R11470389

ISSUED BY
RPP-WTP PDC

24590-CM-HC4-HXYG-00240-02-00001

REV 00A

SUBCONTRACT SUBMITTAL
REVIEW NOT REQUIRED

AREVA

AFS-12-0014

January 17, 2012

Ms. Trina A. Howard
Subcontracts Administrator
Bechtel National RPP-WTP Project
2435 Stevens Center Place
Richland, Washington 99354

Dear Ms. Howard:

BECHTEL NATIONAL, INC. CONTRACT NO. 24590-CM-HC4-HXYG-00240
IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT FOR LAW LVP ACTIVATED CARBON BED ADSORBERS (LVP-ADBR-00001A/B) – IA-3006683-000

The structural integrity assessment of the subject activated carbon bed adsorbers has been completed per the contract requirements and is enclosed for your use. The assessment found that the design is sufficient to ensure that the activated carbon bed adsorbers are adequately designed and have sufficient structural strength, compatibility with the waste(s) to be processed/stored/treated, and corrosion protection to ensure that they will not collapse, rupture, or fail.

If you have any questions, please contact Tarlok Hundal at (509) 371-1975, or via email at tarlok.hundal@areva.com.

Sincerely,

Fred R. Renz
Contract Management
AREVA Federal Services LLC
Richland Office

llm

Enclosure (1)

cc: D. C. Pfluger, MS 5-I w/enclosures (2)

AREVA Federal Services LLC
2101 Horn Rapids Road, RC-19, Richland, WA 99354, P. O. Box 840, Richland, WA 99352
Tel.: 509 375 8096 · Fax: 509 375 8495 · www.areva.com

IA-3006683-000

IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT FOR LAW LVP ACTIVATED CARBON BED ADSORBERS (LVP-ADBR-00001A/B)

Please note that source, special nuclear and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA), are regulated at the U.S. Department of Energy (DOE) facilities exclusively by DOE acting pursuant to its AEA authority. DOE asserts, that pursuant to the AEA, it has sole and exclusive responsibility and authority to regulate source, special nuclear, and byproduct materials at DOE-owned nuclear facilities. Information contained herein on radionuclides is provided for process description purposes only.

IA-3006683-000

IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT FOR LAW LVP ACTIVATED CARBON BED ADSORBERS (LVP-ADBR-00001A/B)

"I, Tarlok Singh Hundal, have reviewed and certified a portion of the design of a new tank system or component located at the Hanford Waste Treatment Plant, owned/operated by Department of Energy, Office of River Protection, Richland, Washington. My duties were independent review of the current design for the LAW LVP Activated Carbon Bed Adsorbers (LVP-ADBR-00001A/B), as required by the Washington Administrative Code, *Dangerous Waste Regulations*, Section WAC-173-303-640(3) (a) through (g) applicable components."

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

The documentation reviewed indicates that the design fully satisfies the requirements of the WAC.

The attached review is eleven (11) pages numbered one (1) through eleven (11).

TARLOK SINGH HUNDAL
STATE OF WASHINGTON
20213
REGISTERED
PROFESSIONAL ENGINEER

Signature

1/17/12
Date

Scope	Scope of this Integrity Assessment	The scope of this integrity assessment includes two Activated Carbon Bed Adsorbers (LVP-ADBR-00001A/B), also known as Offgas Mercury Adsorbers or Miscellaneous Units (MUs) or Plant Items associated with the LVP system as shown on P&ID drawing 24590-LAW-M6-LVP-00004003. The LAW LVP system receives melter offgas from the Primary Offgas System (LOP) and its primary safety function is to ensure containment of hazardous gases within the system. These LAW Adsorbers are sulfur impregnated carbon beds which remove mercury, halides, acid gases, and volatile organic compounds (VOCs) from the LAW LVP exhaust system. These Adsorbers are mounted on a skid (LVP-SKID-00001) located in Room L-0304F at Floor Elevation 48'-0" of the LAW facility.
	Summary of Assessment	For each item of "Information Assessed" (i.e., Criteria) on the following pages, the items listed under "Source of Information" were reviewed and found to furnish adequate design requirements and controls to ensure that the design fully satisfies the requirements of Washington Administrative Code (WAC), Chapter 173-303 WAC, *Dangerous Waste Regulations,* Section WAC-173-303-640 (3) (a) through (g) applicable elements of the *Tank Systems.*

