



R11538348

ISSUED BY
RPP-WTP POC

24590-CM-HC4-HXYG-00240-02-00009

REV 00A

**SUBCONTRACT SUBMITTAL
REVIEW NOT REQUIRED**

AFS-13-0118



June 6, 2013

Mr. Gary Ellers
Subcontract Administrator
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Dear Mr. Ellers:

**BECHTEL NATIONAL, INC. CONTRACT NO. 24590-CM-HC4-HXYG-00240 IQRPE
STRUCTURAL INTEGRITY ASSESSMENT REPORT FOR LAW LVP MISC UNIT
EXHAUSTER HOUSINGS (LVP-EXHR-00001A/B/C) (IA-3009093-000)**

The integrity assessment of the subject LVP Exhauster Housings 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 LVP Exhauster Housings 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,

A handwritten signature in black ink, appearing to read 'Elizabeth W. Smith'.

Elizabeth W. Smith, C.P.M
Subcontract Administrator
AREVA Federal Services LLC
Richland Office

Enclosure (1)

LK

cc: D. C. Pfluger, MS5-I w/enclosure (2)

24590-CM-HC4-HXYG-00240-02-00009, Rev. 00A

**IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT
FOR
FOR LAW LVP MISC UNIT EXHAUSTER HOUSINGS
(LVP-EXHR-00001A/B/C)**

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.

**IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT
FOR
FOR LAW LVP MISC UNIT EXHAUSTER HOUSINGS
(LVP-EXHR-00001A/B/C)**

“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 Misc. Unit Exhauster Housings, 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).



T. Hundal

Signature

6/6/13

Date

Scope	Scope of this Integrity Assessment	<p>The scope of this integrity assessment includes three LVP Exhauster Housings (LVP-EXHR-00001A/B/C), also known as Miscellaneous Units (MUs) or Plant Items associated with the LVP system as shown on Process Flow Drawings 24590-LAW-M5-V17T-00010, -00011; and in Figure 6-1 of the System Description document. The LAW LVP Exhausters are downstream from a series of pollution abatement equipment comprising of HEPA Filters, Carbon Bed Adsorbers, Thermal Catalytic Oxidizer/Reducer (TCO) unit, and Caustic Scrubber; all used for removal of toxic volatile oxide compounds (VOCs) and nitrite oxide (NO_x) emissions. The Exhausters provide the motive force to keep the LAW melters under vacuum and discharge the offgas effluent to environment via the exhaust stack.</p> <p>These Exhauster Housings (LVP-EXHR-00001A/B/C) inclusive of motors are mounted on the steel frame skids, which are anchored (welded) to the steel embed plates in concrete floor slab of Rooms L-0304C/D/E, respectively, at Elevation 48'-0" of the LAW facility as shown on General Arrangement Plan Drawings 24590-LAW-P1-P01T- 00005.</p>
	Summary of Assessment	<p>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, <i>Dangerous Waste Regulations</i>, Section WAC-173-303-640 (3) (a) through (g) applicable elements of the <i>Tank Systems</i>.</p>

