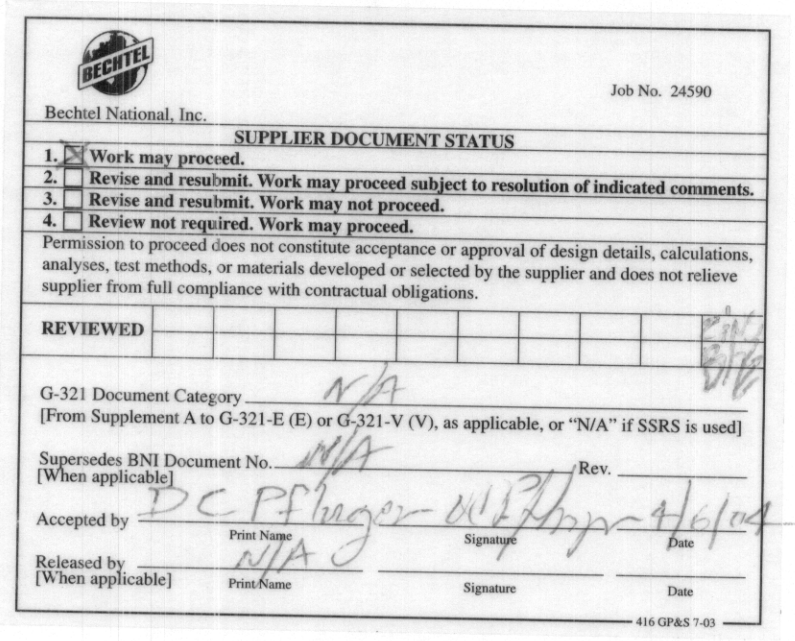


Bechtel National, Inc.

Job No. 24590

SUPPLIER DOCUMENT STATUS

1. [X] **Work may proceed.**
2. [ ] **Revise and resubmit. Work may proceed subject to resolution of indicated comments.**
3. [ ] **Revise and resubmit. Work may not proceed.**
4. [ ] **Review not required. Work may proceed.**

Permission to proceed does not constitute acceptance or approval of design details, calculations, analyses, test methods, or materials developed or selected by the supplier and does not relieve supplier from full compliance with contractual obligations.

REVIEWED

G-321 Document Category N/A
[From Supplement A to G-321-E (E) or G-321-V (V), as applicable, or "N/A" if SSRS is used]

Supersedes BNI Document No. N/A Rev. _____
[When applicable]

Accepted by D C Pfluger [signature] 4/6/04
Print Name Signature Date

Released by N/A
[When applicable] Print Name Signature Date

416 GP&S 7-03

24590-CM-HC4-HXYG-00138-02-00024
REV. 00A

SUBCONTRACT SUBMITTAL

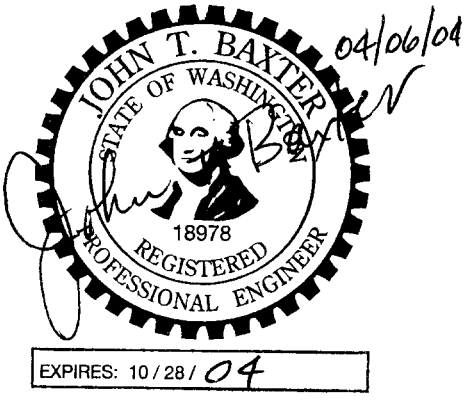
IQRPE REVIEW -
HIGH LEVEL WASTE (HLW) CANISTER DECONTAMINATION HANDLING SYSTEM (HDH) VESSELS HDH-VSL-00001/-00002/-00003/-00004

"I, John T. Baxter 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 High Level Waste (HLW) Canister Decontamination Handling System (HDH) Vessels HDH-VSL-00001/-00002/-00003/-00004 as required by The Dangerous Waste Regulations, namely, WAC 173-303-640(3) applicable paragraphs, i.e., (a) through (g)."

"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 indicate that the design intent fully satisfies the requirements of the WAC.

The attached review is twelve (12) pages numbered one (1) through twelve (12).



John T. Baxter
Signature

04/06/2004
Date

24590-CM-HC4-HXYG-00138-02-00024, REV. 00A

STRUCTURAL INTEGRITY ASSESSMENT OF THE HIGH LEVEL WASTE (HLW) CANISTER DECONTAMINATION HANDLING SYSTEM (HDH) VESSELS HDH-VSL-00001/-00002/-00003/-00004

COGEMA-IA-049
Rev. 0

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.