References	Material Requisition, Specifications, and Plant Drawings	Material Requisition (MR): 24590-QL-MRA-MWK0-00001, Rev. 4, Activated Carbon Bed Adsorbers (MS002)(N151) including TCNs # T0001, T0003 thru T0005. Specifications: The following Specifications with their respective revision and Specification Change Notices (SCNs) are listed in the above listed MR: 24590-WTP-3PS-MWK0-T0001, Engineering Specification for Activated Carbon Bed Adsorbers; 24590-WTP-3PS-MV00-T0001, Engineering Specification for Pressure Vessel Design and Fabrication; 24590-WTP-3PS-MVB2-T0001, Engineering Specification for Welding of Pressure Vessels, Heat Exchangers, and Boilers; 24590-WTP-3PS-G000-T0001, General Specification for Supplier Quality Assurance Program Requirements; 24590-WTP-3PS-G000-T0002, Engineering Specification for Positive Material Identification (PMI) for Shop Fabrication; 24590-WTP-3PS-G000-T0003, General Specification for Packaging, Handling, and Storage Requirements; 24590-WTP-3PS-FB01-T0001, Engineering Specification for Structural Design Loads for Seismic Category III & IV Equipment and Tanks; *24590-WTP-3PS-MV00-T0002, Engineering Specification for Seismic Qualification Criteria for Pressure Vessels; *24590-WTP-3PS-MV00-T0003, Engineering Specification for Pressure Vessel Fatigue Analysis. * Specification is not listed in the above MR but is a part of other listed specification therein. Plant Drawings: 24590-LAW-P1-P01T-00005, Rev. 4, LAW Vitrification Building General Arrangement Plan at El. 48'-0"; 24590-LAW-P1-P01T-00007, Rev. 8, LAW Vitrification Building General Arrangement Section A-A, B-B, C-C, and S-S; 24590-LAW-P1-P01T-00011, Rev. 6, LAW Vitrification Building General Arrangement Section N-N, P-P, R-R, and U-U; 24590-LAW-M5-V17T-P0011, Rev. 1, Process Flow Diagram LAW Vit Secondary Offgas Treatment (System LVP); 24590-LAW-M6-LVP-00004001, Rev. 0 (Draft), P&ID- LAW Melters Secondary Offgas/Vessel Vent Process System Mercury Mitigation Equipment Bypass; 24590-LAW-M6-LVP-00004002, Rev. 0 (Draft), P&ID- LAW Melters Secondary Offgas/Vessel Vent Process System Mercury Mitigation Equipment LVP-SKID-00001; 24590-LAW-M6-LVP-00004003, Rev. 0 (Draft), P&ID- LAW Melters Secondary Offgas/Vessel Vent Process System Mercury Mitigation Equipment LVP-ADBR-00001A/B.

References (cont'd)	Vendor Drawings, Mechanical Data Sheet, Corrosion Evaluation, and System Description	Vendor Fabrication Drawings (*Bechtel Code 1 and 2 Drawings): 24590-QL-POA-MWK0-00001-05-00084, Rev. 00N, Housing Weldment LAW Carbon Bed, LVP-ADBR-00001, Unit A; 24590-QL-POA-MWK0-00001-05-00085, Rev. 00N, Housing Weldment LAW Carbon Bed, LVP-ADBR-00001, Unit A; 24590-QL-POA-MWK0-00001-05-00089, Rev. 00O, Top Panel Ass'y LAW Carbon Bed, LVP-ADBR-00001, Unit A; 24590-QL-POA-MWK0-00001-05-00096, Rev. 00O, Top Panel Ass'y LAW Carbon Bed, LVP-ADBR-00001, Unit A; 24590-QL-POA-MWK0-00001-05-00102, Rev. 00F, Base Frame Ass'y, LAW Carbon Bed, LVP-ADBR-00001, Unit A/B; 24590-QL-POA-MWK0-00001-05-00110, Rev. 00K, Housing Ass'y, LAW Carbon Bed, LVP-ADBR-00001, Unit A; 24590-QL-POA-MWK0-00001-05-00194, Rev. 00G, LAW Carbon Bed, LVP-ADBR-00001A & B, Platform Ass'y Unit A & B, Sheets 1 thru 5; 24590-QL-POA-MWK0-00001-05-00197, Rev. 00H, LAW Carbon Bed, LVP-ADBR-00001A & B, General Arrangement, Sheets 1 thru 3; 24590-QL-POA-MWK0-00001-05-00198, Rev. 00G, LAW Carbon Bed, LVP-ADBR-00001A & B, LAW Carbon bed Final Assembly, Sheets 1 thru 4; 24590-QL-POA-MWK0-00001-05-00214, Rev. 00B, LAW Carbon Bed, LVP-ADBR-00001A, Back Panel WLDMT, Unit A; 24590-QL-POA-MWK0-00001-05-00220, Rev. 00B, LAW Carbon Bed, LVP-ADBR-00001B, Back Panel WLDMT, Unit B; 24590-QL-POA-MWK0-00001-05-00226, Rev. 00B, LAW Carbon Bed, LVP-ADBR-00001A, Front Panel WLDMT, Unit A; 24590-QL-POA-MWK0-00001-05-00228, Rev. 00B, LAW Carbon Bed, LVP-ADBR-00001B, Front Panel WLDMT, Unit B. * Bechtel Code 1 Drawing is an "as fabricated vendor drawing" approved/accepted by Bechtel. Bechtel Code 2 Drawing is an "as fabricated vendor drawing" approved (with comments)/accepted by Bechtel. Mechanical Data Sheet (MDS): 24590-LAW-MVD-LVP-00003, Rev. 6, LAW Activated Carbon Adsorber (LVP-ADBR-00001A/B). Corrosion Evaluation: 24590-LAW-N1D-LVP-00004, Rev. 2, LAW Activated Carbon Bed Adsorber (LVP-ADBR-00001A/B). System Description: 24590-LAW-3YD-LOP-00001, Rev. 3, System Description for the LAW Primary Offgas (LOP) and Secondary Offgas/Vessel Vent (LVP) Systems, including SDCN # 00011 and 00012.

