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

14-ESQ-0095

JUL 0 8 2014

RECEIVED
JUL 1 0 2014
EDM

Ms. S. L. Dahl-Crumpler
Nuclear Waste Program
State of Washington
Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354

Dear Ms. Dahl-Crumpler:

CLASS 1 MODIFICATIONS TO THE HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT PERMIT (PERMIT), QUARTER ENDING JUNE 30, 2014

In accordance with Hanford Permit Condition I.C.3, enclosed for your notification are the Class 1 modifications for the quarter ending June 30, 2014. Included within the enclosure is permit equivalency notification documentation associated with the Waste Treatment and Immobilization Plant.

The enclosed documentation updates information in Attachment 4 and also in Part III of Permit Revision 8C. The enclosed documentation pertains to the Hanford Emergency Management Plan, and the Waste Treatment and Immobilization Plant. The Class 1 modifications are being made to ensure that activities are conducted in compliance with the Permit. A record of the enclosed documentation is maintained in the Hanford Facility Operating Record.

If you have any questions, please contact me, or your staff may contact Jeffrey A. Frey, Acting Assistant Manager for Safety and Environment, on (509) 376-7727.

Sincerely,

Doug S. Shoop
Acting Manager

ESQ:ACM

Enclosure

cc w/encl: See page 2

JUL 0 8 2014

cc w/encl:
R. G. Hastings, ORP (CD ROM)
Administrative Record, TSD: H-0-1, H-0-8, T-2-6, H6-08 (Hard Copy)
Ecology NWP Library (Hardcopy)
Environmental Portal, LMSI, A3-95 (CD ROM)
HF Operating Record (J. K. Perry, MSA, H7-28) (CD ROM)

cc w/o encl:
B. M. Barnes, CHPRC
A. S. Carlson, Ecology
B. L. Curn, URS
K. A. Hadley, WCH
J. A. Hedges, Ecology
D. L. McDonald, Ecology
S. Murdock, BNI
B. Peck, BNI
A. L. Prignano, Ecology
A. G. Miskho, WRPS
J. R. Seaver, CHPRC
H. T. Tilden, PNNL
M. B. Wilson, MSA
D. M. Yasek, WRPS

ENCLOSURE

CLASS 1 MODIFICATIONS FOR QUARTER ENDING JUNE 30, 2014
Ms. S. L. Dahl-Crumpler, Ecology

Consisting of 303 pages,
including this cover page

Hanford Facility RCRA Permit Modification Notification Forms

Attachment 4
Hanford Emergency Management Plan, DOE/RL-94-02

Index

Page 2 of 5	Section 1.3.3.2
Page 3 of 5	Section 3.4.1.3
Page 4 of 5	Section 14.3.7
Page 5 of 5	Table 3.1

Reviewed by RL Program Office:

6/23/14
Date

Hanford Facility RCRA Permit Modification Notification Form

Unit:	Permit Part
Hanford Emergency Management Plan, DOE/RL-94-02	**Attachment 4**

Description of Modification:
DOE/RL-94-02, Section 1.3.3.2 (delete paragraph 8)

1.3.3.2 Emergency Planning Hazards Assessment Process. The release or loss of control of hazardous materials (radiological and nonradiological) shall.....

.....~~If EPHAs do not contain classified information or Unclassified Controlled Nuclear Information, they shall be reviewed by an authorized individual to determine if they contain potentially exploitable information. EPHAs containing potentially exploitable information shall be protected as Official Use Only under exemption 27 of the Freedom of Information Act.~~

Additional information/guidance to assist in the development of EPHAs is delineated in DOE-0223, *Emergency Plan Implementing Procedures*, and applicable sections of the DOE *Emergency Management Guide* (DOE 2007).

WAC 173-303-830 Modification Class [1,2]	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:		X		

Enter relevant WAC 173-303-830, Appendix I Modification citation number: -830(4)(d)
Enter wording of WAC 173-303-830, Appendix I Modification citation: Other Modifications
The deleted text addresses activities that are not subject to regulation under WAC 173-303 requirements. Accordingly, the deleted text is inappropriate for inclusion in portions of the Hanford Emergency Management Plan that are enforceable under the RCRA permit.

Modification Approved: [✓] Yes [ ] No (state reason for denial)
Reason for denial:

Reviewed by Ecology:
6-19-14
Date

Hanford Facility RCRA Permit Modification Notification Form

Unit:	Permit Part
Hanford Emergency Management Plan, DOE/RL-94-02	**Attachment 4**

Description of Modification:
DOE/RL-94-02, Section 3.4.1.3:

3.4.1.3 Hospitals. RL maintains agreements with local hospitals, which provide for the care of injured, contaminated (chemical or radiological) Hanford Site personnel. These hospitals include:

- Lourdes Medical Center;
- ~~Kennewick General Hospital~~ Trios Health; and
- Kadlec Regional Medical Center.

RL shall provide for training and exercise support, as needed, related to the services provided to the Hanford Site. RL shall also provide health physics support and will work in cooperation with the hospitals to develop protocols for the diagnosis and treatment of injuries and illnesses involving chemical and/or radiological contamination as necessary.

WAC 173-303-830 Modification Class [1 2]	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			

Enter relevant WAC 173-303-830, Appendix I Modification citation number: B.6.d
Enter wording of WAC 173-303-830, Appendix I Modification citation: Changes in name, address, or phone number of coordinators or other persons or agencies identified in the plan. Kennewick General Hospital changed its name to Trios Health. Kadlec Medical Center changed its name to Kadlec Regional Medical Center.

Modification Approved: ☑ Yes ☐ No (state reason for denial) Reason for denial:	Reviewed by Ecology: [signature] 6-19-14 Date

Hanford Facility RCRA Permit Modification Notification Form

Unit:	Permit Part
Hanford Emergency Management Plan, DOE/RL-94-02	**Attachment 4**

Description of Modification:
DOE/RL-94-02, Section 14.3.7:

14.3.7 Plan Locations

.....Copies of the plan are also maintained at the following offsite agencies (per their request) to meet the WAC 173-303-350(4) requirement:

- Pasco Police Department;
- Adams County Sheriff's Office;
- Pasco Fire Department;
- College Place Fire Department;
- Kadlec Regional Medical Center;
- Lourdes Medical Center;
- ~~Kennewick General Hospital~~ Trios Health;
- Benton County Emergency Management Center;
- Franklin County Emergency Management Center; and
- Grant County Emergency Management Center.

Copies of location-specific documentation are provided to offsite agencies as requested.

WAC 173-303-830 Modification Class [1,2]	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			

Enter relevant WAC 173-303-830, Appendix I Modification citation number: B.6.d
Enter wording of WAC 173-303-830, Appendix I Modification citation: Changes in name, address, or phone number of coordinators or other persons or agencies identified in the plan. Kadlec Medical Center changed its name to Kadlec Regional Medical Center. Kennewick General Hospital changed its name to Trios Health.

Modification Approved: [✓] Yes [ ] No (state reason for denial)
Reason for denial:

Reviewed by Ecology: [signature] 6-19-14
Date

Hanford Facility RCRA Permit Modification Notification Form

Unit:	Permit Part
Hanford Emergency Management Plan, DOE/RL-94-02	**Attachment 4**

Description of Modification:
DOE/RL-94-02, Table 3-1:

Table 3-1
Memorandums of Understanding

PARTIES	SERVICES/AREAS OF COPERATION	POINTS OF CONTACT	CONSTRAINTS	DATE	EXPIRATION DATE	WHERE ON FILE
State of Washington	Document areas of cooperation between the parties in the planning for and response to emergencies at the Hanford Site.	Washington Emergency Management Division	None	~~06/20/07~~ 12/10/12	02/28/~~13~~18 or until canceled by any party after 60 days written notice to the other parties.	RL SES
State of Oregon	Document areas of cooperation between the state of Oregon and RL in the planning for and providing notification and interface in the event of an incident on the Hanford Site.	Oregon Department of Energy	None	~~03/06/09~~ 07/16/13	Continue until canceled by either party by 30 days prior written notice to the other party.	RL SES
.....	.....	.....	.....	.....	.....	.....
~~National Weather Service~~	~~Sharing meteorological information.~~	~~NWS Western Regional Headquarters~~	~~None~~	~~10/05/94~~	~~Agreement may be terminated by either party upon 30 days written notice to the other party.~~	~~RL SES~~
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....

WAC 173-303-830 Modification Class [1,2]	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:	X			

Enter relevant WAC 173-303-830, Appendix I Modification citation number: A.1
Enter wording of WAC 173-303-830, Appendix I Modification citation: Administrative and informational changes. Change was made due to revision of Washington and Oregon MOUs, and termination of the National Weather Service (NWS) MOU. The Washington MOU was revised to include reference updates, minor editorial changes, and adding explanation to section VIII that minor changes identified during the annual review can be incorporated in the next scheduled revision. The Oregon MOU was revised to include reference updates, minor editorial changes, and adding of an "Effect of this MOU" section to better document the legal effects of the MOU. The NWS MOU was terminated per agreement of both parties as it was determined to be unnecessary because the meteorological information addressed in the MOU is available as part of the existing NWS mission, and no special planning or documentation is required. Hanford's meteorological resources will not be diminished by cancellation of the MOU as the site will continue to operate with Hanford's meteorological network and will still have access to the NWS capabilities via the non-restricted NWS website. Under the proposed change, the permittee(s) will utilize a functionally equivalent process.

Modification Approved: [✓] Yes [ ] No (state reason for denial)
Reason for denial:

Reviewed by Ecology:
6-19-14
Date

Remove and Replace the Following Sections:

Remove Permit Attachment 4 (DOE/RL-94-02, Rev. 5, dated December 2012), and replace with Permit Attachment 4 (DOE/RL-94-02, Rev. 6, dated June 2014).

DOE/RL-94-02
Revision 6

Copy No. ____

Hanford Emergency Management Plan

Date Published
June 2014

Approved by:

Doug S. Shoop
Acting Manager, DOE
Richland Operations Office

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

U.S. DEPARTMENT OF ENERGY

Richland Operations Office

P.O. Box 550
Richland, Washington 99352

_____ _____
Release Approval Date

DOE/RL-94-02
Revision 6
Copy No. _____

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ACRONYMS/ABBREVIATIONS

AEGL	Acute Exposure Guideline Level
ATL	Advanced Technologies and Laboratories, Inc.
BED	Building Emergency Director
BNI	Bechtel National, Inc.
BW	Building Warden
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHPRC	CH2M HILL Plateau Remediation Company
CPR	cardiopulmonary resuscitation
DOE	U.S. Department of Energy
DOE-HQ	U.S. Department of Energy, Headquarters
DOT	U.S. Department of Transportation
EAL	emergency action level
EAS	Emergency Alert System
Ecology	Washington State Department of Ecology
EDO	Emergency Duty Officer
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
EPHA	Emergency Planning Hazards Assessment
EPZ	emergency planning zone
ERAP	Emergency Readiness Assurance Plan
ERDF	Environmental Restoration Disposal Facility
ERG	Emergency Response Guidebook
ERO	emergency response organization
FAA	Federal Aviation Administration
FBI	Federal Bureau of Investigation
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
HPMC	HPM Corporation Occupational Medical Services
HQ	DOE-Headquarters
IC	Incident Commander
ICP	Incident Command Post
ICS	Incident Command System
JIC	Joint Information Center
MOU	memoranda of understanding
MSA	Mission Support Alliance, LLC.
NARAC	National Atmospheric Release Advisory Capability
NFPA	National Fire Protection Association
NIMS	National Incident Management System
ORP	U.S. Department of Energy, Office of River Protection
OSHA	Occupational Safety and Health Administration

ACRONYMS/ABBREVIATIONS (cont)

PAC	Protective Action Criteria
PAG	Protective Action Guideline
PAR	protective action recommendation
PCB	Polychlorinated biphenyl
PNNL	Pacific Northwest National Laboratory
PNSO	Pacific Northwest Site Office
POC	Patrol Operations Center
RAP	Radiological Assistance Program
RCRA	Resource Conservation and Recovery Act
RL	U.S. Department of Energy, Richland Operations Office
SCBA	self-contained breathing apparatus
SES	Office of Security and Emergency Services
SMT	Site Management Team
SRG	Scenario Review Group
TEDE	total effective dose equivalent
TEEL	Temporary Emergency Exposure Limit
TSD	treatment, storage, and disposal
UDAC	Unified Dose Assessment Center
USCG	U. S. Coast Guard
WAC	Washington Administrative Code
WCH	Washington Closure Hanford, Inc.
WRPS	Washington River Protection *Solutions*, LLC

1.0 INTRODUCTION

1.1 PURPOSE

The *Hanford Emergency Management Plan* incorporates into one document an overview of the Hanford Site emergency management program for the U.S. Department of Energy (DOE) Richland Operations Office (RL), Office of River Protection (ORP), Pacific Northwest Site Office (PNSO), and their respective site contractors. The program has been developed in accordance with DOE Orders as well as Federal and state regulations to protect worker and public health and safety and the environment in the event of an emergency at or affecting the Hanford Site.

This plan provides a description of how the Hanford Site will implement the provisions of DOE O 151.1C and other applicable DOE Orders in terms of overall policies and concept of operations. The plan should be used as the basis, along with DOE Orders, for the development of specific RL/ORP/PNSO and site contractor implementing procedures.

Additionally, portions of this plan, together with Hanford Site location/activity-specific documentation established to meet contingency plan requirements, meet the Washington Administrative Code (WAC) 173-303 requirements for the Hanford Site contingency plan. Many documents comprise the Hanford Site contingency plan. Applicability of this plan to Hanford Site activities is described in the Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion, General Condition II.A. General Condition II.A applies to Hanford Site activities at operating treatment, storage, and disposal (TSD) units, TSD units undergoing closure and/or post-closure activities, and to transportation incidents on the site in accordance with the applicability matrix delineated in Attachment 9 of the Hanford Facility RCRA Permit. For interim status TSD units and 90-day accumulation areas, these activities will be consistent with emergency preparedness policy and implementation techniques required by the Hanford Facility RCRA Permit, General Conditions II.A and II.B. Contingency plan requirements from WAC 173-303-350 met in this plan are identified in the crosswalk matrix in Appendix A.

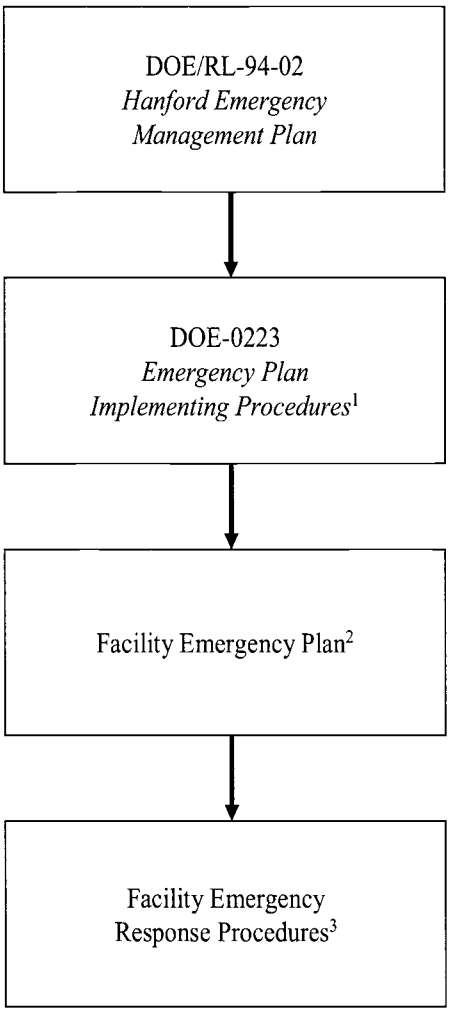
This plan, together with each Polychlorinated biphenyl (PCB) temporary accumulation area location/activity-specific documentation, also meets the requirements for a Spill Prevention Countermeasures and Control (SPCC) Plan and the notifications required by 40 CFR 761.[1]

1.2 SCOPE

Event response is governed by an emergency preparedness documentation hierarchy that is shown in Figure 1-1. This hierarchy generally follows an integrated contingency plan approach. In such an approach, one set of documentation responds to a number of requirements (e.g., environmental regulations and DOE Orders). The crosswalk contained in Appendix A illustrates portions of this plan that address the specified requirements.

This plan describes the overall emergency organization, authorities, and responsibilities for response to and mitigation of emergency events involving facilities and activities on the Hanford Site. These events include the full spectrum of operational emergencies, natural phenomena, transportation events, and safeguard and security emergencies. This plan also describes the authorities, responsibilities, and agreements for response to offsite and near-site facility emergencies that have the potential for detrimentally affecting the health of personnel and safety of operations at the Hanford Site.

[1] Permit requirement: Subsection 1.1 (fourth paragraph), Class 1 Modification 9/30/99



[1] Some site contractors may implement DOE-0223 actions through contractor-specific emergency management documentation.

[2] Facility emergency plans can include building emergency plans, facility response plans, or facility emergency information boards.

[3] In some facilities, the facility emergency plan and emergency response procedures are integrated.

RL/ORP/PNSO and site contractors shall develop and maintain procedures or other documents necessary to implement the emergency management program described in this plan.

For the Hanford Site, these procedures shall include, but not be limited to, the following.

- Site-wide emergency procedures used by RL/ORP/PNSO and site contractors that delineate:
  - the operation of the Hanford Incident Command System and responsibilities of the Incident Command Organization;
  - the responsibilities for the Hanford Emergency Operations Center (EOC);
  - recognition, categorization/classification, and notification of emergencies and other incidents;
  - protective action recommendations (PARs);
  - response to nonradiological hazardous substance spills or releases during transportation incidents occurring on the site not covered by TSD unit-specific contingency plans or building emergency plans;

    NOTE: The term hazardous substances is defined in WAC 173-303-040 as: "any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the physical, chemical or biological properties described in WAC 173-303-090 or 173-303-100." Whenever the term "hazardous substances" is used in this document to denote the WAC 173-303 definition, the term will be referred to as "WAC hazardous substance." Otherwise, a hazardous substance will mean those regulated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
  - response to PCB spills or releases in accordance with 40 CFR 761;[2]
  - termination, reentry, and recovery for DOE Order emergencies and events that meet RCRA contingency plan implementation criteria; and
  - response to onsite and offsite shipments of DOE-owned radiological and nonradiological hazardous materials.
- Site contractor emergency procedures that:
  - enable the implementation of the responsibilities of the site contractors;
  - supplement, as necessary, implementation of RL/ORP/PNSO emergency procedures;
  - include facility and organizational plans and procedures for response to, and recovery and restoration from, specific emergency conditions, to include bomb threats, at Hanford Site facilities; and

[2] Permit requirement: Subsection 1.2 (first bullet, sixth dash), Class 1 Modification 9/30/99

- include building emergency plans and/or procedures which are required for buildings, facilities, and structures defined as a nuclear or reactor facility, regulated by the Washington State Department of Ecology (Ecology) Dangerous Waste Regulations, or regulated by the U.S. Environmental Protection Agency (EPA) Toxic Substances Control Act.[3]

In addition to the program for response to and mitigation of emergencies, this plan also provides direction on the activities necessary to ensure emergency preparedness on the Hanford Site such as training, drills, exercises, and evaluations. The authority and responsibility for interfaces with offsite organizations responsible for protecting the public and the environment, including those agencies that may provide or request support in the event of an emergency, is also delineated.

The RL responsibility to provide, upon request, radiological advice and assistance to other Federal, tribal, state, or local governments under the Radiological Assistance Program (RAP) is defined in DOE/RL-92-49, *U.S. Department of Energy Radiological Assistance Program Response Plan Region 8.*

1.3 CONCEPT OF OPERATION

An integrated and comprehensive Hanford Site emergency management program has been developed to ensure that:

- the site can respond effectively and efficiently to emergencies so that appropriate response measures are taken to protect workers, the public, the environment, and the national security;
- emergencies are promptly recognized, categorized, and classified, and parameters associated with the emergency are monitored to detect changed or degraded conditions;
- emergencies are reported and notifications are made; and
- reentry activities are properly and safely accomplished, and recovery and post-emergency activities commence properly.

1.3.1 Hanford Site Emergency Management Program Elements

There are five elements of the Hanford Site emergency management program. These elements are:

- emergency **planning** which includes identification of hazards and threats, hazard mitigation, development and preparation of emergency plans and procedures, and identification of personnel and resources needed for an effective response;
- emergency **preparedness** which includes acquisition and maintenance of resources, training, drills, and exercises;
- emergency **response** which includes the application of resources to mitigate consequences to workers, the public, the environment, and the national security, and the initiation of recovery from an emergency;
- **recovery** which includes planning for and taking actions following termination of the emergency to return the facility/operations to normal; and

[3] Permit requirement: Subsection 1.2 (second bullet, fourth dash), Class 1 Modification 9/30/99

- **readiness assurance** which includes assessments and documentation to ensure that stated emergency capabilities are sufficient to implement emergency plans.

1.3.2 Hanford Site Emergency Management Program Basis

The comprehensive Hanford Site emergency management program is based on and commensurate with the hazards and consequences associated with facilities and activities on the site (i.e., developed consistent with a graded approach); offsite facilities that may impact the site; and onsite and offsite RL/ORP/PNSO transportation emergency preparedness activities involving radiological and nonradiological hazardous materials.

1.3.2.1 Operational Emergency Base Program. Each site facility (general purpose, low-hazards, and hazardous) shall have an Operational Emergency Base Program that establishes a minimum set of generic requirements and provides the framework for response to serious events involving health and safety, the environment, safeguards, and security. These events are not unique to DOE operations.

The Operational Emergency Base Program shall provide for compliance with applicable regulations and plans developed by other Federal agencies and DOE offices, and with those state and local planning and preparedness requirements that apply in accordance with DOE O 151.1C.

Additionally, the Operational Emergency Base Program shall provide for integrated planning to meet the response requirements identified in the hazards survey. Hazards surveys are discussed further in subsection 1.3.3.1. Response requirements may include, but are not be limited to, emergency response organization, emergency categorization, notifications and communications, protective actions, emergency equipment, and training and drills. Each of these requirements is discussed in subsequent sections of this plan.