Scope	Scope of this Integrity Assessment	The scope of this integrity assessment includes the High-Level Waste (HLW) Facility Canister Decontamination Handling System (HDH) Vessels HDH-VSL-00001/-00002/-00003/ and -00004. These vessels are components in the process system that removes smearable contamination from the exterior of HLW canisters after they have been filled and sealed.
References	Drawings, Material Requisition, Specifications and Mechanical Data Sheets	24590-HLW-P1-P01T-P0001, Rev. 5, HLW Vitrification Building General Arrangement Permit Plan at EL. (-) 21'-0"; 24590-HLW-P1-P01T-P0002, Rev. 2, HLW Vitrification Building General Arrangement Permit Plan at EL. 0'-0"; HDH-VSL-00002 & -00004, Canister Decon Vessels Material Requisition No. 24590-CM-MRA-MVA0-00007, Rev. 2, Pressure Vessels, Shop Fabricated, Titanium Small (CM) (N029) (MS012), MR Section 2 – Technical Specifications (Rev. 5, August 19, 2003); 24590-HLW-MV-HDH-00004, Rev. 1, Equipment Assembly Canister Decon Vessel 1 HDH-VSL-00002 Sheet 1 of 2; 24590-HLW-MV-HDH-00005, Rev. 1, Equipment Assembly Canister Decon Vessel 1 HDH-VSL-00002 Sheet 2 of 2; 24590-HLW-MV-HDH-00006, Rev. 0, Equipment Assembly Canister Decon Vessel 2 HDH-VSL-00004 Sheet 1 of 2; 24590-HLW-MV-HDH-00007, Rev. 0, Equipment Assembly Canister Decon Vessel 2 HDH-VSL-00004 Sheet 2 of 2; Mechanical Data Sheet: Vessel, 24590-HLW-MVD-HDH-00006, Rev. 1, Canister Decon Vessel 1 HDH-VSL-00002; Mechanical Data Sheet: Vessel, 24590-HLW-MVD-HDH-00012, Rev. 0, Canister Decon Vessel 2 HDH-VSL-00004; HDH-VSL-00003, Waste Neutralization Vessel Material Requisition No. 24590-CM-MRA-MVA0-00018, Rev. 1, Pressure Vessels, High Alloy, Shop Fabricated, Medium (N132) Off-gas (OCI), MR Section 2 – Technical Specifications (Rev. 5, August 19, 2003); 24590-HLW-MV-HDH-00003, Rev. 0, Equipment Assembly Waste Neutralization Vessel HDH-VSL-00003; Mechanical Data Sheet: Vessel, 24590-HLW-MVD-HDH-00003, Rev. 0, Waste Neutralization Vessel HDH-VSL-00003;

References	Drawings, Material Requisition, Specifications and System Description	HDH-VSL-00001, Canister Rinse Bogie Decon Vessel Material Requisition No. 24590-QL-MRA-MQTS-00002, Rev. 2, Bogies Special L/DS (HLW Rinse) (MH025) (VHL0), MR Section 2 – Technical Specifications (Rev. 5, August 19, 2003); 24590-HLW-3PS-MQR0-T0002, Rev. 2, Engineering Specification for HLW System HDH Canister Rinse Bogie; 24590-HLW-M0-HDH-00013, Rev. 2, HLW Vitrification System HDH Design Proposal Drawing Canister Rinse Bogie Arrangement; 24590-HLW-M0-HDH-00012001, Rev. 2, HLW Vitrification System HDH Design Proposal Drawing Canister Rinse Bogie; 24590-HLW-M0-HDH-00012002, Rev. 1, HLW Vitrification System HDH Design Proposal Drawing Canister Rinse Bogie; Mechanical Handling Data Sheet:, 24590-HLW-M0D-HDH-00029, Rev. 2, Canister Rinse Bogie Spool Piece; Mechanical Handling Data Sheet:, 24590-HLW-M0D-HDH-00030, Rev. 1, Canister Rinse Vessel Lid; Mechanical Systems Data Sheet: Vessel, 24590-HLW-MVD-HDH-00009, Rev. 0, Canister Rinse Bogie Decon Vessel HDH-VSL-00001; 24590-HLW-3YD-HDH-00002, Rev. 1, System Description for HLW System HDH Canister Decontamination Handling; System Description Change Notice (SDCN) No. 24590-HLW-3YN-HDH-00001, System Description for HLW System HDH Canister Decontamination Handling; 24590-HLW-3YD-HDH-00001, Rev. 0, Process System Description of HLW Canister Decontamination Handling System (HDH); SDCN No. 24590-HLW-3YN-HDH-00002, Process System Description of HLW Canister Decontamination Handling System (HDH)

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 controls and requirements to assure the design intent fully satisfies the WAC requirements.

