

**Design and Fabrication of a Cask Storage System
for the Capsule Extended Storage Project**

April 5, 2016

Dear Prospective Offeror:

Request for Proposal No: 20160216TB, Design and Fabrication of a Cask Storage System for the Capsule Extended Storage Project, Response to Offeror Questions/Amendment 1

Please see the CH2M Hill Plateau Remediation Company (CHPRC) response to the Offeror questions submitted in response to the subject Request for Proposal.

Questions & Responses:

1. Question: RFP Section A, Section 4.1, Qualification Standard, p9 of 35, states, “Potential Offerors must demonstrate that their solution incorporates a dry storage system currently approved by the NRC for use with spent nuclear fuel (SNF) and/or greater than Class C (GTCC) waste. The Offeror shall provide reference to the appropriate NRC Certificate of Conformance (CoC) and/or licensing docket number for the proposed dry storage solution.”

Draft Contract Section C, Section 3.5, Special Requirements, p 27, states, “All design calculations, analyses, specifications, drawings, and other detailed design documents produced under this Contract are property of the U.S. Government.” Please address the intent of the statement of ownership by the U.S. Government in light of the requirement that the system offered is to incorporate a dry storage system currently approved by the NRC.

Response: New design calculations, analyses, specifications, drawings and other detailed design documents produced under this Contract to modify the Contractor’s commercial system to the WESF facility and the cesium and strontium capsule waste form will become the property of the U.S. Government. Existing design media will remain the property of the Contractor.

2. Question: RFP Section A, Section 3.2.2, Technical Proposal Format/Page Limitation, p 6 of 35. Is there a page limitation?

Response: There is no page limit to the technical proposal. The Offeror’s response should be tailored to the specific requirements and evaluation criteria established by the request for proposal. Attachments consisting of standard marketing materials and product descriptions should be included only to the extent that they are clearly relevant to the requirements of this request for proposal.

3. Question: RFP Section A, Section 1.0 Introduction, p 4 of 35; and, Draft Contract, Section C, Section 3.1, Detailed Work Plan, p 10. In RFP it is stated that a Time and Materials type contract is anticipated for the design portion of the work scope and a Firm Fixed price type of

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contract is anticipated for the fabrication portion of the contract. In the Draft Contract, the Contractor must prepare a detailed work plan that describes the means by which the Contractor shall perform each task. Is a detailed work plan required for fabrication tasks and any other tasks that are Firm Fixed price?

Response: The Offeror’s work plan shall address all elements of the project, regardless of the cost structure.

4. Question: RFP Sections A, Section 4.2, CHPRC Procedures, p 29. The Contractor is required to perform design in accordance with the latest versions of CH2M Hill Plateau Remediation Company CHPRC engineering procedures. May the Contractor request exemption from this requirement and instead use their equivalent Design Procedure? This is especially important since the design of the CSS incorporate a dry storage system currently approved by the NRC which was designed and licensed under the Contractors procedures.

Response: Section 4.2 of the Statement of Work is revised to read as follows – “The conceptual, preliminary, and detailed design shall be performed in accordance with the Contractor’s approved Quality Assurance program and implementing procedures. The CHPRC engineering procedures provided in Table 1 will be used for analyses specific to complying with Department of Energy (DOE) natural phenomena hazard requirements, and for preparing design reports required for the DOE capital project approval process. These procedures are hereby incorporated into and made a part of this Contract to the extent indicated in this SOW and appendices.” See enclosed replacement pages 29, 53 and 54.

Table 1. CHPRC Design Procedures

Procedure No.	Title
PRC-PRO-EN-097	Engineering Design and Evaluation (Natural Phenomena Hazard)
PRC-STD-EN-40258	Preliminary/Final Design Report
PRC-STD-EN-40279	Engineering Drawing Standards

5. Question: RFP Sections A, Section 6.2, Quality Assurance and Control, p 32. The Contractor shall maintain a documented QA program and implementation procedures that meet the requirements of ASME NQA-1-2008 with ASME NQA-1a-2009 addenda. A Contractor’s QA program and implementation documents are tightly tied to specific procedures. While there is undoubtedly equivalencies, using specifics of CHPRC procedures conflicts with the Contractors implementation. May the Contractor request exemption from this requirement and instead use their equivalent Design Procedure? This is especially important since the design of the CSS is to incorporate a dry storage system currently approved by the NRC. If yes, what functions are performed at each location?

Response: See Question 4.

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6. Question: The RFP, Section C – Part I – Statement of Work, Section 1.0 Introduction/Background states: "CHPRC will award various contracts to support completion of the necessary scope of work for the CESP, including the following:

- Design/fabrication of a CSS
- Design of WESF modifications and CSA
- Construction of WESF modifications and CSA
- Operations support "Are you subject to ITAR?"

Will the awarded bidder for the first bullet - Design/Fabrication of a CSS, be conflicted out of the other three scope of work associated with "various contracts" beyond the Design/Fabrication of a CSS? Asked differently, will the awarded bidder for Design/Fabrication of a CSS be allowed to bid on future contracts covered in bullets 2 through 4 above?

Response: The contractor selected for the design/fabrication of the CSS can bid on the remaining three contracts.

The contractor selected for the design of the WESF modifications and CSA will not be allowed to bid on the construction of the WESF modifications and CSA.

7. Question: Will CHPRC make the Excel spreadsheet embedded in the RFP, Attachment 2, Price Schedule available to bidders?

Response: The pricing worksheet template has been posted on the CHPRC 'Current Solicitations' web page <http://chprc.hanford.gov/page.cfm/CurrentSolicitations> .

8. Question: RFP Section A, Section 4.2.A, Experience and Past Performance, p 10 of 35, states: "This criterion refers to the Offeror's experience in engineering design, licensing, fabrication, construction and operation of SNF dry storage systems. Experience conducting radioactive material handling operations on a DOE site including the application of DOE nuclear safety requirements is a significant component of this criterion. Experience with the design of a project that follows the DOE requirements for the management and acquisition of capital assets and DOE nuclear safety requirements is a significant component of this criteria. Experience with the fabrication of SNF dry storage systems is a significant component of this criterion."

The second sentence requiring specific DOE material handling experience seems overly restrictive given the scope of work required in the RFP. Specifically, material handling will be carried out using existing WESF equipment and the scope does not require the offeror to perform the movement of radioactive material nor design equipment to directly engage/handle the radioactive material. We believe commercial nuclear fuel cask handling experience is highly applicable to the requested scope of work and therefore a more

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applicable measure of experience is the handling of casks. It is understood that CHPRC (or designee) acting under their contract with the DOE will perform the capsule loading work and therefore the material handling experience requested is most applicable to the company selected to perform the capsule movement. Please expand on and clarify what specific DOE experience is required in regard to Section 4.2.A.

In regard to the requested scope of work, we believe dry storage licensing experience, fabrication and cask handling (operation) experience is most significant. It is not clear the importance of the radioactive material handling experience relevant to the other components of this criterion that are singled out as significant.

Response: This section of the RFP describes criteria that the Offeror's experience and past performance will be evaluated against. Experience with conducting radioactive material handling operations on a DOE site, including the application of DOE nuclear safety requirements, is a significant criterion, but is not a requirement.

As the Offeror's system is to be utilized on a DOE site for the handling and loading of the capsules in the Offeror's CSS, an understanding of DOE nuclear safety requirements as it pertains to radioactive material handling operations is believed to be of significant importance. While experience with dry storage licensing, fabrication and cask handling is the most important criterion, the relevant DOE experience remains a significant evaluation criterion.

9. Question: When will the FDC compliance matrix be reissued?

Response: FDC compliance matrix will be issued by April 21, 2016. Note that the compliance matrix reflects the requirements already included in the FDC and is simply a tool to support verification that the FDC requirements are complied with.

10. Question: What funding is secure?

Response: The funding for Task #1 – Conceptual Design is contained in the President's FY 2017 Budget Request for DOE-RL. The remaining tasks are included in DOE-RL's FY 2018 to FY 2022 identified funding requirements. The Capsule Extended Storage Project (CESP) is a high priority for the Department of Energy.

11. Question: What is schedule for project and schedule end date?

Response: The overall schedule objective for the CESP is to complete transfer of all capsules from WESF by September 30, 2022. Intermediate schedule dates requested for tasks within this contract are presented in section 8.3 of the SOW. It is anticipated that conceptual design funding will be available in FY 2017, detailed design (preliminary and final) funding will be

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available in FY 2018, and that funding for fabrication activities will be available beginning in FY 2019.

12. Question: How are cover blocks shaped?

Response: Drawing H-2-66418 shows the location of the cover blocks and drawing H-2-66425 shows the configuration of the cover blocks (including shapes and dimensions). These drawings are available on the FTP site.

13. Question: How many cameras are currently on the canyon crane?

Response: There are currently two cameras on the canyon crane and one in the Truck port for use by the crane operator. Bidders should assume that any necessary upgrades to the crane video system would be performed by CHPRC prior to capsule movement. See response to Question 15 and Question 96.

14. Question: What are maximum floor loadings in cask handling areas?

Response: G-Cell, Canyon, and Truck Port: The following table provides a summary of the floor loading limits for WESF G-Cell, Canyon, and Truck Port floors. The limits include a 25% factor for dynamic loading.