	Information Assessed	Source of Information	Assessment
Design	Plant Item design standards are appropriate and adequate for the vessel's intended use.	Specifications, Drawings, and Mechanical Data Sheet listed above under References; ASME AG-1, Code on Nuclear Air and Gas Treatment, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel Code (B&PV), Section VIII, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers.	The LAW Activated Carbon Bed Adsorbers (LVP-ADBR-00001A/B) are considered as vessels. They are also interchangeably termed herein as MUs or Plant Items. The Engineering Specifications for Activated Carbon Bed Adsorbers and Mechanical Data Sheet require that the design and fabrication be per ASME AG-1 and ASME B&PV Code, Section VIII, Division 1, without the National Board Registration code stamp. Supplementary requirements for the Adsorbers are specified in the listed referenced Engineering Specifications. The supplementary requirements include structural design requirements, positive material identification, fabrication tolerances, welding procedures, welder qualifications and testing records, NDE inspections and records, packaging, shipping, handling, and storage requirements. The MUs are identified as Quality Level (Q) and Seismic Category (SC-III) in the Mechanical Data Sheet. The Vendor Fabrication drawings show that each Adsorber housing unit is built with 1/2" thick 316L stainless steel plate (max. 0.030% C; dual certified) hereafter known as 316L stainless steel. Other pertinent components of the units are also built of 316L stainless steel material. Both housing units butt each other and are supported on a steel framework skid with a working platform above them. The support frame and the platform are both built up of a carbon steel material. The design requirements specified in the codes and specifications are appropriate and adequate for the intended use of these MUs.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	If a non-standard Plant Item is to be used, the design calculations demonstrate sound engineering principles of construction.	Material Requisitions, Engineering Specifications, and Drawings listed above under References; ASME AG-1, Code on Nuclear Air and Gas Treatment, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel Code (B&PV), Section VIII, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; 24590-QL-POA-MWK0-00001-12-00002, Rev. 00O, ASME Boiler & Pressure Vessel Code Section VIII Calculation, LAW (Analysis/Design Calculations for LAW Adsorbers); 24590-QL-POA-MWK0-00001-09-00029, Rev. 00M, Seismic Analysis Report, LAW (Analysis/Design Calculations for LAW Adsorbers); 24590-QL-POA-MWK0-00001-10-00001, Rev. 00B, Code, Standards Reference Report, Activated Carbon Adsorbers Analysis and Design (Analysis/Design Calculations for LAW Adsorbers); 24590-QL-POA-MWK0-00001-10-00012, Rev. 00G, Weight and Center of Gravity Report, LAW (Analysis/Design Calculations for LAW Adsorbers); 24590-QL-POA-MWK0-00001-12-00004, Rev. 00I, Lifting & Erecting, LAW (Analysis/Design Calculations for LAW Adsorbers); 24590-QL-POA-MWK0-00001-10-00017, Rev. 00Q, Thermal Expansion Stress and Fatigue Analysis, LAW (Analysis/Design Calculations for LAW Adsorbers); 24590-QL-POA-MWK0-00001-10-00016, Rev. 00H, Nozzle Load Report, LAW (Analysis/Design Calculations for LAW Adsorbers).	The MUs in the LAW Secondary Offgas System (LVP) noted above are non-standard offgas treatment assemblies that are shop fabricated. The referenced Material Requisition and Specifications require that the ASME AG-1 and ASME B & PV Code, Section VIII, Div. 1 assemblies be delivered after design, fabrication, inspection, and testing. Review of the listed Analysis/Design Calculations and drawings show that appropriate applicable load cases and their combinations thereof were used utilizing sound engineering principles for the design and construction of the Adsorbers. Furthermore, approval and acceptance of the vendor fabrication drawings (including Supplier Deviation Disposition Requests (SDDRs) or NCRs), by Bechtel National Inc.(BNI), is an added assurance that all applicable requirements stated above and as described in documents (including daughter documents) listed in Material Requisition for the vessel have been met. The BNI approved and accepted SDDR/NCR documents were reviewed and found to be in compliance with the applicable design requirements.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	Plant Item has adequate strength, after consideration of the corrosion allowance, to withstand the operating pressure, operating temperature, and seismic loads.	Specifications, Mechanical Data Sheet, and Corrosion Evaluation listed above under References; ASME AG-1, Code on Nuclear Air and Gas Treatment, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel Code (B&PV), Section VIII, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; ASME B31.3, Process Piping, ASME Code for Process Piping, American Society of Mechanical Engineers; 24590-QL-POA-MWK0-00001-12-00002, Rev. 00O, ASME Boiler & Pressure Vessel Code Section VIII Calculation, LAW (Analysis/Design Calculations for LAW Adsorbers); 24590-QL-POA-MWK0-00001-09-00029, Rev. 00M, Seismic Analysis Report, LAW (Analysis/Design Calculations for LAW Adsorbers); 24590-QL-POA-MWK0-00001-10-00017, Rev. 00Q, Thermal Expansion Stress and Fatigue Analysis, LAW (Analysis/Design Calculations for LAW Adsorbers); 24590-QL-POA-MWK0-00001-10-00016, Rev. 00H, Nozzle Load Report, LAW (Analysis/Design Calculations for LAW Adsorbers); 24590-QL-POA-MWK0-00001-10-00015, Rev. 00F, Computational Fluid Dynamics Analysis Report, (Analysis/Design Calculations for LAW Adsorbers); 24590-QL-POA-MWK0-00001-09-00030, Rev. 00F, Thermal Analysis Report (Analysis/Design Calculations for LAW Adsorbers).	The LVP Engineering Specification for Activated Carbon Bed Adsorbers and Mechanical Data Sheet require that the Adrosbers including all related components and appurtenances be designed and fabricated in accordance with the applicable sections of ASME B&PV Code, Section VIII, Division 1, ASME AG-1 Code, and ASME B31.3 Code. These codes require specific consideration of operating pressures, temperatures, corrosion allowance, and seismic loads in the design process. The Mechanical Data Sheet identify the operating pressure and temperature ranges and seismic categories for the subject Corrosion allowances of 0.010" is recommended for these MU vessels as identified in the Corrosion Evaluation and MDS documents. The Specification for Seismic Design of pressure vessels specify requirements for seismic design. The representative listed Analysis/Design Calculations reviewed show that the applicable loading parameters were appropriately considered in the design process and the MUs will have adequate strength to sustain them during their design life.