	Information Assessed	Source of Information	Assessment
Design	Vessel design standards are appropriate and adequate for the vessel's intended use.	Drawings, Material Requisitions and Mechanical Data Sheets listed above under References; 24590-WTP-3PS-MV00-T0001, Rev. 1, Engineering Specification for Pressure Vessel Design and Fabrication; Specification Change Notice (SCN) No. 24590-WTP-3PN-MV00-00006 for Engineering Specification for Pressure Vessel Design and Fabrication; ASME Section VIII, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers	The Material Requisitions require use of the Engineering Specification for Pressure Vessel Design and Fabrication for vessels HDH-VSL-00002/-00003/ and -00004. This specification requires that the vessels and all vessel appurtenances are to be designed to ASME Section VIII, Division 1 rules. Additional supplementary requirements are specified in the specification for Pressure Vessel Design and Fabrication. These supplementary requirements address pressure vessel fatigue analysis, positive material identification, standard fabrication tolerances, acceptable welding procedures for the vessel and appurtenances, welder qualifications and testing records, NDE inspections and records, quality assurance requirements, and packaging, shipping, handling and storage requirements. The Mechanical Data Sheets identify these HDH vessels as Commercial Grade, Seismic Category (SC-III) equipment. These are adequate and acceptable codes and standards for design and fabrication of these HDH system vessels.
	If a non-standard vessel is to be used, the design calculations demonstrate sound engineering principles of construction.	24590-WTP-3PS-MV00-T0001, Rev. 1, Engineering Specification for Pressure Vessel Design and Fabrication; Specification Change Notice (SCN) No. 24590-WTP-3PN-MV00-00006 for Engineering Specification for Pressure Vessel Design and Fabrication	The Engineering Specification for Pressure Vessel Design and Fabrication requires that the HDH System vessels, HDH-VSL-00002/-00003/ and -00004, are to be designed and fabricated in accordance with the requirements of ASME Section VIII, Division 1. The vessels are to be delivered after design, fabrication, inspection and testing. Only vessel HDH-VSL-00003 will be provided with an ASME U stamp and the vessel will be registered with the National Board. These are shop fabricated vessels for mixed waste service in the HLW Facility. The vessel design standards are appropriate and adequate for the vessels' intended uses.

	Information Assessed	Source of Information	Assessment
Design	Vessel has adequate strength, after consideration of the corrosion allowance, to withstand the operating pressure, operating temperature, and seismic loads.	Drawings, Material Requisitions and Mechanical Data Sheets listed above under References; 24590-WTP-3PS-MV00-T0001, Rev. 1, Engineering Specification for Pressure Vessel Design and Fabrication; Specification Change Notice (SCN) No. 24590-WTP-3PN-MV00-00006 for Engineering Specification for Pressure Vessel Design and Fabrication; 24590-WTP-3PS-MV00-T0002, Rev. 1, Engineering Specification for Seismic Qualification Criteria for Pressure Vessels (HDH-VSL-00002 & -00004); 24590-WTP-3PS-MV00-T0002, Rev. 2, Engineering Specification for Seismic Qualification Criteria for Pressure Vessels (HDH-VSL-00003); 24590-WTP-3PS-FB01-T0001, Rev. 1, Engineering Specification for Structural Design Loads for Seismic Category III & IV Equipment and Tanks; UBC, 1997, Uniform Building Code, International Conference of Building Officials	The Engineering Specification for Pressure Vessel Design and Fabrication requires that the HDH vessels are to be designed to ASME Section VIII, Division 1 rules. This code requires specific consideration of the operating pressures, temperatures, seismic loads, and corrosion allowance in the design process. Supplementary design criteria are specified in the Engineering Specifications for Seismic Qualification Criteria and Structural Design Loads for Seismic Category III & IV Equipment and Tanks to provide for the seismic design analysis. The Mechanical Data Sheets identify the operating pressure and temperature ranges for each vessel, the materials selected in the corrosion report, the corrosion allowance, and the requirements for seismic qualification in the design. The Mechanical Data Sheets indicate that vessels HDH-VSL-00002/-00003/ and -00004 are to be analyzed as Seismic Category (SC-III) vessels which requires use of the seismic design requirements in the 1997 UBC. These are appropriate codes and criteria to ensure the tanks have adequate strength at the end of their design lives.
Foundations	Vessel foundation will maintain the load of a full vessel.	Drawings listed above under References; 24590-WTP-3PS-MV00-T0001, Rev. 1, Engineering Specification for Pressure Vessel Design and Fabrication; Specification Change Notice (SCN) No. 24590-WTP-3PN-MV00-00006 for Engineering Specification for Pressure Vessel Design and Fabrication	The Equipment Assembly drawings show the support arrangements for each of the HDH vessels. Canister Decon Vessels, HDH-VSL-00002 & -00004, are supported by a support ring assembly near the top of the vessels, while the Waste Neutralization Vessel, HDH-VSL-00003, is provided with a cylindrical skirt. The Engineering Specification for Pressure Vessel Design and Fabrication requirements assure adequate vessel foundation designs.