Cask Diameter	Load Limit (lbs)		
	G-Cell	Canyon ^a	Truck Port
2 ft	8,800	26,400	20,500
2.5 ft	11,600	40,200	25,400
3 ft	15,000	34,400	30,200
3.5 ft	18,000	72,800	34,850
4 ft	24,400	86,400	39,400
4.5 ft	28,800	112,000	43,750
5 ft	34,800	128,000	48,000
5.5 ft	41,600	154,400	52,150
6 ft	48,000	183,000	56,200
^a The load limit for the canyon floor is reduced by 10 tons to account for cover blocks			

These load limits were developed using conservative application of relevant codes and industry standards. Due to conservative assumptions to enable hand calculations, the actual floor capacities are higher. For higher loads, more detailed analysis can be performed to account for the plate behavior of the floors instead of the beam behavior used in this calculation.

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For loads that exceed the load limits provided based on the footprint area, the load limit can be increased by spreading the load over a larger area.

These limits are obtained from a preliminary calculation that will need to be confirmed before proceeding with any design effort.

Cask pit area: Area to the west of the cask pit is rated for 500 pounds /square inch (equivalent weight of 15-ton cask)

Pool cells: An important function of the pool cell structure is to retain the water that provides shielding and cooling to the capsules. Activities to move heavy objects over the pool cells (including pool cell 12) is currently prohibited by the WESF safety basis to prevent a drop accident that would damage the pool cell foundation/liner such that water would leak out of the pool cells. Use of heavy equipment in the pool cell area would need to be evaluated and controls will likely be required to ensure that the pool cell structure remains capable of performing its function.

15. Question: Are the crane upgrades within the scope of the CSS Design/Fab contract?

Response: No. However, the crane requirements, to support the CSS Contractor's proposed system, must be identified by the CSS Contractor.

16. Question: How long is cycle to remove cover blocks?

Response: It takes approximately 1 hour to remove a cover block. The activity to remove a cover block, move equipment through the opening, and then replace the cover block takes approximately 4 hours.

17. Question: How long does it normally take to recover from a vent alarm from low differential pressure between zones?

Response: Nominally one to two hours.

18. Question: Is testing equipment for capsule integrity/dimensional verification (straightness, etc.) part of this contract?

Response: No. However, the CSS Contractor must identify any external capsule dimensional verifications required to support their concept.

19. Question: Is drawing of lifting bail used for moving BUSS cask into canyon available?

Response: A drawing for this component is not available.

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20. Question: A tar-like material used as a sealant in a pool cell is present on some capsules. Is the composition of the tar-like material and amount present available?

Response: The exact composition and amount of the material present is not known. CHPRC-02306, *WESF Capsule Residue Report*, identifies the capsules that exhibit deposits of organic residue.

21. Question: What are dimensions of G-cell, G-cell cover block, truck port, truck port cover block, cover block between canyon and pool cell area?

Response: Approximate dimensions are as follows (dimensions of openings that cover blocks sit in are provided rather than cover block dimensions). Cover block dimensions are shown on drawings referenced in response to Question #12. The drawings are on the FTP site.

- The opening between the truckport and the WESF canyon is approximately 8.0 ft wide and 12 ft long
- The opening between the pool cell area and the WESF canyon is approximately 6 ft wide and 12 ft long
- G Cell is approximately 8 ft wide and 16 ft long. Cover blocks extend over the top of G Cell. The bottom of the G Cell cover blocks is 12 ft above the G Cell floor.
- The truck port is approximately 37 ft long by 12 ft wide by 15 ft high. The truck port door opening is approximately 10 ft wide by 12 ft high.

22. Question: What is grade from truck port entry up to road?

Response: Use survey #SR-16-063 for existing ground profile elevations along the approximate centerline of the paved access road from the east edge of Atlanta Avenue to the concrete pad on the west side of the WESF truck port. A copy of Survey #SR-16-063 has been added to the FTP site.

23. Question: What is the maximum dose rate from a capsule?

Response: The following are calculated dose rates for typical capsules:

Cesium capsule (70kCi) – 29,000 rem/min at 1 cm (1.7 mrem/hr)

Strontium capsule (140kCi) – 1000 rem/min at 1 cm (62,000 rem/hr)

24. Question: What radiological conditions should be assumed for the WESF canyon?

Response: Currently, the canyon is considered to be a high contamination area (due to some equipment with higher levels of contamination). Routine access does not require respiratory protection; intrusive work does require respiratory protection. Once the legacy contamination

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in the hot cells are stabilized, there will be no more source to add contamination to the canyon and clean-up efforts could significantly improve the conditions. It is expected that some level of radiological controls will be required (anti-contamination clothing, no respiratory protection).

25. How many capsules can be placed in G-cell at one time and what operational controls are in place when capsule(s) are in G-Cell?

Response: From the WESF documented safety analysis (DSA): maximum capsule inventory in G Cell is 150 kCi of Cs and 150 kCi of strontium. Number of capsules allowed depends on how many curies are in the specific capsules. The DSA also requires that the cover blocks be in place and the personnel door be closed if exposed capsules are located in G Cell. Unshielded capsules will result in lethal radiation levels.

From the WESF RCRA permit: maximum inventory of 9 capsules is allowed.

The capsule inventory limits in G Cell will be reevaluated based on the requirements of the capsule off-load process. Changes to the DSA will require DOE approval, changes to the RCRA permit will require regulatory approval (Washington State Department of Ecology).

26. Question: CHPRC-02622, Rev 1, FDC, Section 4.0 (and other locations in the SOW): states that the transfer system components includes the transfer cask, trailers, dollies, and tugs, pushers, or tractors used to move any trailer or dolly includes commercially available equipment or equipment expected to be readily available at Hanford, would CHPRC accept leasing this equipment rather than purchasing this equipment? If so, please provide expectation for pricing provisions.

Response: Offerors shall propose prices based on purchasing all of the required equipment as the baseline. Offerors may include leases with an option to purchase the equipment as an alternative proposal.

27. Question: CHPRC-02622, Rev 1, FDC, Section 4.0 (and other locations in the SOW): states that the ancillary equipment includes welding and helium leak detection equipment. In typical dry cask storage projects, this equipment is leased from the entity providing canister closure services in lieu of the client purchasing these items. Please consider this cost saving measure.

Response: See response to Question #26.

28. Question: CHPRC-02622, Rev 1, FDC, Section 4.0 (and other locations in the SOW): states that the ancillary equipment includes:

- Cranes
- Forklifts

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- Man lifts

These items are commercially available or may be available on the Hanford site, please confirm that the fixed price is to include the purchase of this equipment. Please also note that Appendix C (draft contract) Section 3.3.3 states that cranes, man lifts, and forklifts will be provided by WESF.

Response: Offerors shall include in their fixed price only that ancillary equipment that is unique to its proposed design solution and which is a specialty item, or item that is otherwise customized per the unique design solution being proposed. Items that are generally commercially available shall be provided to Offerors per RFP_20160216TB_Part_C, Section 3.3.3.

29. Question: CHPRC-02622, Rev 1, FDC, Section 4.1 states: The analytical methods used for the design and adaptation of the equipment for use at WESF will follow the DOE and CHPRC requirements contained within this FDC with the exception of those associated with structural analysis codes and methods.(Structural analysis and materials will be completed as defined in Section 4.1.4.4.)

Please provide additional detail on this statement, “will follow the DOE and CHPRC requirements contained within this FDC”. We are unable to locate specific requirements for analytical methods to be used. Please clarify if analytical methods used are to be consistent with those used to support the CoC of the base dry storage system.

Response: DOE and CHPRC requirements applicable to the design process are listed in the References section of the FDC, and in the Code of Record referenced in the FDC (available on the project FTP site). Generally, these requirements do not specify an analysis method; however, they may specify the inputs and/or processes to be used to perform the analysis using the contractor-selected method.

30. Question: CHPRC-02248, Rev 1, FDC, Section 4.1.1 states: Based on the capsule data provided in CHPRC-02248, the CSS contractor is responsible for selecting the capsules to be stored in each canister and for providing heat load and structural calculations for each canister. Therefore, it is the CSS contractor’s responsibility to determine the total quantity of canisters required for the project.

- a. Please clarify the expectation for the structural calculations for each canister.
- b. Is a bounding structural analysis acceptable?

Response: The CSS Contractor is responsible for designing a canister for the WESF capsule payload meeting the structural and thermal limitations of the codes and standards applicable to their existing CoC, and the requirements of the RFP package. Appropriate structural and thermal calculations must be performed to demonstrate that these requirements have been

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met. The CSS Contractor may choose specific combinations of capsules from the WESF inventory to place in individual canisters (e.g., combinations of “hot” and “cold” capsules) to achieve these requirements, within the limitations established in the RFP. A single structural analysis using bounding conditions, or a set of structural calculations, each of which bounds a family of capsule/canister combinations with common conditions, is acceptable, provided that the Contractor can demonstrate that the calculation bounds all pertinent capsule characteristics.

31. Question: CHPRC-02622, Rev 1, FDC, Section 4.2.6 requires The CSS contractor shall provide canister cool -down equipment capable of supporting canister unloading in accordance with the storage system overall design capabilities. The cool-down equipment shall have features necessary to force helium flow, cooling, and monitoring functions required to establish safe conditions for capsule removal.