References	<p>Material Requisition, Specifications, and Plant Drawings</p>	<p><u>Material Requisition (MR):</u></p> <p>24590-QL-MRA-MACS-00007, Rev. 1, Exhausters, Special Purpose/Process, including TCN # T0001 thru T0005.</p> <p><u>Specifications:</u></p> <p>The following Specifications with their respective revision and Specification Change Notices (SCNs) are listed in the above listed MR: 24590-LAW-3PS-MACS-T0001, Engineering Specification for Exhausters and Hoses; 24590-WTP-3PS-JQ06-T0005, Engineering Specification for Environmental Qualification of Control and Electrical Systems and Components; 24590-WTP-3PS-G000-T0001, Engineering 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, Engineering Specification for Packaging, Handling, and Storage Requirements; 24590-WTP-3PS-G000-T0014, Engineering Specification for Supplier Design Analyses; 24590-WTP-3PS-G000-T0019, Engineering Specification for Acquisition of Commercial Items and Services for use in Safety Applications at WTP; 24590-WTP-3PS-FB01-T0001, Engineering Specification for Structural Design Loads for Seismic Category III & IV Equipment and Tanks; 24590-WTP-3PS-SS00-T0001, Engineering Specification for Welding Structural Carbon Steel; 24590-WTP-3PS-SS00-T0002, Engineering Specification for Welding Structural Stainless Steel and Welding of Structural Carbon Steel to Structural Stainless Steel.</p> <p><u>Plant Drawings:</u></p> <p>24590-LAW-P1-P01T-00005, Rev. 4, LAW Vitrification Building General Arrangement Plan at El. 48'-0"; 24590-LAW-P1-P23T-00052, Rev. 3, LAW Vitrification Building Equipment Location Plan El. 48'-0"/Area 5; 24590-WTP-D0-S13T-00003, Rev. 3, Civil/Structural Standards-Abbreviations and Legend; 24590-BOF-DD-S13T-00001, Rev. 0, Balance of Facilities-Concrete Embed Plates; 24590-LAW-DD-S13T-00305, Rev. 4, LAW Vitrification Building Main Building ACU, ASD & Exhauster Anchorage Plan at El. 48'-0"; 24590-LAW-DB-S13T-00135, Rev. 9, LAW Vitrification Building Main Building Partial Conc. Forming Plan Zone 5 @ El. (+) 48'-0"; 24590-LAW-DB-S13T-00136, Rev. 10, LAW Vitrification Building Main Building Partial Conc. Forming Plan Zone 6 @ El. (+) 48'-0"; 24590-LAW-M5-V17T-00010, Rev. 4, Process Flow Diagram LAW Secondary Offgas Vessel Vent Process System, including DCNs # 00012, 00015, 00017, and 00029; 24590-LAW-M5-V17T-00011, Rev. 5, Process Flow Diagram LAW Vit Secondary Offgas Treatment (System LVP), including DCNs # 00012, 00019, 00023, and 00029; 24590-LAW-M6-LVP-00001004, Rev. 0, P&ID-LAW LAW Secondary Offgas/Vessel Vent Process System Offgas Exhausters LVP-EXHR-00001A; 24590-LAW-M6-LVP-00001005, Rev. 0, P&ID-LAW LAW Secondary Offgas/Vessel Vent Process System Offgas Exhausters LVP-EXHR-00001B; 24590-LAW-M6-LVP-00001006, Rev. 0, P&ID-LAW LAW Secondary Offgas/Vessel Vent Process System Offgas Exhausters LVP-EXHR-00001C; 24590-LAW-M6-LVP-00002006, Rev. 0, P&ID-LAW LAW Secondary Offgas/Vessel Vent Process System Stack Discharge Monitoring System.</p>
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References (cont'd)	Vendor Drawings, Exhauster Data Sheet, and System Description	<p><u>Vendor Fabrication Drawings (*Bechtel Status Code 1 Drawings):</u></p> <p>24590-QL-POA-MACS-00007-06-00008, Rev. 00E, Outline Dimensions of 42" Outlet Driven 4BOB (LVP-EXHR-00001A); 24590-QL-POA-MACS-00007-06-00009, Rev. 00A, Cross Section of 42" Outlet Driven 4BOB (LVP-EXHR-00001A/B/C); 24590-QL-POA-MACS-00007-06-00015, Rev. 00H, LAW Exhausters Embed Plate Layout/Welding; 24590-QL-POA-MACS-00007-06-00016, Rev. 00C, LAW Exhausters Additional Surface Mounted Plate; 24590-QL-POA-MACS-00007-06-00017, Rev. 00B, Outline Dimensions of 42" Seismic Test Unit (LVP-EXHR-00001TEST); 24590-QL-POA-MACS-00007-06-00018, Rev. 00C, Outline Dimensions of 42" Outlet Driven 4BOB (LVP-EXHR-00001B/C); 24590-QL-POA-MACS-00007-06-00019, Rev. 00B, LAW Exhausters Bolt Plate; 24590-QL-POA-MACS-00007-07-00001, Rev. 00B, Duty Master Alternating Current Motors (LVP-MTR-00001A/B/C).</p> <p>* Bechtel Status Code 1 Drawing is an "as fabricated vendor drawing" approved/accepted by Bechtel.</p> <p><u>Exhauster Data Sheet:</u></p> <p>24590-LAW-MAD-LVP-00006, Rev. 9, LAW Offgas Exhauster (LVP-EXHR-00001A/B/C).</p> <p><u>System Description:</u></p> <p>24590-LAW-3YD-LOP-00001, Rev. 3, System Description for the LAW Primary Offgas (LOP) and Secondary Offgas/Vessel Vent (LVP) Systems, (including SDCNs # 24590-LAW-3YN-LOP-00011, -00012, and -00013).</p>
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	Information Assessed	Source of Information	Assessment
Design	<p>Plant Item design standards are appropriate and adequate for the vessel's intended use.</p>	<p>Specifications, Drawings, Exhauster Data Sheet, and Material Requisition listed above under References;</p> <p>AWS Codes, (AWS D1.1) Structural Welding Code, (AWS D 1.3) Steel, Structural Welding Code, Sheet Steel, (AWS D1.6) Structural Welding Code, (AWS D9.1) Stainless Steel, Sheet Metal Welding Code, and (AWS D14.6) Welding of Rotating Elements of Equipment, American Welding Society; ASME Boiler and Pressure Vessel (B&PV) Code, Section IX, Welding and Brazing Qualifications, American Society of Mechanical Engineers;</p> <p>ASME PTC-10-1997, Performance Test Code on Compressors and Exhausters, American Society of Mechanical Engineers.</p>	<p>The LAW Exhauster Housings (LVP-EXHR-00001A/B/C) are MUs assessed as vessels. They are also interchangeably termed herein as Plant Items. The Engineering Specification for Exhausters and Hoses and Exhauster Data Sheet require that the design and fabrication be per AWS Codes and ASME B&PV Code, Section IX. This specification also states that the Exhausters shall be qualified to be compliant with ASME-PTC-10-1997 Performance Test code requirements. Supplemental detailed requirements for the Exhauster Housings design and fabrication combined with aforementioned documents are specified in various engineering specifications (inclusive of the sister documents) listed under Material Requisition in the References section herein. These requirements include items such as, positive material identification, fabrication tolerances, welding procedures, welder qualifications, and testing records, NDE inspections and records, packaging, handling, and storage requirements. The Exhauster Data Sheet (EDS) for these MUs lists their Safety Class as Safety Significant (SS), Quality Level (Q), and Seismic Category (SC-III). The Vendor fabrication drawings show that each Exhauster Housing unit including many components are built with 316L stainless steel materials (max. 0.3% Carbon, dual certified) with its shaft made up of 410 stainless steel. Each unit's structural support frame is built with A36 carbon steel material. The design requirements specified in the codes and specifications listed above are appropriate and adequate for the intended use of these MUs.</p>