	Information Assessed	Source of Information	Assessment
Foundation	Plant Item foundation will maintain the load of a full vessel.	Specifications and Mechanical Data Sheet listed above under references; ASME AG-1, Code on Nuclear Air and Gas Treatment; American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel Code (B&PV), Section VIII, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-QL-POA-MWK0-00001-09-00029, Rev. 00M, Seismic Analysis Report, LAW (Analysis/Design Calculations for LAW Adsorbers); 24590-QL-POA-MWK0-00001-10-00012, Rev. 00G, Weight and Center of Gravity Report, LAW (Analysis/Design Calculations for LAW Adsorbers). .	The Engineering Specification for Activated Carbon Bed Adsorbers requires the use of ASME AG-1 Code and ASME B&PV Code, Section VIII, Div. 1 for the design process of the subject Adsorbers. Both of these codes have adequate structural design requirements to ensure proper support for the MUs. The Basis of Design document requires that the supports and foundations shall be designed adequately to sustain all applicable loads including the full weight of the vessel. The review of Analysis/Design Calculations reports show that the supporting frame of the Adsorbers has been designed adequately to handle the applicable loads. It should be noted that the evaluation of the Adsorbers foundation (concrete floor slab @ Elev. 48'-0") is not in the scope of this report. However, it is covered under a separate integrity assessment report.