Is cooling the capsules by air during the loading / unloading process acceptable (of course maintaining capsule heat limits)?

Response: Offerors shall propose prices based on purchasing all of the required equipment as the baseline. Offerors may propose a cooling gas other than helium as an alternative proposal provided that all other requirements (e.g. thermal, safety, operational, etc.) are met and that the alternative proposal is consistent with the technical specifications and procedures associated with the Offerors’ CoC enveloped systems.

32. Question: CHPRC-02622, Rev 1, FDC, Section 6.1.3 Instrumentation and Control Systems. Please clarify where the price for this equipment is to be provided.

Response: Offerors shall propose prices based on purchasing all of the required equipment as the baseline. The price build-up for any of the major SSCs that the Offerors are including in their pricing shall include any associated instrumentation and control system equipment, sub-components, etc.

33. Question: CHPRC-02622, Rev 1, FDC, Section 6.2.1 states: Components shall be designed such that continued integrity of the component can be verified over the design life to ensure continued functionality of the component within original requirements.

- a. This is a broad requirement; please provide criteria / expectation for “continued integrity of the component can be verified”.
- b. Please clarify what equipment this requirement applies to.

Response: The expectation is that the same design lifetime and periodic inspection and verification criteria imposed by the NRC regulations, and met in current designs per the CoC design basis, maintenance procedures, inspection procedures, test plans, etc., shall be

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documented in sufficient detail such that the design lifetime requirements, (inclusive of maintenance, etc.) for this contract can be shown to be met.

This applies to all equipment identified in the CoC, as well as any new equipment that fulfills a safety related function specific and unique to these contract required design efforts.

34. Question: CHPRC-02622, Rev 1, FDC, Section 8 Transportation and Packaging provides two (2) options for Transportation of canisters between WESF and the CSA and an alternate.

Response:

- a. Who is responsible for making this determination of which option or the alternate approach?
- b. When is this determination made as it determines the basis for the design of the transfer cask?
- c. Does this requirement apply to the Overpack if it is used to move the canisters to the CSA (meaning not a transfer cask)?

Response: See responses to Questions 54 and 98. Offerors shall sufficiently document their initial determination or enabling assumption, in support of their pricing proposals, as to whether or not their proposed solution is compliant with 10 CFR 71; or is “DOT-equivalent”, or will likely need to be analyzed and authorized via a CHPRC led documented safety analysis. The final determination is made during the course of the design review process. The requirements apply to ALL onsite movement of radioactive material at Hanford.

35. Question: Please clarify the expectation for licensing under 10CFR72 (e.g., is the Offeror to pursue an amendment to the general CoC for the CSS, etc.)?

Response: The CSS Contractor will identify any project-specific changes to the Contractor’s NRC-licensed storage system that would require a CoC amendment. The Contractor will prepare a plan for submittal of any CoC amendment that would be required by the above changes. At this time, CHPRC does not intend to require the Contractor pursue a CoC amendment or NRC licensing of the CSS. The CSS will be authorized through 10 CFR 830 and related DOE Orders and guidance documents.

36. Question: Please clarify the level of detail of the design of the CSS required in the proposal

Response: Offerors are expected to develop and present a design in sufficient detail such that the Contractor’s proposed approach to modifying their existing NRC-system for storage of the WESF capsules can be understood. This includes any supporting analyses required to demonstrate that the system can be modified to accommodate the WESF capsules within the limits (e.g., thermal, structural, radiation dose) required by the RFP. The design must also be developed in sufficient detail to support the proposed cost and schedule, including but not limited to the number of canisters and casks required for storage of the capsules. Offerors

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are expected to identify any required WESF modifications at a sufficient level of detail such that the scope of the design and modification efforts can be understood at the level necessary to develop a cost and schedule estimate for this work.

37. Question: Please clarify how / where to provide the fixed price for the Tasks 4-7 (perhaps we missed these on the pricing worksheet). Additionally, please clarify the expectation for providing a fixed price for Tasks 4-7 given the lack of maturity of a design at this time.

Response: RFP Part A, Attachment 2 provides a table to capture the Task 1 – 8 totals. Additionally, Attachment 2 provides direction on the variance between design assumptions made during the solicitation phase.

<i>Description</i>	<i>Type</i>	<i>Amount</i>
<i>Task 1 – Conceptual Design</i>	<i>Time & Material</i>	
<i>Task 2 – Preliminary Design</i>	<i>Time & Material</i>	
<i>Task 3 – Final Design</i>	<i>Time & Material</i>	
<i>*Task 4 – Fabrication, Inspection, Testing, Delivery of CSS</i>	<i>Firm Fixed Price</i>	
<i>*Task 5 – Fabrication, Inspection, Testing, Delivery of Transfer system</i>	<i>Firm Fixed Price</i>	
<i>*Task 6 – Fabrication, Inspection, Testing, Delivery of Ancillary Equipment</i>	<i>Firm Fixed Price</i>	
<i>Task 7 – Mock-up/Integrated Testing</i>	<i>Time & Material</i>	
<i>Task 8 – Technical Support Services</i>	<i>Time & Material</i>	
	<i>Estimated Total</i>	

** Prior to receiving authorization to begin work on Tasks 4, 5 and/or 6 for Fabrication, Inspection and Delivery activities, Contractor will be required to submit a variance document that details any variances between design assumptions made during the solicitation phase in pricing these activities and the actual requirements as set forth in the Final Design. This variance document must also identify any cost and/or schedule impact associated with each identified variance for CHPRC review and consideration.*

38. Question: Are provisions for escalation of labor rates and fixed prices permitted?

Response: Forecasted escalation is allowed. See Question 37.

39. Question: Please clarify the level of detail of the design of the CSS for Alternate Capsule Packaging for Borehole Disposal.

Response: Appendix A of the Statement of Work describes the additional requirements for an alternative packaging configuration for the WESF capsules within the CSS contractor's

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NRC-approved storage system. Like the baseline alternative requested by this RFP, the packaging configuration may require modifications to the contractor's existing NRC-approved storage system. Offerors are expected to develop and present a design for the Alternate Capsule Packaging for Borehole Disposal in sufficient detail such that the modifications to the existing NRC-approved storage system, and the differences between the baseline and alternative configurations, can be understood. The design must also be developed in sufficient detail to support the cost and schedule impacts presented for this alternative.

40. Question: Please clarify the process / expectation for pricing the Alternate Capsule Packaging for Borehole Disposal in Appendix A of Part C (perhaps we missed these on the pricing worksheet).

Response: RFP Part A, Attachment 2 provides direction on pricing of the alternate scope.

Alternate scope:

In addition, the Offeror is to provide with their proposal the technical, cost and schedule impacts to their baseline proposal for the alternate scope included in the Statement of work, Section 2.0 Description of Work – General and Appendix A.

41. Question: Please clarify if it is mandatory for an Offeror to include Alternate Capsule Packaging for Borehole Disposal in their offer to CHPRC.

Response: Yes, Offerors must include the Alternate Capsule Packaging for Borehole Disposal option.

42. Question: Please provide the size of opening when only partial block is out of the Canyon.

Response: Dimensions of cover blocks and openings can be found on drawings H-2-66418 and H-2-66425.

43. Question: Please provide floor load capacity in the truck bay, G cell, and cask loading area of the pool.

Response: See response to Question #14.

44. Question: What is water coverage required for the capsules (e.g., when a capsule is lifted, what depth of water must be maintained above the capsule) imposed by procedure, equipment or practical limitations?

Response: Current operating procedures prohibit the capsules from being lifted greater than 6" above the level of the transfer ports (transfer ports are ~ 3 ft. above the pool cell floors). This is to keep as much water as possible above the capsules. Shielding calculations should

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be performed to determine how much shielding is required if capsules need to be lifted higher.

45. Question: Please define “extended storage period”.

Response: Extended storage period starts with the transfer of the capsules into the Cask Storage System and ends when the capsules are transferred from the Cask Storage System to disposal. Since a disposal pathway has not been identified for the capsules, it is impossible to quantify this duration. Section 6.2 of the FDC discusses Design Life for the components of the Cask Storage System.

46. Question: During the pre-proposal conference, CHPRC stated that responses to questions will be provided by April 7. In order to incorporate these responses and for Offerors to submit robust proposals we respectfully request CHPRC to provide an additional 4 weeks to submit the proposals.

Response: An extension until May 23, 2016 will be allowed.

47. Question: Various requirements documents, including HFN-8758 Rev. 11, HNF-8759, provide the maximum G-Cell material inventory (150kCi for Cs and 150kCi for Sr) and the DSA basis for this limit. Other documents, such as WMP 17265, page 3-2 implies certain assumptions that the heat load content may a limiting factor. Based on the correlation between capsule heat load and kCi, it appears that the 150kCi for Cs and Sr is most limiting. Please clarify what would be the maximum capsule kCi content and heat load that would be permitted in the G-Cell during operations.

Response: In the past, up to 16 capsules were allowed in G Cell. Assume that a similar inventory will be acceptable. It is understood that this will require changes to the WESF safety document and RCRA permit.

48. Question: Document WMP 17265 Table 5.1, Capsule Evaluation against Acceptance Criteria, identifies overall inspection acceptance criteria for capsules. Based on this criteria, it appears that some of the visual inspections can only be performed in the G-cell. Can CHPRC confirm that a similar acceptance criteria will be applicable to ascertain capsule integrity prior to loading?