1.3.2.2 Operational Emergency Hazardous Material Program. The Operational Emergency Hazardous Material Program adds to the Operational Emergency Base Program. Depending on the findings of the hazards survey, site facilities may be required to establish and maintain a quantitative emergency planning hazards assessment (EPHA). The EPHA will be used to define the provisions of the Operational Emergency Hazardous Material Program to ensure the program is commensurate with the hazards identified. Such EPHAs are required if the hazard survey identifies hazardous materials exceeding the radiological and/or chemical threshold quantities established by DOE. The results of this assessment provide the technical basis for establishing a graded approach that will meet the program requirements. The Operational Emergency Hazardous Material Program shall be adjusted to be commensurate with hazards that remain after a decontamination and decommission action is completed at each facility/activity.

The extent of planning and preparedness directly corresponds to the type and scope of hazards present and the potential consequences of events. EPHAs prepared for Hanford Site hazardous facilities include identification of hazards and targets unique to a facility, analysis of potential events, and evaluation of potential event consequences. EPHAs are discussed further in subsection 1.3.3.3.

Using the accident scenarios and consequences identified in a facility EPHA, the observable methods of detecting or recognizing an emergency can be identified. These indicators, called emergency action levels (EALs), are used to determine the emergency classification. The emergency classification is used to trigger specified, preplanned responses and protective actions.

Emergency classification and EALs are described further in the respective subsections of section 4.0. For each emergency classification there shall be predetermined protective actions necessary to protect onsite personnel as well as recommended actions for the protection of offsite populations.

The Hanford Emergency Response Organization (ERO) shall be formed, trained, and tested to ensure the recognition and classification of emergencies, and the implementation of protective actions. Recognition and classification of emergencies and protective action implementation is described further in subsequent sections of this plan.

1.3.2.3 Hanford Transportation Emergency Preparedness Program. The Hanford Transportation Emergency Preparedness Program provides the framework for response to onsite and offsite transportation incidents involving radiological and nonradiological hazardous material.

For transportation planning purposes, shipments transported on roadways north of the site's Wye Barricade are not considered "in commerce" under the U.S. Department of Transportation (DOT) regulations found in 49 CFR. Shipments transported south of the Wye Barricade are considered "in commerce" under DOT regulations in 49 CFR, unless public access control is extended south of the Wye Barricade for special case shipments.

For transportation incidents that occur on the site, the Incident Command System is used to mitigate the situation. Upon notification of the event by the Patrol Operations Center (POC), the Hanford Fire Department shall assume incident command responsibilities. The Hanford EOC Shift Office shall have the responsibility for event classification and activation of the Hanford ERO as appropriate.

For transportation incidents involving DOE-owned hazardous materials that occur off the site, emergency contact information shall be provided to first responders in accordance with DOT 49 CFR requirements. The designated emergency contact number shall be the POC, or one of the contractors' staff or their single point-of-contact. The Hanford EOC Shift Office shall have the responsibility for event classification and activation of the Hanford ERO as appropriate.

Figure 1-2 outlines the response approach to a transportation emergency.

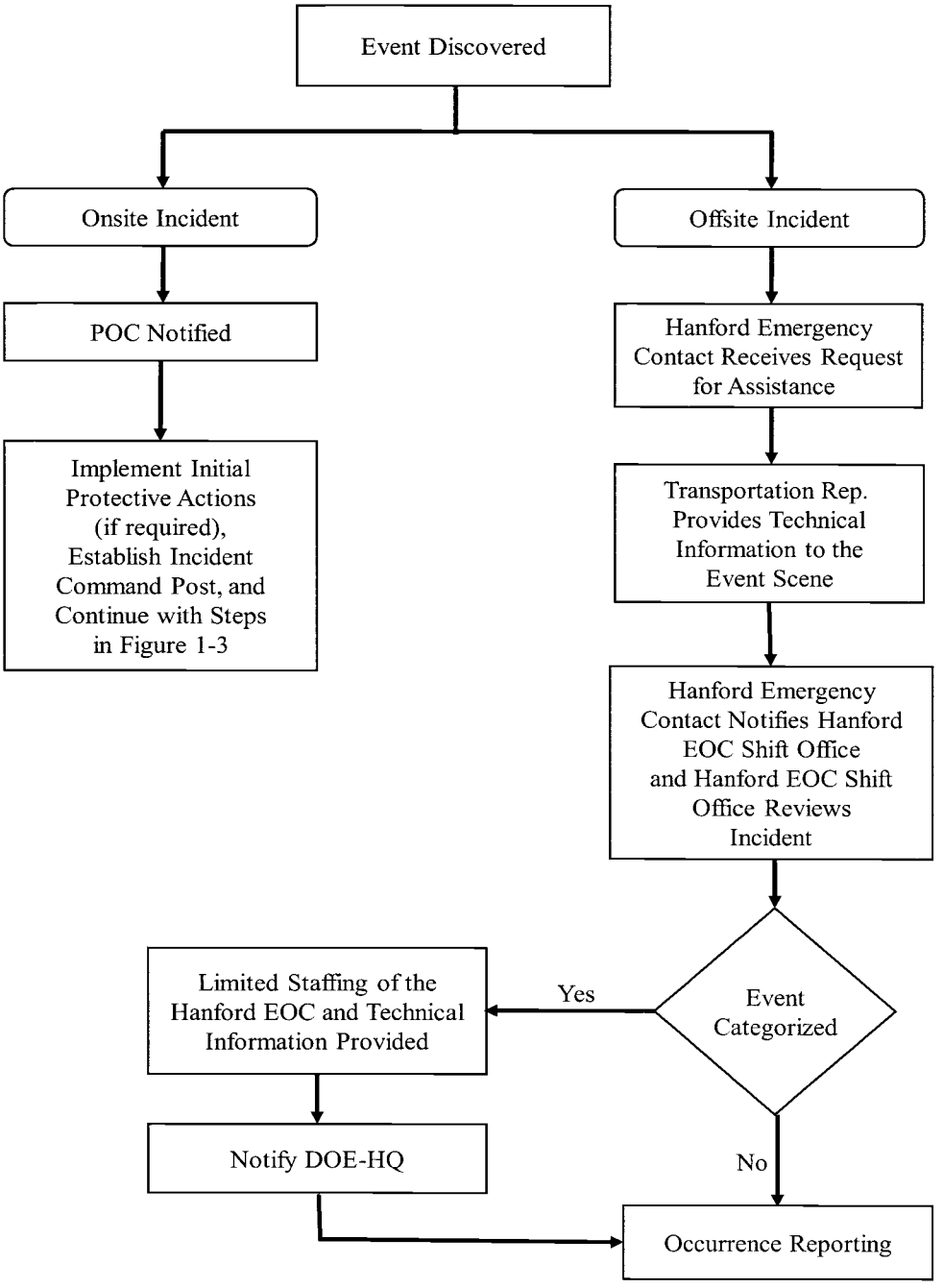
1.3.3 Hazards Survey and Emergency Planning Hazards Assessment

Hazards surveys and EPHAs are used for emergency planning purposes. DOE O 151.1C requires that emergency management efforts begin with the identification of hazards and that the scope and extent of emergency planning and preparedness be commensurate with the hazards. The hazards survey briefly describes the potential impacts of emergency events or conditions and summarizes the planning and preparedness requirements that apply. The EPHA includes the identification and characterization of hazardous materials (radiological and nonradiological) specific to a facility/activity, analyses of potential accidents or events, and evaluation of potential consequences.

1.3.3.1 Hazards Survey Process. A hazards survey (i.e., qualitative examination) shall be prepared to identify the conditions to be addressed by the comprehensive emergency management program. Much of the facility hazards survey should already have been done in the course of meeting other DOE, Federal, and state agency requirements. A hazards survey is an examination of the features and characteristics of the facility or activity to identify the generic emergency events and conditions (including natural phenomena such as earthquakes and tornadoes; wild land fires; and other serious events involving or affecting health and safety, the environment, safeguards, and security at the facility) and the potential impacts of such emergencies.

Figure 1-2

Transportation Emergency Response



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A hazards survey may cover multiple facilities and shall be updated every three years and prior to significant changes to the site/facility or to hazardous material inventories.

Additional information/guidance to assist in the preparation of hazards surveys is delineated in DOE-0223, *Emergency Plan Implementing Procedures*, and applicable sections of the DOE *Emergency Management Guide* (DOE 2007).

1.3.3.2 Emergency Planning Hazards Assessment Process.[4] The release or loss of control of hazardous materials (radiological and nonradiological) shall be quantitatively analyzed. If the results of the analysis indicate the potential for an Alert, Site Area Emergency, or General Emergency, the results of the analysis shall be used to determine the necessary personnel, resources, and equipment for the Hazardous Materials Operational Emergency Program.

If the EPHA indicates that all events would be classified as less than an Alert, an EPHA is not required to be maintained. The results of the hazardous material screening process and the quantitative analysis may be incorporated directly into the hazards survey or may be incorporated by reference in the hazards survey. The minimum program requirements shall encompass the requirements for Hazardous Waste Operations and Emergency Response found in 29 CFR 1910.120 and the Base Program Operational Emergency requirements specified in this plan.

An accurate and timely method for tracking changes in operations processes, or accident analyses that involve hazardous materials (e.g., introduction of new materials, new uses, significant changes in inventories, modifications of material environments) shall be established and maintained for each facility/activity. The method shall allow sufficient time for appropriate facility/activity personnel to review the EPHA and modify plans and procedures, as necessary.

Each facility with hazardous materials (radiological, chemical, biological agents and toxins) in sufficient quantities (radioactive or chemical materials) or representing specific biological agents/toxins, which pose a serious threat to workers, the public, or the environment shall develop and maintain a quantitative EPHA and meet more detailed emergency planning requirements. Hazardous materials are any solid, liquid, or gaseous material that is toxic, flammable, radioactive, infectious, corrosive, chemically reactive or unstable upon prolonged storage in quantities that could pose a threat to life, property, or the environment. While not every conceivable situation will be analyzed, the EPHA will provide the framework for response planning to virtually any declared emergency.

The EPHA shall be reviewed at least every three years and updated prior to significant changes to the facility or hazardous material inventories, and be maintained in accordance with site contractor document control requirements. Changes that result in a reduction of hazards with no adverse effect on safety or emergency preparedness and response may be included in the next scheduled review and update.

In addition, the EPHA shall include a determination of the size of the emergency planning zone (EPZ). The EPZ is the geographic area surrounding the site/facility for which special planning and preparedness actions are taken or need to be taken to reduce or minimize the impact to onsite personnel and public health and safety in the event of a Hazardous Material Operational Emergency. Assumptions, methodology, models, and evaluation techniques used in the EPHA shall be documented.

An EPHA shall be developed for shipments that do not satisfy governing DOT regulations and specifications for commercial hazardous materials transport. However, if a shipment satisfies DOT regulations and specifications, an EPHA is not required.

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[4] Permit requirement: Subsection 1.3.3.2, Class 1 Modification 6/30/14

Additional information/guidance to assist in the development of EPHAs is delineated in DOE-0223, *Emergency Plan Implementing Procedures*, and applicable sections of the DOE *Emergency Management Guide* (DOE 2007).

1.3.4 Hanford Site Emergency Response[5]

This section provides an overview of how the Hanford Site responds to events. It covers the actions to be taken for an event by the event discoverer, the facility staff, and by agencies such as the Hanford Fire Department and/or Hanford Patrol.

Since the Hanford Site has a diverse array of facilities and processes, a graded approach is used to respond to an event depending upon the nature of a facility and/or the severity of the event. There are a number of events to which the site has to be ready to respond, including releases, spills, operational events, fires, natural phenomenon, and security events.

The discoverer of an event (e.g., fire, release, spill, transportation incident, etc.) initiates response to the event that should include implementation of SWIM (**Stop** activities at the scene; **Warn** personnel; **Isolate** the area; **Minimize** exposure to the hazards) to the extent possible. For some events, specific response actions to mitigate the event by the discoverer and/or facility staff may be appropriate. In such cases, actions may include shutting down systems, isolating materials, or performing other facility specific response actions when appropriate. Facility procedures may also direct protective actions for personnel.

In other events, resources outside the facility may be required. In these cases, the general response approach is outlined in Figure 1-3 and requires the discoverer to call the 911 emergency number (or 373-0911 for cellular telephones). Upon being contacted, the 911 emergency center assesses the situation and notifies the primary response agencies – the Hanford Fire Department and Hanford Patrol – that respond and ensure implementation of the Hanford Incident Command System (ICS).

> NOTE: Fire alarm pull boxes and fire sprinkler flow monitoring devices, which are connected to a system monitored by the Hanford Fire Department, and Hanford's general operation two-way radio system (hand-held and vehicle mounted), which is monitored in the 911 emergency center, are also available for summoning emergency response agencies.

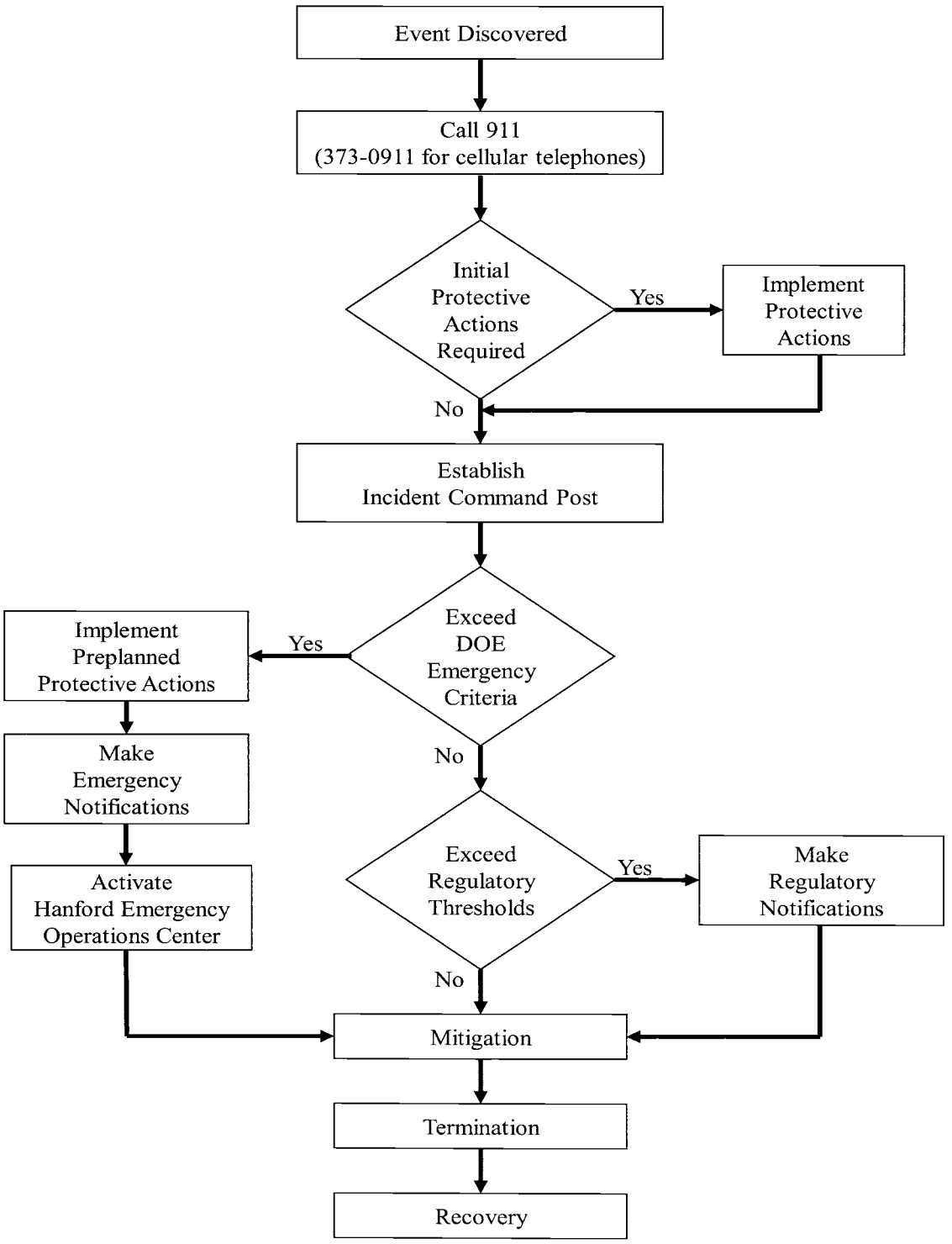
The Hanford ICS is an integrated emergency management system with clearly defined responsibilities and communication pathways consistent with the National Incident Management System (NIMS) that provides a graded approach for emergency management based upon the needs of the event. Additionally, the Hanford ICS is designed to support predesignated and trained facility emergency response organization (ERO) members (i.e., Building Emergency Director, Building Warden, etc.) to complete required emergency response activities and to support emergency response agencies in the implementation of incident mitigation strategies.

The senior Hanford Fire Department official becomes the Incident Commander (IC), unless the event is determined to primarily be a security event, in which case the Hanford Fire Department and Hanford Patrol will operate under a unified command system with Hanford Patrol making all decisions pertaining to security.

[5] Permit requirement: Subsection 1.3.4, Class 1 Modification 12/31/12

Figure 1-3

Emergency Response



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When the Hanford ICS is established, a coordinated effort to plan and implement additional mitigative activities commences. In addition, the consequences of the event are further analyzed and additional protective actions are implemented through the use of Hanford Site Emergency Alerting System components and barricades if determined necessary.

Whenever there is an event at Hanford, certain notifications are required depending upon the type and severity of the event. These notifications would include management notifications, activation of emergency response personnel, and offsite agency notifications as necessary. These notifications are performed primarily by the Hanford EOC Shift Office and site contractor environmental single points-of-contact. For events that do not meet emergency criteria but could cause public concern or media interest, local and state emergency management agencies are notified as well as state regulatory agencies for information purposes. If the event exceeds regulatory criteria, the appropriate regulatory agencies are notified immediately.

Concurrent with the immediate notifications to the appropriate regulatory agencies, if the event is severe enough to be classified as an Alert, Site Area Emergency, or General Emergency, state and county agencies are notified within 15 minutes of declaration of the emergency. This notification allows the agencies to implement protective actions for their populations if necessary, and to begin mobilization of resources. In addition, preplanned protective actions are implemented for site personnel and the Hanford EOC is activated to support the Incident Command Organization and coordinate interface with offsite agencies.

Upon mitigation of the event to the point the situation is stabilized and ensuring that actions have been taken to prevent reoccurrence, the event is terminated and the recovery effort begins. Recovery is the process of planning for and implementing actions to return the facility/process to pre-event conditions. Actions could include activities such as equipment repair, decontamination, proper storage of waste generated, and providing any follow-up reporting to appropriate regulatory agencies.

1.4 SITE DESCRIPTION

1.4.1 Site Description Overview

The 1,517 square kilometer (586 square mile) Hanford Site was originally acquired by the Federal government in 1943 for the construction and operation of facilities to produce plutonium that was used to help end the Second World War. In 1989, the Hanford Site mission changed from one of national defense production to waste management, environmental restoration, and technology development.

Hanford Site contractors operate/manage facilities and provide site services for RL/ORP/PNSO. The site contains several types of complex facilities, including retired nuclear reactors, retired and active chemical processing facilities, nuclear waste storage tanks, and research laboratories. There are approximately 1,500 buildings (occupied and unoccupied) on the site with an infrastructure of utilities and transportation necessary to support an operation employing approximately 15,000 workers.

The Hanford Site is also defined as a single *Resource Conservation and Recovery Act of 1976* facility, identified by the EPA/State Identification Number WA7890008967, that consists of over 60 TSD units. This area consists of the contiguous portion of the Hanford Site that contains these TSD units and, for the purposes of the RCRA, is owned and operated by the U.S. Department of Energy (excluding lands north and east of the Columbia River, river islands, lands owned or used by the Bonneville Power Administration, lands leased to Energy Northwest, and lands owned by or leased to the state of Washington).

1.4.1.1 Hanford Site Facilities/Activities. The major facilities and activities on the Hanford Site, that are DOE-owned and contractor-operated, are grouped together in the following major areas.

- 100 Areas: These areas are located along the Columbia River in the northern portion of the Hanford Site and contain nine former plutonium production reactors. The facilities in the 100 Areas are currently being prepared for permanent disposal.
- 200 East and 200 West Areas: These areas lie on a plateau near the center of the site some 40 kilometers (25 miles) north of Richland, Washington, and are dedicated to waste management and treatment activities, laboratory support, waste characterization, and environmental restoration.
- 300 Area: This area is approximately 8 kilometers (5 miles) north of Richland, Washington. Major activities include nuclear research and development.
- 400 Area: This area, approximately 15 kilometers (9 miles) north of Richland, Washington, contains the Fast Flux Test Facility (currently in decontamination and decommissioning process) and related support facilities formerly involved in the liquid metal reactor program.
- 600 Area: This area includes all of the Hanford Site not occupied by the other listed areas. Land uses include the 310-square-kilometer (120-square-mile) Fitzner/Eberhardt Arid Lands Ecology Reserve, the Environmental Restoration Disposal Facility (ERDF), and a U.S. Fish and Wildlife Refuge.

The site also contains several major and minor operations that are not DOE-owned/contractor operated. The major operations include the following.

- A publicly-owned commercial nuclear power plant, Columbia Generating Station, operated by Energy Northwest on land leased from the Federal government on the eastern side of the site, near the Columbia River and about 15 kilometers (9 miles) north of Richland.
- A low-level radioactive waste disposal site located near the 200 Areas, on land that the state of Washington has leased from the Federal government. This facility is commercially operated by the US Ecology Company in accordance with state and Federal licenses and permits.
- A commercial incubator project, administered by the Port of Benton, which will lease up to 22 excess site buildings adjacent to the 400 Area for private-sector businesses.
- An observatory to monitor the earth's gravitational waves, Laser Interferometer Gravitational Observatory (LIGO), located in the northern part of the 600 Area.

RL/ORP/PNSO and site contractors also own or lease site-related office and warehouse facilities off the Hanford Site in the city of Richland. These facilities cannot generate an Alert or higher emergency.

1.4.1.2 Hazards. Activities at the Hanford Site involve both radiological and nonradiological hazardous materials. Major hazardous materials emergencies are associated with the potential for fire, explosion, or dispersion of radiological or toxic chemicals.

A significant hazard requiring emergency planning on the Hanford Site stems from the presence of large quantities of radioactive materials from the various separations, waste storage, research, and previous production and manufacturing materials. These materials, although contained, could affect worker and public health and the environment in the event of dispersion during a major accident.

