B, Supplemented Rev. 4, Section D.3 requires that facility design and construction comply with the *DOE Fire Protection Handbook*, Hanford Chapter. HNF-36174, *DOE Fire Protection Handbook* – Hanford Chapter, requires that drawings for fire alarm systems, fire suppression systems, and water supplies, must be approved by the HFMO prior to installation. MSC-RD-9118, *Fire Protection Design/Operations Criteria*, Section 2.1.11, states that documents for new designs affecting fire protection or fire code compliance must be reviewed and approved by the HFMO.

The 100K IUUP Project Manager was notified on August 24, 2010, by the 100K FPE/DFM (CR-2010-2597), that the design for the system being installed was not approved for installation, and that the design as previously submitted was apparently being altered in the field to an unacceptable extent. At that time, the 100K IUUP Project Manager was advised that installation activities should cease until after the revised design was resubmitted and approved by both CHPRC Fire Protection Engineering and the HFMO.

CHPRC also procured fire protection equipment and had it installed prior to completion and approval of the associated design. The RL Electrical SME and the RL Fire Protection SME

obtained a copy of Contract #36534-31 Statement of Work (SOW) for the K-Basin/ARRA Potable Water Treatment Facility project, dated April 7, 2010, and observed within section 3.1.5 paragraph D that the construction Contractor (George A. Grant Inc.) was directed to install "the Buyer (CHPRC) provided diesel power fire pump, jockey pump, fire pump controller, and the fire alarm control panel." This equipment was procured on April 14, 2010 (based upon the vendor's certificate of compliance submittal). However this procurement was completed before the associated design was completed and approved. The fire pump installation drawings were not approved by the HFMO until January 18, 2011 (100K Water Treatment Project Status Report January 25, 2011). If CHPRC ARRA Project management and staff had procured the mentioned equipment after the design was completed and approved, they would not have needed to procure and install the jockey pump. HNF-36174, *DOE Fire Protection Handbook* – Hanford Chapter, requires that drawings for fire alarm systems, fire suppression systems, and water supplies, must be approved by the HFMO prior to installation.

A tour of the new 100K Potable Water Treatment Facility was conducted on September 1, 2010, by representatives from a DOE GSSC support contractor (PAI Corp.) and CHPRC Fire Protection Engineering (OA 32906). The Potable Water Treatment Facility was designed to provide several fire areas in the building rated at one and two hours, but no fire barrier designs had been submitted by the Project for approval by the HFMO. Not all interior walls extended to the roof level of the building and several rooms had suspended ceilings. At that time work was progressing on installing a two hour fire rated suspended ceiling in the electrical room. The submitted, but not yet approved, sprinkler drawings showed only sprinklers at roof level. Without the approval of the CHPRC FPE, sprinkler installation had started. When this was discovered, the work was halted and the CR was generated. The installation included sprinkler drops into suspended ceiling areas, but these were not in accordance with design drawings.

The building sprinkler riser had been installed on an inside wall in the pump room and was fed directly from the fire pump with no control valve, contrary to NFPA requirements. The CHPRC FPE/DFM required that it be moved to an outside wall and that a wall control valve be installed for isolating the system without turning off the pump or entering the building. The fire pump skid had also been delivered to the pump room, but the design for the fire pump and piping had not been approved by the DFM.

A significant amount of work was proceeding without review and approval of the DFM. Under Requirements Not Met in the CR-2010-2597 it stated:

> CRD 420.1B, Supplemented Rev. 4, Section D.3 requires that facility design and construction comply with the DOE Fire Protection Handbook, Hanford Chapter. HNF-36174, DOE Fire Protection Handbook – Hanford Chapter, Section 4.1.5, requires that fire suppression system drawings be approved by the HFMO prior to installation. MSC-RD-9118, Fire Protection Design/Operations Criteria, Section 2.1.11, states that documents for new designs affecting fire protection or fire code compliance must be reviewed and approved by the HFMO.

It is noted that prior to the discovery of these problems on the 100K Potable Water Treatment Facility, RL had released its Assessment of the CHPRC Fire Protection Program, S-10-SED-PRC-023, on 8/19/2010. This assessment included the following concern: "Concern A-1O-SED-PRC-023-CO1 - CHPRC Procedures and Policies, D4 activities, and subcontractor activities, have not fully integrated FPP requirements. CHPRC Work Management Procedures that initiate, implement, and perform work do not have adequate integration of Fire Protection Procedures. This is a significant weakness in the CHPRC Integrated Environment, Safety, and Health Management System (ISMS) Program." It was clear that CHPRC still had not integrated or implemented fire protection requirements.

Questions were raised on September 22, 2010. The fire pump and piping was in the process of being installed, but the fire pump system controller was not, nor had any review data been submitted for approval by the HFMO. The fire pump piping drawings had reportedly been sent by CHPRC back to ARES for revision and had not been approved through the HFMO. Some piping and the fire pump/driver skid had reportedly been installed with "verbal" approval. The fire pump/diesel driver skid had been bolted and concrete filled. It could not be determined at that time if that was done in accordance with the manufacturer's approved/listed requirements and specifications.

At this same time, concerns were raised on the fire wall construction as to what UL listed design was being used, overlap of joints, fastener spacing, a wall ventilation louver that did not have a fire rated damper, etc. Electrical and piping installation and equipment setting were still ongoing in the Potable Water Treatment Facility, with power supply to the building planned for later that week. The Chemical Storage Room was still being worked on to complete fire walls, fire damper replacement, and sample tubes penetrations protection. For the Electrical Room the fire walls still need to be extended to the roof and an approved wall/roof membrane interface detail still needed to be resolved.

The fire alarm system was still in the submittal/review stage. Some conduit and boxes were installed at an earlier date but this work was stopped to get approvals. A fire alarm panel was submitted that did not meet specifications (a FireLite-4 zone was specified), was undersized by the design, and was not a Hanford Site standard panel that maintenance and testing forces are trained on. A new submittal and approval was being processed to increase the size of this panel and resolve this issue. Once again there was no installation permit for the fire alarm system and one had to be created after work had already commenced (HFM Permit Number 2010-860 of December 16, 2010).

Filling and hydro-testing of the new 750,000 gallon water tank was reported to be complete, and final insulation of the tank roof was in progress. Pressure testing of the fire line loop around 105KW was reported to be complete. The fire water distribution piping off the South East corner near Cold Vacuum Drying Facility (CVDF) was in place, but the project changed a section of 12 inch distributions system to 8 inch. This is contrary to the requirements of CRD 420.1B, Supplemented, rev. 4, Section B.7.a, which states, "Distribution mains, either sanitary or raw water, that are being extended to supply water for domestic and/or process water and will provide water for fire suppression systems (sprinklers and/or hydrants), shall be at least 12

inches in diameter." The project did not request relief from this contract requirement until after the piping was installed.

The continuing project goal at that time was to have all review, approval, installation, and acceptance testing for the Project completed by the end of September. Considering the large number of continuing unresolved issues, that did not happen.

On October 13, 2010, another walk down of the 100-K Potable Water Treatment Facility was performed to review fire protection and life safety features. The walk down was attended by several individuals including, the field work supervisor, the K-Basin FPE /DFM, CHPRC Fire Protection Program Manager, contract FPE supporting K-Basin, FPE supporting the HFMO, RL Electrical Subject Matter Expert (SME), and the RL FPE. The 100-K IUUP Project Director joined the tour in progress. At that point, the fire sprinkler system had been installed. Some components of the fire alarm/notification system (back plates for notification appliances and conduit) had also been installed. The fire pump and piping were in place. For the most part the fire pump piping was complete with the exception of a few segments of piping that were missing. Internal fire barriers had also been partially constructed, existing construction of the fire rated walls did not connect with the unrated roof assembly, and barrier penetrations were not properly sealed.

Interviews were conducted with FPEs involved with the Project and the Fire Marshal's Office. All reviews performed by the FPEs were of partial submittals, DCNs, and some drawings in draft, even though full submittals had been requested of the Project. Some of the RCR review comments provided by the FPEs had still not been incorporated over one year later, yet RCR comments were dispositioned by the Project as "Comments Accepted." Final review packages for the fire alarm and fire sprinkler systems had not been reviewed by the FPEs, yet the systems were installed in the building. A final design package, requesting 100% design review, has never been issued. Therefore, the Project had not received approval for the final design.

The FPEs involved with the 100K IUUP have concluded that the individual(s) designing the Potable Water Treatment Facility fire protection systems working for outside firms, such as ARES Corporation, were not technically qualified in the fire protection field. Although the drawings submitted were stamped by a Washington State Licensed Engineer, the drawings contained a variety of defective specifications that if built would have resulted in code violations.

The fire sprinkler system, fire pump/piping, and portions of the fire alarm/notification system had been installed on the job without prior approval of the HFMO or DFM. This is in violation of the CHPRC Fire Protection Program. MSC-RD-9118, *Fire Protection Design/Operations Criteria*, section 2.1.1 These systems had been installed without the required approvals. When the 100K IUUP Project Director was asked why the systems were installed without approval from the HFMO, he stated that "those procedures don't apply to me, those are MSC procedures." When explained that the MSC Fire Protection Program and Procedures were adopted and endorsed by CHPRC as its Fire Protection Program as identified in CHPRC Requirements Applicability Matrix he stated, "I don't care, they still don't apply to me."

Work on installation of fire protection systems, including fire barriers was then shut down by CHPRC upper management. The Project then hired Hughes and Associates, a fire protection consulting firm, who sent several FPEs to sift through the documentation and look over what had been installed to determine the path forward to obtain code compliance and to assist in completing the design of the Project. A final design had not been completed so that a 100% design review package could be submitted to the AHJ for review and approval.

As of the end of December 2010 the following 100K IUUP items were still open for either issues resolution, design modification, review completion, and/or approvals: fire barriers, fire pump re-design, fire pump room ventilation design, three water distribution system ICRs, water distribution system design modifications, and the water supply cross-over.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F08

Construction permits were not obtained from the Hanford Fire Marshall's Office by the 100K IUUP prior to commencing construction.

Requirement(s):

1. CRD O 420.1B (Supplemented Rev 4), *Facility Safety*, Section D (8) states: "Conditions, operations, or materials hazardous to life or property pursuant to the Uniform Fire Code, Section 1.12, shall be permitted through the Hanford Fire Marshal Permit System."

2. *100K MinSafe Administrative Procedure, FP-4-014, Fire Protection Program*, Section 3.18 states that, "Several actions/activities require the development and approval of a HFM Permit prior to initiation of the action/activity. These actions/activities include:

- facility construction/demolition
- placement of relocatable structures
- transport and use of explosives
- use, handling, or storage of hazardous materials in excess of defined limits
- operation or storage of fossil-fueled vehicles inside any building not designed for such use, except as authorized by the facility FHA
- new or modified facility occupancy
- outdoor burning
- placement and use of electric heaters in excess of 1500 watts
- placement and use of fuel-fired heaters
- placement and use of portable generators
- blockage of roads
- facility egress modification
- utility outages

- fire protection system (including fire hydrant) installation or deactivation

3. *CH2M Hill Requirements Applicability Matrix states:* " . . . the following RAM Reports are compiled in accordance with PRC-PRO-MS-40117, *Requirements Management Process*, from the RAM2 database. These reports display directive (e.g. Laws, Regulations, DOE Directives, . . .) information based on Attachment J.2 (Requirements Sources and Implementing Documents) of the CHPRC Contract, DE-AC06-08RL14788, and associated company level procedure data from Docs Online." The applicability matrix lists MSC-RD-8589, Hanford Fire Marshal Permits under both 10 CFR 830 Nuclear Safety, and CRD O 420.1B Supplemented, Rev 4, Facility Safety.

4. MSC-RD-9717, *Fire Prevention for Construction/Occupancy/Demolition Activities*, Section 2.1.2 states: "The construction manager shall ensure that the applicable forms, as required by MSC-RD-8589, *Hanford Fire Marshal Permits*, (initiated through a Hanford Fire Marshal Permit Request Form) and by this RD, (initiated through a Hanford Fire Department Contractor Pre-Incident Plan Request Form, (A-6003-387) are submitted to the HFM prior to engaging in activities or processes governed by the forms (Ref: MSC-PRO-24889, Project Initiation and Execution, Appendix A Section 8.2)."

Discussion:

The 100K IUUP did not follow contractual requirements identified in CRD O 420.1B, (Supplement Rev. 4), and CHPRC procedures identified in MSC-RD-9717, *Fire Prevention for Construction/Occupancy/Demolition Activities* and MSC-RD-9118, *Fire Protection Design/Operations Criteria.*

Construction permits allowing the construction of the Potable Water Treatment Facility (HFM Permit No. 2010-852) and the 100K Fire Water and Potable Water Distribution System (HFM Permit No. 2010-853) were not obtained until December 16, 2010 (long after construction was complete). Additionally, the fire sprinkler system construction permit (2010-861) and fire alarm system construction permit (2010-860) were obtained on December 16, 2010, after the systems had been installed.

MSC-RD-9118, *Fire Protection Design/Operations Criteria*, Section 2.1.1 states: "Installation or modification designs for all fire protection systems, water distribution systems, and life safety features as defined in NFPA 101, *Life Safety Code*, shall be approved and permitted by the Hanford Fire Marshal's Office prior to installation or modification in accordance with MSC-RD-8589, *Hanford Fire Marshal Permits*."

MSC-RD-9717, *Fire Prevention for Construction/Occupancy/Demolition Activities,* section 2.1.2 which states that, "The construction manager shall ensure that the applicable forms, as required by MSC-RD-8589, *Hanford Fire Marshal Permits*, (initiated through a Hanford Fire Marshal Permit Request Form) and by this RD are submitted to the HFM prior to engaging in activities or processes governed by the forms."

Additionally, section 2.1.3 that states that, "The construction manager, as part of the hazards communication effort, shall complete a *HFD Construction/Demolition Fire Safety Inspection Checklist* prior to the commencement of construction or demolition activities with the assistance from the Fire Protection Engineer (FPE) and perform follow-up inspections at a frequency determined by the FPE."

The contractor/project did not obtain a Construction Permit, issued by the HFMO, prior to engaging in activities and processes governed by the permit. Additionally, a HFD Construction/Demolition Fire Safety Inspection Checklist was not completed, to ensure that the requirements of MS-CRD-9717 were being implemented.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F09

The 100K IUUP installed a water distribution system that did not meet contractual requirements, and did not apply for and receive required exemptions and equivalencies from RL prior to commencing construction.

Requirement(s):

1. CRD O 420.1B (Supplemented Rev. 4), *Facility Safety*, Section B.7.b.3 states: "Underground distribution systems for fire protection water supplies shall be of the looped grid type arranged with two-way flow and sectional valving to provide alternate flow paths from the source to any point in the distribution system for nuclear facilities and buildings or groups of buildings with an MPFL exceeding $15 million. The looped grid shall be provided with a second independent source of water supply for Category 2 Nuclear Facilities or where the MPFL exceeds $50 million. Application of this requirement to existing facilities will be made on a case-by-case basis after consultation with the RL AHJ."

2. CRD O 420.1B (Supplemented Rev. 4), *Facility Safety*, Section B.7 a states: "Distribution mains, either sanitary or raw water, that are being extended to supply water for domestic and/or process water and will provide water for fire suppression systems (sprinklers and/or hydrants), shall be at least 12 inches in diameter. Sectional valves shall be installed in the following manner for new installations and water distribution main upgrades."

3. DOE O 414.1C, *Quality Assurance*, Attachment 2, Section 3.e (1) states: the contractor must, "Perform work consistent with technical standards, administrative controls, and hazard controls adopted to meet regulatory or contract requirements using approved instructions, procedures, etc."

Discussion:

The 100K IUUP installed water utility piping prior to applying for and receiving approved exemptions and equivalencies from RL. After installation of the water distribution system, CHPRC requested an exemption for the lack of a looped water distribution system for the 105-KE building, and for the substitution of an 8 inch water main in lieu of the required 12 inch water main.

A looped fire water distribution main was required to be installed around the 105KE reactor building in accordance with PRC Section J, Attachment J.2, Contractor Requirements Document Order 420.1B, Facility Safety, Supplemented Revision 4, Section B, Item 7.b.3. which states:

The newly installed 100-K water distribution system did not provide a looped supply main around the 100-K area, nor did it provide a loop around the 105KE reactor building. The 12 inch diameter supply terminates (dead ends) south of the 105KE reactor building. The new 105KE supply provides water to two new fire hydrants south of the 105KE reactor building, and one new fire hydrant east of the 105KE reactor building. An equivalency exemption was requested by the contractor (letter CHPRC-1100455) due to the difficulty of co-coordinating with the extensive soil excavation and remediation commitments in the areas around the 105KE reactor building, and areas further west toward the 105KW building.

Additionally, the original water loop design requirements called for 12 inch fire water mains in the 100K Area new water distribution system. CHPRC made a unilateral decision during installation of the water main piping to change the 12 inch loop around the 105KW to 8 inch pipe. However, the equivalency request for relief from contractual requirements was not submitted to RL until after the piping had been installed. *See* letter CHPRC-1101317.

A 12 inch diameter distribution main is required to be installed in accordance with PRC Section J, Attachment J.2, Contractor Requirements Document Order 420.1B, *Facility Safety*, Supplemented, Rev. 4 (SCRD), Section B.7. The 8 inch fire water distribution lines that were substituted around 105KW supply water to a fire suppression system, fire hydrants, feed the 105KW de-mineralized water system, and provide water to two controlled water fill stations located at the southwest and southeast corners of the 100K Area.

Final connections to the new fire water distribution system were performed at CVDF on February 5, 2011, and 105KW on February 19, 2011, completing the water distribution system installation. The non-looped water distribution exemption request was submitted to RL on February 28, 2011 (letter CHPRC-1100455). The 8 inch to 12 inch equivalency request was submitted on March 10, 2011 (letter CHPRC-1101317). In both cases, the exemption and equivalency requests were sent in by the contractor after the installation of non-compliant components.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F10

CHPRC began construction of the Potable Water Treatment Facility building prior to the review and approval of the design by a qualified Fire Protection Engineer/Deputy Fire Marshal.

Requirement(s):

1. CRD O 420.1B (Supplemented Rev. 4), Chapter II, Facility Safety, Section 3.a.3 states: "Fire protection for DOE facilities, sites, activities, design, and construction must meet or exceed applicable building codes for the region and NFPA Codes and Standards."

2. CRD O 420.1B (Supplemented Rev. 4), Facility Safety, Section D.5 states: "Fire rated assemblies shall be installed, as required by DOE-STD-1066-99, the fire hazard analysis, NFPA or building code to reduce loss potentials."

3. MSC-RD-9118, Fire Protection Design/Operations Criteria, Section 2.1.11 states: "Documents for new designs and modifications to existing facilities affecting fire protection or fire code compliance must be reviewed and approved by the Hanford Fire Marshal's (HFM) Office in accordance with MSC-PRO-8635, Review and Approval of Technical Documents, or equivalent requirements implemented by other contractors."

Discussion:

The first design submittal received by the 100K IUUP addressing the Potable Water Treatment Facility related to the building structure was submittal 36534-031 Sub 13125-03, sent from WHPacific, Anchorage, AK, on April 21, 2010. The correspondence stated that, "the Architect stamp will be added after initial review and comments have been incorporated." The submittal was reviewed by the 100K IUUP Project Engineer and the Buyers Technical Representative on May 4, 2010. No fire protection review was performed of this submittal.

The second design submittal, 36534-031 Sub 13125-02, was received on September 2, 2010; over four months after Project construction had begun. Exhibit 62. The Project Engineer forwarded the submittal on to the PFP Fire Systems Engineer for review along with the K-Basin DFM. The PFP Fire Systems Engineer responded with his observations of the buildings physical condition based on a walk down of the site, and clearly documented that building construction was well under way prior to seeking DFM approval. At this point in time, neither the PFP Fire Systems Engineer nor K-Basin DFM granted any approvals, but did make comment on several design deficiencies. While the CHPRC Contract requires obtaining HFM or DFM approval of designs prior to commencing construction, written DFM approval of the design was not actually granted until December 2010 at which point construction was nearly complete.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F11

CHPRC proceeded with construction without identifying and resolving an Unreviewed Safety Question (USQ). The potential for the new water system to provide excessive water flow, overflowing the KW basin and releasing radioactive materials, has not been evaluated for USQs.

Requirement(s):

10 CFR 830 requires identification and analysis of USQs prior to construction of new, or modification of new nuclear facilities. More specifically the regulations require:

> The contractor responsible for a hazard category 1, 2, or 3 DOE nuclear facility must establish, implement, and take actions consistent with a USQ process that meets the requirements of this section [and]. . . [t]he contractor responsible for a hazard category 1, 2, or 3 DOE nuclear facility must implement the DOE approved USQ procedure in situations where there is a: (1) Temporary or permanent change in the facility as described in the existing documented safety analysis;(2) Temporary or permanent change in the procedures as described in the existing documented safety analysis;(3) Test or experiment not described in the existing documented safety analysis; or (4) Potential inadequacy of the documented safety analysis because the analysis potentially may not be bounding or may be otherwise inadequate.

10 CFR 830.203. Furthermore,

> If a contractor responsible for a hazard category 1, 2, or 3 DOE nuclear facility discovers or is made aware of a potential inadequacy of the documented safety analysis, it must: Take action, as appropriate, to place or maintain the facility in a safe condition until an evaluation of the safety of the situation is completed;(2) Notify DOE of the situation;(3) Perform a USQ determination and notify DOE promptly of the results . . . .

Id.

Discussion:

The nuclear safety aspects of the replacement water supply and fire suppression water distribution system were reviewed. There is considerable confusion in this area. While CHPRC staff and management are adamant that all revisions were properly reviewed, their responses were sometimes contradictory. Most nuclear safety issues have been resolved, but a few issues

remain. This team cannot definitively determine whether all changes received the required Unreviewed Safety Question (USQ) review.

The primary nuclear safety issue is: Can the new system provide excessive water, such that any leaked water could enter K West Basin and cause an overflow? The K Basin FSAR Section 3.4.2.9 "Overflow of Radioactive Water from 105-KW Basin" addresses an accident characterized as an operational spill event with a frequency of "unlikely." A pipe break in a 105-KW Basin building or an operating mistake can cause an overflow of the fuel storage basin water, with possible release of radioactivity to the environment. The maximum size water inlet line in the basin area (8 inch) is assumed to fail. The replacement water supply adds new water supply lines which may create the potential for higher water flow if a line breaks.

These issues should have been addressed through the USQ process. RL staff reviewed the USQ logs and found no evidence that these issues were addressed. Further, CHPRC nuclear safety staff have stated that no USQ screenings or evaluations address these issues. While CHPRC has analyzed the potential rupture of the new 750,000 gallon water tank and concluded that the basin is protected from such occurrence by topography, CHPRC did not address the potential increased flow through new water lines. Since being informed of the potential USQ issue, CHPRC has not entered the potential inadequacy of the documented safety analysis process as required by 10 CFR 830.203 (g).

The Assessment Team raised a second USQ question in that it remains unclear whether there was an adequate USQ evaluation covering the design change reducing the system from providing "a twelve inch fire main throughout the 100K Area, with a looped and gridded system on the west side of the 100K Area, supplying Buildings 142-K and 105-KW" to tying into the existing 8 inch loop around Building 142-K (CVDF), and use of a new 8 inch loop around 105-K West.

RL staff reviewed the USQ logs and found no evidence that the revision was addressed. In the course of this surveillance, CHPRC nuclear safety staff and management were asked "which USQ screening or evaluation is CHPRC relying on to support the change from 12 inch fire supply lines to 8 inch lines?" CHPRC staff responded that they were relying upon USQ-0025-2011. USQ-0025-2011 states that it reviewed DCN-KUP-073, which "modifies the fire line routing on the east side of CVDF and adds a fire hydrant south of 105-KW. The proposed revision does not conflict with the water system upgrade in Section 2.9.1.7 of the FSAR."

However, the proposed revision does conflict with requirements of the FSAR, which states:

> The planned system will provide a new water supply for the 100K Area . . . . The planned fire suppression water distribution system will provide a 12 inch fire main throughout the 100K Area, with a looped and gridded system on the west side of the 100K Area, supplying Buildings 142-K and 105-KW. Existing piping exterior to Building 105-KW will be replaced with a new loop, providing six new fire hydrants and the water supply to the Building 105-KW administrative area automatic sprinkler system. A single 12 inch fire main will serve facilities in the central corridor (1724-K, MO-

500, and hydrants in the central corridor) and on the east side of the 100K Area (MO-293, and hydrants on the east side, including hydrants in the vicinity of Building 105-KE). Normal system pressure will be maintained by new service water pumps, which will be sized and controlled to maintain system pressure at a level comparable to that provided by the existing system (approximately 120 psi)."

Facility Safety Analysis Report, Sec. 2.9.1.7.

USQ-0025-2011 addresses the fire line routing, but does not address the revision from 12 inch fire mains and loops to 12 inch mains and 8 inch loops. Therefore, there does not appear to be a USQ evaluation which covers the reduction from providing a "12 inch fire main throughout the 100K Area, with a looped and gridded system on the west side of the 100K Area, supplying Buildings 142-K and 105-KW" to tying into the existing 8 inch loop around Building 142-K (CVDF).

DOE O 414.1C, Quality Assurance, Attachment 2, Section 3.e(1) states the contractor must, "Perform work consistent with technical standards, administrative controls, and hazard controls adopted to meet regulatory or contract requirements using approved instructions, procedures, etc."

CHPRC did calculate that the revision would still provide adequate water supply to CVDF (DD-47929, Revision 0, and dated 12/27/2010). The calculation was USQ screened October 20, 2010. Thus the USQ Screen 0245-2010, which specifies calculation DD-47929, Revision 0, was performed 2 months before the date of the document it screened against. This conflict in dates remains unresolved. Therefore, this team cannot determine what was reviewed in the USQ screening. Exhibit 58.

Both DD-47929 and USQ screen 1245-2010 were performed before the revision was tied in to the existing 8 inch water loop, therefore the USQ process was followed, but the adequacy of this process is in question because USQ Screen 0245-2010 relied upon a calculation which had not been done.[17] Resolution of these issues merits further inquiry, and that inquiry is recommended.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

[17] Work packages examined during the course of this Surveillance establish that CHPRC originally intended to connect the new fire water system components to the old fire suppression system on September 28, 2010. At that point in time no USQ had been performed. The planned connections were not made when CHPRC executive management issued, at the request of a Project Fire Protection Engineer, a Stop Work order to facilitate addressing other problems affecting the reliability of the fire water delivery system. All indications are that absent this unrelated Stop Work order, the new components would have been connected to the old system without first performing a required USQ analysis.

Finding: S-11-EMD-PRC-001-F12

CHPRC commenced construction of the 100K IUUP without a finalized and approved Project Execution Plan.

Requirements:

1. DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets,* and CRD attached thereto.

2. DOE O 414.1C, *Quality Assurance,* and CRD attached thereto.

3. PRC-PRO-PM-24889, *Project Initiation and Execution*, Section 5.8 and 6.1

4. PRC-PRO-PM-25000, *Project Execution Plans*

5. PRC-PRO-CN-14990 *Construction Management* Section 3.3.3.1 and 3.3.3.2

6. PRC-MP-CN-28049 *Construction Procedure Manual* Section 3.12

7. PRC-GD-WKM-12116 *Work Planning Guide* Figure 1

Discussion:

The 100K IUUP began construction activities without a required PEP. The Project continued on with construction for over three months before a final PEP was released. By that time substantial construction on both the water treatment system and the fire water system had occurred, and design for the fire water system was known to contain defects. The lack of a PEP was documented in an independent assessment conducted by the CHPRC Performance Oversight organization.

On April 14, 2010 the CHPRC Manager of Performance Oversight sent the *Final Report, Independent Assessment Of Engineering, Projects And Construction, CHPRC-PO-IA-10-02* to the CHPRC Vice President of Engineering, Projects, and Construction (EPC). This performance based independent assessment was conducted to evaluate EPC's implementation of programs, procedures, and policies as they relate to conduct of work. The assessment focused on the adequacy, compliance, and in-field execution of work activities and processes. The assessment made a number of findings including:

> 100K Utilities Upgrade Project PEP was in continuous revision without issuance of a controlled document. This practice was out of compliance with PRC-PRO-PM-25000, Project Execution Plans, Rev 1, Chg 0.

Exhibit 51.

The assessment also included a finding regarding another CHPRC project operating with an outdated PEP and stated, "The PEP was to be updated as changes occurred and at a minimum prior to the start of each phase of project execution as required by PRO-PM-24899, Project, Section 5,8 and PRC-PRO-PM-25000, Section 3.2." This finding was also applicable to the 100K IUUP as it continually changed without the benefit of a final PEP, or any updates as the project evolved. *Id.*

As a result of the assessment a CHPRC Condition Report Form was generated. This report assigned a significance level of "Track Until Fixed" to this item. The explanation for this level is stated as:

> This condition is screened as a Track Until Fixed (TUF).
>
> The stated condition documents a non compliance with the requirements of PRC-PRO-PM-24889. The CR does not document where the subject condition has resulted in an adverse effect upon the project. However, actions will need to be taken to correct the documented deficiencies. The screening level as a TUF is assigned to this CR which will require that a cause be identified and documented. This CR will also document the actions taken to address the subject condition.

Exhibit 52.

The condition report written on April 13, 2010 and Action #3 addresses the IUUP PEP. On June 30, 2010 the action item assignee wrote an e-mail message addressed to the CHPRC Corrective Action Management. This e-mail requested an extension for completion of the PEP and states:

> Please extend the above action due date to 7/22/2010 due to competing priorities and resource unavailability. The proper resources have now been applied and the action will be completed by the new due date.

Exhibit 53.

The PEP was finally released on July 29, 2010. The document is signed by the Responsible Manager and the Information Owner/Author Requestor. Under Section 3.4, "Funding Profile" the total project cost is $23,380,700. According to Section 5.8 of PRC-PRO-PM-24889 *Project Initiation and Execution* the CHPRC President's Office or the EPC Vice President is the approval authority for PEP's for projects with a total project cost of $20M to $100M. The PEP does not address whether the CHPRC President or the EPC Vice President formally approved of the final PEP and no evidence of such approval has been found.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F13

CHPRC issued excavation permits for 100K IUUP construction activities prior to obtaining an authorization from the Hanford Site NEPA Compliance Officer, and prior to verifying completion of a new, or the existence of a current and applicable cultural resources review.

Requirements:

1. National Historic Preservation Act (NHPA), 16 USC § 470-1, et seq.
2. Native American Graves Protection and Repatriation Act (NAGPRA), 25 USC § 3001, et seq.
3. 10 CFR 1022, *Compliance with Floodplain and Wetland Environmental Review Requirements*
4. 36 CFR 60, *National Register of Historic Places*
5. 43 CFR 10, *Native American Graves Protection and Repatriation Regulations*
6. DOE M 450.4-1, *Integrated Safety Management System Manual,* and CRD attached thereto.
7. PRC-PRO-EP-15333, *Environmental Protection Processes*
8. PRC-RD-EP-15332, *Environmental Protection Requirements*
9. DOE-0344, *Hanford Site Excavating, Trenching and Shoring*

Discussion:

On March 16, 2010, the 100K Area ECO signed a Hanford Site Excavation Permit authorizing initiation of construction activities for the 100K IUUP. The Excavation Permit authorized: "Installation of approximately 900 linear meters of new 12 [inch] potable and fire water lines." This permit was signed by, among others, the Design Authority/Technical Representative, ECO, Water Utilities Representative and the Facility/System Owner. Exhibit 19. The construction activities covered by this Excavation Permit commenced on April 13, 2010. Exhibit 21.

CHPRC's procedures correctly identify the contractor's Cultural Resources review compliance obligations by stating that a Cultural Resources Compliance review is required:

> . . . when a proposed activity could affect a cultural or historical property or structure, disturb a Native American artifact, or occur

> within one-quarter mile of the Columbia River. A . . . review/report shall be completed before soil disturbance.

PRC-RD-EP-15332, Sec. 2.55.3. The 100K IUUP *Functional Design Criteria* document also recognizes this requirement by stating:

> All aspects of the outdoor design shall compliment the special requirements to protect cultural resources, wildlife activities and habitat, and environment and any special requirements as identified in the Ecological/Cultural Resource Review. This will be implemented through compliance with PRC-PRO-SH-090 [replaced by DOE-0344], Excavating, Trenching, and Shoring, which requires these reviews as part of the excavating permit process.

100K Water, Electrical, and KW Basin HVAC Upgrades Functional Design Criteria, KBC-41961, Sec. 4.2.12.[18] ECOs are prohibited from signing excavation permits until all environmental approvals, include cultural resources reviews have been obtained. *See* DOE-0344, Sec. 5.3 and Appendix E, Block 11 instructions.

A Cultural Resources Review addressing the 100K raw water line was performed by DOE's Richland Operations Office Cultural Resources Program Manager, and a determination was made releasing the 100K IUUP to proceed on April 22, 2010. Exhibit 54. The April 22, 2010 authorization expressly covered the cross site raw water line (i.e., work being performed outside the fenced boundary of the 100K Area) and (inside the fence) construction of "Water filtration . . . units . . . to provide sanitary water supply for . . . trailers, portable restrooms and shower trailers." Construction activities involving disturbance of soil inside the 100K fence actually began on April 13, 2010. The Hanford Site data Cultural Resources Data Base maintained by Mission Support Alliance has been searched, and no approval (No Potential to Cause Effect determination or any other appropriate determination) for work inside the fence on the potable and fire water system has been located.

After reviewing a preliminary draft of this Report, CHPRC informed RL that the Contractor had relied upon a "blanket cultural resources review" titled "*Cultural Resources Review of Ground Disturbing Activities Associated with the Decontamination, Decommissioning and Demolition of Spent Nuclear Fuel Facilities at 100K, Hanford Site, Richland, Washington (HCRC# 2003-100-021)*," issued by PNNL on May 17, 2004 as the basis for issuing its excavation permit on March 18, 2010. The cultural resources review cited by CHPRC covered thirty-four existing buildings in the 100K Area scheduled for removal under various CERCLA remedial actions. It does not discuss any construction of new buildings. CHPRC also provided e-mail documents that establish that the 100K Area ECO verified with PNNL on March 30, 2010 (twelve days after

[18] While both the cited document and CHPRC's environmental procedure PRC-PRO-EP-15333 refer to PRC-PRO-SH-090, it cannot be found in the current lists of CHPRC Procedures. It may have been superseded by DOE-0344, Rev 2, Nov 2010, however confirming this assumption was beyond the scope of this Surveillance. None the less, this error may be an additional indicator of the inadequacy of CHPRC's quality control systems.

signing the excavation permit) that the blanket review document as still valid for its intended purposes.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F14

CHPRC did not meet contractual requirements requiring the maintenance of an active Memorandum of Understanding between CHPRC and the Hanford Fire Marshal's Office.

Requirement(s):

1. CRD O 420.1B (Supplemented Rev. 4), *Facility Safety*, Section E (3) b – "Other contractors (PRC, RCC, OccMed) must institutionalize and recognize the HFM's authority as contained in the Authority, Responsibilities, Duties, and Enforcement section of the DOE approved Hanford Fire Marshal Charter. Prime contractors performing under a different contract from under which the Fire Marshal's Office performs shall form an agreement or memorandum of understanding with the Hanford Fire Marshal to implement this authority."

2. 10 CFR 122, *Quality Assurance Criteria*, Section A.1. – The Quality Assurance Program must address the following management, performance, and assessment criteria: "Establish an organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing the work."

3. DOE O 414,1C, *Quality Assurance*, Attachment 2, Section 3.a.1 mandates that Management/Programs must "Establish an organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing the work."

Discussion:

CRD O 420.1B, Facility Safety, Supplemented, rev 4, Section E.3.b, DOE O 414.1C, Quality Assurance, Attachment 2, Section 3.a.1, and 10 CFR 122, Quality Assurance Criteria, Section a.1 requires that an active MOU exist between CHPRC and the HFMO. No active MOU exists.

The RL Supplemental Contractor Requirements Document (SCRD) 0 420.1 B delineates the general functions of the HFMO. The SCRD also references the Fire Marshal roles and responsibilities as contained in the Authority, Responsibilities, and Duties of the Hanford Fire Marshal (a.k.a. Fire Marshal Charter), and requires RL contractors to recognize and institutionalize the HFM's authority. Through the Fire Marshal Charter, issued by the RL and ORP, the HFM has the responsibility to ensure a reasonable level of fire prevention and

protection for contractors and employees on the Hanford Site. This charter states that Hanford contractors and DOE will support the HFM in the enforcement of codes and standards and execution of the HFM duties on the site. The HFM also serves as the first level of Authority Having Jurisdiction (AHJ) on behalf of the DOE.

A MOU titled *Memorandum Of Understanding, Rev. 0, Between The Hanford Fire Marshal's Office And Other Contractors With Fire Protection Engineers Designated As Deputy Fire Marshals* (CHPRC-080081) was issued on July 17, 2009, but as a result of inaction expired one year later. The MOU itemized the functions of the Hanford Fire Protection Program and distributed these functions between the HFM and the FPEs designated as a DFM and assigned to contractors. The blue sheet cover page of the MOU stated that it should be updated and re-issued in one year. The MOU between CHPRC and the HFM expired and was never reinstated.

The 100K IUUP did not recognize the authority of the HFM or CHPRC FPEs designated as a DFM, nor did they understand the different roles and responsibilities of both parties. CHPRC generated several Condition Reports (2010-3049, 2010-3373, 2010-3375, and 2010-3376) which identified the lack of understanding of the roles and responsibilities of the HFM and DFMs, as one of the causes that resulted in construction of defective design and project delays at the 100K IUUP. On April 6, 2011, a *100K Infrastructure Water Project Post-Job Lessons Review Value Management Session* was conducted. One of the path forward actions of the session was to "review/clarify and define fire protection roles and responsibilities." 100K IUUP management did not realize that an expired MOU with the HFM existed, nor did they realize the contract requirements to keep the MOU current and implemented in their company. Had the MOU been in place and implemented, many of the issues identified in this surveillance would not have taken place.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Finding: S-11-EMD-PRC-001-F15

CHPRC did not ensure that the prime subcontractor for the 100K Potable Water Treatment Facility construction site maintained a current Job Safety Analysis (JSA) and provided adequate Lockout/Tagout (LOTO) notification and briefings.

Requirement(s):

1. DOE-0336, *Hanford Site Lockout/Tagout* program.

2. DOE M 450.4-1, *Integrated Safety Management System Manual,* and CRD attached thereto.

Discussion:

CHPRC had not ensured that the prime subcontractor safety representative for the 100-K Potable Water Treatment Facility construction site had completed the training requirements of the Hanford Site LOTO program prior to start of work. Contract #36534-31, ARRA-Potable Water Treatment Facility, Part 1 Statement of Work, Section 5.1, paragraph I. states in part, "Prior to start of work, the Contractor shall submit documentation of successful completion of the training requirements of any applicable activities covered in DOE-RL-92-36 Rev. 1, and certification that all training is current." The RL Electrical SME asked the Grant Safety Representative in September 2010 if he was ever trained to DOE-0336, *Hanford Site Lockout/Tagout* program, and he said that he was not. The SME asked the Grant Construction Manager explain how the Safety Representative could provide adequate safety oversight of other Grant construction workers and ensure compliance to DOE-0336 if he was not knowledgeable of the associated requirements. The Manager was unable to provide an explanation.

CHPRC did not ensure that the prime subcontractor LOTO point of contact for the 100-K Potable Water Treatment Facility construction site knew when and where authorized worker tags were applied using the eight criteria per DOE-0336. DOE-0336 Section 5.13, states in part, "Designate a qualified member(s) of the Controlling Organization (CO) to be the lockout/tagout point of contact for the outside contractor for facilities that have a physical interface with an existing facility. Determine which of the following methods of lockout/tagout is to be used: Use of Authorized Worker (AW) locks and tags alone when all of the eight criteria listed below are met." The RL Electrical SME asked the Grant Safety Representative and Construction Manager if the Potable Water Treatment Facility primary disconnect was LOTO, and the SME was informed by both sources that the primary disconnect was not LOTO, but rather individual branch circuits were LOTO. During the walkthrough in September 2010 the SME observed that the primary disconnect was LOTO by two authorized worker tags. It appeared that the Grant Construction Manager (who had primary responsible for LOTO at this site) did not have good configuration control.

Contract #36534-31, ARRA-Potable Water Treatment Facility, Part 1 Statement of Work, Section 4.9, paragraph B. states in part, "The Contractor will develop and maintain a work site Job Safety Analysis in accordance with PRC-PRO-SH-40078." In September 2010, the JSA for this construction site did not identify (LOTO) as a potential hazard. The Treatment Plant had power for over three weeks, and the JSA still had the "no" block re: LOTO as a hazard. When this was brought to the attention of the Grant Safety Representative, he stated that updates to the JSA were in the construction trailer and had not yet been added to the JSA package. It was the SME's understanding that Grant has only one JSA for this construction site, and so the construction workers who had signed this JSA had performed work during the previous three weeks without an adequate JSA advising them of the LOTO hazards.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Observation: S-11-EMD-PRC-001-O01

CHPRC's central environmental management organization did not respond to and provide environmental compliance analysis and technical advice timely requested by the 100K Environmental Compliance Officer (ECO).

Discussion:

On June 18, 2009 the 100K Area ECO sent an e-mail message to the CHPRC NEPA SME asking for help in obtaining a NEPA activity based CX determination. This message was copied to the IUUP Project Manager as well as the CHPRC EP Manager and other relevant individuals. This message also attached an EAS Form which identified construction or modifying a public water, raw water, or export water system as part of the work activities to be completed. Exhibit 7. No response to this e-mail was returned to the 100K Area ECO from either the CHPRC NEPA SME or the CHPRC EP Manager.

On August 24, 2009, the 100K Area ECO sent a second e-mail message to the CHPRC EP Manager which states:

> I have never been involved with installing a potable water treatment system . . . so I am heading into new territory. I checked out 15333, section 5.7 (see below). I also need your help as well. Thanks. If you could get me answers by COB, Wednesday, August 26, 2009. . . .

Exhibit 8.

The ECO told the Assessment Team that he sent two e-mails on this subject to the CHPRC EP Manager, but received no response to either e-mail. Had the CHPRC EP Manager responded in a timely manner to the e-mails, it would have been more probable that all applicable environmental requirements would have been identified and complied with.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Observation: S-11-EMD-PRC-001-O02

Although requested by a member of the project management team, no evidence was found suggesting that an independent QA inquiry of the 100K IUUP was done prior to moving into actual construction activities.

Discussion:

During the Assessment Team's interview with the individual occupying the role of IUUP Project Manager from November 2009 to April 2010, he stated that he verbally requested that an independent quality assurance inquiry be done of the project prior to start of construction. A review of the CHPRC Integrated Evaluation Plan (IEP) Assessment Report data base reveals that no such inquiry was ever conducted by any CHPRC QA organization. Had an inquiry been conducted, in all likelihood, it would have revealed the lack of compliance with the applicable environmental requirements. This, in turn, would have resulted in a correction of these deficiencies prior to start of construction. Unfortunately, no such inquiry occurred.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Observation: S-11-EMD-PRC-001-O03

CHPRC's Project Review Board process did not evaluate the 100K IUUP's environmental and fire safety regulatory compliance status prior to recommending approval to proceed with construction activities.

Discussion:

On April 7, 2010 a PRB for the 100K IUUP was conducted for work that included "Inside the Fence" activities. The materials presented to the PRB on April 7 contained no mention of applicable environmental or other regulatory requirements. Exhibit 55. Later that day, the 100K IUUP Construction Manager sent an e-mail message to the 100K IUUP Project Director stating that the PRB had approved construction. Exhibit 56. On April 21, 2010 a second PRB was convened to review 100K IUUP work scope not reviewed by the first PRB on April 7. The additional work scope included an import water line and 100K fire water and potable water supply line. As with the materials presented to the first PRB, the materials presented on April 21 contained no mention of applicable environmental or other regulatory requirements. Exhibit 57. The PRB again approved commencement of construction.

Had a regulatory requirements check list, or some other form of review or evaluation of environmental and fire safety regulatory requirements been included in the PRB review process, compliance failures might have been avoided.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Observation: S-11-EMD-PRC-001-O04

After discovering its failure to meet environmental regulatory requirements, CHPRC filed an Occurrence Report pursuant to DOE requirements, however, the Report was not timely filed, contained inaccurate information, and may not have accurately categorized the event.

Requirement(s):

1. DOE M 231.1-2, *Occurrence Reporting and Processing of Operations Information,* and CRD attached thereto.

2. DOE O 226.1A (Supp Rev A), *Implementation of Department of Energy Oversight Policy,* and CRD attached thereto.

3. DOE M 231.1-2 (Supp Rev 8), *Occurrence Reporting and Processing of Operations Information,* and CRD attached thereto.

4. DOE Contract Number DE-AC06-08RL14788, Section H.19, *Environmental Responsibility*, and Attachment J.2, *Requirements Sources and Implementing Documents*, Tables J.2.1 through J.2.8.

5. PRC-PRO-EM-060, *Reporting Occurrences and Processing Operations Information*

Discussion:

DOE M 231.1-2, *Occurrence Reporting and Processing of Operations Information (*Occurrence Reporting Manual*)*, and PRC-PRO-EM-060, *Reporting Occurrences and Processing Operations Information* specify CHPRC's occurrence reporting requirements and obligations. The requirements of DOE M 231.1-2 are a contractual obligation created by CHPRC's Contract with DOE. *See* DOE Contract Number DE-AC06-08RL14788 generally, and its Table J.2.8 more specifically.

On June 8, 2010, CHPRC filed with DOE Occurrence Report Number EM-RL-CHPRC-GENLAREAS-2010-0013 (Occurrence Report). The Occurrence Report disclosed CHPRC's discovery that it had began construction of 100K IUUP facilities without obtaining a NEPA determination from the Hanford NEPA Compliance Officer, and construction approvals required from the WDOH. Exhibit 49. The Occurrence Report lists the date of discovery of the incidents reported as June 4, 2010, characterizes the incidents as a Management Concern, and assigns a significance level of SC4.

The significance level assigned in the Occurrence Report may not be consistent with the requirements of the Occurrence Reporting Manual. RL acknowledges that when an event is classed as a Management Concern, the assignment of Significance Category level is a somewhat subjective matter that may be subject to judgment errors. The Manual defines five levels of significance to be used in occurrence reporting. More specifically, it defines category 2, 3 and 4 as follows:

> Significance Category 2. Occurrences in this category are those that are not Operational Emergencies and that have a moderate impact on safe facility operations, worker or public safety and health, regulatory compliance, or public/business interests.
>
> Significance Category 3. Occurrences in this category are those that are not Operational Emergencies and that have a minor impact on safe facility operations, worker or public safety and health, regulatory compliance, or public/business interests.
>
> Significance Category 4. Occurrences in this category are those that are not Operational Emergencies and that have some impact on safe facility operations, worker or public safety and health, public/business interests.

DOE M 231.1-2, Sec. 1.2 d., e. and f. Because the incident reported involved at least a minor impact to "regulatory compliance," it may have been appropriate to assign a significance level of at least Category 3.

For either a Significance Category 3, or 4 event, the DOE Manual requires that a written occurrence report be filed with DOE within two working days of discovery of the incident. DOE M 231.1-2, Sec. 1.4.2 (c) and (d). The Occurrence Report lists the date of discovery in the instant matter as June 4, 2010. The DOE Manual defines the date and time of discovery as:

> The discovery date and time is when the facility staff discovered or became aware of the event or condition. The facility staff is those personnel assigned to the facility and cognizant of the area in which the event or condition is identified.

DOE M 231.1-2, Sec. 13.d. CHPRC actually discovered the conditions disclosed by the Occurrence Report on or about May 18, 2010, thirteen business days before CHPRC filed its Occurrence Report. The Occurrence Report section titled "Description of Occurrence" states:

> . . . On May 18, 2010 it was determined that construction had begun prior to approval of the project report by WDOH . . . . In this case, the approval of the National Environmental Policy Act (NEPA) Categorical Exclusion (CX) submittal was determined to have not yet been obtained. . . .

Exhibit 49, p. 2, Section 15. CHPRC's knowledge as of May 18, 2010 of its failure to obtain WDOH approvals prior to commencing construction is also documented in its e-mail traffic. Exhibit 28.

A Significance Category 3 Occurrence Report must assign a cause and identify appropriate corrective action. *See* DOE 231.1-2, CRD Sec. 1.5 b. and DOE M 231.1-2, Sec. 11. Because it

was assigned a Category 4 rating, the Occurrence Report contains no information regarding a determination of cause, nor any corrective action required or taken. Exhibit 49, Items 22 and 25.

The "Description of Occurrence," Sec. 15 contained in the Occurrence Report neither fully, nor accurately discloses all relevant information regarding the incidents. While the language of Sec. 15 accurately discloses that CHPRC learned on May 18, 2010 of its failure to obtain NEPA and WDOH approvals prior to commencing construction of 100K IUUP facilities, it fails to clarify, as differing from the 200 Area project discussed in this same Sec. 15, that applications for the required approvals had also not even been made prior to commencement of construction activities. Sec. 15 also states: " . . . CX [NEPA] approval was immediately obtained, and the Project Report submitted to WDOH for approval." In fact, the Project's NEPA CX determination was not issued until May 26, 2010, and the Project Report was not submitted to WDOH until June 1, 2010. Exhibits 48 and 50 respectively.

RL Lead Assessor Closure Required: **YES [x]** **NO [ ]**

Contractor Self-Assessment: CHPRC did not perform a formal self-assessment of the issues at the 100K IUUP that eventually resulted in CHPRC Senior Management issuing a Stop Work. The Assessment team concluded that the Contractor's self-assessment activities at the 100K IUUP were generally ineffective.

Contractor Self-Assessment Adequate: **YES [ ]** **NO [x]**

Contractor Management To Be Briefed:

CHPRC President
CHPRC Vice-President, Environmental Protection and Strategic Planning
CHPRC Vice-President, Safety

S-11-EMD-PRC-001

INDEX OF EXHIBITS

Exhibit-52	*CHPRC CONDITION REPORT FORM CR NUMBER: CR-2010-1080*, Bonnie S. Harder Initiator, Deficiencies were identified in the implementation of the Project Execution Plan (PEP) process as required by PRC-PRO-PM-24889, Project Initiation and Execution, April 13, 2010	Page 289
Exhibit-53	*E-mail*, Daniel P. Kimball, to ^CHPRC Corrective Action Management, CR-2010-1080 Corrective action # 3, June 30, 2010	Page 292
Exhibit-54	*E-mail*, Annabelle L. Rodriquez, to Scott W. Story, Colburn E. Kennedy, cc: Steven N. Balone, Thomas K Teynor, Annabelle L. Rodriquez, Ellen L. Prendergast-Kennedy, April 22, 2010	Page 189
Exhibit-55	*Presentation*, Dave Fink, to 100-K Utility Upgrades Project PRB for: Inside the Fence Water Lines task 1, 105 KW Fire Water Supply Line, A9 Switch Yard Preparation, April 7, 2010	Page 293
Exhibit-56	*E-mail*, David E. Fink, to Kurtis L. Kehler, Colburn E. Kennedy, cc: Kent A. Dorr, Stephen R. Douglass, Good News the PRB Approved the following for Construction with Attachment image001.png, April 7, 2010 @ 3:20 PM	Page 315
Exhibit-57	*Presentation*, Dave Fink, to 100-K Utility Upgrades Project, April 21, 2010	Page 316
Exhibit-58	*E-mail*, Gregory Morgan, to Gail A. Chaffee, cc: Thomas Teynor, Alan L. Ramble, Calvin E. Morgan, Roger Quintero, Mark W. Jackson, Burton E. Hill, Dale C. West, Michael R. Koch, Dennis A. Clapp, FW: USQ in Support of New Water System, April 14, 2011 @ 3:27 PM, and *e-mail*, Gail A. Chaffee, to Gregory Morgan, cc: Thomas Teynor, Alan l. Ramble, Calvin E. Morgan, Roger Quintero, Mark Jackson,	Page 351

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EXHIBIT 1

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

APR 11 1995

President
Westinghouse Hanford Company
Richland, Washington

Dear Sir:

HANFORD DRINKING WATER SYSTEMS

The U.S. Department of Energy, Richland Operations Office (RL) is the owner of several Group A and Group B water systems, and Westinghouse Hanford Company and ICF Kaiser Hanford Company operate the water systems for RL. The purpose of this letter is to clearly state that the water systems on the Hanford Site are subject to the State of Washington Department of Health Drinking Water Regulations under Washington Administrative Code and the water systems will operate in accordance with these regulations. These regulations apply to the operation of the drinking water systems as well as to construction/modification on any system.

Should you have questions, please contact Mr. D. J. Ortiz, of my staff, at 376-0950.

Sincerely,

W. A. Rutherford, Director
Site Infrastructure Division

SID:DJO

cc: J. L. Day, ICF KH
S. E. Dieterle, ICF KH
J. U. Greenough, ICF KH
C. B. Lucas, WHC
P. I. Thakkar, ICF KH
C. A. Thompson, WHC

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EXHIBIT 2 EXHIBIT 3 EXHIBIT 4

Kennedy, Colburn E

Wertz, Douglas E (Doug)
Thursday, April 16, 2009 10:03 AM
Kennedy, Colburn E
Cc: Harrington, Richard A
Subject: RE: VE SESSIONS - 100K AREA UTILITIES

Ok: let's go! I will send a list of invitees. We will use two charge numbers: 50% of time to each. 301964, and 301965.

You are authorized to charge time to these numbers.

From: Kennedy, Colburn E
Sent: Thursday, April 16, 2009 9:47 AM
To: Wertz, Douglas E (Doug)
Cc: Harrington, Richard A
Subject: RE: VE SESSIONS - 100K AREA UTILITIES

Doug

I talked with Richard and he is available for conducting a Project Charter Workshop to make sure all parties are in agreement on 100K Electrical/Water/Ventilation Project approach before we get this project kicked off.

Here is the proposal

1. Hold a 1 day meeting with a select group of managers.
2. Objective will be to
    a. Scope work
    b. Define Schedule and Basis
    c. Determine Implementation Approach (subcontract/self perform)
    d. Review ROM cost
    e. Define where improvements can be made
3. Meeting can be scheduled for 4/27 through May 8. Need decision by 4/22 to book room.
4. Meeting to held offsite at a location to be determined later
5. Meeting will involve working through lunch (lunch provided)

We need a charge number to start getting this taken care of.

From: Wertz, Douglas E (Doug)
Sent: Monday, April 13, 2009 10:38 AM
To: Kennedy, Colburn E
Cc: Johns, Bruce R; Geuther, Walter J (John); Bragg, Douglas C (Doug)
Subject: VE SESSIONS - 100K AREA UTILITIES

Colburn: a couple candidates from STP to attend. Do you want me to reserve a room for the VE sessions?

Bruce Johns and John Geuther.

Thanks

ug Wertz
2-8168

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1 2, 4

EXHIBIT 5

Kennedy, Colburn E

ject:	100K Infrastructure Project Charter Workshop
ation:	WSU-CIC, Room 212
Start:	Wed 5/6/2009 7:00 AM
End:	Wed 5/6/2009 12:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Sumner, Christine E
Required Attendees:	Harrington, Richard A; Kennedy, Colburn E; Story, Scott W; Lucas, Christopher; Koch, Michael R; Moore, Steven; Baker, Scott (EU); Omberg Carro, Susan K; Mills, Jay R; Parker, John R; Davison, Timothy J; Balone, Steven N; Krekel, Randall N
Optional Attendees:	Swartz, Mike; Wertz, Douglas E (Doug); Burke, Steven P; Wright, Mark A; Anderson, David B; Maiden, Floyd M; MacDonald, Alastair J; colburn.kennedy@ch2m.com

Team,

On behalf of Colburn Kennedy, Richard Harrington and myself, your participation is requested at the 100K Infrastructure Project Charter Workshop on Tuesday, May 5th from 7:30 to 4:30, at the WSU-CIC in the second floor conference room 214 (see map attached). In brief the objective of this workshop is to establish a foundation and path forward to develop the schedule, project estimate, and an integrated approach to achieve project delivery. Please note that while this effort is planned for a one-day workshop, we have reserved the conference room for the morning of the next day if required.

ched is the workshop scope statement sheet and agenda, as well as a map for the WSU Campus. Lunch, along with ,ming coffee and a light snack will be provided. Looking forward to your active participation and a successful outcome.

Thanks –

Christine Sumner for
Richard Harrington

100K Infrastructure Project Ch...

WSU Campus.jpg

100K INFRASTRUCTURE PROJECT WORKSHOP
WSU-CIC, Conference Room 214
May 5-6, 2009

AGENDA

Day 1, Tuesday, 05/05/09

7:30 - Welcome/Purpose, Safety Topic, Introductions (Project Roles and Responsibilities)
- Review Agenda, Guidelines and Expectations

8:00 - Opening Remarks and Project Overview
- Clarify four major components, needs, and project roles and responsibilities

8:30 - 1. Power Isolation
- Confirm scope, approach, needs, schedule, and cost basis
- Utilize parking-lot sheets, as required

9:15 - **BREAK**

9:30 - 2. River Water Infrastructure Isolation and 3. Closure Support Facilities
- Confirm scope, approach/needs, schedule, and cost basis
- Utilize parking-lot sheets, as required

11:45 - **LUNCH (provided)**

12:30 - 4. West Basin Airborne Contamination
- Confirm scope, approach/needs, schedule, and cost basis
- Utilize parking-lot sheets, as required

1:30 - Develop Project Logic Diagram and Approach
- Define major functions and apply logic
- Identify key interfaces (system and people) and schedule milestone

2:30 - **BREAK**

2:45 - Complete Project Logic Diagram and Approach
- Solidify logic and define method of performance
- Identify Project Execution Plan (PEP) needs and inputs

3:45 - Develop Path Forward Implementation Plan
- Review/validate parking-lot information sheets
- Finalize actions required to proceed
- Determine need to reconvene on day 2

4:30 - Round-Robin Close-out
- Last minute items/meeting utility

SCOPE

- **100K Infrastructure Project Charter:**
  - Scope, schedule, cost estimate basis, roles and responsibilities, key interfaces and requirements, and method of performance:
    - Power Isolation
    - Closure Support Facilities
    - River Water Infrastructure Isolation
    - West Basin Airborne Contamination

OBJECTIVES

- **Establish a foundation and path forward to develop the schedule, project estimate, and an integrated approach to achieve project delivery**
  - Solidify scope
  - Define schedule and cost basis inputs
  - Determine implementation approach
  - Identify potential improvement areas/concepts

- **Obtain consensus and build project team approach**

DELIVERABLES

- Documented flipchart listing of the scope and objectives details
- Method of performance and key interfaces (e.g. Mission Support Contract)
- Overall path forward implementation action plan

EXHIBIT 6

PROJECT SCOPE STATEMENT SHEET

Project Title: 100K Infrastructure Project Charter Workshop **No.** 001
Workshop Location: WSU-CIC, Room 214 **Date:** 05/05-06/09

TEAM MEMBERS

NAME	PHONE	DISCIPLINE	CO.
C.E. (Colburn) Kennedy (TL)	376-3152	Project Manager	CHPRC
S.W. (Scott) Story	376-4017	Project Construction Manager	FFS
C.D. (Chris) Lucas	373-1006	Operations	CHPRC
M.R. (Mike) Koch	373-2699	100K Engineering	CHPRC
S. M. (Steve) Moore	373-2567	Balance of Plant Water	CHPRC
S.M. (Scott) Baker	373-2028	Electrical Utilities	FH
S.K.(Susan) Omberg Carro	376-3202	Fire Protection	FFS
J.R. (Jay) Mills	373-2946	Project Schedule	FFS
J.R. (John) Parker	376-2695	Project Estimate	PSG
T.J. (Tim) Davison	376-2284	Project Execution Plan	CHPRC
S. (Sam) Wajeeh	37--------	Water System Engineer	ENREP
S.N. (Steve) Balone	376-0236	Project Representative	DOE-RL
R.N. (Randall) Krekel	376-4264	Electrical	DOE-RL

TL = Team Leader

PART-TIME SUPPORT MEMBERS

M.M. (Mike) Swartz	373-0078	100K Project Management	CHPRC
D.E. (Doug) Wertz	372-8168	Project Control	CHPRC
S.P. (Steve) Burke	373-9034	K-West Operations	CHPRC
M.A. (Mark) Wright	376-4153	Work Control	CHPRC
D.B. (Dave) Anderson	376-0094	Construction Management	FFS
F.M. (Floyd) Maiden	373-2236	Electrical Engineering	AREVA
A.J. (Alastair) MacDonald	376-4599	Management Support	CHPRC

FACILITATORS

R.A. (Richard) Harrington	372-9601	Value Engineering	CHPRC
C.E. (Christine) Sumner	372-3692	Value Engineering	CHPRC

EXHIBIT 7

Barnes, Brett M

From:	Barnes, Brett M
Sent:	Thursday, June 18, 2009 11:23 AM
To:	Jansky, Michael T
Cc:	Riffe, Darrell J; Kennedy, Colburn E; Story, Scott W; Watson, David J (Dave); Engelmann, Richard H
Subject:	ACTIVITY-SPECIFIC CX FOR THE REROUTING OF 100 K BASIN UTILITIES AND HVAC
Attachments:	0618111226.pdf; 0618111241.pdf

Good Morning Mike,

Attached is a draft environmental activity screening form and supporting documentation for the rerouting of the 100 K utilities (e.g., water and electrical) and the installation of an HVAC system to the 100 K basin to provide for an increase in personnel comfort while performing work in the basins.

Because this is stimulus funded, ..we will need to obtain a activity-specific CX for our NEPA coverage.

The first attachment is the screening form, Attachment A and A1.

The second attachment A2.

Both constitute a complete package.

Scott Story is working on a statement of work for PNNL to come and do our CERR.

Should you have any questions, please give me a call on my cell phone. If you would like to meet to discuss and/or revise the form, ..please let me know. Thank you. Please let me know a schedule as to when we can get the activity-specific CX. Thank you.

Brett M. Barnes, CHMM
Environmental Compliance Officer, CHPRC, K Basins

Work: (509)376-3640/Cell: (b)(6)

President, Mid-Columbia Leadership Development Association, NMA Chapter #395

ENVIRONMENTAL-ACTIVITY SCREENING FORM

SECTION A. Work Description

Title and Summary (include a detailed summary):

See Attachment A.

Identification No. (e.g., Project No., Work Plan No., Work Order No.): To Be Determined	Date: 6/18/2009	Revision No.:

SEE FOLLOWING PAGES FOR SECTIONS B AND E

SECTION C. Work Management Applicability

- [x] The work is covered under existing NEPA Documentation (see Sections B-2 and B-3).
- [ ] The work is covered under existing CERCLA Documentation (see Section B-4).
- [x] Screening showed no new environmental documents, approvals, or other actions are needed.
- [ ] Screening showed the following new environmental documents, approvals, or other actions are needed (list):

SECTION D. Approvals	Name (Printed)	Signature	Date	Form Disposition
Initiator				MAINTAIN A COPY IN THE APPLICABLE PROJECT FILE OR WORK PACKAGE
Concurrence (Cognizant Environmental Compliance Officer [ECO], FH Environmental Regulatory Integration [ERI] Representative, 2-Day NEPA Trained Individual):	Brett M. Barnes, CHMM			

A-6003-727 (REV 1)

ENVIRONMENTAL-ACTIVITY SCREENING FORM

ECTION B. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)/CULTURAL AND/OR ECOLOGICAL RESOURCES/COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND IABILITY ACT (CERCLA)

B-1. CULTURAL AND/OR ECOLOGICAL RESOURCE EVALUATION	Yes	No
Will work affect cultural and/or ecological resources, as described in HNF-PRO-15335, *Environmental Permitting and Documentation Preparation*, Section 5.1 (e.g., cultural artifacts, wetlands, historical facility, aquifers, Hanford Reach National Monument, areas within 1/4 mile of Columbia River)?	☒	☐
If all answers are NO, go to B-2.		
If any answer is YES, list the cultural and/or ecological review and/or excavation permit number that applies.		
Cultural Review To Be Developed		
Ecological Review ECR- To Be Developed		
Excavation Permit No. To Be Developed		
Go to B-2, unless adverse impacts are identified. If adverse impacts are identified, go to B-3.		

B-2. SITEWIDE CATEGORICAL EXCLUSION (SWCX) APPLIES	Yes	No
Is the work covered by a SWCX?	☐	☒
If YES, list SWCX that applies _____		
and go to B-5. If NO, go to B-3.		

B-3. SITEWIDE CATEGORICAL EXCLUSION (SWCX) DOES NOT APPLY	Yes	No
Does other DOE-approved NEPA documentation apply for this activity?	☒	☐
If YES, list document number that applies:		
DOE/EA- _____ DOE/EIS- _____		
Other Activity-Specific CX		
If CX or EA preparation is needed, contact FH Environmental Regulatory Integration (ERI): 376-1554.		

B-4. CERCLA RESPONSE ACTION	Yes	No
*Is the work covered by CERCLA documentation? Doc. No./Title _____	☐	☒
If the answer is NO, go to Section B-5.		
**Note: Although work performed under CERCLA does not require separate NEPA documentation, such work is limited to activities that directly support the response action identified in the associated CERCLA documentation. Actions planned at, or adjacent to, CERCLA facilities that are not within the scope of the CERCLA documentation must be reviewed separately under the NEPA process.*		
If assistance is needed to coordinate a NEPA analysis, or to incorporate NEPA values into CERCLA documentation, contact FH ERI: 376-1554.		

B-5. INTEGRAL ELEMENTS	Yes	No
Section E is provided as an optional tool to assist in answering the following Integral Element questions:		
Will work threaten to violate environmental laws, regulations, permits, or safety requirements?	☐	☒
Will hazardous substances be disturbed allowing uncontrolled/unpermitted releases?	☐	☒
If either answer is YES, contact the Cognizant Environmental Compliance Officer (ECO). If both answers are NO, print form and complete approvals.		
If assistance is needed to determine applicability of Section E activities, and/or impacts of these activities, contact the Cognizant ECO.		

ENVIRONMENTAL-AC...ITY SCREENING FORM

SECTION E. Activity Screening Select the activities that apply to the workscope. Refer to HNF-PRO-15333, *Environmental Protection Processes*, Section 5.0, for Category Applicability Statements.

Performing Project Scoping Activities and Siting Studies

- [x] 5.2 Performing Project Scoping Activities and Siting Studies

Constructing or Modifying Facilities, Equipment, or Processes

- [ ] 5.3 General
- [ ] 5.4 Constructing or Modifying Stationary Criteria/Toxic Air Emission Sources
- [ ] 5.5 Constructing or Modifying Air Emission Units That Potentially Emit Radionuclides to the Ambient Air
- [ ] 5.6 Constructing or Modifying RCRA TSD Units
- [x] 5.7 Constructing or Modifying Public Water, Raw Water, or Export Water Systems
- [ ] 5.8 Constructing or Modifying Sanitary Sewer Systems, or Constructing or Modifying Onsite Sewage Systems, or Adding or Modifying Discharges to the Columbia River, or Discharges to the Land
- [ ] 5.9 Constructing or Modifying Storage Tanks or Container Storage Areas That Store Oil
- [ ] 5.10 Installing Regulated USTs
- [ ] 5.11 Relocating Portable Criteria Pollutant Air Emission Sources, or Bringing Portable or Stationary Criteria Air Pollutant Emission Source Onto the Site

Operating Facilities, Equipment, or Processes

- [ ] 5.12 General
- [ ] 5.13 Operating Facilities, Equipment, or Processes That Emit Criteria/Toxic Air Pollutants
- [ ] 5.14 Operating Stationary Facilities and Equipment That Potentially Emit Radionuclides to the Ambient Air
- [ ] 5.15 Operating Regulated USTs
- [ ] 5.16 Operating Onsite Sewage Systems
- [ ] 5.17 Operating Storage Tanks or Container Storage Areas That Store Oil
- [ ] 5.18 Operating Public Water Systems
- [ ] 5.19 Operating Interim Status RCRA TSD Units
- [ ] 5.20 Operating Final Status RCRA TSD Units
- [ ] 5.21 Using Portable or Temporary Air Emission Sources That Emit Radionuclides
- [ ] 5.22 Using PCB Oil-Filled Electrical Equipment, Electromagnets, Switches, and Voltage Regulators
- [ ] 5.23 Using and Storing Chemicals, Chemical Products, and Hazardous Materials
- [ ] 5.24 Performing Operations Consistent With NEPA Routine Administrative Activities
- [ ] 5.25 Finding Special Status Animals or Plants (Live or Dead) on the Hanford Site
- [ ] 5.26 Responding to Regulatory Agency Inspections

Maintaining and Repairing Facilities, Equipment, or Processes

- [ ] 5.27 General
- [ ] 5.28 Maintaining Stationary Facilities and Equipment That Potentially Emit Radionuclides to the Ambient Air
- [ ] 5.29 Maintaining or Repairing Major Continuous Emissions Monitoring or Emissions Measurement Systems

Maintaining and Repairing Facilities, Equipment, or Processes - Continued

- [ ] 5.30 Maintaining and Testing HEPA Filters
- [ ] 5.31 Starting Up, Shutting Down, or Performing Scheduled Maintenance on Stationary Air Emissions Sources
- [ ] 5.32 Repairing an Onsite Sewage System / Maintaining UIC Stormwater Well
- [ ] 5.33 Reporting New WIDS Sites and Reclassifying or Reassigning WIDS Sites
- [ ] 5.34 Maintaining Assigned WIDS Sites, Including Assessing Potential Impacts
- [ ] 5.35 Servicing "Motor Vehicle Air-Like" Conditioners
- [ ] 5.36 Maintaining, Servicing, or Repairing Stationary Heating, Ventilation, Air Conditioning, and Refrigeration Equipment
- [ ] 5.37 Performing Activities That May Break Up, Disturb, or Preclude Access to Regulated Asbestos-Containing Material
- [ ] 5.38 Removing and/or Disturbing Asbestos-Containing Material (i.e., Renovation)
- [ ] 5.39 Repairing Regulated USTs
- [ ] 5.40 Applying and Storing Pesticides
- [ ] 5.41 Conducting Open Burning
- [ ] 5.42 Decontaminating Materials and Equipment Contaminated with PCBs

Discontinuing Use of, D&D, or Closing Facilities (including Trailers), Equipment, or Processes

- [ ] 5.43 General
- [ ] 5.44 Temporarily Closing Regulated USTs
- [ ] 5.45 Permanently Closing Regulated USTs or Making a Change in Service
- [ ] 5.46 Closing RCRA TSD Units
- [ ] 5.47 Discontinuing Use of or Relocating a Satellite Accumulation Area
- [ ] 5.48 Discontinuing Use of or Closing a 90-Day Accumulation Area
- [ ] 5.49 Closing or Removing a Septic Tank From Service
- [ ] 5.50 Performing CERCLA Response Actions (HNF-PRO-25415)
- [ ] 5.51 Discontinuing Use of or Closing Injection Wells

Purchasing Goods or Services

- [ ] 5.52 Purchasing Refrigerants, Appliances Containing Refrigerants, System Components That Operate Using Refrigerants, or Refrigerant Recovery or Recycling Equipment
- [ ] 5.53 Procuring Pesticides or Pesticide Applicators
- [ ] 5.54 Procuring HEPA Filters

- [x] 5.55 Excavating or Otherwise Disturbing Soils

- [ ] 5.56 Environmental Event Notification (including Spills and Releases and Agency Notifications)

ENVIRONMENTAL-ACTIVITY SCREENING FORM

SECTION E (continued). Activity Screening Select the activities that apply to the workscope. Refer to HNF-PRO-15333, *Environmental Protection Processes*, Section 5.0, for Category Applicability Statements.