Response: CHPRC-02622 states that capsules must be identified as they are loaded into the canister, and that examination will be required to ensure that each capsule will physically fit into the storage configuration. These can be performed in G Cell, but can also likely be performed in the pool cells.

49. Question: Is it correct to assume CHPRC will perform the necessary characterization or inspection of capsules to confirm integrity prior to (not during) canister loading operations?

Response: Any characterization or inspection of capsules to confirm integrity will be performed by CHPRC before the capsule is placed into the canister. It has not been

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determined if this will be done prior to or during the loading operation. Any throughput assumptions should be documented.

50. Question: Please clarify specifically how CHPRC would like the cask design to handle any new potential damaged capsules, if any? Please confirm that any leaking capsule identified during loading will be repackaged in W overpacks by CHPRC and the cask vendor will only be concerned with designing a canister that can accommodate W overpacks, as already stated in the specification.

Response: It is not expected that any damaged capsules will be found. Any damaged or leaking capsule will be placed into a Type W overpack by CHPRC prior to loading into a canister.

51. Question: For each design stage, please specify the requirements for submittal of safety documentation and the expected duration required for DOE review and approval of these documents. For example, following completion of the CDR, what time period should be assumed for preparation by CHPRC of the PHA, PFHA, CSDR, and SDS update, and review and approval of these documents by DOE before the Preliminary Design Phase can begin? Our intention is to allow reasonable time for these activities in our project schedule.

Response: CHPRC will provide safety documentation to RL as identified in Table 1 of CHPRC-02236, Extended Capsule Storage Project Safety Design Strategy. CHPRC will utilize conceptual, preliminary, and final design contractor documentation identified in Section 3.2 of the Statement of Work for development of safety documentation, per submittal schedules identified in Appendix B. The contractor should assume 2 months for completion of CHPRC actions for PHA, PFHA, CSDR and SDS update after the CSS Contractor submittal of CDR to CHPRC for review. DOE review of all safety basis documentation requires 120 calendar days.

52. (Ref. CHPRC-02622 Revision 1) In several places in the document, the term “worst case” is used, including:

- a. (p. 21, final paragraph) “This is expected to include temperature monitoring devices inside cesium and strontium storage overpacks representing the worst case loading configurations as close to the canister as possible.”
- b. (p. 26, paragraph 4) “An additional analysis shall be performed to show that temperature limits can be maintained assuming worst case failure of the capsules.”
- c. (p. 29, first paragraph) “The canister providing containment of the capsules shall be designed to maintain its containment when subject to worst case design loads for the canister, without taking credit for the corrosion allowance.”

To ensure that all bidders have the same understanding, please provide definition of “worst case” as used in the document.

Response: The definition of “worst case” is contextual in nature, and therefore Offerors shall take the context into consideration. As an example, in ‘a’ above, worst case is related to the

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statement “To confirm the validity of the heat transfer analysis and associated modeling,” at the start of that same paragraph. Please see the response to Question 30 for other considerations associated with that analysis.

Similarly, for ‘b’ above, the specific contextual definition of “worst case” pertains to the failure of the capsules in a high heat environment. This specific circumstance is described in CHPRC-02622, Rev 1, page 8, 6th paragraph: “...Heat shall be removed from the capsules to control the temperature of the cesium or strontium salt within the capsule, both in the bulk salt and at the interface between the salt and the stainless steel capsule. Elevated temperatures will enhance the corrosion rates of the stainless steel capsules; temperatures that exceed the melting point of the salts within the capsules may cause the contents to expand, potentially breaching the capsule and releasing its radioactive contents.” The response to Question 30 is also applicable to this specific example.

For ‘c’ above, please refer to the response for Question 30.

53. Question: (Ref. CHPRC-02622 Revision 1, p. 22, paragraph 2) For this statement (also used in other locations in this document): “Safety SSCs shall remain operational over the anticipated ranges from normal, off-normal, and accident conditions,” please define “accident conditions.”

Response: The definition of “accident conditions” is situational specific and a critical element of the safety basis, authorization basis, and design basis of all designated Safety SSCs. Examples include, but are not limited to ‘accident conditions’ associated with the transportation of radioactive materials on the Hanford site [e.g. a load typing over during travel]; during the loading of a canister [e.g. ‘hung’ load or dropped load], etc.

Specific accident conditions have been identified and analyzed in accordance with DOE-STD-1189, *Integration of Safety Into the Design Process*; DOE-STD-1195, *Design of Safety Significant Safety Instrumented Systems Used at DOE Non-Reactor Nuclear Facilities*; and other requirements documents as noted in Sections 6 (in particular 6.6.5 and 6.7), 7 and 8 of CHPRC-02622, Rev 1. The CESP-specific strategy is described in CHPRC-02236, *Extended Capsule Storage Project Safety Design Strategy*.

54. Question: Please clarify if 10 CFR 71 requirements would apply to the onsite transport of loaded casks from WESF to the CSA.

Response: The onsite movement of radioactive materials at Hanford is governed by DOE/RL-2001-036, *Hanford Sitewide Transportation Safety Document*, which is referenced in the FDC. This document is the Hanford Site-specific Transportation Safety Document (TSD) described in DOE Order 460.1C, *Packaging and Transportation Safety*. The *Hanford Sitewide Transportation Safety Document* requires that onsite shipments of radioactive materials between Hanford facilities either 1) be compliant with 10 CFR 71; 2) are “DOT-equivalent,” meeting design and performance requirements that are equivalent to DOT

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requirements for Hanford site-specific conditions (e.g. slow transport speeds); or 3) are analyzed and authorized by a documented safety analysis (DSA) meeting the requirements of 10 CFR 830, Subpart B. To the extent that the onsite transport of loaded casks could comply with 10 CFR 71, or could be considered DOT-equivalent, 10 CFR 71 would be applied. If the onsite transport of loaded casks could not comply with 10 CFR 71, a DSA would be required; this DSA would be prepared by CHPRC with contractor input (e.g. calculations required to support the DSA) following the requirements described in DOE/RL-2001-36.

55. Question: Please clarify if 10 CFR 830 will be used to authorize CSA and not a 10 CFR 72 CoC amendment.

Response: CSA operations will be authorized by 10 CFR 830.

56. Question: Will onsite construction of casks be allowed?

Response: On-site construction / fabrication of casks is not allowed under this contract.

57. Question: We respectfully request four (4) additional weeks to prepare and submit our proposal. The additional time will allow for better development of our approach, pre-planning for project-specific equipment and cask components, and will facilitate quality dialog and better pricing with our supply chain vendors.

Response: See response to Question 46.

58. Question: We respectfully request one (1) additional week to submit questions to CHPRC. The site walkdown was only last week, and we have had a holiday weekend in the meantime. We will use the additional time to review the 68 documents provided as background on the project, and will be better able to request pertinent information to result in a better-developed solution for the project.

Response: CHPRC will consider additional comments. Comments are to be submitted to CHPRC by April 18, 2016, responses will be available on April 25, 2016.

59. Question: (Ref. RFP Parts A and B, section 3.2.3) Do page limits apply to any portions of the proposal in addition to key personnel resumes?

Response: See response to Question 2.

60. Question: We are pleased to provide the financial information requested in RFP Section 4.3, Item 6. We ask that this information be submitted to and viewed only by individuals with a specific need to see this data. As such, could we submit this company sensitive / confidential information in a sealed envelope separate from our offer with this information to be viewed by only those with a need to view the information? We thank you for your understanding of this request.

Response: Offeror(s) may submit this data in a sealed envelope separate from the offer to the contract specialist. Please ensure to mark as company sensitive / confidential. This information is reviewed by our cost price analyst for financial capabilities as described in the RFP Part A, Section 6.7.

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61. Question: IF POSSIBLE - PLEASE REPLY ASAP: CHPRC-02622, Rev 1, FDC, Section 4.1.4.6: Apparently a loss of integrity of a capsule during loading operation is possible. Does this preclude performing the loading operation outside a building, or inside a building with doors to the outside opened (e.g., truck bay door open – essentially outside)?

Response: Loading capsules into a canister outside, or inside a building with outside doors open, is not allowed.

62. Question: During the pre-proposal conference, CHPRC stated that responses to questions will be provided by April 7. Additionally, the level of preliminary design work that is needed to provide a fixed price for both the base and alternate offers is substantial. In order to incorporate the responses, prepare two preliminary designs, and for Offerors to submit robust proposals we respectfully request CHPRC to provide an additional eight (8) weeks to submit the proposals; perhaps a 4 week extension for the base work, with 2-4 weeks additional time on top of the 4 weeks extension to submit the alternate proposal.

Response: See response to Question 46.

63. Question: SOW, Section 3.1, pg. 13, 3rd para; and Section 8.3, pg. 51: What is the duration of time that should be assumed between the completion of Preliminary Design and the initiation of Final Design?

Response: CHPRC will perform a formal design review on the Preliminary Design. CHPRC will authorize the start of the final design upon resolution of the design review comments. The design review and resolution of comments will take 4 weeks.

64. Question: SOW, Section 3.2.1, pg. 19, 5th bullet; and Section 8.1, pg. 50, 2nd bullet, 5th dash: These sections indicate that CHPRC is asking the Offeror to amend the base system CoC to incorporate the design for the storage of the capsules. Please clarify the intent.