	Information Assessed	Source of Information	Assessment
Design (cont'd)	<p>If a non-standard Plant Item is to be used, the design calculations demonstrate sound engineering principles of construction.</p>	<p>Material Requisition and Engineering Specifications listed above under References;</p> <p>AWS Codes, (AWS D1.1) Structural Welding Code, (AWS D 1.3) Steel, Structural Welding Code, Sheet Steel, (AWS D1.6) Structural Welding Code, (AWS D9.1) Stainless Steel, Sheet Metal Welding Code, and (AWS D14.6) Welding of Rotating Elements of Equipment, American Welding Society; ASME Boiler and Pressure Vessel (B&PV) Code, Section IX, Welding and Brazing Qualifications, American Society of Mechanical Engineers; ASME PTC-10-1997, Performance Test Code on Compressors and Exhausters, American Society of Mechanical Engineers; 24590-QL-POA-MACS-00007-13-00001, Rev. 00F, Exhauster Component Attachment Seismic Analysis and Skid Anchorage Design (LVP-EXHR-00001A/B/C) (Design Calculation); 24590-QL-POA-MACS-00007-03-00008, Rev. 00E, Seismic Equipment Qualification for WTP LAW Offgas Exhausters (LVP-EXHR-00001A/B/C/TEST).</p>	<p>The Exhauster MUs in the LAW Secondary Offgas System (LVP) listed above are non-standard offgas handling assemblies and are commercial grade items procured per Engineering Specification for Exhausters and Hoses, Engineering Specification for Acquiring Commercial Items, and other applicable Specifications listed under Material Requisition in the References section herein. The referenced Material Requisition and Specifications require that the AWS Codes, ASME B&PV Code, Section IX, and ASME-PTC-10-1997 Code assemblies be delivered after design, fabrication, inspection, and testing. Review of the Design Calculation, Seismic Equipment Qualification, and related documentation shows that sound engineering principles were used for the design, construction, and the acceptance test qualification of the Exhauster Units.</p>