Generating, Identifying, and Designating Waste

- [x] 5.57 Generating Waste
- [ ] 5.58 Identifying and Designating Waste
- [ ] 5.59 Generating Investigation Derived Waste Within a Waste Site or Suspected Waste Site
- [ ] 5.60 Generating Investigation Derived Waste Outside a Waste Site
- [ ] 5.61 Identifying and Designating Investigation Derived Waste

Managing, Accumulating, or Storing Waste or Materials

- [ ] 5.62 Managing Soil, Groundwater, and Debris Contaminated With Listed Dangerous Waste
- [ ] 5.63 Managing Waste Characterization and Treatability Study Samples and Their Residues
- [ ] 5.64 Managing Unknown Waste
- [ ] 5.65 Managing Materials With Potential Future Use
- [ ] 5.66 Accumulating Waste in a Satellite Accumulation Area
- [ ] 5.67 Accumulating Waste in a 90-Day Accumulation Area
- [ ] 5.68 Storing PCB Items For Reuse
- [ ] 5.69 Storing PCB Waste and PCB Items For Disposal
- [ ] 5.70 Storing Asbestos Waste
- [ ] 5.71 Storing Investigation Derived Waste

Treating Dangerous and/or Mixed Waste

- [ ] 5.72 Performing Treatability Studies
- [ ] 5.73 Performing Generator Treatment of Dangerous and/or Mixed Wastes
- [ ] 5.74 Treating Dangerous and/or Mixed Waste

Pollution Prevention/Waste Minimization (P2/WMin) Process

- [ ] 5.75 General
- [ ] 5.76 Recycling Process
- [ ] 5.77 Managing Recyclable or Reclaimable Materials Through the Centralized Consolidation/Recycling Center
- [ ] 5.78 Managing Lead-Acid Batteries That Will *Not* Be Sent to the Centralized Consolidation/Recycling Center
- [ ] 5.79 Accumulating Used Oil For Recycling and Managing Used Automotive Oil Filters
- [ ] 5.80 Accumulating Spent Antifreeze For Recycling
- [ ] 5.81 Accumulating Used Shop Towels For Recycling

Disposing of Waste Materials

- [ ] 5.82 Disposing of Containerized Waste
- [ ] 5.83 Disposing of Asbestos Waste
- [ ] 5.84 Disposing of Sanitary Waste
- [ ] 5.85 Disposing of Empty Containers
- [ ] 5.86 Disposing of Inert and Demolition Waste (Nonradioactive, Nondangerous)
- [ ] 5.87 Disposing of Nondangerous, Nonradioactive, Containerized Waste
- [ ] 5.88 Disposing of PCB Waste and PCB Items
- [ ] 5.89 Disposing of Investigation Derived Waste
- [ ] 5.90 Distributing, Excessing, or Disposing of Appliances Containing Refrigerants

Discharging Existing Approved Wastewaters

- [ ] 5.91 Discharging Wastewaters to the Columbia River
- [x] 5.92 Discharging Wastewaters to the Land Surface, Including Injection Wells
- [ ] 5.93 Discharging Wastewaters to a Sanitary Sewer System
- [ ] 5.94 Conducting a UIC Well Assessment
- [ ] 5.95 Annual UIC Well Update Submitted to Washington Department of Ecology
- [ ] 5.96 Portable Radioactive Air Emissions Monitoring and Tracking Documentation

Barnes, Brett M

EXHIBIT 8

From: Barnes, Brett M
Sent: Monday, August 24, 2009 10:38 AM
To: Engelmann, Richard H
Subject: FW: 100K Follow Up
Attachments: Copy of Peak hour flow rate all months (min-max-avg).xlsm

Good Morning Rick,

As you aware...K Basins is working on installing a new potable water treatment system (we will connect to an existing water pipe south of the B Area) in an effort to start shutting down and D&Ding the 183 K East water treatment facility.

The new potable water treatment system will generate backwash (e.g., back-flushing filters, etc.). We would like to collect this backwash and use it for dust suppression. Most of the time it will contain TSS and small concentrations of aluminum and chloride (low ppm levels max). CIP solution will also contain TSS, some sodium, citric acid, and sulfate.

ARES corporation is working on anticipated constituent concentration data for backwash solutions.

I have never been involved with installing a potable water treatment system...so I am heading into new territory. I checked out 15333, section 5.7 (see below). I also need your help on this as well. Thanks. If you could get me answers by COB, Wednesday, August 26, 2009...that would be great. PS. There has been some very preliminary discussions with WDOH (Mike Wilson from Spokane) on this...very preliminary.

5.7 Constructing or Modifying Public Water or Raw Water Systems
[Basis: PRC-RD-EP-15332, Section 2.7]

Actionee	*Step*	*Action*
Responsible Manager	1.	Use the following instructions in addition to those found in Section 5.3, *Constructing or Modifying Facilities, Equipment, or Processes (Including Changes to Operating Processes) - General*, when performing construction activities near a public water system, or constructing or *modifying* raw water systems including collection, transmission, and distribution system components.
	2.	Contact the Water Purveyor to request authorization for construction or modification of the public water system, export water system or a raw water system. **NOTE**: *The water purveyors for the Hanford Site are as follows:* • *200 E and 200 W Areas, and 600 Area - FH Water Purveyor* • *100K and 400 Areas - CHPRC Water Purveyor* • *300 Area and 100N Area – WCH Water Purveyor* • *HAMMER Facility and 1100 Area – City of Richland*
Water Purveyor	3.	Based upon the requested construction or modification, determine permitting needs and develop an application for an operating permit or modify an existing operating permit in accordance with WAC 246-290, as appropriate.

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Actionee	Step	Action
	4.	Maintain copies of permits and documents to show compliance with drinking water requirements and applicable permit terms and conditions according to the instructions in Section 7.0, *Record Identification*.
Regulatory Services & Reporting Manager	5.	Transmit the public water system permit application or modification for the public water system, export water system or raw water system to WDOH in accordance with PRC-PRO-EP-20571, *Communications with the Hanford Site Regulatory Agencies*.

EXHIBIT 9

Project: *New Water Treatment System for the 100K Basin*

Meeting Date: *October 6, 2009*

Time: *10:00 AM – 11:30 AM*

Meeting Location: *Department of Health Regional Office – Spokane, WA*

Prepared By: *Sam E. Wajeeh*

Participants: *Steve Moore (CHPRC), Sam Wajeeh (CHPRC), Tom Ashley (ARES), Elizabeth Bowers (DOE), Brett Barnes (CHPRC) and Mike Wilson (DOH).*

The meeting was requested by CHPRC to discuss the permitting requirements to install a new water treatment plant to replace the existing water treatment system, slated for deactivation and demolition (D&D) and to finalize the preferred method to dispose of the filter backwash water that is generated by the new water plant. The following items were key points discussed at the meeting:

1) CHPRC explained to the DOH that the purpose of the 100K project is to eliminate the use of the K East Sedimentation Basins and Water Filtration Systems, eliminate withdrawal of water from the Columbia River, and to prepare 100KE Area for demolition. The project is to first install approximately 11,000 feet of raw water line that will connect to the 100B-C area 42-inch export water line located southwest of the project site. The second part of the project includes the construction of a portable potable water treatment plant rated at 50 GPM. The replacement water plant has no net increase in capacity when compared to the existing water plant. Any increase of water demand due to the anticipated S.A. Robotics core removal and the sludge treatment project will be accommodated.

2) Mike Wilson explained that current rules require the state to request a 4-7 month pilot study for any approved alternative treatment technology. Currently, the Pall AP microfiltration units have been accepted by the State of Washington Department of Health as an alternative technology used to produce potable water. Under the Washington Administrative Codes (W.A.C.) 246-290-676(3) and 246-290-250(3) identifies that a pilot study along with a pre-design study will be required for all proposed filtration facilities unless justification to waive the need for a pilot study can be provided, and is acceptable to the Department of Health.

3) CHPRC and ARES mentioned that justification to waive the need for a pilot study is based on the fact that West Pasco has undergone pilot testing of their Pall microfiltration plant, similar to the 100K project application. The West Pasco water plant water intake is located on the north shore of the Columbia River just south of the I-182 bridge. The water quality at this location is only slightly impacted by the flow from the Yakima River. As such, the water quality at the West Pasco intake is incrementally "less" than that associated with upstream Columbia River locations. It is the Department of Health's understanding that the pilot testing was successful, however, the final report has not been submitted.

4) DOH has tentatively agreed that based on the fact that the proposed microfiltration unit to be used at the 100K site has been approved by the State of Washington Department of Health and that there is currently a local municipality utilizing the same technology and source water and is finalizing a successful pilot study, that the request to waive the need for a pilot study for the 100K project would be strongly considered. CHPRC will need to provide an e-mail and formal letter to the DOH providing justification in request to waive the pilot study. Along with the request, two additional pieces of information must be provided with the justification:

   a) Data showing that the raw water quality is stable.
   b) Discussion concerning disinfection byproducts (DBP) precursors in the raw water.

   Along with the information requested, the 100K project will provide a copy of the procurement specification for the microfiltration system and chlorine contact pipe calculations to expedite the review process. The information provided would be reviewed by Mike Wilson (Spokane - DOH) and his counterparts that are more familiar with microfiltration membrane technology, Sam Perry (Olympia – DOH), Ethan Moseng (Olympia – DOH) and Steven Baker (Olympia – DOH). A response back from the DOH is expected to take approximately one month.

5) It was agreed that ARES would prepare a draft of the justification letter to waive the need for a pilot study and submit to the 100K project for review as early as possible. After the letter has been reviewed by the DOH and the waiver submitted to the 100K project, a project report will need to follow. Four copies of the completed report must be provided to the Department of Health prior to any construction document submittals. Four copies of the completed project report should be submitted to Mike Wilson – DOH Spokane Office for review. Review time expected is approximately 35 days from receipt of the report. A project application number will then be assigned to the project for tracking purposes.

6) It is estimated that 5,000 to 7,000 gallons per day of filter backwash would be generated from the new water plant. CHPRC mentioned that the 100K project considered a few options to dispose of the filter backwash generated from the new water plant:

   a) Discharge filter backwash to a separate tank for use as dust suppression for D&D activities.
   b) Discharge filter backwash to a separate tank and transport the water to TEDF.
   c) Discharge filter backwash to an onsite evaporative pond.
   d) Reclaim/recycle the backwash by passing it through a filter and discharge to the onsite fire tank.

   It was CHPRC's preference to pursue option "d" and recycle the backwash water to the fire water tank. This option will obviate the need to construct multiple avenues for filter backwash disposal. In addition, discharging into the 750,000 gallon fire water tank allows for sufficient dilution and reduces the need for additional equipment. Due to site constraints, the DOH was more in favor of this alternative as a way to disposition filter backwash for the 100K project.

Kennedy, Colburn E **EXHIBIT 10**

	Bowers, Elizabeth M (Liz)
	Wednesday, October 07, 2009 4:18 PM
To:	Balone, Steven N
Cc:	Koch, Michael R; Ortiz, Dickie J; Teynor, Thomas K; Wajeeh, Usama E; Kennedy, Colburn E
Subject:	RE: Meeting with Department of Health on Proposed Water Plant

Steve,
Two comments concerning the Tuesday meeting with Mike Wilson, Washington State Department of Health (DOH):

1. The meeting went very well & I anticipate positive results...it was worthwhile meeting face-to-face
2. Your contractor staff were very well organized, well spoken, and professional

It was a pleasure to accompany these gentlemen to the meeting with Mike and I will be happy to continue to support your project with the ongoing DOH interface.

Liz Bowers
373-9276

From: Balone, Steven N
Sent: Thursday, October 01, 2009 1:29 PM
To: Wajeeh, Usama E; Kennedy, Colburn E
Cc: Koch, Michael R; Bowers, Elizabeth M (Liz); Ortiz, Dickie J; Teynor, Thomas K
Subject: RE: Meeting with Department of Health on Proposed Water Plant

Sam:

Liz Bowers will attend for DOE-RL, and she has offered RL government transportation for the trip- it's a Suburban, so it will carry several passengers.

Also, Liz would like to meet you and/or Scott Story prior to the trip if possible- she has taken over DOE-RL responsibility for water infrastructure projects from DI Ortiz, and it would benefit the project for her to meet the CHPRC folks leading the charge on the project.

Let me know when I could set up a meeting for either tomorrow (Liz is working tomorrow) or Monday, or you are welcome to contact her directly at 373-9276 or 205-9610.

Steve

From: Wajeeh, Usama E
Sent: Wednesday, September 30, 2009 1:29 PM
To: Balone, Steven N; Kennedy, Colburn E
Cc: Koch, Michael R
Subject: Meeting with Department of Health on Proposed Water Plant

Colburn/Steve,

I have planned a meeting with Mike Wilson, Regional Engineer, Office of Drinking Water (Spokane Office) on October 6, 2009, to discuss permitting, proposed design/layout of the new water plant and to identify if there is a more expedient way to have the system accepted and operational. Does DOE want to be in attendance?

Review checklist for Acquiring services and materials

This table is intended to draw the requestor/BTR's attention to characteristics, and attributes of the proposed action which necessitate additional reviews by Subject Matter Experts (SME's), more detailed specifications, more complex subcontract requirements delineated in SOW / Procurement Specifications and/or additional approvals.

The BTR is responsible to review the characteristics, and mark the applicability column. Contact the designated organization/POC functional / project representatives / Subject Matter Experts (SME) and obtain assistance in incorporating appropriate requirements in the SOW.

Identify the applicable SME(s) that were contacted on this table and obtain their concurrence with the final SOW. Then place a copy of this table showing the person(s) contacted into the PassPort communications log for the requisition. A copy of the final, signed version should be kept in the BTR project file.

1. Review the criteria list
2. **Determine if there are there special features and requirements that need to be integrated into the Statement of Work and task descriptions.**
3. Mark the criteria or elements which appear to apply to the required product or service, obtain additional help or reviews as needed to ensure a knowledgeable review is completed.
4. For each item marked YES (applicable) contact the referenced supporting organization, subject matter expert or project contact for assistance.
5. Insert the name of the Technical Authority/SME who provided feedback & authorization to proceed
6. Incorporate or address the requirements as needed and obtain concurrence on the final documents.
7. When any of the questions/topics in the checklist are marked as "YES" applicable – then, place a copy of the completed checklist the Passport communications log (for service contract requisitions)

Project / Functional Group	100K Infrastructure Project (ARRA)
SOW / Work Scope Title	100K Import Water Line
Start / End Date	
End-User / BTR	Scott Sosa /
CAM	Carolyn Kennedy

Import Water Line 36538-22
~~Water Treatment Bldg. 36534-31~~

EXHIBIT 11

Criteria *Does this action/service....*	**Supporting Organization** **Reference procedure and SME**	**Applicability** **Yes / No / N/A**	**Project Contact / Reviewer**
Does this action affect potable water systems, raw water systems, or waste or hazardous systems that cross or come near potable systems? Does service involve replacement of backflow prevention assemblies or when spare parts are being used other than those of the original manufacturer and whenever a potable or raw water system will be breached? Does service involve design and/or work control documents, and changes thereto, that affect sewer systems?	Ref. SOW Section 3.1. Include as part of task descriptions or describe requirements in Section 4. Site Water Purveyor for the affected water system Sanitary Sewer System manager Project Environmental Compliance Officer PRC-PRO-EP-15333, *Environmental Protection Processes* RH Engelmann 376-7485 Fire Protection Engineering, Don Foti, 308-2487	YES No No	STEVE MOORE No Comment ~~DON FOTI~~ ~~RICK ENGELMANN~~
Include access to SNM or classified data? Involve security systems? Does service add, modify, or remove buildings from protected areas or change the security systems (monitors, cameras, etc.)? Does service impact Emergency procedures and/or plans, and changes thereto, for facilities containing SNM? Does the service require access to protected areas?	Safeguards and Security http://msc.rl.gov/ims/page.cfm/Safety,Security&Environment(SSE)/SafeguardsandSecurity Joe Bombino 376-5103	N/A	
Does this action include Controlled-Use information requiring special instructions/requirements?	Ref. SOW Section 3.3. Ref. PRC-PRO-IRM-184 Information Protection and	No	

PRC-PRO-AC-123, *Requesting Materials and Services*
Attachment 5, *Functional & Project Concurrence Checklist*

Criteria *Does this action/service....*	**Supporting Organization** **Reference procedure and SME**	**Applicability** **Yes / No / N/A**	**Project Contact / Reviewer**
Controlled-Use information includes OUO, UCNI, NNPI, ECI, and AT information. Instructions/requirements pertaining to creating, storing, transmitting or managing information.	Clearance. Ryan Maloney 376-5585	No	
Construction, drilling, or construction like services such as HVAC Cleaning, Richland Utilities, Concrete / Grout / CDF deliveries?	Project Construction or Groundwater Manager Kent Door 376-7559 David Capelle 372-0460 PRC-PRO-SH-40078, *Contractor Safety Processes* Chris Thursby, 376-6116	YES	KENT DOOR No Comment THURSBY No Comment LUNDHAM No Comment
Affects Configuration Managed (CM) Structures, systems and components (SSC) or related baseline documentation?	Design Authority / System Engineer/Authority Having Jurisdiction (AHJ) PRC-PRO-EN-20050 *Engineering Configuration Management* PRC-RD-SH-11827, *CHPRC Hanford Electrical Safety Program Requirement* PRC-PRO-NS-700, *Safety Basis Development* PRC-RD-EN-1819, *CHPRC Engineering Requirements*	YES	MIKE KOCH No Comments GAIL CHIPPER No Comments
Does the subcontract result in subcontractor acquiring property or will Government Furnished Equipment be provided to the subcontractor?	Facilities and Property Management PRC-PRO-PMT-133 *Property Management Processes*	YES	T. HUSEMAN No Comments
Are there Civil / Structural Engineering issues including excavation, trenching or roof access?	Project Civil / Structural Engineer Central Engineering, Charlie Kronvall 376-9601 Fire Protection Engineering, Don Foti, 308-2487 PRC-PRO-SH-40078, Contractor Safety Processes Thursby, Chris Y, 376-6116	YES	KRONVALL No Comments

Does work involve on-site work requiring Work Package to execute activity?	PRC-PRO-WKM-12115, *Work Management* Project Work Management Representative CHPRC: Sandra Gray (376-2125) Fire Protection Engineering, Don Foti, 308-2487	YES	S. GRAY COMMENTS INCORPORATED
Are there mechanical engineering issues including pressure systems?	Project Mechanical Engineer, Central Engineering, Charlie Kronvall 376-9601 PRC-PRO-SH-00478, Contractor Safety Processes Thursby, Chris Y, 376-6116	YES	OK
Are there electrical engineering issues?	Project Electrical Engineer, Central Engineering, Charlie Kronvall 376-9601	YES	OK
Will Electrical equipment/tools be used onsite or provided as a deliverable?	Project: The electrical Authority Having Jurisdiction (AHJ). Carl Haller 373-1765 PRC-PRO-SH-40078, *Contractor Safety Processes* Chris Thursby, 376-6116	YES	HALLER No Comments
Will hoisting and rigging be provided by the Contractor or hoisting and rigging equipment as a deliverable?	DOE-RL-92-36, Hanford Site Hoisting and Rigging Manual, rev. 1. Dana Morgan 376-2620 PRC-PRO-SH-40078, *Contractor Safety Processes* Chris Thursby, 376-6116	YES	D. MORGAN OK
Will there be significant flammable equipment additions to the site (wood, plastic, lubricants, gasoline, etc.)?	Project Fire Protection Engineer Site Fire Marshal HNF-RD-8589, *Hanford Fire Marshal Permits*	YES	S. OBERG No Comments

Does the SOW include cutting, welding or other work that requires a hot work permit?	PRC-PRO-SH-40078, *Contractor Safety Processes* Chris Thursby, 376-6116	Yes	G. CANDELL No Comments
Does the scope include transportation of Hazardous Material / Waste?	Project Waste Control Specialist PRC-PRO-TP-156, *Onsite Hazardous Material Shipments* PRC-PRO-TP-157, *Offsite Hazardous Material Shipments* Jim McGrogan 372-1826	No	

Does service document or change Respiratory Protection Equipment (RPE) listed on the *RPE Approved Equipment List?*	PRC-RD-SH-36716, *Respiratory Protection Program Requirements* PRC-PRO-SH-120, *Respiratory Protection Program* Respiratory Protection Stacey Dabler 373-4741	No	
Does service implement a new activity or change to an existing activity where hazardous, radioactive, and/or mixed hazardous material or waste is packaged for transportation between facilities onsite or offsite? Does service include procurement documents and changes to procurement documents for services or materials relative to transportation and packaging designated as level 1, 2 or impacts the ability to achieve or maintain compliance with hazardous and radioactive material transportation and packaging requirements?	Transportation and Packaging PRC-RD-TP-7900, *Transportation and Packaging Program Requirements*	No	
Is this for repair, replacement, or alteration of physical assets or property performed in CHPRC controlled or FH controlled facilities?	PRC-PRO-WKM-12115, *Work Management* Sandi Gray 376-2125 Fire Protection Engineering, Don Foti, 308-2487	No	
Will the service include HVAC system design/modification or use of HEPA filters?	PRC-PRO-EN-8323, *Management of HEPA Filter Systems* Randy Hallum 376-7089 Fire Protection Engineering, Don Foti, 308-2487	No	
Will the action include managed spare parts or spare parts list?	PRC-PRO-EN-129, Controlling Spare Parts Inventory Material CoordinatorRence Finke 376-1155	No	

Will the scope include welding?	*PRC-RD-WLD-23775 Administrative Control of Welding* Gary Cannell 372-2894 Fire Protection Engineering, Don Foti, 308-2487	YES	G. CANNELL No Comment D. FOTI No Comment
PERSONNEL REQUIREMENTS			
Does this involve onsite work training or required training for a specific on-site work scope? Does scope implement or significantly change mandated training requirements; Training Implementation Matrices (TIMs)?	PRC-PRO-SH-40078, *Contractor Safety Processes* Chris Thursby, 376-6116 Training Coordinator Training Requirements and Standards Jamie Morris 373-9340	YES	THURSBY No Comment
Has a Job Hazard Analysis (JSA/AJHA/EJTA) been prepared or is one required?	PRC-PRO-WKM-079 Job Hazard Analysis PRC-GD-WKM-17132 Automated Job Hazards Analysis Process Guide. PRC-PRO-SH-40078, *Contractor Safety Processes* Chris Thursby, 376-6116 Miles Jaeger 372-3576	YES	M. JAEGER No Comment
Will access to or handling of classified information or special nuclear material; high risk or danger; hazardous materials be required?	Ref. HNF-PRO-27563, Drug and Alcohol Testing Performance and the Employee Reliability Program. Wiley Witherspoon 376-1805	NO	
ENVIRONMENTAL, SAFETY, HEALTH AND QUALITY ASSURANCE REQUIREMENTS			
Might industrial hygiene sampling plans and monitoring be needed for worker chemical/biological/environmental exposures?	PRC-PRO-SH-00478, Contractor Safety Processes Thursby, Chris Y, 376-6116	YES	THURSBY No Comment
Will the activity require a permit? (i.e. Asbestos Work Permit, Confined Space	PRC-PRO-SH-00478, Contractor Safety Processes Thursby, Chris Y, 376-6116	YES	THURSBY No Comment

Entry Permit, Critical Lift, Electrical Installation Permit, Electrical Utilities Disconnect Request, Energized Electrical Work Permit, Explosive Use, Fall Protection Permit for Portable Ladders, Hanford Site Excavation Permit, Hot Work Permit, Nonemergency Hydrant Tie In Permit)			SEE ABOVE
Does scope complexity require a delineation of facility specific procedures?	PRC-PRO-SH-00478, Contractor Safety Processes Thursby, Chris Y, 376-6116	YES	SEE ABOVE
Is this complex or hazardous onsite work at a DOE-owned or leased facility, as defined by HRB requiring hazard analysis and delineation in scope statement? (PRC-PRO-WKM-40004) Does Work affect the following? • Worker safety, public safety, or Industrial Safety/Industrial Hygiene requirements or activities (PRC-PRO-SH-40078) • Safety related equipment (Safety Class, Safety Significant, or General Service related to Industrial Safety and Health requirements) (PRC-MP-QA-599) • Emergency egress • Safety function of items required for occupational safety and health. (PRC-MP-QA-599) • Quality Class 1 or 2 procurement impacting industrial safety and health requirements. (PRC-MP-QA-599) • Application of safety and health specifications and practices. (PRC-PRO-SH-40078)	PRC-PRO-WKM-40004, *Hazard Review Board* PRC-PRO-SH-40078, *Contractor Safety Processes* PRC-MP-QA-599, *Quality Assurance Program* CHPRC Virtual Manual - *Occupational Safety & Industrial Hygiene* Chris Thursby, 376-6116 Rick Zinnerman, 372-1384 Fire Protection Engineering, Don Foti, 308-2487	YES	THURSBY NO COMMENT DON FOTI NO COMMENT RICK ZINNERMAN NO COMMENT
Does this affect the following?			

• Safety, environmental, and quality requirements or established envelopes • Emergency response procedures • Emergency equipment • Safety or Fire Protection equipment • Accident or release consequences or response • Is work subject to DOE O 151.1C mandating that a hazard survey be performed for all new work?	Emergency Preparedness/Management Emergency Response Coordinator Fire Protection Engineering, Don Foti, 308-2487 Safety – Chris Thursby, 376-6116 Environmental – Brian Dixon 376-7053 Quality – Rick Warriner 376-6956 PRC-RD-EP-15332, *Environmental Protection Requirements*	YES	B. DIXON No Comment R WARRINER No Comment
Will the work require subcontractor safety oversight, plans or controls?	PRC-PRO-MS-40213 , *Subcontractor Oversight* Rick Warriner 376-6956	YES	R. WARRINER No Comment
Does the work involve existing energy source isolation?	Project Lock and Tag Authority. Jerald Kinz 376-1168 PRC-PRO-SH-40078, *Contractor Safety Processes* Chris Thursby, 376-6116	YES	J. KINZ No Comment
Does the work require Quality Assurance, Control, and Inspection? Is the SOW quality class 1 or 2 Do any of the following apply to the item? • Is this item important to project mission and represent sufficient risk that controls beyond standard commercial practices are considered necessary to ensure the item or service is suitable for its intended purpose.	Quality Assurance Engineer PRC-MP-QA-599 , Quality Assurance Program PRC-PRO-QA-259, *Graded Approach* PRC-PRO-QA-301, *Control of Suspect/Counterfeit Items* PRC-PRO-QA-268, : *Control of Purchased/Acquired Items and Services* Rick Warriner 376-6956 Shelby Turner 376-2144	YESS NO NO	S. TURNER No Comment

• Does failure of this item have any potential to cause radiological harm which was not designated as Quality Class 1. • Does this item require independent verification as specified by a national consensus standard (e.g., AWS D1.1; ANSI B31.3; ASME Section VIII) which was not designated as Quality Class 1 Does it affects or include any of the following? • Environmental permits • Shipping packages for radioactive (Type A, B, or LSA) or non-radioactive hazardous material • Safety class or safety significant SSCs • Quality class 1, 2, procurements • QA verification services • Documentation requiring regulatory agency approval • Documentation specifying QA requirements • Generation of quality affecting data or information	Quality Assurance Engineer PRC-MP-QA-599 , Quality Assurance Program PRC-PRO-QA-259, *Graded Approach* PRC-PRO-QA-301, *Control of Suspect/Counterfeit Items* PRC-PRO-QA-268, ; *Control of Purchased/Acquired Items and Services* Rick Warriner 376-6956 Shelby Turner 376-2144	No	
Have potential to affect Structures, Systems, and Components related to compliance with environmental regulations, including generation, use, control, or disposal of hazardous/radiological/chemical waste materials (e.g., pest and weed control products, chemicals, lead or lead containing materials,	Project Environmental Compliance Officer PRC-RD-EP-15332, *Environmental Protection Requirements* PRC-PRO-EP-15333, *Environmental Protection Processes* RH Engelmann 376-7485	No	

asbestos, beryllium), or packages/transports waste ? Does this service have the potential to impact the environment? Should it be identified as a new aspect and/or impact? Will the work take place in a culturally sensitive area or involve a historic property? Will the work disturb plants, animals, or habitat on the Hanford site? Will the work involve use, recycling, removal, treatment or disposal of asbestos, lead, PCBs, or ozone depleting substances? Will the work involve construction, maintenance or modification of facilities used for the storage, treatment or disposal of waste (e.g., dangerous, PCB, asbestos, radioactive, etc.). Does the service involve potential for new emissions, the monitoring of, or changes to existing emissions or generation rates, or discharges (e.g., air, water, sewer, soil) of chemical, hazardous materials, radiation or radioactive materials, petroleum, or other pollutants from a facility or process? Does the service involve Ecology, Department of Health, or EPA requirements, investigations or remediation?	Fire Protection Engineering, Don Foti, 308-2487 Project Environmental Compliance Officer PRC-RD-EP-15332, *Environmental Protection Requirements* PRC-PRO-EP-15333, *Environmental Protection Processes* RH Engelmann 376-7485 Fire Protection Engineering, Don Foti, 308-2487	No Yes	Engelmann No Comment

Does the work involve construction, modification, repair, or decommissioning of a well?		No	
Does the work involve generation or disposal of wastewater or sewage or construction of structures for disposal of wastewater or sewage?. Does this service involve construction or excavation activities, installation or removal of building, trailers, or other structures?	Project Environmental Compliance Officer PRC-PRO-EP-15332, *Environmental Protection Requirements* PRC-PRO-EP-15333, *Environmental Protection Processes* RH Engelmann 376-7485 Fire Protection Engineering, Don Foti, 308-2487	No	
Will trash, construction debris, demolition debris, or other waste be generated during completion of the service or will the work involve construction or modification of facilities to manage any of these waste types? Will the work or service involve the use or storage of hazardous materials or the construction or modification of facilities that store hazardous materials? Does the service establish environmental, quality assurance and/or quality control requirements?	Project Environmental Compliance Officer PRC-PRO-EP-15332, *Environmental Protection Requirements* PRC-PRO-EP-15333, *Environmental Protection Processes* RH Engelmann 376-7485 Fire Protection Engineering, Don Foti, 308-2487	YES	ENGELMANN NO COMMENT
Does the service have the potential for radiological dose or contamination and needs to incorporate ALARA design criteria and principles? Does the service include physical work within an area controlled for occupational radiation protection purposes?	Radiological Control Manager Radiation Protection CHPRC-00073, CHPRC *Radiological Control Manual* 10 CFR 835, "Occupational Radiation Protection" (Subparts H – Records, and K – Design and Control);	YES	G. HASTINGS COMMENTS INCORPORATED

• Radiologically Controlled Area (RCA); • radiological areas o Radiation Area (RA); o High Radiation Area (HRA); o Very High Radiation Area (VHRA); o Contamination Area (CA); o High Contamination Area (HCA); o Airborne Radioactivity Area (ARA); • Radioactive Material Area (RMA); • Underground Radioactive Material Area (URMA); Soil Contamination Area (SCA);	PRC-PRO-WKM-079, *Job Hazard Analysis*; PRC-GD-WKM-17132, *Automated Job Hazard Analysis Process Guide*; D D BEERS 373-0766 D T SOUTHERLAND 373-2255	No	

Does this service have the potential to cause radiological harm? • Dose to workers/public? • Possible release of radioactive material to the environment? • Involve ionizing radiation/radioactive material? • Is the service intended to include containment or confinement of radioactive material? • Is the service to provide radiological personal protective equipment to protect workers from radioactive material in any form? Does the service involve design for new or modification of existing structure(s), system(s), or component(s) that involve or contain radioactive material, or could affect the radiological conditions of an existing facility (e.g., modifying ventilation, shielding, interrupting power to radiological monitoring and/or control systems or components)?	Radiological Control Manager Radiation Protection CHPRC-00073, CHPRC *Radiological Control Manual* 10 CFR 835, "Occupational Radiation Protection" (Subparts H – Records, and K – Design and Control); PRC-PRO-WKM-079, *Job Hazard Analysis*; PRC-GD-WKM-17132, *Automated Job Hazard Analysis Process Guide*; D D BEERS 373-0766 D T SOUTHERLAND 373-2255	No	
Does the service involve use of or procurement of radiological designs, equipment, and materials (including sources and radiation-generating equipment and equipment that affect control of radioactive materials [containments, vacuums, and ventilation systems, etc.])?	PRC-PRO-RP-387 *Sealed Radioactive Source Control* Radiological Control Manager D D BEERS 373-0766 D T SOUTHERLAND 373-2255	Yes	G Hastings comments incorporated
Affects the following? • Safety Class, Safety Significant, or Defense-in-Depth SSC(s) or associated TSRs. • Onsite fissile material handling / storage	Facility Licensing Manager Nuclear Safety Calvin Morgan 376-5018	No	

alteration. • Criticality alarm systems? Introduces onto the Hanford site: • Explosive materials. • Bulk storage tanks for flammable gases or liquefied flammable gases. • Bulk storage tanks for flammable or combustible liquids. • Bulk storage tanks for hazardous chemicals. Involves disturbing or digging into any waste site containing radioactive materials. Creates or modifies nuclear facility safety basis documents, i.e., DSA, TSR, hazards analyses, criticality safety evaluations, calculation notes, etc.	PRC-PRO-NS-700, *Safety Basis Development* PRC-PRO-NS-8366, *Facility Hazard Categorization* HNF-7098, *Criticality Safety Program* Raymond Puigh 376-3766	YES	Ray Puigh No Comment
Does SOW require • materials in quantities subject to the Emergency Preparedness and Community Right-to-Know Act (EPCRA) • Materials required to be tracked by management, and/or • Materials that could be replaced with more environmentally benign solvents and solvent-less systems that reduce or eliminate the use and/or generation of hazardous substances. Does this involve materials defined as hazardous by Occupational Safety and Health	Chemical Management Chemical Inventory Sheets and MSDS as a Submittal PRC-PRO-SH-10468, Chemical Management Process Marley Nickle 373-7275 PRC-PRO-SH-40078, *Contractor Safety Processes* Chris Thursby, 376-6116 PRC-PRO-EP-15333, *Environmental Protection Processes* RH Engelmann 376-7485	No	

Act (OSHA), National Fire Protection Act (NFPA), or the Uniform Fire Code (UFC)?			
Does the SOW include Purchase of Controlled Software?	CIO Office PRC-PRO-IRM-309, *Controlled Software Management*, Adria Johnson 373-9533	No	

Lafferty, Laurie L

EXHIBIT 12

EXHIBIT 13

rt: Story, Scott W
:t: Monday, December 21, 2009 1:55 PM
To: Lafferty, Laurie L
Subject: RE: Attachment 5 APPROVALS

All SME approvals have been received and all comments have been incorporated into the SOW – Scott Story.

From: Lafferty, Laurie L
Sent: Monday, December 21, 2009 1:00 PM
To: Story, Scott W
Cc: Fink, David E
Subject: RE: Attachment 5 APPROVALS
Importance: High

[redacted]

The above is what Jim Pearson requested. In our last progress meeting we did discuss that the signatures were not actually received although approvals had been received after all comments had been incorporated. All we need is an email that confirms the following:

All SME approvals have been received and all comments have been incorporated into the SOW – Scott Story.

ave no idea why signatures are now being requested as this was not covered under the BTR class I took either. It was unintended – but not required.

Thanks for your help.

Laurie L. Lafferty
ICGK Project Controls
CH2M HILL Plateau Remediation Company
(w) 509-373-0615
(b)(6)

Laurie.L.Lafferty@rl.gov

From: Story, Scott W
Sent: Monday, December 21, 2009 1:01 PM
To: Lafferty, Laurie L
Subject: RE: Attachment 5 APPROVALS

Not sure what you need. PRO-AC-123 does not require approval signatures on the Attachment 5. I have provided the emails that identify the requested reviewers as identified by PRC-PRO-AC-123, Attachment 5 and the follow-up email that identified that all provided reviewer comments have been incorporated. I have also updated the SOW approval table to identify additional SOW required approvers. Any questions call 376-4017.

From: Lafferty, Laurie L
Sent: Monday, December 21, 2009 12:41 PM
o: Story, Scott W
Subject: Attachment 5 APPROVALS
Importance: High

Kennedy, Colburn E

EXHIBIT 15

	Barnes, Brett M
	Wednesday, December 16, 2009 2:20 PM
To:	Norman, Dottie L
Cc:	Story, Scott W; Fink, David E; Kennedy, Colburn E; Wajeeh, Usama E; Seaver, Jennie R
Subject:	RE: 100K Water Infrastructure Project - Potential Project Risk

Dottie,

I asked Sam Wajeeh to provide a write-up on why we will probably need some regulatory relief (see yellow highlight below). We have previously met with the Department of Health representative on this project, Mike Wilson, Spokane Office, and he was very supportive of our new water treatment system. We are requesting your assistance on this effort. If you would like me to set up a meeting on this subject with you and project engineers, please let me know. Should you have any questions, please give me a call.

Thank you

Brett M. Barnes, CHMM
Environmental Compliance Officer
100 K Project

EXHIBIT 14

From: Wajeeh, Usama E
Sent: Wednesday, December 16, 2009 1:50 PM
To: Barnes, Brett M
Cc: Story, Scott W; Fink, David E; Kennedy, Colburn E
Subject: 100K Water Infrastructure Project - Potential Project Risk

I wanted to describe to you a potential project risk related to the Department of Health permitting process and to get your assistance in the matter. As you are already aware, the 100K site is in the process of designing a new potable water (and fire protection) system utilizing the export line from the 100BC area as our source water. This effort is to allow the 100K site to discontinue drawing water from the river pumps and to accelerate the deactivation and decommissioning (D&D) of the 100KE site (sedimentation basins, building structures, etc.). On October 6, 2009, CHPRC and the Department of Energy (DOE) met with Mike Wilson, Regional Manager for the Department of Health (DOH), to discuss our proposed project and to get some confirmation regarding permitting procedures. CHPRC proposed to use a microfiltration system, which would fit the potable water needs of the 100K site. Since the technology requested for use at the site is considered "alternative technology", a pilot study (approx. 4-7 month) would be required to demonstrate potable water quality to State standards. However, since the manufacturer of the microfiltration technology has been used at various sites within the State of Washington and has proven to provide favorable water quality, a justification letter requesting to waive the pilot study will need to be submitted. Mr. Wilson suggested that the justification letter include a comparison of raw water quality between the current raw water intake at the 100K site and the raw water intake at the 100BC site. After receipt and approval of the justification letter, a project report will need to be submitted and approved by the Department of Health prior to construction of the water system (per WAC 246-290-110). The project report will describe the proposed project, reasons for altering/removing the existing system, a comparison of alternative technologies considered and why the selected technology was chosen, construction schedule for activities and drawings of the proposed project. According to our construction schedule, the 100K project intends to begin construction of the new raw water line infrastructure in the next few months. We anticipate that the project report will be submitted around the same time construction activities commence. It is unlikely we will receive an approval by the time we begin construction of the water system. In order to mitigate the situation, the 100K project intends to make contact with Mr. Wilson prior to the submittal of the project report to request some lenience for requirements. Also, we intend to insert some language stating that the proposed water treatment system will not be connected to the distribution system until such time the project report has been reviewed and approved.

The purpose of contacting you and potentially Ms. Dottie Norman is to determine if the environmental group has any
with the 100K project moving forward with this approach. If so, please contact the project management team
d Fink, Scott Story and Colburn Kennedy) to discuss the issue further. I appreciate your time and diligence in the
matter

Sincerely,

Sam Wajeeh

EXHIBIT 16

CH2M HILL
Plateau Remediation Company
PO Box 1600
Richland WA
99352

CH2MHILL
Plateau Remediation Company

January 11, 2010

CHPRC-0900784

Mr. M. D. Wilson, Regional Engineer, Eastern Regional Office
Office of Drinking Water
Washington State Department of Health
16201 E. Indiana Avenue, Suite 1500
Spokane Valley, Washington 99216

Dear Mr. Wilson:

REQUEST FOR WAIVER OF PILOT STUDY FOR NEW 100K POTABLE WATER FACILITY

Thank you for taking the time to discuss the new 100K Potable Water Facility with the CH2M HILL Plateau Remediation Company (CHPRC) Project Team on October 6, 2009. We appreciate the information that you provided and look forward to a continued interaction with you and your subject matter experts as the project evolves.

As discussed, the CHPRC Project Team is requesting a waiver to the requirement for a pilot study of the Pall Aria Microza membrane alternative filtration technology that we intend to deploy at the new 100K Potable Water Facility. This letter is intended to provide "....engineering justification acceptable to the department..." pursuant to WAC 246-290-676 (3)(a), for the pilot study waiver.

Please take note that the existing 100K water treatment facility will remain in operation during operational testing to determine effective pre- and post-filtration dose rate and coagulant type (Polyaluminum Chloride and Aluminum Chlorohydrate) and dose rate. A formal approval from the State of Washington, Department of Health will be obtained prior to establishing the new water treatment system as its sole source of potable water production at the 100K Area.

We anticipate that the attached document will provide the necessary information to make a determination for the pilot study waiver request.

Matters pertaining to this letter have been discussed with E. M. Bowers of the U.S. Department of Energy, Richland Operations Office. You may contact me at 376-0556, or your staff may contact U. E. Wajeeh at (509)373-1830 or by e-mail at Usama_E_Wajeeh@rl.gov with any questions regarding this matter.

Sincerely,

John G. Lehew III
President and
Chief Executive Officer

uew/llm

Attachment

RL - E. M. Bowers
L. Erickson
K. L. Flynn

ATTACHMENT

CHPRC-0900784

SUPPORTING DOCUMENTATION TO WAIVE PILOT TESTING REQUIREMENT AT 100K AREA

U. E. Wajeeh and T. M. Ashley

Consisting of 9 pages,
including this cover page

A-5004-535 (REV 1)

SUPPORTING DOCUMENTATION TO WAIVE PILOT TESTING REQUIREMENT AT 100K AREA

The information subsequently presented includes a discussion of the developmental status of the Pall Aria Microza-based filtration systems, the performance of a pilot study by the City of Pasco, and a presentation of Columbia River raw water quality. Additional information includes a brief discussion of Disinfectant By-Products (DBP) and the approach to optimization of the performance of the new 100K Potable Water Facility, which we hope to undertake during the Operational Testing phase of the project (in approximately June 2010).

Developmental Status

The Pall Aria Microza-based filtration systems have been approved by the State of Washington, Department of Health (DOH) as an alternative filtration technology and are certified under ANSI/NSF Standard 61. Over the past several years, these systems have been deployed in the Pacific Northwest with increasing frequency. Recent deployments of the Pall Aria systems in the Pacific Northwest for the treatment of surface waters include:

- Clallam County Public Utility District (PUD) #1 Water Treatment Plant (WTP), Washington, commissioned in 2006
- City of Salmon WTP, Idaho, commissioned in 2006
- City of Cottage Grove WTP, Oregon, commissioned in 2008
- Chinook WTP, Washington, commissioned in 2009.

In addition, the City of Pasco has recently completed a pilot study of the Pall Aria filtration technology, and construction activities have begun on their new West Side Water Treatment Plant.

Of particular note is the Clallam County PUD #1 WTP located in Port Angeles, Washington. This is the longest running plant in Washington State that uses Pall Aria filtration technology and uses surface water as its raw water source. The CH2M HILL Plateau Remediation Company (CHPRC) Project Team has discussed the performance of these Pall Aria systems with Mike Kitz of Clallam County and has found that Mr. Kitz considers the performance of the systems to be excellent from product water quality, reliability, and maintenance perspectives. Over the three years that the systems have been in operation, no membrane failures have occurred; they have been consistently capable of producing product water with a turbidity of significantly less than 0.1 Nephalometric Turbidity Unit (NTU), even when the raw water turbidity and Total Organic Carbon (TOC) are high. Tom Martin, Assistant Superintendent of Water/Wastewater Systems, and Ken Hansen, Lead Senior Water Technician, hosted the CHPRC Project Team on November 5, 2009, on a tour of their water treatment facility. The system design, operation and maintenance history were discussed. The resulting information and appropriate lessons learned will be integrated into the ongoing design of the new 100K Potable Water Facility.

In summary, membrane type filtration technologies are being deployed with ever-increasing frequency for the treatment of potable water. As this operational and performance history continues to grow as a result, it is anticipated that these technologies will achieve demonstrated status from a regulatory perspective in the relative near term. Nonetheless, from a technical perspective,

conversation with the purveyors from the facilities listed above indicate that the Pall Aria filtration systems consistently meet all applicable water quality and performance requirements, are robust, and are very reliable.

City of Pasco Pilot Study

In 2009 the City of Pasco conducted a pilot study of the Pall Aria system. This pilot study used raw water obtained from the Columbia River upstream of its confluence with the Yakima River. There are no notable discharges to the Columbia River between the intake for the new 100K Potable Water Facility and the City of Pasco intake, although the City of Richland Wastewater Treatment Plant outfall is located in the vicinity of, but on the opposite side of the Columbia River from the City of Pasco intake. The source for both the City of Pasco Pilot Study and the new 100K Potable Water Facility is the Columbia River, and the raw water quality is expected to be very similar at the respective intake locations. A comparison of selected raw water quality data documented in the *City of Pasco West Side Water Treatment Plant Feasibility Assessment and Conceptual Design Report* (CH2MHill, 2008), and raw water quality data associated with samples collected at the location of the intake for the new 100K Potable Water Facility is presented in Table 1 below.

Table 1
Comparison of Raw Water Quality

	City of Pasco[1]	100K Potable Water Facility[2]
Average Turbidity (NTU)	1.21	0.80
Maximum Turbidity (NTU)	10	7.6
Average Temperature (°C)	12.93	14.41
Average pH	8.05	7.91
Average Alkalinity (mg/L as $CaCO_3$)	58.98	62.5
Average Total Organic Carbon (TOC) (mg/L)	1.26	1.43
Maximum TOC (mg/L)	2.10	2.58[3]

Notes:

(1) Data compiled from CH2MHill, 2008, Table 3-1. Note that data are associated with intake of City of Pasco existing Butterfield WTP which is located approximately eight miles downstream of the intake for their new West Side WTP. Data for 2000 through 2007.

(2) Data from January 2007 through August 2009 associated with Columbia River raw water samples collected at intake of new 100K Potable Water Facility.

(3) "Outlier" from June 2007, next highest maximum TOC was 2.12 from July of 2008. See Table 3 for additional details.

As shown above, the raw water quality at the intake of the new 100K Potable Water Facility may be considered incrementally "better or cleaner" in terms of turbidity, temperature, and pH and incrementally "worse" in terms of TOC.

According to the City of Pasco Pilot Study, varying concentrations of sodium hypochlorite, both pre- and post-filtration, as well as varying concentrations of coagulant, specifically aluminum chlorohydrate (ACH), were addressed. Therefore, the City of Pasco Pilot Study report is expected to address two issues of great interest to the CHPRC Project Team; the optimum dosages of hypochlorite both pre- and post-filtration and the effectiveness and optimum dose of ACH.

In summary, the City of Pasco Pilot Study was conducted using a Pall Aria system and Columbia River raw water of virtually identical quality to that associated with the new 100K Potable Water Facility. In addition, the two most important "questions" that could be answered through pilot testing are addressed by the City of Pasco Pilot Study. Thus, the results of the City of Pasco Pilot Study are expected to be of direct applicability, or use, in the design, start up, optimization, and operation of the new 100K Potable Water Facility.

Source Water Quality

Source water quality data are obtained on a monthly basis at the intake of the Hanford Site export water line, i.e., the source of raw water to the new 100K Potable Water Facility. These data are summarized in Table 2 for the last three years.

BEST AVAILABLE COPY

Table 2: Columbia River Raw Water Quality Data – January 2007 To Present

Raw Water Intake	Turbidity (NTU)			Water Temp (C)			pH			Alkalinity	Fecal Coliform
Month	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	(mg/l as $CaCO_3$)	(# of Organisms/100 ml)
January-07	0.480	0.900	0.596	5.000	8.000	6.077	7.800	8.600	8.161	62.00	<1.0
February-07	0.500	0.700	0.574	6.000	8.000	7.193	8.100	8.900	8.468	64.00	<1.0
March-07	0.400	1.300	0.586	8.000	12.100	10.052	8.100	8.900	8.490	60.00	<1.0
April-07	0.650	1.200	0.821	11.000	15.300	13.037	8.500	9.900	9.080	60.00	<1.0
May-07	0.580	1.700	0.950	14.200	19.100	16.532	8.900	9.800	9.429	56.00	<1.0
June-07	0.680	1.460	0.924	17.000	31.300	19.667	7.700	9.900	8.567	58.00	7.8
July-07	0.630	1.600	1.105	21.300	25.600	23.077	7.300	8.500	7.865	60.00	2.0
August-07	0.540	1.100	0.768	21.000	28.000	22.313	7.400	8.800	7.952	56.00	<1.0
September-07	0.670	0.920	0.771	16.900	22.000	20.040	7.600	8.700	7.940	58.00	<1.0
October-07	0.660	1.000	0.822	13.000	17.000	15.006	7.400	8.600	7.797	58.00	4.0
November-07	0.730	1.000	0.830	7.900	13.300	10.767	7.500	8.300	7.940	60.00	2.0
December-07	0.560	0.890	0.651	5.000	9.000	7.081	6.600	8.800	7.839	58.00	<1.0
January-08	0.510	0.710	0.569	4.700	6.000	5.376	7.000	7.900	7.306	58.00	<1.0
February-08	0.580	0.750	0.604	5.500	9.000	6.521	7.100	8.100	7.452	72.00	<1.0
March-08	0.480	0.730	0.581	7.700	10.100	9.277	6.600	8.600	7.645	72.00	<1.0
April-08	0.610	1.200	0.777	9.300	14.000	11.957	6.900	9.100	7.783	72.00	<1.0
May-08	0.780	7.600	1.261	13.000	18.300	15.420	8.300	9.400	8.800	74.00	<1.0
June-08	0.640	2.600	1.014	15.200	22.300	18.447	7.600	9.200	8.573	76.00	4.0
July-08	0.600	1.300	0.789	20.000	23.900	22.387	7.500	9.100	8.293	62.00	<1.0
August-08	0.520	0.960	0.699	21.000	23.300	22.013	7.700	8.700	8.183	66.00	<1.0
September-08	0.530	0.830	0.707	18.000	21.000	20.063	7.000	8.600	7.833	64.00	<1.0
October-08	0.560	0.770	0.662	13.000	20.200	16.100	7.000	8.100	7.594	56.00	<1.0
November-08	0.560	1.000	0.816	8.500	15.000	11.823	7.000	7.900	7.333	68.00	<1.0
December-08	0.770	1.300	0.912	4.900	14.000	7.739	7.000	7.700	7.274	60.00	<1.0
January-09	0.580	2.200	0.920	5.200	8.400	6.490	7.000	7.500	7.158	64.00	<1.0
February-09	0.590	0.980	0.702	5.800	8.200	6.996	6.800	7.500	7.200	60.00	<1.0
March-09	0.630	0.960	0.758	7.000	20.700	9.361	6.900	7.400	7.255	60.00	<1.0
April-09	0.610	1.300	0.746	9.800	20.000	12.593	6.800	7.600	7.260	62.00	<1.0
May-09	0.790	2.100	1.234	11.100	20.100	15.306	7.200	8.400	7.506	62.00	<1.0
June-09	0.750	1.700	1.082	18.000	22.700	20.610	7.400	8.800	7.880	60.00	4.5
July-09	0.460	0.900	0.680	19.600	26.000	22.719	7.500	8.000	7.694	66.00	<1.0
August-09	0.350	0.860	0.553	21.300	24.400	22.581	7.500	8.100	7.703	56.00	7.8
September-09	0.520	7.000	0.908	18.000	23.000	20.747	6.800	8.200	7.900	N/A	<1.0
Min	0.350	—	—	4.700	—	—	6.600	—	—	—	1.0
Max		7.6	—	—	26	—	—	9.4	—	—	7.8
Average	0.59	1.80	0.81	12.22	17.65	14.50	7.17	8.28	7.70	62.50	<1.76

Generally, the water quality of the Columbia River can be described as very good and can be characterized as somewhat basic with low turbidity and only moderate levels of TOC and alkalinity. A brief discussion of each of the parameters presented in Table 2 follows.

Turbidity – Generally, the turbidity is lowest in the winter months and highest in the late spring (e.g., May) during runoff. The maximum turbidity observed over the past three years, 7.6 NTU, occurred in May 2008. This value is not considered to be "high" but is atypical of the maximum turbidity that may be expected with significant frequency. This conclusion is reflected in the average maximum turbidity value over the three-year time period of 1.56 NTU.

TOC – Similar to turbidity, the TOC content is lowest in the winter months generally being in the range of 1 mg/L, and highest in early summer (e.g., June/July) at values slightly above 2 mg/L.

pH – The pH ranged from a low of 6.6 (December 2007, March 2008) to a high of 9.9 (April and June 2007) over the subject three-year time period. The average pH over this time period was approximately 7.9 with average maximum pH and average minimum pH values of approximately 8.5 and 7.4, respectively.

Alkalinity – Alkalinity values throughout the year are within a relatively tight range bounded by a low of 56 mg/L and a high of 76 mg/L; the three year average is 62.5 mg/L.

Temperature – Water temperature varies from a low near 5°C in the winter to a high of 25°C or more in the summer. The three-year average water temperature is approximately 14.4°C.

The values and associated ranges of the raw water quality parameters described above are consistent with the surface water nature of the Columbia River source, and none constitute noteworthy impediments to efficient and compliant potable water treatment.

As will be documented in the 100K Potable Water Facility Project Report, the Facility design addresses the observed ranges of the parameters presented in Table 2 and will result in the production of potable water which meets or exceeds all applicable regulatory requirements while maintaining required residual chlorine levels of 1.0 mg/L or less.

Disinfectant By-Products

The current 100K Potable Water Facility employs hypochlorite, both pre-filtration and post-filtration, and polyaluminum chloride (PAC) as the coagulant. The use of hypochlorite prior to the removal of organics (pre-filtration) can result in the potential for the formation of trihalomethanes (THM) and haloacetic acids (HAA). These compounds have been associated with potential undesirable health impacts to humans and, accordingly, limits on the allowable concentrations in treated potable water have been established by applicable regulatory agencies. Collectively, these compounds are known as Disinfection By-Products (DBP) and are regulated as Total Trihalomethanes (TTHM) and Total Haloacetic Acids (HAA5). Currently, the

associated regulatory limits (i.e., Maximum Contaminant Limit [MCL]) are 0.080 mg/L and 0.060 mg/L, respectively, both calculated on a Running Annual Average (RAA) basis.

Table 3 presents the DBP analytical results for the current 100K Potable Water Facility for the past three years; note that these are individual quarterly results, not RAA.

Table 3: Disinfection By-Products -- Quarterly Analytical Results (2007 through 2009)

Raw Water Intake	Total Organic Carbon (mg/l)	*Trihalomethanes (Quarterly Samples)					*Haloacetic Acids (Quarterly Samples)					
Month	Sample	Chloroform (ppb)	Bromodichloromethane (ppb)	Chlorodibromomethane (ppb)	Bromoform (ppb)	Sum	Monochloroacetic Acid (ppb)	Dichloroacetic Acid (ppb)	Trichloroacetic Acid (ppb)	Monobromoacetic Acid (ppb)	Dibromoacetic Acid (ppb)	Sum
January-07	0.78											
February-07	1.14	11.8	1.1	ND	ND	13.9	ND	5.8	5.7	ND	ND	11.5
March-07	1.29											
April-07	0.59											
May-07	2.00	27.1	1.5	ND	ND	28.6	ND	16.5	18.1	ND	ND	34.6
June-07	2.18											
July-07	1.50											
August-07	1.61	38.8	2.1	ND	ND	40.9	ND	9.5	9.6	ND	ND	19.1
September-07	1.58											
October-07	1.56											
November-07	1.51	17.7	1.4	ND	ND	19.1	ND	7.1	9	ND	ND	16.1
December-07	0.77											
January-08	0.91											
February-08	1.17	9.8	1.3	ND	ND	11.1	ND	8.2	8.1	ND	ND	42.3
March-08	1.01											
April-08	1.19											
May-08	1.89	29.0	2.4	ND	ND	31.4	ND	11.6	10.3	ND	ND	21.9
June-08	1.80											
July-08	2.12											
August-08	3.25	41.5	2.5	ND	ND	44.0	ND	11.2	14.3	ND	ND	25.5
September-08	3.91											
October-08	3.47											
November-08	2.33	19.7	1.6	ND	ND	21.3	ND	11.3	10.1	ND	ND	21.4
December-08	1.25											
January-09	1.09											
February-09	1.13	13.0	1.5	ND	ND	14.5	ND	5.9	7.2	ND	ND	13.1
March-09	1.14											
April-09	1.03											
May-09	1.43	21.5	2.2	ND	ND	23.7	ND	7.3	6.1	ND	ND	13.4
June-09	2.08											
July-09	2.10											
August-09	1.87	30.5	2.6	ND	ND	33.1	ND	10.2	11.4	ND	ND	25.7
September-09	N/A											
Min		9.80	1.10			11.10		5.80	5.70			17.30
Max		50.50	2.60			53.10		14.30	18.10			34.60
Average	1.43	25.47	1.84			27.31		9.60	9.83			19.51

* Samples for TTHM and HAA5 are taken at the furthest point of the distribution system - building 1425.

TTHM – No individual quarterly sample exceeded the MCL of 80 parts per billion (ppb). The "straight" average over the three-year period was 27.31 ppb, the maximum RAA was 28.1 ppb.

HAA5 – No individual quarterly sample exceeded the MCL of 60 ppb. The "straight" average over the three-year period was 19.51 ppb; the maximum RAA was 20.5 ppb.

In summary, the current 100K Potable Water Facility has been successfully treating raw water from the Columbia River for years. The RAA for TTHM and HAA5 DBP over the past three years have been significantly less than half of their respective MCLs. While the new 100K Potable Water Facility will employ pressurized membrane filtration technology, specifically the Pall Aria AP-2 systems, this change (relative to the current 100K Potable Water Facility) is expected to improve treated water quality even further. Please note that the initial operational phase of the project, i.e., Operational Testing, will involve the determination of the most effective pre-filtration hypochlorite dose, *if indeed needed*, coagulant and dose (e.g., PAC, ACH), and post-filtration hypochlorite dose. It is anticipated that Operational Testing will be conducted in approximately June of next year. During this time, the current 100K Potable Water Facility will remain in operation serving the potable water needs of the 100K Area. Water treated by the new 100K Potable Water Facility during Operational Testing will be recycled back to the 750,000 gallon tank which constitutes the "headworks" for the new Facility. DOH approval will be obtained prior to formally commissioning the new 100K Potable Water Facility as the potable water "source" for the 100K Area.

Proposed Path Forward

A project report meeting the requirements of WAC 246-290-110, and tailored to fit the Hanford Site context, will be submitted to you as soon as the required information is obtained/developed and in advance of construction of the new 100K Potable Water Facility. Preliminarily, we expect that this will occur in the February 2010 timeframe. The project report will also include a section addressing the scope, protocols, and sampling/monitoring requirements associated with the Operational Testing phase introduced above.

We appreciate this opportunity to "technically introduce" the new 100K Potable Water Facility Project to the DOH. We request your concurrence with the selection of the Pall Aria AP-2 systems as appropriate alternative filtration technology for the new 100K Potable Water Facility and request that the requirement for a pilot study be waived for this project in accordance with the engineering justification provided herein. We also request that you assign a project number to the new 100K Potable Water Facility Project which we will reference in all future correspondence.

EXHIBIT 17

CH2M HILL
Plateau Remediation Company
PO Box 1600
Richland, WA
99352

CH2MHILL
Plateau Remediation Company

January 28, 2010 WCI-36538-103

Watts Construction, Inc
4828 Southridge Blvd
Kennewick, Washington 99338

To Whom It May Concern:

CONTRACT NUMBER 36538
100-K RIVER WATER ISOLATION PROJECT IMPORT WATER LINE
NOTICE TO PROCEED

The purpose of this letter is to authorize you to proceed at the agreed to price of $599,506.05 with the 100-K Import Water Line work scope. Any discussions or correspondence to this work should reference Release No. 022.

Preconstruction Conferences and Prejob Labor Conferences are to be scheduled with the BTR prior to beginning any on-site work. Notification is to be made by completing the Prejob Labor Conference Form and sending to the BTR no later than the Friday morning preceding the requested Wednesday conference. The next available Labor conference would be February 10, 2010. All work performed under this task is requested to be completed no later than June 30, 2010, and you are requested to notify this office if this cannot be achieved.

All field work is to be coordinated on a daily basis with Mr. Scott Story, Buyer Technical Representative, CH2M Hill Plateau Remediation Company (CHPRC), at 376-4017. All work performed under this task is to be in accordance with this Contract and the CHPRC OS & H Safety Program. If you have any questions, please contact this office.

Please sign the Contract Release Signature Documents and return documents to this office within five (5) working days after receipt of this letter. After receipt of the subject Contract Signature Document, properly signed by you without exceptions, and approval and execution by CH2M Hill Plateau Remediation Company, a fully executed copy will be forwarded to you for your records.

Sincerely,

John D. Phillips
Contract Specialist

EXHIBIT 18

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 East Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2830
TDD Relay 1-800-833-6388

February 17, 2010

Usama E. Wajeeh, PE
CH2M Hill Plateau Remediation Company
PO Box 1600
Richland WA 99352

Subject: Energy, Dept of/100K; PWS ID # 00177J; Benton County
Justification to Avoid Pilot Study for New 100K Potable Water Facility
DOH Project #10-0207A

Dear Mr. Wajeeh:

The Department of Health (DOH) Office of Drinking Water has reviewed your report received in this office on January 15, 2010. Your report had three requests:

1. The pilot study for the proposed filtration facilities is avoided based upon engineering justification in accordance with WAC 246-290-676(3)(a).
2. DOH concurrence with your selection of the Pall Aria AP-2 systems as the appropriate alternative filtration technology for the new 100K Potable Water Facility.
3. DOH assigns one project number for the 100K Potable Water Facilities Project.

Response to Request #1: Your request to avoid piloting the proposed technology prior to constructing the full-scale filtration facility is granted. Full-scale operational testing will be conducted during the commissioning period of the new filtration facility to determine the operating parameters.

Response to Request #2: At this time, I cannot approve your selection of the Pall membrane. In your forthcoming project report, you need to include an analysis of filtration alternatives and the rational for selecting the proposed option [(WAC 246-290-110(4)(c)].

Response to Request #3: The DOH project number for this project is "10-0207". We will assign a letter to submittals to identify different portions of the project. For example, this request is *10-0207A* and the future project report will be *10-0207B*.

As outlined in your request, a project report, meeting the requirements of WAC 246-290-110, will be submitted in advance of the construction documents and will include the scope, protocols, and sampling/monitoring requirements for the operational testing of the full-scale facility. This project report should also include the rational for selecting the Pall membrane.

In accordance with WAC 246-290-990, the review of engineering documents is subject to a review fee. Enclosed please find an invoice for $204.00.

Please contact me at (509) 329-2117, if you have any questions.

Sincerely,

Michael D. Wilson, PE
Regional Engineer
Office of Drinking Water
Division of Environmental Health

Enclosure: Invoice

cc: Benton-Franklin Health District
Liz Bower, Dept. of Energy
Steve Moore, CH2M Hill Plateau Remediation Company

EXHIBIT 19

CHPRC HANFORD SITE EXCAVATION PERMIT
NOTE: Use Formal Operations Work Release to Control Work

EXCAVATION PERMIT NO.: DAN-3913

1. EXPIRATION DATE: 5/18/10

Work Package No. or W.O./Project No.: 100 K Fire protection and waterlines

3. Location of Excavation: 100K Area, Township 13N, Range 26E, Section 5/6

4. Originated By/Phone: Jeff Williamson/308-8857 — Date: 01DEC09

5. Engineering Change Notice (ECN)/Facility Modification Package (FMP): NA

6. Drawings, Plans/Procedures Required (Identification Numbers): H-1-91185 Sheet I Rev B (Preliminary), H-1-91185 sheets 2, 3 and 12

7. Description of Work (Attach composite drawing of excavation location and all known interferences):
Installation of approximately 900 linear meters of new 12" potable and fire water lines. The trenching depth will be approximately 96".
This permit will cover the area upper third of the area demarcated as the western section shown on H-1-91185 sheet 1. The southern border is Wagner Street (main road between KE & KW reactors). North of Wagner Street is an underground radioactive material area.

See H-1-91185 sheet 4, zone E-5,6,7 for piping excavation associated with this permit.

8. Special Instructions and Comments
- **Notify Site Utilities 24 hours prior to digging.**
- **For Telecommunications Cable Locate, call 1-800-424-5555.**
- **Walk down the excavation site and verify that scan marks are still visible - if not, call scanning organization to refresh marks.**
- **When anything unusual or unexpected is identified in an excavation, STOP until the discovery can be properly evaluated. Also refer to any company-specific safety procedures.**
- **When changes occur in the field that could impact the validity of this form and/or the job/task AJHA, both the AJHA and this form shall be reviewed and updated, as necessary, to reflect the field changes.**

Pothole to find existing buried lines near the affected area prior to machine excavating or installing or driving anchors. HAND DIG ONLY OR USE REGULATED GUZZLER within URMA boundaries and/or 5 feet of all known or discovered lines. A non-regulated guzzler may be used outside of the URMA boundary. Stop work immediately and contact Brett Barnes, 100K ECO, if cultural material is (e.g. bones or artifacts) discovered. Stop work immediately and notify the 105KW Shift Manager (373-3422) if radioactive or chemical materials are discovered.
Excavation is within the 100K Underground Radioactive Material Area (URMA) boundary markers. RCT support is required. Contact KW Rad Con Supervisor on 373-4164 prior to digging.

9. List Facilities, Services, Utilities, and Groundwater Wells Affected by Excavation: Water, electrical, telecommunications

REVIEW/CONCURRENCE: Insure Permit is Completed Acceptably and Safe Work Conditions are Achievable

10. Design Authority / Technical Representative: Frank Muller — Date: 3/17/10	17. Process Sewer: NA — Date
11. Environmental: Brett Barnes Brett M Barnes — Date: 3/16/10	18. Traffic Engineer: NA — Date
12. Radiological Control: Gary Hastings — Date: 3/16/10	19. Road and Track Maintenance: NA — Date
13. Steam System: NA — Date	20. Safeguards and Securities: NA — Date
14a. Electrical Utilities (Transmission/Distribution): Tod Smith — Date	21. Land Use Planning/600 Area Landlord: Ron Ingram PER TELECON 8:51 AM 3-17-10 — Date
14b. Facility Electrical Systems (Secondary): Floyd Maiden — Date: 3/16/10	22. Sanitary Sewer: ~~Jim Jay~~ N/A — Date
15. Water Utilities: Steve Moore PER TELECON 10:43AM 3-17-10 — Date	23. Facility/System Owner(s): SP Burke — Date: 3-18-10
16. Telecommunications: Shirrell Brown PER TELECON 9:19AM 3-17-10 — Date	Terry Hissong/Steve Burke 100K FIRE JOC 3/16/10

Work Complete

A-6004-751 (REV 0)

CH2MHILL
Plateau Remediation Company

EXHIBIT 20

CONTRACT #36534-31

ARRA - POTABLE WATER TREATMENT FACILITY

April 7, 2010

GAG-36534-31-00

George A. Grant, Inc.
1333 Gillespie
Richland, Washington 99352

Gentlemen:

CONTRACT NUMBER 36534-31
ARRA - POTABLE WATER TREATMENT FACILITY
CONTRACT AWARD DOCUMENTS TRANSMITTAL

The purpose of this letter is to formally authorize you to proceed with the work scope defined as ARRA - POTABLE WATER TREATMENT FACILITY at the not to exceed price of $3,087,000.00. Please note this scope of work is being issued under your CHPRC Basic Ordering Agreement No. 36534. Any discussions or correspondence related to this work scope should reference Contract 36534, Release 31.

The Project defined as "ARRA - POTABLE WATER TREATMENT FACILITY" for products and services to be provided, including any specific CH2M HILL standards and requirements, required for the successful completion of this work activity includes the following task: The Contractor shall provide all work necessary to install a potable water treatment facility, multi-purpose water storage tank and foundation, diesel powered fire water pump, and piping distribution systems for potable water and fire water

As a reminder, all Submittals required for working at Hanford shall be received in accordance with the schedule as noted within the Submittal Register attached. **Construction work shall be complete by July 23, 2010.**

All work is to be coordinated on a daily basis with Mr. Stephen R. Douglass, BTR, at 509-308-7714. All work performed under this task is to be in accordance with this Contract and the CHPRC OS & H Safety Program. Please immediately schedule the site labor conference, contact Frank Blowe, FH, at 509-376-5205. If you have any questions, please contact this office at 376-0919.

Sincerely,

Noreen A. Clifford, C.P.M.
Contracting Officer
CH2MHILL Plateau Remediation Company
PO Box 1600, M/S H8-42
Richland, WA 99352
Phone: (509) 376-0919
Fax: (509) 376-5562
noreen_a_clifford@rl.gov

PART I - STATEMENT OF WORK

1.0 INTRODUCTION / BACKGROUND

As a prime contractor to the U.S. Department of Energy (DOE), CH2M HILL is focusing on the safe, environmental cleanup of the Central Plateau of DOE's Hanford Site. CH2M HILL's scope of work includes treatment and disposal of various radioactive waste streams, groundwater, management of spent nuclear fuel, disposal or disposition of nuclear materials, and non-reactor nuclear facilities, and environmental remediation activities currently funded through DOE's Office of Environmental Management.

This statement of work identifies the Contractor's scope as it relates to the support of 100K River Water Isolation Project.

2.0 DESCRIPTION OF WORK – GENERAL

The Buyer requires the Contractor to perform all work necessary to install a potable water treatment facility, multi-purpose water storage tank and foundation, diesel powered fire water pump, and piping distribution systems for potable water and fire water. Contractor will procure all material required for the installation unless identified as supplied by others in this Statement of Work (SOW), the specifications, or drawings.

The Contractor shall be responsible for execution of the work in accordance with the quality standards and requirements specified in the SOW, the specifications, and drawings.

3.0 DESCRIPTION OF WORK – SPECIFIC

The Contractor shall furnish all necessary labor, supervision, materials, tools, services, and equipment required to perform the work scope as detailed in this SOW. Equipment and material includes tools and procurement of all material, including consumables, and the construction, testing, and quality assurance necessary to construct/install systems and facilities in accordance with Tasks identified in this SOW, Drawings, Specifications, and associated Contract Documents.

3.1 Tasks

The following is intended to be broad in scope, identifying major work elements only and should not be considered all inclusive.

3.1.1 Task 1 – Site Preparation

Perform all necessary site preparation (clear, grub, level, etc.) for installation of the foundations for the water storage tank, potable water treatment building, and required underground utilities. Contractor will dispose of excess material to location specified by the Buyer.

3.1.2 Task 2 – Water Treatment Building

A. Procure and erect the pre-engineered building per the specifications and drawings. In general the Contractor's responsibility is inclusive of: building and foundation design to match floor plan and details shown on the drawings. Contractor will coordinate details of foundation to match structural details of prefabricated building systems. Contractor will be responsible for design and engineering, all procurement and fabrication as further defined in the specification and drawings.

B. The erector of the pre-engineered building, if different from the manufacturing company, shall have specialized experience in the erection of steel building systems, having completed a minimum of five projects, and shall be licensed or certified by the manufacturer of the building system.

C. Provide interior wall framing and walls for the water treatment area, electrical and motor control center room, and fire protection room as required by the specifications and drawings.

D. Procure and install the waste water cistern and connect to the building drain piping as required by the specifications and drawings.

E. Procure and install specified process tanks, process pumps, process piping, and instrumentation as required by the specifications and drawings.

F. Provide and install the building ground system, building electrical distribution system, building lighting, and other electrical components as required by the specifications and drawings.