	Information Assessed	Source of Information	Assessment
Foundations	If in an area subject to flooding, the vessel is anchored.	24590-WTP-3PS-MV00-T0001, Rev. 1, Engineering Specification for Pressure Vessel Design and Fabrication; Specification Change Notice (SCN) No. 24590-WTP-3PN-MV00-00006 for Engineering Specification for Pressure Vessel Design and Fabrication	Buoyant forces of an empty vessel in a flooded room are a mandatory standard design load case in the Engineering Specification for Pressure Vessel Design and Fabrication.
Frost Heave	Vessel system will withstand the effects of frost heave.	Drawings and System Description listed above under References 24590-WTP-DC-ST-01-001, Rev. 0, Structural Design Criteria	The System Description identifies that the HDH system vessels HDH-VSL-00002/-00003/ and -00004 are located in the Canister Decon Handling Cave, Room H-B035. The General Arrangement Plans at elevations (-) 21'-0" and 0'-0" show this room is supported by the HLW Building mat foundation. The Structural Design Criteria requires that all structural foundations extend into the surrounding soil below the frost line in order to preclude frost heave. The frost line is located 30 in. below finished grade. Therefore the HDH System vessels will not be subject to frost heave.
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)	Drawings, Mechanical Data Sheets and System Description listed above under References;	The System Description identifies that the HDH system vessels have no important to safety functions, therefore these vessels are not a concern for hydrogen generation, accumulation and flammability. The vessels are furnished with grounding lugs to control the discharge of static electricity as shown on the drawings. A fluidic agitator is provided in vessel HDH-VSL-00003 for mixing prior to transfers to homogenize the vessel contents as discussed in the System Description. All of the vessels are equipped with internal spray rings for decontamination.

	Information Assessed	Source of Information	Assessment
Waste Characteristics	Vessel is designed to store or treat the wastes with the characteristics defined above and any treatment reagents.	Mechanical Data Sheets and System Description listed above under References; Vessel/Tank Material Selection Data Sheet, 24590-HLW-N1D-HDH-P0003, Rev. 0, Canister Decon Vessel HDH-VSL-00002 & HDH-VSL-00004 (HLW); Vessel/Tank Material Selection Data Sheet, 24590-HLW-N1D-HDH-P0005, Rev. 0, Waste Neutralization Vessel HDH-VSL-00003 (HLW)	The HDH System Description document identifies that the Canister Decon Vessels normally operate with a a mixture of Nitric Acid and Cerium Nitrate at about 113 °F. This mixture was selected to lightly etch the exterior surface of the filled and sealed waste containers. The etch is followed by a spray wash with dilute nitric acid and then a second spray wash with deionized water The Vessel/Tank Material Selection Data Sheet recommended UNS R50400 (Ti-2) as an appropriate material for the Canister Decon Vessels that is resistant to this mixture and the spray wash solutions. The etch mixture and spray washes are drained into the Waste Neutralization Vessel as the decontamination operation is completed. The contents of vessel HDH-VSL-00003 are diluted and neutralized to pH 8 or above immediately after the last transfer in the decontamination cycle. The Vessel/Tank Material Selection Data Sheet for HDH-VSL-00003 recommended 304L stainless steel (maximum 0.030% Carbon, dual certified), which will hereinafter be referred to as 304L stainless steel, as an adequately corrosion resistant material.
	The waste types are compatible with each other.	System Description listed above under References	The HDH System Description document identifies that the only liquids used in vessels HDH-VSL-00002/-00003/ and -00004 are the Nitric Acid and Cerium Nitrate etching mixture and the spray washes which are neutralized when they are transferred to vessel HDH-VSL-00003. These wastes are compatible. No other wastes are used in these vessels.