	Information Assessed	Source of Information	Assessment
<p>Design (cont'd)</p>	<p>Plant Item has adequate strength, after consideration of the corrosion allowance, to withstand the operating pressure, operating temperature, and seismic loads.</p>	<p>Specifications, Exhauster Data Sheet, and Material Requisition listed above under References;</p> <p>AWS Codes, (AWS D1.1) Structural Welding Code, (AWS D 1.3) Steel, Structural Welding Code, Sheet Steel, (AWS D1.6) Structural Welding Code, (AWS D9.1) Stainless Steel, Sheet Metal Welding Code, and (AWS D14.6) Welding of Rotating Elements of Equipment, American Welding Society;</p> <p>ASME Boiler and Pressure Vessel (B&PV) Code, Section IX, Welding and Brazing Qualifications, American Society of Mechanical Engineers;</p> <p>ASME B31.3, Process Piping, ASME Code for Process Piping, American Society of Mechanical Engineers;</p> <p>ASME PTC-10-1997, Performance Test Code on Compressors and Exhausters, American Society of Mechanical Engineers;</p> <p>24590-LAW-NID-LVP-00003, Rev. 3, Corrosion Evaluation of Melter Offgas Exhauster (LVP-EXHR-00001A/B/C);</p> <p>UBC 1997, Uniform Building Code, International Conference of Building Officials;</p> <p>24590-QL-POA-MACS-00007-13-00001, Rev. 00F, Exhauster Component Attachment Seismic Analysis and Skid Anchorage Design (LVP-EXHR-00001A/B/C) (Design Calculation);</p> <p>24590-QL-POA-MACS-00007-03-00008, Rev. 00E, Seismic Equipment Qualification for WTP LAW Offgas Exhausters (LVP-EXHR-00001A/B/C/TEST).</p>	<p>The LAW Engineering Specification for Exhausters and Hoses and Exhauster Data Sheet require that these MUs including all related components and appurtenances be designed, fabricated, and/or tested in accordance with the applicable sections of AWS Codes, ASME B&PV Code, Section IX, ASME B31.3 Code, and ASME PTC-10-1997 Code. These codes and specifications listed under Material Requisition in the References section herein require specific consideration of operating pressures, temperatures, corrosion allowance, and seismic loads in the design process. The Exhauster Data Sheet identifies the operating pressure and temperature ranges and seismic categories for the subject MUs. Corrosion allowances of 0.04” is recommended for these MUs as identified in the Corrosion Evaluation document. The UBC 1997 Code specifies the seismic loads for the SC-III equipment. The review of Design Calculation and Seismic Equipment Qualification documents shows that the applicable loading parameters including the applicable Technical Change Notices (TCNs) and Supplier Deviation Disposition Requests (SDDRs) listed in the MR, were appropriately considered in the design and qualification process. Furthermore, the required qualification documentation submitted by Exhausters vendor was reviewed, accepted, and approved by BNI to comply with specification stated parameters and hence the MUs will have adequate strength to sustain applicable loadings during their design-life.</p>