In addition, large quantities of various nonradiological hazardous materials are stored and used in chemical processing and other operations at the Hanford Site. Hazardous materials are routinely transported by truck and rail to and around the site and are stored at various onsite locations. State Route 240, a main public highway that runs through the site, is used for transporting a wide range of chemicals, including agricultural chemicals to farms and orchards in the surrounding area.

Typically, hazardous materials of concern for emergency planning purposes include petrochemicals, explosives, toxic chemicals and chemical products, and fuel gases (e.g., propane and butane). Hazardous chemicals of particular concern are gases such as chlorine that have the potential to form large, toxic airborne clouds that may travel long distances before dispersing.

For purposes of emergency planning, facilities on the Hanford Site are described as general purpose, low-hazards, or hazardous. The DOE O 151.1C Operational Emergency Base Program applies to general purpose, low-hazards, and hazardous facilities. The Operational Emergency Hazardous Material Program adds to the Operational Emergency Base Program and applies only to hazardous facilities.

1.4.1.3 Contractors. The major Hanford Site contractors, responsible in their respective capacities for the operation or management of the Federal facilities, include the following.

- Mission Support Alliance, LLC. (MSA). Under contract with RL, MSA manages the Mission Support Contract that provides infrastructure and site services. The scope of the contract includes five primary functions: Safety, Security and Environment; Site Infrastructure and Utilities; Site Business Management; Information Resources/Content Management; and Portfolio Management.

- CH2M HILL Plateau Remediation Company (CHPRC). Under contract with RL, CHPRC manages the Plateau Remediation Contract to clean up and restore the environment to protect the Columbia River. Activities include completion of the Plutonium Finishing Plant project; characterization of facilities and waste sites; disposal activities related to non-tank farm waste; environmental surveillance and maintenance; groundwater monitoring and remediation; environmental remediation; and development of documents for regulatory and other decisions covering groundwater, soil, and facilities.

- Washington Closure Hanford, Inc. (WCH). Under contract with RL, WCH manages the River Corridor Closure Contract to clean up and take down excess facilities, remediate waste sites and burial grounds, and place deactivated plutonium production reactors into a safe and stable condition.

- HPM Corporation Occupational Medical Services (HPMC). Under contract with RL, HPMC provides occupational health services to Hanford Site employees.

- Washington River Protection *Solutions* (WRPS), LLC. Under contract with ORP, WRPS manages the Tank Operations Contract to store, retrieve and, treat radioactive tank waste and close the tank farms.

- Advanced Technologies and Laboratories International, Inc. (ATL). Under contract with ORP, ATL manages the Analytical Services Production Contract and performs routine analytical chemistry services in support of the Hanford Site cleanup.

- Bechtel National, Inc. (BNI). Under contract with ORP, BNI manages the Waste Treatment Plant Project to design, build, and start up waste treatment facilities that will transform liquid radioactive waste, currently stored in underground tanks, into a stable glass waste form through a process known as vitrification.

- Pacific Northwest National Laboratory (PNNL). Under contract with PNSO, PNNL occupies some Hanford Site 300 Area buildings to conduct research and development. PNNL also performs Unified Dose Assessment Center (UDAC) activities for RL.

1.4.2 Physical Attributes of the Hanford Site

The Hanford Site is located in the southeastern area of the state of Washington. The site covers approximately 1,517 square kilometers (586 square miles) located in Benton, Franklin, and Grant Counties just northwest of the cities of Richland, Kennewick, and Pasco (Tri-Cities).

For emergency preparedness purposes, the Hanford Site is defined as the near (south and west) bank of the Columbia River from the intersection of the existing western most site boundary and the Columbia River, following the Columbia River to the south boundary of the 300 Area, and proceeding west and north along the existing site boundary (see Figure 1-4). Based on this definition, portions of the existing Hanford Site that fall within Grant and Franklin Counties are considered outside of the site boundary.

The Columbia River runs across the northern half of the site then flows south across the eastern side of the site. The Yakima River borders part of the southern boundary of the site and joins the Columbia River below the city of Richland. A worst-case flood of the Columbia River or catastrophic breach of Grand Coulee Dam could impact parts of the 100 and 300 Areas but the central portion of the site would remain unaffected.

The Hanford Site and surrounding area has a semiarid climate with a sparse covering of vegetation. The terrain of the central and eastern parts of the site is relatively flat. Rattlesnake Mountain, the Yakima Ridge, and the Umtanum Ridge continue onto the site from the west and form the southwestern and western boundary. Two small ridges, Gable Butte and Gable Mountain, rise above the plateau on the central part of the site. It is an area of low seismicity in which moderate-level earthquakes can occur.

The area has moderate winters and hot summers. Severe thunderstorms are rare, although the site is vulnerable to lightning strikes causing wildland fires. Formation of a severe tornado is highly unlikely.

Primary land uses of the surrounding areas are irrigated and nonirrigated farming, residential living, and state- and Federal-controlled lands.

Because of the size of the site, there may be differences in the specific physical attributes in the vicinity of each hazardous facility. Detailed discussions and analysis of the local geography, geology, seismology, meteorology, and hydrology in the area of each hazardous facility are contained in safety analysis reports.

1.4.2.1 Population Diversity. The permanent population within the 50-mile (80-kilometer) site ingestion exposure EPZ (Figure 1-5), which is centered on Energy Northwest's Columbia Generating Station, is approximately 270,000. The maximum transient population within the ingestion EPZ, including Hanford Site workers, offsite workers, and recreationists, is approximately 17,000.

The plume EPZ population diversities for Hanford Site EPZs are as follows.

- 100K Area: A small portion of a sparsely populated area of southern Grant County consisting of a permanent population, a transient population of seasonal employees, and no special populations.

- 200W Area: A small portion of a sparsely populated area of northwestern Benton County and southern Grant County consisting of a permanent population, a transient population of seasonal employees, and no special populations.

- 300 Area: A portion of western Franklin County consisting of a permanent population, a transient population of seasonal employees, and no special populations. Also, a portion of the northern section of the city of Richland consisting of a permanent population, a transient population of seasonal employees, and special populations consisting of four schools and three pre-schools.

During the summer months, recreationists may be using the section of the Columbia River between Richland and Vernita.

Plume and ingestion EPZs are discussed further in subsection 7.1. Figure 7-1 depicts the EPZs for each site geographical areas with potential offsite consequences.

1.4.2.2 Transportation System. Hundreds of miles of roads are maintained on the Hanford Site. State Routes 240 and 24 and site roads are used by many types of vehicles including commercial trucks and private vehicles.

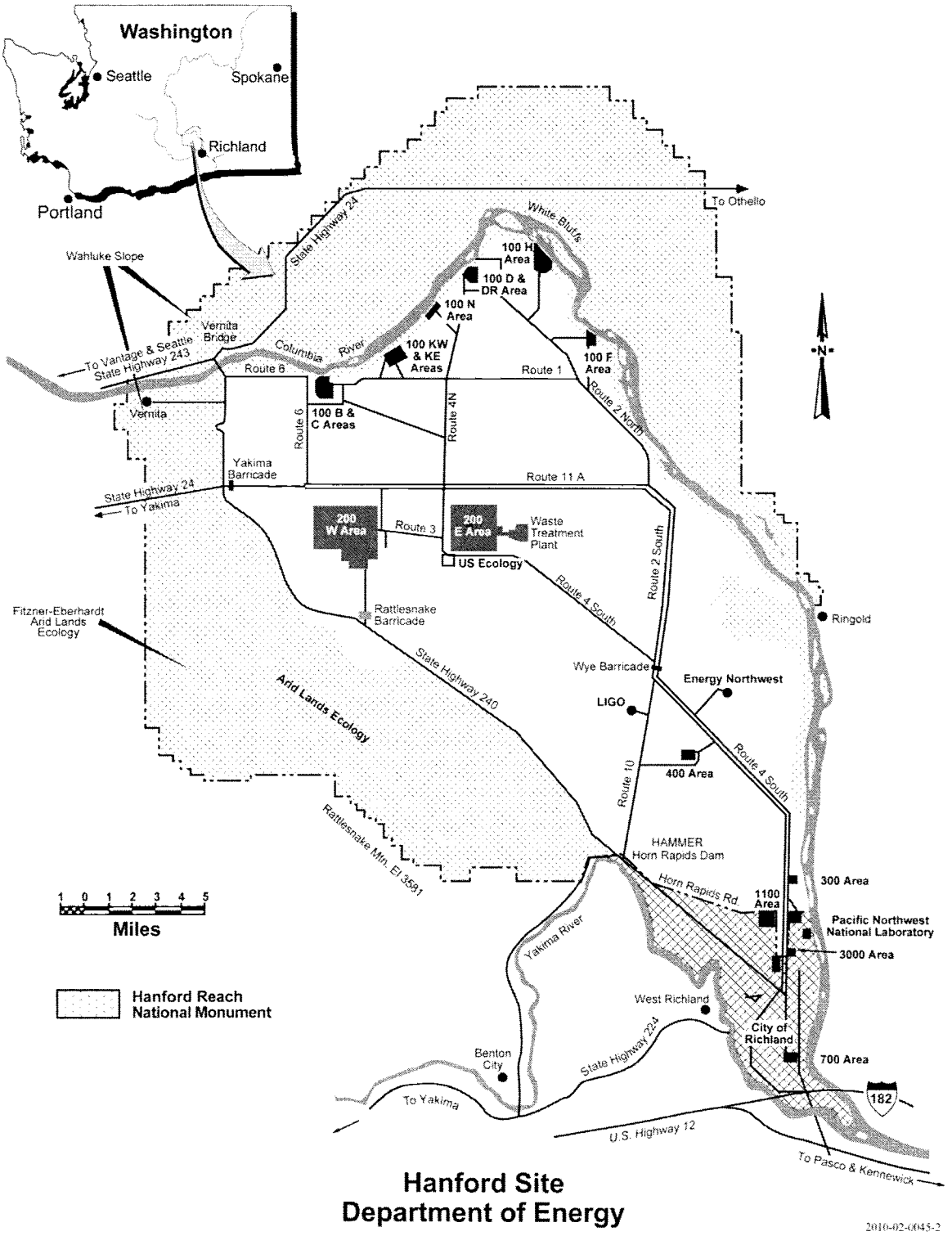
A 26-kilometer (16-mile) stretch of the southern portion of the site's 169-kilometer (105-mile) railroad system has been transferred to the Port of Benton. Portions of the remaining railroad lines are used occasionally.

The Richland Airport, nearest to the Hanford Site, is a small, general utility airport. The Tri-Cities Airport (in Pasco) is used by regional carriers.

The section of the Columbia River that flows near the Hanford Site is used mainly by recreationists. Barge traffic does not operate on the stretch of the river that goes through the site.

Figure 1-4

Hanford Site Map



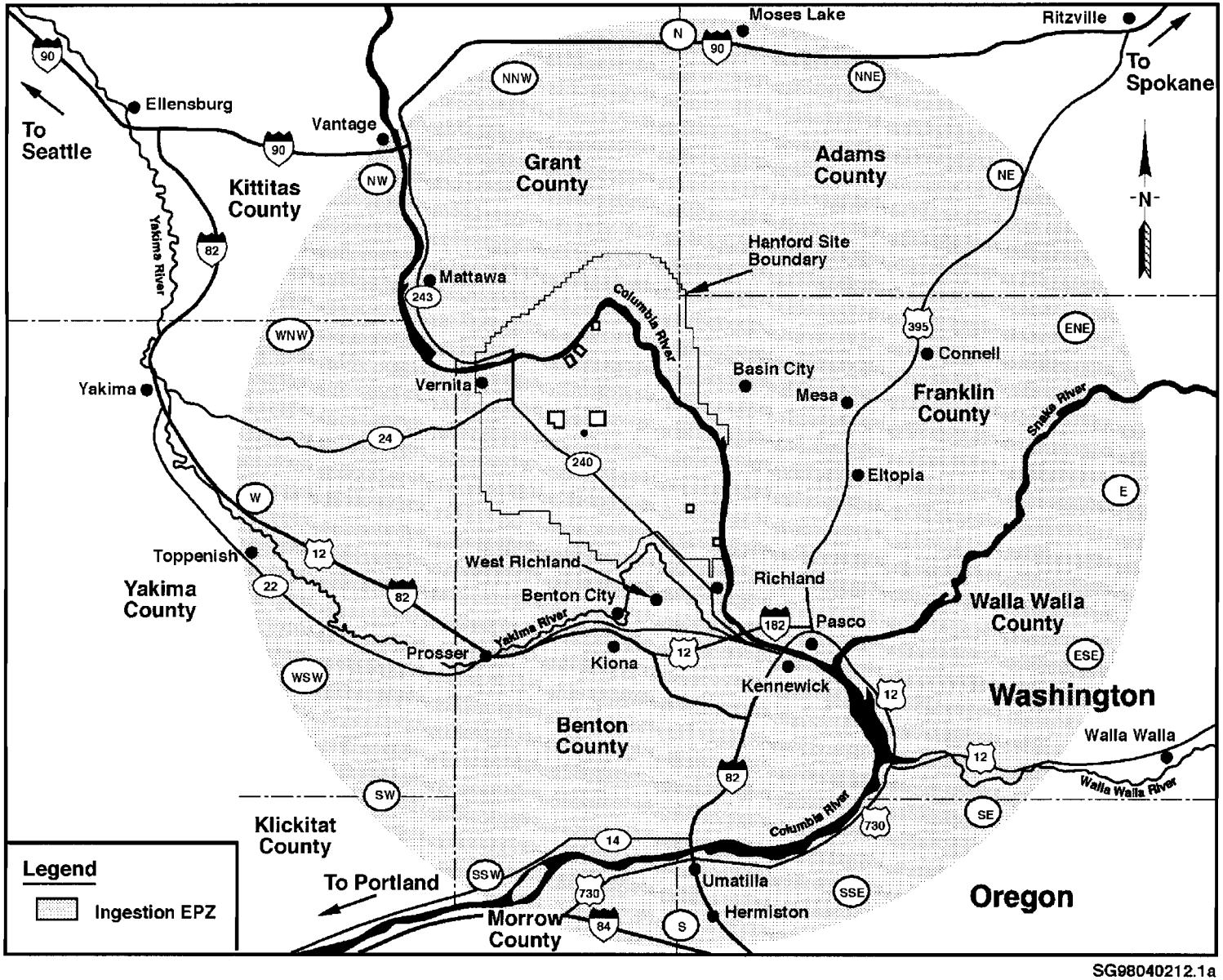


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Figure 1-5
Ingestion Exposure Emergency Planning Zone

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2.0 EMERGENCY RESPONSE ORGANIZATION (INTERNAL)

The mission of the Hanford Site ERO is to ensure that, in the event of an emergency, actions will be taken to prevent or minimize impacts to workers, the public, site, facilities, and the environment. The Hanford Site ERO shall be structured and staffed with an adequate number of experienced and trained personnel, including designated alternates, available on demand for timely and effective performance of ERO functions. Hanford facilities and response organizations such as the Hanford Fire Department are governed by the standards and regulations of the National Fire Protection Association (NFPA) and Code of Federal Regulations, as well as the Washington Administrative Code and Revised Code of Washington for emergency response, training, and on-scene emergency management.

2.1 U.S. DEPARTMENT OF ENERGY, RICHLAND OPERATIONS OFFICE, OFFICE OF RIVER PROTECTION, PACIFIC NORTHWEST SITE OFFICE, AND HANFORD SITE CONTRACTOR ROLES AND RESPONSIBILITIES

2.1.1 Hanford Site Contractors

Hanford Site contractors with responsibilities for facility operations/activities or for providing site services shall coordinate with one another and participate in the development and maintenance of a comprehensive Hanford Site emergency management program that meets the mission of the Hanford Site ERO. Such programs shall contribute to DOE's comprehensive Emergency Management System by promoting effective and efficient integration of applicable requirements, including those promulgated by other agencies.

2.1.1.1 Event Contractor. The site contractor that maintains responsibility for the facility or activity with the emergency is designated as the event contractor. The event contractor responsibilities include:

- prompt and accurate categorizing of occurrences in accordance with this plan and DOE O 232.2, *Occurrence Reporting and Processing of Operations Information*;
- initially classifying the emergency, if warranted;
- assisting, as necessary, in mitigating the emergency situation;
- initiating actions to protect workers within their geographic area of responsibility;
- contacting the POC and providing initial emergency information;
- requesting support from nonevent site contractors as necessary;
- establishing an initial command post and, as appropriate, assigning other Incident Command Organization functions as delineated in Table 2-1, and other supporting entities such as radiological control technicians and industrial hygienists as available;
- arranging for employer notification (if not an event contractor employee), decontamination, and transport of a contaminated corpse;
- providing personnel to staff the Hanford EOC to include management and technical staff;
- providing event status information to the Hanford EOC;
- ensuring proper cleanup, transportation, and storage of hazardous materials generated as a result of the event; and
- providing funding for performance of emergency response and recovery duties and replacement of supplies used by other contractors for event response.

Other site contractors shall provide support to the event contractor for actions related to the services they provide on the site, such as notifications, fire, security, or medical services.

Table 2-1

Incident Command Organization Functions

FUNCTION	RESPONSIBLE STAFFING
Incident Commander	Hanford Fire Department[1]
Building Emergency Director/Building Warden	Affected facility
EOC Liaison Officer	MSA or appropriate contractor personnel
Safety Officer	Hanford Fire Department
Incident Command Post (ICP) Communicator	Affected hazardous facility
ICP Hazards Communicator	Affected hazardous facility
Facility Operations Specialists	Affected facility
Operations Section Chief	Hanford Fire Department/Hanford Patrol
Radiological Hazards Assessor	Affected facility radiological control manager (or equivalent)
Chemical Hazards Assessor	Hanford Fire Department, on-call industrial hygienist, or affected facility
Planning Section Chief	Hanford Fire Department
Logistics Section Chief	Hanford Fire Department
Resource Staging Area Manager	Hanford Fire Department
Facility Staging Area Manager	Affected facility

[1]During security events, the Hanford Fire Department and Hanford Patrol will operate under a unified command system with Hanford Patrol making decisions pertaining to security.

2.1.1.2 Mission Support Alliance, LLC. In addition to event contractor responsibilities for the Hanford Site facilities it operates, MSA emergency responsibilities include:

- fire suppression, emergency rescue, emergency medical, hazardous materials response, fire protection services, and incident response provided by the Hanford Fire Department;
- site security, access control, emergency service call answering and dispatching, and transportation emergency response contact provided through the Hanford Patrol;
- emergency communications including onsite and offsite notifications provided by the Hanford EOC Shift Office;
- staffing of a 24-hour Emergency Duty Officer (EDO) position;

- managing and ensuring that the Hanford EOC is staffed with qualified personnel;
- providing personnel to staff the Hanford EOC to include management and technical staff;
- onsite and offsite radiation monitoring and sampling;
- weather information from the Hanford Site meteorology station;
- transportation (e.g., motor carrier services, crane and rigging) and heavy equipment operations;
- services in support of reentry and recovery operations, such as decontamination, engineering, equipment maintenance, utilities, procurement, and waste disposal;
- radio, telecommunications, computer, and audio/visual services;
- evaluation of radiological doses to personnel in the event of a criticality emergency; and
- managing site-wide radiological tasks which includes plume assessment and tracking; large group personnel survey, sort, and decontamination; survey of individuals evacuated from the Columbia River (if requested); and radiological control support during medical care of radiation accident patients at the local hospitals.

2.1.1.3 CH2M HILL Plateau Remediation Company. In addition to event contractor responsibilities for the Hanford Site facilities it manages, CHPRC emergency responsibilities include:

- providing personnel to staff the Hanford EOC to include management and technical staff;
- radiological control technician support; and
- health technician support.

2.1.1.4 Washington Closure Hanford, Inc. In addition to event contractor responsibilities for the Hanford Site facilities it manages, WCH emergency responsibilities include:

- providing personnel to staff the Hanford EOC to include management and technical staff; and
- radiological control technician support.

2.1.1.5 HPM Corporation Occupational Medical Services. HPMC has no event contractor responsibilities as delineated in subsection 2.1.1.1. However, emergency services provided by HPMC include:

- minor emergency medical care and consultation;
- medical support for chemically, biologically, and radiologically contaminated patients;
- hostage negotiation and critical stress debriefing support;
- coordination with and support to community medical services;
- providing personnel to staff the Hanford EOC to include management and technical staff; and
- support to the Hanford Fire Department in the event of a large-scale mass casualty event on the Hanford Site as requested.

2.1.1.6 Washington River Protection *Solutions*, LLC. In addition to event contractor responsibilities for the Hanford Site facilities it manages, WRPS emergency responsibilities include:

- providing personnel to staff the Hanford EOC to include management and technical staff;
- radiological control technician support; and
- health technician support.

2.1.1.7 Advanced Technologies and Laboratories, Inc. ATL emergency responsibilities include:

- providing personnel to staff the Hanford EOC to include management and technical staff; and
- laboratory services.

2.1.1.8 Pacific Northwest National Laboratory. In addition to event contractor responsibilities for the Hanford Site facilities it operates, PNNL emergency responsibilities include:

- health physics technical support; and
- providing personnel to staff the Hanford EOC to include management and technical staff.

2.1.2 U.S. Department of Energy, Richland Operations Office, Office of River Protection, and Pacific Northwest Site Office

RL/ORP/PNSO shall have a trained emergency response staff and shall provide facilities/activities under their cognizance with:

- direction to implement emergency management policy and requirements;
- direction in emergency planning and preparedness activities;
- support and assistance (e.g., legal, financial, procurement, engineering, human resources) during emergencies; and
- support and assistance in resolving issues in site/facility/activity emergency management programs, as well as assessments of site/facility/activity emergency management programs.

2.1.2.1 RL/ORP Manager. The RL and ORP Managers shall designate additional senior management personnel to hold the Emergency Manager position with decision-making responsibilities. The first responding Emergency Manager will fill the position until an Emergency Manager from the responsible DOE Office (i.e., RL or ORP) is able to assume the role. If the event occurs at a PNNL occupied facility a PNSO senior manager will act as advisor to the Emergency Manager.

The Emergency Manager has the ultimate responsibility and authority for Hanford Site emergency response activities to ensure that effective management is provided for response to emergencies and is further responsible for overseeing the performance of onsite activities necessary to place the site in a safe condition and to minimize or terminate uncontrolled releases of hazardous materials, and for interfacing with offsite agencies and the public.