Response: The noted section of the SOW directs the CSS Contractor to identify any project-specific changes to the Contractor's NRC-licensed storage system that would require a CoC amendment. The noted section also directs the Contractor to prepare a plan for submittal of any CoC amendment that would be required by the above changes. At this time, CHPRC does not intend to require the Contractor to pursue a CoC amendment or NRC licensing of the CSS. The CSS will be authorized through 10 CFR 830 and related DOE Orders and guidance documents.

65. Question: CHPRC-02622, FDC, Section 6.7.1, pg. 45, para 7: The paragraphs states, "If modifications are necessary to the WESF Facility to support CESP activities, analyses will be performed..... "Two questions result from this:

- a. Will the analyses be performed by CHPRC? and
- b. It is assumed that this analysis is in the WESF Mods scope – true?

Response: The analysis will be performed by CHPRC, with design input as may be necessary from the CSS Contractor. The analysis will be part of the WESF Modification design contract.

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66. Question: RFP, Section 4.3.1, pg. 17 of 35, 3rd para: Each of the tasks will be authorized and funded separately. SOW, Section 3.1, pg. 11, WBS 013.02.04.08.04 and WBS 013.02.04.08.05; Preliminary and Final design scope will be muddled between these two WBS's. Suggest modifying these lower level WBS's as we move forward.

Response: Preliminary design and Final design must each be provided consistent with scope and level of design maturity identified in the statement of work. Work planning will need to clearly identify end point for specific components within the preliminary design consistent with the statement of work to ensure activities are captured within the appropriate WBS.

67. Question: RFP, Section 4.3.1, pg. 17 of 35, 4th para: "The WBS shall address the differences in capital and expense funding." We can take an educated guess on the tasks that are funded with expense or capital money, but if you can provide guidance, our WBS will reflect the funding source appropriately.

Response: The WBS presented in the Statement of Work is structured to separate capital from expense.

68. Question: RFP, Section 4.3., Item 10 and Section 6.6: Certified Cost and Pricing Data indicates that CHPRC "may require the Offeror" to provide pricing data prior to award if exemption from TINA is not achieved.

As there is certainly the expectation and appearance that there is more than adequate competition for the award of this scope [FAR15.403-1(c) and 15.403-3(b)] and competition is considered an objective indication of price reasonableness, and also that the FAR policy is to not unnecessarily require submission of data, will CHPRC reconsider the 6.6 Required Price Support Information?

Response: Certified cost or pricing data has not been requested or required at this time. Requirement for submission of pricing support as required by RFP Section 6.6, Required Price Support Information remains unchanged. Completion of the pricing worksheet is considered a portion of this requirement. Sufficient detail is required for evaluation of proposal of this magnitude and complexity and evaluation of variances in costs associated with the detail design. Reference RFP Part B, Attachment 2, Price Schedule,

“* Prior to receiving authorization to begin work on Tasks 4, 5 and/or 6 for Fabrication, Inspection and Delivery activities, Contractor will be required to submit a variance document that details any variances between design assumptions made during the solicitation phase in pricing these activities and the actual requirements as set forth in the Final Design. This variance document must also identify any cost and/or schedule impact associated with each identified variance for CHPRC review and consideration.”

69. RFP, Attachment 2, Price Worksheet: there is a standalone entry for "training", please clarify what training this is referring to.

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Response: Pricing worksheet is a *template* for providing pricing support on the Time and Material work. If training costs are not applicable the area may be left blank. However, please reference the SOW section 5.1 Training and Qualification, for training requirements for site and facility access and technical support services activities.

70. Question: RFP, Attachment 2, Price Worksheet: the worksheet requires “Individual Name”. As this is a large, long-term project, please confirm it is acceptable to use “various” or “TBD” rather than providing actual individual names at this time.

Response: Pricing per job title may be used instead of by individual name.

71. Question: CHPRC-02622, FDC, Section 4.1.4.6, Containment: Spent Fuel storage Canisters are not design as or considered as containments (10CFR71). They are also not leaktight per ANS N14.5. Per 10CFR72, they are considered a confinement, and are considered to have no credible leakage under storage conditions, per ISG-18. Please clarify the intent of this section.

Response: Per CHRC-02622, Section 4.1.4.6, “The capsules shall be assumed to maintain the gross configuration of the salts, but there may be some leakage of radioactive material outside the capsule during storage.”

The canister shall comply with codes and requirements identified in the Offeror’s NRC-approved design and CoC. This may include elements other than design, fabrication, and final closure. Code requirements approved by the NRC that meet the intent of the requirements for the CESP design shall be identified. Code exceptions previously approved by the NRC that would be applicable to the CESP design shall be identified. Any additional code requirements specific to the CESP design, including exceptions for requirements that cannot be complied with for the CESP design, shall be identified by the Offeror, together with the plan for addressing any exceptions. The Offeror’s cost and schedule should reflect this plan.

Therefore, Offerors must be able to demonstrate that there are no credible leakage scenarios under on site movement and storage evolutions and conditions. It is intended that Offerors make best use of their current design basis and CoC approved systems to the maximum extent possible, inclusive of alternative codes and standards that have been NRC approved as a part of their approved design and CoC. Offerors must demonstrate that their current design basis and CoC based systems, as modified to meet the requirements for use at Hanford with the payload represented by the WESF capsules, meet the contract stipulated requirements or their engineered equivalent as reviewed and approved by CHPRC.

72. Question: CHPRC-02622, FDC, Section 4.1.4.4: Could you please provide document ARH-CD-440. To develop the concept of the storage and transport system, it would be necessary to have an initial insight on the structural performance limits of the capsules.

Response: ARH-CD-440 has been added to the FTP site.

73. Question: CHPRC-02622, FDC, Section 6.2.2: Please clarify the expected design life of the canister.

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Response: The canisters shall have a design life of 300 years without loss of design function, inclusive of any extensions beyond the current CoC covered basis and any measures necessary to maintain that function without the need of unloading and repackaging the capsules (through the use of a canister overpack if/when needed, for example).

74. Question: CHPRC-02622, FDC, Section 3.1: states that the design life of the capsules is only 50 years. Question: what assumptions of the condition of the capsules need to be taken for the time after the capsules exceed their design life other than the 0.125" corrosion consideration for the canister wall (Section 4.1.4.5 / 4.1.4.6)?

Response: Per CHRC-02622, Section 4.1.4.6, "The capsules shall be assumed to maintain the gross configuration of the salts, but there may be some leakage of radioactive material outside the capsule during storage."

75. Question: CHPRC-02622, FDC, Section 4.1.4.1, states "Capsule identification numbers shall be recorded as capsules are loaded into the canister and shall be verified before closure operations begin." We presume verification of the capsule ID after the capsule is loaded into the canister could only be done by visual inspection. Depending on the size of the canister this could be operationally difficult, and have a negative impact on the design and performance of the canister. Are there any alternatives to a visual inspection, or on the time of inspection?

Response: It is not intended that a visual inspection in canister after loading be conducted. Offerors are expected to provide the systems and capability to visually record the required ID information at the time of loading and that a verification or validation process and capability be provided to assure that the location of a specific capsule is tied to a specific canister into which it has been loaded. For example [but not to be considered the only solution], a video record of the capsule ID at the time of loading into a basket assembly, along with a continuous video record of the basket assembly up to and including its loading into a canister, coupled with an audio record of the specific capsule ID, basket ID [if applicable] and canister ID with time stamps of movement, etc. Offerors shall propose a solution that meets the requirement.

76. Question: CHPRC-02622, FDC, in section 4.1.4.1, there is a discussion on roundness and straightness of the capsules which indicates that there is some variation in the outer dimension. This may affect the design and/or performance of the basket for the capsules. Are tolerances and/or as-built dimensions available for the capsules? Do any of the capsules exhibit bow or twist? If so please quantify.

Response: CHPRC-02622, Section 4.1.4.1 statement "Equipment to ensure that capsules will fit into the required storage configuration will be required (e.g., roundness and straightness gauging)." was not meant to infer that there are in fact any eccentricity, run out, bowing, twisting or other dimensional problems with the capsules. Rather, the requirement was made to ensure that the Offeror's provided solution had the means to check in field each capsule to assure that it would fit into their basket assemblies as designed thereby not adversely affecting system solution performance. See response to Question 18.

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References provided, in particular WMP-16937, ARH-CD-440, and ORO-914 contains detailed information about the capsules, their content, and their physical configurations.

77. Question: CHPRC-02622, FDC, Section 4.1.4.2: what is the “worst case failure of the capsules” that is to be expected? For example would that be a breach of both cylinders of the capsule with little release of material, or a complete failure of all welds leading to a release of all the content of the capsule into the canister.

Response: Please see the response to Questions 30 and 52.

78. Question: CHPRC-02622, FDC, Section 4.1.4.2: Thermal cycling: the paragraph states that the maximum temperature limits in Table 4-1 cannot be exceeded, but then defines thermal cycling as a condition where the storage limit is in fact exceeded. For the processing/off-normal conditions, is it therefore permissible to exceed the storage limits, although it has separate limits listed? If not, what cycling conditions are intended to be addressed by that requirement? This section is confusing to determine which limits apply to what cycling, etc.