G. Install fire protection pump, jockey pump, associated piping, and electrical.

H. Install fire protection piping and associated equipment in the fire protection room.

I. Sequence building erection and/or building design to accommodate Contractor installation of Buyer furnished equipment. Specifically, the fire water pump and the microfiltration water treatment skid and associated equipment.

- Microfiltration system availability date to the Contractor is
- Fire and jockey pump availability date to the Contractor is

3.1.3 Water Storage Tank

A. Contractor will procure and erect the multi-purpose water storage tank. Water Storage Tank will procured by the Contractor in accordance with procurement specification KBC-42023. In general, the Contractor's work responsibility is inclusive of: all tank and foundation design and engineering. Contractor will be responsible for design and engineering, all procurement and fabrication as further defined in the specification and drawings.

B. Contractor will perform excavation/backfill for the tank foundation, structural fill, trench excavation/pipe bedding/backfill under the tank for piping that penetrates the tank bottom (to the point each pipe is 10 feet beyond the outside of the tank).

C. Contractor will place concrete foundation, anchor bolts, pipe penetrations through the tank bottom and inclusive of the associated piping to the point each pipe is 10 feet beyond the outside of the tank.

D. Contractor will provide and install all tank bottom/wall/ roof steel components, roof supports, hatches, manholes, overflow, roof vent, nozzles, ladders, railing at the roof edge.

E. Contractor will provide and install lightning protection including all associated grounding.

F. Contractor will provide and apply coating and/or other permissible corrosion protection features.

G. Contractor will provide and apply the specified tank insulation/lagging.

H. Contractor will provide all required testing of the Contractor's installations, and all required documentation (including submittals, Quality Assurance, Quality Control, testing, and certification[s]).

3.1.4 Task 4 – Install Microfiltration System

A. Install the buyer furnished microfiltration water treatment skids
B. Install associated Contractor provided piping, instrumentation, and electrical wiring.
C. Pressure testing
D. Electrical testing
E. Instrument loop wiring and termination verification
F. Support for equipment testing and acceptance

3.1.5 Task 5 – Fire Protection Piping, Fire Pump, and Fire Alarm Control Panel

A. The Contractor is responsible for the design and proper installation of the automatic sprinkler system in accordance with the specifications and drawings. The Contractor is responsible to coordinate with the architectural, mechanical, and electrical design and construction documents.

B. The design and installation of the automatic sprinkler system shall be accomplished by a licensed sprinkler contractor or licensed company regularly engaged in this type of work.

C. The FACP installer will be licensed to engage in the design, fabrication, and installation of the fire alarm system and will have extensive experience with the installation and testing of systems of this nature. Installer will be factory certified representative of the manufacturer of the FACP.

D. The Contractor will install the Buyer provided diesel powered fire pump, jockey pump, fire pump controller (reference Procurement Specification KBC-42021), and fire alarm control panel. The Contractor will furnish all equipment and appurtenances necessary for the proper installation of the diesel powered fire pump, jockey pump, fire pump controller, and the fire alarm control panel (FACP) as identified in the specifications and drawings.

E. Contractor will provide support during pump installation certification and acceptance testing of the fire pump.

3.2 Acceptance Criteria

3.2.1 Task 1 – Site Preparation

A. Required site elevation and contours achieved to the extent necessary to begin installation of required footings and foundations and underground utilities. Removal of all boulders, cobbles, and other unusable materials to the approved location.

3.2.2 Task 2 – Water Treatment Building

A. Finished work, including tests, inspections, verifications, submittals, and construction documentation shall conform to and meet the requirements as set forth and stated in this SOW, drawings, specifications, attachments, and other Contract Documents.

3.2.3 Task 3 – Water Storage Tank

A. Finished work, including tests, inspections, verifications, submittals, and construction documentation shall conform to and meet the requirements as set forth and stated in this SOW, drawings, specifications, attachments, and other Contract Documents.

3.2.4 Task 4 - Install Microfiltration System

A. Finished work, including tests, inspections, verifications, submittals, and construction documentation shall conform to and meet the requirements as set forth and stated in this SOW, drawings, specifications, attachments, and other Contract Documents.

3.2.5 Task 5 – Fire Protection Piping and Fire Pump

A. Finished work, including tests, inspections, verifications, submittals, and construction documentation shall conform to and meet the requirements as set forth and stated in this SOW, drawings, specifications, attachments, and other Contract Documents.

3.3 Mobilization

The Contractor shall secure all necessary registrations, medical exams, bioassay evaluations, appropriate dosimeters and training required prior to performing any on-site work.

A. The Contractor shall mobilize required labor, equipment, and materials to the work site.

084640130-004, Rev. 0	*Construction Specification for 100-K Water Line and Filtration System*
KBC-42021	*Procurement Specifications for Fire Pumps* (reference only)
KBC-42022	*Procurement Specifications for Microfiltration System* (reference only)
KBC-42023	*Procurement Specification for Water Storage Tank*

4.4 Drawings

The drawings included below, are hereby incorporated into, and made a part of this Statement of Work. They shall have the same force and effect as if written into the body of the Statement of Work.

Drawing No.	Rev.	Title
H-1-91184 sht.7	1A	100K WATER LINE AND WATER FILTRATION 100K CIVIL SECTIONS & DETAILS
H-1-91185 sht.6	E	100K WATER LINE AND WATER FILTRATION 100K CIVIL SECTIONS & DETAILS
H-1-91185 sht.8	E	100K WATER LINE AND WATER FILTRATION 100K CIVIL SECTIONS & DETAILS
H-1-91185 sht.12	0	100K WATER LINE AND WATER FILTRATION 100K CIVIL SECTIONS & DETAILS
H-1-91185 sht.13	0	100K WATER LINE AND WATER FILTRATION 100K CIVIL SECTIONS & DETAILS
H-1-91185 sht.14	0	100K WATER LINE AND WATER FILTRATION 100K CIVIL SECTIONS & DETAILS
H-1-91185 sht.15	0B	100K WATER LINE AND WATER FILTRATION 100K CIVIL SECTIONS & DETAILS
H-1-91185 sht.16	0	100K WATER LINE AND WATER FILTRATION 100K CIVIL SECTIONS & DETAILS
H-1-91185 sht.18	B	100K WATER LINE AND WATER FILTRATION 100K CIVIL SECTIONS & DETAILS
H-1-91185 sht.21	B	100K WATER LINE AND WATER FILTRATION 100K CIVIL SECTIONS & DETAILS
H-1-91185 sht.23	B	100K WATER LINE AND WATER FILTRATION 100K CIVIL SECTIONS & DETAILS
H-1-91186 sht. 1	0A	100K WATER TREATMENT PLANT GRADING PLAN
H-1-91186 sht. 2	0A	100K AREA WATER LINE AND WATER FILTRATION ENLARGED SITE PLAN
H-1-91186 sht. 3	0A	100K AREAWATER TREATMENT FOUNDATION PLAN
H-1-91186 sht. 4	0A	FOUNDATION 100-K WATER TREATMENT FOUNDATION EQUIPMENT PAD PLAN
H-1-91186 sht. 5	0A	100K AREA WATER LINE AND WATER FILTRATION SECTIONS

Drawing No.	Rev.	Title
H-1-91186 sht. 6	0A	100K WATER LINE AND WATER FILTRATION DETAILS
H-1-91502 sht. 1	0	100-K TREATMENT BUILDING FLOOR PLAN
H-1-91502 sht. 2	0	100-K TREATMENT BUILDING FLOOR PLAN
H-1-91505 sht. 1	0	100K WATER SYSTEM ELECTRICAL ONE-LINE DIAGRAGM
H-1-91505 sht. 2	0	100K WATER SYSTEM ELECTRICAL LEGEND
H-1-91506 sht. 1	0	100K AREA WATER SYSTEM ELECTRICAL ONE-LINE DIAGRAGM
H-1-91506 sht. 2	0	100K AREA WATER SYSTEM ELECTRICAL LIGHTING PLAN
H-1-91506 sht. 3	0	100K AREA WATER SYSTEM ELECTRICAL PANEL SCHEDULES
H-1-91506 sht. 4	0	100K AREA WATER SYSTEM ELECTRICAL DETAILS
H-1-91506 sht. 5	0	100K AREA WATER SYSTEM ELECTRICAL DETAILS
H-1-91508 sht. 1	0	100K AREA WATER SYSTEM ELECTRICAL INSTRUMENT PLAN
H-1-91509 sht. 1	0	100K AREA WATER SYSTEM CONTROL SYSTEM DIAGRAMS
H-1-91509 sht. 2	0	100K AREA WATER SYSTEM CONTROL SYSTEM LOOP DIAGRAMS
H-1-91509 sht. 3	0	100K AREA WATER SYSTEM CONTROL SYSTEM LOOP DIAGRAMS
H-1-91509 sht. 4	0	100K AREA WATER SYSTEM ELECTRICAL VFD ELEMENTARY
H-1-91509 sht. 5	0	100K AREA WATER SYSTEM ELECTRICAL SOFT START ELEMENTARY
H-1-91509 sht. 6	0	100K AREA WATER SYSTEM ELECTRICAL MOTOR CONTROL ELEMENTARY
H-1-91509 sht. 7	0	100K AREA WATER SYSTEM ELECTRICAL MOTOR CONTROL ELEMENTARY
H-1-91512 sht. 1	0	100K AREA WATER SYSTEM PIPING AND INSTRUMENTATION SYMBOLS, LEGEND & NOTES
H-1-91512 sht. 2	0	100K AREA WATER SYSTEM PIPING AND INSTRUMENTATION DIAGRAM
H-1-91512 sht. 3	0	100K AREA WATER SYSTEM PIPING AND INSTRUMENTATION DIAGRAM
H-1-91512 sht. 4	0	100K AREA WATER SYSTEM PIPING AND INSTRUMENTATION DIAGRAM
H-1-91512 sht. 5	0	100K AREA WATER SYSTEM PIPING AND INSTRUMENTATION DIAGRAM
H-1-91512 sht. 6	0	100K AREA WATER SYSTEM PIPING AND INSTRUMENTATION DIAGRAM

Drawing No.	Rev.	Title
H-1-91512 sht. 7	0	100K AREA WATER SYSTEM PIPING AND INSTRUMENTATION DIAGRAM
H-1-91513 sht. 1	0	PIPING 100-K WATER TREATMENT FACILITY PLAN
H-1-91513 sht. 2	0	PIPING 100-K WATER TREATMENT FACILITY PLAN
H-1-91513 sht. 3	0	PIPING 100-K WATER TREATMENT FACILITY PLAN
H-1-91513 sht. 4	0	PIPING 100-K WATER TREATMENT FACILITY PLAN
H-1-91513 sht. 5	0	PIPING 100-K WATER TREATMENT ENLARGED PLAN & SECT
H-1-91513 sht. 6	0	NOT USED
H-1-91513 sht. 7	0	NOT USED
H-1-91513 sht. 8	0	PIPING 100-K WATER TREATMENT PIPING DETAIL AND SECTIONS
H-1-91513 sht. 9	0	PIPING 100-K WATER TREATMENT PIPING DETAIL AND SECTIONS
H-1-91514 sht. 1	0	PIPING 100-K WATER TREATMENT FACILITY SECTIONS
H-1-91515 sht. 1	0	PIPING 100-K WATER TREATMENT FACILITY DETAILS
H-1-91515 sht. 2	0	PIPING 100-K WATER TREATMENT FACILITY DETAILS
H-1-91516 sht. 1	0	100K WATER TREATMENT HVAC PLAN

4.5 Exhibits

The exhibits included below, are hereby incorporated into, and made a part of this Statement of Work. They shall have the same force and effect as if written into the body of the Statement of Work.

Exhibit No.	Rev.	Title
A. Form A-6004-054		Daily Activity Report (DAR)
B. Form A-6004-757		Supplier Document Submittal
C. Form A-6003-063		Request for Clarification/Information (RCI)
D. Form BC-6004-967		Work Release for Construction/Services Organization
E. Form A-6003-412		Chemical Inventory Worksheet

Applies to Contract	Document Number	Title
☒	PRC-PRO-SH-7085	Safety Responsibilities
☒	PRC-RD-SH-7459	Safety Showers and Eyewashes
☒	PRC-PRO-SH-095	Scaffolding
☐	PRC-PRO-SH-105	Steam Generation and Distribution System Safety
☒	PRC-PRO-SH-3468	Stop Work Responsibility
☒	PRC-RD-SH-11198	Storing, Using and Handling Compressed Gases
☒	PRC-RD-SH-29096	Tags, Signs and Barriers
☒	PRC-PRO-SH-10321	Walking/Working Surfaces
Applies to Contractor	Requirement documents not controlled by CHPRC	Title
☒	DOE-0336	Hanford Lockout/Tagout Program
☒	DOE-RL-92-36	Hanford Hoisting & Rigging Manual
☒	PRC-PRO-SH-10468	Chemical Management Process
☒	HNF-RD-8589	Hanford Fire Marshal Permits
☒	HNF-RD-9900	Hot Work Performance Requirements
☒	HNF-RD-9717	Fire Prevention for Construction / Occupancy/Demolition Activities
☒	HNF-RD-10606	Fire Protection Program Requirements
☐	HNF-RD-11227	Use of Explosives of the Hanford Site

I. Prior to start of work, the Contractor shall submit documentation of successful completion of the training requirements of any applicable activities covered in DOE-RL-92-36 Rev. 1, and certification that all training is current.

For previous training or construction contractor equivalency training to be acceptable for Hanford Site qualification, documented evidence must include type and class of equipment. For qualifications not related to equipment operation, personnel must have documented evidence of training and experience related to the activity as specified by DOE-RL-92-36 Rev. 1. Specifically:

EXHIBIT 21

Report No. 006	CHPRC - CONSTRUCTION DAILY ACTIVITY REPORT	Page 1 of 3

Prepared by	Contract/Package No.	Date
Klint Johnson	2010-IWL-001	4/13/10

Contract/Project	Mo	Tu	We	Th	Fr	Sa	Su
Import waterline and 100K FW&PW lines		X					

AVERAGE FIELD FORCE

Company/Name	Craft	Exempt	Overtime	
			Workers	Hours
Watts Const.	7	1		
CHPRC - IH		1		
OREDA- Watts support		1		
CHPRC - Radcon	2			

EQUIPMENT AT SITE

Type/Model/Status	Inspected (Y) (N)
325 Hitachi Excavator	Y
624 Johndeere loader	Y
450 Hitachi Excavator	Y
1 Ton Service Truck	Y
Asphalt grinder attachment	Y
Water truck	Y
Vac truck	Y
Dump truck & pup	Y
Side dump	Y
Komatsu Mini Excavator	Y

WEATHER-WIND-TEMPERATURE

Bright [x] Rain [ ] Snow [ ] Cloudy [X]

Calm [ ] Slight Breeze [x] High Wind [ ]

To 31	32-49	50-69	70-84	85-Up
[ ]	[ ]	[x	[ ]	[ ]

1. Progress 2. Safety 3. Discussions 4. Changes 5. General (Problems/Reasons for poor performance, etc.)

PROGRESS

- Completed compaction & backfill requirements to answer & prove the method described in the RCI could be completed satisfactorily to CHPRC Engineer.
- Completed installation of 160 LF 12" FW 105KW pipe, & 140 LF of bedding & backfill. Total of pipe installed 360 FT., backfilled& compacted 300 FT.
-
- Notified 100K shift office before starting vac truck and trenching activities.
- Contractor installed secondary boundary around trenches within required setback from trench edge.

SAFETY

- Re-iterated to contractor that they will have a line watch person designated for activities under powerlines.
- Stressed to contractor crew that eye protection & contact between equipment and ground personnel is very important.
- Required secondary boundary needed around trench excavation before ,during ,and after the trench is dug.
- Discussed proper PPE for their tasks to be worn at all times.
- Discussed the emergency number in which to dial on a cellular phone (373-0911)
- Discussed good housekeeping, to prevent slips,trips & falls.

DISCUSSION

- Discussed lines of communications between crew and supervisor is understood &clear. Made sure the operators & RCT support had radios in order to communicate the needs between both parties.
- Concurred with Rick Swallow on the use of a nuclear densometer to be used by Intermountain testing for compaction testing. Shift office will be notified when intermountain is present.

CHANGES

- Placement of the first 90° fitting & alignment on North Wastch will be set 6FT. south of it's original design.
- Placement of Fire hydrant has changed from design to 134 FT south of the placement of the 90 elbow and Hydrant will be on the west side of Wastch near new future parking lot.
- A DCN was put in place to allow for both changes.
- These changes were implemented in the field.

GENERAL

- WRCSOF completed for 4/14/10.

A-6004-822 (REV 0)

Report No. 006	CHPRC - CONSTRUCTION DAILY ACTIVITY REPORT	Page 2 of 3

NEXT WORK DAY

- Continuation of pipe installation & backfill with compaction.
- Backfill test conducted in the morning Mon. 4/14/10

A-6004-822 (REV 0)

Report No. 006	CHPRC - CONSTRUCTION DAILY ACTIVITY REPORT	Page 3 of 3

A-6004-822 (REV 0)

EXHIBIT 22

Report No. 002	CHPRC - CONSTRUCTION DAILY ACTIVITY REPORT	Page 1 of 3

Prepared by	Contract/Package No.	Date
Klint Johnson	2010-IWL-001	4/28/10

Contract/Project	Mo	Tu	We	Th	Fr	Sa	Su
Import RAW waterline			x				

AVERAGE FIELD FORCE

Company/Name	Craft	Exempt	Overtime	
			Workers	Hours
Watts Const.	3			
CHPRC - IH		1		
OIEDA- Watts support	1	1		
MSA Radcon		1		

EQUIPMENT AT SITE

Type/Model/Status	Inspected (Y) (N)
225 Hitachi Excavator	Y
624 Johndoere loader	Y
450 Hitachi Excavator	Y
1 Ton Service Truck	Y
720 Johndoere blade	Y
Water truck	Y
Vac truck	Y
Dump truck & pup	Y
Side dump	Y
Cat 725 offroad dumptruck	Y

WEATHER-WIND-TEMPERATURE

Bright [x] Rain [ ] Snow [ ] Cloudy [x

Calm [ ] Slight Breeze [x] High Wind [ ]

To 31	32-49	50-69	70-84	85-Up
[ ]	[ ]	[x]	[ ]	[ ]

1. Progress 2. Safety 3. Discussions 4. Changes 5. General (Problems/Reasons for poor performance, etc.)

PROGRESS

- **Contractor has completed the design staking & surveying.**
- **Continued Clearing & grubbing up to 4500 FT. (45%)-of total.**
- **Contractor to mobilize needed equipment for project.**
- **Set up meeting with a PNL represenitive for a walk down, & observation of excavation activities.**

SAFETY

- Using eye & radio contact with equipment operator's and ground personnel within their work areas.
- Continued use of proper PPE for the task's encountered by all crafts.
- Discussed the need for coordinating truck & equipment traffic with spotters in conjested areas to allow
- For an extra set of eyes during operations.

DISCUSSION

- **Notified contractor to avoid the two main culturally sensitive ares until there is a representative from tribunal community there onsite.**
- **Stressed the importance of keeping good housekeeping with all boundaries on the project.**
- The importance of closing rope barrier at pit 23 at the end of shift.

CHANGES

A-6004-822 (REV 0)

Report No. 002	CHPRC - CONSTRUCTION DAILY ACTIVITY REPORT	Page 2 of 3

GENERAL

- Should have concurrence on last signature needed on the Excavation report by close of business.

NEXT WORK DAY

- Contractor to begin clear & grub activities along pipe route.

A-6004-822 (REV 0)

Report No. 002	CHPRC - CONSTRUCTION DAILY ACTIVITY REPORT	Page 3 of 3

A-6004-822 (REV 0)

EXHIBIT 23

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011

Week Ending February 12, 2010
(First instance of water/fire project in ARRA Weekly Reports)

Facility D&D
Isolation of 100K Area utilities continued in support of cold and dark conditions for buildings, structures, and waste sites that are planned for D&D and remediation. This includes replacing portions of the current electrical and water supply systems with temporary systems to limit restrictions on demolition and remediation activities. Contracts have been awarded for construction of a temporary underground water line, microfiltration unit, and a skid-mounted electrical substation. A cultural and ecological review of the locations for the water line and microfiltration unit are nearing completion.

Week Ending February 19, 2010

Facility D&D
Isolation of 100K Area utilities continued in support of cold and dark conditions for buildings, structures, and waste sites that are planned for D&D and remediation. This includes replacing portions of the current electrical and water supply systems with temporary systems to limit restrictions on demolition and remediation activities. The cultural and ecological review of the locations for the water line and microfiltration unit continued.

Week Ending February 26, 2010

Facility D&D
Isolation of 100K Area utilities continued in support of cold and dark conditions for buildings, structures, and waste sites planned for D&D and remediation. A total of 16,500 feet – more than three miles – of piping arrived for the water line that will be constructed to ease restrictions on work activities in the 100K Area. Planned construction sites are being scanned with ground-penetrating radar to support safe excavation. Engineering and electrical utilities organizations are reviewing modifications to the electrical system. Cultural and ecological reviews of locations for the water line and microfiltration unit are in progress.

Week Ending March 05, 2010

Infrastructure Utilities Upgrade Project
Isolation of 100K Area utilities continued in support of cold and dark conditions for buildings, structures, and waste sites planned for D&D and remediation. Scanning of planned construction sites with ground-penetrating radar continued. Construction materials are being delivered. A pre-bid conference was conducted with potential bidders for a design/build contract for the water treatment facility and dual-use water tank. The cultural and ecological reviews of the locations for the water line and treatment plant facility have been completed and the results are being reviewed internally by the Pacific Northwest National Laboratory. Engineering design reviews for re-routing the 13.8KV electrical lines were completed. Transformer and switch gear procurements are being accelerated as result of a meeting with the contractor for the skid-mounted substation to identify opportunities for schedule acceleration.

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011

Week Ending March 12, 2010

Infrastructure Utilities Upgrade Project
Isolation of the 100K Area utilities continued in support of cold and dark conditions for buildings, structures, and waste sites planned for D&D and remediation. Ground-penetrating radar scanning of planned construction sites and delivery of construction materials continued. The cultural and ecological reviews of locations for the water line and treatment plant have been completed and the results are being reviewed internally by the Pacific Northwest National Laboratory. The fire water and potable water supply Statement of Work was revised to support future procurement activities. Design drawings for the fire water supply and potable water supply are being reviewed internally. Staff continue to be added to support construction activities. Final engineering design and specifications for re-routing the 13.8KV electrical lines were completed and transmitted to the CHPRC procurement organization for preparation of a request for bid. The Infrastructure Utilities Upgrade Project activities are being closely coordinated with other 100K Area activities to ensure safe and efficient operations.

Week Ending March 19, 2010

Infrastructure Utilities Upgrade Project
Isolation of the 100K Area utilities continued. Equipment and materials to support construction activities are being procured and staged for the start of construction. Excavation permits are being prepared. The cultural and ecological reviews of locations for the water line and treatment plant have been approved and will be provided to interested Native American Tribes for review.

Week Ending March 26, 2010

Infrastructure Utilities Upgrade Project
Isolation of the 100K Area utilities continued. Equipment and materials to support construction activities are being procured and staged for the start of construction. Backfill material needed for construction activities is being staged for future use. Heavy equipment is being received. Work execution documents are being prepared and construction bids are being received and evaluated.

Week Ending April 02, 2010

Infrastructure Utilities Upgrade Project
Isolation of the 100K Area utilities continued. Equipment and materials to support construction activities are being procured and staged for the start of construction. Backfill material needed for construction activities is being staged for future use. Heavy equipment has been received. Work execution documents are being prepared, designs are being finalized, and construction bids are being received and evaluated. The cultural and ecological review report for the import water line installation was approved by DOE and a 30-day public review period has commenced. Fabrication of the fire pump and microfiltration unit for the Water Treatment Facility is ongoing.

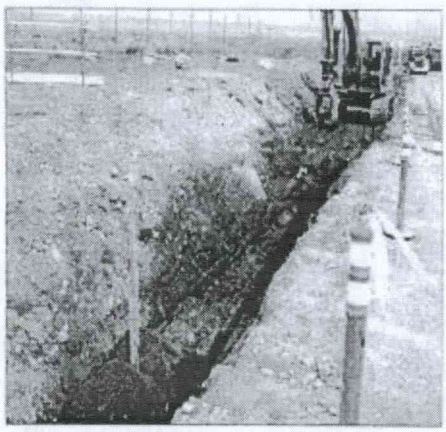
EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011

Week Ending April 09, 2010

Infrastructure Utilities Upgrade Project
Isolation of the 100K Area utilities continued. Equipment and materials for construction activities are being procured and staged for the start of construction. Backfill material is also being staged for future use. Work execution documents are being prepared and designs are being finalized. Field construction activities are expected to begin next week. The 30-day public review period for the cultural and ecological review report for installation of the import water line continued. Fabrication of the fire pump and microfiltration unit for the Water Treatment Facility is ongoing. Design and fabrication of the skid-mounted electrical substation continued.

Week Ending April 16, 2010

Infrastructure Utilities Upgrade Project
Isolation of the 100K Area utilities continued. Equipment and materials for construction activities are being procured and staged for construction. Backfill material is being staged for future use. Work execution documents are being prepared and designs are being finalized. The 30-day public review period for the cultural and ecological review report for installation of the import water line continued. About 380 feet of pipe for the fire water line have been installed. Backfilling and compaction were completed for about 300 feet of the pipe trenches. Fabrication of the fire pump and microfiltration unit for the Water Treatment Facility is ongoing. A ground-penetrating radar survey of the Water Treatment Facility building footprint was completed. Design and fabrication of the skid-mounted electrical substation is continuing.



Week Ending April 16, 2010
Pipe for the fire water line is being installed in the 100K Area. The line will provide water for use in the event of a fire and is being constructed with Recovery Act funding as part of the 100K Area Infrastructure Utilities Upgrade Project to reroute utilities to ease impacts on upcoming demolition and remediation activities.

Week Ending April 23, 2010

Infrastructure Utilities Upgrade Project
Isolation of the 100K Area utilities continued. The 30-day public review period for the cultural and ecological review report regarding the installation of the import water line was completed and construction of the import line was approved to move forward. Excavation documents were completed and are being approved. A traffic safety plan for locations where the import line construction will cross roads is being prepared. Materials for the import line are being procured and staged for use.

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011

Pipe installation for the 100K Firewater and Potable Water system continued. About 1,440 feet of firewater pipe has been installed. Backfilling and compaction has been completed for 750 feet of pipe. Asphalt saw cutting started on the near 105KW facility in preparation for installation of fire and potable water pipe to the 105KW facility. A preconstruction meeting was conducted with the contractor for the Water Treatment Facility. Submittals from the contractor are being received and processed. Fabrication of the fire pump and microfiltration unit for the Water Treatment Facility is ongoing.

Week Ending April 30, 2010

Infrastructure Utilities Upgrade Project
Isolation of the 100K Area utilities continued. Excavation documents for the import waterline were approved and clearing and grubbing of the pipe route was initiated. A traffic safety plan for locations where the import line construction will cross roads was completed and is being implemented. Materials for the import line are being procured and staged for use in the designated lay down area.

Pipe installation for the 100K fire water and potable water system continued. About 1,940 feet of firewater pipe has been installed. Backfilling and compaction is complete for about 1,550 feet of pipe. Asphalt saw cutting continued near the 105KW facility in preparation for installation of fire and potable water pipe to the 105KW facility. Contractor bids are being sought for the installation of fire water and potable water for the remainder of the 100K Area.

The contractor mobilized for construction of the Water Treatment Facility. The Water Treatment Facility will be used to provide potable for the 100K Area so that existing treatment facilities can be deactivated and demolished. Equipment was inspected and a construction office was installed. An initial site grading survey was completed and a site access road established. Site boundaries were defined and signs were installed. A geotechnical survey for soils under the tank foundation was performed. Fabrication of the fire pump and the microfiltration unit for the Water Treatment Facility is ongoing.

Trench excavation for the A9 Switchyard Site upgrade continued. Approximately 300 feet of trench has been excavated and about 1,200 feet of conduit installed. Three more utility vaults were installed. Three oil-filled circuit breakers were removed from the switchyard to make room for the installation of new equipment. Fabrication of the 230kV Mobile Skids is continuing. Revisions are being made to the 13.8KV re-route design. Material procurement will begin after the design changes are completed and approved.

Week Ending May 07, 2010

Infrastructure Utilities Upgrade Project
Isolation of the 100K Area utilities continued. Trench excavation, pipe installation, and backfill began for the import water line. Nearly 8,000 feet of pipe has been installed. Pipe casing was installed at two road crossings and one railroad crossing. Pipe is being located along the pipe route.

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS

Compiled from IDMS, April 5, 2011

Approximately 2,500 feet of fire water pipe has been installed with backfilling and compaction completed for about 2,350 feet of pipe for the 100K fire water and potable water system. Asphalt saw cutting was completed and pot hole excavation began near the 105KW facility in preparation for installation of fire and potable water pipe. Contractor bids are being obtained for the installation of fire water and potable water line for the remainder of the 100K Area.

At the site of the future 100K Area Water Treatment Facility, a geotechnical survey of soils under the foundation locations indicated the top four feet of soil will need to be removed in order to reach the undisturbed native soil. The construction contractor is removing the undesirable soils and replacing them with structural fill. A sump pit was excavated and compacted and concrete forms construction began. Building and tank designs were submitted and approved; off-site fabrication was initiated. Fabrication of the fire pump and the microfiltration unit for the Water Treatment Facility is ongoing.

Week Ending May 07, 2010
Excavation and soil removal is in progress at the construction site for the 100K Area Water Treatment Facility. The facility will provide potable water for the 100K Area so that CHPRC can deactivate and demolish the existing treatment facilities.

Trench excavation for the A9 Switchyard Site upgrade continued. Approximately 1,400 feet of trench has been excavated and 6,000 feet of conduit installed. Fourteen of 18 utility vaults have been installed.

Week Ending May 14, 2010

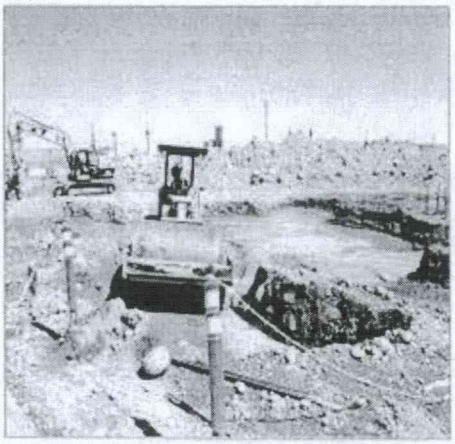
Infrastructure Utilities Upgrade Project
Installation of the import water line continued. About 2,700 feet of pipe for the import water line was installed, including three road crossings. About 90 percent of the pipe route was cleared and grubbed. A Hanford Site cultural resources representative monitored as workers excavated 340 feet of trench for the import water line in a culturally sensitive area. No significant discoveries were encountered.

Installation of the fire water pipeline along the southwestern portion of the 100K Area is nearly complete. About 2,900 feet of firewater pipe has been installed. Installation of a 4-inch potable water pipe to the 105KW Building and Cold Vacuum Drying Facility was started.

Contractor bids for the installation of fire water and potable water line for the remainder of the 100K Area have been received and are being evaluated.

The top four feet of soil was removed at the site of the Water Treatment Facility and structural backfill is being placed and compacted. Construction office trailers were set in place. Concrete

form construction continued. Off-site fabrication for building, tank, and process piping is ongoing.



Week Ending May 14, 2010
A worker compacts soil at the site of the future Water Treatment Facility. The facility will provide potable water for the 100K Area and allow existing facilities to be demolished to reduce restrictions on future demolition and remediation activities.

Week Ending May 21, 2010

Infrastructure Utilities Upgrade Project
About 6,100 feet of pipe has been installed, including three road crossings, for the import water line. Overall, installation of the import water line is about 50 percent complete. Installation of the fire water pipeline along the southwestern portion of the 100K Area is complete. Installation of a 4-inch potable water pipe to the 105KW Building and Cold Vacuum Drying Facility continued. About 1,500 feet of pipe and fittings has been installed. The locations for the fire and potable water pipe installation on the west side of the 105KW Reactor building were surveyed and marked. A staging area was established for ERDF containers that will be used to receive soils removed from the work site. A contract for installation of the fire water and potable water line for the remainder of the 100K Area was awarded and contractor submittals are being processed.

Week Ending May 21, 2010
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Placement of compacted structural backfill was completed for the Water Treatment Facility. Building sump and building footing concrete form construction continued. Off-site fabrication for the fire pump, Water Treatment Building, tank, and microfiltration unit is ongoing. Off-site fabrication for process piping started.

Week Ending May 28, 2010

Infrastructure Utilities Upgrade Project
Installation of the import water line continued. About 8,100 feet of pipe and fittings have been installed to date, with three completed road crossings. Overall, installation of the import water line is about 70 percent complete.

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS

Compiled from IDMS, April 5, 2011

Installation of the 12-inch fire water and 4-inch potable water lines along the southwestern perimeter (inside the fence) of the 100K Area is complete. Filling of the 12-inch fire water line for flushing and testing activities started.

Installation of a 4-inch potable water pipe to the 105KW Reactor building and Cold Vacuum Drying Facility continued. Fitting and saw cutting locations for the fire and potable water pipe installation on the west side of the 105KW Reactor building were marked. A staging area was prepared for placement of ERDF containers that will be used to receive soils removed from the work site. Contractor submittals are being processed for installation of the fire water and potable water lines for the remainder of the 100K Area.

Concrete form construction continued for the Water Treatment Facility. Concrete was placed for the sump floor. Off-site fabrication of the tank foundation formwork is complete with delivery expected this week. Off-site fabrication for under-slab piping is complete. About 50 percent of the under-slab piping has been installed with two of five field welds completed. The 12-inch fire water line has been installed from the site boundary to the building foundation. Under-slab electrical conduit has been placed and inspected. Off-site fabrication continued for the fire pump, tank, and microfiltration unit for the Water Treatment Building.

Week Ending June 04, 2010

Infrastructure Utilities Upgrade Project
Installation of the import water line continued. About 10,400 feet of pipe and fittings have been installed to date. Overall, installation of the import water line is about 90 percent complete. Flushing and testing of the import water line is expected to be performed in the next two weeks.

Week Ending June 04, 2010
Forms are being placed for pouring concrete for the tank foundation at the Water Treatment Facility in the 100K Area.

Pressure testing of the 12-inch fire water and 4-inch potable water lines along the southwestern perimeter (inside the fence) of the 100K Area is complete. Final cleanup of the roadway, re-installation of roadway signs, and application of a top fill material to all disturbed areas is also complete. Pot-holing and trench excavation for fire water piping continued on the east side of the 105KW Reactor facilities.

Contractor submittals are being processed for installation of the fire water and potable water lines for the remainder of the 100K Area with construction expected to start next week.

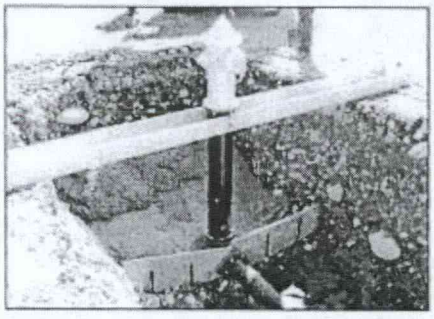
Construction continued for the Water Treatment Facility. Concrete was placed for the sump walls. Concrete forms for the water treatment building stem walls and tank foundation were constructed. The tank foundation form work is about 50 percent complete. The 4-inch potable

water line was installed from the site boundary to the building foundation. Off-site fabrication continued for the fire pump, tank, and microfiltration unit for the water treatment building.

Week Ending June 11, 2010

Infrastructure Utilities Upgrade Project
About 11,100 feet of pipe and fittings have been installed for the import water line. Installation of the import water line is approximately 99 percent complete. Flushing and testing of the line is in progress. Contract changes are pending for the removal of excess rock/overburden from the pipe route.

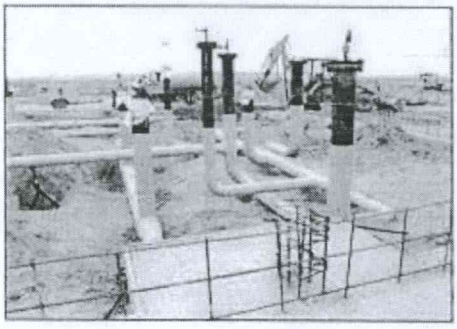
Construction is complete except for a few punch list items for the fire water and potable water lines along the southwestern perimeter (inside the fence) of the 100K Area. Pot-holing and trench excavation for fire water piping continued on the east side of the 105KW Reactor facilities. About 550 feet of trench has been excavated for the fire water and potable water lines for the Cold Vacuum Drying and 105KW facilities. A total of 440 feet of 8-inch fire water pipe was installed, including a fire hydrant. Three sand bedding compaction tests were completed and concrete thrust blocks were poured on the east side of the 105KW Reactor facility.



Week Ending June 11, 2010
A new fire hydrant was installed as part of the 100K Area fire and potable water line construction.

Construction started on the fire water and potable water lines being installed for the remainder of the 100K Area. Recent activities included excavating the trench, installing pipe, and backfilling 860 feet of 12-inch fire water pipe and 460 feet of 4-inch potable water pipe.

Construction of the Water Treatment Facility continued with construction of forms and rebar for the water treatment building stem walls and tank foundation. Forms were removed from the sump walls. Installation of the under-slab piping was completed and under-slab backfilling was initiated. Off-site fabrication continued for the fire pump, tank, and microfiltration unit for the water treatment building.



Week Ending June 11, 2010
Recently installed piping for the Water Treatment Facility that will provide potable water for the 100K Area. CHPRC is constructing the facility with Recovery Act funding to allow existing infrastructure to be removed, limiting restrictions on future demolition and remediation work.

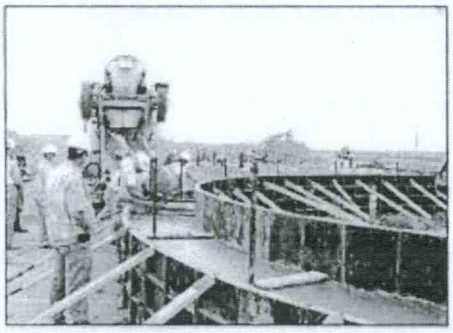
EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011

Week Ending June 18, 2010

Infrastructure Utilities Upgrade Project
Flushing and testing of the import water line continued. Identified leaks are being repaired and re-testing performed as needed. Contract changes are pending for the removal of excess rock/overburden from the pipe route.

Punch-list items are being completed for the fire water and potable water lines along the southwestern perimeter (inside the fence) of the 100K Area. Fire water and potable water line installation continued in the vicinity of the 105KW Reactor facilities. About 800 feet of trench was excavated and 740 feet of 8-inch firewater pipe was installed, including one fire hydrant. Six sand bedding compaction tests were completed and concrete thrust blocks were poured.

Construction continued on the fire water and potable water lines being installed for the remainder of the 100K Area. About 1,240 feet of 12-inch fire water pipe and 1,000 feet of 4-inch potable water pipe have been installed to date.



Construction of the Water Treatment Facility continued. Concrete was poured for the water treatment building stem walls and tank foundation. Under-slab backfilling continued and is about 50 percent complete. Off-site fabrication continued for the fire pump, tank, and microfiltration unit for the water treatment building.

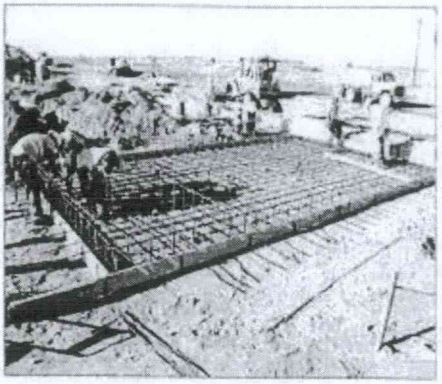
Week Ending June 18, 2010
Concrete is placed for the foundation for the Water Treatment Facility tank in the 100K Area.

Week Ending June 25, 2010

Infrastructure Utilities Upgrade Project
Flushing and testing was completed on the import water line. Punch list items are being completed for the fire water and potable water lines along the southwestern perimeter (inside the fence) of the 100K Area. Fire water and potable water line installation continued in the vicinity of the 105KW Reactor facilities. About 940 feet of trench was excavated, and 720 feet of 8-inch firewater pipe and 90 feet of 6-inch firewater pipe was installed, including another fire hydrant. Excavations are being backfilled. Construction continued on the fire water and potable water lines being installed for the remainder of the 100K Area. About 1,900 feet of 12-inch fire water pipe and 1,460 feet of 4-inch potable water pipe have been installed to date.

Construction of the Water Treatment Facility continued. Concrete was poured for the water treatment tank foundation. Under-slab backfilling continued and is about 90 percent complete. Forms were constructed and concrete was placed for the Water Treatment Facility chemical storage room pits. Off-site fabrication continued for the fire pump, tank, and microfiltration unit.

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011



Week Ending June 25, 2010
Workers install rebar for the foundation of the chemical storage room pits that will be part of the 100K Area Water Treatment Facility. CHPRC is constructing the facility so that existing infrastructure can be removed and future work in the 100K Area can continue with limited restrictions.

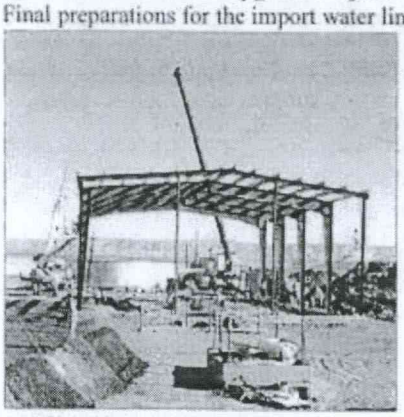
Week Ending July 02, 2010

Infrastructure Utilities Upgrade Project
Final preparations for the import water line continued. Work began for installing actuated control valves, setting and backfilling around valve housings, and removing blow-off valves used for pressure testing and replacing them with brass plugs. Punch-list items are being addressed for the fire water and potable water lines along the southwestern perimeter (inside the fence) of the 100K Area. Fire water and potable water line installation continued in the vicinity of the 105KW Reactor facilities. So far, about 1,390 feet of trench has been excavated and 1,230 feet of 8-inch fire water pipe and 140 feet of 6-inch fire water pipe have been installed. Excavations are being backfilled with controlled density fill and gravel. Construction also continued on the fire water and potable water lines being installed for the remainder of the 100K Area; about 2,440 feet of 12-inch fire water pipe and 2,340 feet of 4-inch potable water pipe have been installed, including four road crossings.

Construction of the Water Treatment Facility continued. Under-slab backfilling for the building was completed and rebar and concrete forms are being placed in preparation for pouring the building slab. Building floor drains, trenches, and grating were installed. Underground piping was pressure tested. Building structural steel is being received and staged for construction. Off-site fabrication continued for the fire pump, tank, and microfiltration unit.

Week Ending July 09, 2010

Infrastructure Utilities Upgrade Project
Final preparations for the import water line continued; no fieldwork was conducted last week. Punch-list items continue to be addressed for the fire water and potable water lines along the southwestern perimeter (inside the fence) of the 100K Area.



Week Ending July 09, 2010
Structural steel columns and roof beams are being installed for the water treatment building in the 100K Area

Fire water and potable water line installation continued in the vicinity of the 105KW Reactor and Cold Vacuum Drying Facility; about 1,870 feet of trench has been excavated and 1,230 feet of 8-inch fire water pipe, 410 feet of 12-inch fire water pipe, and 140 feet of 6-inch firewater pipe have been

installed to date. Excavations are being backfilled with controlled density fill and gravel. Construction continued on the fire water and potable water lines being installed for the remainder of the 100K Area; about 3,110 feet of 12-inch fire water pipe and 2,340 feet of 4-inch potable water pipe have been installed.

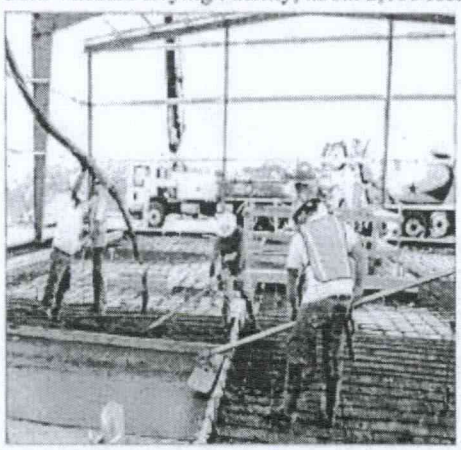
Construction of the Water Treatment Facility continued. Compaction of the under-slab backfill for the building was completed in preparation for pouring of the building slab. Rebar and concrete form installation for the water treatment building continued. The water treatment

building structural steel columns and roof beams are being installed. The storage tank floor and first vertical wall ring were installed and tack welded. Site grading material is being imported and staged for use.

Week Ending July 16, 2010

Infrastructure Utilities Upgrade Project
Rock and soil piles remaining from construction of the import water line are being removed. Work to install actuated control valves, set valve housings and backfill around them, and remove blow-off valves used for pressure testing and replace them with brass plugs was completed.

Fire water and potable water line installation continued in the vicinity of the 105KW Reactor and Cold Vacuum Drying Facility; about 2,100 feet of trench has been excavated and 1,250 feet of 8-inch fire water pipe, 430 feet of 12-inch fire water pipe, and 140 feet of 6-inch fire water pipe have been installed to date. Excavations are being backfilled with controlled density fill and gravel. Construction continued on the fire water and potable water lines being installed for the remainder of the 100K Area; about 4,490 feet of 12-inch fire water pipe, 2,340 feet of 4-inch potable water pipe, and 120 feet of 6-inch fire water pipe have been installed. The fire water and portable water installation for the remainder of the 100K Area is about 80 percent complete.



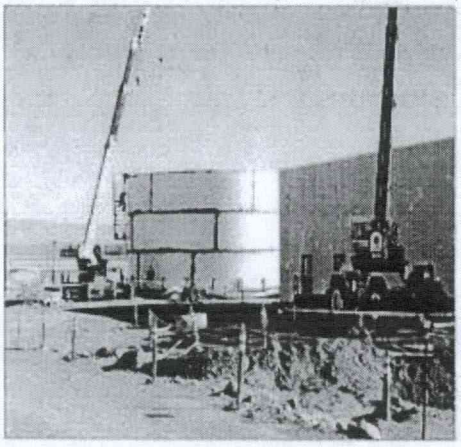
Week Ending July 16, 2010
Concrete for the building slab was poured on the east and west sides of the Water Treatment Facility building being constructed in the 100K Area.

Construction of the Water Treatment Facility continued. Installation of the water treatment building structural steel columns and roof beams is complete. Rebar and concrete form installation for the building slab is also complete. Concrete for the building slab was poured on the east and west sides of the building. Building siding is being installed and is about 80 percent complete. Construction of the storage tank continued. Site grading material continued to be imported and staged for use.

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011

Week Ending July 23, 2010

Infrastructure Utilities Upgrade Project
Rock and soil piles from construction of the import water line are being removed and consolidated for future transport to a previously used borrow pit. The design for the tie-in at the 42-inch export water line was revised and approved.



Fire water and potable water line installation continued in the vicinity of the 105KW Reactor and Cold Vacuum Drying Facility; about 2,650 feet of trench has been excavated and 1,780 feet of 8-inch fire water pipe, 430 feet of 12-inch fire water pipe, and 150 feet of 6-inch fire water pipe have been installed to date. Excavations are being backfilled with controlled density fill and gravel.

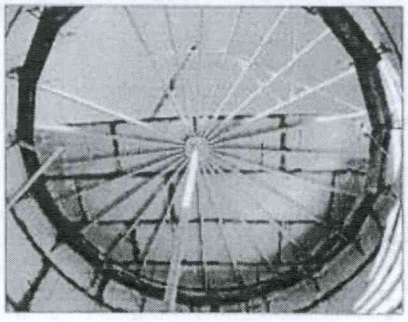
Week Ending July 23, 2010
Installation of the wall and roof panels for the water treatment building in the 100K Area is complete and construction of water storage tank continues.

Construction continued on the fire water and potable water lines being installed for the remainder of the 100K Area; about 4,950 feet of 12-inch fire water pipe, 2,340 feet of 4-inch potable water pipe, and 630 feet of 6-inch fire water pipe have been installed.

Construction of the Water Treatment Facility continued. Installation of the wall and roof panels for the water treatment building was completed. Installation of the building wall insulation was started. Construction of the water storage tank continued and is about 80 percent complete.

Week Ending July 30, 2010

Infrastructure Utilities Upgrade Project
Rock and soil piles from construction of the import water line are being removed and consolidated for future transport to a previously used borrow pit.



Week Ending July 30, 2010
The roof of the Water Treatment Facility water storage tank is installed. The 750,000-gallon, dual-use tank will provide fire and potable water to the 100K Area and allow existing infrastructure to be removed to facilitate future remediation and demolition efforts.

Fire water and potable water line installation continued in the vicinity of the 105KW Reactor and the Cold Vacuum Drying Facility; about 2,700 feet of trench has been excavated and 2,100 feet of 8-inch

fire water pipe, 430 feet of 12-inch fire water pipe, and 165 feet of 6-inch fire water pipe have been installed to date. Excavations are being backfilled with controlled density fill and gravel.

Construction continued on the fire water and potable water lines being installed for the remainder of the 100K Area; about 5,390 feet of 12-inch fire water pipe, 2,340 feet of 4-inch potable water pipe, and 730 feet of 6-inch fire water pipe have been installed. This portion of the infrastructure upgrades is about 95 percent complete.

Construction of the Water Treatment Facility continued with installation of building wall insulation, forming and placing of equipment pads, and process piping installation. The diesel fire pump was received and accepted. The tank roof and railings were installed on the water storage tank.

Week Ending August 6, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water line continued in the vicinity of the 105KW Reactor and the Cold Vacuum Drying Facility; about 3,000 feet of trench has been excavated and 2,400 feet of 8-inch fire water pipe, 430 feet of 12-inch fire water pipe, and 165 feet of 6-inch fire water pipe have been installed to date.

Pipe installation for the fire water and potable water lines for the remainder of the 100K Area is complete with a total of more than 9,500 feet of piping installed - 5,390 feet of 12-inch fire water pipe, 1,046 feet of 6-inch fire water pipe, 2,342 feet of 4-inch potable water pipe, and 760 feet of 3-inch potable water pipe.

Construction of the Water Treatment Facility continued with installation of wall insulation and process piping. The microfiltration unit was received and accepted. Construction of the water storage tank is complete and preparations are being made for painting the tank.

Week Ending August 13, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water line continued in the vicinity of the 105KW Reactor and the Cold Vacuum Drying Facility. Soil from trench excavation was loaded for disposal. Trenches with pipe in place were backfilled with controlled density fill, and gravel was placed over the top of the fill. Flushing and testing were started for the recently installed fire water and potable water lines for the remainder of the 100K Area.
Construction of the Water Treatment Facility continued with installation of building insulation and process piping. Sandblasting was completed on the interior of the water storage tank and an interior coating is being applied. Electrical installation was started on the water treatment building.

Construction efforts for refurbishment of the A9 Substation continued. Installation of a new conduit duct bank from the new Switchgear Building to two skids is complete. Pulling of cable through conduit continued. The 230 kV switches were replaced during a clearance outage.

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011

Week Ending August 20, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water line continued in the vicinity of the 105KW Reactor and the Cold Vacuum Drying Facility (CVDF). Fire water pipe trenches were excavated near the CVDF and bedding sand was placed in the trench. The locations for future tie-ins to the

existing fire water system were excavated. Flushing and pressure testing continued for the recently installed fire water and potable water lines for the remainder of the 100K Area. Construction of the Water Treatment Facility continued with process piping installation, interior electrical installation, and interior framing and drywall for the water treatment building. Underground conduit installation was completed and site finish grading continued. Application of the interior coating was completed for the water storage tank. Exterior coating application began and is about halfway complete.

Week Ending August 27, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water lines in the 100K Area continued. Fire water pipe trench excavation continued near the Cold Vacuum Drying Facility. Pressure testing continued for the recently installed potable water lines for the remainder of the 100K Area.
Installation of process piping, interior electrical wiring, interior framing and drywall, and fire sprinkler lines is in progress for the water treatment building that will be part of the Water Treatment Facility. Application of the exterior coating is complete for the water storage tank.

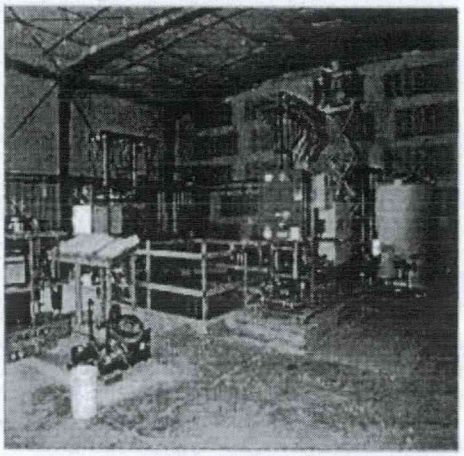
Week Ending September 3, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water lines in the 100K Area continued. The tie-in to the water line feeding the new system was completed and tested. Fire water and potable water trench excavation and pipe installation continued near the Cold Vacuum Drying Facility. Bollards are being installed to protect fire hydrants and valves installed throughout the 100K Area.
Installation of process piping and interior electrical wiring continued for the water treatment building that will be part of the Water Treatment Facility. The multi-stage service water pump was received and is being prepared for installation. **The microfiltration unit is being installed. [Emphasis added]**

Week Ending September 10, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water lines in the 100K Area continued. All field work for the import water line is now complete with the exception of hydro-seeding of the pipe route. Pipe installation continued near the Cold Vacuum Drying Facility for the 4-inch potable water line, including placement of sand bedding in the trenches. All piping has been installed and tested for the fire and potable water line in the remainder of the 100K Area with the exception of future tie-ins after the Water Treatment Facility is ready. Installation of process piping and

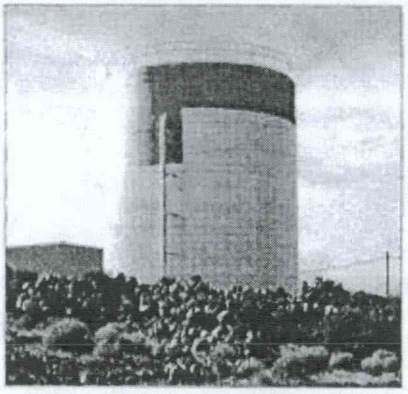
interior electrical wiring continued for the water treatment building that will be part of the Water Treatment Facility. Connections were made to the raw water service line and the Water Storage Tank was filled with 650,000 gallons of water. The Water Storage Tank hydro-test was successfully completed. Site finish grading continued.



Week Ending September 10, 2010
Filtration units are being installed in the Water Treatment Facility in the 100K Area.

Week Ending September 17, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water lines in the 100K Area continued. Trenching and pipe installation continued for the 4-inch potable water line in front of Cold Vacuum Drying Facility. Initiated hydro testing of 105KW loop for the 8-inch fire line (four of six sections completed satisfactorily). Installation of process piping and interior electrical wiring continued for the water treatment building that will be part of the Water Treatment Facility. Site finish grading continued and concrete was placed at the entrances to the facilitiy (sic). Insulation is being placed on the Water Storage Tank.



Week Ending September 17, 2010
Insulation is being installed on the recently constructed Water Storage Tank that is part of the new 100K Area Water Treatment Facility. CHPRC is using Recovery Act funding to construct the water treatment facility to allow existing infrastructure to be removed to facilitate future cleanup activities.

Week Ending September 24, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water lines in the 100K Area continued. Trenching and pipe installation continued for the fire water line near the Cold Vacuum Drying Facility (CVDF). Preparations are being made for tying in the new lines to the 105KW facility and the CVDF. Bacterial testing was successfully completed for a portion of the newly installed potable water system elsewhere in the 100K Area.

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011

Installation of process equipment and piping, electrical panels, and interior electrical wiring continued for the water treatment building that will be part of the Water Treatment Facility. Insulation continues to be placed on the Water Storage Tank.

Punch list items continue to be worked and closeout paper work is being prepared for the A9 Substation Refurbishment.

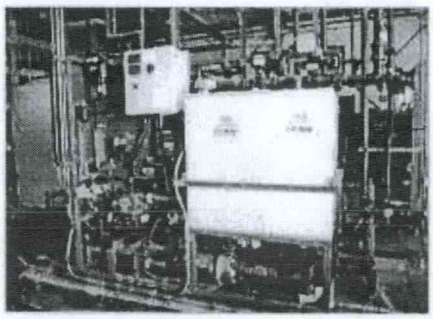
Week Ending October 1, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water lines in the 100K Area is complete up to the tie-in points. Preparations are being made for connecting the new fire water lines to the facilities in the 100K Area.

Installation of process equipment and piping, electrical panels, and interior electrical wiring continued for the water treatment building that will be part of the Water Treatment Facility. The microfiltration system is being tested. Installation of insulation on the Water Storage Tank is complete.

Week Ending October 8, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water lines in the 100K Area is complete up to the tie-in points. Preparations are being made for connecting the new fire water and potable water lines to the facilities in the 100K Area. Bollards are being placed around 105KW fire hydrants. Punch list items are being addressed. Construction closeout documents for the Import Water Line were approved and signed. Construction closeout documents are being prepared for other portions of the fire water and potable water upgrades in the 100K Area.



Week Ending October 8, 2010
The microfiltration unit is installed and being tested in the Water Treatment Building that is part of the Water Treatment Facility, which is under construction in the 100K Area.

Construction of the Water Treatment Facility continued with installation of process piping, interior electrical rough, and conduit, as well as site finish grading and top gravel placement. Final electrical terminations were made and the motor control center panel and master plant control panel were energized. Building interior and exterior lights were energized. Start-up of the water filtration equipment began. Fire Marshal approval is being obtained for the fire pump, fire suppression, fire detection, fire wall, and fire distribution system.

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011

Week Ending October 15, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water lines in the 100K Area is complete up to the tie-in points. Punch list items are being worked. Preparations are being made for connecting the new fire water and potable water lines to facilities in the 100K Area. Trench excavation is complete for the future tie-in of potable water piping at the Cold Vacuum Drying Facility.

Electrical installation continued at the water treatment building. Items that need to be finished in order to obtain Building Occupancy Permit are being completed for the water treatment building. A concrete splash pad and landing were put in place at the water storage tank.

Punch list items are being worked and construction closeout documents are being prepared for the A9 Substation Refurbishment and for the 13.8KV re-route.

Week Ending October 22, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water lines in the 100K Area is complete up to the tie-in points. Preparations are being made for connecting the new fire water and potable water lines to the facilities in the 100K Area. Bollards are being placed around fire hydrants.

Electrical installation continued at the water treatment building. Items that need to be finished in order to obtain Building Occupancy Permit are being completed for the water treatment building. Portions of the potable water treatment system are being flushed.

Punch list items are being worked and construction completion documents are being prepared for the A9 Substation Refurbishment. Soil resistivity testing is being performed in the A9 Substation to confirm system safety.

Week Ending October 29, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water lines in the 100K Area is complete up to the tie-in points. Punch list items are being worked and preparations are being made for connecting the new fire water and potable water lines to the facilities in the 100K Area.

Electrical installation continued at the water treatment building. Items that need to be finished in order to obtain the Building Occupancy Permit are being completed for the water treatment building.

Week Ending November 5, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water lines in the 100K Area is complete up to the tie-in points. Hanford Fire Marshall approval of the system is being obtained prior to proceeding with fire water and potable water lines tie-ins.

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011

Electrical installation continued at the water treatment building. Asphalt was placed around the southwest portion of the building. Items that need to be finished in order to obtain the Building Occupancy Permit are being completed for the water treatment building.

Week Ending November 12, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water lines in the 100K Area is complete up to the tie-in points. Hanford Fire Marshall approval of the system is being obtained prior to proceeding with fire water and potable water lines tie-ins.

Testing of the microfiltration unit proceeded at the water treatment building. Building electrical design changes are being processed and crews are completing items that need to be finished in order to obtain the Building Occupancy Permit.

Weeks Ending November 19 & 26, 2010

Infrastructure Utilities Upgrade Project
Installation of the fire water and potable water lines in the 100K Area is complete up to the tie-in points. Hanford Fire Marshall approval of the system is being obtained prior to proceeding with fire water and potable water lines tie-ins.

Testing of the microfiltration unit proceeded at the water treatment building. A portable safety shower was filled and tested. Building electrical design changes are being processed and crews are completing items that need to be finished in order to obtain the Building Occupancy Permit.

Week Ending December 3, 2010

Infrastructure Utilities Upgrade Project
Installation is now complete for the re-designed fire sprinkler system in the new Water Treatment facility. Design of the fire alarm system for the facility and modifications to the water tank have been approved for installation. Final modifications are being made to begin testing of the potable water system. Crews have completed safety-related items required for obtaining the Building Occupancy Permit. CHPRC drilled the first of two wells this week to provide additional grounding to the A-9 substation.

Week Ending December 10, 2010

Infrastructure Utilities Upgrade Project
Piping modifications and programming of the microfiltration system are complete for the Water Treatment Facility. The preliminary Customer Acceptance Testing (CAT) of the microfiltration system is also complete A final CAT will be conducted before the plant goes into sustained operations. De-energization of the A-9 substation to complete close-out of punch list items was completed. Drilling of the first two wells to improve substation grounding reached 81 feet of a planned depth of 185 feet. Additional grounding cable was installed between the main grid and the two grounding wells to enable tie-in of the wells once completed.

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011

Weeks Ending December 17-31, 2010

Infrastructure Utilities Upgrade Project
Piping modifications and programming of the microfiltration system were completed following a preliminary customer acceptance testing (CAT). Several punch list items were completed in the A-9 substation, including labeling of panels and conduits. Drilling of the first of two wells to improve substation grounding is 75 percent complete.

Week Ending January 7, 2011

Infrastructure Utilities Upgrade Project
Customer acceptance testing of the microfiltration system is complete. The plant began a six-day operations test on Jan. 9 to demonstrate compliance with the State of Washington drinking water standards. Installation of the fire alarm system is ongoing in the plant. The drilling of the first of two grounding wells for the new A9 substation is complete with the second well beginning this week.

Week Ending January 14, 2011

Infrastructure Utilities Upgrade Project
The second of two grounding wells for the new A9 substation began this week; drilling progressed to a depth of 69 feet of a planned total depth of 189 feet. The six-day operations test was completed on Jan. 13 to demonstrate compliance with the State of Washington drinking water standards. Installation of the fire alarm system is ongoing in the plant. Modifications to the multi-purpose water storage tank and punch list items on the micro-filtrations system are planned for this week.

Week Ending January 21, 2011

Infrastructure Utilities Upgrade Project
The second of two grounding wells for the new A9 substation was drilled to a depth of 130 feet of a planned total depth of 189 feet. Following the successful operations test of the microfiltration system, the water storage tank was drained and National Fire Protection Association compliant level and temperature sensors were added to the tank. The fire alarm system is installed with only minor adjustments remaining. Phone and data wiring is being installed in the plant.

Week Ending January 28, 2011

Infrastructure Utilities Upgrade Project
The second of two grounding wells for the new A9 substation was completed to its total depth of 190 feet. For the new water system, a final modification to the water storage tank was completed. Work is ongoing in the water treatment facility to complete installation of the fire walls, the fire alarm system, communications and data infrastructure, electrical upgrades, and mechanical punch list items.

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011

Week Ending February 4, 2011

Infrastructure Utilities Upgrade Project
The two grounding wells for the new A9 substation were tied into the substation grounding grid. Testing and cut-over of the substation's transfer trip communications system was completed. The multi-purpose water storage tank was leak tested, the diesel fire pump installed, and the building sprinkler system pressure tested. Work is ongoing in the water treatment facility to complete installation of the fire walls, the fire alarm system, communications and data infrastructure, electrical upgrades, and mechanical punch list items.

Week Ending February 11, 2011

Infrastructure Utilities Upgrade Project
Installation of the fire alarm system and an additional electrical panel and transformer was completed. Work is ongoing in the water treatment facility to complete installation of the fire walls, data and communications, power to the office trailer, mechanical punch list items, ventilation upgrades for the facility, and the secondary delivery system for emergency fire water. Testing of the service water pumps and preparatory work for tie-in to the potable water and fire water systems to 100K buildings are in progress. Completion of final punch list items for the new A9 substation is in progress.

Week Ending February 18, 2011

Infrastructure Utilities Upgrade Project
Infrastructure and utilities upgrades neared completion this week, with testing of the A-9 substation, fire-wall construction in the Water Treatment Facility control room areas, and final testing and tie-ins of the new potable- and fire-water systems ongoing.

Week Ending February 24, 2011

Infrastructure Utilities Upgrade Project
Infrastructure and utilities upgrades continued nearing completion this week, with final pressure-testing of all new fire hydrants completed. Final construction and completion of punchlist items in the Water Treatment Facility, as well as further fire-system testing, is ongoing.

Week Ending March 4, 2011

Infrastructure Utilities Upgrade Project
Infrastructure and utilities upgrades are nearing completion, with final pressure-testing of all new fire hydrants completed. Final construction and completion of punchlist items in the Water Treatment Facility, as well as further fire-system testing, is ongoing.

EXCERPTS FROM CHPRC ARRA WEEKLY REPORTS
Compiled from IDMS, April 5, 2011

Week Ending March 11, 2011

Infrastructure Utilities Upgrade Project
Flow- and pressure-testing of the new 100K Area fire-protection loop was completed, as was final construction and trouble-shooting in the Water Treatment Facility.

Week Ending March 18, 2011

Infrastructure Utilities Upgrade Project
Fire sprinklers are back in service for all applicable 100K facilities. The construction team is making final modifications to allow for the disinfection of the new potable water system to begin next week.

Week Ending March 25, 2011

Infrastructure Utilities Upgrade Project
Final staging of equipment and facilities for the full-time operations crew at the new 100K Water Treatment Facility are in progress, as preparations for super-chlorination of the new potable-water system continued. The new 100K fire-protection system is now complete and fully operational, and new control power transformers have been installed at the A-9 substation.

EXHIBIT 24

Meeting with Washington State Department of Health
Office of Drinking Water, Spokane, Washington
May 18, 2010

Attendees:
WDOH: Michael Wilson, PE - Regional Engineer; Sam Perry –Technology Specialist (via phone)
CHPRC: Moses Jaraysi, Allan Cawrse, Brian Dixon

Introduction
The meeting began at 1:00PM with the parties introducing themselves. Moses Jaraysi explained that CHPRC had requested the meeting in the interest of developing a better working relationship. A discussion of the various DOE offices at Hanford, the prime contractors, and work scope ensued.

Use of Membrane Filter Technology
Sam Perry joined the meeting via telephone because WDOH presumed that we wanted to discuss the PALL membrane technology proposed for the 100K system. WDOH reiterated that the PALL system is considered alternative filtration technology, but they are comfortable with the technology. In the case of the 100K system, they have waived the requirement to do a pilot study prior to constructing the full-scale filtration study. WDOH provided a copy of a Department memorandum with background information and required operating parameters for the PALL Microza™ microfiltration system. WDOH indicated that they will require:

- Full-scale operational testing during commissioning.
- The addition of Indirect Integrity Monitoring (particle counter or laser turbidimeter).
- Direct Integrity Monitoring (pressure decay test).

WDOH noted that the Construction Documents will include a Test Report to document the results of the operational testing during the system startup.

Project Report
WDOH discussed the requirements for a project report and suggested that the December 2009 version of the Department's *Water System Design Manual* be used as a guide in preparing the information needed for the Project Report. WDOH indicated that they are expecting the project report for their review and approval. In the case of the 100K system WDOH may need the full 35 days to complete their review. CHPRC expressed appreciation for the expedited turnaround with email approval of the project report for the water main extension supporting the Unsecured Core Area. The time constraints imposed by the short duration of funding for ARRA projects makes timely approvals an important part of project success. CHPRC noted that some construction was initiated prior to formal approval.

General Discussion
CHPRC asked for clarification about water purveyor responsibilities and how they would like to see roles and responsibilities implemented at a large DOE site with multiple drinking water systems and contractors. WDOH indicated that their primary concern is to have a point of contact for each water

system. There was also some discussion about what constitutes the commencement of construction. WDOH confirmed that while construction is not defined, it is intended to mean to build or install any component that is part of the drinking water system. WAC regulations do not allow for construction prior to written approval from WDOH. If a person starts construction before the project report is approved, they take are assuming risks, including the risk of needing to remove a component that is not approved in the project report. For example, if a 10 inch distribution main is installed and WDOH determines that a minimum 12 inch main is needed, the 10 inch line would need to be replaced with a 12 inch line before the project could be used.

The meeting adjourned at 2:20PM

(17) Root Cause Analysis CR-2010-1657 Signed 110210.PDF

EXHIBIT 25

Root Cause Analysis Report

Potential Adverse Trend –
Environmental Regulatory Requirements for Construction Projects Not Met

EM-RL—CPRC-GENLAREAS-2010-0013

October 19, 2010

Root Cause Team Lead: Paul W. Martin PER TELECON — EN Dodd III — Date: 11/1/10

Environmental Manager: Paul W. Martin — PW Martin — Date: 11/1/10

Responsible Manager: DP Kimball — DP Kimball / KH Dorr — Date: 11-1-10

ESRB Chairman: VM Pizzuto — VM Pizzuto, Vice President, CHPRC — Date: 11/2/10

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ATTACHMENTS

1.0 EXECUTIVE SUMMARY

Since May, 2010, the CHPRC has identified two instances where projects were found to have initiated construction on a project before the environmental documents were submitted and/or approved by authorizing agencies. These instances are noted in CR-2010-1340, *Initiation of potable water line construction prior to a Washington Department of Health approval*, and CR-2010-1608, *Initiation of 100-K Area Water Treatment System construction prior to completion of environmental compliance reviews/approvals.* On June 8, 2010, CHPRC issued Occurrence Report EM-RL-CPRC-GNELAREAS-2010-0013, "Initiation of Construction Activities on Water System Installations Prior to WDOH Approval" to document this issue as a management concern and ensure a higher level review and analysis was performed (reference CR-2010-1657).

The problem statement was defined as:

> Based on recent events, it is evident that important environmental requirements and constraints on activities are not being considered in the planning and execution of project schedules.

A root cause analysis was performed and the root causes were identified as:

- Required environmental permits and authorizations were not sufficiently identified during the project planning phase, including the dates approvals were needed in comparison to the dates construction activities would commence.
- Individuals believed that an environmental, regulatory "at-risk" position was acceptable to the regulators and the CHPRC, and was necessary for meeting the accelerated project schedule.

2.0 EVENT DESCRIPTION/NARRATIVE

The event considered in this evaluation is a combination of the two events that occurred at 200 East and 100K. In summary both events resulted in the execution of project scope without the proper environmental documentation being approved as required. Similar failures in two separate projects by two different teams of project management personnel resulted in the generation of Occurrence Report EM-RL--CPRC-GENLAREAS-2010-0013 and this root cause analysis. The summary information from each of the events is provided below.

200 East

On May 3, 2010 a new drinking water system installation at the 200 East Area was found to have begun construction prior to obtaining required written approval of the Project Report from the WDOH. The Project Report had been submitted to WDOH and approval was imminent. Upon discovery, work on the drinking water system was stopped, WDOH was contacted and approval was obtained via email on May 4, 2010.

Upon identification of the 200 East Area event the following immediate actions and/or corrective actions were implemented (Reference CR-2010-1340):

- Central Engineering Manager and the EPC Vice President were notified and installation work was stopped.

- MSA Water Utilities, the organization that is the drinking water purveyor for this location discussed the urgent need for an approval of the Project Report with the WDOH engineer. The WDOH engineer issued an email approval for the project on May 4, 2010 allowing work to restart.
- A lessons learned document was developed by MSA and distributed.
- Apparent causes were identified as:
  - A3B3C06 – Individual underestimated the problem by using past events as basis
  - A4B1C01 – Management policy guidance/expectation not well-defined understood or enforced.
- An investigation of other projects (Extent of Condition Review) identified the construction of a new combination fire suppression and temporary drinking water system at 100K Area with a similar issue to the 200 East event (see below).