The Emergency Manager shall be supported by personnel with communications, technical, and liaison and public affairs expertise and shall ensure fulfillment of his or her responsibilities through direction of the Policy Team and representatives assigned to offsite emergency centers. The functions of the Policy Team are described in subsection 2.2.2.1.

2.1.2.2 RL/ORP/PNSO Personnel. RL/ORP/PNSO personnel shall fill ERO positions that include:

- members of the Policy Team, Site Management Team (SMT), and Joint Information Center (JIC);
- representatives to state emergency centers; and
- representatives to DOE-Headquarters (HQ), as requested.

2.1.2.3 DOE Facility Representative. The DOE Facility Representative serves in an oversight and liaison capacity at the ICP during declared emergencies. The primary function of the DOE Facility Representative is to observe ICP activities and, if required, report problems about facility conditions, event status, or mitigative actions to the Facility Representative Liaison in the Hanford EOC.

2.2 EMERGENCY RESPONSE ORGANIZATION STRUCTURE[1]

The Hanford Site ERO has two distinct components – the Incident Command Organization and the Hanford EOC – each with emergency direction and control responsibilities.

The Incident Command Organization consists of the NIMS ICS positions made up of site contractor emergency response personnel (i.e., Hanford Fire Department, Hanford Patrol) with the responsibility for on-scene mitigation (including emergency medical response, search and rescue operations, fire operations, hazardous material emergency response operations, and security related activities); and the facility/building ERO with responsibility for implementing emergency response activities at the event facility.

The facility/building ERO is responsible for completing specific emergency response activities associated with facility emergencies. For low-hazards and hazardous facilities with a Building Emergency Director (BED) or Building Warden (BW) on the premise at the time of the incident, the BED/BW shall be responsible for implementing emergency mitigation activities identified in appropriate emergency response procedures (e.g., protective actions, event classification, notification).

However, if events require actions performed by Hanford Site emergency response agencies (i.e., Hanford Fire Department, Hanford Patrol), the Hanford Incident Command System is activated. Upon arrival of the IC, the BED/BW, with support from the facility/building ERO, becomes part of a consolidated Incident Command Organization. The BED/BW shall retain responsibility for direct configuration control over facility systems and components; while the IC assumes the overall management strategy associated with the incident and ensures that appropriate ICS positions are staffed and working cohesively towards mitigation of the incident.

If the BED/BW is not present at the low-hazards or hazardous facility at the time of an incident (e.g., during off shift hours), the IC shall perform the duties of the BED/BW in addition to his/her own duties. The respective on-call BED/BW shall be summoned to the scene based upon the BED/BW listing located in the POC or PNNL Control Room.

If necessary, the BED/BW will make the classification decision (i.e., Alert, Site Area Emergency, or General Emergency) and determine if the RCRA contingency plan implementation requirements have been met prior to responding to the scene. If the on-call BED/BW is not available and timely classification is necessary, the IC may direct the Hanford EOC Shift Office Duty Officer to make the classification decision and determine if the RCRA contingency plan implementation requirements have been met. Upon arrival of the BED/BW at the scene, the IC will turn over the remaining BED/BW duties.

[1] Permit requirement: Subsection 2.2, Class 1 Modification 12/31/12

The Hanford EOC fills the role identified in the NIMS as the Multiagency Coordination (MAC) group to coordinate activities above the event scene and to prioritize the incident demands for critical or competing resources, thereby assisting the coordination of the operations at the event scene. Responsibilities include monitoring and providing support for the onsite response, assisting with issue resolution, assessing the offsite impacts, and interfacing with offsite agencies and the public.

The Hanford EOC is depicted in Figure 2-1 and the Incident Command Organization is depicted in Figure 2-2. Both components of the Hanford ERO are further delineated in the respective subsections below.

For nonfacility events (e.g., onsite transportation incidents, wildland fires), the IC shall be responsible for coordinating and performing the response activities. The Hanford EOC Shift Office shall have the responsibility for further classifying the event (i.e., as an Alert, Site Area Emergency, or General Emergency) and ensuring that the RCRA contingency plan implementation requirements have been met in accordance with subsection 4.2, if warranted. After the immediate threat of a release has been stabilized or eliminated, remaining duties will be delegated from the IC to the organization that offered the hazardous substance for transportation.

In all events, the Incident Command Organization shall have the authority to commit the resources needed to carry out the emergency response; and be thoroughly familiar with applicable plans and procedures, operations and activities at the facility, location and properties of all wastes handled, location of all records within the facility, and the layout of the facility.

2.2.1 Incident Command Organization

The Hanford ICS provides a graduated response mechanism for unusual conditions and emergencies on the Hanford Site.

Depending on the severity of the event, the Incident Command Organization is comprised of two main groups — site contractor emergency response personnel (i.e., Hanford Fire Department, Hanford Patrol) and the facility/building ERO with responsibility for implementing emergency response activities at the event. Other emergency response support personnel may be called upon to assist in the mitigation of an event depending on the type of emergency, but are not considered part of the Hanford ERO. The appropriate personnel from each group may be located at either the event scene or ICP, or staging area. A description of each group, including roles and responsibilities, is provided in the following subsections.

Facility personnel may be able to mitigate the event using facility abnormal event or emergency procedures and facility or process personnel as deemed necessary by the BED or BW. In these instances, the BED or BW coordinates emergency response efforts at the scene to include oversight of mitigation efforts, use of appropriate personal protective equipment, facility protective actions, and relevant notifications. Examples of such events that do not require assistance from outside the facility (termed incidental responses) include small releases of known substances when mitigation can be accomplished by trained on-scene personnel, minor first aid cases, noninjury contamination incidents, and nonemergency plant responses.

If event conditions exceed the capabilities or resources of the affected facility or require protective actions beyond the event scene hazard area, the Hanford ICS enables the use of additional site contractor emergency response personnel to mitigate the event. Requests for such additional site contractor emergency response personnel are made to the POC via the 911 emergency number (373-0911 for cellular telephones) and, where applicable, automated alarm systems.

Figure 2-1
Hanford Emergency Operations Center

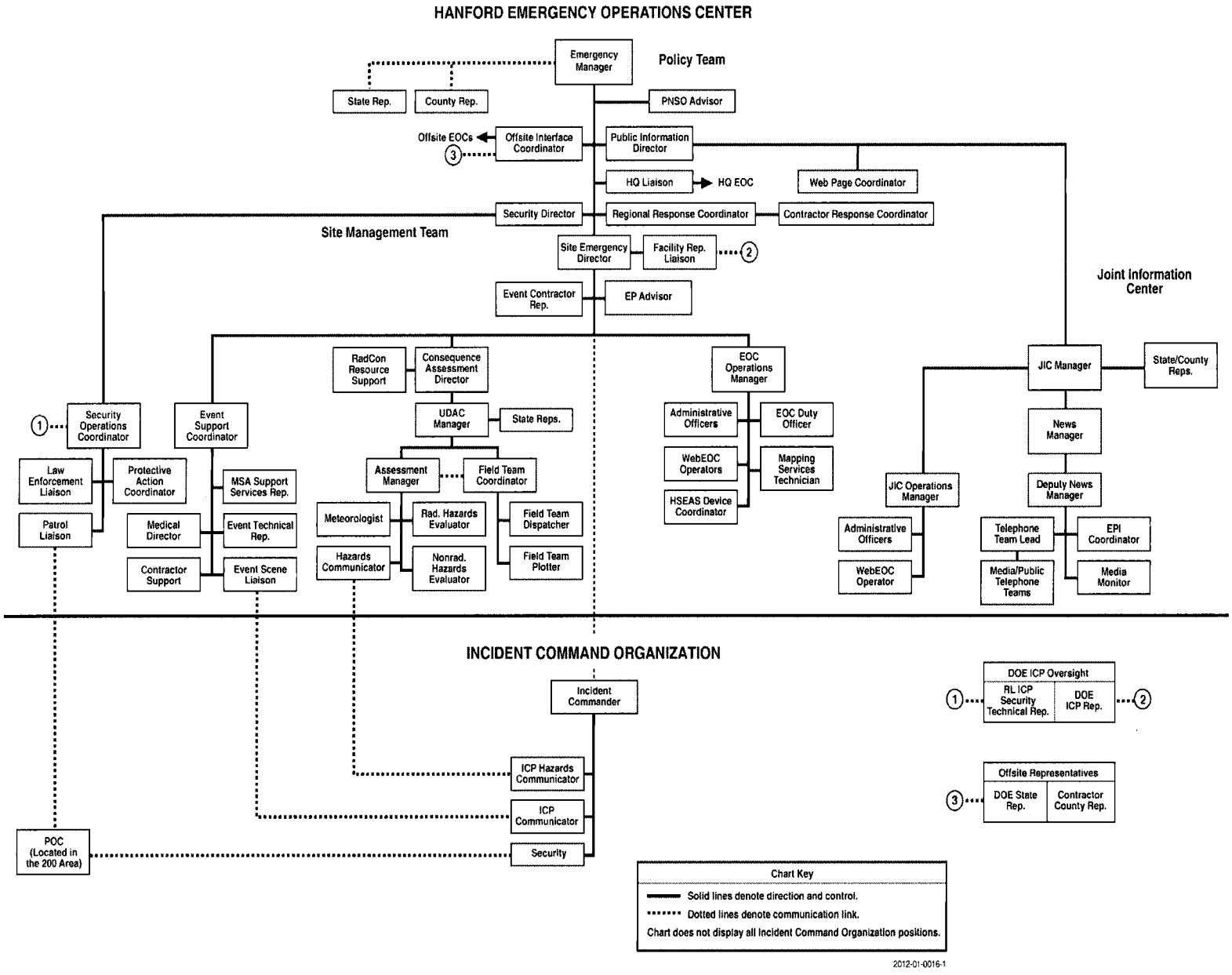
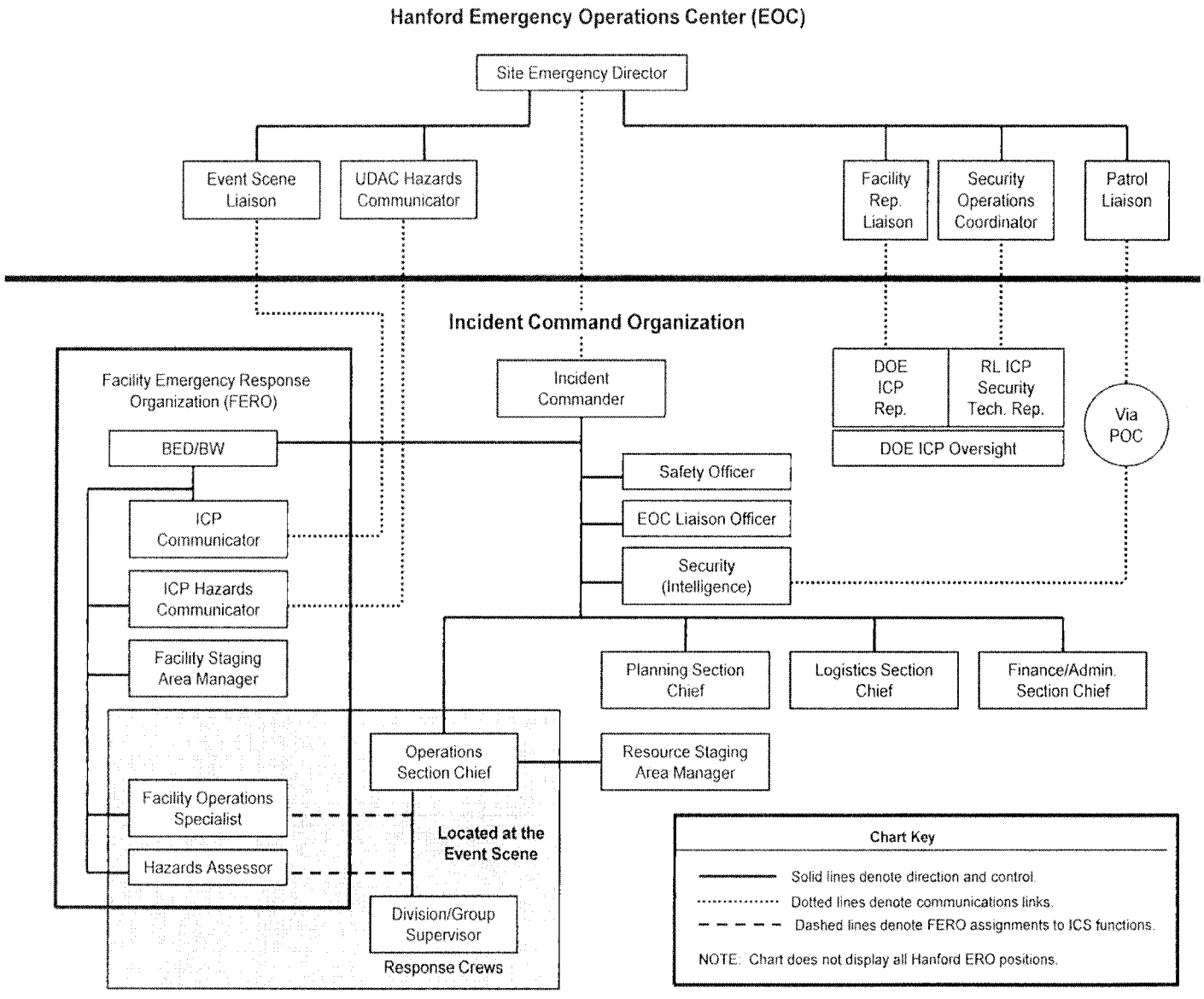


Figure 2-2
Incident Command Organization



This level of response requires the designation of an IC. The IC is responsible for the overall management strategy and for ensuring that all incident scene actions are coordinated and conducted safely. The IC will make decisions regarding the level and complexity of ICS staffing required to meet the needs of the event. The responding Hanford Fire Department senior officer for events involving emergency medical response, search and rescue operations, fire operations, and hazardous material emergency response operations shall be the IC and also fulfill the role of the senior emergency response official. During security events, the Hanford Fire Department and Hanford Patrol will operate under a unified command system with Hanford Patrol making all decisions pertaining to security.

The IC will communicate with the BED/BW and other support organizations as soon as possible to ensure facility processes and hazards are understood. Additionally, the IC shall establish a formal ICP as required to meet the needs of the event. The ICP shall be established in a safe location near the incident scene. Organizations supporting the ICP retain responsibility for their technical operations and provide facility expertise to the IC. The IC is responsible for the health and safety of personnel at the event scene (i.e., the impacted area under his/her direct control) and for the overall management strategy associated with the incident to ensure that functional areas are appropriately staffed and working cohesively towards mitigation of the incident.

The Incident Command Organization is staffed by pre-appointed and trained individuals as delineated in Table 2-1. Personnel working in support of the Incident Command Organization delineated in Table 2-1 must complete initial, annual, and ongoing training on their respective roles, responsibilities, and authorities within the Incident Command Organization. Drills and exercises are used to provide a format for Incident Command Organization responders to demonstrate their proficiency.

Contractor personnel shall provide a BED or BW for the purpose of supporting the Incident Command Organization as soon as possible. In the event of full implementation of the Incident Command Organization, additional facility personnel shall be available to support required functions.

2.2.1.1 Facility/Building Emergency Response Organization. Hanford Site facilities are divided into one of three types – general purpose, low-hazards, or hazardous – depending on the hazards associated with the facility.

Personnel and resources at the facility level comprise initial response capability for an emergency. Facilities shall direct appropriate emergency response actions, as delineated in the respective sections below, within the area under their control and at the scene of the emergency, including effective coordination with the IC and the Hanford EOC. Initial direction and control of emergency response at the facility prior to establishment of a formal ICP by the IC is the responsibility of the facility/building ERO.

The BED/BW fills the initial role of "Emergency Director" identified in DOE Emergency management directives and guidance documents. Elements of the Emergency Director role are transitioned to the IC and eventually to the Site Emergency Director in the Hanford EOC for emergencies classified as an Alert or higher.

The BED/BW manages facility operations and personnel, and ensures that appropriate emergency procedures are implemented. Activities include directing configuration control over facility systems and components, allocation of plant personnel to conduct facility-specific response actions within the affected facility boundary and providing support to emergency response agencies, classification or categorization and notification of the incident to the respective contractor environmental single point-of-contact and/or the Hanford EOC Shift Office, and implementation of initial, planned area/site protective actions.

A list of all BEDs and BWs assigned to low-hazards and hazardous facilities shall be located in the POC or PNNL Control Room in accordance with the Hanford Facility RCRA Permit (Dangerous Waste Portion) General Condition II.A.4. The list shall include telephone numbers (home and work) to ensure that these individuals can be reached 24 hours per day.

2.2.1.1.1 General Purpose Facilities. General purpose facilities are defined as onsite buildings or facilities that contain no hazardous materials in excess of any regulatory quantities that require emergency planning. The governing requirement for such facilities is 29 CFR 1910.38, which means that facilities where personnel are evacuated from the danger area when an emergency occurs, and are not permitted to assist in handling the emergency, are exempt from 29 CFR 1910.120(q) requirements.

The DOE O 151.1C Operational Emergency Base Program applies to general purpose facilities. The building management for general purpose facilities shall assign BWs or BEDs (primary and alternates) who shall manage and control all aspects of the initial facility response and shall direct an emergency organization made up of individuals within the facility who will assist in the protection of personnel, the environment, and property. Personnel may take emergency actions to report an emergency, initiate protective action including personnel accountability, and provide control of personnel while implementing protective actions. Typically, the emergency positions identified for these response actions include the BW/BED, Staging Area Manager, and Personnel Accountability Aides (or other contractor title for personnel performing the same or similar function). The BW/BED is responsible for emergency response at the event scene until arrival of the IC.

In addition, the building management, or designee, shall be responsible for:

- assigning and ensuring the training of the BW/BED, Staging Area Managers, and Personnel Accountability Aides (or other contractor title for personnel performing the same or similar function); and
- maintaining the facility emergency response information boards/building emergency procedures.

Specific responsibilities of the BW/BED, or designee, shall include, as applicable:

(a) activating internal facility alarms or communications systems, where applicable, to notify building occupants of protective actions to be taken;

(b) ensuring that a 911 telephone call is made when emergency assistance is required;

(c) assisting the IC, as necessary, in mitigating emergencies within the assigned building; and

(d) ensuring that building occupants take appropriate protective actions in response to events occurring in other onsite geographic areas or adjacent facilities.

The minimum training requirements for standard facility/building ERO positions are delineated in Table 12-1 of this plan.

2.2.1.1.2 Low-hazards Facilities. Low-hazards facilities are defined as facilities that contain hazardous materials but do not require establishment of an Operational Emergency Hazardous Material Program based on a hazards survey and hazards analysis. These facilities are typically subject to requirements driving preparation of an environmental, safety, and health related emergency preparedness plan/procedure, which include, but are not limited to, RCRA, CERCLA, the Toxic Substances Control Act, and the Occupational Safety and Health Administration (OSHA).[2]

[2] Permit requirement: Subsection 2.2.1.1.2 (first paragraph), Class 1 Modification 6/30/10

The DOE O 151.1C Operational Emergency Base Program applies to low-hazards facilities. The building management for low-hazards facilities shall assign BWs or BEDs (primary and alternates) who shall manage and control all aspects of the initial facility response and direct a facility/building ERO made up of individuals within the facility who will assist in the protection of personnel, the environment, and property. Typically, the emergency positions identified for these response actions include the BW/BED, Staging Area Manager, and Personnel Accountability Aides (or other contractor title for personnel performing the same or similar function); however, additional positions may be needed to implement facility-specific response actions. The BW/BED is responsible for emergency response at the event scene until arrival of the IC.

In addition, the building management, or designee, shall be responsible for:

- assigning and ensuring the training of the facility/building ERO as necessary to support the Hanford Fire Department as the designated hazardous materials emergency response agency;
- maintaining building emergency plans/procedures or facility-specific emergency response procedures, as applicable, in accordance with subsection 14.3.1 of this plan;
- ensuring that facility personnel are aware of hazards; and
- ensuring that facility personnel are trained to respond to emergencies.

Specific responsibilities of the BW/BED, or designee, shall include, as applicable:

(a) determining when an event has occurred or a condition exists that requires response in accordance with applicable state and Federal regulations;[3]

(b) activating internal facility alarms or communications systems, where applicable, to notify building occupants of protective actions to be taken;

(c) ensuring that a 911 telephone call is made when emergency assistance is required;

(d) reporting events or conditions in accordance with applicable state and Federal regulations;[4]

(e) establishing an initial command post and assigning other Incident Command Organization functions in accordance with established procedures to provide effective control at the event scene;

(f) assisting the IC, as necessary, in the mitigation of emergencies within the assigned building by:

- identifying the character, exact source, amount, and areal extent of any released material;
- assessing possible hazards to human health and the environment that may result from the release, fire, or explosion;
- taking reasonable measures (e.g., stopping processes/operations, collecting/containing released waste, removing/isolating containers) necessary to ensure that fires, explosions and releases do not occur, recur, or spread to other dangerous waste;

[3] Permit requirement: Subsection 2.2.1.1.2(a), Class 1 Modification 9/30/99

[4] Permit requirement: Subsection 2.2.1.1.2(d), Class 1 Modification 9/30/99

- monitoring for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, as appropriate;[5] and

(g) ensuring that building occupants take appropriate protective actions in response events occurring in other onsite geographic areas or adjacent facilities.

The duties of the facility/building ERO may include, but will not be limited to:

- assisting in the alerting of employees of an emergency situation;
- assisting in building evacuations and building sweeps; and
- providing assistance to the Hanford Fire Department and/or Hanford Patrol to include meeting and directing responders to the event scene, providing safe routes of travel, and providing immediate and constant interface, coordination, and information as the emergency situation requires.

The minimum training requirements for standard facility/building ERO positions are delineated in Table 12-1 of this plan.

2.2.1.1.3 Hazardous Facilities. Hazardous facilities are defined as facilities that contain hazardous materials capable of generating an Alert, Site Area Emergency, or General Emergency and require establishment of an Operational Emergency Hazardous Material Program. Facilities in this group include reactor or nuclear facilities, or nonnuclear hazard facilities. TSD units containing quantities of wastes or materials capable of generating an Alert or higher emergency will also be categorized as a hazardous facility.