Response: CHPRC-02622, Section 4.1.4.2 defines thermal cycling as a transient event wherein the temperature limits for “Extended Storage” are exceeded for a limited duration. NOT an event where the Processing (including process upset conditions) thermal limits are exceeded, nor an event wherein the Accident condition thermal limits are exceeded. The design solution offered shall meet the requirements stated in Table 4-1 while using only passive systems as stated.

79. Question: CHPRC-02622, FDC, Section 4.1.4.7 and 6.5.2: Storage system licensed under 10CFR72 are already meeting the applicable ALARA requirements in that regulation, per the NRC approval. Further, there is a large body of industry experience from the loaded systems. It is therefore not clear what additional ALARA decision making processes and analyses are needed. Please clarify.

Response: Existing storage systems licensed under 10 CFR 72 meet applicable radiation protection requirements described in 10 CFR 72.24 (and by reference, 10 CFR 20) for the contents allowed by their existing CoC, including the loading and handling operations associated with these contents. The WESF capsules and their loading and handling operations may differ from the characteristics, loading and handling operations of the existing allowable contents. Also, DOE facilities are subject to 10 CFR 835, not 10 CFR 20. At a minimum, the CSS Contractor will be required to perform an evaluation to demonstrate that the WESF CSS falls within the bounds of an existing ALARA analysis that meets the requirements of 10 CFR 835; if not, an updated analysis will be required.

80. Question: CHPRC-02622, FDC, Section 4.1.4.7, states, “The CSS contractor shall perform specific radiation dose calculations for each storage system with the anticipated actual capsules loaded in each canister. The CSS contractor shall provide all temporary shielding required to ensure that actual dose rates are compatible with the calculated rates.” Calculated dose rates typically exceed measured values due to the conservatism incorporated in the calculations. It is therefore not clear what temporary shielding would be required for any discrepancy, and how its performance would be defined. Also, the timing of the

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measurements of actual dose rates versus calculated would preclude / hinder the ability to design and supply temporary shielding. Please clarify.

Response: The CSS Contractor will perform dose rate calculations to identify what temporary shielding may be required to support loading and handling operations. Where temporary shielding is required, the Contractor will perform updated dose calculations to demonstrate that the proposed temporary shielding will achieve the dose rate goals. The CSS Contractor will provide any temporary shielding devices that are required based on these analyses. Note that it is anticipated that the CSS will not require “temporary” shielding when fully assembled and placed in the CSA.

81. Question: CHPRC-02622, FDC, Section 6.2.2: Storage Overpacks typically do not require considerations of residual stresses in welds. Please clarify.

Response: CHPRC-02622, Section 6.2.2 cites a requirement of “For the storage overpack, consideration shall be provided for Residual stresses in welds and the heat-affected zones ...”. That same section also states that

“Each item shall have documented the following:

- Degradation methods considered and analyzed
- Any analysis required due to time degradation period results
- Listing of assumptions and uncertainties in the analysis”

If an Offerors design basis in support of the CoC does not take into account the residual stresses in the storage overpack welds, then the basis for why this is not a concern will be expected to be addressed in that documentation that meets the criteria cited above, also a part of Section 6.2.2.

82. Question: SOW, Section 3.2, Page 16: states, “In addition to appropriate verification and validation of software, any software models developed shall be appropriately documented and tested. This documentation shall include the following:” It does not seem that this should apply to any of the analyses and methodologies (models) that are already reviewed and approved by the NRC and support the base cask design offered and any modifications for the proposed system. It is unclear the intent of this requirement. Please clarify the need for this requirement when the system offered to CHPRC is to be based on an NRC approved system.

Response: The Contractor’s quality program will be evaluated prior to award for conformance with appropriate quality assurance standards. Developing a model in an application software package is considered software design, to be performed in accordance with NQA-1-2008/NQA-1a-2009, Requirement 3, Section 800, “Software Design Control.” New models developed to evaluate the use of the Contractor’s NRC-approved system for the WESF capsules must meet these specific requirements. Models previously accepted by the NRC for issue of the CoC will be reviewed by CHPRC for acceptability for the WESF capsule CSS.

83. Question: SOW, Section 6.6.6 and 6.6.8, Pages 39 & 40, respectively: The requirements on supplier use of commercial-off-the-shelf software and spreadsheet calculations using

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commercial-off-the-shelf software appear overly onerous under an approved nuclear quality assurance program approved by the NRC. Please clarify these requirements.

Response: The Contractor's quality program will be evaluated prior to award for conformance with appropriate quality assurance standards. Sections 6.6.6 and 6.6.8 of the SOW lists the documentation that must be furnished by the Contractor to demonstrate that computer software acceptance testing and in-use testing has been performed in accordance with an approved quality assurance program that implements NQA-1-2008/NQA-1a-2009, Requirement 11, Section 400, "Computer Program Test Procedures," and Subpart 2.7, Section 404, "Acceptance Testing," for both COTS software and for custom applications developed using COTS spreadsheet software.

84. Question: From CHPRC-02622, REV. 1 Page 9: Certain capsules contain a residual coating of foreign organic material due to storage at offsite locations (CHPRC-02306, WESF Capsule Residue Inspection Report). Depending upon the safety evaluation, this material may require removal to reduce a potential source of hydrogen generation or to enhance thermal transfer properties prior to placing the capsules in their storage configuration.

Please confirm that it is the Offerors responsibility to identify if any actions to clean the capsules are required (e.g., no to clean the capsules).

Response: The CSS Contractor shall identify any impact that the presence of this material may have on the design (any assumptions made as to cleanliness). CHPRC will use this information, as well as information from safety evaluations, to determine if the material should be removed.

85. Question: For capsule unloading, please confirm if other means of capsule cooling are acceptable; other than helium circulation.

Response: See response to Question 31.

86. Question: Please confirm whether temperature monitoring instrumentation is required or the system shall be capable of being equipped with temperature monitoring. If required, is it required for all overpacks or only the most limiting overpacks?

Response: Offerors shall provide temperature-monitoring instrumentation for all overpacks.

87. Question: Design & Fabrication of a Cask Storage System for the Capsule Extended Storage Project, Contract No: RFP 20160216TB – Sections A&B, Attachment 2: Task 4, 5 & 6 are to be firm fixed price. However, without a final CHPRC approved design these Tasks can only be roughly estimated at this point. Attachment 2 states that Contractors will submit a Variance Document that details the cost and schedule variances between design assumptions and final design for CHPRC review and consideration. What assurances do the contractors have that these variances will be funded as submitted?

Response: CHPRC will review and consider the variance analysis to determine if changes are appropriate.

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88. Question: SOW, Section 1.0, Introduction/Background: There are 4 phases to the Capsule Extended Storage Project: 1) design/fabrication of a CSS, 2) design of WESF modifications & CSA, 3) construction of WESF modifications & CSA, and 4) operations support. Does participation in the CSS design/fabrication phase of the CESP project conflict companies from bidding on any other phases of the project?

Response: See response to Question 6.

89. Question: SOW, Section 3.2, Design Tasks: “CHPRC shall provide a compliance matrix to be used to demonstrate that all identified requirements are addressed in the design. The Contractor shall complete the compliance matrix at the conceptual, preliminary, and final design phases to be used during the formal design reviews. The matrix shall identify the specific point of compliance in the design media.” When will the compliance matrix be released? If CHPRC releases it in mid-April as stated during the pre-proposal conference, this may result in required rework on proposal estimates.

Response: See response to Question 9.

90. Question: SOW, Section 3.4.1, Task 8 – Technical Support Services: “Technical support services shall be provided as requested by CHPRC.” So that all proposals are treated equally, will CHPRC provide an estimated number of hours that Offerors are to provide labor rates against?

Response: CHPRC does not have an estimated number of hours necessary for technical support. The Offeror shall provide labor rates for technical support.

91. Question: SOW, Section 6.5.2, CGD Performed by the Contractor (Contractor Is the Dedicating Authority): Will the requirements of this section apply to software?

Response: Yes, if the software performs an identified safety function.

92. Question: SOW, Section 6.6.6, Supplier Use of Commercial-Off-The-Shelf Software (B15): Will documentation of CGD of software under NQA-1 08/09a be acceptable to meet the requirements of this section?

Response: Documentation of CGD of software under NQA-1-2008/NQA-1a-2009 may be used as a part of demonstrating compliance with Section 6.6.6. Note that the information being requested would be expected to be included in the Contractor’s documentation of the test plans and test cases performed as a part of the dedication process required by Subpart 2.7, Section 302, “Otherwise Acquired Software.”

93. Question: SOW, Section 6.6.8, Supplier Use of Spreadsheet Calculations Using Commercial-Off-The-Shelf Software (B18): This section states that “The Supplier shall submit the following documentation for all spreadsheets used to perform mathematical calculations in the performance of work listed in the procurement documents.” Please provide a definition of spreadsheets that are to be submitted. Does this requirement include spreadsheets created by software documented under Section 6.6.6 of this document?