	Information Assessed	Source of Information	Assessment
Corrosion	Vessel material and protective coatings ensure the vessel structure is adequately protected form the corrosive effects of the waste stream and external environments (expected to not leak or fail for the design life of the system)	Mechanical Data Sheets and System Description listed above under References; Vessel/Tank Material Selection Data Sheet, 24590-HLW-N1D-HDH-P0003, Rev. 0, Canister Decon Vessel HDH-VSL-00002 & HDH-VSL-00004 (HLW); Vessel/Tank Material Selection Data Sheet, 24590-HLW-N1D-HDH-P0005, Rev. 0, Waste Neutralization Vessel HDH-VSL-00003 (HLW)	The HDH system vessels HDH-VSL-00002/-00003/ and -00004 are located in the Canister Decon Cave at elevations (-) 16'-0" and 0'-0". Although the tanks and associated equipment are accessible for maintenance, the service design life is 40 years. The Vessel/Tank Material Selection Data Sheets for these vessels identify that UNS R50400 (Ti-2) material was selected for vessels HDH-VSL-00002 & -00004 to provide adequate corrosion protection against the Nitric Acid-Cerium Nitrate mixture used for final exterior decontamination of the filled and sealed HLW waste canisters. The data sheet for vessel HDH-VSL-00003 identifies that 304L stainless steel has been selected for this vessel. These material selections are adequate to provide the required 40 year service life for these vessels.
	Corrosion allowance is adequate for the intended service life of the vessel.	Drawings and Mechanical Data Sheets listed above under References; Vessel/Tank Material Selection Data Sheet, 24590-HLW-N1D-HDH-P0003, Rev. 0, Canister Decon Vessel HDH-VSL-00002 & HDH-VSL-00004 (HLW); Vessel/Tank Material Selection Data Sheet, 24590-HLW-N1D-HDH-P0005, Rev. 0, Waste Neutralization Vessel HDH-VSL-00003 (HLW)	The Vessel/Tank Material Selection Data Sheet for Canister Decon Vessels HDH-VLS-00002 & -00004 specifies a corrosion allowance of 0.040 inches for a 40 year design life based on selection of UNS R50400 (Ti-2) Titanium for use in this waste environment. The Material Selection Data Sheet for the Waste Neutralization Vessel HDH-VSL-00003 specifies a corrosion allowance of 0.040 inches for a 40 year design life based on selection of 304L stainless steel. These material selections and corrosion allowances assure an adequate service life for the vessels.
Pressure Relief	Pressure controls (vents and relief valves) are adequately designed to ensure pressure relief if normal operating pressures in the vessel are exceeded.	Drawings and Process System Description listed above under References	The Process System Description identifies that vessels HDH-VSL-00002 & -00004 overflow to vessel HDH-VSL-00003. Vessel HDH-VSL-00003 overflows to the sump in room H-B035 at elevation (-) 16'-0". The Equipment Assembly drawings show that the overflow lines are larger than any of the other liquid conveying lines entering the vessels and therefore have adequate flow capacity to preclude overpressure.