The DOE O 151.1C Operational Emergency Base and Operational Emergency Hazardous Material Programs apply to the hazardous facilities. The building management for each hazardous facility shall establish and maintain a facility/building ERO with overall responsibility for the initial and ongoing response to and mitigation of an emergency. BEDs (primary and alternates) shall be assigned to manage and control all aspects of the facility response and to direct the facility/building ERO at the event scene until arrival of the IC. Typically, the emergency positions identified for these response actions include the BED, Staging Area Manager, Personnel Accountability Aides (or other contractor title for personnel performing the same or similar function), ICP Communicator, ICP Hazards Communicator, Hazards Assessor, and Facility Operations Specialist; however, additional positions may be needed to implement facility-specific response actions. Initiation of emergency lifesaving measures or support of protective actions for facilities which require self-contained breathing apparatus (SCBA) must not rely entirely on the Hanford Fire Department to provide such equipment on emergency response vehicles. The minimum assumption used for emergency planning for the Hanford Fire Department arrival shall be 10 minutes plus travel time to destination.

A BED (primary or alternate) must be within reasonable proximity to the facility (as defined by contractor policy) if work is being performed which could generate an Alert or higher emergency classification. On-call BEDs, where designated, may be used for facilities where hazardous materials are in storage and stable, and the work being performed is that of surveillance, or the routine activity poses minimal hazards.

[5] Permit requirement: Subsection 2.2.1.1.2(f), Class 1 Modification 9/30/99

The organization, size, and emergency response duties assigned to the facility/building ERO shall be based on a graded approach and upon hazards at the facility and the level necessary to support the Hanford Fire Department as the designated hazardous materials emergency response agency.

In addition, the positions and responsibilities of the facility/building ERO shall be documented in specific building emergency plans and/or procedures. The content, distribution and organizational approval of the building emergency plan and/or procedures shall be determined by the respective contractor emergency preparedness organization.

NOTE: Building emergency plans are not required for unoccupied hazardous facilities. However, BEDs shall be identified and trained to implement initial emergency response procedures.

The building management, or designee, shall be responsible for:

- assigning and ensuring the training of the facility/building ERO as necessary to support the Hanford Fire Department as the designated hazardous materials emergency response agency;
- maintaining, reviewing, and revising the building emergency plan and applicable facility-specific emergency response procedures in accordance with subsection 14.3.1 of this plan;
- ensuring that facility personnel are aware of hazards; and
- ensuring that facility personnel are trained to respond to emergencies.

Responsibilities of the BED, or designee, shall include:

(a) determining when an event has occurred or a condition exists that requires appropriate emergency event classification;[6]

(b) activating internal facility alarms or communications systems, where applicable, to implement actions to protect workers within their respective geographic area of responsibility as defined in the building emergency plan or procedures;

(c) assessing the potential or actual onsite and offsite consequences of the emergency;

(d) contacting the POC, via the 911 emergency number, to implement predetermined onsite protective actions and provide initial emergency and classification information in accordance with established procedures;

(e) reporting events or conditions in accordance with applicable state and Federal regulations;[7]

(f) establishing an initial command post and assigning other Incident Command Organization functions in accordance with established procedures to provide effective control at the event scene;

(g) assisting the IC, as necessary, in the mitigation of emergencies within the assigned building by:

- identifying the character, exact source, amount, and areal extent of any released materials;

[6] Permit requirement: Subsection 2.2.1.1.3(a), Class 1 Modification 9/30/99

[7] Permit requirement: Subsection 2.2.1.1.3(e), Class 1 Modification 9/30/99

- taking reasonable measures (e.g., stopping processes/operations, collecting/containing released waste, removing/isolating containers) necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other dangerous waste,
- monitoring for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, as appropriate;[8] and

(h) ensuring that building occupants take appropriate protective actions in response to events occurring in other onsite geographic areas or adjacent facilities.

The duties of the facility/building ERO may include, but will not be limited to:

- assisting in the alerting of employees of an emergency situation;
- assisting in the safe evacuation of the incident scene hazard area;
- providing immediate first-aid if required;
- placing operating systems or controls in a safe configuration;
- implementing or supporting the implementation of protective actions for the general population to include roadblocks and building sweeps;
- assisting in emergency classification and emergency notification of such classification within established regulatory time limits;
- providing assistance to the Hanford Fire Department and/or Hanford Patrol to include meeting and directing responders to the event scene, providing safe routes of travel, and providing immediate and constant interface, coordination, and information as the emergency situation requires;
- serving as emergency response team members in support of the Hanford Fire Department for entry into the incident scene hazard area for mitigation where personnel protective equipment requirements do not specify Level A or Level B dermal protection (refer to Appendix B of 29 CFR 1910.120);
- providing chemical monitoring and assessment, in conjunction with the Hanford Fire Department Industrial Hygienist, for emergency response;
- providing radiological monitoring and assessment for emergency response; and
- providing support for chemical and/or radiological decontamination.

The minimum training requirements for standard facility/building ERO positions are delineated in Table 12-1 of this plan.

2.2.1.2 Site Contractor Emergency Response Personnel

2.2.1.2.1 Hanford Fire Department. The Hanford Fire Department is the designated incident command agency responsible for fire suppression operations, hazardous material emergency response operations (radiological and nonradiological) and chemical/biological incidents on the site, medical services, and search and rescue (including confined space, high angle, and water rescue).

[8] Permit requirement: Subsection 2.2.1.1.3(g), Class 1 Modification 9/30/99

In this capacity, the Hanford Fire Department shall provide a hazardous materials response team, as defined in 29 CFR 1910.120(q)(6)(i)-(v) and NFPA 472, as well as a qualified Safety Officer for all emergency response activities.

As a 24-hour operational facility/dispatch center, the Hanford Fire Department also monitors facility fire alarm systems, and coordinates and provides emergency medical services on the Hanford Site. Emergency medical support responsibilities are further delineated in subsection 8.1.1 of this plan.

2.2.1.2.2 Hanford Patrol. The Hanford Patrol monitors alarm systems and provides security emergency response operations including coordination of the movement of emergency personnel through security gates, evacuation assistance, and traffic control and barricade establishment where needed. Additional law enforcement is available through agreements with local and Federal agencies at the request of RL. The Hanford Patrol and Hanford Fire Department operate under a unified command system for security events with Hanford Patrol making all decisions pertaining to security.

Additionally, the POC, a 24-hour operational facility/dispatch center, is responsible for emergency functions that include, but are not limited to:

- operating the site's enhanced 911 system;
- acting as the single point-of-contact to initiate emergency response by
  - notifying the BED/BW (when not on the premises)
  - requesting response from the Hanford Fire Department
  - notifying appropriate on-call personnel
  - activating or requesting activation of appropriate alarm signals;
- activating the Hanford EOC Shift Office conference bridge upon notification of a declared emergency and implementing onsite protective actions by activating applicable components of the Hanford Site Emergency Alerting System; and
- receiving emergency response telephone calls during offsite shipments of DOE-owned hazardous materials.

Emergency medical support responsibilities of the Hanford Patrol are further delineated in subsection 8.1.3 of this plan.

2.2.1.3 Other Emergency Response Support Personnel. Some emergency situations may require facility or site support personnel to be used for emergency response at the event scene that are not assigned positions within the Hanford ERO. These emergency response support personnel – termed either as Skilled Support Personnel or Specialist Employees – are not trained to operate within the Hanford Incident Command System and must only be used for specific tasks defined in the following subsections.

2.2.1.3.1 Skilled Support Personnel. Personnel needed to operate specific support equipment, including those within the incident scene hazard area but are not addressed in specific emergency response procedures, may be designated as Skilled Support Personnel. Such personnel shall receive a briefing prior to commencing any work. Training requirements in accordance with 29 CFR 1910.120(q)(4) are delineated in subsection 12.2.2.3.1 of this plan.

2.2.1.3.2 Specialist Employees. Safety professionals and environmental specialists who provide technical advice within their field of expertise, but are not addressed in specific emergency response procedures, may be designated as Specialist Employees. Such personnel will only provide expertise and advice to the IC when requested and may not enter the incident scene hazard area. Training requirements in accordance with 29 CFR 1910.120(q)(5) are delineated in subsection 12.2.2.3.2 of this plan.

2.2.2 Hanford Emergency Operations Center

The Hanford EOC is an emergency response facility maintained by RL for the purpose of providing an area where personnel may convene during emergency conditions to provide essential response functions. These functions include public information, offsite protective action recommendations, field monitoring and sampling, hazard assessment, oversight of onsite mitigative activities, and oversight of onsite protective actions.

The Hanford EOC shall be activated upon declaration of an Alert or higher emergency and should be operational within an hour after activation.

The Hanford EOC may also be fully or partially activated in the following situations.

- As directed by the RL/ORP/PNSO Manager (or designees) when events occur that are not classified as an Alert or higher emergency but where action to provide monitoring or assistance to the event scene or other agencies, is requested. Such events may include:
  - Hanford Site emergency conditions that potentially involve significant onsite or offsite consequences;
  - security events;
  - natural disasters (i.e., earthquake, tornado) that could or does result in significant onsite or offsite public or environmental impact;
  - requests from other government agencies for support of regional emergencies; or
  - threats or acts of terrorism, or when a national emergency is declared by the President of the United States or the United States Congress.
- As requested by the BED/BW, IC, or EDO where action to provide monitoring or assistance to the event scene is needed.
- As requested by the RAP team leader to support a RAP response.
- In response to non-DOE emergencies that affect the Hanford Site.
- In response to transportation emergency preparedness events involving the offsite shipment of DOE-owned hazardous materials.

The Hanford EOC is made up of several organizations that are responsible for implementing defined emergency response tasks. These organizational areas are defined in the following subsections. Detailed procedures for the activation, staffing, and operation of the Hanford EOC are contained in DOE-0223, *Emergency Plan Implementing Procedures*. Position-specific checklists are maintained separately for positions in the Hanford EOC.

2.2.2.1 Policy Team. The primary functions of the Policy Team are the oversight of onsite activities, approval and communication of offsite protective action recommendations, approval of reclassification recommendations, oversight of public information activities, and coordination with offsite agencies.

The Emergency Manager is responsible for oversight operations of the Hanford EOC and for ensuring implementation of the responsibilities of the National Response Framework's coordinating agency. In consultation with the Hanford EOC staff, the Emergency Manager approves emergency reclassification and termination, offsite PARs, and notifications.

Once operational, general functions of the Policy Team include:

- overview of onsite response and mitigation actions, and providing assistance to the event contractor as needed;
- providing offsite notifications and PARs to state, local, and Federal agencies, and continuous updates to the state/counties about conditions;
- providing direction and control, as appropriate, during a security incident;
- approving the reclassification or termination of the emergency;
- directing the activities of the JIC in providing timely and accurate release of information to the public and media, including approval of emergency information;
- requesting the national DOE emergency response assets as needed;
- providing liaisons to offsite emergency centers and responding DOE emergency response assets;
- providing a representative to DOE-HQ as requested; and
- designating a recovery organization.

During security incidents, RL is responsible for decisions that address mitigation of the security event. This involves direction and control of Hanford Site security and patrol forces, and coordination of facility response. However, the Federal Bureau of Investigation (FBI) may exercise the option to take command of specific aspects of security events involving the violation of the Atomic Energy Act of 1954 or other Federal statutes (e.g., criminal investigation, coordinating activities of other law enforcement agencies). Associated response by site contractor personnel for personnel and operational safety rests with the IC and the BED.

2.2.2.2 Joint Information Center. The primary function of the JIC is the dissemination of accurate and timely information to the public and employees regarding activities during declared emergencies. The JIC operates under the direction of the Public Information Director and is staffed by RL/ORP/PNSO, contractor, state, and county communication professionals responsible for coordinating the release of information to the public and media.

The JIC provides a single location where site personnel can coordinate the release of information with other Federal agencies, state, and local jurisdictions. Provisions shall be made at the JIC for representatives from the states of Washington and Oregon, plume EPZ counties, and other Federal agencies that may be involved in the emergency response.

The functions performed at the JIC include:

- preparing and coordinating information released to the public and media;
- answering questions of the public and media; and
- rumor control.

2.2.2.3 Site Management Team. The primary functions of the SMT are to provide support to the Incident Command Organization by providing additional resources not easily obtained by the IC; tracking the status of onsite protective actions; developing and directing implementation of additional onsite protective actions away from the event scene (i.e., the area not under the direct control of the IC) as required; and providing communications support. The SMT is also responsible for hazards assessment activities, tracking personnel medical issues, developing additional offsite protective action recommendations, record keeping, and overall operation of the center.

The SMT is made up of four support organizations that are responsible for implementing defined emergency response tasks. These organizations are defined below.

2.2.2.3.1 Executive Team and Support Staff. The Site Emergency Director is responsible for the coordination of all SMT activities. In this role, the Site Emergency Director is responsible for the activities of the Event Support Coordinator, EOC Operations Manager, and the Consequence Assessment Director. Since RL has an operational function over Hanford security forces, the Security Director in the Policy Team is responsible for the activities of the Security Operations Coordinator.

The Contractor Representative and Emergency Preparedness Advisor provide support to the Site Emergency Director.

2.2.2.3.2 Security and Event Support. As part of the SMT staff, the Security Operations Coordinator's primary functions are security operations, which include interface with local law enforcement agencies, coordination with the Federal Bureau of Investigation (FBI), and oversight of onsite patrol activities. The Security Operation Coordinator reports directly to the Security Director. The Security Director will communicate planned actions of security forces to the Site Emergency Director to ensure all safety and security issues are addressed and coordinated. The Site Emergency Director, in conjunction with the Security Director, is responsible for periodically providing status information to the Emergency Manager and the Policy Team.

The Event Support Coordinator is responsible for event support activities to include site support services, technical support, communications with the event scene, and coordination with medical assessment activities. The Event Support Coordinator reports directly to the Site Emergency Director.

2.2.2.3.3 Unified Dose Assessment Center.[9] As part of the SMT, the primary Unified Dose Assessment Center (UDAC) functions are monitoring and evaluating existing emergency conditions in order to develop additional protective action recommendations. The UDAC is responsible for field team activities to include plume tracking, monitoring, and sampling.

Representatives from the states of Washington and Oregon participate in the development of recommendations and provide direction for offsite environmental monitoring. The UDAC is operated by site contractor personnel with knowledge in the technical areas of meteorology, toxicology, industrial hygiene, and health physics. The Consequence Assessment Director is responsible for all UDAC activities and reports directly to the Site Emergency Director.

Specific UDAC responsibilities include:

- acquiring necessary data and measurements to evaluate personnel radiation doses and chemical exposures resulting from the event;

[9] Permit requirement: Subsection 2.2.2.3.3, Class 1 Modification 9/30/99

- assessing the potential for onsite and offsite consequences of a release of radioactive or nonradioactive materials based on meteorological conditions, source term, location and dispersal of the hazardous material;
- assisting the event contractor or other Hanford Site contractors in onsite hazard assessment or development of onsite protective actions;
- analyzing the consequences associated with evacuating versus remaining in a take cover situation for onsite personnel and recommending appropriate additional protective actions if necessary;
- developing offsite PARs in coordination with representatives from the states of Washington and Oregon; and
- coordinating and directing emergency environmental monitoring teams that are not assigned to the event facility. This may include state field teams performing offsite monitoring if requested by the states.

2.2.2.3.4 Hanford EOC Operations. As part of the SMT, the primary functions of the Hanford EOC Operations team are administration, record keeping tasks, and dissemination of information to offsite agencies. The EOC Operations Manager is responsible for these activities. In this role, the EOC Operations Manager reports directly to the Site Emergency Director.

2.2.2.4 Event Coordination Team. The Event Coordination Team is a partial staffing of the Hanford EOC that allows for a graded response to events occurring on or off the Hanford Site which are not further classified as an Alert or higher emergency. The Event Coordination Team can be used to provide resource and communications support to the ICP; to monitor abnormal conditions that could impact site workers, facilities, or operations (e.g., power outage, severe weather conditions); or for events that may require additional monitoring or distributing information to site workers and the public.

The Event Coordination Team does not require that all Hanford EOC positions be filled. Instead, the on-call Site Emergency Director or EDO will determine staffing and length of operation. Detailed procedures for the activation and responsibilities of the Event Coordination Team are contained in DOE-0223, *Emergency Plan Implementing Procedures*.

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3.0 OFFSITE RESPONSE INTERFACES

3.1 OVERVIEW[1]

Interfaces and coordination with offsite agencies are important in the planning, preparedness, response, and recovery elements of the Hanford emergency management program. As such, RL shall interface with Federal, tribal, state, local, and private organizations and/or agencies:

- that have a responsibility to protect the public and environment within the EPZs of the Hanford Site;
- with which RL supports as the Regional Coordinating Office for Region 8 (Oregon, Washington, and Alaska); and
- with which RL has entered into special agreements for assistance.

Where appropriate, RL shall develop and maintain agreements to formalize areas of understanding, cooperation, and support with offsite agencies.

3.1.1 Planning and Preparedness[2]

The modes of interface for planning and preparedness activities, as is determined beneficial by the parties, may include:

- coordination of emergency plans and procedures;
- periodic meetings to share information and coordinate activities;
- training opportunities related to offsite responsibilities;
- development of agreements for support to and from offsite agencies;
- participation in annual exercises; and
- development of public information programs.

3.1.2 Response and Recovery

In the event of an emergency on or affecting the Hanford Site, RL/ORP/PNSO shall interface with offsite agencies to ensure coordination and support of response and recovery activities. These interfaces may include:

- notification and periodic updates to local jurisdictions within the plume EPZ, states that contain portions of the ingestion EPZ, and other agencies that may be requested to provide assistance (see respective subsections in section 5.0);
- communication and coordination with DOE-HQ;
- representation in appropriate offsite emergency centers;
- offsite representation in the Hanford EOC;
- PARs to offsite agencies; and
- event scene interface with offsite responders.

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[1] Permit requirement: Subsection 3.1, Class 1 Modification 9/30/99

[2] Permit requirement: Subsection 3.1.1, Class 1 Modification 9/30/99

Communications with state and local emergency centers are depicted on Figure 3-1.

3.2 FEDERAL AGENCIES

3.2.1 U.S. Department of Energy-Headquarters

The DOE-HQ Program Secretarial Officers are responsible for ensuring implementation of policy and requirements for activities conducted under their respective areas of cognizance.

The DOE-HQ Operations Center serves as the point-of-contact for receipt of all emergency notifications and reports. Accordingly, the DOE-HQ Operations Center receives, coordinates, and disseminates emergency information to DOE-HQ elements and Program Office emergency points-of-contact, the White House Situation Room, and other Federal agencies. As such, emergency status reports shall be forwarded to the DOE-HQ Operations Center on a continuing basis until the emergency is terminated.

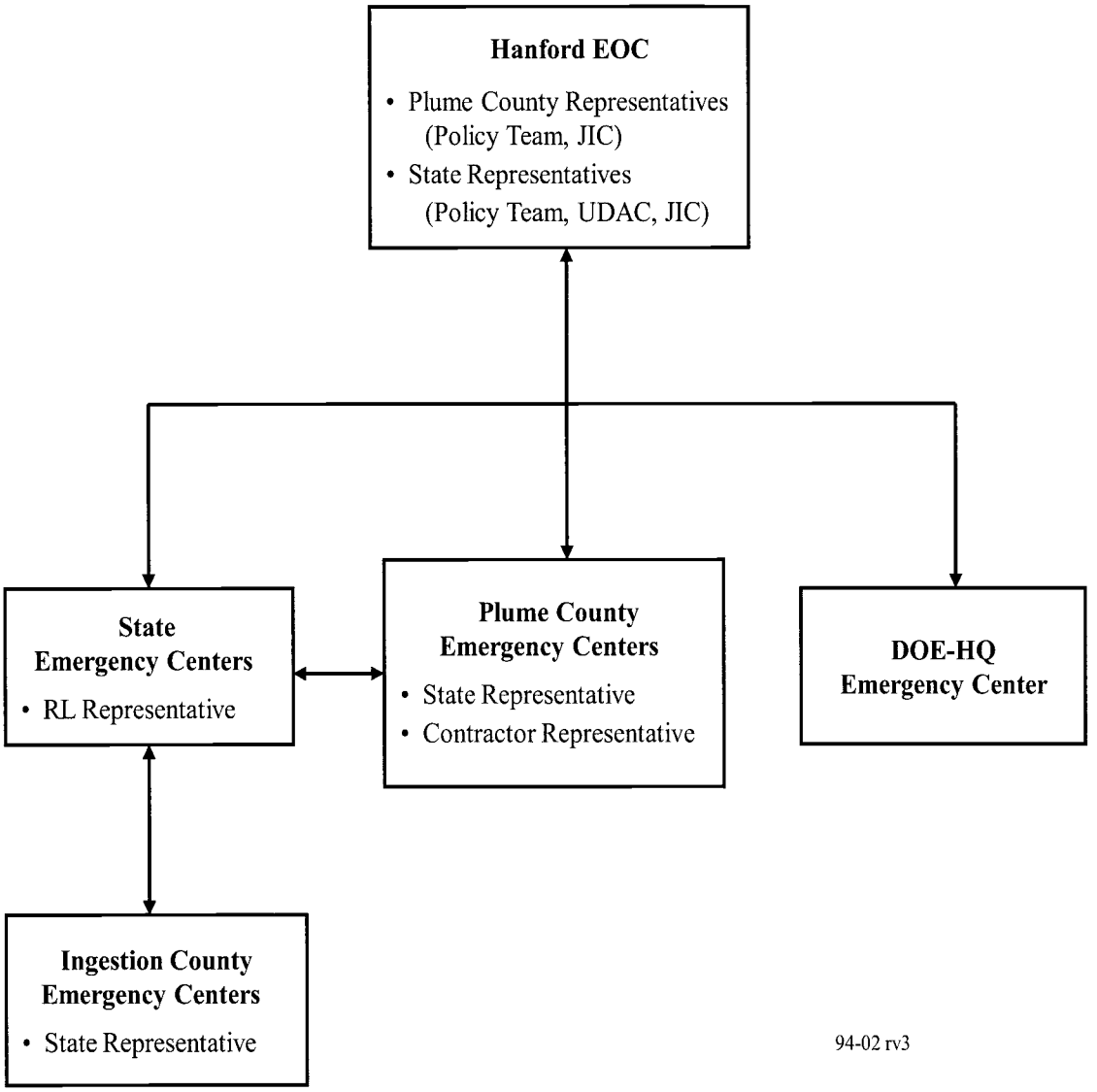
In the event of an emergency, a DOE-HQ Emergency Management Team is convened to:

- receive information on the facility, site, or area response;
- monitor the Operations/Field Office;
- provide appropriate support and assistance;
- assist with issue resolution; and
- coordinate interagency, Congressional, and public information activities at the national level.