Response: “Spreadsheets” are any interactive computer applications used to analyze data by entering the data into “cells” or arrays, on which mathematical operations are performed

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using formulas that automatically calculate and display a value based on the contents of these cells. The applications are typically prepared using COTS software such as Microsoft Excel®. Depending upon the complexity of the operations being performed, the development of such spreadsheets may involve “software design,” and therefore may be subject to the requirements of NQA-1-2008/NQA-1a-2009 Requirement 3, Section 800, “Software Design Control,” and the software development cycle requirements of Subpart 2.7 of NQA-1-2008/NQA-1a-2009. It is recognized that the Contractor’s quality program and procedures may treat certain simple, single-use spreadsheets that are thoroughly checked by hand in a manner similar to hand-calculations. The Contractor’s quality program and procedures will be evaluated prior to award for conformance with appropriate quality assurance standards.

94. Question: CHPRC-02252 Revision 2, Section 2.1, Existing Facility Configuration (FY2015): What are specific floor loadings throughout the areas of the plant that will be impacted by this project?

Response: See response to Question 14

95. Question: CHPRC-02252 Revision 2, Section 2.2.2, WESF Canyon: Other than camera or line of sight, does the canyon crane presently have a position feedback system installed on the X, Y, or Z axis? What type? Is it functioning? What is the repeatable accuracy? Does the hook have a motorized rotator?

Response: There is no feedback system other than camera or line-of-sight. The hook has a motorized rotator.

96. Question: CHPRC-02252 Revision 2, Section 2.2.2, WESF Canyon: What is the resolution, color capability, and pan-tilt-zoom capability of the canyon cameras? Are there any known blind spots?

Response: The closed circuit camera system consists of three video cameras (one of which is out-of-service). Two cameras are mounted on the crane and the third is located in the truckport. The cameras are capable of 180 vertical and 355 horizontal swings and are equipped with zoom lenses with automatic light compensation. The camera system is adequate to perform hot cell and truckport cover block removal with no known blind spots.

97. Question: CHPRC-02252 Revision 2, Section 3, Process Requirements, 3rd Paragraph, 2nd Sentence: This section states that “The canister design, fabrication, and final closure shall be in accordance with ASME Boiler and Pressure Vessel Code, Section III requirements, with any code exceptions listed in the applicable Certificate of Compliance (CoC) documentation previously approved by the NRC for the particular CSS selected for the WESF design.”

- a. Which subsection(s) of the ASME Section III code is the canister design to comply with, e.g., NCA, NB, NC, ND, etc.?
- b. Does the canister need to comply with all ASME Section III subsection requirements, from procurement to design, fabrication, inspection, testing, etc.?

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Response: The canister shall comply with the ASME Section III code subsections identified in the CSS Contractor's NRC-approved design and CoC. This may include elements other than design, fabrication, and final closure. Code exceptions previously approved by the NRC that would be applicable to the WESF design shall be identified. Any additional code requirements specific to the WESF design, including exceptions for requirements that cannot be complied with for the WESF design, shall be identified by the Offeror, together with the plan for addressing any new exceptions (e.g., ASME Code Case). The Offeror's cost and schedule should reflect this plan. The intent of the listed requirement is to recognize that the NRC approved design for the Offeror's proposed system is deemed to be an acceptable starting point for ASME design requirements at WESF. We acknowledge that NRC approved designs presently use the ASME Code with a number of approved exemptions given the unique nature of these vessels.

98. Question: CHPRC-02252 Revision 2, Section 3, Process Requirements, 4th Paragraph, 3rd Sentence: This section states that "...while the capsule transfer system components shall also meet the applicable quality requirements of 10 CFR 71." What are considered the applicable quality requirements that CHPRC desires to be imposed on the transfer system components since transfer casks for spent fuel are not licensed under 10 CFR 71?

Response: See response to Question 54. If the transfer system will be used to move radioactive materials between Hanford facilities (i.e., WESF and the CSA), compliance with 10 CFR 71 quality requirements (Subpart H) would be required. Note that 10 CFR 71.101(f) recognizes NRC-approved quality assurance programs under 10 CFR 50 Appendix B and 10 CFR 72 Subpart G as meeting the requirements for a quality program under 10 CFR 71 Subpart H. The applicable quality requirements of 10 CFR 71 Subpart H may differ depending upon the safety significance of the component as determined by the Contractor's approved quality program and procedures.

99. Question: CHPRC-02252 Revision 2, Section 3.1, Design Basis Feed Characteristics: This section states that the capsules were originally designed for containment of the long-lived radioactive fission products. The section further states that some of the capsules have been placed in a Type W overpack due to integrity concerns. For capsules that the structural integrity has not been questioned, can these capsules be considered to provide the containment safety function for the radioactive material during all processing and transfer operations? For any capsule that has been placed in a Type W overpack, can these overpacked capsules be considered to provide the containment safety function for the radioactive material during all processing and transfer operations?

Response: Yes. Both undamaged capsules (those that have not been overpacked) and Type-W capsules can be considered to provide a containment function during processing and transfer operations.

100. Question: CHPRC-02252 Revision 2, Section 3.2, Process Functions, 4th Paragraph, 2nd Sentence: It is stated that the "...total G Cell capsule inventory does not exceed 150 kCi 137Cs and 150 kCi 90Sr." If this is the case, how was the BUSS cask loaded with up to 16 capsules in the G Cell under these administrative limits?

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Response: The BUSS cask was not loaded under these limits. Current limits are based on current accident analysis. These limits do not restrict current operations and do not require any preventive or mitigative controls for accident consequences to be within guidelines. The inventory limits can be raised with RL concurrence; new accident analysis will determine what (if any) new controls will be required. Any new controls would be implemented prior to loading operations.

101. Question: CHPRC-02252 Revision 2, Section 3.2.1, Load Capsules into Canisters: What inspections are required for the Cs/Sr/type W capsules prior to transfer to the hot cell? Are existing procedures and equipment available to satisfactorily record the capsule identification numbers, and perform other required inspections in the storage pools?

Response: See Question 48. CHPRC-02622 states that capsules must be identified as they are loaded into the canister, and that examination will be required to ensure that each capsule will physically fit into the storage configuration. These can be performed in G Cell, but can also likely be performed in the pool cells. It is expected that loading procedures will include steps to record capsule identification. Dimensional criteria will be developed by the CSS Designer and testing equipment will be developed as required to demonstrate these criteria are met.

102. Question: CHPRC-02252 Revision 2, Section 3.3, Throughput Requirements: This section requires that the “CESP shall have the capability to transfer all 1,936 capsules from WESF to CSA, within a 52 week period...”. What is the basis for completion of transfer within 52 weeks?

Response: The 52-week period will begin when capsule loading operations are authorized to begin and will end when all capsules have been transferred to the CSA.

103. Question: CHPRC-02252 Revision 2, Section 3.3, Throughput Requirements: Does the 52-week throughput requirement also apply to the universal canister packaging option specified in Appendix A of document Contract No. RFP20160216TB?

Response: Impacts to the baseline schedule for the universal canister packaging option should be identified.

104. Question: CHPRC-02252 Revision 2, Section 4, Packaging/Storage System Requirements, 5th Paragraph: Please clarify the intent of specifying 10 CFR 71 for the transfer systems and activities.

Response: See responses to Questions 54 and 98.

105. Question: CHPRC-02252 Revision 2, Section 4, Packaging/Storage System Requirements, Page 16, 5th Bullet: This bullet makes reference to American National Standard (ANS) ANSI N14.5-1997 standard. The current ANS standard for leakage tests of radioactive material packages is ANSI N14.5-2014. To be compliant to the standards for this contract, should the reference be changed to ANSI N14.5-2014?

Response: The ANS standard that is consistent with that used and cited in the Offeror’s CoC for its proposed solution shall be the version used and documented.

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106. Question: CHPRC-02622 Revision 1, Section 4.1.2.2, Transfer Casks, 1st Paragraph: This section states that “Transfer casks shall be furnished with all internals and required hardware based on previous NRC-certified designs...”. Transfer casks for spent nuclear fuel (SNF) are not certified by the NRC under 10 CFR 72 because the casks do not operate outside of an NRC-licensed facility or site boundary. Since they are part of a complete system to transfer SNF into a NRC-licensed storage module or cask, a transfer cask is a component of the auxiliary equipment for this activity. For this reason, please identify what specific NRC requirements are desired to be imposed for this RFP.

Response: The intent of the cited statement from Section 4.1.2.2 of CHPRC-02622 was not to impose NRC requirements on sub-components and SSCs that are not subject to them as a part of the Offeror’s NRC approved design and CoC.

Rather, the requirement was stated to ensure that all sub-components and SSCs as are normally provided as part of the Offeror’s NRC approved design and CoC, and adapted and otherwise modified as may be necessary to meet the CESP requirements, are in fact included in support of this contract.

107. Question: CHPRC-02622 Revision 1 Section 4.1.4.4, Structural Requirements: This section states that “The capsules were previously tested for special form qualification (ARH-CD-440, Cesium Chloride Capsule Testing for Special Form Qualification). The entire process, including accident conditions, shall be designed such that loads to the capsules do not exceed these values. The canister providing containment of the capsules shall be designed to maintain its containment when subject to worst-case design loads for the canister, without taking credit for the corrosion allowance.”

- a. Was the original capsule special form qualification in accordance with 10 CFR 71.75? If not, what were the special form standards that the capsules were qualified to?
- b. What are the normal and accident conditions that the loaded canister design is to address for this RFP?

Response: ARH-CD-440 is available on the FTP site.