	Information Assessed	Source of Information	Assessment
Foundation	Plant Item foundation will maintain the load of a full unit.	<p>Specifications and Exhauster Data Sheet listed above under References;</p> <p>AWS Codes, (AWS D1.1) Structural Welding Code, (AWS D 1.3) Steel, Structural Welding Code, Sheet Steel, (AWS D1.6) Structural Welding Code, (AWS D9.1) Stainless Steel, Sheet Metal Welding Code, and (AWS D14.6) Welding of Rotating Elements of Equipment, American Welding Society; ASME Boiler and Pressure Vessel (B&PV) Code, Section IX, Welding and Brazing Qualifications, American Society of Mechanical Engineers; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-QL-POA-MACS-00007-13-00001, Rev. 00F, Exhauster Component Attachment Seismic Analysis and Skid Anchorage Design (LVP-EXHR-00001A/B/C) (Design Calculation); 24590-LAW-DDC-S13T-00049, Rev. 2, Design of Embeds for Support of LAW Off-Gas Exhausters (LVP-EXHR-00001A/B/C) (Design Calculation).</p>	<p>The LAW Engineering Specification for Exhausters and Hoses requires the use of AWS Codes and ASME B&PV Code, Section IX code, for their design and fabrication processes. The above listed documents in combination with the Specifications (inclusive of daughter documents) listed under Material Requisition in the Reference section herein, have adequate structural design requirements to ensure proper design of the MUs support system. 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 Plant Item. The review of Design Calculation reports show that the structural components (panels and structural framing members) of the Exhauster Housings have been designed adequately to handle the applicable full loads of the units. It should be noted that the evaluation of the Exhauster Housings foundation (concrete floor slab @ Elev. 48'-0") is not in the scope of this report. However, it is covered under separate integrity assessment report.</p>

	Information Assessed	Source of Information	Assessment
Foundation (cont'd)	<p>If in an area subject to flooding, the Plant Item is anchored.</p>	<p>Drawings, Specifications, and Exhauster Data Sheet listed above under References; 24590-QL-POA-MACS-00007-13-00001, Rev. 00F, Exhauster Component Attachment Seismic Analysis and Skid Anchorage Design (LVP-EXHR-00001A/B/C) (Design Calculation); 24590-LAW-DDC-S13T-00049, Rev. 2, Design of Embeds for Support of LAW Off-Gas Exhausters (LVP-EXHR-00001A/B/C) (Design Calculation).</p>	<p>As shown on the referenced drawings, the MUs included in this assessment are located on the 48'-0" floor elevation of the LAW facility. The Exhauster Data Sheet lists that Rooms L-0304 C/D/E may be subjected to 0.92 ft (11") of flood height. The units component are mounted on steel beams skids with their top flanges about 10.5" high above the floor slab elevation. Therefore, the units may experience small amount of buoyancy forces. The Design Calculations do not take into account these forces. However, in order to sustain any other applicable loads such as seismic loads are considered which will envelope the above mentioned buoyant forces due to the design margins indicated by the resultant low demand/capacity (D/C) ratio values. These units mounted on the steel beams are adequately welded (anchored) to the embed plates in the concrete floor slab as shown on the drawings and in the Design Calculation documents.</p>
	<p>Plant Item system will withstand the effects of frost heave.</p>	<p>Drawings listed above under References; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria.</p>	<p>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.</p>

	Information Assessed	Source of Information	Assessment
Waste Characteristics	<p>Characteristics of the waste to be stored or treated have been identified (ignitable, reactive, toxic, specific gravity, vapor pressure, flash point, storage temperature)</p>	<p>System Description and Exhauster Data Sheet listed above under References; 24590-WTP-PER-PR-03-002, Rev. 3, Control of Toxic Vapors and Emissions from WTP Tank 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.</p>	<p>The Exhauster Data Sheet presents the operating temperatures and pressures for MUs within the scope of this assessment. The System Description document identifies the offgas being handled by the MUs as hazardous, but not 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. MU components 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 System Description and Control of Toxic Vapors and Emissions documents describe that the LAW LVP Exhausters are downstream from a series of pollution abatement equipment comprising of HEPA Filters, Carbon Bed Adsorbers, Thermal Catalytic Oxidizer/Reducer (TCO) unit, and Caustic Scrubber: all these equipment are for removal of toxic VOCs and Nitrite Oxide emissions prior to exhausting the offgas effluent to the exhaust stack. The Prevention of Hydrogen Accumulation document indicates that MUs in the LAW facility are not expected to generate hydrogen gas. Therefore, they do not pose any 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.</p>
	<p>Plant Item is designed to store or treat the wastes with the characteristics defined above and any treatment reagents.</p>	<p>Exhauster Data Sheet and System Description listed above under References.</p>	<p>The Exhauster Data Sheet adequately demonstrates the incorporation of identified waste characteristics into the MU design. Normal and abnormal operating conditions are discussed in the System Description. Under normal conditions ammonia is injected into the offgas system in order to treat the offgas and under abnormal conditions untreated offgas could pass through the exhausters.</p>