100K:

On May 18, 2010, it was determined that construction had begun prior to submission and approval of the Project Report by WDOH for the temporary drinking water system at 100K. On May 26, 2010, it was also determined that the National Environmental Policy Act (NEPA) categorical exclusion (CX) had not been obtained prior to start of construction on the combined fire and drinking water import line. DOE was contacted and the CX approval was obtained on May 27, 2010 from the DOE Hanford Site NEPA Compliance Officer. The Project Report was submitted to WDOH for review and approval on June 8, 2010. In neither case was the drinking water system installation completed or placed into service prior to obtaining the required approvals.

Upon identification of the 100K area event the following immediate actions and/or corrective actions were implemented (Reference CR-2010-1608):

- Following initial discovery the Vice President of Environmental Program and Strategic Planning immediately raised the concern with the Vice President, D&D, and evaluations of project compliance were initiated.
- Following discovery of the incomplete NEPA review, the DOE NEPA Compliance Officer was notified of the situation. He signed the CX on May 27, 2010, completing the NEPA review. The DOE NEPA Compliance Officer requested that this issue be addressed in a CHPRC Management Assessment or equivalent.
- Two review meetings were conducted with 100K to identify any other outstanding environmental requirements. As a result of this review, a request was made to CHPRC Environmental Protection Air Subject Matter Expert (SME) to evaluate air permitting requirements for an emergency diesel fire pump.
- During the week of June 1, 2010, work was suspended on portions of the project that clearly required WDOH approval.
- On June 2, 2010, the Project Report was formally transmitted to WDOH for review and approval.

The combination of the two separate events was determined to be a significant issue – noncompliance with the requirements of WAC 246-290-110(2) and -125(1); 10CFR 1021.210(b);

and PRC-PRO-EP-15333, Sections 5.4 and 5.7. The two events also represented a management concern worthy of reporting into ORPS and Occurrence Report EM-RL--CPRC-GENLAREAS-2010-0023 was issued on June 8, 2010. A Condition Report was developed to capture the ORPS report and to document the broader programmatic evaluation. The following immediate actions and/or corrective actions were implemented:

- CHPRC Environmental Protection met with WDOH to clarify regulatory requirements
- A briefing workshop was provided to Environmental Compliance Officers on drinking water system regulatory requirements.
- PRC-PRO-EP-15333 was amended to strengthen and clarify drinking water system requirements.
- A Lessons Learned session was conducted with MSA on joint issues pertaining to the 200 East drinking water system construction. MSA will develop and issue a Lessons Learned by October 1, 2010.

CHPRC performed a Root Cause Analysis considering both the 200 East and the 100K events. The analysis considered the information from the 200 East event report and included discussions with personnel knowledgeable about the event. The information from the 200 East event was combined with the analysis of the 100K event to determine the root causes for the both events. The root causes identified and the corrective actions developed support the resolution of the management concern.

3.0 EXTENT OF CONDITION / GENERIC IMPLICATIONS

Based on a review of the documents provided and the root and apparent cause determination an extent of condition review should be conducted:

- Require all project managers to review their projects to ensure that schedules are sufficiently detailed and that all necessary environmental documents are completed and approved prior to implementation of activities.

4.0 PRECURSOR/HISTORICAL REVIEW

No historical precursor events were found related to this issue.

5.0 EVALUATION OF ASSESSMENT PERFORMANCE

There were no surveillances performed that would have identified this issue.

6.0 PROBLEM ANALYSIS

6.1 Analysis Description

The Phoenix Assessment technique was used. The process uses eight questions:

- What are the consequences?
- What is the significance?
- What set up the situation?
- What triggered the event?
- What made the consequences as bad as they were?
- What kept the consequences from being a lot worse?
- What should be learned from it?

- What should be done about it?

Attached is a timeline developed in preparation for the root cause analysis, and revised as a result of the discussions at the meeting. This timeline was used to evaluate the activities in development of a comparative timeline. The comparative timeline was then used to develop the missed opportunity matrix. Using the comparative timeline and the missed opportunity matrix, a combination of the Phoenix questions and the "Five Whys" technique were used to determine the apparent causes from the contributing causes and ultimately to determine the root causes.

Root Cause Team members were:
Edwin N. Dodd III – Root Cause Analysis Leader
Karen R. Morris – Assistant Root Cause Analysis Leader
Dottie L. Norman – Demolition &Decommissioning (D&D) Environmental Director
Steven M. Moore – D&D Maintenance
Daniel P. Kimball – Engineering, Project and Construction (EPC) ESH&Q Manager
Max L. Edington – EPC Project Manager
Usama (Sam) E. Wajeeh – EPC Project Engineer
Allan E. Cawrse – Environmental Protection (EP) Director
Richard H. Engelmann – EP, Regulatory Services and Reporting Manager
Stephen T. Smith – Environmental Quality Assurance, Manager
Paul W. Martin – EP/EPC Environmental Manager
Jeannie R. Seaver – EP Water SME
Fen M. Simmons – EP Air SME

6.2 Human Performance Issues (HPI)

Human performance issues were identified in each of the conditions evaluated. Specifically, there was an assumption based on prior experience that verbal communication and informal process implementation with regulators was adequate to ensure compliance with requirements. This HPI issue was noted in both the 200 East and 100K conditions.

The human performance issue is addressed in corrective actions 1 and 2 identified in the Attachment A, "Corrective Action Plan".

6.3 Root Cause(s)

Using the Phoenix Analysis process and the "Five Whys", two root causes were identified for the adverse condition:

RC-01

Management expectations were not clearly understood concerning unacceptability of proceeding at risk concerning environmental, regulatory approvals. Also PRC-PRO-EP-15333 had not explicitly defined drinking water approval process and that no work may be started until all documents are approved. It was also not clear if PRC-PRO-EP-15333 was appropriately used by personnel to ensure compliance. Also regulations and procedures did not clearly define what constituted "construction".

Furthermore, the Environmental Activity Screening Form (EASF) checklist did not have the drinking water requirements checked as applicable to the 100K project.

A4B1C01 - Management policy guidance/expectations not well-defined understood or enforced.

RC-02

Individuals relied on past experience with WDOH regulators and previous drinking water installation projects outside of Hanford and the DOE Complex. Due to this experience individuals believed that:

- WDOH would informally allow the simultaneous preparation and review of the Project Report while construction activities such as excavations and placement of material commenced
- An environmental, regulatory "at-risk" position was acceptable to the regulators and the CHPRC
- Risk was believed to be in terms of project cost and schedule as opposed to environmental compliance since regulators appeared to be not concerned.

The "at-risk" position was also considered necessary to meet the fast-track project schedule. WDOH confirmed to CHPRC that they know and may informally allow projects to proceed at-risk even though the regulations do not allow for this interpretation.

A3B3C06 – Individuals underestimated the problem using past events as a basis.

6.4 **Contributing Causes(s)**

The project schedule was revised and but did not contain line items for permits or provide sufficient detail with regard to the development of environmental documents and obtaining regulatory approvals.

While the Project environmental staff were regularly involved by attending project status and schedule meetings the involvement did not result in the identification of additional or changed environmental requirements or the inclusion of specific approvals in the project schedule. The result was that as the project evolved there was no recognition in the project documentation that environmental permits were required for the project.

It was determined by the root cause team that at a minimum the involvement of the Project environmental staff should have resulted in the recognition that the schedule was not adequate and needed revision to identify the required permits prior to authorization of construction. The procedures as written as the time of this issue did not require revision of the EASF as the project evolved..

A4B5C09 – Change related documents not developed or revised.

There were several changes in the project management staff and to the project schedules. It was determined that the change management process was inadequate to ensure the continuity of the project through these changes

The lead engineer in the project was provided insufficient environmental assistance for the amount of activities he was assigned to perform. The lead engineer had experience with the installation of other water systems and that WDOH would informally allow

construction activities to proceed "at-risk" ahead of written approval. This at-risk interpretation, the number of activities assigned to the project engineer and the project schedule contributed to accepting an at-risk position. No additional concurrence of this at-risk interpretation was pursued.

- The root cause team also determined that the involvement of the water subject matter expert was late in the project. Involvement of the water SME earlier in the project would have ensured that the necessary permits were identified and they would have been captured in the project documents such as the schedule and project plan.

  A4B4C07 – Too many concurrent tasks assigned to worker.

  A4B5C07 – Effects of change on schedules not adequately addressed.

- There was a failure to recognize and provide sufficient planning for the drinking water system regulatory requirements. Additionally, the EPC Project Review Board (PRB) had an opportunity to evaluate the 100K project. However, the PRB performs a very high level review. The PRB does not review 100% of the environmental documentation and in this case, did not conduct an in depth permitting review. Had the PRB performed a more detailed review it is expected that the missing environmental permits/documents would have been identified and construction would not have been authorized.

  A3B3C04 – Less than adequate review based on assumption that process assumptions will not change.

7.0 CORRECTIVE ACTIONS

7.1 Immediate Actions

Immediate actions identified in the timeline and the CRs discussed above were determined by the root cause team to be adequate to address the issues with the 100K project. An Apparent Cause Analysis had already been completed for the 200 East area event and the causes identified were consistent with those identified in the subsequent 100K event. Corrective actions were already addressed for the 200 East area event.

7.2 Corrective Actions:

See Attachment A for the Corrective Action Plan.

8.0 LESSONS LEARNED

A Lessons Learned addressing condition CR-2010-1340 will be developed by MSA and published in the Hanford Information Lessons Learned Sharing (HILLS) system by October 1, 2010.

A Lessons Learned addressing the adverse trend indentified in CR-2010-1657 will be developed and submitted to the CHPRC Lessons Learned Coordinator by November 19, 2010 for consideration for publication in HILLS.

9.0 DOCUMENTS REVIEWED

- CR-2010-1340
- CR-2010-1608
- CR-2010-1657

- PRC-PRO-EP-15333, *Environmental Protection Processes*, Revision 0, Change 7
- PRO-PRO-EP-15335, *Environmental Permitting and Documentation Preparation*, Revision 0, Change 4
- Project Review Board Meeting Synopsis – 100K Utility Upgrades Task 1, April 7, 2010
- Project Review Board Meeting Synopsis – 100K Utility Upgrades April 21, 2010
- Timeline for 100K Water Treatment System Issue (CR-2010-1657)
- PRC-CHRT-PM-40249, *Project Review Board Charter*, Revision 0, Change 0
- PRC-PRO-PM-24889, *Project Initiation and Execution*, Revision 1, Change 1
- DOE O 413.3A, Change 1, *Program and Project Management for the Acquisition of Capital Assets*
- DOE G 413.3-12, *U.S. Department of Energy Project Definition Rating Index Guide for Traditional Nuclear and Non-Nuclear Construction Projects.*
- DOE G 413.3-8, *Environmental Management (EM) Cleanup Projects*
- Office of Environmental Management Project Definition Rating Index (EM-PDRI) Manual, February 2001, Revision 1

ATTACHMENTS

- Timeline for 100K Water Treatment System Issue

100K Water
Treatment System Is

- Comparative Timeline for 100K Water Treatment System Issue

Comparative Timeline
Table 072710.docx

- Missed Opportunity Matrix

Missed Opportunity
Matrix for CR-2010-1

- Diagram of Causal Relationships

Causal Charts for
CR-2010-1657 09121

Attachment A: Corrective Action Plan

	Corrective Action	Deliverable	Actionee	Code addressed	Due date
	CR-2010-1657 Adverse Trend Corrective Actions				
1	Develop training for project management personnel regarding expectations to ensure that all required permits/documents are identified, in place and approved as necessary prior to starting construction or execution of activities. Emphasize that proceeding at risk is not an allowable or acceptable approach with regard to regulatory documents.	Provide training package to all Project Vice Presidents for presentation to all Project Lead Personnel. Closure evidence will consist of documentation denoting the training package was provided to all Project Vice Presidents for presentation to all Project Lead Personnel.	Allan Cawrse	A4B1C01 A3B3C06 A4B5C07	**Completed 10/14/10**
2	Issue material for the purpose of briefing /informing project managers regarding management expectations that environmental documents must be complete and approvals received prior to the execution of the project activities.	Closure evidence will consist of the material issued for briefing project managers, with instructions to document briefings on attendance rosters. Ensure briefing addresses the need for strict regulatory compliance, and comprehensive planning and identification of environmental requirements. Additional evidence will be a roster listing of those that have completed this briefing.	Victor Pizzuto	A4B1C01 A3B3C06 A4B5C07	11/30/10
3	Evaluate current environmental procedures and identify changes needed to ensure that there is a clear requirement for environmental requirements screening documents (e.g. Environmental Activity screening forms - see Section 5.1, PRC-PRO-EP-15333) to be updated as project design and development evolves. Evaluation must also consider other relevant procedures that govern activities listed in Table 1 (e.g.	Closure evidence will consist of a memo-to-file or equivalent documentation describing the evaluation and recommended changes.	Rick Engelmann	A4B5C09	12/6/10

	Corrective Action	Deliverable	Actionee	Code addressed	Due date
	project management procedures) for potential changes that would facilitate such updating.				
4	Propose changes to Environmental Protection procedures and forms per the recommendations resulting from Action #3, resolve comments and publish final changes. Provide written recommendation of changes to non-Environmental Protection procedures to procedure owners.	Publication of the revised Environmental Protection procedures, For non-Environmental Protection procedures, copy of recommended procedure changes provided to other procedure owners.	Allan Cawrse	A3B3C04	1/31/11
5	Hire additional personnel to ensure sufficient resources are available to address the environmental needs of the project.	Hired two new environmental lead personnel. This action is considered a compensatory action and closure evidence, other than a closure statement, is not required. Closure Statement - Two additional environmental leads have been hired. Lorna Dittmer was hired on May 24, 2010 and Paul W. Martin was hired on July 28, 2010.	Allan Cawrse	A4B4C07	**Completed 7/28/10**
6	MSA will develop and issue a Lessons Learned concerning the 200E event.	Development of a Lessons Learned by MSA and distribution via the Hanford Information Lessons Learned Sharing (HILLS) system.	Allan Cawrse	RC-2	**Completed 9/7/10**

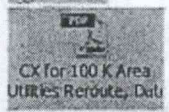
Attachment A: Corrective Action Plan

	Corrective Action	Deliverable	Actionee	Code addressed	Due date
		Closure evidence will consist of a copy of the issued lessons learned.			
7	CHPRC will develop and issue a Lessons Learned that addresses the adverse trend indentified in CR-2010-1657. (Reference RC-01 and RC-02)	Development and submittal of a Lessons Learned to the Lessons Learned Coordinator for consideration for publication in HILLS.	Allan Cawrse	RC-01 & RC-2	11/19/10
8	CHPRC EP will develop and give a briefing for Environmental Compliance Officers concerning appropriate procedure usage, subject matter expert support, and unacceptability of proceeding "at-risk" (Re: RC-01 and RC-02)	Briefing material and briefing attendance roster.	Brian Dixon	RC-01 & RC-2	11/19/10
	CR-2010-1340 200 East Event Corrective Actions				
9	Stop execution of the unauthorized work.	A phone call was made to Central Engineering Manager and the EPC Vice President and installation work was stopped. Per the Issues Manager, this action is considered to be a compensatory action and evidence other than a closure statement is not required.	Allan Cawrse	N/A	**Completed 5/18/10**
10	Obtain approval of the necessary environmental documents (Project Report) to authorize the work so work can resume.	On May 3, and May 4, 2010 MSA discussed the urgent need for approval with the WDOH engineer. The WDOH engineer issued an email approval for the project the morning of May 4, 2010 allowing work to restart.	Allan Cawrse	N/A	**Completed 5/4/10**
11	MSA will develop and issue a Lessons Learned concerning the 200E and 100K	Development of a Lessons Learned by MSA and	Allan Cawrse	N/A	**Completed 9/7/10**

Attachment A: Corrective Action Plan

	Corrective Action	Deliverable	Actionee	Code addressed	Due date
	events.	distributed via Hills System. Closure evidence will consist of a copy of the issued lessons learned.			
12	Perform an extent of condition to see if similar conditions exist in other projects.	Closure evidence will consist of the completed Extent of Condition field in CR-2010-1657 answering the bulleted questions outlined in PRC-PRO-QA-052, Appendix B as applicable to a "Significant Issue". Extent of condition revealed a similar issue at 100K.	Allan Cawrse	N/A	**Completed 5/27/10**
13	Perform a formal root cause analysis and issue a root cause analysis report documenting the apparent causes of the issue.	Complete and finalize a Root Cause Analysis Report documenting the apparent causes of the issue and upload to CR-2010-1657. Closure evidence consists of presenting this Root Cause Analysis Report to Executive Safety Review Board (ESRB).	Allan Cawrse	N/A	**Completed 10/13/10**
	CR-2010-1608 – 100 K Event Corrective Actions				
14	Evaluate extent of condition at 100K.	Following initial discovery the Vice President of Environmental Program and Strategic Planning immediately raised the concern with the Vice President, D&D and evaluations of the compliance	Moses Jaraysi	N/A	**Completed 5/27/10**

Attachment A: Corrective Action Plan

	Corrective Action	Deliverable	Actionee	Code addressed	Due date
		posture of the project were started. No other similar conditions were indicated. Closure evidence will consist of the completed Extent of Condition field in CR-2010-1657 answering the bulleted questions outlined in PRC-PRO-QA-052, Appendix B as applicable to a "Significant Issue".			
15	Notify the DOE NEPA Compliance Officer of the incomplete NEPA review and have the DOE NEPA Compliance Officer complete the NEPA review.	Following discovery of the incomplete NEPA review, the DOE NEPA Compliance Officer was notified of the situation. He signed the Categorical Exclusion (CX) on May 27, 2010 completing the NEPA review. Closure evidence consists of the signed CX.  CX for 100 K Area Utilities Reroute, Dat	Allan Cawrse	N/A	**Completed 5/27/10**
16	Notify the NEPA Compliance Officer that the CX authorization issue was addressed as part of the CHPRC corrective action system (CR-2010-1657).	Notify the NEPA Compliance Officer via email and retain email as evidence of closure. Closure evidence consists of email from Rick Engelmann of	Allan Cawrse		**Completed 6/7/10**

Attachment A: Corrective Action Plan

	Corrective Action	Deliverable	Actionee	Code addressed	Due date
		CHPRC to Woody Russell of DOE RL dated June 7, 2010. Closure Evidence for CR-2010-1657, Corr			
17	Evaluate project environmental requirements for the 100K project as a whole.	Two review meetings were conducted with the project to identify any other outstanding environmental requirements. A request was made to CHPRC Environmental Protection Air SME to evaluate air permitting requirements for the emergency diesel fire pump. It was determined that the fire pump met the Washington Administrative Code (WAC) exemption and therefore no permitting was required.	Allan Cawrse	N/A	**Completed 5/27/10**
18	Complete environmental documentation via submitting the Project Report to the Washington Dept. of Health and receiving approval from WDOH.	On June 8, 2010, the Project Report was formally transmitted to WDOH for review and approval. Closure evidence will consist of the email received from WDOH on August 3, 2010, approving the Project Report. Closure Evidence for CR-2010-1657, Corr	Allan Cawrse	N/A	**Completed 8/3/10**
Management Concern (CR-2010-1657) Immediate Corrective Actions					

Attachment A: Corrective Action Plan

	Corrective Action	Deliverable	Actionee	Code addressed	Due date
19	Meet with WDOH to clarify regulatory requirements concerning the definition of "prior to installation or construction" of a water system prior to receiving approvals from WDOH. Also discuss ARRA stimulus money issues with accelerated schedules and approvals.	CHPRC Environmental Protection Vice President Moses Jaraysi and Environmental Director, Allan Cawrse met with WDOH on May 18, 2010. Results of meeting were that even though in the past, WDOH informally allowed construction of a water system to commence prior to formal receipt of approvals for the Project Report, per WAC 244-290-110(2), approval must be received prior to installation or construction of a water system. Therefore noncompliance with WAC 246-290-110(2) had occurred.	Allan Cawrse Moses Jaraysi	N/A	**Completed 6/18/10**
20	Reinforce to ECOs management expectations that ECOs do not have to operate totally independently when dealing with unfamiliar requirements. ECOs should take advantage of the expertise available within Environmental Protection to discuss and clarify new environmental requirements to ensure full compliance.	On May 27, 2010, Allan Cawrse attended the ECO Staff meeting and reinforced to ECOs the management expectations that ECOs do not operate totally independently when dealing with unfamiliar requirements. Mr. Cawrse stated that ECOs should take advantage of the expertise available within Environmental Protection to discuss and clarify new environmental requirements to ensure full compliance.	Allan Cawrse	N/A	**Completed 5/27/10**

	Corrective Action	Deliverable	Actionee	Code addressed	Due date
21	Submit an occurrence report to document the similar environmental compliance failures occurring at 200E and 100K.	On June 4, 2010 CHPRC senior management determined the overall situation described above was a management concern and notification was made to the ONC. On June 8, 2010, CHPRC issued Occurrence Report EM-RL--CPRC-GNELAREAS-2010-0013, "Initiation of Construction Activities on Water System Installations Prior to WDOH Approval".	Allan Cawrse	N/A	**Completed 6/8/10**

Kennedy, Colburn E

EXHIBIT 26

From:	Edington, Max L
	Tuesday, May 18, 2010 3:33 PM
	Kehler, Kurtis L
Cc:	Kennedy, Colburn E; Norman, Dottie L; Wajeeh, Usama E
Subject:	100K Water System Replacement Project

Kurt,

Per our earlier discussion, we have reviewed the status of the 100K water system replacement project relative to the applicable regulations of the State of Washington Department of Health. The following is a brief history and status.

On October 6, 2009 a meeting was conducted with Mike Wilson of the Department of Health (DOH) at the regional office in Spokane attended by representatives of CHPRC, ARES, and DOE. At the meeting, CHPRC and ARES presented the fast-paced project to install a microfiltration treatment plant that eliminated the current feed from the Columbia River. It was agreed that ARES would submit a request to waive the normal treatability pilot study by using the justification that the same PALL Corporation microfiltration technology is in place at the Pasco water treatment facility. The waiver request was submitted to DOH on January 11, 2010. On February 17, 2010 DOH responded in a letter approving the waiver of the pilot study.

Although we have been in communication with DOH on the project, State code WAC 246-290-110 requires that a project report to be submitted prior to water system construction, expansion, or improvement. Our current schedule has a submittal date for our project report on May 28 for RL concurrence and subsequent submittal to DOH. We are on track to meet the submittal date. However, as we are also in the early stages of construction on the treatment plant and water distribution system, we are not compliant with requirement WAC 246-290-110.

owing CHPRC senior management's meeting earlier today with DOH, we have been directed to continue with our construction activities. Whereas it is apparent that DOH may not be fully pleased with commencing construction prior to the receipt and concurrence with the project report, it is not a critical misstep. Therefore, at this time we will thoroughly review all of our project requirements, work to submit our project report as early as possible, and engage DOH further on our project status.

Let me know if you require more information.

Max

1

EXHIBIT 27

CH2M HILL
Plateau Remediation Company
PO Box 1600
Richland, WA
99352

CH2MHILL
Plateau Remediation Company

June 1, 2010

CHPRC-1000439

Mr. M. D. Wilson, Regional Engineer, Eastern Regional Office
Office of Drinking Water
State of Washington Department of Health
16201 E. Indiana Avenue, Suite 1500
Spokane Valley, Washington 99216

Dear Mr. Wilson:

SUBMITTAL OF PROJECT REPORT FOR 100K POTABLE WATER FACILITY

Please find attached the Project Report for the 100K Potable Water Facility, as required by WAC 246-290-110, for your review and approval.

The existing and operational 100K Water Treatment Facility will remain in operation during operational testing to determine effective pre/post filtration chlorine (sodium hypochlorite) dose rate and coagulant (aluminum chlorohydrate) dose rate. A formal approval from the State of Washington Department of Health will be obtained prior to establishing the new water treatment system as its sole source of potable water production at the 100K Area.

We anticipate that the attached document will provide the necessary information to make a determination for the approval of the 100K Potable Water Facility.

Matters pertaining to this letter have been discussed with E. M. Bowers of U.S. Department of Energy, Richland Operations Office (RL). You may contact me at 376-0556, or your staff may contact U. E. Wajeeh at (509)373-1830 or by e-mail at Usama_E_Wajeeh@rl.gov with any questions regarding this matter.

Sincerely,

John G. Lehew III
President and
Chief Executive Officer

uew/llm

Attachment

cc: E. M. Bowers, RL
L. Erickson, RL
K. L. Flynn, RL

RECEIVED
JUN 03 2010
DEPARTMENT OF HEALTH
EASTERN REGIONAL OFFICE

Kennedy, Colburn E **EXHIBIT 28**

From: Jaraysi, Moses
Wednesday, June 02, 2010 11:38 AM
Lehew, John G; Kanler, Kurtis L; Kennedy, Colburn E
Cc: Cawrse, Allan E
Subject: FW: Fire System Applicability

Good morning all

Based on the review below, we can now confirm that the Fire System is not under DOH's authority. There are parts of this system that have dual purpose (both potable water and Fire System), those have to comply with the Safe Drinking Water regulations

This does not change our path forward as discussed yesterday. We need to get this Project Report (permit) into DOH's hands as soon as possible and within a week should be talking to DOH in person. In the mean time we can go ahead with the Fire System installation (including the building), but should slow down on the drinking water system, until we have DOH's approval.

MJ

From: Cawrse, Allan E
Sent: Wednesday, June 02, 2010 6:31 AM
Swenson, Raymond T; Seaver, Jennie R
Engelmann, Richard H; Dixon, Brian J; Jaraysi, Moses; Bensussen, Stanley J
Subject: Re: Fire System Applicability

Ray,

(b)(5)

(b)(5) We'll talk.
Al

From: Swenson, Raymond T
To: Seaver, Jennie R; Cawrse, Allan E
Cc: Engelmann, Richard H; Dixon, Brian J; Jaraysi, Moses; Swenson, Raymond T; Bensussen, Stanley J
Sent: Tue Jun 01 18:08:33 2010
Subject: RE: Fire System Applicability

(b)(5)

(b)(5)

Raymond Takashi Swenson
Senior Counsel

CH2M Hill Plateau Remediation Company
land, Washington
376-3511 Office
(b)(6) BlackBerry
509-376-0334 Fax
Raymond_T_Swenson@rl.gov

From: Seaver, Jennie R
Sent: Tuesday, June 01, 2010 1:37 PM
To: Cawrse, Allan E; Swenson, Raymond T
Cc: Engelmann, Richard H; Dixon, Brian J; Jarayssi, Moses
Subject: RE: Fire System Applicability

(b)(5)

Just FYI for Ray in case he's looking into it.

From: Cawrse, Allan E
Sent: Tuesday, June 01, 2010 1:17 PM
To: Swenson, Raymond T
Cc: Engelmann, Richard H; Seaver, Jennie R; Dixon, Brian J; Jarayssi, Moses
Subject: Fire System Applicability

BEST AVAILABLE COPY

Ray,

will be heading out to 100K area tomorrow. Sam Wajeeh, the project engineer is tied up getting the project report .oday – so tomorrow is the plan. Brian is shooting for about a 1:30PM sit-down out there to go over requirements.

(b)(5)

Let me know your thoughts (b)(5)
Thx - Al

Allan E. Course
Director, Environmental Protection
Plateau Remediation Company
2420 Stevens Center
509 376-3143 (desk)
(b)(6)

EXHIBIT 29

Edington, Max L

From: Wajeeh, Usama E
Sent: Monday, June 07, 2010 11:52 AM
To: Kennedy, Colburn E
Cc: Cawrse, Allan E; Kehler, Kurtis L; Norman, Dottie L; Edington, Max L
Subject: FW: Discussion with Mike Wilson (WDOH) Regarding 100K Project Report Submittal

Colburn,

Please see summary of my conversation with Mike Wilson (WDOH) this morning below:

***Project:** New Water Treatment System for the 100K Basin*
***Date of Phone Discussion:** June 7, 2010*
***Time:** 9:15 AM – 9:30 AM*
***Person Called:** Mike Wilson (Regional Engineer -Department of Health Regional Office (WDOH) – Spokane, WA)*
***Caller:** Sam E. Wajeeh (100K Project Engineer - CH2M Hill Plateau Remediation Company (CHPRC))*

At the request of Max Edington, I contacted Mr. Mike Wilson of the Washington Department of Health (WDOH) to arrange a time to meet with him to discuss the recently submitted project report and to provide him with a status of our preparatory activities for the 100K Water Treatment System. A meeting was requested with Mr. Wilson for later this week or early next week to go over any issues he or Mr. Sam Perry (WDOH – Olympia) may have in regards to content of CHPRC's submittal of the project report.

Mr. Wilson explained that he did not see a need for a meeting until he has and his fellow colleague, Mr. Sam Perry had an opportunity to review the project report. Mr. Wilson recommended that we set a meeting with him after July 6th, which is when he expects to receive final comments from Mr. Sam Perry.

Due to the fact that the 100K infrastructure project is funded by the American Recovery and Reinvestment Act (ARRA), CHPRC is moving forward with certain activities in order to meet the aggressive schedule requirements. I stated the 100K project is moving forward with site preparatory work for the 750,000 gallon dual use water tank, foundation work and underground piping for the water treatment facility building, installation of the fire and potable water system with approximately 25% of the fire main and 20% of the potable water distribution system already installed.

Mr. Wilson explained that CHPRC construction activities are being performed at risk. Based upon the review of the project report and construction documents, the Department of Health may request changes to the system and those would be at project cost. It is Department of Health's expectation that the changes would be made by CHPRC to correct any outstanding issues and issuance of the final permit.

CHPRC explained to Mr. Wilson that construction documents would be forthcoming and asked if he would prefer full size (ANSI F) or half size (11"X17") sets. He replied by saying that four (4) copies of full size set of drawings would be preferred.

Sam E. Wajeeh

EXHIBIT 30

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 East Indiana Avenue, Suite 1506, Spokane Valley, Washington 99216-2830
TDD Relay 1-800-833-6388

June 16, 2010

Usama Wajech, PE
CH2M Hill
PO Box 1600
Richland, WA 99352

Subject: Energy, Dept Of/100K; PWS ID #00177J; Benton County
100K Area Water Treatment System Project Report; DOH Project # 10-0207B

Dear Mr. Wajech:

We received the documents for the above-named project on June 03, 2010. We are now reviewing these documents.

To better track your project, we have assigned it a unique project number: **#10-0207B. Please use this number on all future correspondence about this project.**

We are authorized by state regulations to charge a fee for reviewing water system plans, reports, and construction documents. I have enclosed a copy of our fee schedule.

We will send you an invoice for this fee after our initial review of your engineering documents. Payment is due at that time. The base fee includes our initial review, and review of one resubmittal if needed. If additional reviews are needed, we will send you a separate invoice.

Thank you for giving us the opportunity to serve you. We look forward to working with you to ensure your community has safe and reliable drinking water at the tap. Please call me at (509) 329-2117, if you have any questions.

Sincerely,

for Michael Wilson, PE
Regional Engineer
Office of Drinking Water
Division of Environmental Health

Enclosure

cc: Benton-Franklin County Health District; Benton
Steven Moore, Department of Energy 100K
Valori Adams, DOH Compliance Coordinator

Notice: Anyone who begins construction on a project without all required approvals may be subject to a penalty of up to $5,000 per service connection, and may be required to expose system components for our inspection at their own expense. The Department of Health may be unable to accept any component that is installed or constructed prior to approval.

EXHIBIT 31

CH2M HILL
Plateau Remediation Company
PO Box 1600
Richland, WA
99352

CH2MHILL
Plateau Remediation Company

June 23, 2010 CHPRC-1000504

Mr. M. D. Wilson, Regional Engineer, Eastern Regional Office
Office of Drinking Water
Washington State Department of Health
16201 E. Indiana Avenue, Suite 1500
Spokane Valley, Washington 99216

Dear Mr. Wilson:

SUBMITTAL OF CONSTRUCTION DOCUMENTS FOR 100K POTABLE WATER FACILITY

CH2M HILL Plateau Remediation Company (CHPRC) Project Team is providing you with construction documents for the 100K Potable Water Facility, as required by WAC 246-290-120, for your review and approval. The construction documents provided will supplement the Project Report submitted to your office for review on June 3, 2010.

Enclosed are the following drawings and specifications:
1. Four (4) copies of the 100K Area Water Line and Water Filtration Drawings
2. Four (4) copies of the 100K Water Treatment Facility Plan Drawings
3. Four (4) copies of the 100K Export Water Line Drawings
4. Four (4) copies of the Construction Specification for 100K Fire Protection and Water Lines
5. Four (4) copies of the Construction Specification for 100K Water Export Line
6. Four (4) copies of the Construction Specification for 100K Water Line and Filtration System
7. Four (4) copies of the Procurement Specification for Water Storage Tank
8. Four (4) copies of the Procurement Specification for Microfiltration System

You may contact me at 376-4153, or your staff may contact U. E. Wajeeh at (509) 373-1830 or by e-mail at Usama_E_Wajeeh@rl.gov with any questions regarding these submittals.

Sincerely,

Max L. Edington
Project Manager
100K D&D

uew/mle

Enclosure
RL – E. M. Bowers L. Erickson K. L. Flynn

EXHIBIT 32

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 East Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2830
TDD Relay 1-800-833-6388

July 8, 2010

Usama E. Wajeeh, PE
CH2M Hill Plateau Remediation Company
PO Box 1600
Richland WA 99352

Subject: Energy, Dept of/100K; PWS ID # 00177J; Benton County
100K Area Water Treatment System Project Report; DOH Project #10-0207B

Dear Mr. Wajeeh:

The Department of Health (DOH) Office of Drinking Water has reviewed the project report received in this office on June 3, 2010, for the new membrane facility. The following comments must be addressed before I can complete my review:

1. The Project Report needs to be stamped by a Professional Engineer licensed in the state of Washington.
2. Water for fire protection, nuclear safety and service water is pumped from the same storage tank (RW-TK-1) that provides raw water to the new water treatment plant. Has a cross-connection specialist reviewed the fire and service line designs? Is backflow prevention (using DOH-approved backflow assemblies) needed to prevent contamination of the raw water storage tank?
3. The Export Water Line will be the water source for the new treatment plant. Therefore, the minimum temperature and maximum pH observed in the Export Water Line (Table 4-1) should be the values used in the CT calculations instead of the data from 100K's existing Columbia River withdrawal point. Please redo the CT calculations using the Export Water Line values and verify that the proposed contact volumes provide adequate inactivation.
4. The current design requires two different peak flow measurements for the CT calculations: the flow from the post-chlorination tank (PW-TK-PC1) and the flow from the potable water surge tank (PW-TK-CW1). The instrumentation diagrams show a flow meter (FM-201) downstream of the potable water surge tank, but no flow meter is shown downstream of the post-chlorination tank.
5. Cross-connection control measures are required to prevent chemicals from the cleaning process from contaminating the feed or filtrate streams. A double block and bleed valving arrangement with a drain to waste or a removable spool is commonly used. Please refer to Section 7.3.4 Cross-Connection Control of EPA's Membrane Filtration Guidance Manual (EPA #15-R-06-009).

6. Please move the combined filter effluent turbidimeter to the combined filter effluent line upstream of post-filtration hypochlorite injection.
7. The ability to isolate the 2,500 gallon and 12,000 gallon tanks must be provided.
8. The schedule indicates that some potable water components have been or are being installed. Please note that anyone who begins construction on a project without all required approvals may be subject to a penalty of up to $5,000 per service connection [WAC246-290-050(7)], and may be required to expose system components for our inspection, at their expense. DOH may be unable to accept any component that is installed or constructed prior to approval.

Design Suggestions (no response is required):

9. The design and operations could be simplified by eliminating the FW-P-MF and PW-P-CT pumps (and the related FW-TK-CO1 and PW-TK-PC1 tanks) and use the RW-P-FD pumps to pump directly from the raw water storage tank (RW-TK-1), thru the membranes, to the potable water surge tank (PW-TK-CW1).
10. The 6-inch contact pipe (882 LF) design is based upon a Reynolds number that provides turbulent flow. While this is correct, a 12-inch diameter (approx. 222 LF) pipe (or similar diameter) would be acceptable because of the high length to width ratio. This would reduce the amount of pipe needed to be installed.
11. The CT monitoring and calculations could be simplified by having just one inactivation sequence using the contact pipe.

Thank you for this opportunity to review and comment on your project. Please format your response so there is a one-to-one correspondence with the comments numbered above.

In accordance with WAC 246-290-990, the review of engineering documents is subject to a review fee. Enclosed please find an invoice for $710.00.

Please contact me at (509) 329-2117, if you have any questions concerning this letter.

Sincerely,

Michael D. Wilson, PE
Regional Engineer
Office of Drinking Water
Division of Environmental Health

Enclosure: Invoice

cc: Benton-Franklin Health District
Steven M. Moore, Department of Energy

EXHIBIT 33

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 East Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2830
TOD Relay 1-800-833-6388

July 22, 2010

Usama Wajeeh, PE
CH2M Hill - Plateau Remediation Co
Po Box 1600, MS:X3-69
Richland, WA 99352

Subject: Energy, Dept Of/100K; PWS ID #00177J; Benton County
Construction Documents For 100K Potable Water Facility; DOH Project # 10-0207C

Dear Mr. Wajeeh:

We received the documents for the above-named project on July 01, 2010. We are now reviewing these documents.

To better track your project, we have assigned it a unique project number: **#10-0207C. Please use this number on all future correspondence about this project.**

We are authorized by state regulations to charge a fee for reviewing water system plans, reports, and construction documents. I have enclosed a copy of our fee schedule.

We will send you an invoice for this fee after our initial review of your engineering documents. Payment is due at that time. The base fee includes our initial review, and review of one resubmittal if needed. If additional reviews are needed, we will send you a separate invoice.

Thank you for giving us the opportunity to serve you. We look forward to working with you to ensure your community has safe and reliable drinking water at the tap. Please call me at (509) 329-2117, if you have any questions.

Sincerely,

for Michael Wilson, PE
Regional Engineer
Office of Drinking Water
Division of Environmental Health

Enclosure

cc: Benton-Franklin County Health District; Benton
Steven Moore, Department of Energy/100K
Valori Adams, DOH Compliance Coordinator

Notice: Anyone who begins construction on a project without all required approvals may be subject to a penalty of up to $5,000 per service connection, and may be required to expose system components for our inspection at their own expense. The Department of Health may be unable to accept any component that is installed or constructed prior to approval.

EXHIBIT 34

CH2M HILL
Plateau Remediation Company
PO Box 1600
Richland WA
99352

CH2MHILL
Plateau Remediation Company

July 22, 2010

CHPRC- 1000573

Mr. M. D. Wilson, Regional Engineer, Eastern Regional Office
Office of Drinking Water
Washington State Department of Health
16201 E. Indiana Avenue, Suite 1500
Spokane Valley, Washington 99216

Dear Mr. Wilson:

SUBMITTAL OF WDOH PROJECT REPORT COMMENT RESPONSE FOR 100K POTABLE WATER FACILITY

CH2M HILL Plateau Remediation Company (CHPRC) received your comments from the review of the project report dated June 8, 2010 and discussed with WDOH in subsequent conversations on July 8, 2010. See below answers to your questions in the order received:

1. A replacement Cover Page for the Project Report stamped and signed by the Design Agent's Washington State licensed Professional Engineer is attached.

2. Mr. Michel Langevin (Cross-Connection Control Specialist; Cert. # 005328) has reviewed the 100K project drawing set for the new K Area water system and identified two separate backflow preventers that are in the system: PW-BP-301 (drawing H-1-91512 sheet 7 & H-1-91514 sheet 4) & PW-BP-302 (drawing H-1-91514 sheet 5). Both of these are identified in the P&ID legend (H-1-91512 sheet 1) as reduced pressure back flow preventers and, as such, offer the highest level of backflow protection available from mechanical devices. Both of the backflow preventers are identified as 1 inch FEBCO model 680's (see note 3 on drawing H-1-91514 sheet 4 and note 4 on drawing H-1-91514 sheet 5). A 2010 listing of Washington State Department of Health approved backflow preventers did not include any FEBCO 680 models in it. The intention of the project was to indicate a FEBCO 860 to be installed. The construction drawings will be revised to reflect the necessary change.

3. A new Chorine Contact Time (CT) calculation using recent raw water quality data for the Export Water Line (Source S03) has been generated as a supplement to the original and is attached. It is noted that the high pH of 9.9 was observed in early summer of 2007, and over the recent years pH values have declined steadily. It is also noted that periods of high pH are not coincident with periods of low water temperature. Finally, the attached calculation uses the maximum system flow rate of 50 gpm. Thus the results are considered to represent a very unlikely "upper bound worst case" operating scenario for

the new facility. Results show that for the current design, under this operating scenario, required disinfection can be achieved at residual chlorine concentrations of 2.0 mg/L.

4. It is proposed that the CT calculations for reporting/compliance purposes fix the residence time associated with PW-TK-PC1 at 4 minutes; the corresponding flow rate is the system maximum of 50 gpm. Under this approach, no additional flow meter is required. Operating scenarios associated with a flow rate of 50 gpm are presented in the original calculation and its supplement (attached).

5. Double block and bleed valves on the feed and filtrate lines for both microfiltration units will be installed as recommended. Reference attached Piping & Instrument Diagram (H-1-91512), Sheets 4 and 5.

6. Only one (1) microfiltration unit will be operational at any given time; they will not be operated simultaneously. Thus, the turbidity meters in their current locations will accurately document filtrate turbidity; there is no "combined filter effluent".

7. This comment is interpreted to mean that bypasses should be installed so that the facility may continue to provide potable water during tank maintenance activities (if necessary). These bypasses will be installed and residual chlorine levels will be adjusted as necessary during these activities. Reference attached Piping & Instrumentation Diagram (H-1-91512), Sheet 6.

8. Comment noted.

If you have questions, feel free to contact me at 376-4153, or your staff may contact U. E. Wajeeh at (509) 373-1830 or by e-mail at Usama_E_Wajeeh@rl.gov with any questions regarding these submittals.

Sincerely,

Max L. Edington
Project Manager
100K D&D

uew/mle

Enclosure
RL E. M. Bowers L. Erickson K. L. Flynn

EXHIBIT 35

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 East Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2830
TDD Relay 1-800-833-6388

August 3, 2010

Usama E. Wajeeh, PE
CH2M Hill Plateau Remediation Company
PO Box 1600
Richland, WA 99352

Subject: Energy, Dept of/100K; PWS ID #00177J; Benton County
100K Area Potable Water Facility Construction Documents
DOH Project #10-0207C

Dear Mr. Wajeeh:

The Department of Health (DOH) Office of Drinking Water has reviewed the construction documents received in this office on July 1, 2010, for the new membrane facility. The following comments must be addressed before I can complete my review:

Specifications:

1. There is no detailed information regarding start-up, testing, and operation of the entire treatment facility, once it is completed. Most constructions documents include a separate section of the specifications that addresses overall commissioning of the facility. Please provide a separate section on facility commissioning that identifies start-up and testing responsibilities, procedures (such as pressure, leakage, and bacteriological testing), disposal of test water, and certification of completion.

2. Section 13122, Process Tanks. Provide specifications for disinfecting and testing the finished water tanks. We recommend that AWWA Standard C652 or similar construction standard be used in revising this section of specifications.

3. Section 15100, Process Piping Systems. Provide specifications for disinfection and bacteriological testing of the potable water piping. We recommend using the AWWA C651 standard.

Drawings:

4. Provide revised drawings showing the double block and bleed valving arrangement as proposed in Item 5 from your July 22, 2010, project report comment response letter.

5. Provide revised drawings showing the bypass for tanks PW-TK-PC1 and PW-TK-CW1 as proposed in Item 7 from your July 22, 2010, project report comment response letter.

6. Temperature information is needed to calculate the CT required to comply with the Surface Water Treatment Rule. Please provide instrumentation to measure the temperature at the same location as where the post filtration chlorine residual and pH are taken.

7. Provide the access hatch and vent details for the post-filtration tanks. The hatch needs to be sealed to prevent the entry of contaminants and the vent must have a down-turned opening covered with a 24-mesh non-corrodible screen.

8. The end of the overflow pipe for the post-filtration tanks needs to be screened or covered with a flapper valve to prevent entry of rodents, insects, etc.

9. For backflow protection, the tank overflows (and other similar discharges) must have an air gap of at least two pipe diameters between the free flowing discharge end of a potable water supply pipeline and the overflow rim of an open receiving vessel. Please include this note on the drawings. An example of this is where the tank overflow pipe discharges into the recycle sump.

Other:

10. An operations program that describes how the water treatment plant will be operated must be prepared and a draft submitted prior to the completion of construction. (Please refer to WAC 246-290-654(5) and Chapter 12 of the Water System Design Manual for details that should be included in the operations program).

Recommendations:

- Membrane filtration plants can be very noisy. It is strongly recommended that an enclosed space with a desk be provided for the operator to monitor the process and complete all necessary reports.

- If there is not a facility nearby, a restroom should be provided for the operators.
- Particle counters, as well as other means of indirect integrity monitoring, are prone to high readings, due to entrained air in the first few weeks following start-up of a new facility and following periods of lack of use. It is strongly recommended that bubble traps be installed on the feed line to the particle counters similar to those installed on other nearby membrane facilities.
- Drain valve(s) installed at low points in the new 12 inch RW line to facilitate draining (such as at Sta 12+00 on Drawing No. H-1-91184-3).

Thank you for this opportunity to review and comment on your project. Please format your response so there is a one-to-one correspondence with the comments numbered above.

In accordance with WAC 246-290-990, the review of engineering documents is subject to a review fee. Enclosed please find an invoice for $710.00.

Please contact me at (509) 329-2117, if you have any questions concerning this letter.

Sincerely,

Michael D. Wilson, PE
Regional Engineer
Office of Drinking Water
Division of Environmental Health

Enclosure: Invoice

cc: Benton-Franklin Health District
Steven M. Moore, Department of Energy 100/K

EXHIBIT 36

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 East Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2830
TDD Relay 1-800-833-6388

August 5, 2010

Usama Wajeeh, PE
CH2M Hill Plateau Remediation Co.
PO Box 1600
Richland, WA 99352

Subject: Energy, Dept of/100K; PWS ID# 00177J; Benton County
100K Area Water Treatment System; DOH Project #10-0207B; APPROVAL

Dear Mr. Wajeeh:

The engineering report for the above project received in this office June 3, 2010, together with the comment responses received July 27, 2010, has been reviewed and, in accordance with the provisions of WAC 246-290, is hereby APPROVED.

If you have any questions please feel free to contact me at (509) 329-2117.

Sincerely,

Michael Wilson, PE
Regional Engineer
Office of Drinking Water
Division of Environmental Health

cc: Benton-Franklin Health District
Steve Moore, Department of Energy, 100K
George Simon, DOH WFI Administrator
Valori Adams, DOH Compliance Coordinator

EXHIBIT 37

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 East Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2830
TDD Relay 1-800-833-6388

September 15, 2010

Usama Wajeeh, PE
CH2M Hill Plateau Remediation Co
PO Box 1600
Richland, WA 98352

Subject: Energy, Dept of/100K; PWS ID# 00177J; Benton County
Const Docs for 100K Potable Water Facility; DOH Project #10-0207C
APPROVAL

Dear Mr. Wajeeh:

The plans and specifications for the above project received in this office July 1, 2010, together with the response to comments received August 25, 2010, have been reviewed and, in accordance with the provisions of WAC 246-290, are hereby APPROVED.

As required in WAC 246-290-040 – Within sixty days following the completion of, and prior to the use of, the above project or portions thereof, the attached Construction Report must be completed by a professional engineer and returned to this department.

WAC 246-290-120 provides that if the certification of completion has not been submitted within two years of the date of this letter, this approval will become null and void unless you take action at that time to arrange for an extension of the approval period in the manner prescribed.

In addition, you are required to submit a revised Water Facilities Inventory (WFI) at the time of certification in order that this new reservoir may be properly listed on your WFI.

If you have any questions please feel free to contact me at (509) 329-2117.

Sincerely,

Michael Wilson, PE
Regional Engineer
Office of Drinking Water
Division of Environmental Health

Enclosures: Construction Completion Report

cc: Benton-Franklin Health District
Steven Moore, Department of Energy 100K
George Simon, DOH WFI Administrator
Valori Adams, DOH Compliance Coordinator

EXHIBIT 38

CH2M HILL
Plateau Remediation Company
PO Box 1600
Richland, WA
99352

CH2MHILL
Plateau Remediation Company

January 27, 2011

CHPRC-1100226

Mr. M. D. Wilson, Regional Engineer, Eastern Regional Office
Office of Drinking Water
Washington State Department of Health
16201 E. Indiana Avenue, Suite 1500
Spokane Valley, Washington 99216

Dear Mr. Wilson:

Subject: Department of Energy 100K Water Treatment Facility PWS ID# 00177J; Benton County; Operational Performance Testing Report; DOH Project #10-0207D

In accordance with the Operational Testing Procedure (OTP) for the new 100K Water Treatment Facility submitted to the State of Washington Department of Health (WDOH) on August 11, 2010 and approved with comments by WDOH per email on September 15, 2010, please find enclosed the Operational Performance Testing Report and associated attachments for your review and approval. The report displays that the water treatment facility consistently met State of Washington drinking water standards for the duration of the testing period.

In order to meet very strict timeframes for the project, CHPRC is requesting quick response from WDOH in regard to this report. We look forward to discussing these results with WDOH and confirming that the new treatment plant is ready to produce and distribute potable water to the 100K area.

You may contact U. E. Wajeeh at 509-373-1830 or me directly at 509-376-4153 with any questions regarding this matter.

Sincerely,

M. L. Edington
Area Manager, 100K D4

uew/llk

Attachment 1

cc: S.M. Hahn
S. Perry, WDOH
S.N. Balone

RECEIVED
JAN 27 2011
DEPARTMENT OF HEALTH
EASTERN REGIONAL OFFICE
2 copies By Susan Sherlock

EXHIBIT 39

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 East Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2830
TDD Relay 1-800-833-6388

February 1, 2011

M. L. Edington, Area Manager
CH2M Hill Plateau Remediation Co
PO Box 1600
Richland, WA 99352

Subject: Energy, Dept Of/100K; PWS ID #00177J; Benton County
OTP Report; DOH Project # 10-0207E

Dear Mr. Edington:

We received the documents for the above-named project on January 27, 2011. We are now reviewing these documents.

To better track your project, we have assigned it a unique project number: **#10-0207E. Please use this number on all future correspondence about this project.**

We are authorized by state regulations to charge a fee for reviewing water system plans, reports, and construction documents. I have enclosed a copy of our fee schedule.

We will send you an invoice for this fee after our initial review of your engineering documents. Payment is due at that time. The base fee includes our initial review, and review of one resubmittal if needed. If additional reviews are needed, we will send you a separate invoice.

Thank you for giving us the opportunity to serve you. We look forward to working with you to ensure your community has safe and reliable drinking water at the tap. Please call me at (509) 329-2117, if you have any questions.

Sincerely,

for Michael Wilson, PE
Regional Engineer
Office of Drinking Water
Division of Environmental Health

Enclosure

cc: Benton-Franklin County Health District; Benton
Steven Moore, Department of Energy / 100K
Valori Adams, DOH Compliance Coordinator

Notice: Anyone who begins construction on a project without all required approvals may be subject to a penalty of up to $5,000 per service connection, and may be required to expose system components for our inspection at their own expense. The Department of Health may be unable to accept any component that is installed or constructed prior to approval.

EXHIBIT 40

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 East Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2838
TDD Relay 1-800-833-6388

February 18, 2011

M.L. Edington, Area Manager
CH2M Hill Plateau Remediation Co
PO Box 1600
Richland, WA 99352

Subject: Energy, Dept of / 100K; PWS ID# 00177J; Benton County
Operational Performance Testing Report; DOH Project #s 10-0207D-10-0207E
APPROVAL

Dear Mr. Edington:

The engineering report for the above projects received in this office August 10, 2010, and January 27, 2010, has been reviewed and, in accordance with the provisions of WAC 246-290, is hereby APPROVED.

WAC 246-290-990 authorizes a schedule of fees to be implemented for review of planning, engineering, and construction documents. The Department of Health's (DOH) total cost to review this engineering report is $408.00. An invoice is enclosed.

Please note that a draft O & M Manual (Operations Program under WAC 246-290-654(5)) must be submitted to DOH for review and approval before final approval of the new membrane filtration facility can be issued and water produced for public consumption.

If you have any questions please feel free to contact me at (509) 329-2117.

Sincerely,

Michael Wilson, PE
Regional Engineer
Office of Drinking Water
Division of Environmental Health

Enclosures: Invoice

cc: Benton-Franklin Health District
Steven Moore, Department of Energy, 100/K Water Purveyor
George Simon, DOH WFI Administrator
Valori Adams, DOH Compliance Coordinator
Bryony Stasney, DOH Water Quality Administrator

EXHIBIT 41

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 East Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2830
TDD Relay 1-800-833-6388

March 10, 2011

M. L. Edington, Area Manager
CH2M Hill Plateau Remediation
PO Box 1600
Richland, WA 99352

Subject: Energy, Dept Of/100K; PWS ID #00177J; Benton County
Operation And Maintenance Manual; DOH Project # 11-0313

Dear Mr. Edington:

We received the documents for the above-named project on March 04, 2011. We are now reviewing these documents.

To better track your project, we have assigned it a unique project number: **#11-0313. Please use this number on all future correspondence about this project.**

We are authorized by state regulations to charge a fee for reviewing water system plans, reports, and construction documents. I have enclosed a copy of our fee schedule.

We will send you an invoice for this fee after our initial review of your engineering documents. Payment is due at that time. The base fee includes our initial review, and review of one resubmittal if needed. If additional reviews are needed, we will send you a separate invoice.

Thank you for giving us the opportunity to serve you. We look forward to working with you to ensure your community has safe and reliable drinking water at the tap. Please call me at (509) 329-2117, if you have any questions.

Sincerely,

Michael Wilson, PE
Regional Engineer
Office of Drinking Water
Division of Environmental Health

Enclosure

cc: Benton-Franklin County Health District, Benton
CH2M Hill - Plateau Remediation Co
Steven Moore, Department of Energy 100K
Sheila Hahn, Department of Energy
Valori Adams, DOH Compliance Coordinator

Notice: Anyone who begins construction on a project without all required approvals may be subject to a penalty of up to $5,000 per service connection, and may be required to expose system components for our inspection at their own expense. The Department of Health may be unable to accept any component that is installed or constructed prior to approval.

Wajeeh, Usama E **EXHIBIT 42**

From: Edington, Max L
Sent: Wednesday, March 16, 2011 8:16 AM
To: Wajeeh, Usama E; Green, Mary A (Mary Ann)
Subject: FW: Energy, Dept of/100K; PWS ID# 00177, Benton County: Membrane WTP Start-Up Approval
Attachments: Revised Membrane Filtration Unit Form.xlsx; 2807_001.pdf

From: Wilson, Michael / EH (DOH) [mailto:Michael.Wilson@doh.wa.gov]
Sent: Tuesday, March 15, 2011 6:16 PM
To: Edington, Max L; Moore, Steven
Cc: Perry, Sam A (DOH)
Subject: Energy, Dept of/100K; PWS ID# 00177, Benton County: Membrane WTP Start-Up Approval

Max and Steven:

O & M Manual Review

We completed our review of the O& M manual that was received in this office on March 4, 2011. I have two comments, but nothing that will prevent the start-up of the new membrane WTP. My comments are:

1. Appendix A, Monitoring Report Forms. There was a typo in Note 4 of the "Membrane Filtration Unit Monthly Report" form that I had emailed to you. Note 4 incorrectly makes reference to "Note 5" on this same form. Note 4 should read:

> A pressure decay test (PDT) must be conducted at least once each day that the membrane filtration unit is used. An additional PDT is required if an indirect integrity threshold described in Note 6 is exceeded.
>
> Unless the LRV is calculated and greater than the minimum required LRV of 3.0 log, the maximum allowable PDT is 0.065 psi/min.

A corrected copy of the "Membrane Filtration Unit Monthly Report" form is attached for your use.

<<Revised Membrane Filtration Unit Form.xlsx>>

2. Appendix D, Water Treatment Alarm Response.

a. The particle count of the filter effluent should have an alarm setpoint of 30 counts/ml or less. An additional pressure decay test is required at least once every four hours of operation if particle counts exceed the control limit of 30 counts/ml for 15 or more minutes.

b. The transmembrane pressure high setpoint should be set at 30 psi instead of 35 psi. The maximum transmembrane pressure is 30 psi.

Please make the above changes in your Draft O & M manual. You do not need to resubmit the O & M manual for our review.

Water Treatment Plant Start-up

Please complete and submit the attached Construction Completion Report (CCR) form. The CCR will certify that the project has been completed according to plans and specifications which were approved by this office. After I receive the CCR, I will give you permission by email that the WTP may be placed into service. A formal approval letter will be sent to you after my email approval. The completed CCR form may be emailed back to me.

<<2807_001.pdf>>

Filtration Credit

Based on the design of new potable water facility, the Department will grant your system the following removal credit: 3.0 logs *Cryptosporidium*, 3.0 logs *Giardia lamblia* cyst, 0.0 logs virus

As a result of the above filtration removal credit determination, your disinfection system must provide the following levels of inactivation to meet the overall Surface Water Treatment Rule treatment requirements: 0.5 log *Giardia lamblia* cyst, 4.0 logs virus

Start-up Recommendations

Based upon start-up observations at other membrane facilities, your membranes may have excessive particle counts over 30 counts/ml until the membranes relax. Particle counts over the 30 counts/ml threshold require an additional pressure decay test at least once every four hours of operation. In all likelihood, these high particle counts are not indicative of a fiber, potting, or seal failure. Rather than the water system being over concerned about the high particle counts, we recommend that you do direct integrity tests every four hours of operation during the first month or until the membranes relax and the finished water particle counts are routinely less than 20 counts/ml.

Please contact me if you have any questions and I look forward to receiving your Construction Completion Report form.

****

Michael D. Wilson, PE
Regional Engineer
Office of Drinking Water
Washington State Department of Health
16201 E. Indiana Avenue, Suite 1500
Spokane Valley, WA 99216
phone: (509) 329-2117 ~ fax: (509) 329-2104
michael.wilson@doh.wa.gov

We have moved to a new location! Please note our new address and telephone numbers.

ublic Health - Always Working for a Safer and Healthier Washington

Visit our web site at www.doh.wa.gov/ehp/dw

Barnes, Brett M

EXHIBIT 45

From: Jansky, Michael T
Sent: Monday, April 26, 2010 7:45 AM
To: Barnes, Brett M; Norman, Dottie L
Subject: RE: Notice of Cultural Resources Clearance for the Installation of the 100-K Area Raw Waterline, HCRC#2009-600-018
Attachments: 10000095/ECR-2009-600-018 - [1001251006] -- REGULATORY INFO -- BIOLOGICAL REVIEW OF THE 100-K RIVER WATER ISOLATION PROJECT, ECR #2009-600-018

Yo, Brett and Dottie,

Please see attached. Now, with the CRR I need to close with Woody on the CX...shall follow-up with you and Dottie this week.

Thank you. MT Jansky

EXHIBIT 44

From: Barnes, Brett M
Sent: Monday, April 26, 2010 7:25 AM
To: Jansky, Michael T
Subject: FW: Notice of Cultural Resources Clearance for the Installation of the 100-K Area Raw Waterline, HCRC#2009-600-018

Mike, don't know if you received this yet...and can you address Dottie's question. Thanks. Brett

---

EXHIBIT 43

From: Norman, Dottie L
Sent: Friday, April 23, 2010 12:17 PM
To: Barnes, Brett M; Story, Scott W
Subject: FW: Notice of Cultural Resources Clearance for the Installation of the 100-K Area Raw Waterline, HCRC#2009-600-018

Has the ecologic review been completed also (i.e., included in CRR review or independently) or is that still outstanding? 27

From: Teynor, Thomas K
Sent: Thursday, April 22, 2010 4:16 PM
To: Kennedy, Colburn E; Norman, Dottie L
Cc: Balone, Steven N; Kehler, Kurtis L; Swartz, Mike
Subject: FW: Notice of Cultural Resources Clearance for the Installation of the 100-K Area Raw Waterline, HCRC#2009-600-018

FYI

EXHIBIT 54

From: Rodriguez, Annabelle L
Sent: Thursday, April 22, 2010 4:13 PM
To: Story, Scott W; Kennedy, Colburn E
Cc: Balone, Steven N; Teynor, Thomas K; Rodriguez, Annabelle L; Prendergast-Kennedy, Ellen L
Subject: Notice of Cultural Resources Clearance for the Installation of the 100-K Area Raw Waterline, HCRC#2009-600-018

Good Afternoon,

In compliance with 36 CFR 800, a National Historic Preservation Act (NHPA), Section 106 assessment for the subject project has been completed for the U. S. Department of Energy, Richland Operations (DOE-RL) Cultural

1

Barnes, Brett M

From: Jansky, Michael T
Sent: Tuesday, May 25, 2010 7:47 AM
To: Russell, Woody
Cc: Engelmann, Richard H; Barnes, Brett M
Subject: RE: CX FOR K AREA Utilities Reroute

Yo, Woody,

OK. I shall get that together this week.

Thank you. MT Jansky

From: Russell, Woody
Sent: Tuesday, May 25, 2010 7:45 AM
To: Jansky, Michael T
Subject: RE: CX FOR K AREA Utilities Reroute

Mike,
It is approvable, it needs the clearance form and CX # and then I can sign.

Woody

From: Jansky, Michael T
Sent: Tuesday, May 25, 2010 6:15 AM
To: Russell, Woody
Subject: RE: CX FOR K AREA Utilities Reroute

EXHIBIT 47

Yo, Woody,

Is the CX approved? If so, could you please fax me the signature page?

Thank you. MT Jansky

From: Russell, Woody
Sent: Monday, May 24, 2010 10:29 AM
To: Jansky, Michael T
Subject: RE: CX FOR K AREA Utilities Reroute

Good to go – Sorry, I did not get back to you sooner.

From: Jansky, Michael T
Sent: Monday, May 24, 2010 6:39 AM
To: Jansky, Michael T; Russell, Woody
Subject: RE: CX FOR K AREA Utilities Reroute

EXHIBIT 46

Yo, Woody,

Any thoughts regarding this April 28 request?

Please advise. Thank you. MT Jansky

1

From: Jansky, Michael T
Sent: Wednesday, April 28, 2010 12:27 PM
To: Russell, Woody
Subject: CX FOR K AREA Utilities Reroute

Yo, Woody,

Attached for your approval is an activity-specific CX for 100 K Area Utilities Reroute.

Also attached for your files are the cultural, ecological, and siting documentation.

Please advise if you have any comments/questions regarding this activity.

Please fax me the signed approval page.

Thank you. MT Jansky

2

EXHIBIT 48

Categorical Exclusion for 100 K Area Utilities Reroute Hanford Site, Richland, Washington

Proposed Action

The U.S. Department of Energy, Richland Operations Office (RL), needs to accelerate decommissioning and demolition (D&D) of the 100 K Area ancillary facilities, 100 K Area waste site remediation, and 105-K East and 105-K West reactor disposition. The proposed activities would provide for the isolation of 100 K Area utilities to facilitate achieving cold and dark conditions for facilities subject to D&D and remediation. The proposed activities would include the elimination of raw water withdrawals from the Columbia River by closing the 183-K East waste supply station and installing a temporary supply system to provide water and not interfere with D&D activities. Electrical systems also would be re-routed to facilitate the D&D of tunnels.

Location of Action

100 K Area, Hanford Site, Richland, Washington (Figure 1).

Description of Proposed Action

Approximately 11,000 feet of raw water transfer line would be installed, tieing into an existing water line south of the 100 B Area to the southwest corner of the 100 K Area (Figures 2 and 3). The water line would be continued north to the 142-KW Building and rerouted to provide water to two fire hydrants at the 815-KW Building and to the balance of the 100 K Area. Water lines would be installed within the exterior of the 100 K Area. The system would be provided with a heating system to prevent freezing. Water filtration would involve use of portable filtration units providing a minimum of 50 gallons per minute (189 liters per minute) to provide sanitary water supply for approximately 15 trailers, portable restrooms, and shower trailers. Trench excavation could reach a depth of 4 feet or more and up to 4 feet wide or more.

Electrical utilities would be consolidated and re-routed to avoid interference with on-going demolition activities. The existing 100 K Area electrical system is sized to support the operation of two large river water pumps, continuous operation of raw water pumps, two reactors, and various support facilities. The 100 K Area substations are fed electrical power by large towers providing 230 kV supply. Distribution of electricity between substations is conducted via tunnels, which are to undergo D&D.

Minor modifications to the heating, ventilation, and air conditioning (HVAC) system in the 100-KW Basin also would be provided for worker protection and comfort during continued operations. The current working environment involves radiological airborne contamination in a hot and humid environment; the HVAC upgrades would keep the work area below airborne radiation requirements.

The proposed activities are scheduled to start in FY 2009 and be completed in FY 2010. Total project costs are estimated to be no greater than $1,000,000, with a funding source under the *American Recovery and Reinvestment Act of 2009*.

Categorical Exclusion (CX) to be Applied

The following CX is listed in Title 10, Code of Federal Regulations (CFR) 1021, "National Environmental Policy Act Implementing Procedures," Subpart D, Appendix B, published in the Tuesday, July 9, 1996, 61 Federal Register 36222:

B1.26 Siting, construction (or expansion, modification, or replacement), operation, and decommissioning of small (total capacity less than approximately 250,000 gallons per day) wastewater and surface water treatment facilities whose liquid discharges are externally regulated, and small potable water and sewage treatment facilities.

ELIGIBILITY CRITERIA

Since there are no extraordinary circumstances that may affect the significance of the environmental effects of the proposal, the proposed activity meets the eligibility criteria of 10 CFR 1021.410(b), as shown in the following table. The proposed activity is not "connected" to other actions with potentially significant impacts [40 CFR 1508.25(a)(1)], or with cumulatively significant impacts [40 CFR 1508.25(a)(2)], and is not precluded by 10 CFR 1021.211.

The "Integral Elements" of 10 CFR 1021 are satisfied as discussed below.

INTEGRAL ELEMENTS 10 CFR 1021, SUBPART D, APPENDIX B	
Would the Proposed Action:	Comment or explanation:
Threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, including requirements of DOE and/or Executive Orders?	No applicable laws, regulations, or orders would be violated by the proposed actions.
Require siting and construction or major expansion of waste storage, disposal, recovery or treatment facilities (including incinerators)? The proposal may include categorically excluded waste storage, disposal, recovery or treatment actions.	Wastes generated during the proposed action would not require expansion/modification of existing waste management facilities.
Disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases?	No. There would be no uncontrolled or unpermitted releases.
Adversely affect environmentally sensitive resources including, but not limited to: (i) Property (e.g., sites, buildings, structures, objects) of historic, archeological, or architectural significance designated by Federal, state, or local governments or property eligible for listing on the National Register of Historic Places (ii) Federally-listed threatened or endangered species or their habitat (including critical habitat). Federally-proposed or candidate species or their habitat or state-listed endangered or threatened species or their habitat (iii) Wetlands regulated under the Clean Water Act (33 U.S.C. 1344) and floodplains (iv) Federally- and state-designated wilderness areas, national parks, national natural landmarks, wild and scenic rivers, state and Federal wildlife refuges, and marine sanctuaries (v) Prime agricultural lands (vi) Special sources of water (such as sole-source aquifers, wellhead protection areas, and other water sources that are vital in a region) (vii) Tundra, coral reefs, or rainforests?	None of the environmentally sensitive resources listed (i through vii) will be adversely affected. Note that the National Historic Preservation Act, Section 106 assessment, was completed on April 22, 2010 (email, Annabelle Rodriguez, RL, to Scott Story and Colburn Kennedy, CHPRC, "Notice of Cultural Clearance for the Installation of the 100-K Area Raw Waterline, HCRC#2009-600-018." A finding of "No Historic Properties Affected" has been determined for this project.

CULTURAL AND BIOLOGICAL RESOURCES REVIEWS

Cultural and biological reviews were conducted to address the proposed raw water line.

A cultural resources review (HCRC#2009-600-018) has been conducted for the 100 K Area raw waterline. On March 18, 2010, the Hanford Cultural Resources project submitted their findings and concluded that a determination of "No Historic Properties Affected" be made, because neither the cultural resources identified (one prehistoric archaeological site and one prehistoric isolate) are eligible for the national Register of Historic Places. Appropriate monitoring for cultural materials will be conducted during all work activities.

A biological review specifically for the project has been conducted (Letter, M. Sackschewsky, PNNL, to S. Story, FFS, "Biological Review of the 100-K River Water Isolation Project," ECR #2009-600-018," dated January 12, 2010). Therein, recommended mitigation activities included minimization of disturbance of sagebrush habitat and minimization of off-road travel. Based on compliance with the aforementioned recommendations, no adverse impacts to protected species, priority habitats, or other biological resources of concern would be expected to result from the proposed action.

Compliance Action: I have determined that the proposed action meets the requirements for the referenced CX. Therefore, using the authority delegated to me by DOE Order 451.1B, Change 1, I have determined that the proposed activities may be categorically excluded from further *National Environmental Policy Act of 1969* (NEPA) review and documentation.

Signature/Date: R.W. Russell 5/26/10

R. W. Russell
Hanford NEPA Compliance Officer

cc:

B. M. Barnes, CHPRC
M. T. Jansky, CHPRC
C. E. Kennedy, CHPRC
A. L. Rodriguez, RL
R. S. Weeks, PNNL

The following checklist summarizes environmental impacts that were considered:

Impact to Air

	Would the proposed action:	YES	NO
1.	Result in more than minor and temporary gaseous discharges to the environment?		X
2.	Release other than nominal and temporary particulates or drops to the atmosphere?		X
3.	Result in more than minor thermal discharges?		X
4.	Increase offsite radiation dose to >0.1 mrem (40 CFR 61 Subpart H)?		X

Impact to Water

	Would the proposed action:	YES	NO
5.	Discharge any liquids to the environment?	X	
6.	Discharge heat to surface or subsurface water?		X
7.	Release soluble solids to natural waters?		X
8.	Provide interconnection between aquifers?		X
9.	Require installation of wells?		X
10.	Require a Spill Prevention Countermeasure and Control Plan (40 CFR 112 and 761)?		X
11.	Violate water quality standards (WAC 173-200, Table 1)?		X

Impact to Land

	Would the proposed action:	YES	NO
12.	Conflict with existing zoning or land use?		X
13.	Involve hazardous, radioactive, PCB, or asbestos waste?	X	
14.	Cause erosion?		X
15.	Require an excavation permit?	X	
16.	Disturb an undeveloped area?	X	

General

	Would the proposed action:	YES	NO
17.	Disturb Arid Lands Ecology or Wahluke Slope Reserves?		X
18.	Cause other than a minor increase in noise level?		X
19.	Make a long-term commitment of large quantities of nonrenewable resources?		X
20.	Require new utilities or modifications to utilities?	X	
21.	Use pesticides, carcinogens, or toxic chemicals?		X
22.	Require a radiation work permit?	X	

Items marked "yes" in the Environmental Impact Checklist located above, are addressed in the following paragraphs:

5. Water could be used for dust suppression during excavation activities.

13. Small amounts of radioactive waste (e.g., filters from HVAC modifications) would be appropriately disposed.

15. An excavation permit would be required before removal of soils under the liner.

16. Approximately 11,000 feet of soil disturbance outside the 100 K Area fence line would be required for tie-in to an existing raw water transfer line.

20. The proposed activities involve modification/re-routing of utilities.

22. A radiation work permit would be required due to the potential to encounter radiological contamination during excavations/utility modifications.