DOE also has five emergency response assets available to assist at events if conditions warrant. These assets include:

- Aerial Measuring System (AMS) – provides fixed-wing aircraft and/or helicopters for remote sensing to detect and measure for ground deposition or perform aerial photography and multi-spectral imaging;
- National Atmospheric Release Advisory Capability (NARAC) – develops predictive plots to provide near real-time assessments of the consequences of accidental or potential radiation releases;
- Federal Radiological Monitoring and Assessment Center (FRMAC) – coordinates the Federal radiological monitoring, assessment, and evaluation of data during a radiological emergency;
- Radiological Assistance Program (RAP) – provides radiological assistance during all types of radiological accidents or emergencies (considered DOE's First Responder team); and
- Radiation Emergency Assistance Center/Training Site (REAC/TS – provides health professionals and coordinators for consultation or direct medical care on health problems associated with radiation accidents.

Requesting emergency response asset assistance is delineated in subsection 5.1.1.2.3.


Hanford EOC
• Plume County Representatives (Policy Team, JIC)
• State Representatives (Policy Team, UDAC, JIC)
State Emergency Centers
• RL Representative
Plume County Emergency Centers
• State Representative
• Contractor Representative
DOE-HQ Emergency Center
Ingestion County Emergency Centers
• State Representative
94-02 rv3

3.2.2 Federal Bureau of Investigation

The role of the FBI is to serve as the primary U.S. Law Enforcement Agency responsible for investigating alleged or suspected violations of the Atomic Energy Act of 1954, as amended, and other Federal statutes. As such, security events of national consequence occurring at the Hanford Site and within the jurisdiction of the U.S. Department of Justice (e.g., theft of special nuclear material, terrorist activity, weapons of mass destruction incidents) will be communicated to the FBI.

During these types of security events, the FBI Special-Agent-In-Charge will coordinate with the Emergency Manager, or designee, to receive an event status briefing and determine areas of responsibility. The FBI has the lead responsibility for criminal investigations of terrorist acts or terrorist threats by individuals or groups inside the U.S. or directed at U.S. citizens, as well as for coordinating activities of other law enforcement agencies to detect, prevent, and disrupt terrorist attacks.

3.2.3 U.S. Coast Guard[3]

The U.S. Coast Guard (USCG) (through the Thirteenth District Commander in Seattle, Washington and the Captain of the Port in Portland, Oregon) may regulate activities on navigable waters within the Hanford Site, when necessary, to prevent harm to persons, property, and the environment in or on those waters.

The USCG will close the appropriate portion of the Columbia River and make a broadcast to mariners, as requested by Benton or Franklin County.

In the event of an emergency, the Hanford EOC Shift Office will make notifications and provide information to the USCG in Portland, Oregon.

3.2.4 U.S. Environmental Protection Agency

The EPA is responsible for coordinating the intermediate and long-term offsite radiation monitoring activities.

In the event of an emergency, the Hanford EOC shall notify and provide information to the EPA Region 10 in Seattle, Washington.

3.2.5 Federal Aviation Administration

The Federal Aviation Administration (FAA) may make flight restrictions for aircraft under their jurisdiction over the Hanford Site.

In the event of an emergency, the IC may request the FAA Seattle Center to impose a temporary flight restriction over the Hanford Site.

3.2.6 Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) is responsible for coordinating Federal assistance when the resources of state and local authorities are overwhelmed and Federal assistance has been requested.

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[3] Permit requirement: Subsection 3.2.3, Class 1 Modification 12/31/12

At the time of a declaration of an emergency, the Hanford EOC notifies and provides information to the FEMA Region 10 office in Bothell, Washington.

3.3 STATE GOVERNMENT

States, along with local governments, share the responsibility for the protection of the public and the environment. The responsibilities and concept of operations for state agencies are described in the emergency response plans of each state.

RL shall work with the states of Washington and Oregon to assist in development of their program and response plans for an emergency at the Hanford Site. Periodic meetings will be conducted with the states to coordinate plans and share information. General descriptions of emergency responsibilities as well as areas of cooperation and understanding between RL and the states are delineated in memoranda of understanding (MOU). Copies of the MOUs are provided in Appendix B.

3.3.1 The State of Washington[4]

The Governor of Washington is responsible for command and control of state resources to maintain and preserve life, property, and the environment in Washington. The lead agency for emergency planning and response activities is the Emergency Management Division of the Military Department. Other state agencies that participate in the planning process and have emergency response roles include the:

- Department of Health;
- Department of Agriculture;
- State Patrol;
- Department of Ecology; and
- Department of Transportation.

An emergency response plan is maintained by the Emergency Management Division that describes the concept of operations and roles and responsibilities of the state agencies. Emergency procedures are maintained by each state agency.

Responsibilities of the state of Washington include:

- providing a 24-hour single point-of-contact for the receipt of emergency notifications from the Hanford Site;
- disseminating information to potentially affected counties within the plume and ingestion EPZs;
- coordinating ingestion protective action decisions and public information with the counties, the state of Oregon, and RL;
- providing assistance to counties as requested;
- evaluating offsite emergency PARs made to plume EPZ counties;
- making protective action decisions to protect public health from ingestion-related impacts, such as contamination of the food chain;

[4] Permit requirement: Subsection 3.3.1, Class 1 Modification 12/31/08

- performing field environmental radiological monitoring and dose assessments;
- providing guidance on emergency worker exposure and authorizing emergency workers to exceed protective action guides;
- implementing food, milk, and animal-feed control measures; and
- requesting Federal assistance as required.

3.3.2 The State of Oregon[5]

The Governor of Oregon is responsible for directing and controlling state activities to protect the lives and property of Oregon citizens. The lead agency for Hanford Site emergency planning is the Oregon Department of Energy. Other state agencies that participate in the planning process and have emergency response roles include the:

- State Public Information Officer;
- Public Health;
- Emergency Management Division;
- Department of Agriculture;
- Oregon State University Radiation Center
- Military Department;
- State Police; and
- Department of Transportation.

An emergency response plan is maintained by the Oregon Department of Energy that describes the concept of operations and roles and responsibilities of state agencies. Emergency procedures are maintained by each state agency.

Responsibilities of the state of Oregon include:

- providing a 24-hour single point-of-contact for the receipt of emergency notifications from the Hanford Site;
- making protective action decisions for the state of Oregon;
- coordinating protective action decisions and public information with counties, the state of Washington, and RL;
- coordinating state and local emergency response within the state of Oregon;
- performing field environmental radiological monitoring and dose assessments;
- providing guidance on emergency worker exposure and authorizing emergency workers to exceed protective action guides;
- providing assistance to Oregon counties within the ingestion EPZ;
- implementing food, milk, and animal-feed control measures; and
- requesting Federal assistance as required.

[5] Permit requirement: Subsection 3.3.2, Class 1 Modification 12/31/08

3.4 LOCAL ORGANIZATIONS[6]

Cities and counties are responsible for protecting the lives and property of their residents. The responsibilities and concept of operations for local governments are described in the emergency response plans of each jurisdiction.

RL shall work with local emergency response organizations through the county and state emergency management organizations. Generally, RL shall interface directly with emergency response and planning organizations providing service to those areas within a plume EPZ of a Hanford Site facility. Interface with those jurisdictions within the ingestion EPZ generally shall be accomplished through the state emergency management organization. To accomplish the necessary close coordination with local agencies, periodic meetings shall be conducted to share information and discuss concerns.

3.4.1 Plume Emergency Planning Zone Counties

Portions of Benton, Franklin, and Grant Counties are within plume EPZs of a Hanford Site facility. The Boards of County Commissioners are responsible for making emergency protective action decisions and implementing emergency response actions, as necessary, to protect their residents outside the Hanford Site boundary. The lead agency for emergency planning and coordination of emergency response is the county emergency management agency. County emergency response plans and procedures are developed by the emergency management agencies, working with county, city, and volunteer emergency response agencies, such as:

- law enforcement;
- fire and emergency medical;
- public works/road departments;
- hospitals; and
- American Red Cross.

The emergency responsibilities of the plume EPZ counties include:

- making and implementing protective action decisions to protect citizens who live within the plume EPZ;
- implementing protective action decisions, made by the state of Washington, for ingestion-related impacts to residents within the ingestion EPZ;
- disseminating alert and warnings to the public and providing emergency public information; and
- coordinating response actions and public information with neighboring counties, the state of Washington, and RL.

RL maintains agreements with Benton, Franklin, and Grant Counties that outline the areas of responsibility and cooperation (see Appendix B).

[6] Permit requirement: Subsection 3.4 Class 1 Modification 9/30/99

3.4.1.1 Law Enforcement.[7] RL SES interfaces with local law enforcement agencies for support to the Hanford Site during emergencies. Via a contractual agreement, the Benton County Sheriff's Office provides law enforcement on the Hanford Site (i.e., traffic enforcement and criminal investigation), and assists in access control; and, as such, coordinates activities with RL SES and the Hanford Patrol.

RL SES maintains memorandums of understanding with the local law enforcement agencies.

3.4.1.2 Fire and Emergency Medical.[8] The Hanford Fire Department is signatory to the Tri-County Mutual Aid Agreement for fire agencies. The agreement provides mutual aid for fire or medical emergencies.

The Hanford Fire Department meets regularly with local fire agencies. The Hanford Fire Department and HPMC representatives meet routinely with emergency medical service agencies to coordinate and share information.

3.4.1.3 Hospitals.[9] RL maintains agreements with local hospitals, which provide for the care of injured, contaminated (chemical or radiological) Hanford Site personnel. These hospitals include:

- Lourdes Medical Center;
- Trios Health; and
- Kadlec Regional Medical Center.

RL shall provide for training and exercise support, as needed, related to the services provided to the Hanford Site. RL shall also provide health physics support and will work in cooperation with the hospitals to develop protocols for the diagnosis and treatment of injuries and illnesses involving chemical and/or radiological contamination as necessary.

3.4.2 Ingestion Emergency Planning Zone Counties

Counties within the ingestion EPZ of the Hanford Site are responsible to implement measures to protect their residents from potential ingestion related impacts. In the state of Washington, the counties of Adams, Benton, Franklin, Grant, Kittitas, Klickitat, Walla Walla, and Yakima are within the 50-mile (80-kilometer) ingestion EPZ. In the state of Oregon, the counties of Morrow and Umatilla are included. Ingestion EPZ counties have emergency response plans that describe their responsibilities in the event of an emergency at the Hanford Site.

RL shall coordinate emergency planning and preparedness for ingestion counties through the Washington State Emergency Management Division and the Oregon Department of Energy. Ingestion county responsibilities include:

- coordinating with the state and implementing decisions regarding protective measures for its residents within the ingestion EPZ; and
- consulting with the respective state emergency center on the identification of access control points, food control areas, food control stations, and strategies for relocation, restoration, and recovery in contaminated areas.

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[7] Permit requirement: Subsection 3.4.1.1, Class 1 Modification 12/31/08

[8] Permit requirement: Subsection 3.4.1.2, Class 1 Modification 12/31/12

[9] Permit requirement: Subsection 3.4.1.3, Class 1 Modification 6/30/14

3.5 TRIBAL ORGANIZATIONS

RL shall provide appropriate information to the impacted tribal organizations to coordinate planning for ingestion-related response actions of the tribe(s).

3.6 PRIVATE ORGANIZATIONS

The Hanford Site emergency management program shall address private facilities on or near the site. These facilities may be impacted by an emergency at the Hanford Site, or may impact Hanford Site facilities if they experience an emergency.

RL shall coordinate emergency planning and preparedness activities with onsite private facilities. In the event of an emergency at a Hanford Site facility, onsite private facilities will receive notifications and information from RL.

Where emergencies at facilities operated by private organizations may impact the Hanford Site, RL shall ensure that the emergency management program addresses actions that must be taken to protect site workers and facilities.

Areas of cooperation with private organizations shall be documented in memorandums of understanding.

3.7 MEMORANDA OF UNDERSTANDING

RL shall develop and implement mutual assistance agreements with offsite agencies to document areas of cooperation and assistance when appropriate and as identified in Federal, state, and local regulations (see Table 3-1).

RL SES is responsible for executing and maintaining MOUs related to security and emergency preparedness. The Hanford Fire Department shall execute and maintain MOUs within its area of responsibility. MOUs should be reviewed periodically (unless stated otherwise) and revised as needed.

Copies of MOUs are included in Appendix B of this plan.

Table 3-1

Memorandums of Understanding[10]

PARTIES	SERVICES/AREAS OF COPERATION	POINTS OF CONTACT	CONSTRAINTS	DATE	EXPIRATION DATE	WHERE ON FILE
State of Washington	Document areas of cooperation between the parties in the planning for and response to emergencies at the Hanford Site.	Washington Emergency Management Division	None	12/10/12	02/28/18 or until canceled by any party after 60 days written notice to the other parties.	RL SES
State of Oregon	Document areas of cooperation between the state of Oregon and RL in the planning for and providing notification and interface in the event of an incident on the Hanford Site.	Oregon Department of Energy	None	07/16/13	Continue until canceled by either party by 30 days prior written notice to the other party.	RL SES
Benton County	Document areas of cooperation between the parties in the planning for and response to emergencies at the Hanford Site.	Benton County Emergency Management	None	11/28/11	Continue until canceled by either party by written notice to the other.	RL SES
Franklin County	Document areas of cooperation between the parties in the planning for and response to emergencies at the Hanford Site.	Franklin County Emergency Management	None	12/28/11	Continue until canceled by either party by written notice to the other.	RL SES
Grant County	Document areas of cooperation between the parties in the planning for and response to emergencies at the Hanford Site.	Grant County Emergency Management	None	12/28/11	Continue until canceled by either party by written notice to the other.	RL SES
Energy Northwest	Document areas of cooperation between the parties in the planning for and response to emergencies at the Hanford Site.	Energy Northwest Emergency Preparedness	The specific areas of assistance will be provided based upon availability, and are limited to those emergency actions necessary to protect onsite personnel, the public health and safety, and the environment in the event of a major emergency at the Hanford Site or Energy Northwest.	05/07/07	Continue until canceled by either of the parties upon 60 days written notice to the other party.	RL SES
AREVA NP, Inc.	Establishes means by which RL can assist AREVA NP through use of RL facilities during an emergency at the AREVA NP plant in Richland, Washington	AREVA NP	Emergencies affecting the Hanford Site or Hanford facilities take precedence over all other uses of the RL facilities.	05/06/11	Continue until canceled by either of the parties upon 30 days written notice to the other party.	RL SES

[10] Permit requirement: Table 3-1, Class 1 Modification 6/30/14

PARTIES	SERVICES/AREAS OF COPERATION	POINTS OF CONTACT	CONSTRAINTS	DATE	EXPIRATION DATE	WHERE ON FILE
Lourdes Medical Center (Lourdes) Pasco, Washington	Significantly injured, contaminated persons will be admitted to facility for appropriate medical care.	Lourdes Administrator	Lourdes will be limited to activities performed at the hospital.	05/07/07	Continue until canceled by either of the parties upon 30 days written notice to the other party.	RL SES
Kadlec Medical Center (KMC) Richland, Washington	Significantly injured, contaminated persons will be admitted to facility for appropriate medical care.	KMC Administrator	KMC will be limited to activities performed at the hospital.	05/07/07	Continue until canceled by either of the parties upon 30 days written notice to the other party.	RL SES
Kennewick General Hospital (KGH) Kennewick, Washington	Significantly injured, contaminated persons will be admitted to facility for appropriate medical care.	KGH Administrator	KGH will be limited to activities performed at the hospital.	05/07/07	Continue until canceled by either of the parties upon 30 days written notice to the other party.	RL SES
Tri-County Mutual Aid Agreement	Provide mutual aid to parties hereto desire to augment the fire and emergency medical protection available in their establishments, districts, agencies, and municipalities in the event of large fires or conflagrations or other disaster.	Hanford Fire Department	Assistance under the agreement is not mandatory.	02/05/98	Remain in full force and effect until canceled by mutual agreement of the parties hereto or by written notice by one party to the other party giving ten days notice of said cancellation.	Hanford Fire Department
Richland Police Department	Mutual law enforcement assistance.	Richland Police Department	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	04/02/09	Indefinite duration.	RL SES
West Richland Police Department	Mutual law enforcement assistance.	West Richland Police Department	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	04/02/09	Indefinite duration.	RL SES
Kennewick Police Department	Mutual law enforcement assistance.	Kennewick Police Department	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	04/27/09	Indefinite duration.	RL SES
Benton County Sheriff	Mutual law enforcement assistance.	Benton County Sheriff	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	04/03/09	Indefinite duration.	RL SES

PARTIES	SERVICES/AREAS OF COPERATION	POINTS OF CONTACT	CONSTRAINTS	DATE	EXPIRATION DATE	WHERE ON FILE
Franklin County Sheriff	Mutual law enforcement assistance.	Franklin County Sheriff	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	04/07/09	Indefinite duration.	RL SES
Washington State Patrol	Mutual law enforcement assistance.	Washington State Patrol	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	04/29/09	Indefinite duration.	RL SES
Adams County Sheriff	Mutual law enforcement assistance.	Adams County Sheriff	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	04/07/09	Indefinite duration.	RL SES
Grant County Sheriff	Mutual law enforcement assistance.	Grant County Sheriff	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	04/06/09	Indefinite duration.	RL SES
Yakima County Sheriff	Mutual law enforcement assistance.	Yakima County Sheriff	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	04/07/09	Indefinite duration.	RL SES
Pasco Police Department	Mutual law enforcement assistance.	Pasco Police Department	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	04/03/09	Indefinite duration.	RL SES
U.S. Fish and Wildlife Service (FWS) and Mid-Columbia River National Wildlife Refuge Complex (NWRC)	Mutual law enforcement assistance.	FWS and NWRC	Agreement strictly for internal management purposes. It is not legally enforceable and not to create legal obligation.	07/28/09	Indefinite unless terminated upon 30 days written notice by either party to the other party.	RL SES
Washington Department of Fish and Wildlife (WDFW)	Mutual law enforcement assistance.	WDFW	Agreement strictly for internal management purposes. It is not legally enforceable and not to create legal obligation.	04/28/09	Indefinite unless terminated upon 30 days written notice by either party to the other party.	RL SES

4.0 EVENT CATEGORIZATION, CLASSIFICATION, AND OTHER DETERMINATIONS

Categorization and classification of events are crucial to ensuring that appropriate notifications and response actions are promptly initiated. Event categorization and classification criteria are developed and maintained to include events that require similar actions. The spectrum of actions triggered by categorization range from management activities that are not required to be initialized until after an event is closed out (i.e., occurrence reporting), to full activation of onsite and offsite emergency response organizations.

At the Hanford Site, six event categories are used to meet the requirements of DOE Orders. The six event categories are: Operational Emergency, Significance Category 1, Significance Category R, Significance Category 2, Significance Category 3, and Significance Category 4. Depending on the severity, an Operational Emergency may further be classified as an Alert, Site Area Emergency, or General Emergency.

In addition to categorization and classification, state and Federal regulations and mutual agreements between RL and state and county agencies require that events be assessed to determine if they meet RCRA contingency plan implementation criteria in order to comply with WAC-173-303-360(2)(d) requirements, or if they may generate public concern or media interest, which are termed as an Abnormal Event.

Since events may meet one or more event criteria, a sequential evaluation process prioritized according to the time urgency of the required actions is employed. This section describes the provisions that shall be established and maintained as methods to be used to recognize, categorize, and classify events in order to protect workers, the public, and the environment. The Significance Category 1, R, 2, 3, and 4 categories are used solely for occurrence reporting purposes, which are delineated in DOE O 232.2, *Occurrence Reporting and Processing of Operations Information*. Occurrence reporting is not addressed in this plan.

4.1 OPERATIONAL EMERGENCY

Operational Emergencies are major unplanned or abnormal events or conditions that involve or affect facilities/activities by causing or having the potential to cause serious health and safety or environmental impacts; require resources from outside the immediate/affected facility or local event scene to supplement the initial response; and require time-urgent notifications to initiate response activities at locations beyond the event scene.

NOTE: Hanford Site response agencies (e.g., Hanford Fire Department, Hanford Patrol, etc.) are not considered to be resources from outside the immediate/affected facility or local event scene.

Operational Emergencies are divided into Base Program Operational Emergencies or Hazardous Material Operational Emergencies. Such emergencies are caused by, involve, or affect DOE facilities or activities and represent, cause, or have the potential to cause the events or conditions described in the respective subsections below. Incidents that can be controlled by employees or maintenance personnel in the immediate/affected facility or area are not Operational Emergencies. Incidents that do not pose a significant hazard to safety, health, and/or the environment and that do not require a time-urgent response are not Operational Emergencies. Initiating events that warrant categorization as Operational Emergencies shall be included in site- and facility-specific procedures.

An event must be categorized as an Operational Emergency as promptly as possible, but no later than 15 minutes after event recognition/identification/discovery by an individual with categorization/classification authority. Emergencies, once categorized, shall not be downgraded. An event determined to be an emergency will remain so until the emergency response is terminated.

RL/ORP/PNSO shall determine the criteria to be used to categorize and classify Operational Emergencies based on site-specific criteria. Additional criteria may be based on the DOE *Emergency Management Guide* (DOE 2007). Site contractors shall maintain procedures to ensure recognition and appropriate categorization and classification of emergencies.

4.1.1 Base Program Operational Emergency

A Base Program Operational Emergency shall be declared when events occur that represent a significant degradation in the level of safety at a facility and that require time-urgent response efforts from outside the facility but do not involve the release or potential release of significant quantities of radiological or nonradiological materials. Since Base Program Operational Emergencies do not involve the release of significant quantities of hazardous materials, they do not require further classification (i.e., as Alert, Site Area Emergency, or General Emergency). Such events include health and safety, environmental, security and safeguards, and hazardous biological agent or toxin.