108. Question: RFP 20160216TB – General, Please provide access information to the e-Sourcing Tool.

Response: Access to the e-sourcing tool will be provided to the registered individual inputting the Offeror’s proposal prior to the e-sourcing event. This will take place approximately one week from proposal submission date.

109. Question: RFP 20160216TB – General, Please provide the page limitation, if required, for Volume I – Technical Proposal.

Response: See response to Question 2.

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110. Question: RFP 20160216TB – General, What is the capacity and operability status of all pre-existing plant equipment? How and when will that be verified, especially cranes/lifting devices?

Response: CSS Contractor shall identify facility equipment that is needed to support capsule loading activities. CHPRC will ensure that any necessary upgrades or modifications will be performed to ensure equipment operability.

111. Question: RFP 20160216TB – General, What is the range of the on contact radiation levels of the cesium and strontium capsules?

Response: See Question 23 for calculated dose rates from a typical capsule.

112. Question: RFP 20160216TB – General, How will the ventilation system characteristics be changed after the system modifications that are being designed/installed now? When will the new ventilation system specifications be released?

Response: The new ventilation system was designed to be functionally the same as the existing system (both systems have similar characteristics). The new system will have the same basic flow rate as the existing system, and interactions with other building ventilation systems will be the same. Actual performance of the new system during cover block removal, etc., will not be known until the activity is performed.

113. Question: RFP 20160216TB – General, What are the criteria associated with the swipe test requirements?

Response: It is assumed that this question is asking for acceptance criteria for radiological release. In general, components will be surveyed and confirmed to be free of removable radiological contamination as they are handled. This will include survey of the capsule as it moves into the canister (as allowed by the loading method), survey of the canister as it leaves the loading area, survey of the canister/cask as it leaves the canyon, and survey of the transporter as it leaves the truckport. The exact criteria (counts/minute, etc.) will be determined based on CHPRC procedures in effect at the time of the operation.

114. Question: RFP 20160216TB – General, Will CHPRC consider an extension to May 19, 2016 based on the need for receipt of the CHPRC compliance matrix and answers to questions no earlier than April 7, 2016.

Response: See response to Question 46.

115. Question: (Ref. RFP page 11 of 35, item 4.2.A Experience and Past Performance) “The Offer shall provide a minimum of three (3) references...” – does this mean a minimum of three references total for the Offeror, or for the Offeror and its teaming partners? Or should at least three references be provided each for the Offeror and its teaming partners?

Response: The Offeror and teaming partner shall provide a minimum of three references each.

Additional updates to the RFP:

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The proposal due date is changed to May 23, 2016 at 2:00 p.m. The eSourcing Event will begin at 10:00 a.m. PST Monday, May 23, 2016 and end at 10:30 a.m. PST.

Offeror must acknowledge receipt of this amendment by stating in its proposal that the Offeror received the amendment 1 and considered the amendment in formulating its proposal.

Sincerely,

Tracey A. Burch
Contract Specialist

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Enclosures 3

Design & Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project

4.0 TECHNICAL REQUIREMENTS

The Contractor shall perform work in accordance with the terms and conditions of this Contract, CHPRC internal policies and procedures, and QA provisions, including safety programs, laws, orders, permits, rules, and confidentiality of information and intellectual property safeguards. All work shall be performed in strict accordance with the FDC, national, state and local codes and standards, specifications, drawings, exhibits, and any other documents, which by reference are made a part of the SOW. The Contractor shall obtain CHPRC's specific approval before any deviations are allowed.

CHPRC reserves the right to perform source inspections before and during fabrication. Inspections will be arranged jointly by CHPRC and the Contractor.

4.1 Functional Design Criteria

The Contractor shall comply with requirements identified in CHPRC-02622. Applicable national, state, and local codes and standards are identified in CHPRC-02622. The latest version of the codes and standards will be used, unless otherwise stated in CHPRC-02622. The requirements identified in CHPRC-02622 are hereby incorporated into and made a part of this Contract to the extent indicated in this SOW and appendices.

4.2 CHPRC Procedures

The conceptual, preliminary, and detailed design shall be performed in accordance with the Contractor's approved Quality Assurance program and implementing procedures. The CHPRC engineering procedures provided in Table 1 will be used for analyses specific to complying with Department of Energy (DOE) natural phenomena hazard requirements, and for preparing design reports required for the DOE capital project approval process. These procedures are hereby incorporated into and made a part of this Contract to the extent indicated in this SOW and appendices.

Table 1. CHPRC Design Procedures

Procedure No.	Title
PRC-PRO-EN-097	<i>Engineering Design and Evaluation (Natural Phenomena Hazard)</i>
PRC-STD-EN-40258	<i>Preliminary/Final Design Report</i>
PRC-STD-EN-40279	<i>Engineering Drawing Standards</i>
References: Complete citations for the procedures cited in this table are provided in Chapter 9. CHPRC = CH2M HILL Plateau Remediation Company	

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DOE G 414.1-2B Admin Chg 2, *Quality Assurance Program Guide*, U.S. Department of Energy, Washington, D.C. Available at: <https://www.directives.doe.gov/directives-documents/400-series/0414.1-EGuide-2b-admchg2>.

DOE G 414.1-3, *Suspect/Counterfeit Items Guide for Use with 10 CFR 830 Subpart A, Quality Assurance Requirements, and DOE O 414.1B, Quality Assurance*, U.S. Department of Energy, Washington, D.C.

DOE-STD-1189-2008, 2008, *Integration of Safety Into the Design Process*, U.S. Department of Energy, Washington, D.C. Available at: <http://energy.gov/ehss/downloads/doe-std-1189-2008>.

DOE-STD-3024-2011, 2011, *Content of System Design Descriptions*, U.S. Department of Energy, Washington, D.C. Available at: <http://energy.gov/ehss/downloads/doe-std-3024-2011>.

IAEA-TECDOC-1169, 2000, *Managing Suspect and Counterfeit Items in the Nuclear Industry*, International Atomic Energy Agency, Vienna, Austria. Available at: http://www-pub.iaea.org/MTCD/Publications/PDF/te_1169_prn.pdf.

IEEE 1012-2012, *IEEE Standard for Software Verification and Validation*, IEEE Standards Association, New York, New York.

NEMA MG-1, 2014, *Motors and Generators*, National Electrical Manufacturers Association, Arlington, Virginia.

NFPA 70, 2014, *National Electrical Code*, National Fire Protection Association, Quincy, Massachusetts.

~~PRC-GD-EN-40256, 2015, *Engineering Codes and Standards, Revision 0, Change 2*, CH2M HILL Plateau Remediation Company, Richland, Washington.~~

PRC-PRO-EN-097, 2015, *Engineering Design and Evaluation (Natural Phenomena Hazard)*, Revision 2, Change 0, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-PRO-EN-2001, 2014, *Facility Modification Package Process*, Revision 1, Change 4, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-PRO-EN-8016, 2015, *Design Change Notice Process*, Revision 1, Change 3, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-PRO-EN-8017, 2009, *As-Built Verification Process*, Revision 0, Change 2, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-PRO-EN-8336, 2014, *Design Verification*, Revision 0, Change 4, CH2M HILL Plateau Remediation Company, Richland, Washington.

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PRC-PRO-EN-20050, 2014, *Engineering Configuration Management*, Revision 0, Change 7, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-PRO-EN-40189, 2015, *Commercial Grade Dedication Process*, Revision 1, Change 3, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-PRO-EN-40264, 2015, *Formal Design Review*, Revision 0, Change 1, CH2M HILL Plateau Remediation Company, Richland, Washington.

~~PRC-PRO-EN-40271, 2011, *Engineering Design Process*, Revision 0, Change 2, CH2M HILL Plateau Remediation Company, Richland, Washington.~~

PRC-PRO-EN-40357, 2011, *Engineering Software Management*, Revision 0, Change 1, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-PRO-SH-40078, 2013, *Contractor Safety Processes*, Revision 1, Change 8, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-STD-EN-40258, 2011, *Preliminary/Final Design Report*, Revision 0, Change 1, CH2M HILL Plateau Remediation Company, Richland, Washington.

~~PRC-STD-EN-40259, 2011, *Engineering Calculations*, Revision 0, Change 0, CH2M HILL Plateau Remediation Company, Richland, Washington.~~

PRC-STD-EN-40261, 2011, *Conceptual Design Report*, Revision 0, Change 1, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-STD-EN-40279, 2010, *Engineering Drawing Standards*, Revision 0, Change 0, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-STD-EN-40280, 2011, *Engineering Specifications*, Revision 0, Change 0, CH2M HILL Plateau Remediation Company, Richland, Washington.

~~PRC-STD-EN-40281, 2012, *Engineering Test Documentation*, Revision 0, Change 0, CH2M HILL Plateau Remediation Company, Richland, Washington.~~

Recommended Practice No. SNT-TC-1A, 2011, *Personnel Qualification and Certification in Nondestructive Testing*, American Society of Nondestructive Testing, Columbus, Ohio.

Resource Conservation and Recovery Act of 1976, 42 USC 6901 et seq. Available at:
<http://www.epa.gov/rcra>.

WAC 173-303, "Dangerous Waste Regulations," *Washington Administrative Code*, Olympia, Washington. Available at: <http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303>.
303-630, "Use and Management of Containers."