	Information Assessed	Source of Information	Assessment
Foundation (cont'd)	If in an area subject to flooding, the Plant Item is anchored.	Drawings, Specifications and Mechanical Data Sheet (MDS) listed above under References; 24590-LAW-DDC-S13T-00045, Rev. 0, LAW Carbon Bed Adsorber Anchorage.	As shown on the referenced General Arrangement Drawings, the MUs included in this assessment are located on the 48'0" elevation of the LAW facility. The Specification for Pressure Vessel Design and Fabrication requires that supports and anchors shall be designed to secure the buoyant vessel in case the vessel is empty and submerged to the level indicated in the MDS. The referenced MDS indicates design basis event submergence flood height of 0.92 ft in Room L-0304F. It is noted that the drawings show that the Adsorbers are mounted on a steel frame skid and each Absorber's lowest end section is about 2 ft above the floor level while the main body's lowest part is about 3 ft above the floor. Since the flood height is lower than these two dimensions, therefore, there will not be any buoyant forces exerted on the Absorbers and hence the buoyant force load case is not applicable for anchorage consideration. However, the Adsorbers are anchored to the concrete floor slab to sustain other applicable design loads including seismic forces as shown in the LAW Carbon Bed Adsorber Anchorage calculation document.
	Plant Item system will withstand the effects of frost heave.	Drawings listed above under References; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria.	The Structural Design Criteria document requires that all structural foundations extend into the surrounding soil below the 30 inch frost line in order to preclude frost heave. As shown on the referenced General Arrangement Drawings, the MUs considered in this assessment are installed in the LAW facility at Floor Elev. 48'-0" which is not subject to frost heave. Therefore, the subject MUs are not subject to the frost heave effects.

	Information Assessed	Source of Information	Assessment
Waste Characteristics	Characteristics of the waste to be stored or treated have been identified (ignitable, reactive, toxic, specific gravity, vapor pressure, flash point, storage temperature)	System Description, Mechanical Data Sheet, and Corrosion Evaluation listed above under References; 24590-WTP-PER-PR-03-002, Rev. 3, Control of Toxic Vapors and Emissions from WTP Tank Systems and Miscellaneous Unit Systems; 24590-WTP-PER-PR-03-001, Rev. 1, Prevention of Hydrogen Accumulation in WTP Tank Systems and Miscellaneous Treatment Unit Systems; 24590-WTP-M4C-V11T-00004, Rev. C, Calculation of Hydrogen Generation Rates and Times to Lower Flammability Limit for WTP.	The Mechanical Data Sheet presents the operating temperatures and pressures for MUs within the scope of this assessment. The Corrosion Evaluation document address the chemical composition of the offgas in order to select appropriate MU materials and specify the corrosion allowance. The System Description document identifies the offgas being handled by the MUs as hazardous, but not as ignitable or flammable. The main safety function of the LVP system MUs is to prevent the escape of toxic and hazardous gas vapors to the environment, from the LAW Secondary Offgas System. The MU vessel design is required to provide an intact housing pressure boundary during normal and abnormal operations and during and after design level seismic events. Waste characteristics that are hazardous, such as ignitability, reactivity, and toxicity are appropriately addressed in the Control of Toxic Vapors and Emissions document and Prevention of Hydrogen Accumulation document. The Control of Toxic Vapors and Emissions document lists the LAW Adsorbers to remove mercury, halides and organics from the LAW LVP exhaust system. The Prevention of Hydrogen Accumulation document indicates that the contents of MUs in the LAW facility are not expected to generate hydrogen gas, therefore, they do not pose a hydrogen accumulation hazard. It is also substantiated in the Calculation for Hydrogen Generation Rates document that hydrogen generation is a liquid-phase phenomenon and since these MUs are a dry offgas system hydrogen generation should not be an issue.
	Plant Item is designed to store or treat the wastes with the characteristics defined above and any treatment reagents.	Corrosion Evaluation, Mechanical Data Sheet, and System Description listed above under References.	The Corrosion Evaluation document and the Mechanical Data Sheet adequately demonstrate incorporation of identified waste characteristics into MU design. Normal and abnormal operating conditions are discussed in the System Description. No reagents are added to the carbon bed adsorber flue gases.