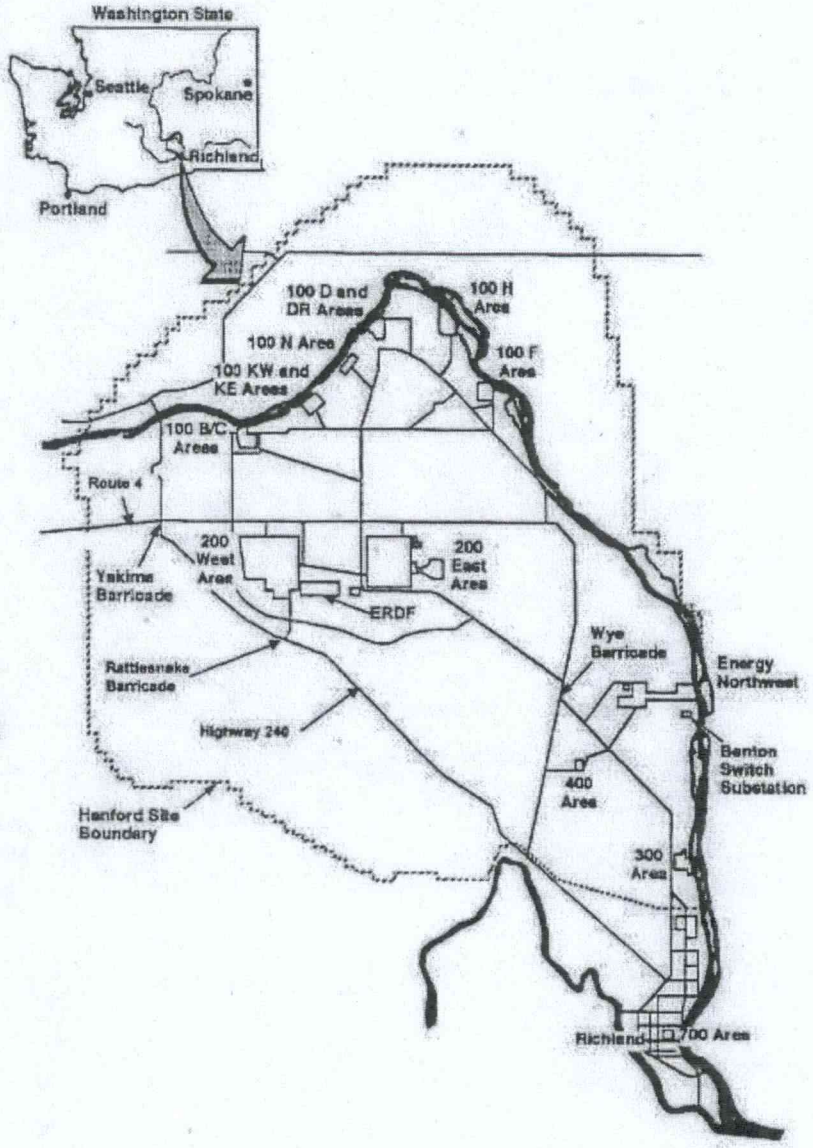


Figure 1. Hanford Site

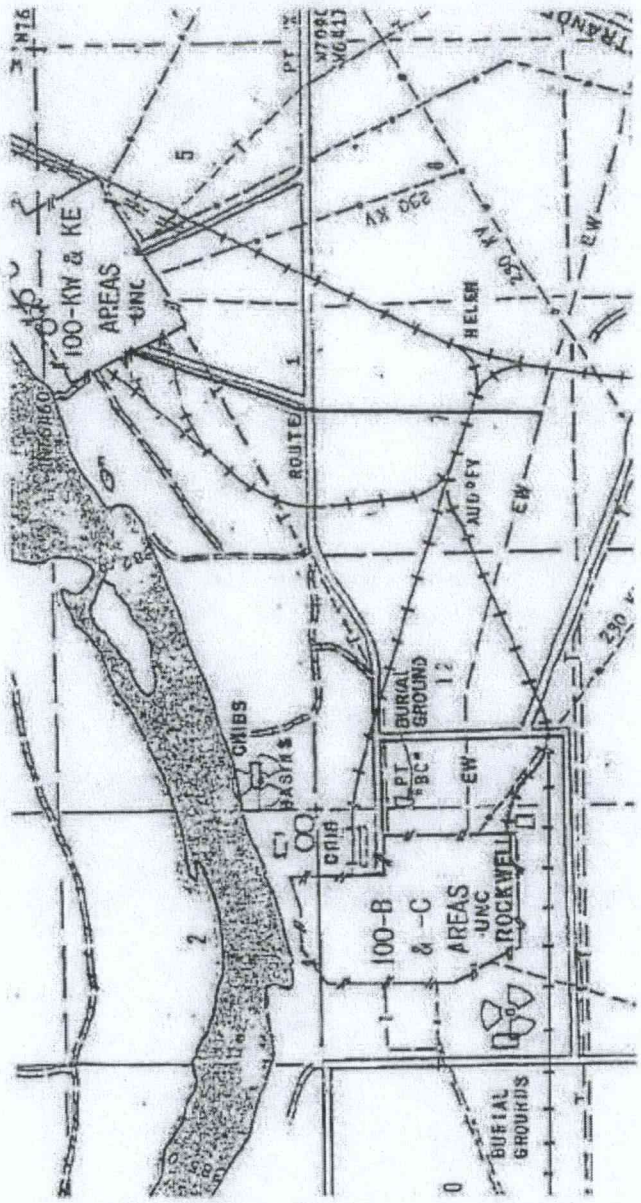


Figure 2. Proposed Water Line Tie-In

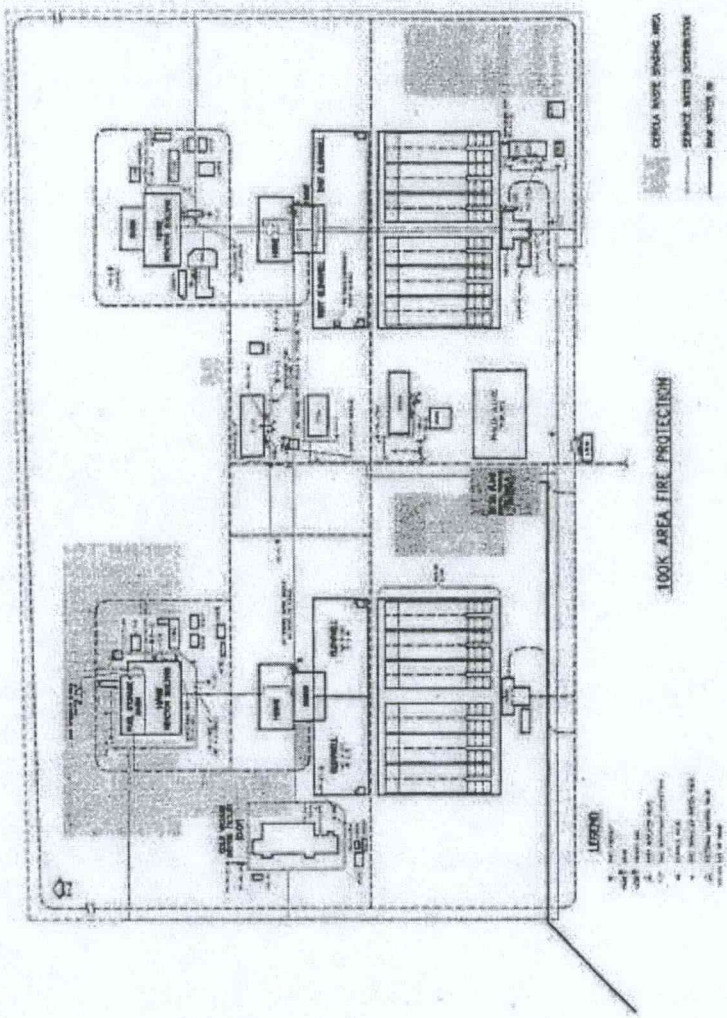


Figure 3. Proposed 100 K Area Utilities Reroute Schematic

(14) EM-RL-CPRC-GENLAREAS-2010-0013.doc

EXHIBIT 49

EM-RL--CPRC-GENLAREAS-2010-0013 NOTIFICATION/FINAL

Occurrence Report

After 2003 Redesign

Plateau Remediation General Facilities

(Name of Facility)

Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)

(Facility Function)

Hanford Site CH2MHILL Plateau Remediation Company

(Site) (Contractor)

Name: V. M. Pizzuto

Title: COO, CHPRC **Telephone No.:** (509) 373-0293

(Facility Manager/Designee)

Name: NYE, LYNN S

Title: OCCURRENCE REPORTING COORDINATOR **Telephone No.:** (509) 372-0251

(Originator/Transmitter)

Name: **Date:**

(Authorized Classifier (AC))

1. Occurrence Report Number: EM-RL--CPRC-GENLAREAS-2010-0013

Initiation of Construction Activities on Water System Installations Prior to WDOH Approval

2. Report Type and Date: NOTIFICATION/FINAL

	Date	Time
Notification:	06/08/2010	20:39 (ETZ)
Initial Update:	06/08/2010	20:39 (ETZ)
Latest Update:	06/08/2010	20:39 (ETZ)
Final:	06/08/2010	20:39 (ETZ)

3. Significance Category: 4

4. Division or Project: Multiple

5. Secretarial Office: EM - Environmental Management

5. Secretarial Office: EM - Environmental Management

6. System, Bldg., or Equipment: Construction / Water System Installation

7. UCNI?: No

8. Plant Area: Multiple

9. Date and Time Discovered: 06/04/2010 15:10 (PTZ)

10. Date and Time Categorized: 06/04/2010 15:10 (PTZ)

11. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

12. Other Notifications:

Date	Time	Person Notified	Organization
06/04/2010	16:54 (PTZ)	J.E. Trevino	DOE-RL

13. Subject or Title of Occurrence:

Initiation of Construction Activities on Water System Installations Prior to WDOH Approval

14. Reporting Criteria:

10(2) - An event, condition, or series of events that does not meet any of the other reporting criteria, but is determined by the Facility Manager or line management to be of safety significance or of concern to other facilities or activities in the DOE complex. One of the four significance categories should be assigned to the occurrence, based on an evaluation of the potential risks and the corrective actions taken. (1 of 4 criteria - This is a SC 4 occurrence)

15. Description of Occurrence:

On May 3, 2010, a new potable water system installation at the 200 East Area was found to have begun construction prior to obtaining required written project report approval from the WDOH. This project report had been submitted to WDOH and approval was pending. Upon discovery, work on the drinking water system was stopped, WDOH was contacted, and approval was immediately obtained. An investigation of similar projects identified one project for the construction of a new combination fire suppression and temporary drinking water system at 100K Area with a similar issue. On May 18, 2010, it was determined that construction had begun prior to approval of the project report by WDOH (the fire system does not require WDOH approval). In this case, the approval of the National Environmental Policy Act (NEPA) Categorical Exclusion (CX) submittal was determined to have not yet been obtained. This CX approval was immediately obtained, and the project report submitted to WDOH for approval.

In neither case was the drinking water system hooked up or put into service prior to obtaining the required approvals.

Following discussion with the involved projects, CHPRC Management, and CHPRC support organizations, this series of issues was determined to be of sufficient concern to warrant submittal of a Management Concern, 10(2) SC 4 Occurrence Report.

16. Is Subcontractor Involved? No

17. Operating Conditions of Facility at Time of Occurrence:

N/A

18. Activity Category:

01 - Construction

19. Immediate Actions Taken and Results:

- A meeting is to be held WDOH to review the work plan for the 100K Area.

20. ISM:

1) Define the Scope of Work

21. Cause Code(s):

22. Description of Cause:

23. Evaluation (by Facility Manager/Designee):

24. Is Further Evaluation Required?: No

25. Corrective Actions
Local Tracking System Name: Corrective Action Management

26. Lessons Learned:

27. Similar Occurrence Report Numbers:

28. User-defined Field #1:

29. User-defined Field #2:

30. HQ Keyword(s):

01A--Inadequate Conduct of Operations - Inadequate Conduct of Operations (miscellaneous)
01E--Inadequate Conduct of Operations - Operations Procedure Noncompliance
01R--Inadequate Conduct of Operations - Management issues
12B--EH Categories - Conduct of Operations
14C--Quality Assurance - Quality Improvement Deficiency
14E--Quality Assurance - Work Process Deficiency

31. HQ Summary:

On May 3, 2010, installation of a new potable water system at the 200 East Area was found to have begun before obtaining the required written project report approval from the State of Washington Department of Health (WDOH). This project report had been submitted to the WDOH and approval was pending. Upon discovery, work on the drinking water system was stopped, WDOH was contacted, and approval was immediately obtained. An investigation of similar projects identified one project for the construction of a new combination fire suppression and temporary drinking water system at the 100K Area with a similar issue. On May 18, 2010, it was determined that construction had begun before approval of the project report by the WDOH (the fire system does not require WDOH approval). In this case, the approval of the National Environmental Policy Act Categorical Exclusion (CX) submittal was determined to have not yet been obtained. This CX approval was immediately obtained, and the project report submitted to the WDOH for approval. In neither case was the drinking water system hooked up or put into service before obtaining the required approvals. A meeting with the WDOH is planned to review the 100K Area work plan.

32. DOE Facility Representative Input:

33. DOE Program Manager Input:

EXHIBIT 50

Date Received for Clearance Process (MM/DD/YYYY)

INFORMATION CLEARANCE FORM

A. Information Category

- ☐ Abstract
- ☐ Journal Article
- ☐ Summary
- ☐ Internet
- ☐ Visual Aid
- ☐ Software
- ☐ Full Paper
- ☐ Report
- ☒ Other Proj Execution Plan

B. Document Number EPC-40524, Rev. 1

C. Title
100K Infrastructure Project Execution Plan

D. Internet Address

E. Required Information (MANDATORY)

1. Is document potentially Classified? ◉ No ○ Yes
   M. L. Edington
   Manager Required (Print and Sign)
   If Yes _____
   ADC Required (Print and Sign) ◉ No ○ Yes Classified
2. Official Use Only ◉ No ○ Yes Exemption No. ____
3. Export Controlled Information ◉ No ○ Yes OUO Exemption No. 3
4. UCNI ◉ No ○ Yes
5. Applied Technology ◉ No ○ Yes
6. Other (Specify) _____

F. Does Information Contain the Following:

a. New or Novel (Patentable) Subject Matter? ◉ No ○ Yes
   If "Yes", OUO Exemption No. 3
   If "Yes", Disclosure No.: _____
b. Commercial Proprietary Information Received in Confidence, Such as Proprietary and/or Inventions? ◉ No ○ Yes If "Yes", OUO Exemption No. 4
c. Corporate Privileged Information? ◉ No ○ Yes
   If "Yes", OUO Exemption No. 4
d. Government Privileged Information? ◉ No ○ Yes
   If "Yes", Exemption No. 5
e. Copyrights? ◉ No ○ Yes If "Yes", Attach Permission.
f. Trademarks? ◉ No ○ Yes If "Yes", Identify in Document.
8. Is Information requiring submission to OSTI? ○ No ○ Yes
9. Release Level? ◉ Public ○ Limited

F. Complete for a Journal Article

1. Title of Journal

G. Complete for a Presentation

1. Title for Conference or Meeting _____
2. Group Sponsoring _____
3. Date of Conference _____
4. City/State _____
5. Will Information be Published in Proceedings? ◉ No ○ Yes
6. Will Material be Handed Out? ◉ No ○ Yes

H. Information Owner/Author/Requestor
K. A. Albin 7/24/10
(Print and Sign)

Responsible Manager
M. L. Edington 7/24/10
(Print and Sign)

Approval by Direct Report to President (Speech/Articles Only)
(Print and Sign)

I. Reviewers

	Yes	Print	Signature	Public Y/N (If N, complete J)
General Counsel	☐			Y / N
Office of External Affairs	☐			Y / N
DOE-RL	☐			Y / N
Other	☐			Y / N
Other	☐			Y / N

J. Comments

If Additional Comments, Please Attach Separate Sheet

Information Clearance Approval

A-6001-401 (REV 2)

CHPRC ADMINISTRATIVE DOCUMENT PROCESSING AND APPROVAL

DOCUMENT TITLE:	OWNING ORGANIZATION/FACILITY:
100K Infrastructure Project Execution Plan	CHPRC/EPC

Document Number: EPC-40524 **Revision/Change Number:** 1

DOCUMENT TYPE *(Check Applicable)* [ ] Plan [ ] Report [ ] Study [ ] Description Document [X] Other - PEP

DOCUMENT ACTION *(Check One)* [ ] New [X] Revision [ ] Cancellation

RESPONSIBLE CONTACTS

Name	Phone Number
Author: K. A. Albin	376-3034
Manager: M. L. Edington	376-4153

DOCUMENT CONTROL

Is the document intended to be controlled within the Hanford Document Control System (HDCS)?	[X] Yes [ ] No
Does document contain scientific and technical information intended for public use?	[ ] Yes [X No
Does document contain controlled-use information	[ ] Yes [X] No

("Yes" requires information clearance review in accordance with PRC-PRO-IRM-184)

DOCUMENT REVISION SUMMARY

NOTE: Provide a brief description or summary of the changes for the document listed.

This revision captures the changes in project definition and execution strategy as the project enters the final construction phase.

REVIEWERS **Others**

Name *(print)*	Organization

APPROVAL SIGNATURES

Author:			RELEASE / ISSUE
Name: (Print)	K. A. Albin	Date 7/29/10	
Responsible Manager:			
Name: (print)	M. L. Edington	Date 7/29/10	
Other:			
Name: (print)		Date	

A-6005-184 (REV 2)

Project Execution Plan for 100K Infrastructure Project

CH2MHILL
Plateau Remediation Company

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Terms

ANSI	American National Standards Institute
ARA	Airborne Radiation Area
ARRA	American Recovery and Reinvestment Act
ASME	American Society of Mechanical Engineers
ATP	Acceptance Test Plan
AWS	American Welding Society
BTR	Buyer's Technical Representative
CAT	Construction Acceptance Testing
CCD	Construction Completion Document
CD	Construction Decision
CERCLA	Comprehensive Environmental Response Compensation and Liability Act of 1980
cfm	Cubic Feet per Minute
CHPRC	CH2M Hill Plateau Remediation Company
CS	Contract Specialist
CS&I	Closure Service and Infrastructure
CVDF	Cold Vacuum Drying Facility
CWAE	Construction Work Authorization Envelope
D&D	Deactivation and Decommissioning
DA	Design Authority
DCN	Design Change Notice
DOE-RL	Department of Energy Richland Operations Office
EMS	Environmental Management System
EPC	Engineering, Procurement & Construction
ES&H	Environmental Safety and Health
ESH&QA	Environment, Safety, Health and Quality Assurance
EU	Electrical Utilities
EVMS	Earned Value Measurement System
FAT	Factory Acceptance Test
FDC	Functional Design Criteria
FFS	Fluor Federal Services
FMP	Facility Modification Packages
FPD	Federal Project Director
FWS	Field Work Supervisor

1. Execution Approach Overview

1.1 Introduction

CH2M Hill Plateau Remediation Company (CHPRC) has received American Recovery and Reinvestment Act (ARRA) funding to support infrastructure projects that will assist in the acceleration of closure activities at the 100K Area site. The 100K Infrastructure Project is divided into the following three major subprojects:

- 100K Reactor Power Isolation Subproject
- 100K River Water Infrastructure Isolation Subproject
- 105K-West Basin Airborne Contamination Remediation Subproject

The purpose of this Project Execution Plan (PEP) for the 100K Infrastructure Project is to define the methods and means to accomplish the Project within established cost and schedule baselines, as well as to define the roles and responsibilities between organizations. This is the final revision to this Project's PEP since it is in the completion of construction phase with no follow-on tasks required.

1.2 Project Background

The 100K Area is expediting Deactivation and Decommissioning (D&D) of existing facilities in order to remove contamination that has or may have caused further harm to the environment and to reduce the overall footprint of the Site. Completing the scope of the 100K Infrastructure Project will allow continuing 100K Area facility operations to continue while minimizing the impacts to D&D operations. The project will install approximately 27,000 feet of potable and non potable (fire suppression supply) water line, a 750,000 gallon capacity raw water tank, high volume fire water pumps, and a new microfiltration potable water treatment plant to support the existing 100K facilities. In addition, a new electrical substation with modifications to the 13.8 kV power distribution system and isolation of the A7 substation is being accomplished to facilitate D&D requirements. Further, a new heating, ventilation, and air conditioning (HVAC) system is being installed at the KE basins to provide an enhanced work environment to support D&D Operations.

1.3 Justification of Project Need

The 100K Area D&D effort will require the termination of existing utilities that support ongoing facility operations. Therefore, replacement utility systems (potable and non-potable water and electrical power distribution) are required to support the D&D mission.

1.4 Project Description

1.4.1 Project Scope

The three Subprojects encompass the entire 100K Area as depicted on Figure 1-1.

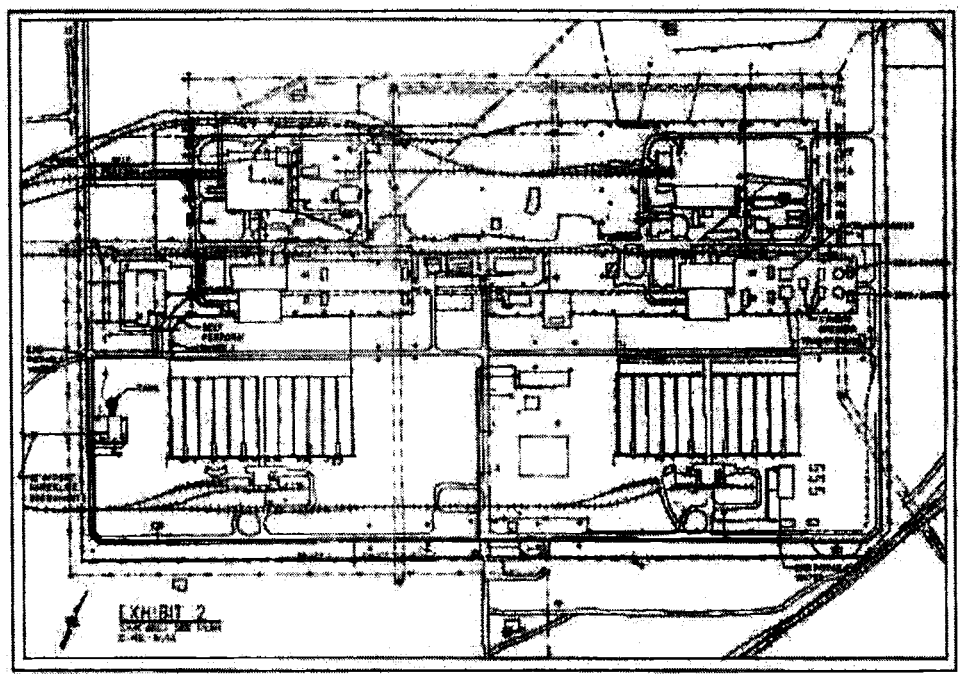

Figure 1-1. 100K Infrastructure Project Site

1.4.1.1 100K Reactor Power Isolation Subproject

The objective of this Subproject is to isolate/consolidate the 100K Area electrical supply and re-route it in order to avoid interferences with future D&D demolition activities. The existing 100K Area electrical supply is sized to support the operation of two very large river water pumps, continuous operation of service water pumps, and large scale operations of two reactors and ancillary support facilities. One substation is maintained, and the electrical switchgear in the other substation remains in operation (i.e., both substations are electrically connected to each other). The switchgear feeds power to the reactor buildings, water pumping facilities, laboratory facilities and other facilities by way of underground utility tunnels. The existing 100K Area substations are fed by the Hanford 230 kV grid (loop) which is connected to the BPA Midway substation. The existing electrical system is not conducive to large scale demolition of facilities due to the overhead power towers posing an overhead obstacle to crane work, and also making a large footprint unavailable to support building demolitions. In addition, having the electrical power distribution between facilities and substations in tunnels makes air gapping of conductors and electrical isolation of facilities more complex and hinders the planned D&D of the tunnels themselves.

The approach is to de-energize and abandon the A7 substation switchgear, relays, battery bank, Supervisory Control and Data Acquisition System (SCADA) and controls (located in the 165K-West facility). In addition, the air gaps and power feeds routed through the tunnels will also be de-energized. The replacement power will come from the re-routing of the 13.8 kV power supply and power drops and installing a new A9 switchyard.

1.4.1.2 *100K River Water Infrastructure Isolation Subproject*

The objective of this Subproject is to eliminate the use of the 100K East Sedimentation and Water Filtration Systems, eliminate withdrawal of water from the Columbia River, and fully isolate water supply/pressure to piping in the majority of the 100K Area. A new raw water supply line originating from the 100B area export water line will be installed and provide water for the 100K Area fire protection system and a new potable water plant at a design flow rate of 1,500 gallons per minute (gpm). The potable water plant will be sized to support the continuing K-West Basin operations (including the Cold Vacuum Drying Facility (CVDF), and sludge treatment and removal activities. Approximately 27,000 linear feet of underground high density polypropylene (HDPE) piping will be installed and the potable water plant will be sized to accommodate a 750,000 gallon storage tank and have a potable water design flow rate of 50 gpm.

1.4.1.3 *K-West Basin Airborne Contamination Remediation Subproject*

The K-West Basin Airborne Contamination Remedintion Project involves installation of multiple HVAC units to better regulate temperature in the building and to improve air quality in the work area. Legacy (Glycol-based) heaters and evaporative coolers will be disabled once the new HVAC equipment comes online.

Currently the K-West Basin building utilizes two roof exhausters for ventilation and provides no filtration capability. A very old Glycol boiler system has been in place and provides limited heating capability, and existing evaporative coolers do not have enough capacity to cool the large Basin area. Thus, the building frequently is uncomfortable for workers and made even more so by the additional personal protective equipment (PPE) required due to frequent Airborne Radiation Area (ARA) postings.

The new HVAC filtration systems, equipped with high-efficiency particulate (HEPA) filters, will pull air from the Basin envelop, condition the air, remove airborne (particulate) contamination, and return the air back into the Basin at a design flow rate of 3,600 cubic feet per minute (cfm). This recirculation strategy means there will be no impact on the building's airborne effluent permit. This new HVAC system is for operational convenience and will not perform as a safety significant, safety class or defense in depth function.

1.4.2 Major systems components and functions:

The major systems to be replaced or modified for this project include:

- 100K Reactor Power Isolation Subproject
  - 13.8 kV Electrical Line Poles – Provides aerial support for electrical wire and switches
  - A9 Substation – Houses electrical switchgear, controls, SCADA and station service (batteries, etc.)
- 100K River Water Infrastructure Isolation Subproject
  - Import water line – Provides raw water to the 100K Area
  - Fire water lines – Distributes raw water for fire prevention
  - Potable water lines – Distributes potable water to offices and operating facilities
  - Diesel engine driven fire pump – Transfers water from water tanks under specified demand rates
  - Microfiltration plant – Provides sanitary water for trailer, restrooms, shower trailers
  - Multi-purpose 750,000 gallon water tank
  - Water treatment plant housing the microfiltration plant and distribution pumps and equipment
- K-West Basin Airborne Contamination Remediation Subproject

- Heating Ventilation and Air Conditioning – Provides cooling and heating
- Duct Work – Transfers air flow inside the 105K-West basins
- HEPA Filters – Provides filtration of the air stream

1.4.3 Major Interfaces

1.4.3.1 *Primary Project Interfaces*

The primary interfaces for this project between the Department of Energy Richland Operations Office (DOE-RL), U.S. Environmental Protection Agency (EPA), CH2M HILL Plateau Remediation Company (CHPRC), Mission Support Alliance (MSA), and Washington Departments of Ecology (WDOE) and Health (WDOH) are shown below in Table 1-1, along with a brief description of their expected contributions

Table 1-1. Primary Project Interfaces

Interface	Organization	Contribution to Project
MSA Electrical Utilities (EU)	MSA	Coordinates project electrical service activities, as required
100K Operations	CHPRC 100K Project	Coordinates project activities to eliminate potential interferences, disruption of operational activities, provides lock-out/tag-out, and ensures a safe and healthful working condition
DOE	DOE-RL	Oversight and review by the Facility Representative and Facilities Project Director.
Federal & State Regulators	EPA, WDOE, and WDOH	Regulatory oversight of project activities

1.4.3.2 *Facility Specific Interfaces*

Interfaces between the modifications made by the 100K Engineering Design Support Project and those aspects of the current facility implementing procedures are described below:

- The 100K Operations Manager and shift manager both have specific responsibilities for overseeing overall facility operations. The 100K Operations organization is the final authority for what work is or is not authorized in the facilities via the Construction Work Authorization Envelope (CWAE) and daily work releases.
- The CWAE is in place between the EPC Project Manager and the Fluor Federal Services (FFS) Construction Manager and describes the work scope, work control process, safety and quality assurance requirements, and emergency contact information. Work is released on a daily basis by the lead construction field work supervisor in the field against the construction work package via a Work Release for Construction/Service Organization (WRCSOF).
- The facility Design Authority, as a member of the 100K Operations organization, will be responsible for the development of the Acceptance Test Plan, Operations Test Plan, and related work packages.
- Coordination between the project team and the MSA EU management and operations personnel regarding the upgrade project in the A9 substation and 100K-East switchyard as a whole. Significant coordination is required around equipment and installation quality and acceptability standards, outages, tie-ins, procedure development, SCADA development, and project handover for

operations. Weekly technical and bi-weekly management meetings have been established to coordinate these activities.

- Hazardous materials management will comply with facility requirements with material safety data sheets in the work area.
- Emergency preparedness program requirements are as described in the CHPRC Emergency Preparedness Program site procedure.
- The 100K Operations organization will be responsible for the execution and management of the facilities once the new systems and associated equipment are ready for continuous operation. EPC Construction will be in a support role at that time. The 100K Engineering Organization will be responsible for providing permits for specific activities as required (i.e., excavation, construction, relocatable structures, occupancy).
- The 100K Engineering Organization will be responsible for providing Nuclear Safety support, including application of the Unreviewed Safety Question (USQ) process.

1.5 Project Management Structure and Integrated Project Teams

This section describes the 100K Infrastructure Project organization and its interfaces with the CHPRC Project Breakdown Structure (PBS) Management Organization and the DOE.

1.5.1 Department of Energy

The 100K Infrastructure Project is part of PBS RL-0041, River Corridor Closure Project, that is managed by a designated DOE Federal Project Director (FPD) and an Integrated Project Team (IPT).

The assigned DOE-RL Central Plateau Federal Project Director (FPD) for the PBS serves as the single point of contact between Federal and contractor staff for matters relating to this PBS and its execution. The FPD focuses on budget and spending, nuclear safety, industrial health and safety, fire protection, environmental protection, National Environmental Policy Act (NEPA) compliance, quality assurance, material control and accountability, safeguards and security, and programmatic and legal requirements.

The FPD reports directly to the Assistant Manager of Central Plateau. The FPD has overall responsibility for their EM Clean-up Project activities including subprojects, monitoring the technical/scope, cost, and schedule baselines through all phases; providing oversight of design, constructability and operations reviews; ensuring communications occur as defined in the Communication Matrix; and ensuring that all DOE Order 413.3A, Program and Project Management for the Acquisition of Capital Assets requirements are met, as applicable.

1.5.2 CHPRC PBS Management Organization

The CHPRC D&D Organization is responsible for management and execution of PBS RL-0041. D&D is responsible for the identification of the subproject need, providing top level functions and requirements, and identifying subproject constraints. They also establish subproject budgets and schedules and are the internal client to CHPRC's EPC management of the 100K Infrastructure Project.

1.5.3 EPC Project Organization

The 100K Infrastructure Project is managed by a full-time Project Manager who is held accountable for project technical, budget, and schedule performance by the CHPRC Vice President of EPC. During the life of the project, supplemental resources will be added to the Project Team as shown in the organizational structure below (Figure 1-2).

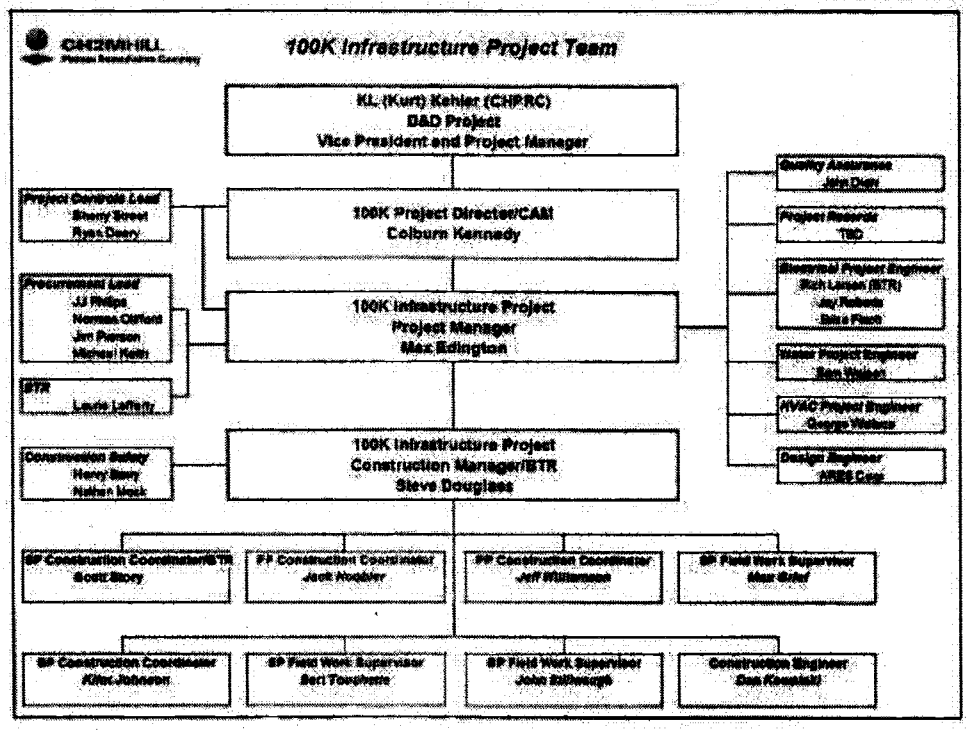

Figure 1-2. 100K Infrastructure Project Organization

The project will obtain required resources (either full time, part-time, or matrixed) for the project in accordance with the guidance provided in PRC-PRO-HR-021, Obtaining Personnel Resources, and using Staffing Worksheets as appropriate. Construction craft will be obtained using the site labor agreement requirements. In addition, the project will employ the services of a Design Engineering firm, ARES, who will provide a full-time Engineering Lead during the engineering and design phase of the project.

1.6 Roles and Responsibilities

The following addresses key positions on the project and their initial roles and responsibilities listed below will evolve as the project progresses.

1.6.1 100K Infrastructure Project Manager

The EPC Project Manager reports to the CHPRC 100K Projects Director/CAM, and is responsible for the following actions as outlined in PRC-PRO-PM-24889, Project Initiation and Execution:

- Identification of Project Team's staffing requirements, including required support from the core functional organizations (Business Services; Project Controls; Environment, Safety, Health and Quality Assurance (ESH&QA), Environmental Compliance, Records Management, and EPC Engineering)
- Preparation of the Project Execution Plan (PEP)

- Ensuring ISMS/EMS requirements and principles are integrated into project execution activities
- Management of the development and acceptance of the project cost estimate, schedule and Performance Measurement Baseline (PMB)
- Coordination with the CHPRC Procurement Organization for needed subcontracting and purchasing actions
- Coordination with the 100K Projects Organization to ensure that the project functions and requirements are completely defined and understood
- Management of project engineering and design activities to ensure compliance with project requirements
- Ensuring that CHPRC's Nuclear Safety Program "Safety Basis Requirements" is complied with as applicable to the subproject and that DOE-STD-1189, Integration of Safety into the Design Process, requirements are met as required.
- Ensuring that applicable environmental regulatory requirements and documents are complied with during project execution
- Ensuring that Hanford Site safeguards and security requirements are adhered to or are integrated into the design if the subproject involves work in a protected area, or involves the modification of a security system or boundary.
- Coordination of required project reviews and approvals
- Monitoring and reporting of project cost and schedule performance, reporting against designated performance indicators, and preparation or input to monthly and project reporting
- Ensuring that appropriate audits, management assessments, and corrective actions are developed and implemented to correct unfavorable cost/schedule variances or deviations from project technical requirements
- Ensuring project construction, fabrication, and procurements meet project requirements
- Ensuring that the CHPRC Worker Safety and Health Program requirements are adhered to during project execution
- Issue event reports, make notifications of events, and lead investigations
- Establishing and maintaining project record files in accordance with CHPRC Records Management procedures
- Management of project close-out and turnover process to the PBS Manager

1.6.2 Design Engineering, ARES

The design-engineering subcontractor, ARES, is responsible for:

- Validating functional and engineering procedural requirements
- Reviewing and making recommendations for equipment selection commonality based upon existing operating systems
- Performing engineering design

- Providing general review and comment at design reviews for identifying engineering best practices, compliance of the design to the Functional Design Criteria (FDC) requirements and applying lessons learned from previous design activities
- Identify long lead procurements
- Coordinate preparation of required permits
- Ensure drawings, calculations, and other engineering documents are entered into the project file
- Maintain and update project schedule for engineering activities on a weekly basis
- Process design change notices, engineering change notices, requests for clarification information, and resolve project non-conformances as needed
- Facilitate resolution of design issues identified during construction and perform inspections and other services during construction as requested by the EPC Project Manager

1.6.3 Project Engineer

The Project Engineer reports directly to the 100K Infrastructure Project Manager and is responsible for the following:

- Coordinate all engineering actions and gaining compliant release of the engineering deliverables
- Coordinate with engineering staff to resolve any engineering/technical issues that arise during design or construction
- Support the Construction Manager via timely resolution of technical issues that arise during the construction/excavation phase of this project
- Develop and support execution strategies that ensure that the constructor/subcontractor performs the work as specified and as are shown on the engineering drawings
- Coordinate with the 100K Area Chief Engineer to obtain necessary review and approval resources (such as Design Authority reviews, Nuclear Safety unreviewed safety question (USQ) screens)
- Support project by coordinating with ARES or other vendors to obtain necessary technical deliverables
- Support Construction Manager and Project Manager as requested with areas of expertise

1.6.4 Construction Manager

The Construction Manager is matrixed and reports to the 100K Infrastructure Project Manager as well as the EPC Vice President. The Construction Manager is responsible for the following actions:

- Implement procurement/construction activities in accordance with the subcontracted statement of work
- Manage day-to-day construction activities and coordinate the efforts of field leads
- Be accountable for project-approved construction cost and schedule baseline
- Implement priority of construction activities within project schedules
- Assure resources are readily available to support work activities

- Assign actions for incoming construction contract correspondence
- Request, evaluate and approve Request for Proposals
- Review Design Change Notices and Facility Modification Packages (FMPs) for construction impacts
- Maintain and fulfill contract requirement
- Review subcontractor invoices as requested
- Review and approve construction change requests
- Maintain senior supervisory watch qualification
- Obtain field work supervisor qualifications as required
- Participate in constructability reviews
- Ensure successful completion of all Construction Acceptance Testing

1.6.5 Field Work Supervisor

The Field Work Supervisor reports directly to the Construction Manager and is responsible for the following:

- Attend plan of the day meetings
- Assure work control and documentation is up to date and accurate and that work is defined, and understood with the proper work controls in place to protect the worker and the environment
- Oversee Contractor activities to assure compliance to statement of work requirements, design requirements and technical specifications
- Maintain an up to date set of field log books
- Complete Daily Activity Reports
- Take photographs of key activities/evolutions, as agreed upon with the Project Manager, and maintain up to date photo files
- Review schedule performance and recommend change(s) as appropriate
- Ensure work control documentation has been subjected to Nuclear Safety review and the USQ process prior to commencement of work
- Ensure Fire Marshal Permits are obtained prior to commencement of work

1.6.6 Construction Safety

The EPC Safety Representative is matrixed to the EPC 100K Infrastructure Project Manager and is responsible for the following actions:

- Work directly with the Construction Manager, task leads, Buyer's Technical Representative (BTR) and subcontractors to identify and correct unsafe conditions; and provide technical review to various documents
- Ensure that construction activities are reviewed proactively to promote safe work conduct and adherence to the CHPRC "Target Zero" safety goal

- Perform weekly and monthly safety inspections with craft resources, construction management, project management, and 100K Area safety and management personnel
- Assist in developing construction plans/approaches that foster a safe work environment
- Interface with project industrial hygiene and radiological protection supervisors
- Review and approve subcontractor safety plans
- Assist subcontractors through safety oversight of subcontractor activities
- Maintain a direct link with the project safety representative's own functional organization to ensure that timely and adequate support is available

1.5.7 Project Controls Lead

The Project Controls Lead is responsible for the following actions:

- Update field schedule on a weekly basis and update project schedule on a monthly basis or as directed by the 100K Infrastructure Project Manager
- Provide a critical path schedule to the Project Manager on a weekly basis or as directed
- Provide labor reports, subcontractor cost reports, material, equipment and other cost reports related to project activities on a monthly basis or more frequently as requested by the Project Manager
- Assist with schedule, budget and status and recommending corrective action(s)
- Assist with the correct status and reporting of earned value

1.5.8 Procurement Lead

The Procurement Lead is responsible for the following actions.

- Provide procurement strategy advice and technical procurement assistance
- Obtain vendor prequalification
- Issue Request for Proposals (RFPs), subcontract Statement of Work (SOW), etc
- Provide bid proposal processing support
- Provide commercial evaluation for project construction subcontracts, technical service agreements, and major equipment procurement
- Maintain project procurement change log
- Manage and negotiate subcontract changes
- Provide input/direction to the Buyer's Technical Representative (BTR) and 100K Infrastructure Project Manager

1.5.9 Buyer's Technical Representative

The Buyer's Technical Representative supports the Project Manager and Construction Manager with interfacing with the contractor(s). Key activities include:

- Completing Davis Bacon applicability review(s)

- Developing/coordinating preparation of the subcontract Statement of Work (SOW) including the detailed work scope description; identifying technical, Environmental, Safety, Health, & Quality and Quality Assurance (QA) requirements; identifying subcontract personnel requirements, subcontract submittals and ; performance schedule; and securing funding from the project sponsor
- Identifying the level of Site clearance, security, and training required for subcontractor personnel to have access to the worksite
- Developing a list of activities/work tasks, deliverables and submittals described in the SOW that can be used to support proposal pricing or contract invoicing
- Participating in the development of selection criteria
- Work with Procurement to establish the approvals, logistics and coordination necessary for the appropriate invoice/payment/performance review process (considering the contract type and scope of work) to ensure payments will be made for work completed and in accordance with the contract
- Prepare non-competative procurement justifications
- Review property and material on hand before ordering new
- Evaluating offers or proposals and records evaluation on Technical Evaluation forms
- Developing subcontractor oversight plans in conjunction with QA, as applicable
- Ensure submittals required prior to mobilization or prior to on-site work have been approved, coordinate the internal review and approval process of technical submittals and concur on all formal deliverables
- Act as the single technical point of contact for the Contract Specialist (CS) by providing the interface with the Design Authority (DA), QA, Integrated Safety Management System (ISMS), Environmental Management System (EMS) and any other site functions which may affect the subcontract
- Monitor subcontractor work progress against the subcontract's performance schedule and monitor their technical, quality, environmental, safety, and health performance
- Work with the responsible Manager to facilitate and mitigate the effects of changes or technical direction
- Notify Procurement of any issues regarding the acceptability of the work, quality, timeliness or other issues relating to work performance
- Execute invoice review and approval process (e.g., verify that work hours (or delivered services) are acceptable for payment
- Document the list of government property provided to the subcontractor; maintain consistent tracking of Government property in possession of the subcontractor; and coordinate, in conjunction with Procurement, disposition of Government property following subcontract completion
- Upon verification that the contractor's work is complete and has met all requirements of the contract, provide a written notice of "final acceptance" to Procurement.

1.6.10 Project Records

The Project Record Files Manager supports the Project Manager and is responsible for the process of project file management in accordance with PRC-PRO-IRM-8310, Document Control Processes, and PRC-PRO-IRM-232, Project Files Management. Specific responsibilities include:

- Develop and/or customize the Project Records Index (PRI) – Site Form A-6002-510 - in accordance with project specific directions received from the Project Manager
- Update the PRI as documents are received and maintain the master copy of the PRI in the official project file throughout the life of the project
- Ensure that all activity documents obtain a unique number for tracking and accountability
- Perform document receipt filing, access control, indexing, maintenance, and retrieval of official project file throughout the life of the project
- Ensure that information is processed through the integrated document control function at the time it is generated/approved
- Ensure that CHPRC and subcontractor (e.g., architect/engineer, construction) documents are provided to the Document Control System Administrator as they are completed and become records
- Ensure that architect/engineer record documents (e.g., drawings, specifications) are placed under CHPRC configuration control before initiating the associated construction activity
- Control access to active project files in locked cabinets by monitoring or limiting entry to those identified by the project manager on a Project Files Access List (PFAL) – Site Form A-6004-207)
- Post and monitor the Personnel Authorization Access List (Site Form A-6004-206) at each project files location and update as required during the life of the project
- Track all received engineering documents, revision status, and all Design Change Notices (DCNs) and submittals affecting each document
- Maintain a pending-approval file for all in-process and partially approved documents and / or coordinates the approval process. Ensures that final, approved documents are provided to the Document Control System Administrator for the official project file
- Assist with project closeout activities

1.6.11 Project Quality Assurance Engineer (QAE)

The Project QAE reports to the project manager and is responsible for providing support to all aspects of the project to assure that project performance is in accordance with this Project Execution Plan. Specific Responsibilities include:

- Reviewing technical plans, procedures, and technical documents to ensure that quality requirements have been addressed
- Developing and implementing a project surveillance and oversight schedule and periodically reporting the results to the project manager
- Identifying issues that hinder project performance and working with project staff identify and implement solutions

- Identifying and tracking the resolution of non-conforming hardware issues
- Working with the project manager and BTR provide periodic oversight of subcontractors
- Reviewing vendor documentation and procurement documents as appropriate
- Ensuring appropriate receipt inspection activities occur for designated procurements
- Coordinating with the construction manager to ensure appropriate inspection activities are taking place

2. Tailoring Strategy

CHPRC is applying a tailoring approach toward the application of DOE Order 413.3A requirements for all CHPRC EM projects. Tailoring is based upon the risk, size, and complexity of the project. DOE-STD-1189, Integration of Safety into the Design Process, similarly addresses tailoring in the context of nuclear safety throughout the phases of the project such that all of the standards are met, yet tailored to the cost, complexity, and risk; project type; past experience; and lessons learned. DOE Order 413.3A requires full implementation of DOE-STD-1189 requirements for the design and construction of new or modification of existing Hazard Category (HC) 1, 2, and 3 nuclear facilities (as defined in 10 CFR Part 830). The CHPRC tailoring approach integrates the approaches and principles described in these DOE guides and standards into its EM projects.

The CHPRC PBS management organization defines the subproject requirements; the EPC organization manages the execution of the subproject as a support service to the respective CHPRC PBS Manager; and then turns the completed Project/facility/system over to the PBS Manager for operations. EPC has developed two procedures: PRC-PRO-PM-24889, Project Initiation and Execution, and PRC-PRO-PM-25000, Project Execution Plans, to describe the implementation of the requirements and principles of DOE O 413.3A and its associated Implementation Guides for each subproject that EPC manages.

2.1 100K Infrastructure Project

The 100K Infrastructure Project has a Total Project Cost (TPC) of less than $ 100 M and per PRC-PRO-PM-24889, the DOE Construction Decision (CD) process described in Order 413.3A is not applicable. However, some elements of DOE-STD-1189 are applicable for the 100K-West Basin Airborne Contamination Remediation subproject since it involves work both outside and inside of an existing HC-2 Nuclear facility.

Therefore, Appendix 1 contains a checklist which provides the listing of documents required by DOE Order 413.3A organized by project execution phase, and captures the basis of this tailoring strategy applied to the 100K Infrastructure Project.

3. Integrated Baseline

3.1 Scope Baseline

The following is the scope baseline for design and construction of the 100K Infrastructure Project.

- Relocation of twenty-three 13.8 kV Electrical Line Poles and re-stringing of the inter-connecting 13.8 kV power line
- Installation of a 230 kV to 13.8 kV substation
- Installation of 27,000 linear feet of underground piping for the import water line and potable and non-potable water distribution system for the 100K Area
- Erection of a 750,000 gallon multi-purpose water storage tank
- Installation of a water treatment plant with a design capacity of 50 gpm
- Installation of 700 linear feet of HVAC ductwork and three separate HVAC/HEPA skid units with a combined design flow rate of 3,600 cfm

3.2 Schedule Baseline

The schedule baseline is developed and available for review with the 100K project control organization. Key schedule dates for the 100K Infrastructure Project are provided in Table 3-1.

Table 3-1. Schedule Baseline

100K Infrastructure Subproject	Milestone Description	Baseline Date
K-West Basin Airborne Contamination Remediation Subproject	Transition to 100K Area Operations	September 30, 2010
100K Reactor Power Isolation Subproject	Transition of Power to the A9 Substation	September 30, 2010
River Water Infrastructure Subproject	Transition of water service to the new water treatment and distribution system	September 30, 2010
100K Infrastructure Project	Completion of transition of all three subprojects to 100K Area Operations	September 30, 2010

3.3 Cost Baseline

The Cost Baseline for the 100K Infrastructure Project is captured in WBS 041.02.06.01.01 and 041.02.07.01 and is summarized in Table 3-2 below.

Table 3-2. Cost Baseline

WBS Number	WBS Description	Cost Baseline
041.02.07.01.01	100K Closure Support Facilities Subproject	$350.0
041.02.07.01.02	100K Reactor Power Isolation Subproject	$6,433.4
041.02.07.01.03	100K River Water Infrastructure Isolation Subproject	$14,974.9

041.02.06.01.01.04	K-West Basin Airborne Contamination Remediation Subproject	$1,622.4
Total		$23,380.7
Note: $ in Thousands		

3.4 Funding Profile

The Engineering Design, Construction, and Acceptance Testing of the 100K Infrastructure Project occur between FY 2009 and FY 2010 and the funding profile is shown in Table 3-3. Costs in FY2009 were for project scoping and conceptual design with the majority of the project costs planned to occur in FY2010.

Table 3-3. Funding Profile for the 100K Infrastructure Project between FY2009 and FY2011

WBS Number	WBS Description	FY 2009	FY 2010	FY 2011	Total
041.02.07.01.01	100K Closure Support Facilities Subproject	$350.0	$0.0	$0.0	$350.0
041.02.07.01.02	100K Reactor Power Isolation Subproject	$753.9	$5,679.5	$0.0	$6,433.4
041.02.07.01.03	100K River Water Infrastructure Isolation Subproject	$1,402.7	$13,572.2	$0.0	$14,974.9
041.02.06.01.01.04	K-West Basin Airborne Contamination Remediation Subproject	$639.8	$982.6	$0.0	$1,622.4
Total		$3,146.4	$20,234.3	$0.0	$23,380.7
Note: $ in Thousands					

3.5 Life Cycle Cost

The total life cycle cost of the 100K Infrastructure Project is estimated at $ 23,380,700. This value includes only the above cost baseline as operations and maintenance of the installed subproject systems is budgeted and tracked in the overall PBS 041 Baseline for the 100K Area.

3.6 Baseline Change Control

The Project will utilize the CHPRC project baseline control procedures for baseline change control in accordance with PRC-CD-PC-40076, Baseline Change Control Implementation Guide, and PRC-PRO-PC-40074, Baseline Change Control Procedure. The Project Manager will work with the Project Control

Representative to assure compliance to requirements and EPC Management expectations are achieved when dealing with baseline change control issues.

The CHPRC Project Control Procedures and Implementation Guides applicable to this PEP are listed in Table 3-4.

Table 3-4. Project Control Procedures

Procedure Number	Title
PRC-GD-PC-40075	Cost Estimating and Budgeting Implementation Guide
PRC-GD-PC-40076	Baseline Change Control Implementation Guide
PRC-GD-PC-40077	Scheduling Implementation Guide
PRC-GD-PC-40080	Risk Management Implementation Guide
PRC-GD-PC-40082	Work Authorization Implementation Guide
PRC-GD-PC-40084	Baseline Performance Implementation Guide
PRC-GD-PC-40085	Estimate At Completion Implementation Guide
PRC-GD-PC-40094	Monthly Reporting Implementation Guide
PRC-MP-PC-40067	Organization
PRC-PRO-PC-40070	Work Scope Planning Procedure
PRC-PRO-PC-40072	Cost Estimating and Budgeting Procedure
PRC-PRO-PC-40073	Scheduling Procedure
PRC-PRO-PC-40074	Baseline Change Control Procedure
PRC-PRO-PC-40086	Estimate at Completion Procedure
PRC-PRO-PC-40095	Earned Value Management System Internal Surveillance Procedure

4. Project Management

4.1 Project Reporting

The 100K Infrastructure Project will implement CHPRC's Earned Value Measurement System (EVMS). This system provides scheduled progress, completed progress, actual costs, and performance status using a pre-established method, or "rules of performance," for taking percent complete against baseline activities for both design and field execution schedules.

The Project also implements CHPRC's project reporting requirements (Refer to PRC-GD-PC-40094, Monthly Reporting Implementation Guide) and since the Project is part of PBS RL-41, monthly inputs will be provided for inclusion in the PBS level monthly performance reports. In addition, a monthly meeting with the 100K Vice President will be held to discuss:

- Key Work Activities & Current Status
- Accomplishments
- 90 Day Look Ahead
- Major Issues
- Project Risk/Contingencies
- Support Needed

Project Controls performs variance analysis and forecasting, prepares estimates at completion and trending analysis, and prepares monthly reporting to assist project management in controlling the project baseline. As needed, corrective actions are developed to maintain or improve success in reaching project schedule and funding targets.

4.2 Risk Management

The project will follow guidance from PRC-GD-PC-40080, Risk Management Implementation Guide, when determining the risk associated with this project. Risk will be evaluated against the risk value criteria matrix shown below in Table 4-1.

Table 4-1. Risk Value Criteria Matrix

	CONSEQUENCE				
PROBABILITY	(1) **NEGLIGIBLE** None to minimal consequence. < $250K project life-cycle cost impact and no schedule impact.	(2) **MARGINAL** Slight impact in meeting objectives. $250K to $1M project life-cycle cost impact or non-critical-path schedule impact.	(3) **SIGNIFICANT** Significant degradation in meeting objectives. >$1M to $10M project life-cycle cost impact or recoverable slip to enforceable or incentivized milestone.	(4) **NEAR-CRITICAL** Impact to ultimate goals/objectives likely. >$10M to $50M project life-cycle cost impact or enforceable or incentivized milestones* in jeopardy.	(5) **CRITICAL** Severe impact to ultimate goals/objectives. Project stopped/ canceled or scope/funding pulled. >$50M project life-cycle cost impact or enforceable or incentivized milestones* missed.
(5) **Very Likely** (>90%)	Low	Moderate	High	High	High
(4) **Likely** (75% to 90%)	Low	Moderate	Moderate	High	High
(3) **Medium** (26% to 74%)	Low	Low	Moderate	Moderate	High
(2) **Low** (10% to 25%)	Low	Low	Low	Moderate	Moderate
(1) **Very Low** <10%	Low	Low	Low	Low	Moderate

Project risk associated with this phase of the 100K Infrastructure Project are defined and categorized as follows:

- Electrical Shock/Death from high voltage work.
  Risk Ranked: Probability: Critical; Consequence: Very Low; Outcome: Moderate
- Collapse of trench during excavation with personnel inside:
  Risk Ranked: Probability: Critical; Consequence: Very Low; Outcome: Moderate
- Discovery of hazardous materials/radiological contamination during excavation activities:
  Risk Ranked: Probability: Medium; Consequence: Marginal; Outcome: Low
- Skin contamination during HVAC installation activities:
  Risk Ranked: Probability: Very Low; Consequence: Marginal; Outcome: Low
- Personnel Injury Resulting from striking against or struck by an object
- Risk Ranked: Probability Low; Consequence: Marginal; Outcome: Low

4.3 Engineering and Technology Readiness

The project does not require engineering and technology development and deployment. Existing methods and means will be used to perform work.

4.4 Alternative Analysis and Selection

The scope of the project does not require an alternative analysis and selection to be performed for the scope of work defined within this PEP. The project did perform a value engineering review and evaluated alternatives for each of the subprojects and incorporated the results into the completed design.

4.5 Value Management/Value Engineering

A value engineering meeting was held in September 2009 to scope out the 100K Reactor Power Isolation subproject approach with the 100K Infrastructure Project Team and DOE-RL. The meeting discussed alternatives methods to accomplish work and agreed on a preferred alternative and implementation strategy.

4.6 Environmental Regulatory Strategy

For environmental activities associated with EPC activities, implementation of PRC-PRO-EP-15335, Environmental Permitting and Documentation Preparation, will be reviewed by the Project Environmental Compliance Officer to assure necessary permits and documents are in place prior to work execution or are provided such that there is no impact to project activities.

4.7 Integrated Safety Management

The project will implement and participate in the established CHPRC processes for Integrated Safety Management System/Environmental Management System (ISMS/EMS) as described in PRC-MP-MS-003, Integrated Safety Management System/Environmental Management System Description (ISMSD). Therefore, a standalone strategy is not planned to be developed for this project.

The 100K Infrastructure Project Organizational structure and associated roles and responsibilities have been established to meet the requirements of PRC-MP-PM-40187, Engineering, Projects & Construction Integrated Environmental, Safety, and Health Management Roles, Responsibilities, and Functions. This includes adopting the following three guiding principles related to responsibilities.

- Line management is responsible for safety.
- Clear roles and responsibilities are defined.
- Competence is commensurate with responsibilities.

Implementation of ISMS/EMS on the 100K Infrastructure Project includes the following key plans/strategies.

- ISMS/EMS Qualities and Policy Communication and Compliance Verification – Environmental, safety, health, and quality aspects of the CHPRC and safety-related information will be clearly communicated to the project workforce, including subcontractors, and the 100K Infrastructure Project will implement actions to ensure that activities are carried out consistent with the policies.
- Communication of CHPRC ISMS/EMS qualities and policies, and safety-related information will be communicated to the workforce and subcontractors through multiple means.
  - CHPRC company-wide training and communications to the workforce.
  - Inclusion of ISMS/EMS and project specific safety requirements in subcontractor requirements documents, including required reading and specific targeted training as required.
  - Participation in periodic CHPRC corporate reviews/audits of the 100K Infrastructure Project workforce and subcontractors for compliance to ISMS/EMS and other safety requirements.
  - Periodic 100K Infrastructure Project internal reviews/audits of workforce and subcontractors for compliance to ISMS/EMS and other safety requirements.

- Work scope Definition, Budgeting/Prioritization and Resource Allocation – The 100K Infrastructure Project will utilize established CHPRC systems, policies, and procedures for work scope definition, budgeting/prioritization, and resource allocation. All work scope activities are captured in the subproject WBS and are resource-loaded and budgeted. Work scope being performed by subcontractors is defined in subcontract specific Statements of Work and are tied back to the WBS. In circumstances during work scope execution when resources (labor or other) are under competing priorities within the CHPRC, prioritization decisions are made by CHPRC Senior Management. In no case will the resource allocation prioritization issues be allowed to result in work activities being done in a manner that compromises worker, public, or environmental safety.
- Hazard Identification, Analysis, and Categorization – Section 4.7.3 of this PEP describes the project's plans for project hazard identification, analysis, and categorization.
- Ensuring Work is Performed Within Established Controls – The 100K Infrastructure Project will implement the requirements of PRC-RD-WKM-8524, Supervision of Fieldwork, to ensure that all field work activities are performed with established controls for job hazard protection.
- Feedback and Continuous Improvement/Corrective Actions – The practices of feedback, continuous improvement, and corrective actions are embodied within CHPRC's Corporate ISMS/EMS policies and implementing procedures. The 100K Infrastructure Project will fully implement these policies and procedures for all project activities.
- CHPRC Management Reviews of Project ISMS Implementation – Consistent with the CHPRC ISMS/EMS system, CHPRC conducts periodic reviews of ISMS implementation on all CHPRC work activities, including the 100K Infrastructure Project. These reviews will be scheduled by CHPRC management and coordinated with the 100K Infrastructure Project Manager for support of the review.

4.7.1 Industrial Safety and Occupational Health

CHPRC administers the ISMS/EMS and the DOE Voluntary Protection Program (VPP) on all its projects. The ISMS/EMS and VPP function together, creating a work environment where management and workers team together to integrate Environmental Safety and Health (ES&H) requirements into their work planning and execution activities. The ISMS/EMS program provides a systematic and structured approach to integrating ES&H into work planning and execution, while VPP promotes excellence in occupational safety and health protection. The following procedures shown in Table 4-2 are the Industrial Safety and Occupational Health implementation documents that will be used in performing work on this project.

Table 4-2. Floor Level Implementation Documents

PRC-GD-WKM-12116	Work Planning Guide
PRC-GD-WKM-17132	Automated Job Hazards Analysis Process Guide
PRC-GD-WKM-079	Job Hazard Analysis
PRC-MP-CN-28049	Construction Procedure Manual
PRC-PRO-WKM-12115	Work Management

In addition, the following are potential safety hazards associated with executing this project:

- Working in and around heavy equipment
- Working in hot and cold working environments
- Working in remote locations
- Working with industrial hand tools and compacting equipment
- Working around rodents and insects

- Moving heavy items
- Working in awkward positions
- Uneven walking and working surfaces
- Radiological Hazards
- Working with hand tools
- Working with materials with sharp edges
- Working in and around high voltages

4.7.2 Nuclear Safety

The 100K Area Project Nuclear Safety organization is responsible in establishing nuclear safety controls over processing, handling and storage of radioactive or hazardous materials to ensure the safety and health of the workers, public and the environment. This organization ensures processes for the planning, development, review, approval, implementation and maintenance of safety basis documentation and hazard controls are in accordance with 10 CFR 830, Subpart B. That includes but is not limited to 1) determining whether a facility modification is a major modification; 2) planning and developing the hazard analysis, accident analysis, and hazard controls for a new or existing facility or activity; and 3) establishing, implementing, and maintaining the documented safety analysis and hazard controls, including technical safety requirements, to ensure adequate protection of the public, workers, and the environment. As part of these responsibilities, the 100K Area Project Nuclear Safety organization reviewed the appropriate sections of DOE-STD-1189, Integration of Safety Into the Design Process, Section 1.3, to determine if the project scopes involved in the 100K Infrastructure Project were subject to the requirements necessary for the applicability of DOE-STD-1189. As a result of this review, DOE approval was required for relief from the Technical Safety Requirements for the 105K West Airborne Contamination Remediation subproject at the 105K-West Basin (Hazard Category 2) facility. The other two subprojects did not impact a Hazard Category 1, 2, or 3 facility.

Additionally, the 100K Project employs a robust USQ review process, as described in AP NS-4-001, Unreviewed Safety Questions. In addition, Unreviewed Safety Question (USQ 0082-2010) determined there were no changes required to the 100K Area Safety Basis as a result of all three 100K Infrastructure subprojects.

4.7.3 Hazard Analysis

Hazard analysis is performed on a daily basis (e.g., EPC Construction activities will discuss the work to be performed on a daily basis). The job hazard analysis will be part of the daily pre-evolution briefings to ensure that hazards are identified and the corresponding mitigation measures are defined and understood by the workers prior to work execution. Modifications to the work plans will be made as necessary with input from workers and supervision. No work will be allowed if the proper safety precautions have not been taken or there is a concern on how to safely execute the task at hand. It is anticipated that residual diesel fuel and some hexavalent chromium may be present in some of the underground excavation during installation of the fire water loop around 105K-West. Appropriate industrial hygiene screening equipment will be used and revisions made to existing work packages and job hazard analysis before work will be allowed to commence for these contaminated areas.

In addition, there are no safeguards and security issues (e.g. materials) associated with this project. However, guiding principles associated with safeguards and security (e.g. badging, OPSEC, postings, etc.) will be followed.

4.8 Configuration Management

The following procedures form the basis for implementing configuration management on the 100K Infrastructure Project. The list is not intended to be all inclusive, but provides the fundamentals for configuration management requirements.

- PRC-PRO-EN-20050, Engineering Configuration Management
- PRC-PRO-EN-440, Engineering Document Change
- PRC-PRO-EN-8016, Design Change Notice Process
- PRC-PRO-EN-8017, As-Built Verification Process
- PRC-PRO-EN-2001, Facility Modification Package Process
- PRC-PRO-EN-16406, Engineering Vendor Information Process
- PRC-PRO-EN-709, CAD and Drawing Development and Control Process for Engineering Drawings

4.9 Records Management/Document Control

The Document Control and Records Management Plan is a collection of standards and implementing documents as described PRC-MP-IRM-40119, Document Control and Records Management Plan.

CHPRC generates and preserves records, ensuring that records contain adequate and proper documentation of the organization, functions, policies, decisions, procedures, and essential transactions performed under contract to the DOE. These records are designed to provide the information necessary to protect the legal and financial rights of the U.S. Government, CHPRC, and the public directly affected by the activities performed and managed by CHPRC.

All CHPRC record material will be identified, generated, authenticated, maintained, controlled and disposed of in accordance with the requirements and direction provided by the Document Control and Records Management Plan and the subordinate implementing procedures.

The corresponding procedures for managing controlled documents and records are provided in PRC-PRO-IRM-8310, Document Control Processes, and PRC-PRO-IRM-10588, Records Management Processes. The Project Document Control Lead acts as the point of contact (POC) and interface with Document Control System Administrators and authoring organizations. In addition, all project files will be provided within the Integrated Document Management System (IDMS) website.

4.10 Systems Engineering

The System Engineer Program is managed under procedure PRC-PRO-EN-16331, System Engineer Program, and is not applicable to this project as this project does not deal with defense nuclear facilities;.

4.11 Earned Value Management System

The Project Controls Lead will work with the 100K Infrastructure Project Manager to establish and maintain baseline scopes, schedules, and budgets. Timely updates and justification for variances and adverse earned value are provided as part of the monthly project reports.

Use of earned value will be implemented on the project using established CHPRC processes. The 100K Infrastructure Project has an approved baseline (see above Sections 3.2 and 3.3) and the project has established a field execution schedule that is linked to the baseline schedule. Project controls and performance reporting will be completed consistent with the established CHPRC (monthly) processes and

the project holds weekly project review meetings to status the engineering design and field execution schedules.

4.12 Quality Assurance

The CHPRC Quality Assurance Program (PRC-MP-QA-599) identifies its commitment to contractual requirements. It establishes requirements, assigns responsibilities, and describes the management systems established to ensure the quality of our activities and products. The QAP is the top-level quality assurance document of CHPRC, and compliance is mandatory. Implementation of the QAP is accomplished through company-wide procedures and instructions.

The project will implement the CHPRC QAP requirements using a graded approach. The project QA representative will determine, with the 100K Infrastructure Project Manager and Engineering/Design Authority, the level of a graded approach with concurrence of the Vice President of EPC.

The Project Management Team will be responsible for ensuring quality workmanship and will implement quality control measures that are necessary to ensure work conforms to design requirements, procedures and work practices.

This project is considered an Enhanced Commercial quality level for procurement related activities. Enhanced commercial is assigned to items and services that are important to project mission and represent sufficient risk that controls beyond standard commercial practices are considered necessary to ensure the item or service is suitable for its intended purpose. Examples where enhanced commercial would be assigned include:

- General Service (GS) items and associated services posing a low project risk, but based on engineering evaluation, require additional controls beyond standard commercial practices.
- Any item or service with the potential to cause radiological harm (in the present or the future) which has not been designated as quality class 1 or 2
- Items where independent verification is required by national consensus standard (e.g. AWS D1.1, ANSI B31.1, ASME Section VIII) which have not been designated as quality class 1 or 2.

4.13 Project Reviews

The 100K Infrastructure Project has both formal and informal reviews as the design, procurement and construction progresses. These included 30 and 90 percent design reviews, weekly BTR/Engineering Design subcontractor meetings, weekly Construction progress status meetings, and monthly project cost/schedule performance status reviews. All of these reviews were conducted in accordance with established processes and programs identified in the applicable CHPRC procedures.

In addition, the cost, schedule, and technical baselines were reviewed using the CHPRC Project Review Board (PRB) process (reference PRC-CHRT-PM-40249).

4.14 Communication Management Plan

Activities that require communication to stakeholder and other interested parties will be provided to EPC Project Manager who will follow the necessary protocols for issuance.

Presentations requested by EPC to Regulators or other offsite parties will be reviewed by CHPRC Communications Group and cleared for release prior to issuance. The 100K Vice President will make the determination for EPC participation in any meeting requested by DOE, Regulators or Stakeholders.

5. Project Acquisition Strategy

The vision of the project is to create a project delivery process that communicates expectations and roles and responsibilities, while being flexible to manage continuous project maturity which completes work in a safe manner, while maintaining environmental compliance throughout all phases. The 100K Infrastructure Project is on a very fast timescale which inherently requires a significant amount of integration and ability to adjust to changing situations.

5.1 Design and Engineering Phase

The design engineering scope consists of the appropriate drawings, specifications, and supporting engineering documentation for the acquisition and construction/installation associated with the three subprojects. . The design objective is to provide a complete package from which the facility and associated subsystems can be safely and cost-effectively completed within the required schedule. This will be completed assuring the following is obtained:

- Assure quality and safety aspects are incorporated into the design and field activities
- Utilize electrical utilities experience to assure that past successes and improvements are defined in the FDC;
- Provide deliverables that meet all of the project's functional, regulatory, safety, quality, cost, schedule, and programmatic requirements. Coordinate engineering work to ensure that the end product will align with other ongoing operations/activities;
- Assure trained, qualified and dedicated personnel are available to support the current schedule
- All design media is checked by an independent, qualified individual.

The 100K organization is responsible for providing the 100K Infrastructure Project design requirements as documented in the Functional Design Criteria (FDC). The 100K organization will also provide a summary level review of the completed design to ensure compliance to the FDC (KBC-41961).

5.1.1 Design/Engineering Strategy

Design Engineering was performed by a CHPRC pre-selected subcontractor, ARES Corporation, who worked under a negotiated, fixed price contract. ARES provided design engineering services in accordance with statement of work requirements and provided a Professional Engineer stamp when the design was completed. Design reviews were performed to assure that the design approach met the FDC and project expectations. Comments identified during the design reviews were reviewed and resolved with the appropriate discipline involved. Any issues that were not resolved were provided to the 100K Infrastructure Project Manager for resolution. ARES responsibilities included:

- Development of functional criteria and obtaining the applicable 100K Design Authority concurrence
- Conducting 30 and 90 percent design reviews following the principles defined in PRC-PRO-EN-8336, Design Verification
- Final designs were reviewed and stamped by a Professional Engineer in the State of Washington
- Developed procurement and construction specifications for each subproject
- Developed a construction inspection/evaluation plan

- Identified long lead procurements items at about the 60% design phase and obtained concurrence from the appropriate 100K Design Authority

5.1.2 Design Verification

The project conducted 30 and 90 percent design reviews following the principles defined in PRC-PRO-EN-8336, Design Verification. Final design was reviewed and stamped by a Professional Engineer in the State of Washington.

5.1.3 Research and Development

This project did not require any research and development activities.

5.1.4 Technical Configuration Baseline

The configuration baseline for technical requirements was identified in the FDC.