The designated point-of contact (e.g., BED/BW, contractor single point-of-contact), with assistance from Hanford EOC Shift Office personnel, will assess event information to determine if the event should be categorized as a Base Program Operational Emergency. The criteria for categorization of a Base Program Operational Emergency are part of the Abnormal Event criteria, which is contained as a single criteria list within DOE-0223, *Emergency Plan Implementing Procedures*.

Additionally, offsite transportation events involving DOE-owned hazardous materials may be categorized as Base Program Operational Emergencies and, as such, do not require classification.

Notifications regarding Base Program Operational Emergencies shall be made in accordance with subsection 5.1.1.1 of this plan.

4.1.2 Hazardous Material Operational Emergency

If an Operational Emergency represents a specific threat to workers and the public due to the release or potential release of significant quantities of radiological and nonradiological hazardous materials, it shall be classified as either an Alert, Site Area Emergency, or General Emergency, in order of increasing severity.

For facility events, the initial event classification shall be made by the BED or IC in accordance with established procedures.

For nonfacility events (e.g., transportation events, wildland fires), the initial event classification shall be made by the Hanford EOC Shift Office.

The emergency classification shall be reviewed periodically to ensure the classification is commensurate with response activities; however, the classification shall not be downgraded until termination of the event. The criteria used to recognize and classify emergencies, called emergency action levels (EALs), are delineated in subsection 4.4. Hazardous Material Operational Emergency notification requirements are delineated in subsection 5.1.1.2 of this plan.

4.1.2.1 Alert. An Alert shall be declared when events are predicted, are in progress, or have occurred that result in one or more of the following.

(1) An actual or potential substantial degradation in the level of control over hazardous materials (radiological and nonradiological). The radiation dose from any release to the environment of radioactive material or a concentration in air of other hazardous material is expected to exceed criterion corresponding to ten percent of the applicable protective action criterion at the facility boundary; but it is not expected that the applicable protective action criterion will be exceeded at or beyond the facility boundary. (See Table 4-2 for specific protective action criterion exposure levels.)

(2) An actual or potential substantial degradation in the level of safety or security of a facility or activity that could, with further degradation, produce a Site Area Emergency or General Emergency.

Additionally, an Alert represents an event where the entire Hanford Site ERO is required to provide more than event monitoring or minimal assistance to the facility organization.

At an Alert, the Hanford Site ERO shall:

- activate the Hanford EOC and establish communications, consultation, and liaison with offsite agencies;
- initiate predetermined protective actions (e.g., evacuation, sheltering) for onsite personnel and liaison with offsite agencies for the recommendation of predetermined public protective actions;
- continuously assess pertinent information for decision makers, offsite agencies, the public, and other appropriate entities;
- conduct appropriate assessments, investigations, sampling, and monitoring;
- mitigate the severity of the occurrence or its consequences;
- prepare for other response actions should the situation become more serious, including request for appropriate DOE emergency response assets; and
- provide information to the public and the media.

4.1.2.2 Site Area Emergency. A Site Area Emergency shall be declared when events are predicted, in progress, or have occurred that result in one or more of the following situations.

(1) An actual or potential major failure of functions necessary for the protection of workers or the public. The radiation dose from any release of radioactive material or concentration in air from any release of other hazardous material is expected to be equal to or exceed the applicable protective action criterion exposure levels at or beyond the facility boundary but is not expected to be exceeded at or beyond the Hanford Site boundary. (See Table 4-2 for specific protective action criterion exposure levels. Refer to site boundary definition in subsection 1.4.2 of this plan.)

(2) Actual or potential major degradation in the level of safety or security of a facility or process that could, with further degradation, produce a General Emergency.

At a Site Area Emergency, the Hanford Site ERO shall perform the same response actions as for an Alert.

4.1.2.3 General Emergency. A General Emergency shall be declared when events are predicted, in progress, or have occurred that result in the actual or imminent catastrophic reduction of facility safety or security systems with potential for the release of large quantities of hazardous materials (radiological or nonradiological) to the environment. The radiation dose from any release of radioactive material or a concentration in air from any release of other hazardous material is expected to be equal to or exceed the applicable protective action criterion exposure levels at or beyond the Hanford Site boundary. (See Table 4-2 for specific protective action criterion exposure levels. Refer to site boundary definition in subsection 1.4.2 of this plan.)

At a General Emergency, the Hanford Site ERO shall perform the same response actions as for an Alert.

Operational Emergency notification requirements are delineated in section 5.0 of this plan.

4.2 IMPLEMENTATION OF THE RESOURCE CONSERVATION AND RECOVERY ACT CONTINGENCY PLAN[1]

Documentation to meet RCRA contingency plan requirements must be prepared by certain facilities conducting activities regulated under WAC-173-303 (Washington Dangerous Waste Regulations) in accordance with subsection 1.1. These requirements are incorporated into the Hanford Site's overall emergency planning documentation. Therefore, there is not a specific document titled "contingency plan."

For a facility event, the BED/BW shall determine whether the requirements of WAC-173-303-360(2)(d) were met based upon an evaluation and assessment in consultation with their respective site contractor environmental single point-of-contact.

The BED/BW ensures that trained personnel identify the character, source, amount, and areal extent of the release, fire, or explosion to the extent possible. Identification of waste can be made by activities that can include, but are not limited to, visual inspection of involved containers, sampling activities in the field, reference to inventory records, or by consulting with facility personnel. Samples of materials involved in an emergency might be taken by qualified personnel and analyzed as appropriate. These activities must be performed with a sense of immediacy and shall include available information.

The BED/BW shall use the following guidelines to determine if an event has met the requirements of WAC-173-303-360(2)(d):

(1) The event involved an unplanned spill, release, fire, or explosion;

AND

(2a) The unplanned spill or release involved a dangerous waste, or the material involved became a dangerous waste as a result of the event (e.g., product that is not recoverable),

or

(2b) The unplanned fire or explosion occurred at a facility or transportation activity subject to RCRA contingency plan requirements;

[1] Permit requirement: Subsection 4.2, Class 1 Modification 3/31/01

AND

(3) Time-urgent response from an emergency services organization was required to mitigate the event, or a threat to human health or the environment exists.

As soon as possible, after stabilizing event conditions, the BED/BW shall determine, in consultation with the respective site contractor environmental single point-of-contact, if notification to Ecology is needed to meet WAC-173-303-360(2)(d) reporting requirements. If all of the conditions under 1, 2, and 3 are met, notifications are to be made to Ecology. The notification process is delineated in subsection 5.1.2.1. Operational Emergency notifications described in subsection 5.1.1 may also be required as determined on a case-by-case basis by the BED/BW.

If review of all available information does not yield a definitive assessment of the danger posed by the incident, a worst-case condition will be presumed and appropriate protective actions and notifications will be initiated. The BED/BW is responsible for initiating any protective actions based on their best judgment of the incident.

For transportation events on the Hanford Site that are outside of established facility boundaries, it is the responsibility of the Incident Command Organization staff to contact the respective site contractor environmental single point-of-contact for the contractor that initiated the shipment. Transportation incidents do not include events involving passenger vehicles, whether government or privately owned. Based on the event information received from the Incident Command Organization staff and application of the three criteria above, the respective site contractor environmental single point-of-contact shall make the determination whether the requirements of WAC-173-303-360(2)(d) are met. If reporting requirements are met, notifications delineated in subsection 5.1.2.1 shall be performed. Operational Emergency notifications described in subsection 5.1.1 may also be required and are determined on a case-by-case basis by the Incident Command Organization staff.

4.3 ABNORMAL EVENT

There are a variety of events or situations that may occur on the Hanford Site that, while not creating or indicating an emergency condition, may generate public concern or media interest. Local, state, and tribal agencies need timely information regarding these events in order to reassure the public that these situations do not threaten their health or safety.

RL will work with offsite agencies to maintain criteria that will be used to identify these situations, termed Abnormal Event. The criteria will include those events as mutually agreed to by RL/ORP/PNSO and the offsite agencies. Furthermore, any incident categorized as an Operational Emergency, but not further classified as an Alert, Site Area Emergency, or General Emergency, will automatically trigger notifications to offsite agencies as an Abnormal Event. RL/ORP/PNSO will further communicate criteria changes to the site contractors upon acceptance by RL/ORP/PNSO and the offsite agencies.

In addition, it is possible to have transitory events where the EAL criteria were met at some point in the past but no longer exist when the event is reviewed for classification purposes. Such events do not pose a threat to workers or the public since there is no release of hazardous materials, but may generate public concern or media interest and, as such, will be reported under the Abnormal Event criteria.

4.4 EMERGENCY ACTION LEVELS

The EALs are specific, predetermined, observable criteria used to detect, recognize, and determine the classification of Hazardous Material Operational Emergencies identified by the EPHA. The EALs are typically identified as either event-based or symptom-based. The distinction arises from the available methods of detecting and recognizing the initiating conditions of the event. The development of symptom-based EALs is the preferred approach recognizing that there may be some initiating conditions that require an event-based approach. Initiating conditions must be identified specifically in EAL procedures and must be observable and recognizable in a timely manner by responsible personnel.

Facility-specific and nonfacility (e.g., onsite transportation incident, wildland fire, etc.) EALs shall be developed for the spectrum of potential Hazardous Material Operational Emergencies identified by the EPHA and must include protective actions corresponding to each EAL. Additional guidance for developing EALs can be found in the DOE *Emergency Management Guide* (DOE 2007) regarding EPHA and event classification.

The definitions delineated in Table 4-1, used in conjunction with Table 4-2, depict the criteria used at the Hanford Site to classify Hazardous Material Operational Emergency events. The BED/IC or Hanford EOC Shift Office (for nonfacility events) is responsible for making initial classification of emergency events in accordance with RL/ORP/PNSO and site contractor procedures.

Event classification using EALs also forms the basis for notification and participation of offsite organizations and for determining what and when protective actions will be implemented. As such, EALs and related information must be consistent and integrated with the emergency plans and procedures of offsite Federal, tribal, state, and local organizations and should be reviewed annually, as appropriate by all parties involved in response activities.

> NOTE: It is possible when comparing event indications to an EAL set to discover that the EAL criteria were previously met, but those conditions no longer exist. If there is no threat to workers or the public then the incident may be a transitory event as delineated in subsection 4.3.

4.4.1 Symptom-Based Emergency Action Levels

Symptom-based EALs are dependent on one or more observable conditions or parameter values (i.e., symptoms) that are measurable over some continuous spectrum. The EALs should be the same indicators as those used to monitor routine facility operation. The level of severity indicated by these symptoms is directly related to the failure of or challenge to the facility's hazardous materials confinement barriers, other symptoms or events that occur simultaneously, and the ability of personnel to gain control and bring the indicator(s) back to safe levels. The resulting facility-specific EALs shall consist of specific quantified values (e.g., alarms and control instrument readings) that require no additional interpretation by the user. By comparing the observed value to the EALs in event classification procedures, the correct Hazardous Material Operational Emergency class can be readily determined.

4.4.2 Event-Based Emergency Action Levels

Event-based EALs address the occurrence of discrete events with potential safety significance. The level of severity is determined by the degree to which hazardous material confinement barriers are either failed or challenged as a result of the event, and the ability of personnel to gain control of the situation. Event classification requires the interpretation of one or more qualitative conditions or discrete observable indicators to determine if the existing situation matches the descriptions contained in the event classification procedure.

4.4.3 Use of Emergency Action Levels

On determination that an event has occurred at or affecting a Hanford Site facility, the BED/IC or Hanford EOC Shift Office (for nonfacility events) shall promptly assess the conditions, compare the indications to the EAL set, and determine the appropriate Hazardous Material Operational Emergency classification. Then, immediate protective and mitigative actions, activation of the emergency response organization, and appropriate notifications are carried out.

The Hanford EOC is responsible for ensuring that the emergency has been classified appropriately by the BED/IC or Hanford EOC Shift Office (for nonfacility events) by reviewing the appropriate EAL to determine that the correct emergency classification has been selected.

Table 4-1

Summary of Hazardous Material Operational Emergency Classifications

OPERATIONAL EMERGENCY CLASSIFICATION	FACILITY OR PROCESS EVENT	ONSITE TRANSPORTATION EVENT
Alert	Actual or potential substantial degradation of level of control over hazardous material (radiological or nonradiological). Releases are not expected to exceed applicable protective action criterion levels at or beyond the facility boundary (see Table 4-2). OR Actual or potential substantial degradation in the level of safety or security that could, with further degradation, produce a Site Area Emergency or General Emergency.	Actual or potential substantial degradation of the safety of the shipment. Protective actions[1] are only expected for personnel engaged in cleanup, recovery and investigation.
Site Area Emergency	Actual or potential major failures of functions necessary for the protection of workers or the public. Releases could exceed applicable protective action criterion levels onsite but not offsite (see Table 4-2). OR Actual or potential major degradation in the level of safety or security that could, with further degradation, produce a General Emergency.	Actual or potential major reduction in safety of a shipment. Protective actions are taken beyond the exclusion zone[2] onsite but not at nearest site boundary.
General Emergency	Actual or imminent catastrophic reduction of facility safety or security systems with potential for the release of large quantities of radiological or nonradiological materials to the environment. Releases reasonably expected to exceed applicable protective action criterion levels offsite (see Table 4-2).	Actual or imminent catastrophic reduction in safety of a shipment. Protective actions are recommended beyond the site boundary.

[1] Protective actions for transportation incidents will be determined by the IC based on the Emergency Response Guidebook (ERG), latest edition.

[2] The exclusion zone is defined as the immediate vicinity of the accident.

Table 4-2

Hanford Site Hazardous Material Operational Emergency Classification Criteria

ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
≥10% of PAC[1]-2 & <PAC-2 at the facility boundary[2]	≥PAC-2 at the facility boundary	≥PAC-2 at the site boundary
≥100 mrem TED[3] at the facility boundary	≥1 rem TED at the facility boundary	≥1 rem TED at the site boundary

[1] For chemicals, the Protective Action Criteria (PAC), listed in order of preference, must be used: One hour Acute Exposure Guideline Levels promulgated by the EPA; Emergency Response Planning Guidelines published by the American Industrial Hygiene Association; and Temporary Emergency Exposure Limits developed by DOE.

[2] The facility boundary is defined as a distance of 100 meters from the release point unless otherwise justified in the EPHA.

[3] The total effective dose (TED) includes the summation of the doses delivered during the early phase of the emergency from plume submersion, ground/sky shine, and inhalation (see section 2.2 of EPA 400-R-92-001). The EPHA and Authorization Basis exposure pathways and times may be different reflecting a difference in purpose of the two sets of analyses.

5.0 NOTIFICATIONS AND COMMUNICATIONS

5.1 NOTIFICATIONS

Notifications are made for events on the Hanford Site according to the event category (i.e., Operational Emergency and Significance Category); for environmental events, including those that meet the RCRA contingency plan implementation criteria; and for events that may generate public concern or media interest, termed Abnormal Events. Notifications shall be made in order of urgency with Operational Emergency (Hazardous Material Operational Emergency only) notifications performed first; Environmental notifications (including those that meet RCRA contingency plan implementation requirements) performed second; and Abnormal Event (including Base Program Operational Emergency) and Significance Category notifications performed last.

Contractors shall maintain procedures to ensure that notification and reporting requirements are made in accordance with DOE O 151.1C and DOE O 232.2, *Occurrence Reporting and Processing of Operations Information*; applicable Federal, state, or local requirements; and special agreements with offsite agencies or tribal governments.

The Significance Category occurrences are used solely for reporting versus immediate action purposes. Notifications and written reports of incidents meeting occurrence reporting criteria are made to DOE-HQ and also to offsite entities as requested. RL shall maintain a listing of offsite agencies that are to receive the occurrence reports. While occurrence reporting is not addressed in this plan, additional information regarding Significance Category reporting is delineated in DOE O 232.2. Offsite transportation events involving DOE-owned hazardous materials shall be reported in accordance with DOE O 151.1C.

RL/ORP/PNSO shall monitor the notification process to ensure notifications of applicable emergency events as necessary or appropriate.

5.1.1 Operational Emergency Notifications[1]

Prompt and accurate emergency notifications are essential to mitigating consequences and for protecting the health and safety of workers and the public. For Operational Emergencies, procedures shall be established and maintained to provide prompt initial notification to workers and emergency response personnel and organizations, including appropriate offsite agencies, under the most limiting set of conditions.

For Operational Emergencies that also meet RCRA contingency plan implementation criteria in accordance with subsection 4.2, personnel shall perform notifications in accordance with subsection 5.1.2.

5.1.1.1 Base Program Operational Emergency Notifications. Site contractors shall ensure that their designated points-of-contact (e.g., BED/BW, contractor single point-of-contact) report events that potentially meet Base Program Operational Emergency criteria to the Hanford EOC Shift Office immediately.

[1] Permit requirement: Subsection 5.1.1, Class 1 Modification 3/31/01

The designated point-of-contact, with assistance from Hanford EOC Shift Office personnel, will assess the event information to determine if the event should be categorized as a Base Program Operational Emergency. If the event meets the Base Program Operational Emergency criteria, the Hanford EOC Shift Office shall notify the DOE-HQ Operations Center within 30 minutes following categorization and the offsite agencies immediately following as part of the Abnormal Event notification delineated in subsection 5.1.3.

The same notification requirements apply to offsite transportation events involving DOE-owned hazardous materials. The Hanford EOC Shift Office shall determine event categorization and initiate the required notifications.

Criteria for determining Base Program Operational Emergencies are delineated in subsection 4.1.1 of this plan.

5.1.1.2 Hazardous Material Operational Emergency Notifications.[2] Hazardous Material Operational Emergency notifications shall be made quickly and accurately to:

- augment the site and facility operating staff with personnel in designated response roles to respond to the emergency;
- activate emergency centers;
- facilitate public notification by offsite authorities and agencies that have decision-making authority for directing protective actions (e.g., evacuation of local areas); and
- protect site and facility personnel and emergency workers through the provision of information necessary to implement accountability and protective actions such as sheltering, decontamination, and evacuation.

The Hazardous Material Operational Emergency notification process is outlined in Figure 5-1.

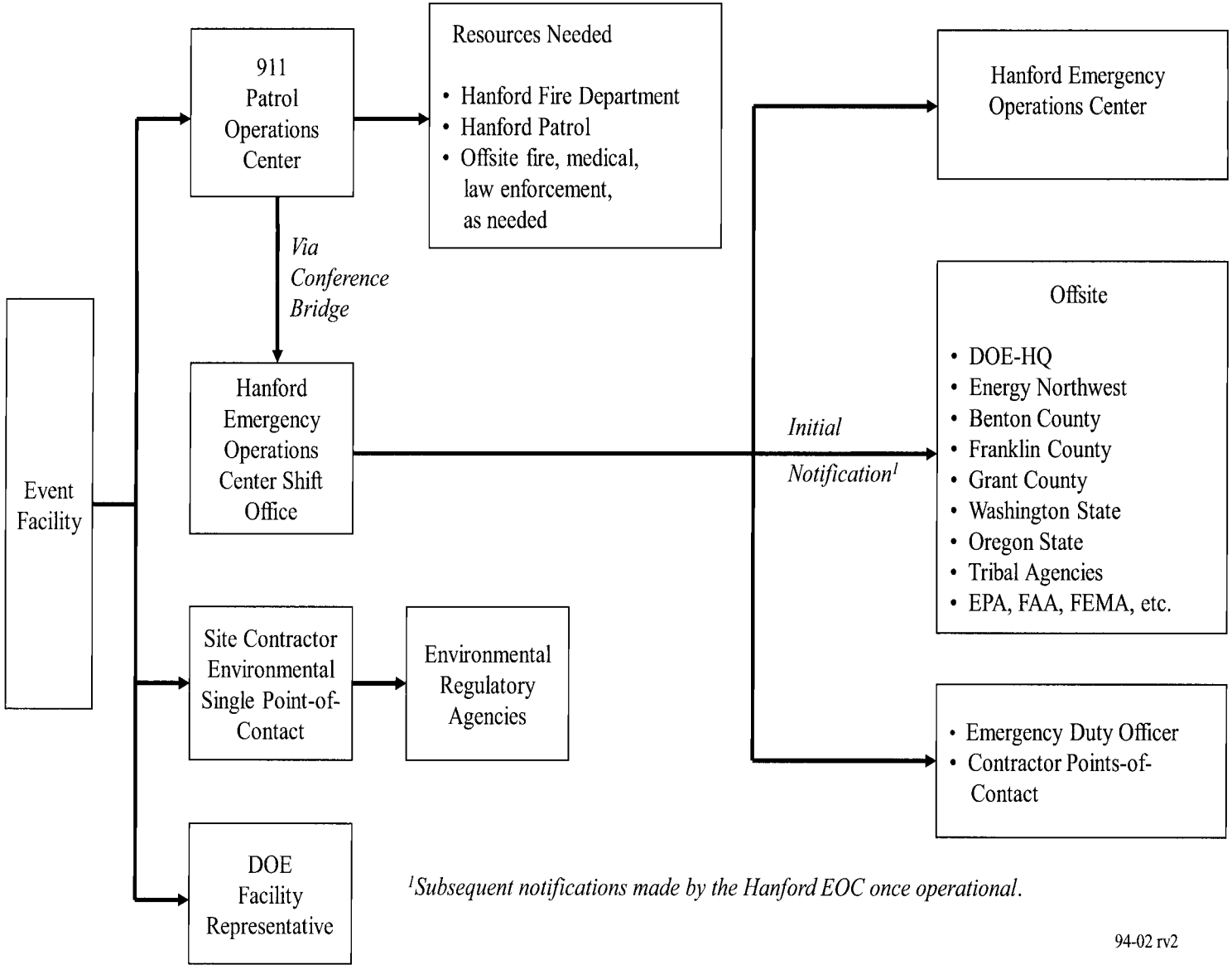
5.1.1.2.1 Initial Onsite and Offsite Notifications. The initial event classification (Alert, Site Area Emergency, or General Emergency per criteria delineated in subsections 4.1.2.1, 4.1.2.2, and 4.1.2.3 respectively) shall be made by the BED/IC or Hanford EOC Shift Office (for nonfacility events) in accordance with established procedures.

The BED/IC or Hanford EOC Shift Office (for nonfacility events) shall initiate immediate notifications via the 911 emergency number to request emergency response assistance and activate applicable components of the Hanford Site Emergency Alerting System, which will provide additional onsite notifications and activate the Hanford EOC. The BED/IC shall also notify onsite personnel within their geographic area of responsibility via facility sirens or plant telephone so that they can take appropriate protective actions.