	Information Assessed	Source of Information	Assessment
Compatibility	The waste types are compatible with each other.	System Description listed above under References.	The Carbon Bed Adsorbers draw gases from the LAW melters and the process vessels to remove mercury, halides, acid gases, and volatile organic compounds from the offgas constituents. The System Description document lists various administrative controls such as ensuring that the carbon bed media is free of any reactive contaminants prior to loading it in the adsorbers, checking its temperature prior to opening a carbon bed adsorber to prevent any flare-ups, and in handling the used carbon beds media per facility combustible control program. Therefore, the administrative controls in place are adequate to ensure that no waste type compatibility issues exist in handling or processing the offgas constituents.
	Plant Item material and protective coatings ensure the vessel structure is adequately protected from the corrosive effects of the waste stream and external environments (expected to not leak or fail for the design life of the system).	Corrosion Evaluation, Mechanical Data Sheet, and Specifications listed above under References.	The material selection process included internal corrosion considerations relevant to the operating conditions of the MUs included in this assessment. Based upon those considerations, 316L stainless steel was chosen for the Activated Carbon Bed Adsorbers for compounds in direct contact with the offgas stream as documented on the Corrosion Evaluation document for this equipment. This material selection is listed on the Mechanical Data Sheets under materials of construction. These material selections and corrosion allowance were based upon a design life of 40 years per the Engineering Specifications for the MUs. As the LAW Secondary Offgas MUs operate in generally dry and actively ventilated conditions, external corrosion is not considered to be an issue. In order to prevent release of any gases, the MDS shows to use Stainless Steel Spiral Wound sealant gaskets (316L SS-SP WND/Graphite Filled) at applicable joints. These gaskets are resilient to high temperatures and pressures; therefore, if exposed to the elements, they will prevent release of any gases. Additionally, the activation of fire suppression system controls will also mitigate any damaging effect on the gaskets. Therefore, the materials selected are adequate to provide the required 40 -year service life for these vessels.

	Information Assessed	Source of Information	Assessment
Corrosion Allowance	Corrosion allowance is adequate for the intended service life of the Plant Item.	Corrosion Evaluation and Specifications listed above under References.	The Corrosion Evaluation document specifies a corrosion allowance of 0.010" for the Activated Carbon Bed Adsorbers. This is appropriate as the equipment operates under dry-air conditions and no condensation is expected. These recommendations are based upon 316L stainless steel characteristics and an intended design service life of 40 years per the Engineering Specification for Activated Carbon Bed Adsorbers.
Pressure Controls	Pressure controls (vents and relief valves) are adequately designed to ensure pressure relief if normal operating pressures in the Plant Item are exceeded.	System Description listed above under References.	The System Description provides a discussion of Off-Normal operations of the LAW Secondary Offgas System. The Activated Carbon Bed Adsorbers have backup units and lag columns respectively which are activated in the case of off-normal operational conditions. Each Adsorber is provided with a high-high level trip to prevent overfilling with water and a manual water drain valves are also provided. The pressure monitors and controls in the LVP systems ensure that the adsorbers are maintained at a negative pressure during the normal operation. When isolated, rupture discs on each adsorber prevents over-pressurization of the subject equipment.

Master Distribution Schedule for WTP Project Subcontract Management Group

SUBMITTAL TRANSMITTAL: ☒ First Submittal ☐ Re-Submittal ☐ QVRP Package ☐ RFI
☒ No Review Required ☐ No Review Required Re-Submittal ☐ Submittal Supplement

CORRESPONDENCE: ☐ With Attachment ☐ W/O Attachment (letter only) ☐ RFI
☐ Fax as Original (Letter Only) ☐ Fax as Original (With Attachment)

☐ Pre-Award/Award Package ☐ Executed Change Order Package
☐ Executed Amendment Package ☐ Back Charge ☐ Closeout Package

Subcontract Number:	24590-CM-HC4-HXYG-00240
Subcontract Title:	IQRPE TANK INTEGRITY SUPPORT
Subcontractor Name:	AREVA FEDERAL SERVICES, LLC
Subcontract Administrator:	TRINA HOWARD

PDC Document Number	Rev	Document Title	Rev
24590-CM-HC4-HXYG-00240-0~~2~~1-0000~~1~~4		IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT FOR LAW LVP ACTIVATED CARBON BED ABSORBERS	

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