5.2 Procurement Strategy

5.2.1 Procurement

Each subproject was subcontracted out with its own statement(s) of work to address the specific requirements, deliverables and expectations. The Project Manager in conjunction with the Construction Manager and BTR developed statement(s) of work in accordance with PRC-PRO-AC-186, Statement of Work. The statement of work was reviewed by the appropriate disciplines to assure requirements and expectations are achieved. Once the internal project team had completed their review and comments incorporated, the statement(s) of work were sent to CHPRC Procurement for final review and issued for bid to the existing basic ordering agreement contractors. When bids were received, the Project Manager, Construction Manager, BTR, and selected subject matter experts reviewed the bids. Bid evaluation was based upon company safety performance, cost, schedule, and previous work experience. Once a selection was recommended by the review team, the 100K Infrastructure Project Manager informed the Vice President of EPC of the selection and recommendation. Concurrence by the Vice President of EPC was obtained and CHPRC Procurement was notified of the concurrence.

The following summarizes the procurement strategy that was implemented for each of the three subprojects.

- 100K River Water Infrastructure Isolation Subproject:
  - Watts Construction was subcontracted to install the import raw water line and the fire and potable water lines inside the 100K area
  - GA Grant was subcontracted to install the new water treatment plant
  - PALL Corporation was subcontracted to provide the microfiltration water treatment plant equipment
  - Hughes was contracted to provide the emergency diesel fire water pump.
  - Installation of the fire water lines around the 100K-West Reactor was self-performed using a Task Charge Authorization (for EPC direct-hire work through Fluor Federal Services) due to the potential of uncovering hazardous or radioactive materials during any subsurface excavations

- K-West Basin Airborne Contamination Remediation Subproject:
  - EMI was contracted to provide the HVAC/HEPA filter skid units
  - GA Grant was subcontracted to install the ductwork inside the 105K-West Basin

- General exterior site preparation for the 105K-West Basin was self-performed using a Task Charge Authorization (TCA)

- 100K Reactor Power Isolation Subproject:
  - In order to minimize coordination efforts, a turnkey design/build subcontract was awarded to EPC Services for design, procurement and installation of the skid-mounted substation in the A9 switchyard
  - A separate subcontract was awarded to Fowler to install the 13.8 kV electrical lines
  - Installation of ducts and pull boxes in the A9 switchyard was self-performed using a Task Charge Authorization

The key procedures that were applied to all the above procurement activities are as follows:

- PRC-PRO-AC-186, Statement of Work
- PRC-RD-AC-10320, Acquisition System Requirements
- PRC-PRO-AC-16405, Submittal Management
- PRC-PRO-AC-123, Material Request Process.

5.3 Construction Strategy

A kick off meeting was held with each of the above referenced Construction Contractors after the notice of award was given. The meeting reviewed the project expectations, project performance, and identified any specific or unclear requirements.

Each Contractor provided submittals; obtained submittal acceptance and completed pre-requisite training prior to work execution as was defined in the statement of work. Once all the pre-requisite requirements were met, the contractor mobilized and commenced construction operations.

The EPC Construction Manager is the overall responsible party for coordinating the daily construction work and assuring that all work activities are organized and planned in a safe and efficient manner while maintaining regulatory and environmental compliance. In addition, the Contractor, BTR and Construction Manager meet routinely to review project cost and schedule performance. Schedules were reviewed and updated weekly. Cost performance was reviewed monthly.

The EPC Field Work Supervisors (FWS) will support the Construction Manager and ensure that daily pre-job briefings are conducted, work assignments are identified, and subcontractor performance expectations are communicated effectively

An EPC Quality Control engineer will visit the construction site to provide an independent assessment to assure that design requirements are being implemented properly. In addition, an EPC Project Safety representative will review construction activities and provide feedback for implementing continuous safety improvement throughout the project's construction.

At the completion of each subcontracted scope of work, a joint walk down between EPC Construction Services and the subcontractor will be conducted to ensure that all items have been completed in accordance with the design and specification requirements. Open issues that are declared "pre-start" will be corrected prior to initiation of the acceptance testing.

5-3

5.3.1 License and Permitting

EPC Construction Services also obtained the required site permits/approvals for all work activities, including those required to support the construction subcontractors. The following is a summary of the permits and approvals that were required:

- Electrical Installation Permit
- Electrical Service Request
- Hanford Site Excavation Permit
- Radiological Work Permits
- Utility/Building System Outage
- Hazardous Energy Control (Lockout/Tagout)
- Hot work permit
- Road Closure Notifications
- Fire Marshal Permit

5.4 Testing/Startup/Turnover

EPC will conduct the required testing to assure items and components have been properly installed. Items that are found deficient will be treated as a non-conformance and will be managed and tracked until completion. During startup activities coordination with the 100K Project Team will be required to assure proper safety controls and safety basis requirements are not compromised. Startup and testing activities will be performed under an approved work control plan that is reviewed and concurred by the 100K Work Release Representative prior to initiation of testing and startup activities. Start-up and testing activities will be subject to the USQ process. Testing involving the fire pump and associated systems will be conducted by trained and qualified personnel.

5.5 Acceptance Testing

EPC Construction Services will perform a Construction Acceptance Test (CAT) for the project. The Construction Manager, Field Engineer, Construction Inspector along with the appropriate Design Authority will verify and validate that systems and processes were constructed in accordance with design requirements and their performance is as intended.

If non-conformances are identified, test deficiency reports will be prepared and the review team will categorize them as either pre or post start issues. All pre start up issues will be completed prior to turnover to operations using an approved work control process. Post start issues will be completed on an accelerated basis with the intent of having them resolved within a 30 day window. Concurrence will be obtained by the applicable Design Authority for items that will take longer than 30 days to complete..

An Acceptance Test Plan (ATP) will be prepared and issued by the EPC Design Agent. The ATP will have the 100K Area Operations Group input during its development and once approved, the ATP will be used to perform and validate that all the systems are working as intended. The test plan defines each type of test (Factory Acceptance Test, Construction Acceptance Test, Engineering Inspections, Acceptance Test Procedure, and Operational Test Procedure), and the test types each major piece of equipment will be subjected to.

The 100K organization will be responsible for the development, issuance and training to any new procedure or processes. Acceptance testing activities will be subject to the USQ process. Testing involving the fire pump and associated systems will be conducted by trained and qualified personnel. Non-conformances involving fire protection systems will be designated as post-start issues only with the approval of the Hanford Fire Marshal's Office.

5-4

At completion of the ATP, equipment operating manuals, records, warranties, etc will be assembled and provided to the 100K Operations Group and a Construction Completion Document (CCD) will be prepared and issued to formally turn over each subproject from EPC to the 100K Operations Group so that they can begin operational testing..

The operational testing will be performed to verify and validate procedures and provide training for facility operators, as appropriate. The 100K Area Facility Engineering will develop and issue an Operational Test Plan (OTP) that will be implemented by the 100K Operations organization. After completion of the OTP, the systems will be ready for permanent operations. During performance of Operation Test Plan, the EPC construction forces will be available via a Construction Work Authorization Envelope (CWAE) to complete non-critical ATP punchlist items or to assist in the resolution of technical issues with the equipment.

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6. Project Closeout

6.1 Objectives

Project closeout is initiated once the construction has been completed and the project facilities are operational and commissioned. Closeout will document the final status of the project, including the performance measures at completion of the project.

The primary objectives of project close-out include:

- Settling all outstanding issues and completing final negotiations with the client or contractors regarding change orders, claims or adjustments
- Transferring all required property, project documents and engineering information to the customer.
- Issuing the Project Completion Report and the Project Profile to record project history, performance, and to identify lessons learned to aid future projects

In addition, planning for close-out will begin at project initiation and will be performed in compliance with the requirements of the prime contract. Project close-out will have the participation and concurrence of all key project personnel

6.2 Organization and Responsibilities

The 100K Infrastructure Project Manager is responsible for implementing the close-out of the project. A project close-out responsibility checklist will be prepared, which will identify the individuals or groups that need to assist or provide input on the key areas of project close-out.

The Construction Completion Document, (Site Form A-6002-656) will be issued to the 100K Area Operations Group indicating that the work is mechanically complete and ready for commissioning and start up. The CCD will be completed to transfer custody of each subproject from EPC to the 100K Area Operations Group upon completion of the ATP. Punchlist items deemed not required for operations may be finished after the CCD is completed upon approval by both the 100K Infrastructure Project Manager and the 100K Vice President.

6.3 Transfer and Disposition of Property and Records

Prior to completion of the project, the 100K Infrastructure Project Manager, Document Control Lead, and the 100K Area Operations Group Manager will review the retention schedule and reconfirm, by category, the disposition of the records generated during the duration of the project

6.4 Project Completion Report

The project will be documented in a Project Completion Report, which will summarize all aspects of the project. The 100K Infrastructure Project Manager is responsible for the report preparation, review, and distribution. Planning for the preparation of the Project Completion Report will begin at project initiation with the assignment of responsibilities and identification of documents to be retained.

In addition, a key inclusion in the Project Completion Report is a discussion of Lessons Learned, which can aid future projects in improving project execution.

APPENDIX A

Project Tailoring Strategy

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Table A-1. 100K Infrastructure Project Tailoring Strategy

Project Phase and DOE 413.3A Requirements/Deliverables			Project Tailoring Strategy	
Project Phase	**Item #**	**Requirement/Deliverable**	**Approach** (check block if planned/applicable)	**Basis** (provide basis for approach as required)
Project Planning Phase – Approve Mission Need	1	Perform **Pre-Conceptual Planning** activities that focus on Projects strategic goals and objectives, safety planning, and design. For Hazard Category 1, 2, and 3 nuclear facilities to the specificity possible document expectations for safety in design (DOE STD-1189)	**Estimated Project Size:** [ ] TPC >$100M [X] TPC >$20M to <$100M [ ] TPC <$20M **DOE-STD-1189 Application:** [X] Hazard Category 1,2, and 3 facility or major modification to Hazard Category 1,2 and 3 facility **Project Strategic, goals, and objectives identified:** [ ] Preliminary Functional Requirements Document **Environmental/Regulatory:** [X] CERCLA Project [ ] RCRA Project	The 105K West Airborne Contamination Remediation subproject involves an Hazard Category 2 facility and the work required DOE approval for relief from the Technical Safety Requirements for this Facility. The other two subprojects did not impact a Hazard Category 1, 2, or 3 facility. Functional Design Criteria was developed and issued (KBC-41961) to define the functional requirements. The 100K Infrastructure Project activities are conducted to support the 100K Area Record of Decision, as amended
	2	Prepare **Mission Need Statement** document. Required only for projects subject to DOE CD approval.	[ ] Mission Need Statement	N/A as this project is not subject to DOE CD approval.
	3	Projects **requiring** a CD process prepare a **Tailoring Strategy** describing approach for adapting CD requirements based upon project's risk and complexity. CD process required for EM cleanup subprojects with a TPC of $100M or more.	[ ] Critical Decision 0 package [ ] Critical Decision 1 package [ ] Critical Decision 2 package [ ] Critical Decision 3 package [ ] Critical Decision 4 package	. N/A as this project is not subject to DOE CD approval.
	4	Projects **not** requiring a CD process prepare a initial Tailoring Strategy describing approach for adapting DOE 413.3A requirements with the CHPRC Project Review Board (PRB)	[ ] PRB Approval to Proceed to Project Definition Phase (Conceptual Design/Alt Analysis) [ ]PRB Approval to Proceed to	Project Execution Plan (PEP) describes a tailoring approach for implementation of DOE 413.3A requirements in a graded fashion. PRB conducted in April 2010 for Approval to Proceed with Construction of all three subprojects.

Project Phase and DOE 413.3A Requirements/Deliverables			Project Tailoring Strategy	
Project Phase	**Item #**	**Requirement/Deliverable**	**Approach** (check block if planned/applicable)	**Basis** (provide basis for approach as required)
		reviews	Preliminary Design [ ]PRB Approval to Proceed to Final Design [X] PRB Approval to Proceed to Construction [X] PRB Approval to Proceed to Project Turn-over/Operations Start	
	5	Perform Mission Validation Independent Reviews.	[ ] Mission Evaluation Independent Review	N/A since project has already been authorized to proceed.
Project Definition Phase: Alternative Evaluation, Conceptual Design	6	Prepare a Safety Design Strategy for projects subject to DOE-STD-1189, as amended	[ ] Safety Design Strategy	N/A as Unreviewed Safety Question (USQ 0082-2010) determined there were no changes required to the 100K Area Safety Basis as a result of all three 100K Infrastructure subprojects.
	7	Perform Alternatives Analysis, Conceptual Design, and further develop Requirements Documents.	[ ] Conceptual Design Report [ ] Alternatives Analysis Report [ ] Updated Functional Requirements Document [X] Functional Design Criteria	Design strategy is developed through the functional design criteria which is reviewed and accepted by 100K Engineering.
	8	Prepare an Acquisition Strategy	[ ] Stand alone Acquisition Strategy document [X] Acquisition Strategy included in PEP	PEP Section 5 discusses the Acquisition Strategy for Design, Procurement, and Construction.
	9	Prepare Project Execution Plan	[X] Project Execution Plan	

Project Phase and DOE 413.3A Requirements/Deliverables			Project Tailoring Strategy	
Project Phase	Item #	Requirement/Deliverable	Approach (check block if planned/applicable)	Basis (provide basis for approach as required)
	10	Establish and Charter an Integrated Project Team. Required only for projects subject to CD process.	[ ] Charter for Integrated Project Team	Project uses an independent group of subject matter experts to conduct design reviews. In addition, the subproject will be subject to the Project Review Board process for review of cost, schedule, and technical baselines.
	11	Conduct a Design Review of the conceptual design. 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.	[ ] Design Review of Conceptual Design [ ] Technical Independent Project Review	Design reviews at 30 and 90 percent complete were held.
	12	Prepare a Project Data Sheet for Line Item Projects	[ ] Project Data Sheet	N/A as this project is not a line item project.
	13	Identify Long Lead Procurements required to be approved to start during Preliminary Design Phase.	[X] Long Lead Procurements required for PD phase	Two long lead procurements (Pall microfilter on plant and A9 Switchyard) were identified and ordered early.
	14	Prepare environmental documents required for Conceptual Design Phase and prior to start of Preliminary Design	[ ] RI/FS [ ] RFI [ ] Other (list below)	No separate environmental documents were required to be prepared for the 100K Infrastructure Project.
	14a	Document High Performance Sustainable Building considerations per DOE Order 450.1, change 2 in CDR and Acquisition Strategy, as appropriate	[ ] HSB principles applied	This project does not involve new facility construction or a facility upgrade where HSB principles are applicable.
	15	Prepare a Conceptual Safety Design Report for Hazard Category 1, 2 and 3 nuclear facilities	[ ] Conceptual Safety Design Report	N/A as Unreviewed Safety Question (USQ 0082-2010) determined there were no changes required to the 100K Area Safety Basis as a result of all three 100K Infrastructure subprojects.

Project Phase and DOE 413.3A Requirements/Deliverables			Project Tailoring Strategy	
Project Phase	Item #	Requirement/Deliverable	Approach (check block if planned/applicable)	Basis (provide basis for approach as required)
	16	Prepare a Preliminary Hazard Analysis Report for facilities that are below Hazard Category 3 threshold as defined in 10 CFR 830, Subpart B and obtain DOE approval	[ ] Preliminary Hazard Analysis Report	The 105K West Airborne Contamination Remediation subproject involves an Hazard Category 2 facility and the work required DOE approval for relief from the Technical Safety Requirements for this Facility. The other two subprojects did not impact a Hazard Category 1, 2, or 3 facility.
	17	Prepare a Conceptual Validation Report on DOE review of the Conceptual Safety Design Report for Hazard Category 1, 2 and 3 nuclear facilities	[ ] Conceptual Validation Report	N/A as Unreviewed Safety Question (USQ 0082-2010) determined there were no changes required to the 100K Area Safety Basis as a result of all three 100K Infrastructure subprojects.
	18	Determine that the CHPRC Quality Assurance Program is acceptable for subproject and continues to apply. Prepare Project Specific QAP if required.	[ ] Prepare project specific QAP if required	Project will follow the CHPRC QAP using a graded approach and will obtain 100K QA review and acceptance before implementation.
Project Execution Phase: Preliminary Design	19	Update Safety Design Strategy for projects subject to DOE-STD-1189, as amended	[ ] Updated Safety Design Strategy	N/A as Unreviewed Safety Question (USQ 0082-2010) determined there were no changes required to the 100K Area Safety Basis as a result of all three 100K Infrastructure subprojects.
	20	Establish a Performance Measurement Baseline, including Key Performance Parameters, total project cost, schedule and scope. The Performance Measurement Baseline may be included in the Project Execution Plan.	[X] PMB Established	
	21	Update the Project Execution Plan	[X] Updated PEP	

Project Phase and DOE 413.3A Requirements/Deliverables			Project Tailoring Strategy	
Project Phase	Item #	Requirement/Deliverable	Approach (check block if planned/applicable)	Basis (provide basis for approach as required)
	22	Perform a Performance Baseline Validation External Independent Review or a Performance Baseline Validation Independent Project Review. External Independent Reviews are conducted by the Office of Engineer and Construction Management to validate the Performance Baseline for projects with a TPC greater than or equal to $100M. Independent Project Reviews are conducted by CHPRC to validate the Performance Baseline for projects with a TPC less than $100M.	[ ] Perform Performance Baseline External Independent Review [X] Performance Baseline Validation Independent Project Review	100K Project Controls provided an independent review of project baseline.
	23	Develop an Independent Cost Estimate or perform and Independent Cost Review for Major System Projects as part of the Performance Baseline External Independent Review performed by the Office of Engineering and Construction Management. An Independent Cost Estimate should be performed where complexity, risk, cost, or other factors create a significant cost exposure for the DOE.	[ ] Develop Independent Cost Estimate [X] Perform Independent Cost Review	Independent cost analysis was performed on the three subprojects by the 100K Project Controls organization.
	24	Determine that the Quality Assurance Program is acceptable and continues to apply. The QA Program must fully address all applicable QA criteria as defined in 10 CFR 830 Subpart A and DOE O 414.1C	[ ] Update QAP	Project will follow the CHPRC QAP using a graded approach and will obtain 100K QA review and acceptance before implementation.

Project Phase and DOE 413.3A Requirements/Deliverables			Project Tailoring Strategy	
Project Phase	Item #	Requirement/Deliverable	Approach (check block if planned/applicable)	Basis (provide basis for approach as required)
	25	Prepare a Preliminary Design and Update Projects Requirements Documents. This stage of design is complete when it provides sufficient information to support development of the Performance Baseline	[ ] Preliminary Design Report [X] Updated Functional Design Criteria [ ] Updated Functions & Requirements Document	
	26	Update Project Data Sheet, if applicable	[ ] Prepare Project Data Sheet	N/A as this project is not a line item project.
	27	Conduct a Design Review of the Preliminary Design	[X] Design Review of Preliminary Design	Design reviews at the 30 and 90 percent design phases were conducted by an independent review group.
	28	Prepare a Hazard Analysis Report	[ ] Hazard Analysis Report	The 105K West Airborne Contamination Remediation subproject involves an Hazard Category 2 facility and the work required DOE approval for relief from the Technical Safety Requirements for this Facility. The other two subprojects did not impact a Hazard Category 1, 2, or 3 facility.
	29	Prepare a Preliminary Security Vulnerability Assessment Report if applicable.	[ ] Preliminary Security Vulnerability Assessment Report	105K West Physical Security reviewed the 105K West Airborne Contamination Remediation subproject design. No other security reviews were required for the other two subprojects.
	30	Prepare a Preliminary Safety Validation Report based upon DOE review of the Preliminary Safety Design Report for Hazard Category 1, 2 and 3 nuclear facilities	[ ] Preliminary Safety Validation Report	N/A as Unreviewed Safety Question (USQ 0082-2010) determined there were no changes required to the 100K Area Safety Basis as a result of all three 100K Infrastructure subprojects.

Project Phase and DOE 413.3A Requirements/Deliverables			Project Tailoring Strategy	
Project Phase	Item #	Requirement/Deliverable	Approach (check block if planned/applicable)	Basis (provide basis for approach as required)
		Environmental Stewardship –High Performance Sustainable Building if applicable provisions into the preliminary design and design review	Sustainability Environmental Stewardship – High Performance Sustainable Building Provisions into design	construction or a facility upgrade where HSB principles are applicable.
	32	Complete (or obtain approval of) final National Environmental Policy Act documentation which must be completed prior to the start of final design	[X] Complete final NEPA documentation and obtain approval	The 100K Environmental Compliance Officer obtained a NEPA Categorical Exclusion for all the 100K Infrastructure Project activities.
	33	Prepare environmental documents required prior to start of Final Design	[ ] ROD [ ] RD/RAIP [ ] Final RCRA Permit Mod and CMP [ ] Other (List)	No separate environmental documents were required to be prepared for the 100K Infrastructure Project.
Final Design	34 √	Update the Safety Design Strategy for projects subject to DOE-STD-1189, as amended	[ ] Update Safety Design Strategy	N/A as Unreviewed Safety Question (USQ 0082-2010) determined there were no changes required to the 100K Area Safety Basis as a result of all three 100K Infrastructure subprojects.
	35	Complete and review Final Design or determine that the design is sufficiently mature to start procurement or construction	[X] Complete and Review Final Design	
	36	Update all project documentation to reflect any changes resulting from Final Design, including the Project Execution Plan, Performance Baseline, Project Data Sheet, etc.	[X] Updated Project Execution Plan [X] Updated Functional Design Criteria Document [ ] Updated Functions and Requirements Document [ ] Other	Final design review will be conducted by an independent team of subject matter experts and the final design will be reviewed and stamped by a Professional Engineer licensed in the State of Washington.

Project Phase and DOE 413.3A Requirements/Deliverables			Project Tailoring Strategy	
Project Phase	Item #	Requirement/Deliverable	Approach (check if planned, justify tailoring)	Basis (provide basis for approach, justification for tailoring)
		Perform and Document Independent Review for all Major System Projects to verify execution readiness. A similar Independent Review must be performed for Non-Major System Projects unless justification is provided and a waiver is granted by the Acquisition Executive.	for Construction or Execution Readiness	was performed a part of the PARS that was held on April 21, 2010.
	38	Prepare the Documented Safety Analysis	[ ] Documented Safety Analysis	N/A as Unreviewed Safety Question (USQ 0082-2010) determined there were no changes required to the 100K Area Safety Basis as a result of all three 100K Infrastructure subprojects.
	39	Update the Hazard Analysis Report	[ ] Updated Hazard Analysis Report	The 105K West Airborne Contamination Remediation subproject involves an Hazard Category 2 facility and the work required DOE approval for relief from the Technical Safety Requirements for this Facility. The other two subprojects did not impact a Hazard Category 1, 2, or 3 facility.
	40	Update the Preliminary Security Vulnerability Assessment Report	[ ] Preliminary Security Vulnerability Assessment Report	105K West Physical Security signed off on the 105K West Airborne Contamination Remediation subproject Facility Modification Package and the Construction Work Package for this work. No other security reviews were required for the other two subprojects.
	41	Prepare a Safety Evaluation Report based upon review of the Preliminary Safety Analysis	[ ] Safety Evaluation Report	N/A as Unreviewed Safety Question (USQ 0082-2010) determined there were no changes required to the 100K Area Safety Basis as a result of all three 100K Infrastructure subprojects.
	42	Prepare a Construction Project Safety and Health Plan	[ ] Project Construction Project Safety and Health Plan	FFS Construction will follow their existing H&S requirements. Subcontractors will be required to implement ISMS requirements and follow CHPRC H&S requirements.

Project Phase and DOE 413.3A Requirements/Deliverables			Project Tailoring Strategy	
Project Phase	Item #	Requirement/Deliverable	Approach (check if used/applicable)	Basis (provide basis for approach as required)
		a-High Performance Sustainable Building provisions into Final Design and the external independent Review.	Environmental Stewardship-High Performance Sustainable Building provisions into Final Design	construction or a facility upgrade where HSB principles are applicable.
	44	Update the Quality Assurance Program for construction, field design changes, and procurement activities.	[ ] Update QAP	Project will follow the CHPRC QAP using a graded approach and will obtain 100K QA review and acceptance before implementation.
Transition/Close-out Phase – Approve Start of Operations or Project Completion	45	Verify Key Performance Parameters or Project Completion Criteria have been met and mission requirements achieved.	[X] Project component and system testing [ ] Operational Start-up Testing	EPC will conduct construction acceptance testing to verify system and components are working as intended. Once completed, the subproject will implement an Acceptance Test Plan to verify and validate the proper working of systems and components. EPC and 100K will jointly work together during the Operational Test Plan phase and validate systems and components are working properly.
	46	Complete a Readiness Assessment or an Operational Readiness Review and resolve all pre-start findings including ensuring Operations and Maintenance Staff are properly trained and qualified to operate and maintain the equipment, systems, and facilities being turned over.	[ ] Readiness Assessment [ ] Operational Readiness Review	Construction Acceptance Tests and implementation of an Acceptance Test Plan and Operational Test Plan will be performed.
	47	Issue an updated Quality Assurance Plan to address testing, identified deficiencies, and startup, transition, and operation activities.	[ ] Updated QAP	Project will follow the CHPRC QAP using a graded approach and will obtain 100K QA review and acceptance before implementation.
	48	Revise the environmental management system to ensure that it incorporates new environmental aspects related to turnover and operations.	[ ] Update Environmental Management System documents	The 100K Environmental Compliance Officer will determine if the environmental management system will need to be revised due to turnover activities.

Project Phase and DOE 413.3A Requirements/Deliverables			Project Tailoring Strategy	
Project		Requirement/Deliverable	Approach	Basis
		Technical Safety Requirements for Hazard Category 1, 2, and 3 nuclear facilities.	Analysis	the 100K Area Safety Basis as a result of all three 100K Infrastructure subprojects.
	50	Finalize the Hazard Analysis Report and obtain DOE approval (Field level)	[ ] Final Hazard Analysis Report [ ] Obtain DOE Approval	The 105K West Airborne Contamination Remediation subproject involves an Hazard Category 2 facility and the work required DOE approval for relief from the Technical Safety Requirements for this Facility. The other two subprojects did not impact a Hazard Category 1, 2, or 3 facility.
	51	Finalize the Security Vulnerability Assessment Report if one was required.	[ ] Final Security Vulnerability Assessment Report	105K West Physical Security reviewed the 105K West Airborne Contamination Remediation subproject design. No other security reviews were required for the other two subprojects.
	52	Prepare a Safety Evaluation Report based upon review of the Documented Safety Analysis and Technical Safety Requirements for Category 1,2, and 3 nuclear facilities	[ ] Safety Evaluation Report	N/A as Unreviewed Safety Question (USQ 0082-2010) determined there were no changes required to the 100K Area Safety Basis as a result of all three 100K Infrastructure subprojects.
Project Closeout Requirements	53	Perform final administrative and financial closeout and prepare a **Final Closeout Report** once all project costs are incurred and invoiced and all contracts are closed.	[x] Final Project Closeout Report	
	54	Prepare a Lessons Learned Report and submit to OECM for broader sharing among DOE project management community	[x] Lessons Learned Report	Lessons Learned will be a section within the Project Completion Report.
	55	Complete project required Operational Documentation	[x] Complete Operational Documentation	EPC will provide Acceptance Test Plan completion documentation. Operational documentation will be the responsibility of 100K.

EXHIBIT 51

CH2MHILL
Plateau Remediation Company

INTEROFFICE MEMORANDUM

32400-QPA-2010-013

Date: April 14, 2010

To: K. A. Dorr, H3-23

From: S. J. Turner, Manager of Performance Oversight

Subject: FINAL REPORT, INDEPENDENT ASSESSMENT OF ENGINEERING, PROJECTS AND CONSTRUCTION, CHPRC-PO-IA-10-02

The CHPRC Performance Oversight Organization conducted an Independent Assessment at Engineering, Projects and Construction. The scope of the assessment included organizations, facilities, and activities within the Sludge Treatment, Construction, and all active projects. The performance-based assessment was conducted to evaluate the Project's implementation of programs, procedures, and policies as they relate to conduct of work. The assessment was conducted during the second quarter of fiscal year 2010.

The attached final report presents and discusses 8 findings and 4 opportunities for improvement. The Condition Reports, which are referenced within the body of the final report, provide details for the issues and must be resolved following the process in PRC-PRO-QA-052, *Issues Management*.

If I can be of assistance to you, please contact me at 376-2144.

dt/mrc

Attachment

cc: J. J. Allen, H8-22
J. A. Archuleta, H8-43
M. T. Bachand, H3-23
M. R. Calvert, H8-22
D. W. Clark, R3-50
M. W. Clayton, H8-22
B. S. Harder, H8-22
M.W. Johnson, A3-06
S. M. Kelley, H8-22
D. P. Kimball, H3-23
M. W. Manderbach, B4-60
P. M. McEahern, H8-20
M. A. Nickle, R4-03
L. S. Nye, H8-20
M. J. Ostrom, H3-21
J. R. Freeman-Pollard, H3-23
V. M. Pizzuto, H7-30
D. Thornton, H8-22
D. L. Vance, H8-22
^CHPRC Correspondence

Independent Assessment of Engineering, Projects and Construction

Revision 0

Independent Assessment of Engineering, Projects and Construction

D. Thornton, Assessment Team Lead

J. J. Allen, Team Member

B. S. Harder, Team Member

M. W. Clayton, Team Member

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Approved by:

4/14/10

S. J. Turner, Manager
Performance Oversight

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EXECUTIVE SUMMARY

The CH2M HILL Plateau Remediation Company (CHPRC) Performance Oversight Organization conducted an independent assessment at Engineering, Projects and Construction (EPC). The scope of the assessment primarily focused on organizations, facilities, and activities within the Sludge Treatment, Construction, and active projects. Some EPC interface activities with other CHPRC projects were included in the scope of the assessment.

The performance-based assessment was conducted to evaluate the Project's implementation of programs, procedures, and policies as they relate to conduct of work. The assessment focused on the adequacy, compliance, and in-field execution of work activities and processes that support the Project's mission. The in-field portion of the assessment was conducted during the period of March 8 through 19, 2010.

EPC routinely demonstrated the ability to perform work activities in a safe manner. The EPC project management systems were functional with some programs very effective and some still reflecting the maturing status of a recently restructured organization with new leadership. The EPC management team was very experienced and exhibited a high level of leadership. This was demonstrated through their in-field presence observing and monitoring work activities and by actively participating in the Plan-of-the -Day, Construction Forces Weekly Safety/Planning Meeting, and the Monthly Subcontractor Safety Meeting. Interviews with project personnel indicated that information was communicated fairly well up and down the organizational ladder. Also, communication/interface with other CHPRC projects (i.e. customers) was effective and performed on a routine basis. Field observations indicated that work teams were generally well informed about matters having the potential to impact their activities. EPC personnel had an understanding of management's expectations and their performance objectives.

The EPC project had programs/processes in place that supported its current mission. Many of these programs were well-documented and maintained, with some being very effective. However, some of the programs reflected the status of a project recently restructured and in the process of going through a transition. As an example, the Emergency Preparedness and HAZCOM programs were not well implemented.

During the assessment the following findings and opportunities for improvements were identified:

Findings:

- A deficiency was identified that related to logkeeping practices, as required by PRC-PRO-OP-24382 (CR-2010-1077).
- Miscellaneous Tags Log was not well maintained (CR-2010-1073).
- EPC had not fully integrated Emergency Preparedness (EP) throughout the Project as required by PRC-PRO-EM-7647, *Emergency Preparedness Program Requirements* (CR-2010-1078).
- Deficiencies in training records relating to EP and Sludge Treatment Project (STP) Testing Coordinators (TC) were identified (CR-2010-1079).

- Deficiencies were identified in the implementation of the Project Execution Plan (PEP) process as required by PRC-PRO-PM-24889, *Project Initiation and Execution* (CR-2010-1080).
- A written, well defined and effectively implemented Hazardous Communications (HAZCOM) Program did not exist at the EPC Project as required by PRC-RD-SH-13299, *Hazard Communication*. (CR-2010-1081).
- Deficiencies were identified in the implementation of the Chemical Management and HAZCOM Programs at MASF (CR-2010-1082).
- Data from periodic safety inspections was not reviewed, tracked, and trended as required by PRC-RD-SH-7652 (CR-2010-1083).

Opportunities for Improvement

- EPC needs to develop programs and/or improve on the implementation and administrative maintenance for many of its existing programs (CR-2010-1085).
- EPC Project was not making the best available use of the CRRS process (CR-2010-1086).
- The EPC Project overall, had a fragmented Quality Program structure in place to support the requirements of CHPRC Quality Assurance Program (CR-2010-1088).
- EPC Occupational, Safety, and Health (OS&H) personnel were reluctant to utilize the Issues Management process to document and track to closure identified problems (CR-2010-1089).

CROSS-CUTTING ISSUE

Cross-Cutting Issues generally reflect potential deficiencies observed in more than one assessment area and represent a common theme throughout the report. Cross-cutting issues identify those few select programmatic issues considered most important and represent areas where improvement will reap the greatest benefit.

Program Maintenance

As a result of the weaknesses identified during the assessment, one cross-cutting issue was developed in the area of program maintenance. The EPC project had programs/processes in place that supported its current mission. Many of these programs were well-documented and maintained, with some being very effective. However, some of the programs reflected the status of a project recently restructured and in the process of going through a transition. As an example, the Emergency Preparedness and HAZCOM programs were not well implemented. Senior management at the project, and the assessment team endorse, the need to develop programs and/or improve on the implementation and administrative maintenance for many of its existing programs. While EPC routinely demonstrated the ability to perform work activities in a safe manner, failure to address this issue could limit its performance. This conclusion is supported by the following examples identified during the assessment (CR-2010-1085):

- A deficiency was identified that related to logkeeping practices, as required by PRC-PRO-OP-24382 (CR-2010-1077).

- EPC had not fully integrated Emergency Preparedness (EP) throughout the Project as required by PRC-PRO-EM-7647, *Emergency Preparedness Program Requirements* (CR-2010-1078).
- Deficiencies were identified in the implementation of the Project Execution Plan (PEP) process as required by PRC-PRO-PM-24889, *Project Initiation and Execution* (CR-2010-1080).
- A written, well defined and effectively implemented Hazardous Communications (HAZCOM) Program did not exist at the EPC Project as required by PRC-RD-SH-13299, *Hazard Communication*. (CR-2010-1081).
- Data from periodic safety inspections was not reviewed, tracked, and trended as required by PRC-RD-SH-7652 (CR-2010-1083).
- EPC Occupational, Safety, and Health (OS&H) personnel were reluctant to utilize the Issues Management process to document and track to closure identified problems (CR-2010-1089).

1.0 PURPOSE AND SCOPE

The purpose of this independent performance-based assessment was to evaluate EPC's implementation of programs, procedures, and policies as they related to conduct of work. This performance-based assessment focused on the adequacy, compliance, and in-field execution of work activities and processes that supported the project's mission.

The scope of the assessment included organizations, facilities, and activities within the Sludge Treatment, Construction, and all active projects. Some EPC interface activities with other CHPRC projects were included in the scope of the assessment. The assessment was a cross-cutting evaluation of project work activities. CHPRC programs, procedures, and policies provided the framework for assessment activities.

This assessment was conducted in accordance with PRC-PRO-QA-9662, *Independent Assessment Process*, Revision 1, and the associated assessment plan that described the overall assessment process, objectives, and criteria. The assessment methodology consisted of reviews of programs and procedures specific to: review of applicable project/facility procedures, program documents, and work planning documents; observation of meetings, work planning activities, and operations/construction evolutions; walk-downs/inspections of facility work areas; and interviews.

Performance objectives for this assessment consisted of verifying conformance to established and applicable requirements such as those associated with: Worker Safety and Health Plan, Environmental Management System, Quality Assurance, Training, and Emergency Management. In addition, the implementation of work control and conduct of operations to verify the effectiveness of the project's execution of work activities and feedback mechanisms were included as performance objectives for this assessment.

2.0 ASSESSMENT AREA EVALUATIONS

2.1 Management Systems

The EPC project management systems were functional with some programs very effective and some still reflecting the maturing status of a recently restructured organization with new leadership. Examples of effective management systems included the Weekly Senior Staff and Weekly Production meeting. These meetings were very effective in providing management status, relative information, and feedback related to expectations, changes, goals, and general philosophy of operations.

The EPC management team was very experienced and exhibited a high level of leadership. This was demonstrated through their in-field presence observing and monitoring work activities and by actively participating in the Plan-of-the -Day, Construction Forces Weekly Safety/Planning Meeting, and the Monthly Subcontractor Safety Meeting. Interviews with project personnel indicated that information was communicated fairly well up and down the organizational ladder. Also, communication/interface with other CHPRC projects (i.e. customers) was effective and performed on a routine basis. Field observation indicated that work teams were generally well informed about matters potentially impacting their activities. EPC personnel had an understanding of management's expectations and their performance objectives.

The EPC project had programs/processes in place that supported its current mission. Many of these programs were well-documented and maintained, with some being very effective. However, some of the programs reflected the status of a project recently restructured and in the process of going through a transition. As an example, the Emergency Preparedness and Chemical Management programs were not well implemented. Senior management at the project, and the assessment team endorse, the need to develop and/or improve on the implementation and administrative maintenance for many of its existing programs. While EPC routinely demonstrated the ability to perform work activities in a safe manner, failure to address this issue could limit its performance.

The management team at EPC had developed an internal (self) assessment process consistent with requirements contained in CHPRC procedures. Personnel were assigned to coordinate the development of assessment activities and schedules, assist in the performance of assessments, and evaluate and track assessment results. A selection of completed assessments performed over the last year was reviewed. Issues identified during assessments were included in the Condition Reporting and Resolution System (CRRS) for tracking and resolution. The STP had done a thoughtful job of identifying their annual assessment topics with a defined reason/basis for each of the scheduled activities.

2.2 Conduct of Operations

The MASF ConOps Applicability Matrix was sent to RL for approval on February 16, 2010. Based on the anticipated approval of the Matrix, MASF was moving ahead and was in the early stages of implementing the Matrix requirements during this assessment. Therefore, a determination of the effectiveness of implementation of Conduct of Operations was not made.

The MASF operations staff (MASF-Facilities Manager [FM] and STP-Operations Manager (OM) had taken over the MASF building in early fiscal year (FY) 2010. The organization structure identified three operations personnel, who operated day shift only. Additionally there were 15 personnel matrixed to the facility including two qualified Stationary Operating Engineers (SOE), an Industrial Safety/Industrial Hygiene professional, and 12 STP Testing organization personnel. The MASF-FM was responsible for the safe operation of the facility. The FM was also designated as the MASF Design Authority (DA); the facility work release authority (for the facility and STP Testing organization); the Controlling Organization Lockout/Tagout (LO/TO) Administrator and approval authority; and Field Work Supervisor (FWS). The FM was also responsible for occurrence/event notification and for maintaining the facility narrative logbook. As noted above, the MASF-FM responsibilities were broad and encompassed most major aspects of MASF "operations." The MASF operations had an additional FWS in training for the Shift Operations Manager (SOM) position. The STP Testing organization had two FWSs, with one being qualified as a SOM to backup the MASF-FM.

Based upon the submitted ConOps Applicability Matrix, all, except chapter 13, "Operations Aspects of Facility Chemistry and Unique Processes," were applicable. MASF operational status was maintained by the MASF-FM; shift turnovers were not typically required. Though Control Areas did not exist within MASF, the FM was readily accessible. Daily work, MASF maintenance and STP Testing activities, were addressed at the STP Testing Plan of the Day and resources were requested as needed. The SOE reported to the MASF-FM when starting rounds and, if needed, was available via cell phone. Configuration of operational systems was maintained by the MASF-FM through the use of procedures or technical work documents. The MASF-FM and SOE understood the LO/TO system. During field observation of the application of two Authorized Worker Locks, there were no noted issues. There were three active long-term Timely Orders; proof of required reading was maintained via email. There were no operator aids in use. Based upon an interview with the MASF-FM, the labeling of systems in use would be maintained, and those systems not in use would not be maintained.

The SOE Rounds tour was observed. The Rounds included touring the MASF structure, looking for water leaks and general cleanliness, inspecting fire extinguishers, and recording readings. The SOE was knowledgeable of the MASF facility and activities in progress. Discussion with and observation of the SOE indicated the individual was knowledgeable of Conduct of Operations principles and practices. Specifically, logkeeping was accurate and correct; the SOE knew the correct actions required in the event of Out-of-Specification readings; appropriate PPE (safety glasses with side shields, hard hat, and hearing protection) was worn as required by the Automated Job Hazard Analysis (AJHA) and site postings; reports by the SOE were proper for the operations taking place; the various procedure "use" types and when they were required was understood.

The facilities' response to an actual MASF Area High Static Pressure Alarm was observed. The FM acknowledged the alarm in the MASF Control Room and went to the Mechanical Equipment Room, room 203, acknowledged the alarm and verified the Supply and Return fans were running with proper indications. Following completion of the required immediate actions, the FM concluded the alarm was due to high winds and confirmed the alarm response procedure MA-32-1, *Response to MASF Area High/Low Static Pressure*, was followed by verifying completion of the immediate actions and reviewing the follow-up actions of the procedure. The static pressure

alarms were reset in accordance with the procedure and alarm response action was secured. The FM actions met procedure requirements.

Previously, the MASF organization had program assessments performed of the Logkeeping (EPC-STP-WSA-10038) and Required Reading (EPC-STP-WSA-0902). Both assessments identified issues within their respective program and Condition Reports (CRs) were generated. The MASF Narrative logbook and the SOE logs were reviewed. The following deficiency was identified that related to logkeeping practices, as required by PRC-PRO-OP-24382 (CR-2010-1077): Initial Conditions for the MASF were not documented. Based upon A21C-STP-ADM-0001, *STP Test Facility Administration*, Revision 2, Section 7.2, for MASF to be occupied, the ventilation system needs to be operating. The verification of facility occupancy requirements (i.e. ventilation system operation) should have been included in the morning narrative.

The Timely Orders Logbook and a LO/TO Logbook that included the log of Miscellaneous Tags were reviewed. The active Timely Orders were applicable to the STP Testing organization. Reading of Timely Orders was tracked on the STP Testing Manager's computer. All STP TC and STP Engineering Technicians (ET) were up to date with the Timely Orders. The LO/TO contained one active LO/TO (with two tags). The Timely Orders Logbook and Miscellaneous Tags Log were not well maintained. The Miscellaneous Tags Log contained one active tag with no documentation of the tag location. There was no evidence that periodic management review of these logbooks was performed (CR-2010-1073).

Throughout the facility information tags, system deactivation, and temporary labels were identified without appropriate documentation. The use of these tags and the conversion to the CHPRC Miscellaneous Tags was a known issue by the MASF-FM, but the action was not entered into CRRS.

Existing MASF procedures had not been updated to reflect the CHPRC contract transition. The MASF-FM recognized the need to revise existing procedures, but had not made an entry into CRRS to document the discrepancy. The MASF-FM, noted that when a procedure was required, e.g., during a maintenance activity, he would "red line" the old Fast Flux Test Facility (FFTF) procedure and incorporate it into a work package. Alarm response procedures, used to address a high static pressure alarm (MA-32-1, *Response to MASF Area High/Low Static Pressure*), remained in the FFTF format. Response to the upset condition was satisfactory, due in part to the responder being a very experienced FFTF individual, with a high level of understanding of the FFTF procedures and facility. Response by a less experienced individual may not have the same results.

2.3 Emergency Preparedness

EPC areas reviewed during this assessment consisted of 200W Construction Complex, various constructions sites, and the STP Test Facility Project contained in MASF. For those activities associated with providing construction services to other CHPRC Projects, personnel were indoctrinated into the project's facility-specific emergency preparedness programs for those specific activities. This was administered through various methods which included Health and Safety Plans, Facility Emergency and Hazard Information Checklist (FEHIC), Pre-jobs, and Facility Emergency Response Information Boards (FERIB).

EPC had not fully integrated EP throughout the Project, and a process was not in place to ensure requirements were effectively implemented to support its activities. Responsibilities to ensure that the CHPRC EP program was implemented within the EPC were not clear. This was contrary to the requirements contained in PRC-PRO-EM-7647, *Emergency Preparedness Program Requirements*. As a result, deficiencies were indentified in the area of maintenance of FERIBs, training of individual's responsibilities for execution of EP duties, and response to upset conditions. Specifically (CR-2010-1078):

- Subproject PEPs identified that PRC-PRO-EM-7647, *Emergency Preparedness Program Requirements*, would be implemented, but did not specify how the specific projects would implement EP. In addition, some subprojects did not have approved PEPs in place to specify EP implementation.

- A facility Response Plan (FRP) for MASF did not exist. The STP Test Facility Administration document required employees assigned to MASF (437) and 4713C to review the FRP and document the review on a FEHIC form. In May of 2009, MASF and 4713C were removed from the FFTF Complex Building Emergency Plan when MASF received a new mission as the STP Test Facility. Based on interviews with MASF Operations and the EP Coordinator, an FRP was not issued because the facility had received an interpretation from MSA Emergency Management that the facility type would be administrative, thus negating the need for an FRP. The interpretation was communicated through a series of emails documenting a phone communication that CHPRC Emergency Preparedness Manager had with MSA Emergency Management. PRC-PRO-EM-7647, *Emergency Preparedness Program Requirements*, required a Hazards Screening Checklist be completed for proposed work activities to record review of activities/chemicals that screen out and do not require further hazard survey. This checklist requires a documented summary of the screening results including brief statements regarding interpretation or assumptions used during the screening process. Documentation did not exist for screened out radiological/chemical hazards or for the interpretation that supported classifying MASF as an Administrative facility since being removed from FFTF Building Emergency Plan.

- The Environmental Restoration Disposal Facility (ERDF) Maintenance Facility Construction Project was conducted (approximately 67 days) without project personnel knowing the proper response to events or understanding the hazards imposed by nearby facilities/activities.

- Trailers used for administrative purposes, located at Unsecured Core and ERDF Maintenance Facility construction sites, did not contain FERIBs. These trailers were the only locations available for individuals to obtain information for EP actions.

- Information on some FERIBs did not contain up to date information related to Building Wardens (BW), EP Coordinators, or Site Emergency Numbers (373-0911).

- Thirteen of 14 individuals (Staging Area Managers [SAM], Personnel Accountability Aides [PAA], BWs) identified on EPC FERIBs did not have the required EP training.

- The individual identified as the EP Coordinator on some FERIBs had not completed all required training.

2.4 Environmental Quality Assurance (EQA)/Environmental Management System (EMS)

Based on the review of completed Data Quality Objectives (DQO), Statements of Work (SOWs), Sampling Packages, training, and assessments, the EPC project was in full compliance with EQA Program Plan requirements. The EQA review focused on STP since the organization had the most activities within EPC Project for performing environmental work. STP work activities included developing DQOs, performing sampling activities, and developing plans for upcoming sampling. No sampling activities were in process during this assessment.

The STP Test Facility required active building ventilation for occupancy. MASF/STP was in compliance with all requirements of Permit AIR 08-1021, NOC_ID 646 for Emission Units ID 399 and ID 385.

EMS is the basis for continual improvement of the EPC's overall environmental performance. The reason is the EMS is an over-arching program that includes a high-level view of all activities included in the scope of the assessment. The EPC was following the basic format of plan-do-check-act in meeting the five core elements of EMS. Personnel interviewed expressed a positive general awareness of EMS. The Integrated Safety Management System (ISMS)/EMS Pocket Guide (the flippy book) was identified by the majority of EPC personnel as their primary reference for ISMS/EMS.

Environmental objectives and targets were well defined and continually reviewed to ensure that objectives and targets are completed by their designated completion date. While the EMS program within the EPC was found to be effective, it could be strengthened in the areas of HAZCOM and Emergency Management.

2.5 Training

Based on Observations of work activities, interviews, and review of training records, the training program at the EPC Project was established and implemented. The EPC Project had identified issues related to training and qualification records of personnel and had submitted CRs to address the issues. With the exceptions of personnel assigned to EPC Emergency Preparedness (EP) duties and STP Test Coordinators, training records of personnel observed performing work activities during the assessment indicated that training was being completed and tracked as required.

Qualifications for STP ETs and STP TC, Required Reading were reviewed. A21C-STP-ADM-0001, *STP Test Facility Administration*, Revision 2, identified a listing of Required Reading as part of the qualifications for STP ET and STP TC. Two STP TCs were missing documentation of one document, PRC-PRO-EN-286, *Testing of Equipment and Systems*. Further review identified the document was not included on the STP TC's Required Reading list. When brought to the attention of the STP Testing Manager, the error was corrected and Required Reading notifications were sent to all STP TCs. The STP Testing Manager notified the remaining STP engineering management team of the discrepancy, to catch the remaining STP TCs (CR-2010-1079).

During the review of training records for individuals performing EP duties, several deficiencies in training were identified. Thirteen of 14 individuals consisting of SAMs, PAAs, and BW, did not complete the required EP training. An individual identified as an EP Coordinator had not completed all the required training. (CR-2010-1079)

2.6 Issues Management/Occurrence Reporting

The Issues Management Program at the EPC Project was well implemented and project personnel were familiar with the CRRS process. Issues identified in CRRS related to EPC were primarily the result of the Project's self assessment of activities. There was a strong awareness by management of deficiencies currently in the system and issues in the field. Information was routinely entered into the system when potential issues were identified. Senior management was involved in the process for reviewing the information and following up on open/delinquent actions on a weekly basis.

It was identified during the assessment that the Project was not making the best available use of the CRRS process (CR-2010-1086). The Project had identified other weaknesses but had not included these problems in the CRRS to ensure credit for self identification and tracking to closure. This was noted in the area of Construction Execution Safety and Health (S&H) which had generated a spread sheet of problems to be addressed including lack of a tracking and trending process for S&H inspections as required by PRC-RD-SH-7652, *Safety and Health Inspections* and subcontractor S&H performance review. During activity at DH/DX a Stop Work occurred related to activities involved in cementing PVC piping. This issue could have been included in CRRS to document actions to address and to track and trend. Additionally, the fact that MASF procedures had not been updated to reflect transition to CHPRC and existing facility system information tags were not updated in accordance with the CHPRC Miscellaneous Tags program were known issues but had not been entered in to the CRRS.

The Occurrence Reporting process implemented at the EPC project was adequate. Personnel responsible for notification and report development were trained and qualified. Reports recently generated were completed within the required time period. Management notifications to RL and closure of occurrence reporting documentation were routinely executed in accordance with procedure PRC-PRO-EM-060. Critiques and fact-finding activities when required were conducted in a timely manner. In addition, during the Stop Work actions which occurred during the assessment activity, EPC made notification of the events to their customers and clients although not required by procedure. Teams that were affected by the Stop Work were actively involved in the development of corrective action to address the issue.

2.7 Maintenance/Work Planning and Control

The CHPRC Maintenance Implementation Plan (MIP) was recently submitted to RL for approval (March 4, 2010) incorporating the EPC project. CHPRC has determined that projects, nuclear or non-nuclear, will be included in the MIP. The Maintenance Management Program within EPC was being implemented using a graded approach. Discussions with the STPOM indicated the proposed MIP was in the early stages of implementation during this assessment.

Maintenance of MASF was scheduled by the MASF-FM and performed by the Deactivation and Decommissioning (D&D) craft. The three person staff were able to operate and maintain the

MASF systems necessary to support the STP Testing organization. The following positive attributes were identified: the periodic verification, by the MASF-FM, of training and qualifications of matrixed craft, performed as an over-check of the D&D FWS supporting work activities; and the Maintenance and Test Equipment (M&TE) contained within the MASF/STP organization was appropriately/properly segregated and no noted out of calibration equipment was identified.

Maintenance work packages at MASF were developed by the MASF-FM and performed by D&D craft. The work packages which incorporated existing FFTF maintenance procedures were being submitted to the D&D Maintenance organization for review and scheduling. Once scheduled, the MASF-FM, also the FWS, released the work and, if required, supported the SOE in hanging any the Controlling Organization LO/TO. During the assessment, the only active maintenance performed was 4A-09-05231/P, *MASF Vert. Lift Doors Insp.* A LO/TO was not required and work was performed without incident.

Based upon observations, interviews, and document reviews, the MASF staff was familiar with the maintenance program. They were actively involved in implementing the submitted MIP, monitoring, scheduling and getting maintenance completed on their equipment. Maintenance was performed by trained and qualified D&D project-craft and was overseen by qualified FWS. Periodically, the MASF-FM verified the training currency of the craft performing work, especially when special qualifications, e.g., fall protection, were required. The MASF-FM developed work packages in accordance with the Job Control System (JCS). The packages were provided to the D&D Maintenance for review, planning, and scheduling by both the D&D maintenance staff and the applicable craft. Work packages included post-maintenance testing.

Facility tours were routinely performed and periodically documented (using Management Observation Plan Checklists or Work Site Assessments) by the MASF-FM and STP-OM that addressed cleanliness and facility condition. Additionally, assessment activities were performed by the EPC Vice President and other EPC management.

Through interviews, it was determined that the MASF staff, MASF-FM, and STP-OM, had taken over the MASF building in early July 2009. The MASF maintenance history was lacking due in part to FFTF's decision to eliminate or reduce maintenance activities in MASF because the facility was no longer needed. The MASF staff was in the process of updating drawings to essential status and implementing the maintenance program. Outside of utilities (water, sewer, electric), the HVAC system was the only essential system required for occupancy (per A21C-STP-ADM-0001).

At the time of the assessment, the MASF-FM provided the input to the JCS to track material history. Based upon the presently defined uses of the facility, there was a proper balance between Preventive, Corrective and Seasonal Facility Preservation maintenance activities. The MASF-FM analyzed completed preventive maintenance packages to determine if there were additional problems. If a facility modification was required to support the STP Testing organization, the Facility Modification Process would be used. The MASF-FM had a checklist for "Cold Weather Checks," which identified the actions to take in preparation for cold weather, and these were consistent with PRC-PRO-MN-472, *Cold Weather Protection*, Revision 0/Change 2. Additionally, the MASF-DA procured material necessary for maintenance activities. Procurements were usually general service. If a quality level component was required,

the receiving department (Acquisition Verification Service) would perform the receipt inspection. The MASF-DA would generate the inspection criteria document for the receiving organization.

M&TE retained at the MASF was used by the STP Testing organization only. Calibration and receipt was managed by the procurement specialist. A cabinet was provided for calibrated equipment, and another cabinet was available for out of calibration or due for calibration equipment. The calibrated equipment cabinet was inspected and all equipment was in calibration. The D&D craft performing maintenance provide their own tools, equipment, and M&TE.

During tours of the facility with the SOE, it was determined that the facility and active equipment were maintained in a satisfactory condition. Based upon an interview with the MASF-FM, systems that were deactivated were not maintained. Most of these deactivated systems were tagged with "System Deactivated" tags, though the "System Deactivated" tags were not documented in a log (CR-2010-1073).

The EPC Construction Execution project had developed and was implementing a more rigorous approach to the planning, authorization, and execution of construction work activities. The project was using the JCS and was developing work packages for the performance of both green field construction activities and facility modification construction work. The use of the JCS process allowed EPC to communicate and interface more effectively with the customer for Make/Self-Perform work activities. Additionally, using the JCS style work instruction to outline/sequence major subcontractor work activities allowed the Construction Manager to more definitively define the scopes of work to be released by the daily work release form. Discussions with EPC construction force supervisors and subcontractor in-field supervisors indicated a good understanding of the work release process. Reviews of activities in the field at DH/DX, the Unsecured Core, and MASF noted that the work release documentation and activities being performed were consistent.

The EPC/Soil and Groundwater Remediation Project interface meeting to discuss GW-10-00372/K ZP-1 Chiller/Heater Upgrade work package was observed. There was good dialogue between participants at the meeting. Concerns related to reducing down time during equipment tie in, as well as working under power lines and the height of various trucks and equipment accessing the area, were addressed for inclusion in the work instructions and Job Hazard Analysis. Lessons learned from previous work activities related to electrically powered equipment final hook up were also reviewed for incorporation into the work sequence.

Pre-job briefings were observed in all the work areas and were generally good. They covered the necessary information related to the released work activities, hazards, and controls. Pre-Jobs performed by Constructions Services communicated detailed EP information specific to the work at outdoor locations. This included a transportation contingency for those individuals who were performing work at those locations. The FWS had ensured teamsters with adequate transportation were present on the sites to relocate individuals to the designated take cover location which had the necessary habitability attributes.

Personnel involved in the development of work documentation and in execution of the activities appeared to have good understanding of the defined process, spoke from and utilized the

CHPRC/EPC Work Flow Chart to help describe the present process and planned modifications/enhancements towards which the project was working.

Two STP Testing work documents were reviewed (4A-09-04717, *Fabrication of Test Equipment in MASF*, and 4A-10-00822, *K Basin Operator Training/Demonstration*). Both documents included reference to Worksite Hazard Analysis and Craft Specific Hazard Analysis and Position Specific Hazard Analysis. No issues were identified within the packages, and the work was within the scope of the work packages.

2.8 Quality Assurance

The EPC Quality Assurance (QA) Organization was in the process of forming a QA Department management structure which would meet stand alone criteria internal to the project. A review of the EPC Project Quality Program confirmed that QA responsibilities overall, had been performed in a compliant manner. The compliant quality performance, in light of a fragmented QA management structure, was accomplished mainly due to the experience, knowledge, and professional manner of the managers and workers performing the planning and day to day activities. A review of Nonconformance Reports, Condition Reports, Assessment Reports, and personnel training and qualification were found acceptable. The EPC material/equipment lay down areas were found to be organized and clean with the material being protected in accordance with PRC-PRAC-CN-430370, Shipping, Handling, Storage and Installation Cleanliness of Materials, Equipment, and Assemblies. The STP QA Management structure was in place and functional, insuring Quality Assurance Program (QAP) compliance. As an indication of performance due to that structure, the STP assessment, design review, and quality oversight process were performing at a high level.

The EPC project overall, had a fragmented Quality Program structure in place to support the requirements of the CHPRC QAP. The management chain and reporting relationship for QA personnel was not complete or functional. With the exception of STP, EPC subprojects had difficulty filling this void and acquiring the necessary QA and Quality Control (QC) personnel to support the requirements of the projects as required by individual SOWs. As a result, the following conditions existed (CR-2010-1088).

- The roles and responsibilities contained within PRC-MP-SH-40185, *Safety, Health, Security & Quality Integrated Environment, Safety and Health Management Roles, Responsibilities and Functions*, for the Quality Systems Manager and the QA Engineer were not being fully met.

- Quality Control Inspectors were brought on board with direct responsibility to the Area Construction Manager and no EPC quality program personnel interface.

- CHPRC QA Programs were unable to provide matrixed staff to the EPC subprojects as required by PRC-PRO-PM-24889, *Project Initiation and Execution*. Therefore, the subprojects borrowed the use of Customer QA/QC personnel to perform activities required by the SOW while they were still responsible for performing customer oversight activities. With a QA Engineer holding QC Inspector certifications, this process potentially could lead to quality personnel approving their own work.

During the review of documents, subprojects PEP were reviewed to determine compliance to PRC-PRO-PM-24889. This review identified deficiencies in the implementation of the PEP process (CR-2010-1080):

- PEPs did not exist for the Modutank, WESF Roof Repair, T-Plant, and the 100K Pump & Treat Projects. PEPs were required for all projects as defined in PRC-PRO-PM-24889, Section 5.8.
- 100K Utilities Upgrade Project PEP was in continuous revision without issuance of a controlled document. This practice was out of compliance with PRC-PRO-PM-25000, *Project Execution Plans*, Rev 1, Chg 0.
- The 200 West Area Pump &Treat (P&T) System PEP, HNF-40104, Rev. 0, was out of date. The P&T document has been in this condition since February 2009. The PEP was to be updated as changes occurred and at a minimum prior to the start of each phase of project execution as required by PRO-PM-24889, Project, Section 5.8 and PRC-PRO-PM-25000, Section 3.2.

2.9 Chemical Management

A written, well defined and effectively implemented HAZCOM Program did not exist at the EPC project (CR-2010-1081). Roles and responsibilities for chemical management within the project were neither defined nor documented. This resulted in inconsistent implementation of the Chemical Management Process.

Chemical management was implemented at Construction Services. An individual performed chemical inventory, reviewed procurement documents, and maintained chemical storage locations. The individual was knowledgeable and communicated well with the personnel performing work with chemicals. This method for implementation was solely based on the individual's experience and level of knowledge. The process was 'expert based' and not defined/documented as part of a HAZCOM Program. Changes in personnel could negatively impact the implementation process.

Across the EPC project, subcontractor submittal packages were not consistently reviewed for completeness and the presence of Hanford Material Safety Data Sheet (MSDS) numbers for all chemical products brought onsite. At the Unsecured Core Area, the individual delegated to verify subcontractor chemical inventory did not demonstrate adequate knowledge of MSDS requirements. In addition, the individual did not require a subcontractor to update their chemical inventory submittal before bringing additional chemicals onsite. During the assessment, the team identified a trailer at the Unsecured Core Area containing chemicals not listed on the inventory submittal.

At MASF/STP, a project-specific HAZCOM Program was contained within administrative document A21C-STP-ADM-0001, *STP Test Facility Administration*, Rev 2. The document did not contain all program elements required by PRC-RD-SH-13299, *Hazard Communication*. This issue was identified by EPC in November 2009 and entered into the CRRS. In addition to the items identified in the CR, the project should consider including in the written program a

provision for an individual assigned to maintain the chemical inventory in CITS and perform routine HAZCOM Training. The Chemical Management process at MASF was implemented. Deficiencies were identified in field implementation of Chemical Management and HAZCOM requirements described in PRC-RD-SH-13299 and PRC-PRO-SH-10468, *Chemical Management Process* (CR-2010-1082):

- The MASF POC responsible for secondary labeling did not demonstrate adequate knowledge of the hazard analysis requirements when hazard rating information is not available.

- Chemical storage locations did not have a posted chemical inventory (i.e. 437 High Bay, 4732C).

- MASF FEHIC Training did not include specific information on retrieving MSDSs and did not include all areas where chemicals are stored and used.

2.10 Occupational Safety and Health

The EPC OS&H organization was undergoing significant changes. A full time safety professional was recently put in place to support MASF following facility transition in August 2009, and the Construction Safety & Health group increased staff with the addition of two full time Industrial Hygiene and two additional Industrial Safety professionals. Based on discussions with team members, the lack of adequate staffing had hampered their ability to effectively meet targets and objectives and address weaknesses in their OS&H process implementation.

EPC Construction Execution sub-project OS&H had identified issues, problems, and opportunities for improvement, but personnel indicated a reluctance to utilize the Issues Management process to document and track to closure identified problems. This hesitancy limits the EPC OS&H organization's opportunity to track and trend issues, take credit for self identification, and push the issue through to resolution. (CR-2010-1089)

Field walk-downs were conducted of on-going construction activities at the Unsecured Core Area, DH/DX P&T, Road Crossing pipe installations in 200W, and MASF.

The Un-Secured Core Area construction activities and adherence to OS&H practices were observed. In general the site has been well maintained with construction debris removed from the work zone and staged for disposal. Observations of activities requiring the use of fall protection indicated that personnel were adhering to the required practices defined in the project Job Safety Analysis (JSA) and fall protection plan. The performance of a scored health and safety inspection was observed, and it was appropriately critical of the site activities and issues. Problems/issues were discussed with the contractor site supervisor, the EPC Construction Manager (CM) representative, and the EPC OS&H representative to clearly define the problems identified and expectations for correction.

The work locations at the DH/DX P&T including the M-1 and M-2 transfer stations were walked down. The sites were well policed during activities keeping floor clutter and obstructions to a minimum. The areas were cleaned and picked up at the end of shift and well stowed. Personnel observed were wearing the personal protective equipment (PPE) required by the AJHA and were deliberate in the execution of their work activities. During work to cement PVC at the M2 transfer station, a Stop Work was initiated by the Pipefitter performing the work. The Stop Work concern related to potential exposure to chemical constituents of the plastic cement primer product being used. The Independent Assessment team accompanied the EPC Industrial Hygienist (IH), Industrial Safety Representative, and Construction Superintendent during observation and direct instrument sampling of PVC pipe cementing activities. The IH did an excellent job of explaining the purpose of the activities, how they would be conducted, the instrumentation and its limitations, and in obtaining information from the work team on how the work was done, configuration of the work areas, ventilation sources and environmental conditions. The Industrial Safety representative took photographs of all activities and locations documenting the sampling and work area aspects. The Construction Services work team members were cooperative, provided pertinent information and were receptive to suggestions regarding process improvements designed to limit any exposure. Following additional area and personnel sampling activities to evaluate implemented control measures, the Stop Work was lifted with the concurrence of the involved workers.

The Road Crossing activities in 200W were well controlled. Personnel were wearing the required PPE and access control was being maintained to prevent unauthorized access to the worksite. Discussions with work team members indicated a good understanding of the work, hazards, controls, and potential for previously unknown hazards to be uncovered during excavation and what actions would be taken.

The EPC Construction OS&H team has been conducting periodic safety inspections of their various projects. However, the data from the inspections has not been effectively reviewed and then tracked and trended to allow for the identification of over-arching problems or specific weakness requiring action as required by PRC-RD-SH-7652 (CR-2010-1083). Additionally, the team identified weaknesses in their implementation of their assessments of subcontractor safety performance prior to the commencement of on-site work activities. This process was being reworked and reinvigorated to help identify subcontractor with potential safety performance issues and allow for implementation of effective mitigative actions to help assure satisfactory and safe on-site work execution. EPC construction safety and management met regularly with the various construction contractor representatives to discuss safety related issues, policy and process changes and received input from the contractors on issues of interest. The forum provided a good opportunity to dialogue and efficiently communicate/share information and concerns.