	Information Assessed	Source of Information	Assessment
Compatibility	The waste types are compatible with each other.	System Description listed above under References.	The MUs herein assessed draw gases from the LAW melters and the process vessels after the upstream removal of toxic and radioactive particulates and aerosols from the offgas constituents to protect the downstream equipment from contamination. The System Description document does not identify any compatibility issues relating to the offgas constituents listed above. Therefore, there are no concerns for compatibility of waste types.
	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).	Exhauster Data Sheet, Drawings, and System Description listed above under References; 24590-LAW-N1D-LVP-00003, Rev. 3, Corrosion Evaluation of Melter Offgas Exhauster (LVP-EXHR-00001A/B/C); 24590-QL-POA-MACS-00007-03-00008, Rev. 00E, Seismic Equipment Qualification for WTP LAW Offgas Exhausters (LVP-EXHR-00001A/B/C/TEST).	The stainless steel material selected as indicated in the Corrosion Evaluation and Exhauster Data Sheet documents serves its purpose being corrosion resistant for the anticipated environment. Based upon these considerations, 316L stainless steel material was chosen for the Exhausters components directly exposed to the offgas stream and the drawings show that this material is used for fabrication. As these units operate in generally dry and actively ventilated conditions, external corrosion is not considered to be an issue. Therefore, the materials selected are adequate to provide the required 40-year service life as specified in System Description and Exhauster Data Sheet documents. In addition, the documented test results in Seismic Equipment Qualification report are adequate proof that the Exhauster housing will not leak or fail during their design life.
Corrosion Allowance	Corrosion allowance is adequate for the intended service life of the Plant Item.	24590-LAW-N1D-LVP-00003, Rev. 3, Corrosion Evaluation of Melter Offgas Exhauster (LVP-EXHR-00001A/B/C).	The Corrosion Evaluation document describes that Exhauster Housing units consist of various assembled components including housing, structural frame, rotor, shaft, bearings, seals, and cooling system. It describes that each unit element is affected by the corrosion and/or wear. It specifies 316L stainless steel material for housing and impellor and 410 stainless steel material for shaft; both materials with corrosion allowance of 0.04" for 40-year service life of the Exhauster Units. This is appropriate for the equipment built with stainless steel materials specified operating under identified conditions.

	Information Assessed	Source of Information	Assessment
Pressure Controls	<p>Pressure controls (vents and relief valves) are adequately designed to ensure pressure relief if normal operating pressures in the Plant Item are exceeded.</p>	<p>System Description listed above under References.</p>	<p>The System Description provides a discussion of Normal and Off-Normal operations of the LAW Secondary Offgas LVP System. During normal operations the system is expected to run with two Exhausters and the third one is on standby. However, during Off Normal operation, if one of the two Exhausters fails, the standby backup Exhauster is automatically activated. The pressure monitors and controls described for various components of LVP system in the System Description document are adequate to prevent exceeding the pressure design limits of the Exhauster Housing units.</p>



Master Distribution Schedule for WTP Project Subcontract Management Group

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CORRESPONDENCE: <input type="checkbox"/> With Attachment <input type="checkbox"/> W/O Attachment (letter only) <input type="checkbox"/> RFI <input type="checkbox"/> Fax as Original (Letter Only) <input type="checkbox"/> Fax as Original (With Attachment)			
<input type="checkbox"/> Pre-Award/Award Package		<input type="checkbox"/> Executed Change Order Package	
<input type="checkbox"/> Executed Amendment Package		<input type="checkbox"/> Back Charge <input type="checkbox"/> Closeout Package	

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

PDC Document Number	Rev	Document Title	Rev
24590-CM-HC4-HXYG-00240-02-00009		IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT FOR LAW LVP MISC UNIT EXHAUSTER HOUSINGS (LVP-EXHR-00001A/B/C) (IA-3009093-000); AFS-13-0118 Dated June 6, 2013	

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