	Information Assessed	Source of Information	Assessment
Design	Vessel design standards are appropriate and adequate for the vessel's intended use.	Drawings, Material Requisition and Mechanical Data Sheet listed above under References; 24590-HLW-3PS-MQR0-T0002, Rev. 2, Engineering Specification for HLW System HDH Canister Rinse Bogie; ASME Section VIII, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; ASME B31.3 – 1996, Process Piping, American Society of Mechanical Engineers	The Material Requisition requires use of The Engineering Specification for HLW System HDH Canister Rinse Bogie for the design and fabrication of vessel HDH-VSL-00001. This specification requires that the vessel is to be designed to ASME Section VIII, Division 1 rules. Ancillary piping inside and exterior to the vessel is to be designed to the requirements of ASME B31.3. The Mechanical Data Sheet identifies this HDH vessel as Commercial Grade, Seismic Category (SC-III) equipment. These are adequate and acceptable codes and standards for design and fabrication of this HDH system vessel.
	If a non-standard vessel is to be used, the design calculations demonstrate sound engineering principles of construction.	24590-HLW-3PS-MQR0-T0002, Rev. 2, Engineering Specification for HLW System HDH Canister Rinse Bogie	The Engineering Specification for HLW System HDH Canister Rinse Bogie requires that vessel HDH-VSL-00001 is to be designed and fabricated in accordance with the requirements of ASME Section VIII, Division 1. The vessel is to be delivered after design, fabrication, inspection and testing. A code stamp is not required for this vessel. This is a shop fabricated vessel that will be delivered as part of a mechanical equipment handling system for mixed waste service in the HLW Facility. The vessel design standards are appropriate and adequate for the vessels intended use.

	Information Assessed	Source of Information	Assessment
Design	Vessel has adequate strength, after consideration of the corrosion allowance, to withstand the operating pressure, operating temperature, and seismic loads.	Drawings and Mechanical Data Sheet listed above under References; 24590-HLW-3PS-MQR0-T0002, Rev. 2, Engineering Specification for HLW System HDH Canister Rinse Bogie; 24590-WTP-3PS-MV00-T0002, Rev. 0, Engineering Specification for Seismic Qualification Criteria for Pressure Vessels; 24590-WTP-3PS-FB01-T0001, Rev. 0, Engineering Specification for Structural Design Loads for Seismic Category III & IV Equipment and Tanks; UBC, 1997, Uniform Building Code, International Conference of Building Officials	The Engineering Specification for HLW System HDH Canister Rinse Bogie requires that the vessel is to be designed to ASME Section VIII, Division 1 rules. This code requires specific consideration of the operating pressures, temperatures, seismic loads, and corrosion allowance in the design process. Supplementary design criteria are specified in the Engineering Specifications for Seismic Qualification Criteria and Structural Design Loads for Seismic Category III & IV Equipment and Tanks to provide for the seismic design analysis. The Mechanical Data Sheet identifies the vessel operating pressure and temperature ranges and the requirements for seismic qualification in the design. The Mechanical Data Sheet indicates that vessel HDH-VSL-00001 is to be analyzed as a Seismic Category (SC-III) vessel which requires use of the seismic design requirements in the 1997 UBC. These are appropriate codes and standards to ensure the vessel has adequate strength at the end of it's design life.
Foundations	Vessel foundation will maintain the load of a full vessel.	Drawings listed above under References; 24590-HLW-3PS-MQR0-T0002, Rev. 2, Engineering Specification for HLW System HDH Canister Rinse Bogie	The Reference drawings show the support arrangements for the HDH vessel. The Canister Rinse Bogie Decon Vessel is supported by the frame structure of the Canister Rinse Bogie which travels on rails in a process tunnel. The drawings and the Engineering Specification for HLW System HDH Canister Rinse Bogie provide adequate design requirements to assure that the Canister Rinse Bogie can adequately support the Decon Vessel under all anticipated load conditions including that of a full vessel.
	If in an area subject to flooding, the vessel is anchored.	Mechanical Data Sheet listed above under References; 24590-HLW-3PS-MQR0-T0002, Rev. 2, Engineering Specification for HLW System HDH Canister Rinse Bogie	The Mechanical Data Sheet indicates that the maximum water inventory in the Canister Rinse Bogie Decon Vessel during operations is 360 gallons. This volume is insufficient to float the Decon Vessel. Therefore, the Engineering Specification for HLW System HDH Canister Rinse Bogie does not require design for this load condition.