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ATTACHMENT 1 - LIST OF RECORDS REVIEWED

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- 100-DX Engineering Design Support SOW, Rev 2, December 2009
- 100-DX Ion Exchange Skids and Tote Sump SOW, Rev 0, September 8, 2009
- 2009-437, Fire Permit
- 2009-460, Fire Permit
- 2010 MASF Assessment Topic and Performer list
- 4A-09-04717, *Fabrication of Test Equipment in MASF*
- 4A-09-05231/P, *MASF Vert. Lift Doors Insp.*
- 4A-10-00822, *K Basin Operator Training/Demonstration*
- A21C-STP-ADM-0001 Rev. 2, *STP Test Facility Administration*
- A21C-STP-ADM-0001, Rev 2, Section 5.5, *MASF HAZARD COMMUNTICATION PROGRAM*
- ABCASH Total Alpha and Beta Sample Data Log
- Active Inspection Personnel Record for March 2010
- AJHA ID: EPC -144, *DX Construction*
- AJHA ID: EPC-101 R. 1, *200W P&T Road Crossings*
- AJHA ID: EPC-103, *DX Expansion Road Crossings*
- AJHA ID: EPC-108 R.0, *200W Area Construction Facility*
- AJHA ID: EPC-135 R.0, *Well 299-W15-225 Tie-in to 200ZP-1/Disconnect Extraction Well 299-W15-44 from the 200-ZP-1*
- AJHA ID: EPC-596 R.0, *100KX Pump & Treat Expansion ATP*
- Characterization Data Package for Containerized Sludge Samples Collected from Engineered Containers SCS-CON-220, -240, -250, and -260(December 2009)
- CHPRC - Construction/Daily Pre-Job Briefing & Sign-In Sheet (Draft)
- CHPRC – Construction/Pre-Job Preparation Form & Instruction Sheet (Draft)
- CHPRC General Industrial Safety Hazards Analysis, Revision 0
- CHPRC letter to DOE-RL, CHPRC-1000053, *Submittal of the Maintenance and Storage Facility Conduct of Operations Applicability Matrix*, February 16, 2010
- CHPRC letter to DOE-RL, CHPRC-1000158, *CHPRC Maintenance Implementation Plan Update*, March 04, 2010
- CHPRC Work Release for Construction/Service Organizations (A-6004-967)
- CHPRC-00189, *CH2M HILL Plateau Remediation Company Quality Assurance Program Plan*, Appendix E, *"Sludge Treatment Project Specific Quality Assurance Requirements"*
- CHPRC-00189, *CH2M HILL Plateau Remediation Company Quality Assurance Program Plan*, Appendix I, *"National Emission Standard for Hazardous Air Pollutants Quality Assurance Project Plan"*
- CHPRC-00232, *DX/HR3 Pump-and-Treat Expansion Project Execution Plan*, Revision 0
- Contract 36578, Task Release 16
- EAN-3960, Excavation Permit
- EAN-3960, Excavation Permit for Road Crossing #21
- ELAB Project CITS Report Dated 3/4/10
- EM-RL—CPRC-GENLAREAS-2009-0001, *Discovery of Suspect Counterfeit bolts on "Genie Lift"*

- EM-RL—CPRC-GENLAREAS-2009-0002, *Identification of suspect/counterfeit items at MASF Facility*
- EM-RL—CPRC-GENLAREAS-2009-0004, *Identification of suspect/counterfeit items during annual hoisting and rigging surveillance*
- EM-RL—CPRC-GENLAREAS-2009-0005, *Suspect/counterfeit shackles discovered (ARRA)*
- EM-RL—CPRC-GENLAREAS-2009-0007, *Recurring event criteria met regarding vehicle/contact incidents*
- EM-RL—CPRC-GENLAREAS-2009-003, *Fire at 200W Construction Shop Mobile Office (MO) 956*
- EM-RL—CPRC-GENLAREAS-2010-0002, *Ecology block inadvertently pushed off trailer bed while loading (ARRA)*
- EM-RL—CPRC-GENLAREAS-2010-0004, *Discovery of equipment left in an unsafe configuration (ARRA)*
- Engineering Technician Specific Job Hazard Analysis, Revision 1B
- EPC Condition Report from 9/1/2009-3/1/2010
- EPC Plan of the Week for 3/11/2010
- EPC Work Site Assessments
- EPC-PM-WSA-10074, *Review of ITEM Training Reports for EPC Personnel* (9/28/2009-10/28/2009)
- EPC-PM-WSA-10076, *Implementation of ISMS in MASF Testing and Maintenance Work Activities*
- EPC-STP-WSA-09028, Emergency Management Program Implementation
- Facility Manager's Logbook; HNF-N-649-1; Dated 10/07/2009 to present
- FGG/FFS 200 West 2010 Safety Improvement Plan dated 2/24/2010
- Form S-NW-103, Construction Supervisor Safety Inspection Checklist
- Form S-NW-338 (Draft), Employee Safety and Health Orientation
- Fowler Construction Chemical Management Statement of Work Submittal for Unsecured Core Area
- HNF-36985, *Data Quality Objectives for Sampling and Analysis of K Basin Sludge*
- JSA, *KW Basin Mock up at MASF, Task Order/Contract 36537 Release 02*
- KBC-40467, Quality *Assurance Project Plan/Sampling and Analysis Plan for Containerized KW Settler Sludge*
- MA-32-1, Response to MASF Area High/Low Static Pressure
- Management Observation Program Assessments
- MASF FEHIC
- Monthly Inspection of Sealed Fire Protection Valve
- NCR-09-EPC-001, Rev 0-1
- NCR-09-STP-033 (5/28/2009)
- NCR-09-STP-034(2/12/2010)
- NCR-09-STP-035 (3/2/2010)
- NCR-10-EPC-002, Rev 0-1
- NCR-10-STP-001 (1/26/2010)

- Objectives and Targets 10-EMS-EPC0B1-T1, *Perform Operational Assessments on New Construction Support Facilities*
- Objectives and Targets 10-EMS-EPC0B1-T2, *Assess the Design and Construction of 200 West Pump & Treat Facility*
- Objectives and Targets 10-EMS-EPC0B1-T3, *Standardize Design of Pump and Treat Facilities with Goal of Reducing Construction Costs*
- OSHA Form 300A, YR 2009 Injury Summary
- Permit AIR 08-1021, NOC_ID 646: Emission Units ID 399 and ID 385
- PRC-MP-CN-28049, *Construction Procedure Manual*
- PRC-PRAC-CN-30370, *Shipping, Handling, Storage and Installation Cleanliness of Materials, Equipment, and Assemblies*, Rev 0, Chg 1
- PRC-PRO-AC-123, *Requesting Materials and Services*, Attachment 5
- PRC-PRO-AC-192, *Buyer's Technical Representative Assignment and Duties*
- PRC-PRO-CN-14990, *Construction Management*
- PRC-PRO-PM-24889, *Project Initiation and Execution*
- PRC-PRO-SH-40078, *Contractor Safety Processes*
- Pre-Job Briefing Checklist – *200W P&T Road Crossing & HDPE*
- Pre-Job Briefing Checklist - *ZP1 Well Replacement*
- Preselected Subcontractors List
- Process Sewer Data Sheet; 02/01/2010 through 02/28/2010
- QAE Document Submittal Status March 2010
- QAM/QAE Qualification Card & QAE Core Training List 12/01/2009
- QA-STP-SURV-10-002, *Certifications; ITEM; Qualifications; Equivalencies and Waivers*
- Required Reading Records for STP Engineering Technicians (2)
- Required Reading Records for STP Test Coordinators (2)
- SGW-40243, *Functional Design Criteria for the 100-DX Pump*, Rev. 3
- Sludge Treatment Project – December Assessment Summary (2009)
- Sludge Treatment Project - January Assessment Summary (2010)
- SOW for Modutank Project
- SOW, *Construction of STP Testing Mockup of KW-Basins at MASF*
- Stationary Operating Engineer Logs: 01/18/2010, 02/01/2010, 02/08/2010, 02/22/2010, 03/01/2010
- STP Assessment Summary 12/09-02/2010
- STP FY10 Assessment Plan (Sept. 1, 2009)
- STP Project Document PRC-STP-00176
- STP Testing Calibration logbook
- STP Work Package 4A-10-00836/S
- Task Charge Authorization (TCA) Process Updates
- Technical Work Document - CHPRC -30950, *200W P&T Road Crossing/Excavation #21*
- Technical Work Document – CHPRC-00291 R1, *200W P&T Road Crossings & HDPE*
- Technical Work Document - GW -09-07676, *ZP1 Well Replacement*
- Technical Work Document – GW-09-05919/M, *100KX Pump & Treat Expansion ATP*

- Technical Work Document - GW-09-06351, *DX Pump and Treat Construction*
- Technical Work Document – SC-100105-001, *Unsecured Core Area Construction*
- Technical Work Document - GW-09-04559, *ATP on Phase 2 Well Additions*
- Test Coordinator Specific Job Hazard Analysis, Revision 1
- Test Instruction, *K West Basin Sample Receipt and Preparation of Consolidated Core Composites for SCS-CON-220-A1 and SCS-CON-220-B3*
- Training Activity Sheets
- Training Records (ITEM)
- Weekly Inspection of Sealed Fire Protection Valve; 03/01/2010
- Work Instruction – *Cask Decontamination and Maintenance Facility (CDMF) Operation to Inventory* (DRAFT)
- Work Package CHPRC-00291-R1, Road Trench
- Work Package, SC-100105-001, Unsecured Core
- Y-104 Rev. 18, Radiological Work Permit for CDMF Operations

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ATTACHMENT 2 – PERSONNEL INTERVIEWED

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- Buyer's Technical Representative (3)
- CHPRC Emergency Management Manager
- CHPRC Emergency Preparedness Coordinator (3)
- CHPRC Performance Assurance Director
- CHPRC QA Program Manager
- Construction Manager (3)
- Construction Superintendent
- Deputy Project Manager - 200 West Pump & Treat
- Director - EPC Construction Management
- ECO
- EPC Area Construction Manager
- EPC Construction Execution Director
- EPC Construction Services Facility Chemical Custodian
- EPC Construction Services Industrial Hygiene Lead
- EPC Construction Services Industrial Hygienists (2)
- EPC EMS POC
- EPC ESHQ Director
- EPC QA Manager
- EPC Radiological Engineer
- EPC Regulatory Services & Reporting POC
- EPC Safety Manager
- EPC Work Planner
- Field Work Supervisor (10)
- Laborer Construction Forces (Road Cut)
- MASF Chemical Management POC
- MASF Facility Manager
- MASF Material Coordinator
- MSA Emergency Preparedness Coordinator
- Oversight Support Staff
- PC/CM Program Support
- Procurement Support Staff
- Project Manager - 200 West Pump & Treat
- Project Manager – DX/HX
- Project Manager – ERDF Maintenance Facility
- Project Manager – Fuels Management Project
- Project Manager - K Area
- Project Manager - Modutanks
- Project Manager - Sludge Treatment
- QC Inspector
- Quality Assurance Engineer (3)
- Quality Assurance Engineer (9)
- Safety Reps, IS and IH Professionals (7)

- STP Administrative Support
- STP Characterization POC (3)
- STP ESH&Q Manager
- STP Operations and KBC Interface Manager
- STP QA Manager
- STP Sampling & Characterization Manager
- STP Test Coordinator
- STP Testing Interface
- STP Testing Manager
- STP Testing Procurement and Planning Coordinator
- Vice-President EPC Project
- Work Team Members (BU) (10)

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ATTACHMENT 3 – EVOLUTIONS OBSERVED

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- 100 Area Monthly Safety Meeting
- 100-K Plan of the Day
- 100-KX Pump and Treat ATP Activities (include 3 AWLs)
- 200 West P&T Road Crossing/Excavation Activities
- Assembly of inflow/outflow piping for DH/DX P&T
- Daily STP Interface Meeting
- Daily STP Interface Meeting
- EPC Plan of the Week
- EPC Subcontractor Safety Meeting
- EPC Weekly Production Meeting
- EPC Weekly Staff Meeting
- FFS Plan of the Week/Safety Meeting
- Follow-up Actions for DH/DX P&T "STOP WORK"
- Lock-Out Tagout Execution (3)
- Maintenance Pre-job and walk-down
- MASF Area High Static Pressure Alarm
- MASF Maintenance Pre-job Briefing and Job-Site Walk-Down
- MASF SOE Rounds
- MASF/STP Daily POD
- Monthly Learning Opportunity Session
- Monthly Subcontractor Safety Meeting
- Pre-Job for 200 West P&T Road Crossing/Excavation Activities
- Pre-Job for ZP-1 Well Replacement Construction Activities
- Scored Health and Safety Inspection
- STP Equipment Setup
- STP Test Setup
- Un-Secured Core Area Construction Activities
- Unsecured Core Area Foundation Build and Roof Install
- Various Construction Activities at DH/DX P&T
- Weekly EPC Safety Meeting with Construction Forces
- Work Activities Requiring the Use of Fall Protection
- ZP-1 Bonding Pre-job Briefing

EXHIBIT 52

CHPRC CONDITION REPORT FORM

Status: Closed CR NUMBER:CR-2010-1080

Issue Identification and Processing

Initiator:	Initiating Document:	Date Identified:
Harder, Bonnie S	CHPRC-PO-IA-10-02	4/13/2010

Title of Issue:
Deficiencies were identified in the implementation of the Project Execution Plan (PEP) process as required by PRC-PRO-PM-24889, Project Initiation and Execution.

Description of Issue:
During the review of documents, subprojects PEP were reviewed to determine compliance to PRC-PRO-PM-24889. This review identified deficiencies in the implementation of the PEP process:

âCcPEPs did not exist for the Modutank, WESF Roof Repair, T-Plant, and the 100K Pump & Treat Projects. PEPs were required for all projects as defined in PRC-PRO-PM-24889, Section 5.8.

âCc100K Utilities Upgrade Project PEP was in continuous revision without issuance of a controlled document. This practice was out of compliance with PRC-PRO-PM-25000, Project Execution Plans, Rev 1, Chg 0.

âCcThe 200 West Area Pump &Treat (P&T) System PEP, HNF-40104, Rev. 0, was out of date. The P&T document has been in this condition since February 2009. The PEP was to be updated as changes occurred and at a minimum prior to the start of each phase of project execution as required by PRO-PM-24889, Project, Section 5.8 and PRC-PRO-PM-25000, Section 3.2.

Requirements Not Met: (Orders, Requirements, Procedures)	Responsible Project/Program:
PRC-PRO-PM-24889	ENGRG PROJECTS & CONSTRUCTION
Date Submitted: 4/14/2010	**Other Related Documents:**

Immediate Action(s) Taken:
N/A

Recommended Corrective Actions:

Initiator Comments:
POC Dan Kimball

Associated Files
100K-Infrastructure_PEP_Approvals.pdf
32400-QPA-2010-013CHPRC-PO-IA-10-02AssessmentReportSigned2.pdf
ClosureCR-2010-1080.pdf
CR-2010-1080-CA3-EXTENSION.htm
EPC-40524_rev001_100K-Infrastructure-Project_PEP_complete.docx

Issue Significance, Analysis, Extent of Condition, Action Assignment, and Closure

Significance Level:	Date Submitted to Responsible Manager:	Date CAP was approved by Responsible Manager/Delegate:
Track Until Fixed	4/15/2010 - Kimball, Dan	

☐ ORPS ☐ Compliance Determination ☐ NTS

Significant Level Justification:
This condition is screened as a Track Until Fixed (TUF).

The stated condition documents a non compliance with the requirements of PRC-PRO-PM-24889. The CR does not document where the subject condition has resulted in an adverse effect upon the project. However, actions will need to be taken to correct the documented deficiencies. The screening level as a TUF is assigned to this CR which will require that a cause be identified and documented. This CR will also document the actions taken to address the subject condition.

PLH

Assigned To:	Date Assigned:
Kristofzski, John G	4/29/2010

Extent of Conditions:	
Causal Analysis Method Used: Apparent Cause Analysis	**Analysis Completion Date:** 5/10/2010
Analysis Results:	
Trend Codes: MS03 - Project Management	
Cause Codes: A4B1C01 - Management policy guidance/expectations not well-defined, understood or enforced	
PAAA/S51 Citations:	
ISMS: CF-A - Define the Scope of Work	

Corrective Action Items

Action #: 1	**Actionee:** Ostrom, Mike
Action Statement: Update 200 W P&T System PEP, HNF-40104 as required by PRO-PM-24889 (Project Initiation Procedure); The 200 West Area Pump &Treat (P&T) System PEP, HNF-40104, Rev. 0, was out of date. The P&T document has been in this condition since February 2009. The PEP was to be updated as changes occurred and at a minimum prior to the start of each phase of project execution as required by PRO-PM-24889, Project, Section 5.8 and PRC-PRO-PM-25000, Section 3.2.	**Due Date:** 6/30/2010
Closure Requirements: Updated and released PEP	
Action Taken: PEP update (rev 1) was issued to the project team on 6/22 and pending subsequent assessment team review comments another update is anticipated no later than August 1.	**Completed Date:** 6/23/2010
Action Approved By: Kimball, Dan	**Action Approval Date:** 6/23/2010

Action #: 2	**Actionee:** Vasquez, David A
Action Statement: Evaluate if PEPs should be written for Modutank, WESF roof repair, T-Plant and the 100K Pump and Treat Projects and process a request to the EPC VP if the work is complete or if a PEP should be written write the PEP.	**Due Date:** 7/30/2010
Closure Requirements: Note that the VP for EPC agrees that for the projects that are complete no retroactive PEP is required. Note that for any of the subject projects that are ongoing the VP EPC concurs that a PEP is not required or write and issue a PEP.	
Action Taken: The Modutank, WESF Roof Repair and the 100K Pump and Treat Phase II projects are in-progress and near completion. The estimated completion date to issue a PEP is post project closeout. It is recommended that a PEP not be written for these projects. The risks and complexity of the T Plant Infrastructure upgrades warrant the development and issuance of a PEP. PEP requirements for this project will be evaluated to the guidance of PRC-PRO-PM-25000; Project Execution Plans.	**Completed Date:** 7/30/2010
Action Approved By: Kimball, Dan	**Action Approval Date:** 7/30/2010

Action #:	Actionee:
3	Edington, Max L

Action Statement:	Due Date:
Update and issue 100K Utilities Upgrade Project PEP	7/22/2010

Closure Requirements:
Updated PEP for the 100K Utilities Upgrade Project or an exemption from the requirement by the VP of EPC

Action Taken:	Completed Date:
PEP update was completed 7/22/10 and is attached as the file below: EPC-40524_rev001_100K-Infrastructure-Project_PEP_complete.docx	7/22/2010
Action Approved By: Kimball, Dan	**Action Approval Date:** 7/29/2010

Record Authentication	
Authenticated By: Hemsworth, Paul L	**Date Authenticated:** 8/24/2010

EXHIBIT 53

From: Kimball, Daniel P
Sent: *Wednesday, June 30, 2010 9:42 AM*
To: ^CHPRC Corrective Action Management
Cc: Edington, Max L; Albin, Kenneth A; Todd, Michael
Subject: CR-2010-1080 Corrective action # 3

Please extend the above action due date to 7/22/2010 due to competing priorities and resource unavailability. The proper resources have now been applied and the action will be complete by the new due date.

Dan Kimball
CHPRC
EPC ESHQ Director
office 509-376-3788
mobile (b)(6)

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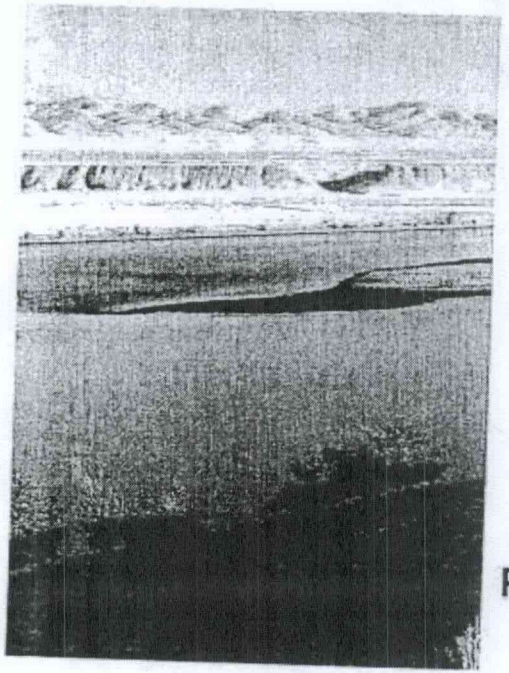

Project Review Board

Presented to:
100-K Utility Upgrades Project PRB for:
Inside the Fence Water Lines task 1
105 KW Fire Water Supply Line
A9 Switch Yard Preparation

Presented: April 7, 2010

Presented by: Dave Fink

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EXHIBIT 55

Project Review Board Purpose

- PRB established as key element of CHPRC's subproject delivery system.
- Conduct critical review(s) of project readiness to proceed to next phase.
- Recommend to CHPRC authorizing authority if project should:
  - proceed to next phase,
  - proceed with actions,
  - not proceed pending resolution of issues.

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Project Review Board Scope and Membership

- The need for PRB review shall be documented in Project Execution Plan (PEP).
- May be established by VP Engineering, Projects and Construction.
- Membership established for each project by VP EPC and selected from:
  - CHPRC senior staff
  - Administrator
  - Subject Matter Experts
  - External resources (e.g. corporate reach back)
- Not required for projects subject to formal critical decision process.

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PRB rules of practice

- Meetings convened by chairperson.
- Chairperson establishes with project manager the method of review, e.g.
  - Document reviews
  - Interviews
  - Presentations
- Conduct review(s) and discuss at meeting(s).
- Chairperson facilitates discussion.
- Members ideally participate in project reviews over the lifecycle of project.
- PRB chairperson authorizes the project to proceed or makes recommendation to authorizing authority.

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100K Utility Upgrades PRB Membership

Designated CHPRC authorizing authority is

Kent Dorr (Vice President EPC)

- 100-K PRB Chairperson, Kent Dorr
  - Administrator, Member John Kristofzski
  - Kevin Elliot, EPC Project Controls
  - Dan Kimball, EPC Projects
  - Charlie Kronvall, EPC Chief Engineer

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Established method of review for 100K Utility Upgrades Task 1

- Project Manager presentation to PRB
  - Present project scope and current status
  - Present project baseline
  - Review drawings, road closure permit, excavation permit, GPR scans, submittal registry.
  - Review key risks and concerns
- Facilitate PRB member discussion on whether project should proceed with the tasks reviewed

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Project Scope

Inside the Fence Water Lines task 1

Non Potable Fire Water Supply Lines

- Excavation and laying of redundant Non Potable 12 inch Fire Water Supply piping North from new Water Treatment Plant Site to the planned leave off point for the 105 KW Fire Supply Loop, CVD and South to Willard St.
- A second Non Potable Fire Water Supply line will run north from the new Water Treatment Plant to Winchester St. The Line will then head East up Winchester St to the parking areas, then head North to CVD Parking lot for future to tie into CVD Fire Supply Line for the second/redundant Fire Water Supply (by others).
- From the new Water Treatment Plant a third leg of 12 inch Fire Water Supply line will head South to the south side of Willard St. Then the supply line will head East along Willard St.

Crider, Tara L

From: Jackson, Dale E
Sent: Wednesday, December 14, 2011 3:11 PM
To: Teynor, Thomas K
Subject: 100K Surveillance Report Final Version Enclosed - Part A
Attachments: Cover Letter pg 2.pdf; Cover Letter pg 1.pdf; S-11-EMD-PRC-001 11302011 PART 1.pdf; S-11-EMD-PRC-001 11302011 PART 2.pdf; S-11-EMD-PRC-001 11302011 PART 3.pdf; S-11-EMD-PRC-001 11302011 PART 4.pdf; S-11-EMD-PRC-001 11302011 PART 5.pdf; S-11-EMD-PRC-001 11302011 PART 6.pdf; S-11-EMD-PRC-001 11302011 PART 7.pdf; S-11-EMD-PRC-001 11302011 PART 8.pdf; S-11-EMD-PRC-001 11302011 PART 9.pdf; S-11-EMD-PRC-001 11302011 PART 10.pdf

Tom:

As promised yesterday, here's the cover letter and report as delivered to CHPRC late last week. I am transmitting the documents in two e-mails (Part A and Part B) because of file size limitations on our system. If you have any questions, just give me a phone call.

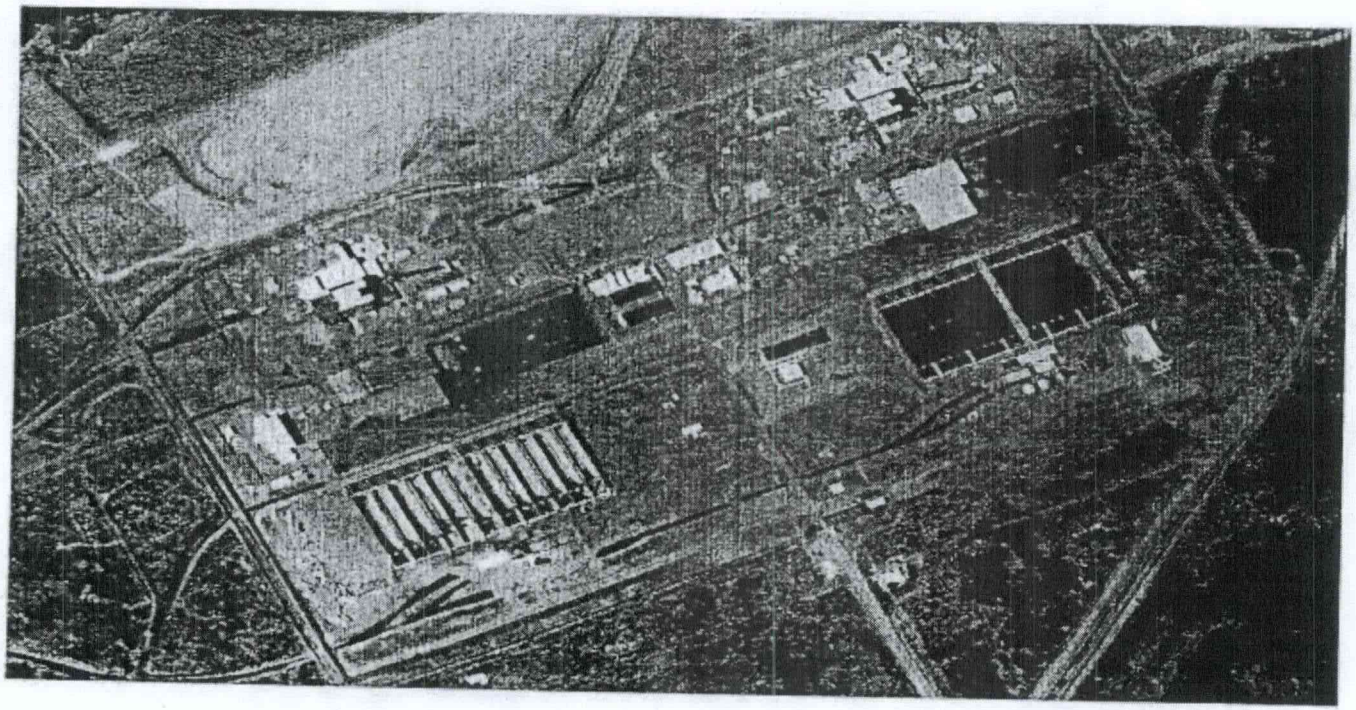
Regards,
Dale Jackson
376-8086

Project Scope cont.

Potable Water Line

- A 4 inch Potable Water line will run parallel to the Fire Water Supply line (with a separation of greater than 10 Ft or be encased in concrete north to Winchester St, then east on Winchester, and then North to the CVD parking lot for future tie into the existing Potable Water Line to 105KW by others.
- The 4 inch Potable line will also head south along from the new Water Treatment Plant along Waatch Ave to the south of Willard St. The Potable Water line will be located approximately 5ft off the south side of Willard St. This location is inside the Non Potable Fire Water Supply line. The Non Potable Fire Water Supply line will be located greater than 10ft south of the Potable Water Line. Both water lines will stop at a point equal to the East side of the 183.2 KW Sediment Basin

PRB Scope for Task 1



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Current Status

Inside the Fence Water Lines task 1

- Engineering for Inside the Fence Task 1 **Complete**
- GPR Scans and Excavation Permit **Complete and Approved**
- Road Closure Permit **Complete**
- CCR to Watts Contract **Awarded**
- Material **in place**
- Subcontractor Equipment **staged and ready**
- Construction Mgt Team Oversight **In place and Ready**
  - Klint Johnson Construction Coordinator
- Prestart Submittals completion pending successful hoisting and rigging class Wed/Thurs April 7&8

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Procurement Acquisition Strategy

- Fast track project – phased design and construct approach
- Contract for Subcontractor was made via Contract Change Request to the contract awarded to Watts Construction for construction of the Import Water Line Outside the Fence
- Quality Assurance will be in accordance with Watts QA Plan
- Quality Control Inspections will be performed by CH2M Hill Licensed Professional Engineer and Project Engineer

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Project Scope

Self Perform Construction of the 105 KW Non Potable Fire Water Supply Loop

- Excavate and lay approximately 4,400 linear ft of 8 inch PVC piping around 105 KW to form a Fire Water Supply loop, which includes 6 fire hydrants
- Excavate and lay 8 inch PVC piping from leave off point on the north end of Waatch Ave, then excavate and lay it east and tie into the 105 KW loop
- Excavate and lay 8 inch PVC piping from leave off point in CVD parking lot North to 105 KW loop. This will provide the second/redundant Fire Water Supply to the 105 KW loop

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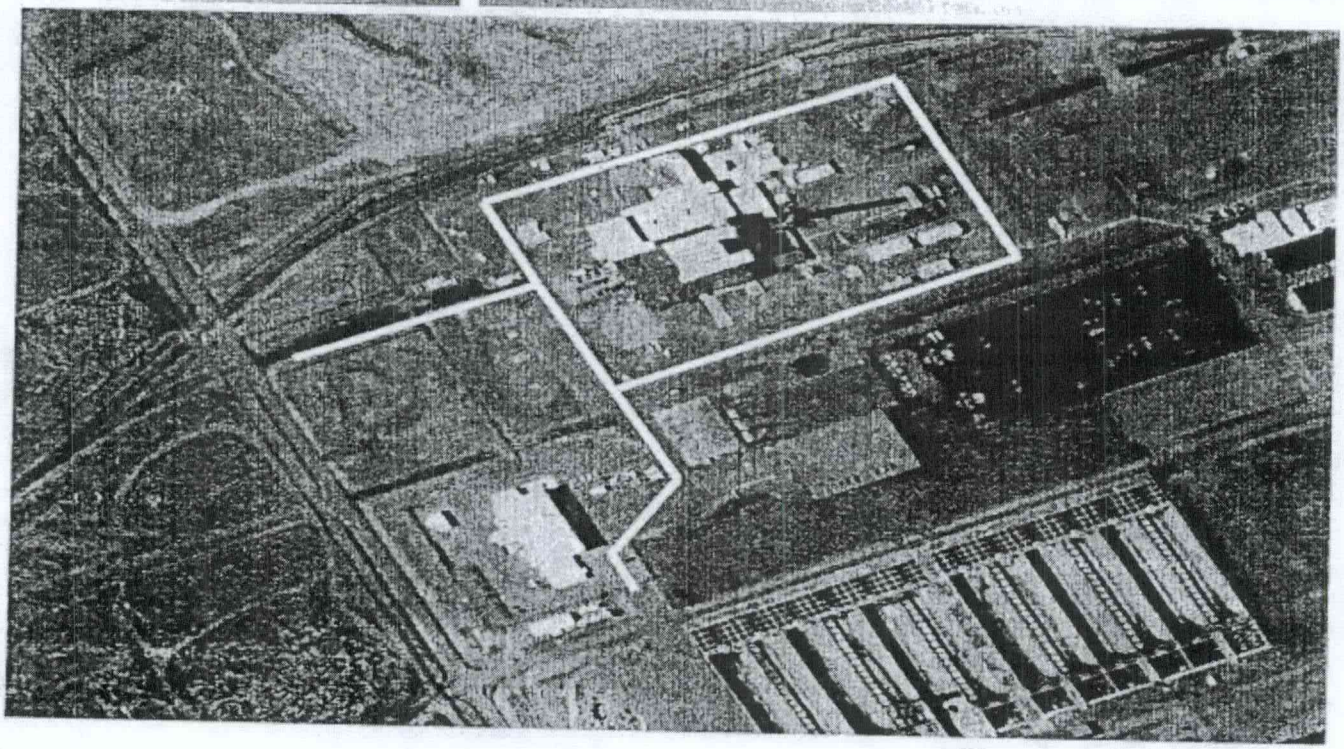
PRB Scope for 105 KW Fire Water Supply



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Current Status

Self Perform 105 KW Fire Water Supply Line

- Engineering for 105 KW Fire Water Supply Loop **Complete**
- GPR Scans and Excavation Permit **Complete and Approved**
- Road Closure Permit **Complete**
- Materials **in place**
- Rental Equipment **staged and ready**
- TCA **in place**
- Work force in place and training **Complete**
- Construction Mgt Team Oversight **In place and Ready**
  - Scott Story Construction Coordinator
- Waiting the final review and approval of the JCS Work Package due **Wednesday 14 April.**

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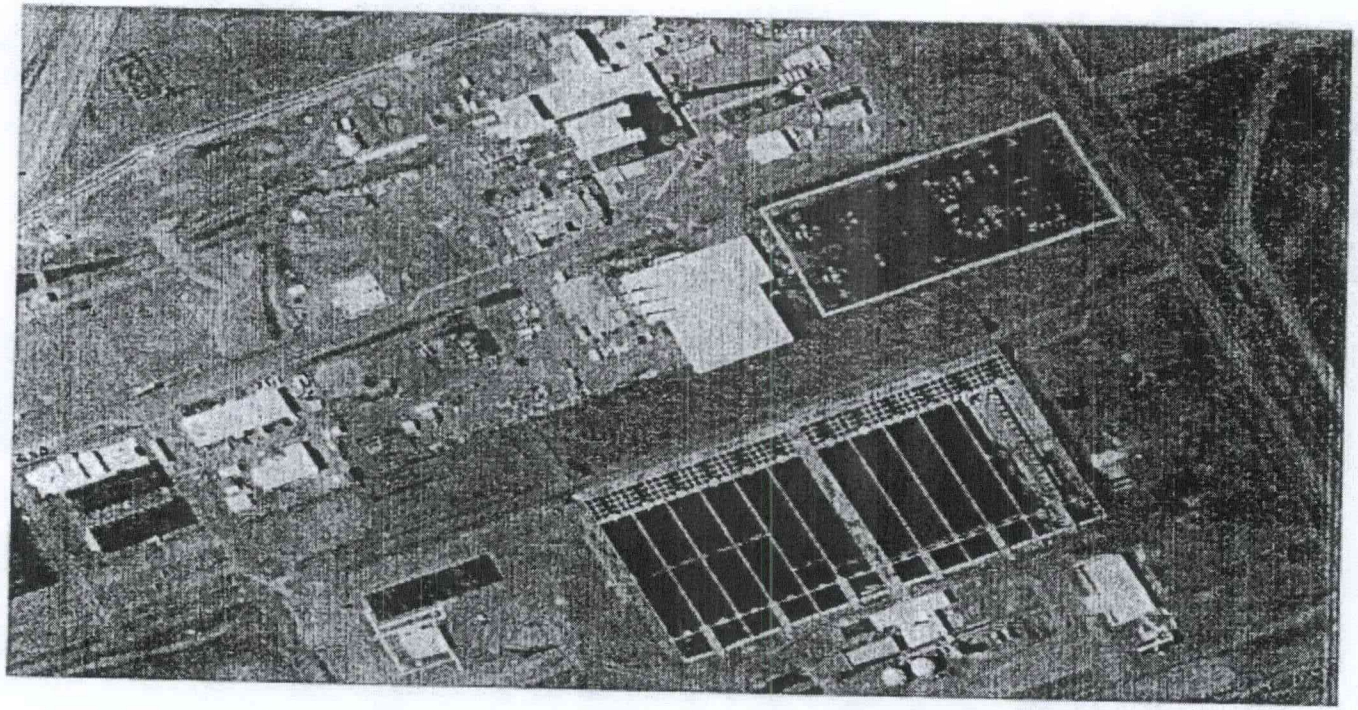
Project Scope

Self Perform A9 Switch Yard Preparation for new Sub Station

- Excavate 7 trenches for conduit
- Install approximately 10,000 ft of conduit in 9 areas within A9 yard, including sand bedding and backfill of conduit in the 9 areas
- Place Controlled Density Fill (CDF) for conduit bank
- Install 9 Hand Holds (smaller concrete utility vault)
- Install 8 Pull boxes (larger concrete utility vault)
- Inspect new electrical Hold Holes
- Cut and splice existing grounding conductors
- Place new fencing as specified and repair old fencing as necessary

PRB Scope A9 Switch Yard Preparation



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Current Status

Self Perform A9 Switch Yard Preparation for new Sub Station

- Engineering A9 Switch Yard Prep **Complete**
- GPR Scans and Excavation Permit **Complete and Approved**
- Road Closure Permit **Complete**
- Materials **on order**
- Rental Equipment **staged and ready**
- TCA **in place**
- Work force in place and training **Complete**
- Construction Mgt Team Oversight **In place and Ready**
  - Jack Hoobler Construction Coordinator
- Waiting the final review and approval of the JCS Work Package due **Monday 12 April.**

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Project Baseline

Inside the Fence Water Lines task 1

Task 1 is scheduled to complete 26 May 2010

Task 1 is a fixed price contract for approximately $660k.

Self Perform 105 KW Fire Water Supply Line

105 KW Fire Water Supply Loop is schedule to complete 6 August 2010

Cost is approximately $1.3M

Self Perform A9 Switch Yard Preparation for new Sub Station

A9 Yard Prep is scheduled to complete 6 May 2010

Cost is approximately $350k

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Key Risks and Concerns

Inside the Fence Water Lines task 1

Slow start with Subcontractor

- Mitigation steps
  - Design Change to reduce road repair
  - Design Change to allow two 12 inch Non Potable Water lines encased in CDF to reside in same trench
  - Set up Hoisting & Rigging Class

Contractor does not have any incentive/penalty to hold Subcontractor to end date

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Key Risks and Concerns

Self Perform 105 KW Fire Water Supply Line

Excavating through contaminated area

- Mitigation Steps
  - Upon initial issue of JCS work package, a contingency package for handling contaminated soils for disposal at ERDF will be initiated. The work package will allow for a brief pause to document change in condition and continuation with the new specified work plan/controls and PPE

Self Perform A9 Switch Yard Preparation for new Sub Station

Congestion of workers in limited work area (A9 Yard)

- Mitigation Steps
  - Involving MSA Electrical Utilities personnel in planning of the A9 Yard Prep
  - Close coordination with MSA Electric Utilities personnel at the 100k POD and Pre Job Briefings

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Summary Request for Approval

The 100k Utility upgrade project request approval from the PRB to move on to construction for the following projects

- **Inside the Fence Water Lines task 1**
- **Self Perform 105 KW Fire Water Supply Line**
- **Self Perform A9 Switch Yard Preparation for new Sub Station**

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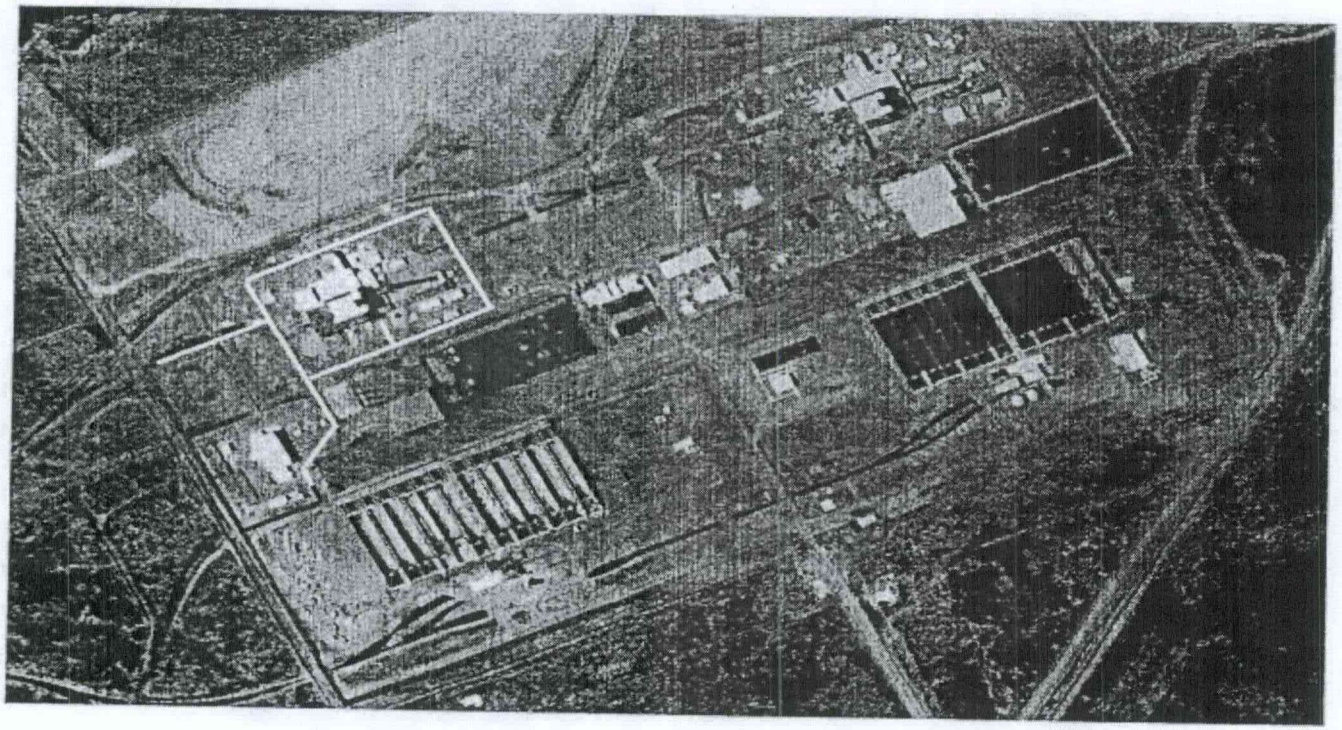
Sub Projects for PRB Approval



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Kennedy, Colburn E **EXHIBIT 56**

	Fink, David E
	Wednesday, April 07, 2010 3:20 PM
	Kenier, Kurtis L; Kennedy, Colburn E
Cc:	Dorr, Kent A; Douglass, Stephen R
Subject:	Good News the PRB Approved the following for Construction
Attachments:	image001.png

Kurt and Colburn,

The PRB approve the movement to construction for the following sub projects

- Inside the Fence Task 1
- Self Perform 105 KW Fire Water Loop
- AS Switch Yard Prep

I have two actions to clear by Friday COB with Kent. I think that overall it went well.

The PRB for the rest of the project will be in 2 weeks.

Thanks,

Dave

David Fink - CH2MHILL
Plateau Remediation Company
Engineering, Projects & Construction
Office 509.376.4366
Mobile (b)(6)

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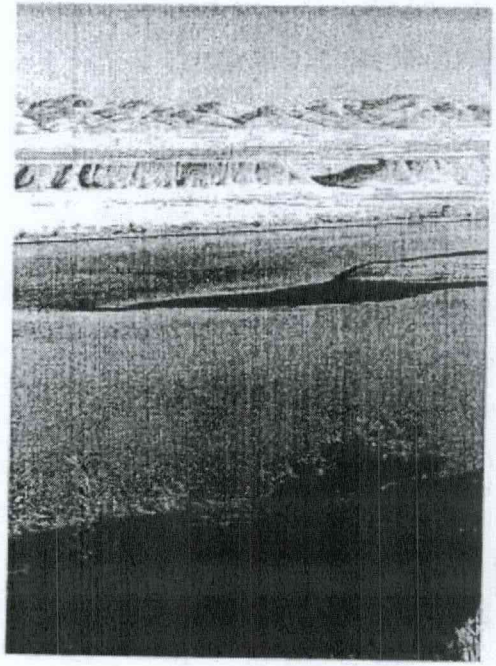

Project Review Board

Presented to:
100-K Utility Upgrades Project

Presented: April 21, 2010

Presented by: Dave Fink

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EXHIBIT 57

Project Review Board Purpose

- PRB established as key element of CHPRC's subproject delivery system.
- Conduct critical review(s) of project readiness to proceed to next phase.
- Recommend to CHPRC authorizing authority if project should:
  - proceed to next phase,
  - proceed with actions,
  - not proceed pending resolution of issues.

Project Review Board Scope and Membership

- The need for PRB review shall be documented in Project Execution Plan (PEP).
- May be established by VP Engineering, Projects and Construction.
- Membership established for each project by VP EPC and selected from:
  - CHPRC senior staff
  - Administrator
  - Subject Matter Experts
  - External resources (e.g. corporate reach back)
- Not required for projects subject to formal critical decision process.

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PRB rules of practice

- Meetings convened by chairperson.
- Chairperson establishes with project manager the method of review, e.g.
  - Document reviews
  - Interviews
  - Presentations
- Conduct review(s) and discuss at meeting(s).
- Chairperson facilitates discussion.
- Members ideally participate in project reviews over the lifecycle of project.
- PRB chairperson authorizes the project to proceed or makes recommendation to authorizing authority.

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100K Utility Upgrades PRB Membership

Designated CHPRC authorizing authority is

Kent Dorr (Vice President EPC)

- 100-K PRB Chairperson, Kent Dorr
  - Administrator, Member John Kristofzski
  - Kevin Elliot, EPC Project Controls
  - Dan Kimball, EPC Projects
  - Charlie Kronvall, EPC Chief Engineer

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Established method of review for 100K Utility Upgrades Project

- Project Manager presentation to PRB
  - Present project scope and current status
  - Present project baseline
  - Review drawings, road closure permit, excavation permit, GPR scans, submittal registry.
  - Review key risks and concerns
- Facilitate PRB member discussion on whether project should proceed with the tasks reviewed

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Results from 1st 100k Utilities Upgrade PRB

1st PRB for 100k Utilities Upgrade Project was 7 April 2010

Project presented for approval:

- Inside the Fence Water Lines task 1
- Self Perform 105 KW Fire Water Supply Line
- Self Perform A9 Switch Yard Preparation for new Sub Station

Approval granted upon closure of assigned actions

- Provide method/tool for managing short duration activities like A9 Yard Prep
- Communicate how the project intends to manage excavation subcontractor
- Communicate method for managing communication between the multiple sub projects in next PRB

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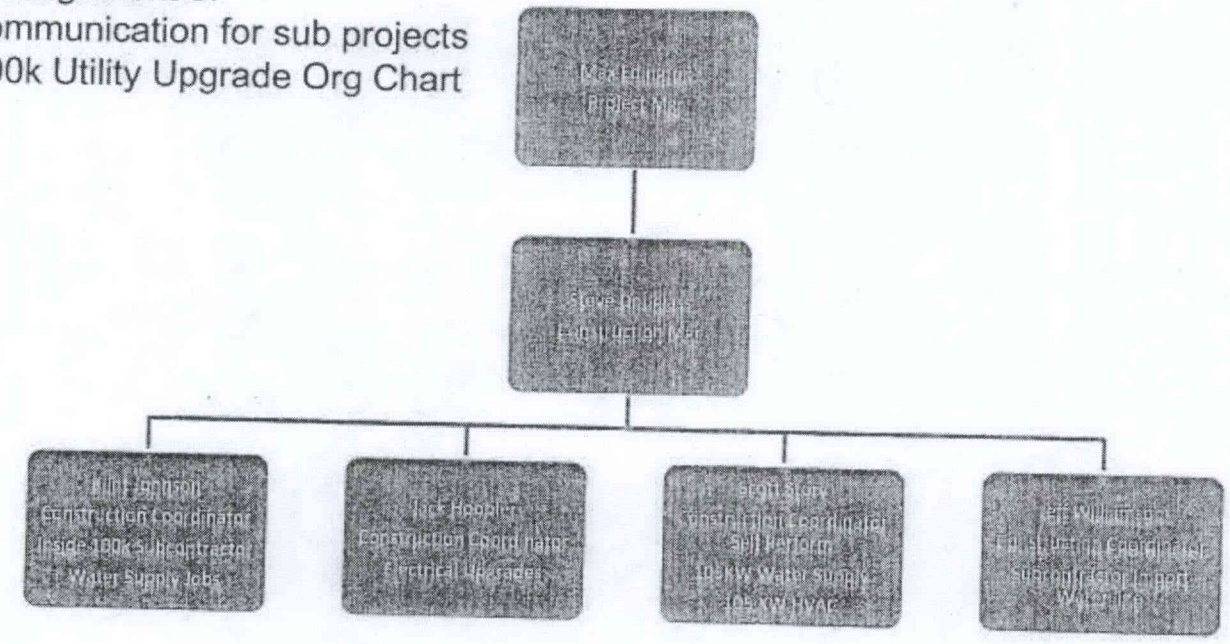
Results from 1st 100k Utilities Upgrade PRB

Method for internal management of communication for sub projects 100k Utility Upgrade Org Chart



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Results from 1st 100k Utilities Upgrade PRB cont.

Closure documentation submitted to PRB Chairman
Friday 9 April 2010

Closure accepted and approval granted by PRB
Chairman Monday 12 April 2010

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100k Utilities Upgrade balance of project PRB

Purpose of this PRB is present the balance of subprojects for approval to move into construction

Subprojects to be presented:

- 105 KW Basin HVAC Upgrade
- 13.8 Re-Route
- A9 Sub Station & Switches
- Import Water Line
- 100k Fire Water & Potable Water Supply
  - Supply lines
  - New Water Treatment Plant

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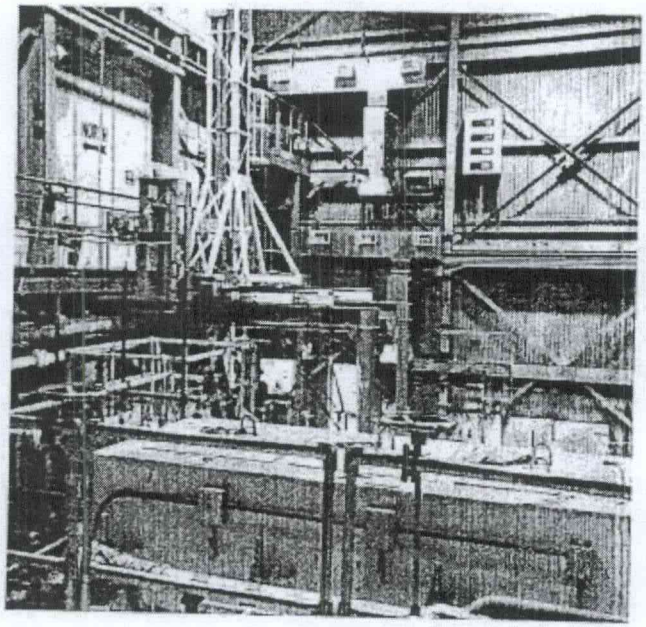
105 KW Basin HVAC Upgrade



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105 KW Basin HVAC Upgrade

The KW Basin Airborne Contamination Remediation Project involves installation of multiple HVAC units to better regulate temperature in the building and to improve air quality in the work area.

- New HVAC systems will pull air from the Basin envelop, condition the air, remove airborne contamination (particulate), and return air back into the Basin. This recirculation strategy means there is no impact on the building's airborne effluent permit.
- This new HVAC system is for operational convenience and will not perform as a safety significant, safety class or defense in depth function.
- The Project Team will coordinate activities with the Sludge Treatment Project to assure HVAC work does not cause interference with the Sludge Project.

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Current Status

105 KW Basin HVAC Upgrade

- Engineering HVAC Upgrade **Complete**
- JCS and Work Soft Releases **USQ Screened & Ready**
- Subcontract for Equipment and Service outside Basin **Awarded to GA Grant**
- Self Perform personnel training **Complete**
- Long Lead equipment **ordered,** Scheduled delivery 7 July 2010
- Materials **staged**
- Construction Mgt Team Oversight **In place and Ready**
  - Scott Story Construction Coordinator
- Prestart Submittals 30 %complete anticipated completion date 3 August 2010

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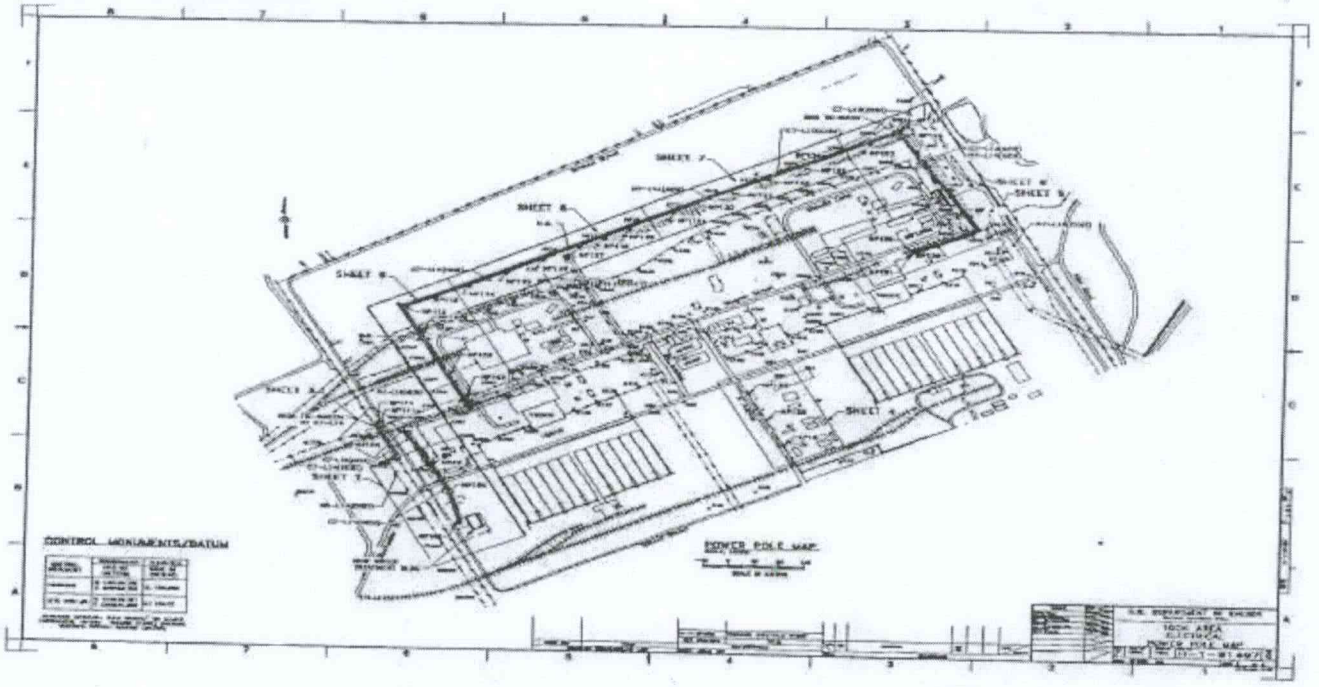
13.8 Re-Route

13.8 Re-Route



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13.8 Re-Route

The 13.8 Re-Route project shall provide power to the following:

- the 105KW reactor and the ventilation system for the 105-KW basin facility and the adjacent mobile offices.
- Power to the CVDF facility and adjacent mobile offices (present and anticipated).
- Power to the mobile offices in the south of 100K (including MO500, MO054 and MO293).
- The project shall provide approximately 5 power drops at locations within 100K to allow connection of temporary demolition power feeds and disconnects.

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Current Status

13.8 Re-Route

- Engineering **Complete**
- GPR Scans and Excavation Permit **Complete and Approved**
- Road Closure Permit **Complete**
- Contract Award **Pending**
- Construction Mgt Team Oversight **In place and Ready**
  - Jack Hoobler Construction Coordinator
- Prestart Submittals

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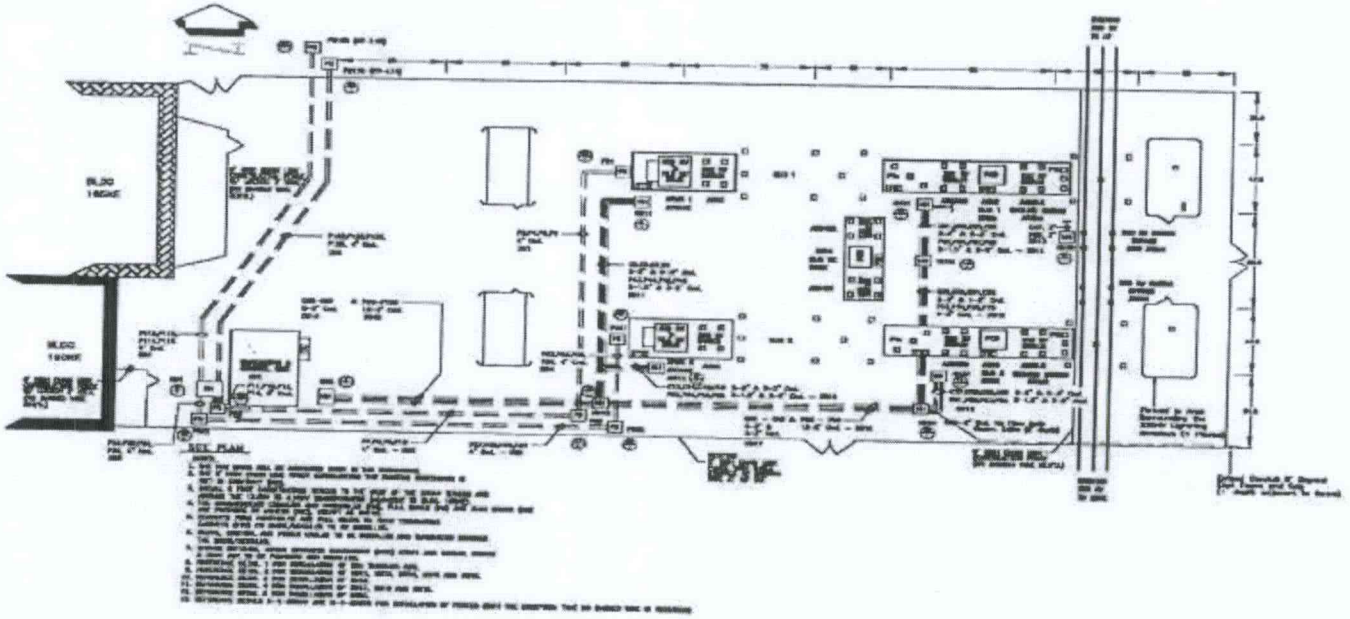
A9 Sub Station & Switches



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A9 Substation & Switches

The purpose of the project is to isolate / consolidate the 100K electrical supply and route it to avoid interference with demolition activities.

- Provide new substation in the A9 (151KE) Switchyard and 13.8 kV switching capability.
- The work scope for new facility and equipment in the A9 switchyard will be subcontracted which includes the design, installation and testing of new equipment e.g. (2) 230Kv Switches, 230kV breakers, 230-13.8kV transformers, 15kV switchgear and associated grounding, 13.8kV pole lines, fence, switches, and a control house with switchgear, relaying and controls).
- Electrical Utilities has participate as a full time team member.

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Current Status

This sub project is a Design Build contract for approximately $8.4 M

- Contract has been **awarded to EPCS/ABB**
- Design **is in process**
- Long lead items e.g. Oil Filled Circuit Breakers, Transformers, Switches **have been ordered**
- A contract modification to accelerate the project **pending award**

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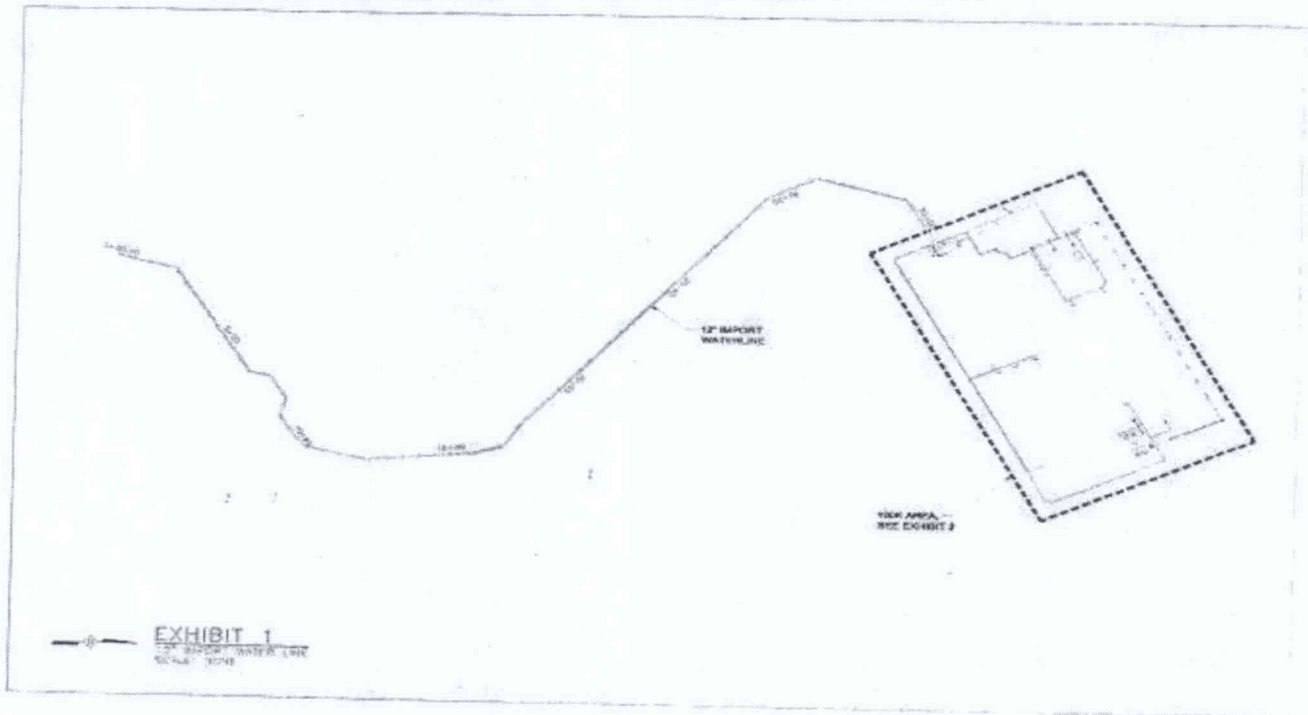
Import Water Line



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Import Water Line

The River Water Infrastructure Project involves installing 11,200 feet of 12" PVC piping for the raw water line from Helen's Junction, located in the 600 area, southeast of the 100B area, north to the southwest corner of the 100K project. The raw water line will enter the southwest corner of 100K, and will be routed to the raw water reservoir tank located at the new potable water treatment (approximately the corner of Waatch Avenue and Willard Street).

- The raw water line work of the project includes excavation, installation and backfill of the proposed 12" water supply and line. A connection to the water treatment plant will be provided off of the proposed 12" raw water line connection.

Current Status

PRB Scope Import Water Line

Engineering for Import Water Line **Complete**

- GPR Scans and Excavation Permit **in process** (final step in process 30 day Tribal Review)
- Contract **Awarded to Watts Construction**
- Materials **in place**
- TCA **in place**
- Construction Mgt Team Oversight **In place and Ready**
  - Jeff Williamson Construction Coordinator

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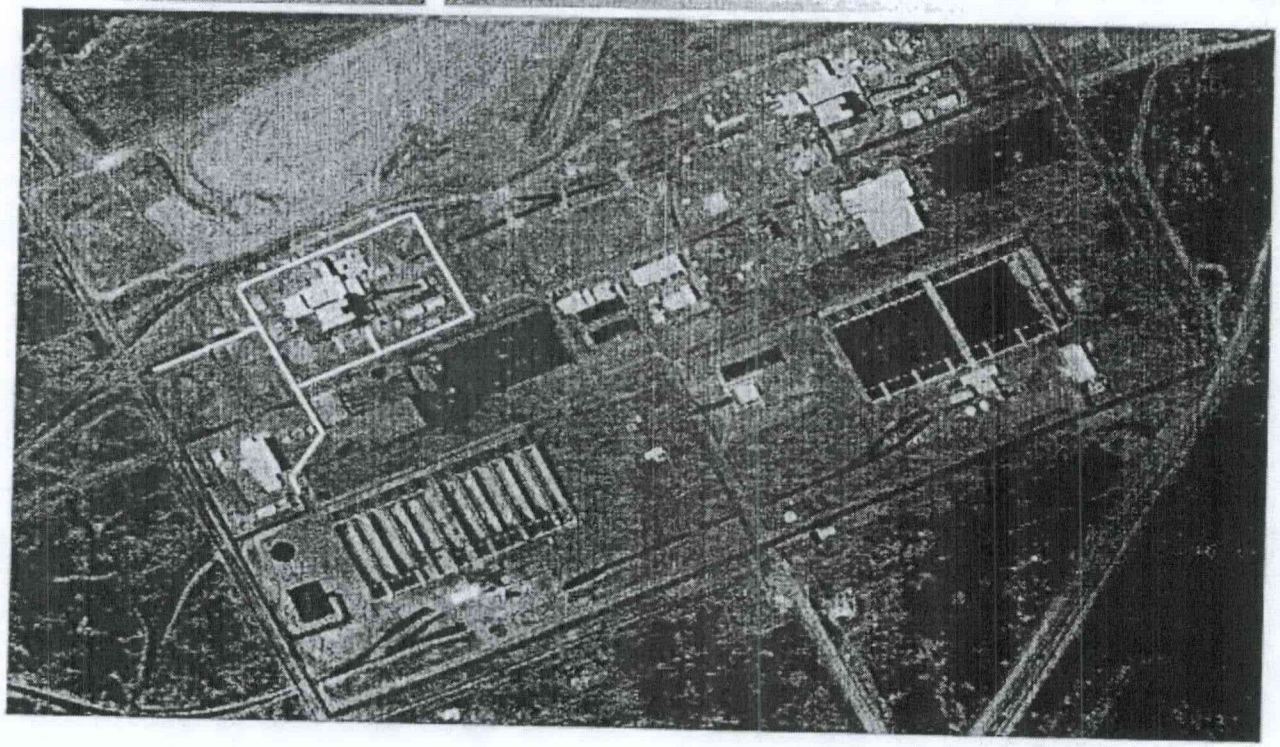
100k Fire Water & Potable Water Supply



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100k Fire Water & Potable Water Supply

This work scope includes the design and construction of a new potable water plant, potable water distribution system and fire water supply system.

- The fire water distribution system throughout the 100K site may consist of pipe as large as 12" with potable water distribution lines within the 100K site as small as 1".
- The 100K Fire Water System includes connection of the firewater system to:
  - 142KW (looped service), 105KW (a new fire suppression looped service),
  - 105KE (in support of the core removal activity),
  - MO500,
  - MO293 and the proposed trailers south of MO500.

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100k Fire Water & Potable Water Supply Cont.

The new potable water treatment plant will be capable of providing a production rate of 50 gallons per minute that will supply sanitary water for 142KW, 105KW, MO293, MO500, 15 trailers, portable restrooms, shower trailers and any other facilities currently connected to the distribution system.

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Current Status

100k Fire Water & Potable Water Supply

Engineering Fire Water Supply and Potable Water Supply **Complete**

- GPR Scans and Excavation Permit **Complete and Approved**
- Road Closure Permit **Complete and approved**
- Materials **in place**
- Task 1, and 105 KW Self Perform of project PRB **Approved and Working**
- Contract for Balance of excavation and piping **out for procurement**
- Construction Mgt Team Oversight **In place and Ready**
  - Klint Johnson Construction Coordinator
- Waiting the final review and approval of the JCS Work Package complete **Wednesday 14 April.**

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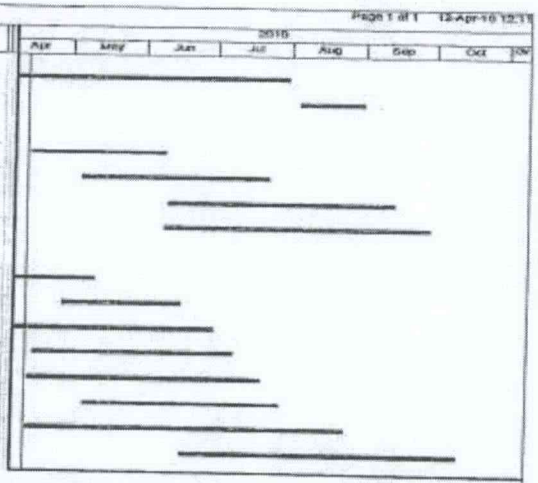
Project Baseline Schedule

Line No.	Activity Name	Start	Finish
	P.041.02.06.01.01 KW Basin Deactivation	29-Mar-10 A	30-Aug-10
1	100KW HVAC System Upgrade - Construction	29-Mar-10 A	30-Jul-10
2	100KW HVAC System Upgrade - Startup & Testing	04-Aug-10	30-Aug-10
	P.041.02.07.01.02 [S] 100K Reactor Power Isol...	13-Apr-10	29-Sep-10
3	A-9 Switchyard - Construction	13-Apr-10	09-Jun-10
4	13.8kV - Construction	05-May-10	22-Jul-10
5	Substation / Switches - Construction	10-Jun-10	13-Sep-10
6	Power Isolation Tie-Ins / Startup / Testing	09-Jun-10	29-Sep-10
	P.041.02.07.01.03 [S] 100K River Water Intake...	22-Feb-10 A	11-Oct-10
7	Microstrainer Unit - Fab / Receipt Delivery	22-Feb-10 A	16-May-10
8	Import Water Line (Outside Fence) - Construction	27-Apr-10	16-Jun-10
9	Import Water Line (Inside Fence) - Construction	05-Apr-10 A	30-Jun-10
10	Fire Loop System - Construction	19-Apr-10	09-Jul-10
11	Water Treatment Building - Construction	13-Apr-10	20-Jul-10
12	Import Water Line (Inside Fence) - Startup & Testing	07-May-10	29-Jul-10
13	Dual Use Water Tank - Construction	13-Apr-10	24-Aug-10
14	Water System OTPs / Startup & Testing	17-Jun-10	11-Oct-10



100 K Area Utilities - Summary

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Project Baseline

PMRS
CostPerf - 1
Database: Production>> BCWS/A
Source: HANDI

Cost Performance
By WP/PP
MP-PRC - MPB - Baseline Projects

Report Date: 04/12/2010 12:27:25
Fiscal Year/Month: 2010/06
($'s In 1000's)

	Current Period					Fiscal Year to Date					Fiscal Year BAC		
	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance				
	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Budgeted	FY SF	Variance
041.02.06.01.01.04 - [S] KW Basin Airborne Cont Remed F	112.1	109.9	269.3	(2.2)	(159.4)	112.1	629.1	864.1	516.0	(250.0)	562.6	3,129.6	(2,127.0)
041.02.07.01.01 - [S] 100K Closure Support Facilities Proje	0.0	0.0	0.7	0.0	(0.7)	0.0	30.4	103.5	30.4	(73.2)	0.0	103.5	(103.5)
041.02.07.01.02 - [S] 100K Reactor Power Isolation Project	1,457.0	494.3	451.4	(962.7)	43.0	2,229.2	1,260.1	732.7	(969.1)	527.4	5,679.6	10,342.6	(4,663.0)
041.02.07.01.03 - [S] 100K River Water Infrastructure Isola	3,417.3	1,058.7	629.5	(2,358.6)	429.2	4,732.2	2,755.0	1,221.8	(1,977.2)	1,533.1	13,572.2	8,999.4	4,572.8
Report Total:	4,986.4	1,662.9	1,350.9	(3,323.5)	312.0	7,067.5	4,673.5	2,922.2	(2,393.9)	1,751.3	20,234.3	22,655.3	(2,321.0)

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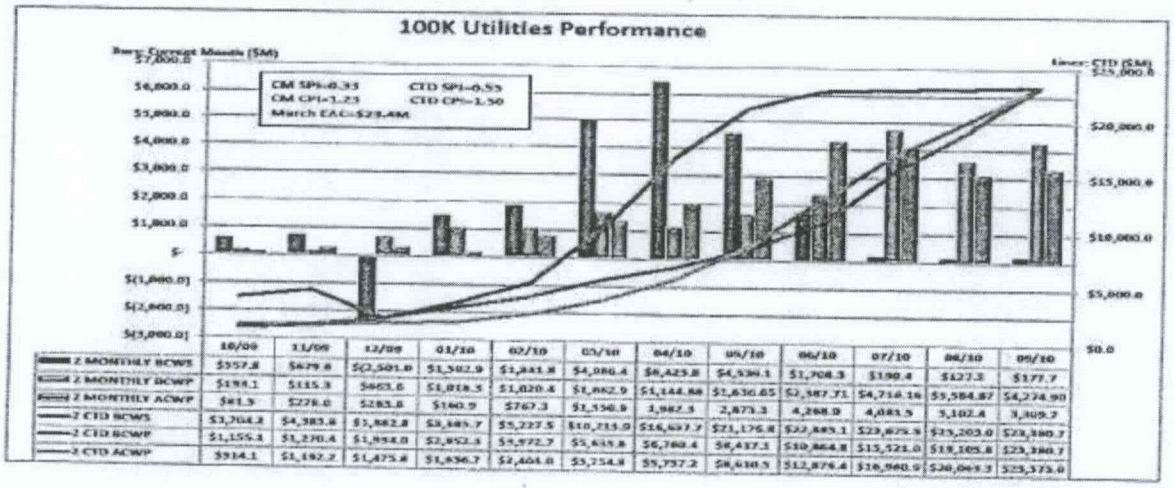
Project Baseline



	10/09	11/09	12/09	01/10	02/10	03/10	04/10	05/10	06/10	07/10	08/10	09/10
Z MONTHLY BCWS	$557.8	$679.8	$(2,501.0	$1,582.9	$1,841.8	$4,086.4	$6,425.8	$4,536.1	$1,708.3	$190.4	$127.3	$177.7
Z MONTHLY BCWP	$194.1	$115.3	$663.6	$1,018.5	$1,020.4	$1,862.9	$1,144.86	$1,636.65	$2,387.71	$4,716.16	$5,584.87	$4,274.90
Z MONTHLY ACWP	$81.5	$228.0	$283.6	$160.9	$767.3	$1,156.9	1,982.3	2,873.3	4,268.9	4,083.5	5,102.4	3,309.7
Z CTD BCWS	$3,704.2	$4,383.8	$1,882.8	$3,465.7	$5,227.5	$10,715.9	$16,697.7	$21,176.8	$22,885.1	$23,075.5	$23,203.0	$23,380.7
Z CTD BCWP	$1,155.1	$1,270.4	$1,934.0	$2,952.5	$3,972.7	$5,835.6	$6,780.4	$8,417.1	$10,864.8	$15,521.0	$19,105.8	$23,380.7
Z CTD ACWP	$914.1	$1,142.2	$1,425.8	$1,586.7	$2,404.0	$3,754.8	$5,737.2	$8,610.5	$12,879.4	$16,960.9	$20,063.3	$23,373.0

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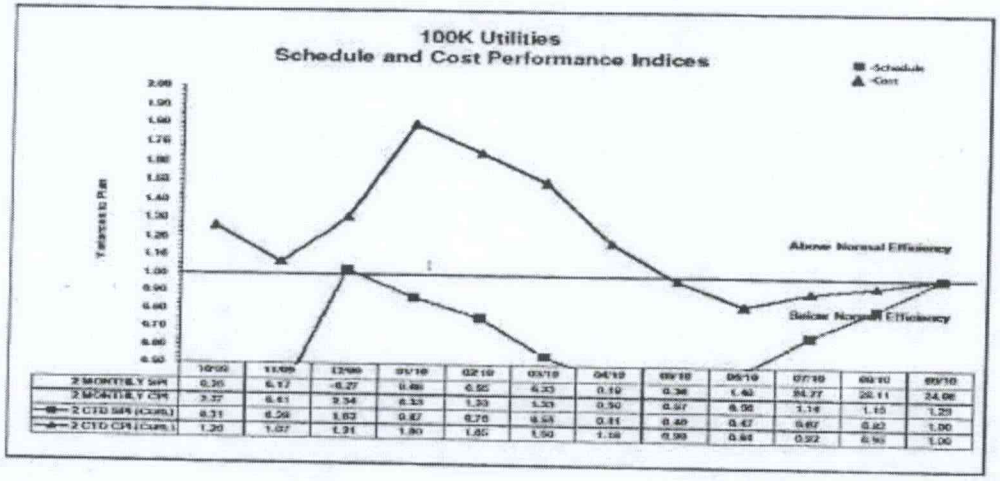
Project Baseline



	10/09	11/09	12/09	01/10	02/10	03/10	04/10	05/10	06/10	07/10	08/10	09/10
2 MONTHLY SPI	0.35	0.17	-0.27	0.89	0.55	0.33	0.19	0.36	1.40	24.77	25.11	24.06
2 MONTHLY CPI	2.37	0.41	2.34	0.33	1.33	1.33	0.50	0.57	0.56	1.14	1.15	1.29
2 CTD SPI (CUM.)	0.31	0.29	1.03	0.97	0.76	0.55	0.41	0.40	0.47	0.67	0.82	1.00
2 CTD CPI (CUM.)	1.20	1.07	1.31	1.30	1.35	1.50	1.18	0.98	0.94	0.92	0.93	1.00

SPI-CPI March09AAFY.xlsx

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Project Baseline Contracts

WBS	Contract / Release	Authorized Amount
041.02.06.01.01.04 - [S] KW Basin Airborne Cont Remed Proj		
	40058-36 TCA FFS Contamination Remediation (Craft Labor/Materials/Equipment)	1,080.7
	Req 203048 (GRANT) Install AHU/HEPA Units, HVAC,Ducting, Pad mounted Xfmer	459.8
	41542 - Design/Fab/Install AHU/HEPA Filtration Units (3)	723.9
041.02.07.01.02 - [S] 100K Reactor Power Isolation Project		
	40058-66 TCA -A9 Yard Prep (Craft Labor/Materials/Equipment)	750.0
	40058-50 - Perform Water tie-ins (FFS) (to be split between Sub-contractor & Self-Perform	200.0
	Req 200817 - Install 13.8KV Reroute & Xformers	1,200.0
	40929-0 EPC Mobile Substation - Des/Fab/Install	7,798.6
	36578-17 Parsons Fab Oil Circuit Breaker Lifting Devices	23.4
	36591-43 (EU) MSA Elect Utilities Support	90.4
041.02.07.01.03 - [S] 100K River Water Infrastructure Isolation		
	40058-39 TCA - 100K Potable Water & Fire Water Line Install (Inside Fence) - Estimate to be revised between East & West (4/8) (Craft Labor/Materials/Equipment)	1,850.0
	36538-22 WATTS Task 1 100K River Water Iso Proj Import Water Line	660.0
	New - Install Water Line Inside Fence **(Tasks 2-4)**	1,500.0
	36534-31 - Grant Design/Build Water Treatmnt Bldg & Storage Tank	3,087.0
	41594 (Req 201665) - Fire Diesel Pump	42.5
	40874-0 PALL Water Treatment System	466.9

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Total Project Key Risks and Concerns

105 KW Basin HVAC Upgrade

Elevated Overhead Work in Potentially Contaminated Area

- Mitigation steps
  - Elevated Work Training
  - Hoods for visibility

Authorization Basis North Wall

- Waiting for DOE Approval of Annual Update
  - Communication through DOE 100k Project Director

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Total Project Key Risks and Concerns cont.