	Information Assessed	Source of Information	Assessment
Frost Heave	Vessel system will withstand the effects of frost heave.	Drawings and System Description listed above under References 24590-WTP-DC-ST-01-001, Rev. 0, Structural Design Criteria	The Drawings show that the HDH system Canister Rinse Bogie including the Decon Vessel is located in the Canister Rinse Tunnel, room H-B039B. This tunnel is located on top of the HLW Building mat foundation. The Structural Design Criteria requires that all structural foundations extend into the surrounding soil below the frost line in order to preclude frost heave. The frost line is located 30 in. below finished grade. Therefore the HDH System Canister Rinse Bogie will not be subject to frost heave.
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)	Drawings and System Description listed above under References;	The System Description identifies that the rinse water used in vessel HDH-VSL-00001 is low pressure deionized water. Therefore, the vessel contents are water and incidental loose contamination that washes off the filled and sealed HLW canisters. There are no flammability or ignitability concerns. Vessel HDH-VSL-00001 is an open top container. During rinse operations, the vessel is aligned below the Canister Rinse Bogie Spool Piece which is mounted on the ceiling of the Canister Rinse Tunnel. An inflatable seal is used to provide a leak-tight interface between top of the Canister Rinse Bogie Decon Vessel and the Spool Piece prior to conducting the rinse operation.
	Vessel is designed to store or treat the wastes with the characteristics defined above and any treatment reagents.	Drawings, Mechanical Data Sheet, Mechanical Handling Data Sheets and System Description listed above under References; Vessel/Tank Material Selection Data Sheet, 24590-HLW-N1D-HDH-P0007, Rev. 0, Canister Rinse Bogie Decon Vessel HDH-VSL-00001 (HLW)	The HDH System Description document identifies that the Canister Rinse Bogie Decon Vessel normally operates with a rinse of deionized water at a temperature of about 68 °F. This rinse is used to remove loose surface contamination on the exterior surface of the filled and sealed waste containers. The Vessel/Tank Material Selection Data Sheet recommended 316L (maximum 0.030% Carbon, dual certified) stainless steel as an appropriate material for this vessel. This material is hereinafter referred to as 316L stainless steel. The Mechanical Handling Data Sheets for the Canister Rinse Bogie Spool Piece and the Canister Rinse Vessel Lid specify the use of 304L stainless steel for these components.

	Information Assessed	Source of Information	Assessment
Waste Char.	The waste types are compatible with each other.	System Description listed above under References	The HDH System Description document identifies that the only liquid used in vessel HDH-VSL-00001 is deionized water. Therefore, waste compatibility is not a concern.
Corrosion	Vessel material and protective coatings ensure the vessel structure is adequately protected form the corrosive effects of the waste stream and external environments (expected to not leak or fail for the design life of the system)	Mechanical Data Sheet and System Description listed above under References; Vessel/Tank Material Selection Data Sheet, 24590-HLW-N1D-HDH-P0007, Rev. 0, Canister Rinse Bogie Decon Vessel HDH-VSL-00001 (HLW)	The HDH system vessel HDH-VSL-00001 is located in the Canister Rinse Tunnel at elevation (-) 16'-6". Although the vessel and associated equipment is accessible for maintenance, the service design life is 40 years. The Vessel/Tank Material Selection Data Sheet for this vessel identifies that 316L stainless steel was selected for this vessel to provide appropriate corrosion resistance to the rinse water. The Mechanical Handling Data Sheets for the Canister Rinse Bogie Spool Piece and the Canister Rinse Vessel Lid specify the use of 304L stainless steel for these components. These material selections are adequate to provide the required 40 year service life for this vessel.
Corrosion Allowance	Corrosion allowance is adequate for the intended service life of the vessel.	Drawings, Mechanical Data Sheet and Mechanical Handling Data Sheets listed above under References; Vessel/Tank Material Selection Data Sheet, 24590-HLW-N1D-HDH-P0007, Rev. 0, Canister Rinse Bogie Decon Vessel HDH-VSL-00001 (HLW)	The Vessel/Tank Material Selection Data Sheet for vessel HDH-VSL-00001 specifies a corrosion allowance of 0.040 inches for a 40 year design life based on selection of 316L stainless steel for use in this waste environment. The material selection and corrosion allowance is consistently carried forward in the design to the Mechanical Data Sheet. The Mechanical Handling Data Sheets for the Canister Rinse Bogie Spool Piece and the Canister Rinse Vessel Lid specify the use of 304L stainless steel for these components, but do not specify corrosion allowances.

	Information Assessed	Source of Information	Assessment
Pressure Relief	Pressure controls (vents and relief valves) are adequately designed to ensure pressure relief if normal operating pressures in the vessel are exceeded.	Drawings and Process System Description listed above under References	The Process System Description identifies that vessel HDH-VSL-00001 overflows to the sump in room H-B039B at elevation (-) 16'-6". The pressurization or overflow of the vessel can be relieved through the vent and the inflatable seal. During normal operations, the rinse water volume in the bottom of the Canister Rinse Bogie Decon Vessel is about 200 gallons. The vessel is equipped with redundant high level indication instrumentation.