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13.8 Re-Route through Unknown Rad Material Area

- Mitigation Steps
  - Escorting of sub contractor personnel by Rad Worker 2 Personnel
  - Monitoring of excavation

Substation Transformers late delivery

- Mitigation Steps
  - Solicited for Acceleration Proposal
    - » Performing Tech Eval on Proposal
    - » $100k Additional Cost to Accelerate the Delivery of Transformer #2 in to Mid August 2010

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Key Risks and Concerns

Excavating through contaminated area

- Mitigation Steps
  - Upon initial issue of JCS work package, a contingency package for handling contaminated soils for disposal at ERDF will be initiated. The work package will allow for a brief pause to document change in condition and continuation with the new specified work plan/controls and PPE

Water Treatments plant and Tank has numerous schedule risks

- Mitigation Steps
  - Requested Acceleration plan from General Contractor
  - Exploring alternatives e.g. extended schedules, extended staff

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Summary Request for Approval

The 100k Utility upgrade project request approval from the PRB to move on to construction for the following projects:

- 105 KW Basin HVAC Upgrade
- 13.8 Re-Route
- A9 Sub Station & Switches
- Import Water Line
- 100k Fire Water & Potable Water Supply
  - Supply lines
  - New Water Treatment Plant and Fire Water Supply Tank

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EXHIBIT 58

From: Chaffee, Gail A
Sent: Thursday, April 14, 2011 4:04 PM
To: Morgan, Gregory
Cc: Teynor, Thomas; Ramble, Alan L; Morgan, Calvin E; Quintero, Roger; Jackson, Mark; Hill, Burton; West, Dale; Koch, Michael R; Clapp, Dennis (CONTR); Raymond, Richard E
Subject: RE: USQ in Support of New Water System

Greg,

I have attached the engineered analysis for the change to the 8" line from the 12" line. Also attached is the USQ for that document. I agree that 0025-2011 should have some text that recognizes the change in the FSAR, we are revising the text in the USQ description and the answers to the USQ will not change. Additionally, we have been going through Chapter 2 of the FSAR which includes the description of equipment and processes and we are updating as appropriate Section 2.9.1.7. Although we have a draft chapter it has not been reviewed or subjected to the USQ process yet.

The Engineering Analysis for the water line change should ease your concern about maintaining Nuclear Safety. As you know, we do not have any accidents that rely upon the fire suppression system in either the CVDF or the 105-KW Basin FSAR. The water tank does maintain water that we could use to supply make-up water and is identified as DID, however, our TSR does allow us to get water from several different sources and does not rely on any one system.

Also, as we discussed, the location of the water tank did consider the placement and the potential for flooding. I will verify the final location is as designed.

Gail Chaffee

From: Morgan, Gregory [mailto:Gregory.Morgan@rl.doe.gov]
Sent: Thursday, April 14, 2011 3:27 PM
To: Chaffee, Gail A
Cc: Teynor, Thomas; Ramble, Alan L; Morgan, Calvin E; Quintero, Roger; Jackson, Mark W.; Hill, Burton E.; West, Dale C.; Koch, Michael R; Clapp, Dennis A.
Subject: FW: USQ in Support of New Water System
Importance: High

Gail:

In our discussions (today at 2:05, and over the last two months or more), it was stated that the design change from 12 inch to 8 inch was screened out from the USQ process because the change would be USQ reviewed prior to implementation at the facility (Appendix B, bullet 7, bolded below). DCN-KUP-073 is marked in that manner. That then requires a USQ Determination before implementation at the facility. USQ 0025 2011 has DCN-KUP-073 as one of the DCNs covered:

> DCN-KUP-073, *Release of Construction Drawings for 100K Potable Water Line and Fire Water Line*, revises drawing H-1-91185 Sheet 4 and Sheet 14. The DCN modifies the fire line routing on the east side of CVDF and adds a fire hydrant south of 105-KW. The proposed revision does not conflict with the description of the water system upgrade in Section 2.9.1.7 of the FSAR.

However, the proposed revision **does conflict** with Section 2.9.1.7 of the FSAR, which says:
The planned system will provide a new water supply for the 100 K Area, via a 12-inch pipeline from the existing export water line. The planned tie-in point is at Helen's Junction, southwest of the 100 K Area. The new water supply will provide raw water to the 100 K Area, at a nominal delivery rate in excess of 1500 gal/min. The raw water feed will be to a 750,000 gallon tank, located in the southwest corner of the 100 K Area. This tank is sized to provide water for fire suppression (360,000 gallons), emergency basin make-up (180,000 gallons), and up to 24 hours of potable water demand at a nominal rate of 50 gal/min.

The planned fire suppression water distribution system will provide a 12-inch fire main throughout the 100 K Area, with a looped and gridded system on the west side of the 100 K Area, supplying Buildings 142-K and 105-KW. Existing piping exterior to Building 105-KW will be replaced with a new loop, providing six new fire hydrants and the water supply to the Building 105-KW administrative area automatic sprinkler system. A single 12-inch fire main will serve facilities in the central corridor (1724-K, MO-500, and hydrants in the central corridor) and on the east side of the 100K Area (MO-293, and hydrants on the east side, including hydrants in the vicinity of Building 105-KE). Normal system pressure will be maintained by new service water pumps, which will be sized and controlled to maintain system pressure at a level comparable to that provided by the existing system (approximately 120 psi).

Therefore, there does not appear to be a USQ evaluation which covers the reduction from providing "a 12-inch fire main throughout the 100 K Area, with a looped and gridded system on the west side of the 100 K Area, supplying Buildings 142-K and 105-KW" to tying into the existing 8-inch loop around Building 142-K (CVDF).

This leaves the question in place: Given that the replacement fire suppression system has been tied in and is started up, and your statement below that the "DCN for changing the 12 inch line supply line the existing 8 inch loop around 142K was identified during our review as still needing a USQ", please explain how CHPRC is currently ensuring compliance with 10 CFR 830, Section 203?

Please explain.

Greg Morgan

Appendix B
Exceptions to the USQ Process

NOTE: *Any document or procedure that is listed in a facility or project-specific safety basis compliance matrix may not be excluded from the USQ process using this Appendix as a basis.*

This procedure does *not* apply to:

- Safety Basis Activities in a less than hazard category 3 facility.
- Administrative non-technical basis documents controlled by PRC-PRO-IRM-9679, *Control of Administrative Plans, Reports, Studies, and Description Documents.*
- Work hazards analyses performed pursuant to PRC-PRO-WKM -079, *Job Hazard Analyses.*
- Radiological work planning and as low as reasonably achievable (ALARA) documents, Radiological Work Permits (RWPs), survey plans, procedures for operating radiation measurement devices, procedures for monitoring radiological status during work activities.
- Environmental permits, reviews or environmental planning documents.
- Administrative and financial portions of work planning documentation such as additional forms, permits and administrative fields of work management generated forms that are not part of the **work instructions**.
- Design Change Notices (DCN) and Facility Modification Packages (FMP) that will be either 1) **USQ reviewed prior to implementation at the facility,** or 2) incorporated into a facility modification or new facility design that will be authorized by RL in a SER so long as the DCN or FMP do not modify an existing hazard category 1, 2, or 3 nuclear facility prior to RL issuance of the SER. Changes to the facility or partial installations made prior to the receipt of the SER are subject to the USQ process.
- Changes to the CHPRC functional organization chart shown in Chapter 17 of PRC-NS-11724, CH2M HILL Plateau Remediation Company *Safety Management Programs.*

Several CHPRC documents and their corresponding project-specific implementing documents listed by topical area or individually in the following sections are not subject to the USQ process. To exclude a

project-specific implementing document from USQ review, ensure 1) the scope of the implementing document falls within the scope of the topical areas listed below, and 2) the implementing document is not contained in the facility, project, or TS Safety Basis Compliance Matrix.

From: Chaffee, Gail A
Sent: Thursday, April 14, 2011 1:56 PM
To: Morgan, Gregory
Subject: RE: USQ in Support of New Water System
Importance: High

I am so sorry for all this confusion however, I think I finally got it...I know you have been asking for the USQ on the 12-8 inch line change. The DCN initially was screened out of the USQ process according to PRC-NS-PRO-062, Appendix B Exclusions. This exclusion does require us to do an overall USQ on those DCNs initially excluded. For some reason, I thought that USQ was still in draft while we were waiting for some final DCNs. I was wrong. The first overall USQ was completed before the project went on line. Attached is that USQ (0025-2011). I have also attached DCN-073 that includes the change from the 12 inch line to the 8 inch line for fire suppression.

From: Morgan, Gregory [mailto:Gregory.Morgan@rl.doe.gov]
Sent: Thursday, April 14, 2011 1:09 PM
To: Chaffee, Gail A **Cc:** Teynor, Thomas; Quintero, Roger; Jackson, Mark W.; Hill, Burton E.; West, Dale C.; Koch, Michael R; Clapp, Dennis A.
Subject: RE: USQ in Support of New Water System

Gail:

I still do not understand.

I have been asking which USQ screening/evaluation CHPRC has relied upon to ensure nuclear safety and compliance, for this change from 12 inch lines to 8 inch lines for fire suppression. The response has not identified the actual USQ being relied upon. I understand that you will be doing an overall USQ, based on PRC-PRO-NS-062
Unreviewed Safety Question Process, Section 4.1.10, "
10. Implement the proposed activity. If the proposed activity is a physical modification, provide verification that the installed modification is in agreement with the safety basis and USQ documentation prior to start of operations to assure that any new hazards have been identified and incorporated into the hazards analyses and accurately reflected in the USQ review. Incorporate changes in the facility safety basis or transportation safety basis at the next annual update as appropriate.

NOTE: *This verification of the modification is accomplished by PRC-PRO-EN-2001, Facility Modification Design Process, under "Verify Work."*

The questions remain: What USQ screening/evaluation is being relied upon for nuclear safety, and for compliance with 10 CFR 830 Section 203?

Thank you.

Greg Morgan

From: Chaffee, Gail A
Sent: Thursday, April 14, 2011 12:09 PM
To: Morgan, Gregory **Cc:** Teynor, Thomas; Quintero, Roger; Jackson, Mark; Hill, Burton; West, Dale; Koch, Michael R
Subject: RE: USQ in Support of New Water System

I think my wording may have lead to a misinterpretation; the DCN was properly reviewed (including the deputy fire marshal) and subjected to the USQ process, however, consistent with our procedure (PRC-PRO-NS-062) we are doing a more comprehensive USQ on several of the DCNs. That is the purpose of the DRAFT report I provided to you yesterday.

Please let me know if you have other questions or concerns.

Gail Chaffee

From: Morgan, Gregory [mailto:Gregory.Morgan@rl.doe.gov]
Sent: Thursday, April 14, 2011 11:11 AM
To: Chaffee, Gail A
Cc: Teynor, Thomas; Quintero, Roger; Jackson, Mark W.; Hill, Burton E.; West, Dale C. **Subject:** RE:

USQ in Support of New Water System

Gail:

Given that the replacement fire suppression system has been tied in and is started up, and your statement below that the "DCN for changing the 12 inch line supply line the existing 8 inch loop around 142K was identified during our review as still needing a USQ", please explain how CHPRC is currently ensuring compliance with 10 CFR 830, Section 203?

Regards

Greg Morgan

830.203 Unreviewed safety question process.

(d) The contractor responsible for a hazard category 1, 2, or 3 DOE nuclear facility must implement the DOE approved USQ procedure in situations where there is a:
(1) Temporary or permanent change in the facility as described in the existing documented safety analysis;
(2) Temporary or permanent change in the procedures as described in the existing documented safety analysis;

From: Chaffee, Gail A
Sent: Tuesday, April 12, 2011 1:36 PM
To: Morgan, Gregory
Subject: RE: USQ in Support of New Water System

Greg,

Attached are the USQs you requested. The DCN for changing the 12 inch line supply line the existing 8 inch loop around 142K was identified during our review as still needing a USQ. This USQ Determination is currently a draft; we are awaiting one more DCN to finish and signoff the USQ then we will also issue our final report (DD-48931). I expect that to be done by the end of this week /first of next week.

Please let me know if you need anything else.

On another note; do you have anything specific you would like on our agenda tomorrow afternoon? I see I have comments from Dennis on the annual but I haven't had a chance to go over them yet. I think the

KOP Pretreatment is complete. We could discuss the CVDF USQ closure package that I will be sending over later next week for your review and approval.

Gail

From: Morgan, Gregory [mailto:Gregory.Morgan@rl.doe.gov]
Sent: Tuesday, April 12, 2011 12:24 PM
To: Chaffee, Gail A
Subject: RE: USQ in Support of New Water System

Thanks, Gail.

Can you provide copies of USQS-0226-2010, 0028-2011, and 0037-2011?

Also, which USQ screening or evaluation is CHPRC relying on for the change from 12 inch fire supply lines to 8 inch lines?

Regards

Greg Morgan

From: Chaffee, Gail A
Sent: Monday, March 28, 2011 3:51 PM
To: Morgan, Gregory
Cc: Koch, Michael R
Subject: USQ in Support of New Water System

Greg,
As we discussed this morning, we are doing a review of all the DCNs, FMPs, and ECR documentation on the new water system to ensure that the appropriate reviews were completed before we actually switch over to the new system. We will document this review in a supporting document. The specific one you had mentioned is related to the change to the existing 8" line versus the 12" line in the original design. Attached is the USQ that I had sent to you initially, however, at the time we were in the process of reviewing and finalizing the USQ and it did not have the second signature.

Please let me know if you need further information or have any other questions.

Gail Chaffee

CRPRC - REVIEW COMMENT RECORD (RCR)	1. Date 10/23/2009	2. Review No.
	3. Project No.	Page 1 of 12

5. Document Number(s)/Title(s)	6. Program/Project/Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
90% Design Review	100K Project	Susan Omberg Carro; Sam Wajeeh; Adem Moldovan; Richard Larson		376-3202; 373-1830; 373-1757; 373-1834

17. Comment Submittal Approval	10. Agreement With Indicated Comment Disposition(s)	11. CLOSED
Date / Organization Manager (optional) (print and sign)	Date / Reviewer/Point of Contact (print and sign) / Author/Originator (print and sign)	Date / Reviewer/Point of Contact (print and sign) / Author/Originator (print and sign)

12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if NOT accepted)	16. Status
Fire System Design Comments						
1	KBC-42041; Section 2.3.A: Last line should read: "and include an automatic shutdown function as defined...".	Automatic shutdown is allowed by the AHJ if designed in compliance with the code.	Revise to allow automatic shutdown logic in the controller.	Y	Accept. (Pierce)	
2	KBC-42041, Section 2.3.A: Pump controller may monitor damper position and provide the signal for operation, but may not provide electrical power for operation.	NFPA 20 does not allow the fire pump controller to be used to supply power to other equipment.	Revise per comment.	Y	Reject. Per NFPA 20, diesel engine fire pump controllers are permitted to supply power to operate pump room dampers. This is standard industry practice based on discussion with a fire pump system supplier. The procurement specification will be revised to clarify that the dampers involved are for supply of combustion air. (Hagensen)	
3	General: Preferred FACP is: Firelite model MS series.	Fire Systems Maintenance personnel are currently trained on specific FACPs.	Specify preferred FACP in the procurement specification and/or other applicable documentation.	N	Accept. (Golberg)	
4	Calculation 0846401.30-M-002: Analysis demonstrates that minimum fill rate can be achieved. This does not demonstrate	Need to determine the operational capacity of the	Please also calculate maximum and nominal fill ra... day shift, weekday ope... If fill rate is	Y	Accept. Analysis will be rerun to determine if service water demands can be met. (Hagensen)	

A-8004-835 (REV 0)

EXHIBIT 59

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12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if NOT accepted)	16. Status
	operational capacity of the service water system.	system.	significantly affected by PRV-101, provide an assessment of the fill rate that could be achieved by relocating PRV or adjusting setpoint. Please include information (as available) on fluctuation of fill rate throughout the working day based on export water line flow.			
5	Current design does not provide detailed hydraulic analysis inside the fence.	Need to determine operational capacity of the system, and need to sequence operational start-up.	Based on the attached drawing markup (Attachment 1), which provides usage points and flowrates, please provide analysis to demonstrate that service water pump system VFDs/controllers will respond adequately to prevent fire pump actuation during maximum operational demand.	Y	Accept. (Hagensen)	
6	H-1-91185, Sheets 1 through 4: Please revise hydrant locations as shown on the attached drawing markup (Attachment 1).	Drawing markup shows hydrant locations as required by HFD and 100K.	Revise hydrant locations as shown. Please note that locations shown are approximate and are not based on survey information.	Y	Accept. (Conselman)	
7	H-1-91185, Sheet 4: This drawing still shows FW connection to Building 183KE.	This connection is not required for the new system.	Remove connection; show system cap point.	Y	Accept. (Conselman)	
8	H-1-91185, Sheet 9: PIV detail has been provided; PIV locations are not specified.		Provide PIV locations on system layout drawing and/or sections.	Y	Accept. (Conselman)	
9	H-1-91511, Sheet X: 1) Drawing does not call out fire resistance rating of interior wall. 2) Layout requires modification to accommodate service water pumps. 3) If exterior fire pump room double doors are replaced with a roll-up door, an additional man door will be needed.		Please revise drawing as appropriate.	Y	Accept. (Hagensen)	
10	H-1-91512, Sheet 2: Use of emergency		Relocation of PRV-101, or	Y	Accept. A pressure control valve and pressure relief valve will also be	

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	fire pump bypass will subject downstream systems (potable and fire water) to pressures significantly in excess of design pressure.		provision of additional PRVs, is required for protection of downstream systems during use of bypass.		installed in the potable water bypass line to limit potable water line pressure (Hagensen).	
11	H-1-91512, Sheet 2: Supply to fire equipment room riser should remain at a minimum of 6 inches. Should further reduction be required, this can be specified by the sprinkler design contractor.	Good engineering practice.	Revise to show reduction as 8x6 rather than 8x2.	Y	Accept. (Hagensen)	
12	H-1-91512, Sheet 2: Fire pump test configuration currently shows test loop and header discharging to the environment. Discharge of water to the environment at 100K requires permitting and therefore can be difficult.	Good engineering practice.	Please provide piping for return of test header to TK-1.	Y	Accept. (Hagensen)	
13	H-1-91512, Sheet 2: Level alarms for overflow protection should be interlocked to fill valve. It is unclear to me from the P&ID whether this is the case.	Good engineering practice.	Please revise or clarify drawing as necessary, or provide instrumentation logic diagram.	Y	Agree, there is an interlock between the LSHH and the overfill valve. The interlock will be described to clarify its function (Garcia).	
14	H-1-91512, Sheet 2: Separate sensing lines and controllers are required for the fire pump and jockey pump. It is unclear to me from the P&ID whether this is the case.	NFPA 20	Please revise or clarify drawing as necessary, and provide detail drawing for fire pump room piping/layout.	Y	Accept. (Hagensen)	
15	H-1-91512, Sheet 2: It is unclear from the existing P&ID whether the fire equipment room riser is supplied from the site main.	Supply should be from the site main.	Please revise or clarify drawing as necessary.	Y	Accept. (Hagensen)	
16	H-1-91512, Sheet 2: Please provide flow meters for the tank supply line (from export water) and the service water discharge (in-line before fire pump). Flow meters should report in some manner that allows comparison of relative flow rates.	Some means of comparing water supply rate to water use rate must be provided in order to ensure water supply.	Some discussion of this issue may be necessary.	Y	Accept. (Garcia)	
17	H-1-91512, Sheet 2: Truck fill stations will require tanks. Site can provide 12,000 gallon elevated tanks for use in this capacity. Attached drawing markup		Please provide revised design for truck fill stations to include use of an elevated tank.	Y	Accept. (Conselman)	

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12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if NOT accepted)	16. Status
	(Attachment 1) shows desired (revised) location of two fill stations. In addition, truck fill stations will require flow into the tanks to be metered in order to ensure that truck filling operations do not disrupt other system demands.					
18	General: Design for fire equipment room sprinkler system/riser and FACP is not included in drawings, or addressed in procurement specifications.		Please address how this design will be provided.	Y	Accept. Will add new section to construction specification that addresses sprinkler system (Pierce).	
19	H-1-91513: Please note that diesel day tank size is dependent upon fire pump horsepower, which has not yet been provided.	NFPA 20	Drawing cannot be approved until maximum fire pump horsepower is confirmed.	Y	Tank is provided by pump supplier per the procurement specification. This allows the supplier to match the tank size to the horsepower of the diesel engine (Pierce).	
20	H-1-91513: Drawing references a detailed piping plan for the fire equipment room, which is not provided in the design package.		Please provide detailed piping plan H-1-X000X when available.	Y	Accept. (Hagensen)	
Microfiltration System/Layout						
21	H-1-91512, Sheet 2; The microfiltration plant must have two air compressors for redundancy or 1 receiver with two compressors in case one air compressor needs to be inactivated for maintenance.	Current design shows one air compressor.	Please revise drawing to show two air compressors.	Y	Accept. The subject drawing and KBC-42002 will be revised to incorporate an additional compressor system. The additional compressor system will be an exact duplicate to ensure benefits of standardization. The additional compressor will be an installed spare. (Ashley)	
22	H-1-91512, Sheets 4 & 6; This drawing needs to show a 2-inch bypass line connected to another static mixer for redundancy.	Current design shows only one static mixer.	Please revise drawing with requested addition.	Y	Accept. Parallel static mixers with manual valving will be shown on the subject drawing sheets (2 locations). (Ashley)	
23	H-1-91512, Sheets 4; This drawing needs to show a check valve upstream of the duplex filter, prior to sodium hypochlorite injection	Current design does not show a check valve to prevent potential backflow	Please revise drawing with requested addition.	Y	Accepted with Comment. Check valves which protect the water supply are already provided. Please see H-1-91512, Sheets 2 and 3.	

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		into the duplex filter.			However, it is considered probable that the duplex filter elements will be constructed of stainless steel mesh. A check valve will be added in the recommended location to preclude exposure of the filter elements to chlorides. (Ashley)	
24	H-1-91512, Sheets 5; This drawing needs to show flow totalizer on the 4-inch line to the 2,500 gallon waste water cistern.	Current design does not show a flow meter.	Please revise drawing with requested addition.	Y	Accept. A flow indicating totalizer will be installed on the discharge piping from the CIP neutralization skid to the drain. (Ashley)	
25	H-1-91512, Sheet 6; Need to show proper PLC connections to controllers for the 12,000 gallon storage tank (TK-CW-1).	Current design does not show proper PLC connection.	Please revise drawing with requested addition.	Y	Accept (Garcia).	
26	H-1-91512, Sheet 6; Please indicate (via note or separate drawing) access (manway) on poly tanks (pre/post settling tanks and storage tank).	Current design does not indicate connection.	Please revise drawing with requested addition.	Y	Accept. The pre/post tanks are equipped with a 16 inch manway on the top; the storage tank is equipped with a 24 inch manway on the top. Furthermore the tanks will be equipped with drains on the bottom to facilitate removal of settled solids, if any. Discussion with cognizant CHPRC personnel indicate that these attributes are sufficient for the tank maintenance anticipated. Appropriate notes will be added to the drawing. (Ashley)	
27	H-1-91513, Sheet 1; This drawing does not show eyewash stations with tempered water, chemical storage area with separate storage sumps, lab work area, and reagent storage for daily testing.	Current design does not show aforementioned areas.	Please revise drawing with requested additions.	Y	Accept. The drawing will be revised to show safety shower/eyewash station(s), using tempered water, 2 work stations with water and sinks, and "floor level" reagent storage area(s) with appropriate sumps. (Ashley)	
28	H-1-91513, Sheet 1; This drawing needs to show that penetrations into the tank are accessible for maintenance purposes.	It is not clear if current design allows for easy access for tank	Please revise drawing with requested addition.	Y	Accept. The tank penetrations will be specified in the Construction Specification, and shown on applicable mechanical drawings.	

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12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if NOT accepted)	16. Status
		maintenance.			Please note that the level instrumentation on the poly tanks will be located on "flats" at the outboard edge of the tank top. (Ashley)	
29	H-1-91513, Sheet 1; This drawing needs to show sinks at locations where water quality testing will take place.	Current design does not show sinks.	Please revise drawing with requested addition.	Y	Accept. See Response to Comment 27. (Ashley)	
30	H-1-91513, Sheet 1; The detail drawings for the fire pump room piping plan, contact pipe assembly and pipe assembly for potable water connection was not provided.	Current plan set provided for 90% review did not include the aforementioned drawings.	Please revise drawing with requested addition.	Y	Accept. (Hagensen)	
31	H-1-91513, Sheet 1; Please indicate a roll-up door at the exterior wall of the fire pump room to allow for maintenance and pump removal.	Current design does not show roll-up door at aforementioned location.	Please revise drawing with requested addition.	Y	Accept. (Hagensen)	
32	H-1-91513, Sheet 1; Please add service water pumps (rated at 1500 GPM) to fire pump room.	Current design does not show service water pumps.	Please revise drawing with requested additions.	Y	Accept. (Hagensen)	
33	H-1-91513, Sheet 1; This drawing needs to show water spigots (3/4 –inch) for water quality testing, make-up water for chemical dilutions, and a 11/2 inch camlock used to fill 500 gallon water trailer.	It is not clear if current design includes aforementioned items.	Please revise drawing with requested addition.	Y	Accept. Specified water spigots will be shown on subject drawing. (Ashley)	
34	H-1-91513, Sheet 1; A ventilation system (1 cfm per 1 sf of area) must be added to the chemical storage area (area used to store the acid, caustic, chlorine solution and coagulant).	Current design does not show service a ventilation system nor does it show a chemical storage area.	Please revise drawing with requested addition.	Y	Accept. Per discussion with cognizant CHPRC personnel, the facility "ventilation system" will consist of 3-4 unit heaters, and exhaust fans. Air cooling, or other conditioning is not required. Building is to be insulated with typical "standard" insulation. (Ashley)	

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12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if NOT accepted)	16. Status
35	H-1-91513, Sheet 1; For all areas with roll-up doors proposed, please ensure that opening is appropriately sized for the placement and removal of the large pieces of equipment needed.	Current design does not show dimensions of roll-up doors at aforementioned location.	Please revise drawing with requested addition.	Y	Accept. (Hagensen)	
36	H-1-91512; Sheet 7; This drawing indicates that the solution used for pH testing will be discharged to the 2,500 gallon waste water cistern. The solution after pH testing can be discharged into the drain trench for the recycle sump.	The P&ID should replace the pH with Chlorine.	Please revise drawing.	Y	Accept. Drawing will be revised accordingly. (Ashley)	
37	H-1-91186, Sheet 2; This drawing needs to show that the effluent tank has a high low level alarm and high high level alarm to indicate when contents need to be pumped out. Also, need to have an adequately sized sump pump to discharge into vacuum truck.	Current design does not show any indicators to the effluent tank nor does it show a sump pump.	Please revise drawing with requested addition.	Y	Accept with Comment. Subject alarms are shown on Sheet 7. A sump pump will be added (local control). (Ashley)	
38	H-1-91513, Sheet 1; In the fire pump room, this drawing needs to show a berm around the inside day tank and the outside main fuel tank.	It is not clear if current design includes aforementioned.	Please revise drawing with requested addition.	Y	Accept. (Hagensen)	
39	H-1-91506, Sheet 1; Please revise drawing to allow for a spigot to be in close proximity of the 500 gallon water trailer for better accessibility when filling is required.	It is not clear if current design includes aforementioned.	Please revise drawing with requested addition.	Y	Accept. Two (2) 1 ½ inch camlock water spigots will be located in the corner of the building near the water trailer – one internal to the building, one external. (Ashley)	

General Comments – Civil Site Plan/Layout and Design

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12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if NOT accepted)	16. Status
40	H-1-91183, Sheet 1; Please revise import water line routing per our discussions (it was agreed that a portion of the proposed 8-inch line would pass through a small portion of old growth sage brush on the east side of our tie-in point to reduce pipe length).	90% design does not currently reflect the change in routing.	Please revise drawing addressing the comment.	Y	CHIP	
41	H-1-91506, Sheet 1; This drawing needs to be modified to clearly show that sufficient lighting is provided for all areas, including work areas and safety showers located within the pre-engineered building structure. Need to also show exterior lighting for entryways.	It is not clear if current design includes aforementioned	Please revise drawing with requested addition.	Y	Accept. (Ashley)	
42	H-1-91506, Sheet 1; This drawing needs to show heaters spaced around the inside of the building to keep equipment at required temperature during periods of freezing temperatures.	Current design does not show any heaters within the building.	Please revise drawing with requested addition.	Y	Accept. 3-4 unit heaters will be added/shown. From an equipment perspective building temperature must be maintained between 35 and 98 °F. (Ashley)	
43	Site plans need to show layout of building and walkways to office trailers.	The plans provided do not show walkways.	Please revise drawing with requested addition.	Y	Accept. (Conselman)	
44	H-1-91184, Sheet 1; Per our earlier discussions, a new gate valve located downstream of the existing 8-inch gate valve (STA 80+98) was to be installed. The detail provided on H-14-91185-5 does not reflect installation of the new valve	Current design does not show new valves being installed on the 8-inch export line to 100K Area.	Please revise drawing with requested addition.	Y	Accept. (Conselman)	
45	H-1-91513, Sheet 1; This drawing needs to show exhaust ventilation & exhaust outlet for the chemical storage room and fire pump room.	Current design does not show venting or exhaust location needed to make sure workers are protected.	Please revise drawing with requested addition.	Y	Accept. (Hagensen)	

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12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if NOT accepted)	16. Status
46	H-1-91513, Sheet 1; This drawing needs to show separate storage sumps (50-100 gallon) for each chemical to be used onsite in case the 55 gallon drums containing the chemical leaks. The sump should be able to be vacuumed out when needed. This should apply to the chemical storage area as well as the chemical feed tank area.	Current design does not show individual containment areas in case of chemical leakage.	Please revise drawing with requested addition.	Y	Accept. Sumps will be shown for reagent storage and feed tank areas. (Ashley)	
47	Need to have emergency lighting in case power goes out.	It is not clear if current design includes aforementioned	Please revise drawing with requested addition.	Y	Accept. Refer to H-1-91506. (Golberg)	
48	Exterior site grading and concrete pad slope not shown on the drawings.	Current design does not show site grading and concrete pad slope.	Please revise drawing with requested addition.	Y	Accept. (Conselman)	
49	Need storm gutters to direct water away from entryways.	It is not clear if current design includes aforementioned	Please revise drawing with requested addition.	Y	Accept. (Conselman)	
Construction Specification For 100-K Water Line And Filtration						
50	Section 02220, Part 1, 1.1C.; Reference is made to Fluor Hanford document HNF-23100, "Occupational Safety, and Health (OS&H) Program Manual"	The document referenced is outdated and should be reflective of new CHPRC contract.	Please replace reference with PRC-PRO-SH-32219," 10 CFR 851 CHPRC Worker Safety and Health Program Description", PRC-PRO-SH-40078, "Contractor Safety Processes", and Special Provisions SP-5	Y	Accept. (Conselman)	
51	Section 02235, Part 1, 1.1C.; Reference is made to Fluor Hanford document HNF-23100, "Occupational Safety, and Health (OS&H) Program Manual"	The document referenced is outdated and should be reflective of new CHPRC contract.	Please replace refrence with PRC-PRO-SH-32219," 10 CFR 851 CHPRC Worker Safety and Health Program Description", PRC-PRO-SH-40078, "Contractor Safety Processes", and Special Provisions SP-5.	Y	Accept. (Conselman)	

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12. Item	13a. Comments	13b. Basis	13c. Recommendation	14. Reviewer Concurrence Required (Y or N)	15. Disposition (provide justification if NOT accepted)	16. Status
52	Section 09900, Part 1, 1.1A.; Reference is made to Fluor Hanford document HNF-23100, "Occupational Safety, and Health (OS&H) Program Manual"	The document referenced is outdated and should be reflective of new CHPRC contract.	Please replace reference with PRC-PRO-SH-32219," 10 CFR 851 CHPRC Worker Safety and Health Program Description", PRC-PRO-SH-4007B, "Contractor Safety Processes", and Special Provisions SP-5.	Y	Accept. (Conselman)	
53	Section 13125, Part 1, 1.2A.1.; The building dimensions along with eave height will need to be modified ("Nominal 60-ft long by 40-ft wide by 20-ft eave height").	The dimensions for the pre-engineered metal building housing the microfiltration plant, fire pump and other ancillary pieces of equipment needs to reflect the design drawings.	Please replace requirement with: "Nominal 100-ft long by 50-ft wide by 20-ft eave height"	Y	Accept. (Conselman)	
54	Section 13125, Part 1, 1.6.B, Table 1-1 Design Criteria. The seismic design parameters are not correct (Sds = 0.588, Sd1 = 0.192, I=1.5).	The seismic criteria verified by CHPRC subject matter experts require less stringent values.	Please replace the seismic design parameters with the following: S = 0.370, Sd1 = 0.163, I=1.1	Y	Partially Accept. Values currently in specification are standard and bounding. (Conselman)	
55	Section 13125, Part 2, 2.4.B.1, "Provide one (1) 16-ft wide by 14-ft high roll up coiling door in the water treatment building. Locate the approach pads as shown in the sketches. Top of ....."	CHPRC will need three roll-up doors for the fire pump room, main area for tank maintenance, and a roll-up door for the chemical storage area. Height of roll-up door mentioned should be at minimum 20 ft and width of 15 ft.	Please revise the sentence to state the following: "Provide one (1) 20-ft wide by 15-ft high roll up coiling door, one (1) 20-ft wide by 10-ft high roll up coiling door, and one (1) 15-ft wide by 10-ft high roll up coiling door in the water treatment building....."	Y	Accept. (Conselman)	
56	Section 15130, Attachment 1 Data Sheets; The following pumps do not have any design data associated with them (labeled	Need information to finalize design.	Please revise specification to include pump design data.	Y	Accept. (Pierce)	

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	"TBD"): Circulation pump, P-CO-1, P-CO-2, P-PC-1, P-REC-1 (only design capacity provided), and P-REC-2 (only design capacity provided).					
57	Construction Specification, Section 02650: Fire protection equipment should be required to be UL listed for fire protection service where applicable.		Revise as necessary.	Y	Accept. (Conselman)	
58	Construction Specification, Section 02650: For installation of fire protection equipment, please add a section comparable to 13125-3 §1.5 to specify required qualification and experience.			Y	Accept. (Conselman)	
59	Construction Specification, Section 13125: Revise building dimensions as necessary to accommodate service water pumps.		Revise as necessary. Building plan drawings should also be revised for consistency.	Y	Accept. (Hagensen)	
60	Construction Specification, Section 02650: 1. Please add AWWA C605, "Underground Installation of PVC Pressure Pipe and Fittings for Water" to §1.1.C and §3.1.C. 2. Please add to §3.1.M: "Pumper connection centered 1 ft 6 inches to 1 ft 10 inches above finished grade."		Revise as requested.	Y	Accept. (Conselman)	
Procurement Specification for Water Storage Tank						
61	Page 1, 1.1A; "The specification establishes the requirements for the contractor's design, fabrication and installation of a 650,000 gallon, 50-foot minimum diameter water storage tank....."	Incorrect volume indicated on specification	It is agreed that the intent is to provide specification for the design, fabrication and installation of a 750,000 gallon water storage tank. Please revise the description in the procurement specification.	Y	Partially accepted. The specification will be reworded to clarify that 650,000 gallons is the working capacity (per the Functional Design Criteria), but the overall volume including head space is to be determined by the vendor. (Pierce)	
Procurement Specifications for Fire Pumps						

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62	Page I, Part I, I.1B.; Reference is made to "nickel-metal hydried" batteries for engine start..	Typographical error	Please replace nickel-metal hydried with nickel-metal hydride.	Y	Accept (Golberg).	

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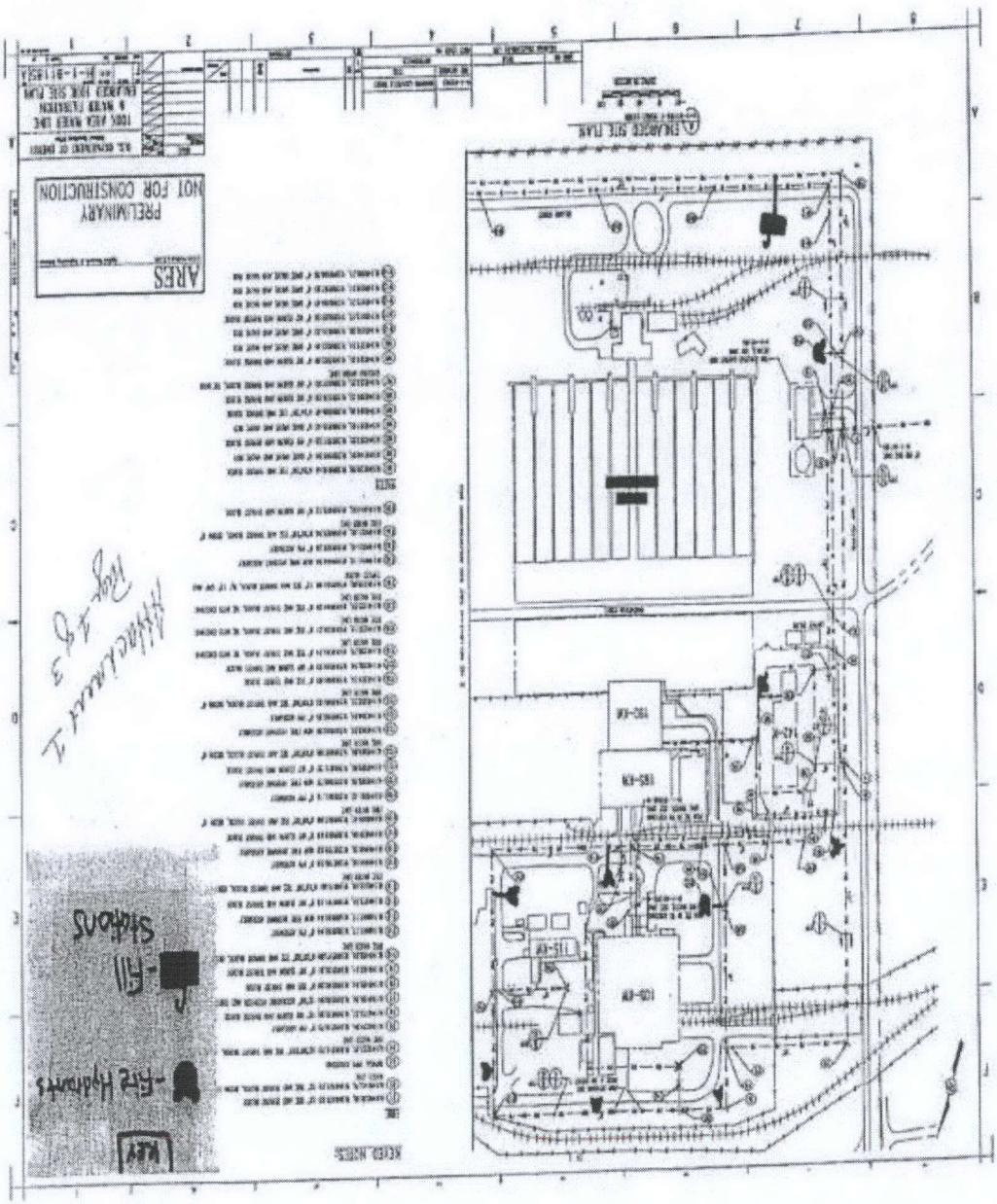
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NOT FOR CONSTRUCTION
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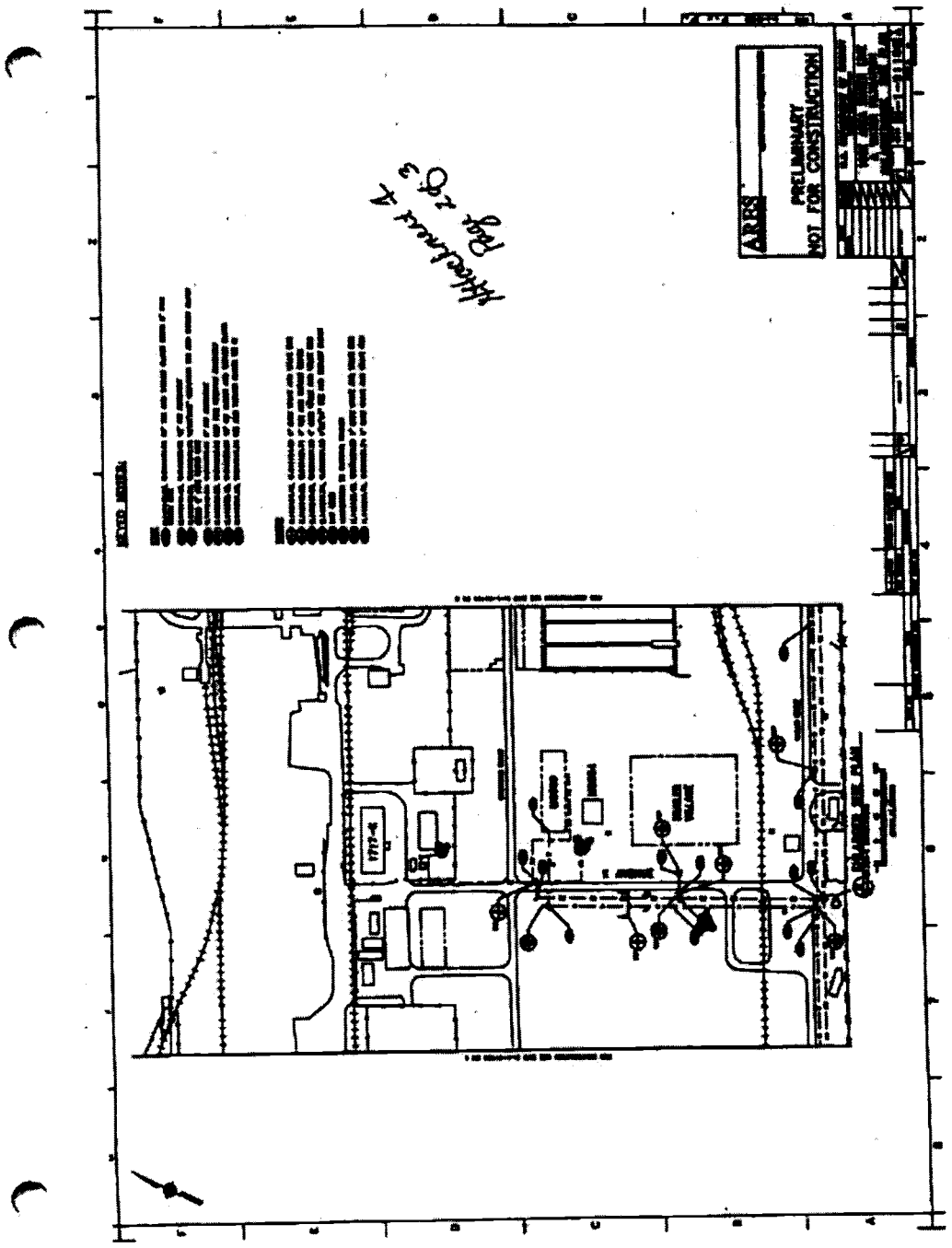
Attachment 1
Page 43
Fire Hydrants
Fill Stations
KEY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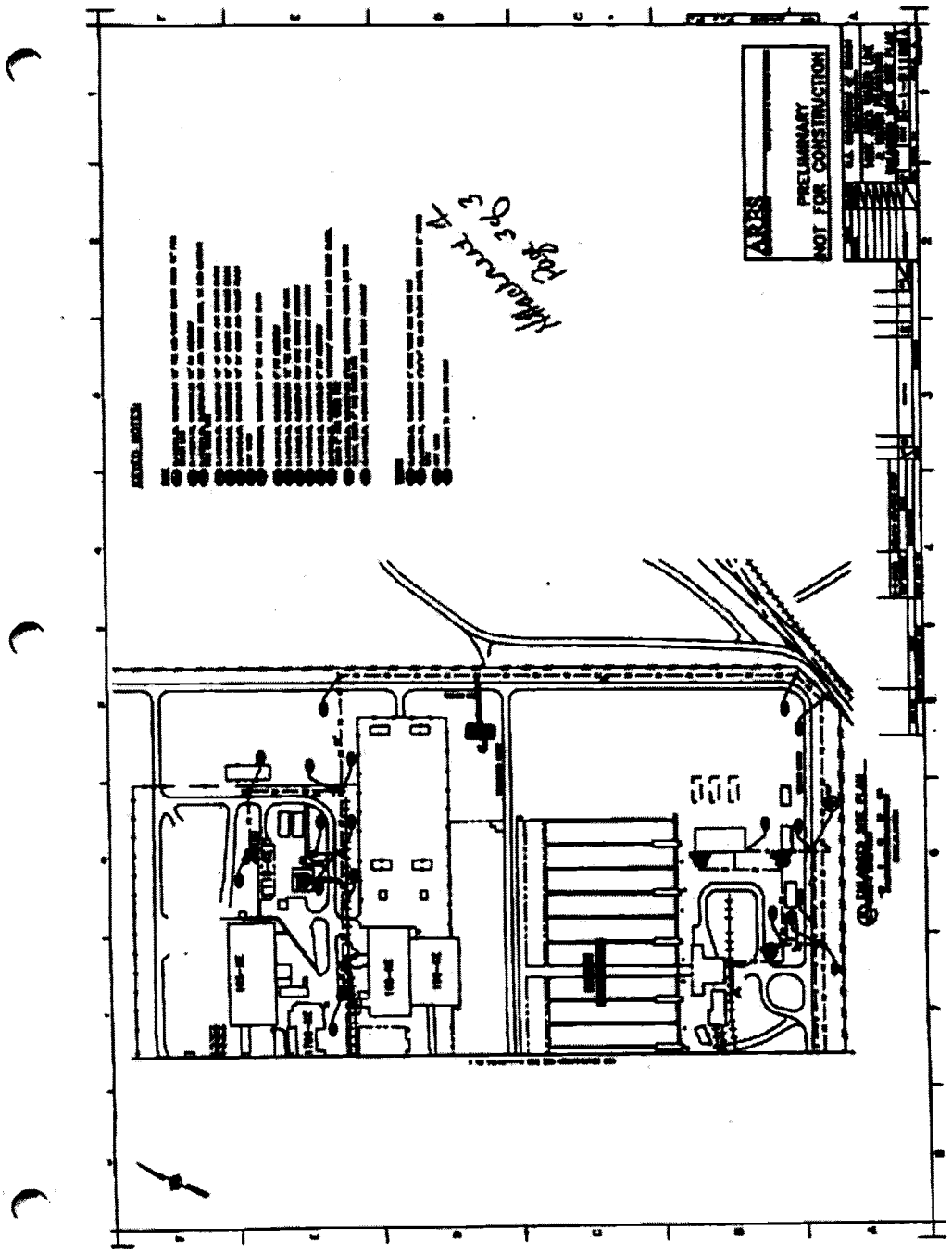
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EXHIBIT 60

CHPRC CONDITION REPORT FORM

Status: Closed CR NUMBER: CR-2010-2597

Issue Identification and Processing

Initiator:	Initiating Document:	Date Identified:
Omberg Carro, Susan K		8/24/2010

Title of Issue:
Installation of Fire Suppression System Without Required Design Approval

Description of Issue:
On Tuesday, August 24th, 2010, the 100K Fire Protection Engineer was notified by facilities operations personnel that the scope of work for the day for the 100K new water treatment facility was to include installation of the fire suppression system. The design for this system has significant comments still outstanding from 100K Fire Protection Engineering, and has not been reviewed and approved by the Fire Marshal's Office. A walk down of the facility showed that significant additional changes to the system design were being made in the field; neither Fire Protection Engineering nor 100K Project Engineering was cognizant of these changes.

Requirements Not Met: (Orders, Requirements, Procedures)	Responsible Project/Program:
CRD 420.1B, Supplemented Rev. 4, Section D.3 requires that facility design and construction comply with the DOE Fire Protection Handbook, Hanford Chapter. Section E.1.d.2 provides the Hanford Fire Marshal the authority to review and approve site construction documents and shop drawings for new construction. HNF-36174, DOE Fire Protection Handbook - Hanford Chapter, Section 4.1.5, requires that fire suppression system drawings be approved by the Hanford Fire Marshal's Office prior to installation. MSC-RD-9118, Fire Protection Design/Operations Criteria, Section 2.1.11, states that documents for new designs affecting fire protection or fire code compliance must be reviewed and approved by the Hanford Fire Marshal's Office.	D & D
Date Submitted: 8/24/2010	**Other Related Documents:** HNF-36174, DOE Fire Protection Handbook; MSC-RD-9118, Fire Protection Design/Operations Criteria

Immediate Action(s) Taken:
The EPC construction manager was notified that the design for the system being installed was not approved for installation, and that the design as previously submitted was apparently being altered in the field to an unacceptable extent. The EPC construction manager was advised that installation activities should cease until after the revised design was resubmitted and approved by both CHPRC Fire Protection Engineering and the Fire Marshal's Office.

Recommended Corrective Actions:
Project shall obtain a revised design from the subcontractor, and submit such design for review and approval as required. Work shall not recommence until after approval of the revised design. The prime contractor shall submit a formal corrective action plan that states how they intend to prevent similar violations in the future.

Initiator Comments:
Stephen R. Douglass

Associated Files
Approval-to-screen-out.htm

Issue Significance, Analysis, Extent of Condition, Action Assignment, and Closure

Significance Level:	Date Submitted to Responsible Manager:	Date CAP was approved by Responsible Manager/Delegate:
Screened-Out	10/28/2010 - Edington, Max L	

☐ ORPS ☑ Compliance Determination ☐ NTS

PAAA Compliance Determination Number:
CHPRC-PAAA-2010-0741

Significant Level Justification:
Sent back from Assignment by Edington, Max L. Responsible manager. Please screen out this CR to CR-2010-3049. Although submitted a month apart both CRs represent the exact same condition and screened at the same level as adverse. This condition was rescreened from an adverse condition to a screen out at the request of the responsible manager per above justification. CR-2010-3049 is screened as adverse will document the apparent cause analysis and correct actions to address this condition. PLH

Assigned To:	Date Assigned:
Olsen, Rae Ann	9/14/2010
Extent of Conditions:	
Causal Analysis Method Used:	**Analysis Completion Date:**
Analysis Results:	
Trend Codes:	
Cause Codes:	
PAAA/NSI Citations: 830.122(e)(1)	
ISMS:	

Record Authentication	
Authenticated By: Kelley, Judy H	**Date Authenticated:** 11/3/2010

EXHIBIT 61

CHPRC CONDITION REPORT FORM

Status: Closed CR NUMBER: CR-2010-3049

Issue Identification and Processing

Initiator:	Initiating Document:	Date Identified:
Elde, Don	SAC-2010-1169	9/29/2010

Title of Issue:
100K - Fire Suppression System Field Work Stop Work (ARRA): SAC- 2010-1169

Description of Issue:
100K Senior Mgmt issued a Field Work Stop Work on the 100K Fire Suppression System Upgrade pending a comprehensive Design Document review and approval.

Requirements Not Met: (Orders, Requirements, Procedures)	Responsible Project/Program:
N/A	D & D
Date Submitted: 9/29/2010	**Other Related Documents:**

Immediate Action(s) Taken:
Stop Work initiated

Recommended Corrective Actions:

Initiator Comments:
Responsible Manager is Max Edington
Suggested screening is TUF

Associated Files
Files are available through iDMS

Issue Significance, Analysis, Extent of Condition, Action Assignment, and Closure

Significance Level:	Date Submitted to Responsible Manager:	Date CAP was approved by Responsible Manager/Delegate:
Adverse	9/29/2010 - Edington, Max L	11/10/2010 - Elde, Don

☒ ORPS ☒ Compliance Determination ☒ NTS

Significant Level Justification:
Screened As Adverse.

The CR documents the implementation of a Stop Work of field work on the upgrades to the 100K Fire Suppression System upgrade pending a design document review that it would seem should have been done prior to starting the work. This is considered an adverse impact to the operation of the project, and further analysis is warranted.

This will necessitate an apparent cause at a minimum, and the completion of an extent of condition review in accordance with appendix B of PRC-PRO-QA-052.

DBW

Assigned To:	Date Assigned:
Alaconis, Walter	10/28/2010

Extent of Conditions:
This condition was caused by an oversight in the BTR procedure PRC-PRO-AC-186. The oversight deals with the interface with the Hanford Fire Marshal and design reviews. Other portions of the D&D Project are not affected by this oversight but other CHPRC projects could be. Corrective Action #3 will address this oversight.

Causal Analysis Method Used:	Analysis Completion Date:
Apparent	11/10/2010

Analysis Results:
Review the attached file, 110k Fire Suppression Stop Work ACA, for the details of this analysis. Beginning the week of October 18, 2010 an Apparent Cause Analysis was conducted over several days involving the Project Manager (CHPRC D&D), Construction Manager (CHPRC EPC), Project Design Authority Engineer (CHPRC D&D), 100 K Area Deputy Fire Marshal (FFS) and D&D Technical Support (CHPRC D&D). Interviews were

concluded on November 5, 2010 and the attached file was written to document the results.

Trend Codes:
OP08 - Chapter 8, Control of Equipment and System Status
EN04 - Design Documentation/Specification
MS10 - ISM –Management Review

Cause Codes:
A1B3C01 - Design / documentation not complete
A5B2C08 - Incomplete / situation not covered

PAAA/881 Citations:

ISMS:
CF-D - Perform Work within Controls
CF-E - Provide Feedback and Continuous Improvement

Corrective Action Items

Action #:	Actionee:
1	Daleyos, Bing

Action Statement:
Identify which Fire Marshal approval is required and transmit information to Construction Manager.

Due Date: 12/31/2010

Closure Requirements:
Closure statement indicating action taken and date completed. Attach a copy of the correspondence that notified the Construction Manager.

Action Taken:
DRAFT document from the Hanford Fire Marshal, indicating approvals required, was transmitted by FPE to CM via e-mail on 12/21/10.

E-mail of correspondence and the file attached to e-mail were uploaded to this CRRS item.

Completed Date: 12/21/2010

Action Approved By: Alaconis, Walter

Action Approval Date: 12/27/2010

Action #:	Actionee:
2	Koch, Michael R

Action Statement:
Obtain clarification on the authority of the Deputy Fire Marshal role. Note: MSA currently has draft document in DOE-RL for review and approval.

Due Date: 4/27/2011

Closure Requirements:
Closure statement indicating actions taken and date completed. Attach a copy of the final documentation that clarifies the Deputy Fire Marshal's role.

Action Taken:
The CR-2010-3049 CA#2 was to obtain clarification on the authority of the Deputy Fire Marshal role, this action is being closed with the submittal of a draft copy of DOE O 420.1B SCRD, Rev 4 required by CR-2010-3375 CR#2. Information regarding Deputy Fire Marshal duties is contained in the draft.

CR-2010-3375 CR#2 which needs "Update the status of revised Fire Protection Program procedures for inclusion of roles and responsibilities of the Site Fire Marshal, the Fire Marshal's Office, Deputy Fire Marshals and Fire Protection Engineers to reflect changes to the DOE O 420.1B SCRD, Rev 4 (new Rev 5)" satisfies the intent of CR-2010-3049 CA#2.

CR-2010-3375 CR#2 is scheduled to be completed by 9/30/2011.

Summary:
CR-2010-3049 CA#2 is being closed because it is the identical action as CR-2010-3375 CR#2 being performed by the DFM office.

Completed Date: 4/27/2011

Action Approved By:	Action Approval Date:
Eide, Don	4/27/2011

Action #:	Actionee:
3	Taylor, Michael L

Action Statement:
Reconcile the MSA and CHPRC procedures so the approval requirements are clearly identified in the PRC-PRO-AC-186 Procedure

Due Date: 1/31/2011

Closure Requirements:
Closure statement indicating actions taken and date completed. Attach a copy of the revised approved procedure to this Condition Report.

Action Taken:

PRC-PRO-AC-123 governs the preparation of requisitions by the requesting organization.
PRO-123 includes numerous references for requestors to include supporting organizations in the preparation and approval of procurement-related documents. Section 2.2.3 for example describing BTR responsibilities:

Obtain and incorporate all project and functional support organization assistance, input and approvals in order to ensure that complete and adequate acquisition documentation is provided to the procurement organization and the contractor.

PRO-123 also requires the use of ATTACHMENT 5 Functional & Procurement Concurrence Checklist to for BTRs to determine when supporting organizations –including Fire Protection should be involved with the preparation and approval of SOWs. Included is a reference to the CHPRC Fire Protection Engineer. Instruction 4 for example and one of the many references to Fire Protection are copied below

4. When any of the questions/topics in the checklist are marked as "YES" applicable –then insert the name of the SME who provided feedback for the applicable sections and obtain concurrence/authorization to proceed on the SOW or applicable documents.
Does this affect the following? Safety, environmental, and quality requirements or established envelopes Emergency response procedures Emergency equipment Safety or Fire Protection equipment -

Completed Date: 12/17/2010

PRC-PRO-AC-186 Statements of Work, describes the process and includes templates for the preparation of Statements of work. PRO-186 and the referenced templates include numerous references to identification of hazards and inclusion of supporting organizations in making sure SOWs and the resulting contract completely address hazards. Section 3.3.6 specifically addresses fire protection engineering:

When procuring services that involve any activity listed in Sections 2.2 and 2.3 of HNF-PRO-8589, Hanford Fire Marshal Permits, contact the Fire Prevention organization to determine whether a Hanford Fire Marshal Permit is required. Document as applicable in the SOW. Similarly, if any Fire Protection design features, egress, combustibles, protection systems will be potentially impacted by Contractor activities, coordinate requirements with the Project Fire Protection Engineer

Section 4.8 of the Hazardous SOW template modified to include the following language.
A. When the contract includes significant design or construction activities or any items that require a fire protection/code interpretation the Deputy Fire Marshal for the facility shall be contacted for interpretation and required permits in accordance with MSC-RD-8589, Hanford Fire Permits.

Procurement procedures and guidance clearly direct requestors and BTRs to the cognizant CHPRC subject matter expert or point of contact. The

CHPRC SME is the responsible representation for the CHPRC to external organizations and outside agencies.	
Action Approved By: Eide, Don	**Action Approval Date:** 1/31/2011

Action #: 4	**Actionee:** Douglass, Stephen	
Action Statement: Per the requirements of MSC-RD-9118, Section 2.1.1, obtain the approval and permit of the Hanford Fire Marshal's Office (reference OA33896 Finding #1).		**Due Date:** 12/16/2010
Closure Requirements: Closure statement indicating actions taken and date completed. Attach copy of permit issued by the Fire Marshal's office.		
Action Taken: Per the requirements of MSC-RD-9118 Section 2.1.1 requested and obtained the required Fire Marshal Permits (9 Total). See attached file titled FireMarshalPermits		**Completed Date:** 12/16/2010
Action Approved By: Alaconis, Walter		**Action Approval Date:** 12/16/2010

Action #: 5	**Actionee:** Douglass, Stephen	
Action Statement: Per the requirements of MSC-RD-9717 Section 2.1.2 complete a Hanford Fire Department Construction/Demolition Fire Safety Inspection Checklist, Siteform A-6002-892, (reference OA33896 Finding #2).		**Due Date:** 12/16/2010
Closure Requirements: Closure statement indicating actions taken and date completed. Attach a completed copy of the approved checklist.		
Action Taken: Per the requirements of MSC-RD-9717 Section 2.1.2 a Contractor Fire Plan Request was prepared and submitted to the Hanford Fire Department. See attached file named "Contractor pre-fire plan request" Per the requirements of MSC-RD-9717 Section 2.1.3 a Construction/Demolition Fire Safety Inspection Checklist was prepared and submitted to the Hanford Fire Department. See attached file named "Construction/Demolition Fire Safety Inspection Checklist"		**Completed Date:** 12/16/2010
Action Approved By: Alaconis, Walter		**Action Approval Date:** 12/16/2010

Action #: 6	**Actionee:** Edington, Max L	
Action Statement: Complete review of actions taken and lift Stop Work on the Supply portion after Fire Marshal approval has been obtained		**Due Date:** 2/7/2011
Closure Requirements: Closure statement indicating actions taken and date completed. Attach copy of the signed DCN.		
Action Taken: Working with Deputy Fire Marshal, the 100K Infrastructure Project, fire protection engineering consultant, and design-build contractor have redesigned the supply portion for the new 100K water treatment facility. A DCN approved by the Deputy Fire Marshal is attached. (See Attached file DCN-KUP-163)		**Completed Date:** 2/8/2011

Action Approved By:	Action Approval Date:
Eide, Don	2/9/2011

Action #:	Actionee:
7	Edington, Max L

Action Statement:	Due Date:
Complete review of actions taken and lift Stop Work on the Sprinkler portion after Fire Marshal approval has been obtained.	12/16/2010
Closure Requirements: Closure statement indicating actions taken and date completed. Attach copy of signed DCN.	
Action Taken: Working with Deputy Fire Marshal, the 100K Infrastructure Project, fire protection engineering consultant, and design-build contractor have redesigned the sprinkler system for the new 100K water treatment facility. A DCN approved by the Deputy Fire Marshal is attached. (See Attached file WTFSprinklerSubmittal.pdf).	Completed Date: 12/16/2010
Action Approved By: Eide, Don	Action Approval Date: 12/16/2010

Action #:	Actionee:
8	Edington, Max L

Action Statement:	Due Date:
Complete review of actions taken and lift Stop Work on the Detection/Alarm portion after Fire Marshal approval has been obtained.	12/16/2010
Closure Requirements: Closure statement indicating actions taken and date completed. Attach copy of signed DCN.	
Action Taken: In coordination with consultant fire protection engineer, design-build contractor, and the Deputy Fire Marshal, the 100K Infrastructure project has re-designed the fire alarm system for the new 100K water treatment facility. The attached DCN (WTFFireAlarmDCN.pdf) has been approved by the Deputy Fire Marshal.	Completed Date: 12/16/2010
Action Approved By: Edington, Max L	Action Approval Date: 12/16/2010

Action #:	Actionee:
9	Edington, Max L

Action Statement:	Due Date:
Complete review of actions taken and lift Stop Work on the Distribution portion after Fire Marshal approval has been obtained.	2/7/2011
Closure Requirements: Closure statement indicating actions taken and date completed. Attach copy of signed DCN.	
Action Taken: Working with Deputy Fire Marshal, the 100K Infrastructure Project, fire protection engineering consultant, and design-build contractor have redesigned the distribution system for the new 100K water treatment facility. A DCN approved by the Deputy Fire Marshal is attached. (See Attached files DCN-KUP-153.pdf and DCN-KUP-091.pdf	Completed Date: 2/8/2011
Action Approved By: Edington, Max L	Action Approval Date: 2/8/2011

Action #:	Actionee:
10	Edington, Max L

Action Statement:	Due Date:

Complete review of actions taken and lift Stop Work on the Fire Pump portion after Fire Marshal approval has been obtained.	2/7/2011
Closure Requirements: Closure statement indicating actions taken and date completed. Attach copy of signed DCN.	
Action Taken: Working with Deputy Fire Marshal, the 100K Infrastructure Project, fire protection engineering consultant, and design-build contractor have redesigned the fire pump portion for the new 100K water treatment facility. A DCN approved by the Deputy Fire Marshal is attached. (See Attached file SUB15300-01V10.pdf)	**Completed Date:** 2/8/2011
Action Approved By: Eide, Don	**Action Approval Date:** 2/9/2011

Action #: 11	**Actionee:** Edington, Max L
Action Statement: Complete review of actions taken and lift Stop Work on the Fire Wall portion after Fire Marshal approval has been obtained.	**Due Date:** 12/16/2010
Closure Requirements: Closure statement indicating actions taken and date completed. Attach copy of signed DCN.	
Action Taken: In coordination with the consultant fire protection engineer, the Deputy fire Marshal, and the design-build contractor, the 100K Infrastructure project has re-designed the fire walls for the new 100K water treatment facility. The attached contractor submittal (WTFFireWallSubmittal.pdf) has been approved by the Deputy Fire Marshal.	**Completed Date:** 12/16/2010
Action Approved By: Edington, Max L	**Action Approval Date:** 12/16/2010

Record Authentication	
Authenticated By: Mitchelltree, Brian	**Date Authenticated:** 4/28/2011

CHPRC CONTRACTOR DOCUMENT SUBMITTAL FORM

ORIGINAL

(1) PROJECT NO.	(2) CONTRACT NO./RELEASE NO.	(3) SUBMITTAL REGISTER NO.	(4) VERSION	(5) DATE PREPARED
1605 Potable Water Treatment Facility	Contract No. 36534 / Release No. 031	131252	0	8-30-2010

(6) CONTRACTOR: George A. Grant, Inc.
1333 Gillespie, Richland, WA 99352

SIGNATURE: Tim Doyon DATE: 8-30-2010

(7) TO: PROJECT RECORDS SPECIALIST MSIN: E6-36 Phone: 509-376-6290

RECEIVED BY E-mail: FAX: 509-

PROJECT RECORDS SPECIALIST: LISA SMYSER DATE: 08/31/2010

(8) QTY	(9) DOCUMENT NUMBER	(10) REV	(11) No. of pgs	(12) FORMAT (DWG, MFC, P3, CEN, PDF)	(13) TITLE / DESCRIPTION	(14) APPROVAL TYPE (AP, APW)	(15) ASSOCIATED SPEC OR SOW REF. NO.	(16) CHPRC REVIEW STATUS A	B - NO	B - YES	C
1	131252-02 Ver 3	0	1	DWG	Stamped Structural & Architectural Drawings, Plans & Details	APW	SOW 1.4(B)				X

(17) SUBCONTRACTOR REMARKS (If this is a re-submittal to a previously approved submittal then explain why it is being re-submitted here.)

(18) REVIEWER DISTRIBUTION (HARD OR ELECTRONIC)

NAME	NAME	NAME

(19) CHPRC DOCUMENT APPROVER(S)	(20) DUE DATE BACK TO APPROVER(S)	(21) DUE DATE TO CONTRACTOR
SAM WAJEEH per email 9/7/10	09/06/2010	09/07/2010

(22) SUMMARY OF COMMENTS (IF ANY) SEE ATTACHED COMMENTS...

(23) RTR CONCURRENCE/APPROVAL (NAME / SIGNATURE / DATE)

STEVE DOUGLASS per email 9/22/10

(24) PROJECT RECORDS SPECIALIST: [ ] Submittal Version Complete [ ] Portal Complete

PROJECT RECORDS SPECIALIST: LISA SMYSER DATE: 09/24/2010

(25) SUBMITTAL FORMAT: (USED IN BLOCK 12)
DWG = AutoCad
CEN = Contractor's Format
MFC = Microsoft Format Compatible
P3 = Primavera Schedule
PDF = Adobe Acrobat (Portable Document Format)
HC = Hard Copy

(26) SUBMITTAL APPROVAL TYPE: (USED IN BLOCK 14)
APW = Approval Required Prior to Work
AP = Approval Required

(27) SUBMITTAL REVIEW STATUS: (USED IN BLOCK 16)
A Conforms to the Contract Requirements
B NO-No resubmittal. Minor Comments. Approved with exceptions as corrected.
B YES Resubmit. Minor Comments. Approved to proceed; however resubmittal is required.
C Revise and Resubmit

A-6004-757 (REV 2)

EXHIBIT 62

From: Wajeeh, Usama E
To: Simoneau, Lisa A
Subject: C - Review and Resubmit: Contract No. 38534-031, SUB 13125-02 V3, STAMPED STRUCTURAL & ARCHITECTURAL DWGS, Status: ***Out For Review***
Date: Tuesday, September 07, 2010 2:45:42 PM

Please see attached comments from Fire Protection below. Sam

I reviewed these drawings and have a few comments additionally:

1 – Rooms 102-105 show 10 ft high ceilings but there is no detail which shows a fire rating, the wall type 2 detail on sheet 2 looks like it may have been intended to meet a UL - p516 or the 2 hour version of it but this should be clarified.
2 – The 1 and 2 hour wall assembly listing UL - U465 and U412 show the walls going all the way to the roof. According to the drawing these walls surround rooms 102-105 therefore all these walls should already go to the ceiling. I'm not sure this is what I saw on the walkdown (they may not have been completed yet). This would also imply that given this and the 10' ceiling the unheated space above the ceiling issue needs to be addressed. You could potentially make the case that the walls should only go to the lower ceiling eliminated the unheated inaccessible space above the rooms but this needs to be addressed in the plan.
3 – The exterior walls are not shown as being a fire assembly. This is in conflict as the exterior doors are shown as requiring a fire rating. At a minimum the exterior structural elements require protection within the fire compartment. A case could probably be made to not require rated walls for non structural exterior elements but the easy path would be to provide rated construction.

Thanks

-Jason

PROCUREMENT / CONTRACT SUBMITTAL
APM ☒X AP ☐
A ☐ Conforms to the Contract Requirements
B ☐ Minor Comments - Approved With Exceptions as Corrected
☐ Re-submittal Required ☐ Re-submittal not Required
C ☒X Not Approved - Review and Resubmit
Sign: STEVE DOUGLASS Date: 09/22/2010
per email

From: Omberg Carro, Susan K
Sent: Thursday, September 02, 2010 2:27 PM
To: Wajeeh, Usama E
Cc: Kemp, Jason B; Edington, Max L
Subject: RE: Interior Wall Sched

Sam,

In short, I agree. These drawings appear to provide details for the wall construction, with the UL design numbers. The suspended ceilings appear to be shown, with no UL design number provided. Penetrations are not addressed, including an item of particular concern, the structural steel penetration through the suspended ceiling.

Downloading the assembly details from the UL website shows that there are multiple important assembly details for the walls that do not appear to be addressed by these drawings. The UL design provides a maximum stud spacing, information on floor and ceiling runners, and staggering of

gypsum board for multi-layer assemblies, acceptable methods of attachment, and acceptable backing for horizontal joints that are not addressed by the details provided in the drawing. Some of this may be difficult to verify by inspection at this point in time, as both sides of the wall have been finished. That makes it even more important to receive a detailed description of the construction as performed. If necessary we can cut into the wall to verify conformance.

Thanks,

Susan

From: Wajeeh, Usama E
Sent: Thursday, September 02, 2010 8:48 AM
To: Omberg Carro, Susan K
Cc: Kamp, Jason B
Subject: Interior Wall Sched

These are the drawings we received from Grant regarding their wall details (H-1-91XXX SH1 is the only location showing a 1 hr/2 hr assembly). No details indicating recessed fixtures, wall corners or the boxing of the beams. These are insufficient and will reply back to the submittal as such. Please let me know if you have any specific comments.

Sam