Additionally, the BED/IC is responsible for ensuring that pertinent information is provided to the Hanford EOC Shift Office, in accordance with established procedures, in order to complete the Hanford Emergency Notification Form (Figure 5-2) and make offsite notifications.

[2] Permit requirement: Subsection 5.1.1.2, Class 1 Modification 9/30/99

Figure 5-1
Hazardous Material Operational Emergency Notifications



[1]*Subsequent notifications made by the Hanford EOC once operational.*

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Figure 5-2

Hanford Emergency Notification Form

RL-F-5540.1
(REV 4)
(09/12)

U.S. DEPARTMENT OF ENERGY
HANFORD EMERGENCY NOTIFICATION FORM

No. _____

1 NOTIFICATION PROVIDED BY: Name: _____ Phone: (509) _____

2 AREA AND FACILITY: _____ 3 TYPE EVENT: a. ☐ Emergency b. ☐ Exercise/Drill

4 CLASSIFICATION/STATUS: a. ☐ Initial Classification b. ☐ Reclassification c. ☐ Correction
d. ☐ PAR Change/Addition e. ☐ Information f. ☐ Termination

5 EMERGENCY CLASSIFICATION LEVEL AND OFFSITE PROTECTIVE ACTION RECOMMENDATIONS:

AREA	a. ☐ ALERT	b. ☐ SITE AREA EMERGENCY	c. ☐ GENERAL EMERGENCY
☐ 100K	None	Evacuate Columbia River from Vernita Bridge to White Bluffs Ferry Landing.	• Evacuate Columbia River from Vernita Bridge to White Bluffs Ferry Landing. • Evacuate Section 5, east of Hwy. 24.
☐ 200E	None	None	• Evacuate Columbia River from Vernita Bridge to Leslie Groves Park. • Evacuate Sections 5, 6, and 7.
☐ 200W[1]	None	None	None
☐ 200W[2]	None	Evacuate Columbia River from Vernita Bridge to White Bluffs Ferry Landing.	• Evacuate Columbia River from Vernita Bridge to White Bluffs Ferry Landing. • Evacuate Sections 5 and 7.
☐ 300	None	Evacuate Columbia River from White Bluffs Ferry Landing to Leslie Groves Park.	• Evacuate Columbia River from White Bluffs Ferry Landing to Leslie Groves Park. • Evacuate 2.2 mile radius.
☐ Other	None	None	Evacuate Columbia River from Vernita Bridge to Leslie Groves Park.

[1]For emergencies at U Plant, REDOX, 222-S, 224-T, 283W, or 200W Tank Farms
[2]For emergencies at PFP, LLBG, CWC, T Plant, or WRAP.

6 TYPE OF INCIDENT:

a. Security Incident Yes ☐ No ☐

EAL No.: DOE-0223, RLEP 1.0, Appendix 1- _____ Table _____

Description of Incident: _____

7 RELEASE TO THE OUTSIDE ENVIRONMENT INFORMATION:

a. ☐ No Release (No indicators)
b. ☐ Unknown (Indicators of possible release, but not confirmed)
c. ☐ Confirmed Release (Visible or instrument indication of hazardous release)
- Estimated Start Time of Release: _____
☐ Airborne ☐ Spill ☐ to Columbia River
d. ☐ Release Terminated - Time: _____

8 METEOROLOGICAL DATA:

Wind Speed _____ mph
Wind Direction: from _____
Precipitation: ☐ Yes ☐ No
Stability Class:
A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐

9 PROGNOSIS OF SITUATION: a. ☐ Unknown b. ☐ Stable c. ☐ Escalating d. ☐ Improving

10 ADDITIONAL OFFSITE PROTECTIVE ACTION RECOMMENDATIONS:

APPROVED: _____ DATE: _____ TIME: _____

Within 15 minutes from declaration of an emergency event classified as an Alert, Site Area Emergency, or General Emergency by the BED/IC or Hanford EOC Shift Office (for nonfacility events), the Hanford EOC Shift Office shall make offsite notifications to:

- DOE-HQ Operations Center;
- Benton County, Franklin County, Grant County, Washington State, and Energy Northwest via the DOE Crash Alarm Telephone System (hot line); and
- Oregon State.

Subsequently, the Hanford EOC Shift Office shall also make onsite notifications to the:

- PNNL single point-of-contact;
- CHPRC single point-of-contact;
- WRPS single point-of-contact;
- WCH single point-of-contact;
- BNI single point-of-contact; and
- HPMC single point-of-contact.

Within 30 minutes of the event declaration, the Hanford EOC Shift Office Duty Officer shall notify, as applicable to the event, other offsite agencies that may have personnel working in remote locations of the Hanford Site (e.g., personnel at locations without alarm or siren capabilities). All other notifications shall be made as soon as practical. The Hanford EOC Shift Office shall maintain a list of agencies to be notified.

5.1.1.2.2 Reclassification Notifications. Reclassification of rapidly escalating emergencies shall be made by the BED/IC or Hanford EOC Shift Office (for nonfacility events) until the Hanford EOC is declared operational. The BED/IC shall provide immediate appropriate protective action notification to onsite personnel within their respective geographic area of responsibility and also provide notification to the POC and Hanford EOC Shift Office via the 911 emergency number regarding the reclassification. The Hanford EOC Shift Office then shall notify the offsite emergency response organizations of the event reclassification.

Upon declaration of their operability and completion of an event turnover between the IC/BED and Site Emergency Director, the Hanford EOC shall have the responsibility for reclassifying or terminating emergencies, disseminating additional protective action decisions to onsite personnel, and performing offsite notifications that include protective action recommendations.

The same offsite notification requirements listed above apply anytime an event is reclassified.

5.1.1.2.3 U.S. Department of Energy Emergency Response Assets. It is the responsibility of the Hanford EOC to forward any requests for national DOE emergency response assets to the Regional Response Coordinator. A description of each asset is delineated in subsection 3.2.1 of this plan. Response to events requiring DOE emergency assistance shall be directed to appropriate DOE-HQ elements. DOE responsibilities for emergency assistance are delineated within interagency Federal response and recovery plans, Executive Orders, and/or international agreements. Specific notifications for response to a request for radiological assistance are described in DOE/RL-92-49, *U.S. Department of Energy Radiological Assistance Program Response Plan Region 8.*

5.1.1.2.4 Reports. Following termination of emergency response, and in conjunction with the occurrence reporting process per DOE O 232.2, the facility shall submit a final report on the emergency to the Occurrence Reporting and Processing System. The respective RL/ORP/PNSO Manager shall designate a lead evaluator to conduct an evaluation and submit a final report on the emergency response. Upon approval by the respective RL/ORP/PNSO Manager, the final report shall be submitted to the DOE-HQ Director, Office of Emergency Operations.

All reports and releases shall be reviewed for classified or unclassified controlled information (e.g., Unclassified Controlled Nuclear Information) prior to being provided to personnel not authorized access to such information, entered into data bases not authorized for such information, or transmitted using non-secure communications equipment.

5.1.1.3 DOE-HQ Operations Center Emergency Notification Information. At a minimum, emergency notification to the DOE-HQ Operations Center shall consist of a phone call providing as much information as is known at the time. The same information shall be provided by e-mail or a fax either immediately prior to or following the phone call. Information for initial notification includes as much as possible of the following:

- that an Operational Emergency has been declared and, if appropriate the classification of the emergency;
- the description of the emergency;
- the date and time the emergency was discovered;
- the damage and casualties;
- whether the emergency has stopped other facility/site operations or program activities;
- the protective actions taken and/or recommended;
- the notifications made;
- the weather conditions at the scene of the emergency;
- the level of any media interest at the Hanford Site; and
- Hanford point-of-contact information.

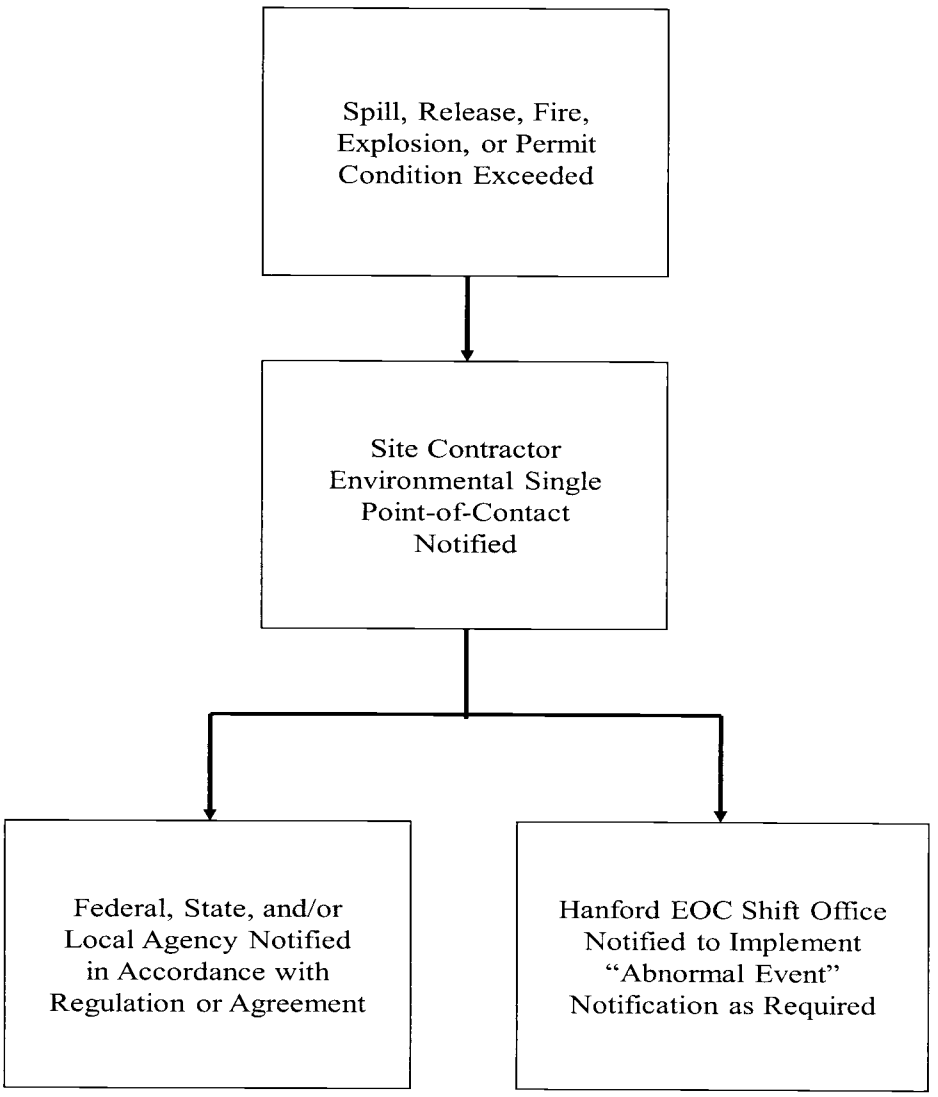
5.1.2 Environmental Notifications[3]

There are numerous environmental notifications that must be made including those that meet the RCRA contingency plan implementation requirements. These notifications are made either verbally or in writing, dependent on the event type. In many cases, notification requirements are based upon the quantity and location of a spill or release.

Site contractors shall maintain procedures to ensure implementation of environmental notifications in accordance with Federal, state or local requirements and agreements. Since events relating to spills or releases usually do not meet criteria for a DOE Order classifiable emergency (i.e., Alert, Site Area Emergency, or General Emergency), contractors must ensure that environmental notification procedures are consistent with the environmental notification process depicted in Figure 5-3.

[3] Permit requirement: Subsection 5.1.2, Class 1 Modification 3/31/01

Figure 5-3



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5.1.2.1 Initial/Verbal Notifications.[4] For any incident which involves a spill, release, fire, explosion, or environmental permit exceedence, the respective site contractor environmental single point-of-contact shall be notified to determine applicability of requirements and perform appropriate environmental notifications. The respective site contractor environmental single point-of-contact shall notify the appropriate Federal, state and/or local agencies. Additionally, the Hanford EOC Shift Office shall be notified in order to determine if an Abnormal Event notification is also required as delineated in subsection 5.1.3.

5.1.2.2 Written Reports.[5] The respective site contractor shall develop any necessary written reports and submit to RL/ORP/PNSO for review and concurrence. Written reports shall be submitted to the appropriate Federal, state or local agencies within the required time frames.

5.1.2.3 Resumption of Operations.[6] The respective site contractor environmental single point-of-contact shall notify the appropriate Federal, state and/or local agencies that the facility is in compliance with cleanup activities described in subsection 9.2.3 before operations are resumed.

5.1.3 Abnormal Event Notifications

There are a variety of events or situations that may occur on the Hanford Site that, while not creating or indicating an emergency condition, may generate public concern or media interest. Local, state and tribal entities need timely information on these events in order to reassure the public that these situations do not threaten their health or safety.

RL shall maintain a process to advise offsite entities of situations - termed Abnormal Event - which may generate public concern or media interest. RL will work with appropriate offsite entities to maintain the criteria to be used to initiate the Abnormal Event notifications, the notification procedure, and a list of entities to be notified. Additionally, RL shall notify the site contractors when criteria change. The Abnormal Event notification process is further delineated in DOE-0223, *Emergency Plan Implementing Procedures*.

Site contractors are responsible to ensure that events meeting the Abnormal Event notification criteria at their respective facilities are promptly reported to the Hanford EOC Shift Office. The Hanford EOC Shift Office will initiate Abnormal Event notifications when notified of a situation which meets the agreed upon criteria. Additionally, offsite agencies will notify the Hanford EOC Shift Office if public or media inquiries indicate the need to initiate notifications.

5.2 COMMUNICATIONS

Effective communications methods shall be established between event scene responders, emergency managers, and response facilities. Provisions shall also be established for continuing effective communication (i.e., back up means of communication) among the response organizations throughout an emergency. To minimize the potential for confusion in disseminating information, the simplest, most direct system for communications should be established.

The communications system shall provide for designated point(s) of contact for receipt of notifications; compatibility with other Federal, tribal, state, and local response organizations; and rapid dissemination of information received to provide for timely and effective response actions.

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[4] Permit requirement: Subsection 5.1.2.1, Class 1 Modification 12/31/12

[5] Permit requirement: Subsection 5.1.2.2, Class 1 Modification 12/31/08

[6] Permit requirement: Subsection 5.1.2.3, Class 1 Modification 9/30/99

5.2.1 Telephone Number 911[7]

The Hanford Site emergency number for requesting emergency response is 911. This number shall be monitored and recorded at all times by the Hanford Patrol at the POC. The 911 emergency number shall be called when emergency conditions exist that requires responses from the Hanford Patrol or Hanford Fire (including ambulance or the Hazardous Materials Response Team), or whenever there is any doubt as to the conditions present.

Where cellular telephone is the only method of communication, onsite emergency response may be requested by calling the POC at 373-0911.

5.2.2 Telephone Number 373-3800

This is the 24-hour business telephone number for the POC. The 24-hour emergency telephone number at the POC to obtain assistance with offsite transportation events involving DOE-owned hazardous materials shipments is 1-888-766-0771.

5.2.3 Telephone Number 376-2900

This is the Hanford Site telephone number for reporting occurrences to the Hanford EOC Shift Office in accordance with occurrence reporting requirements. This number shall be monitored at all times by Hanford EOC Shift Office personnel.

5.2.4 Site Contractor Environmental Single Point-Of-Contact

Each site contractor shall maintain a communications mechanism (e.g., telephones, pagers) in order to perform the notifications described in subsection 5.1.2.1.

5.2.5 Hanford Site Emergency Alerting System

The Hanford Site Emergency Alerting System integrates automated notification components into an overall site-wide notification system. The intent of the Hanford Site Emergency Alerting System is to provide a means to contact personnel on the site regardless of their location using the communication components listed below.

Outdoor warning sirens may be activated to communicate area-wide protective actions to persons that may be located outdoors. When sirens are activated, an announcement will be made providing verbal instructions followed by a wavering siren for take cover or a steady siren for evacuation.

Message reader boards located at various locations around the Hanford Site may be used to notify personnel traveling on the site of an emergency condition or extraordinary hazardous weather condition, and will instruct commuters to tune to radio station 530 AM for further detailed instructions.

The 530 AM radio station may be used to communicate emergency information to those that may be traveling onto the Hanford Site. The radio station will be used in conjunction with the reader boards to disseminate emergency information at each of the major exit and egress areas of the site.

Computer emergency messaging may be used to provide emergency notification to site workers via personal computer work stations connected to the Hanford Local Area Network.

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[7] Permit requirement: Subsection 5.2.1, Class 1 Modification 6/30/10

The telephone notification system may be used to notify individual employees, via a recorded message on personal work telephones, regarding event information and actions employees are expected to take. This system is designed to provide notification to employees who may be indoors, but away from a computer work station. Furthermore, the telephone notification system may also be used to notify Hanford EOC response personnel by calling work or home telephones.

Tone alert radios may be used to notify workers assigned to remote locations on the Hanford Site where telephones or computers are not available.

Hanford Site pagers may provide notification to personnel who have been assigned to an associated group page for the Hanford Site area that is affected by the emergency event. This system may also be used to inform personnel with associated group pagers whose work requires routine travel between areas or those who may be working in remote locations that may be affected by the event.

While not a component of the automated Hanford Site Emergency Alerting System, two-way commercial radios may be used to receive an emergency event notification tone, which will be followed by an emergency message providing protective action information, simultaneously across the Hanford Site. Typically, these radios will be used by site employees working outdoors in remote locations.

5.2.6 General Delivery Computer Message

General delivery messages may be used to disseminate information to Hanford Site employees via personal computer work stations connected to the Hanford Local Area Network. General delivery messages are also sent to DOE and site contractor communications departments that are not connected to the Hanford Local Area Network.

5.2.7 Radios

Multiple radio systems and frequencies are available for emergency communications. A repeater station provides site-wide communications capability.

Radio transmissions, as well as mobile telephone communications, are conducted over frequencies monitored not only by Hanford Site personnel, but also by the general public. Extra precautions shall be taken to prevent communication of sensitive information during regular and emergency communications (such as names and speculative information).

5.2.8 Incident Command Post Communications

The ICP shall have communications to facilities outside of the affected event scene. Methods of communication include the use of:

- commercial telephone (adjacent buildings should be identified where commercial telephones are available);
- cellular telephone; and
- portable and/or fixed radio with capability to transmit on the Hanford Site safety network, Hanford Patrol, or Hanford Fire frequencies.

5.2.9 Hanford Emergency Operations Center Communications

The Hanford EOC shall have appropriate methods of communications including backup communications. These may include:

- commercial telephone;
- cellular telephone; and
- portable and/or fixed radio with capability to transmit on the Hanford Site safety network, Hanford Patrol, or Hanford Fire frequencies.

Additionally, the following two dedicated networks will be maintained.

- The DOE Crash Alarm Telephone System which establishes a conference bridge with:
  - Energy Northwest;
  - Benton County;
  - Franklin County;
  - Grant County;
  - Washington State;
  - Oregon State;
  - Hanford POC;
  - Hanford EOC Shift Office; and
  - Hanford EOC.

  NOTE: This system will be used by the Hanford EOC Shift Office to make initial notifications of emergency classification and PARs, and by the Hanford EOC to make subsequent notifications of emergency classifications or reclassification, PARs, and emergency termination.
- The ERO Communications Line that establishes a conference bridge and is the primary method to communicate event information between the Hanford EOC and the ICP.

5.2.10 Secure Communications

Secure communications in the Hanford EOC shall be accomplished, as necessary, using the Station Terminal Equipment (STE) telephone system. This system enables establishment of a secure, closed network for voice communications.

5.2.11 Emergency Signals

Table 5-1 lists the standard Hanford Site emergency signals, their meanings, and normal response actions. Supplementary protective action information may be provided by use of additional Hanford Site Emergency Alerting System components such as the telephone notification system, computer emergency messaging, and tone alert radios.

Table 5-1

Standard Emergency Signals[8]

SIGNAL	MEANING	ACTIONS
Gong/electronic chime	Fire	Vacate building; proceed to staging area.
Steady tone on whistle, Klaxon horn, or siren	Area evacuation	Vacate building; proceed to evacuation staging area. Personnel in vehicles shall proceed to the nearest facility staging area and report to the staging area manager.
Wavering siren or short blasts on whistle, klaxon horn or siren	Take cover (shelter)	Proceed to shelter or stay indoors. Close all exterior doors, turn off all intake ventilation (as applicable), and notify manager of whereabouts. Personnel in vehicles shall proceed to the nearest occupied facility and report to facility management.
AH-00-GA horn (howler) or flashing blue light (in high noise areas)	Nuclear criticality	Run at least 100 feet from building; proceed to staging area.
Red light with ringing bell	Air contamination	Stop work activities; immediately exit the area; notify Radiological Control personnel.

NOTE: Supplementary protective action information may be provided as necessary by use of additional Hanford Site Emergency Alerting System components such as the telephone notification system, computer emergency messaging, and tone alert radios.

[8] Permit requirement: Table 5-1, Class 1 Modification 12/31/08

6.0 CONSEQUENCE ASSESSMENT

Initial and continuous consequence assessments are necessary to protect workers, the public, and the environment during a declared emergency. Estimates of onsite and offsite consequences of actual or potential releases of hazardous materials shall be computed and assessed in a timely manner throughout the emergency.

Consequence assessments evaluate and interpret radiological or other hazardous materials measurements or other information to provide a basis for decision-making. As such, consequence assessments shall be integrated with emergency classification and protective action decision-making; incorporated with facility and field indications and measurements; and coordinated with offsite agencies. In this context, planning includes developing and preparing postulated scenarios for onsite and offsite consequence projections for development of PARs, and identifying personnel and resources to provide an effective response.

6.1 CONSEQUENCE DETERMINATION

Provisions shall be established to adequately assess the potential or actual onsite and offsite consequences of an emergency. Hanford Site consequence assessment activities shall:

- be timely throughout the emergency;
- be integrated with the event classification and protective action process;
- incorporate monitoring of specific indicators and field measurements; and
- be coordinated with offsite agencies.

The airborne release pathway typically represents the most time-urgent situation, requiring a rapid, coordinated response.

6.1.1 Meteorological Monitoring

Representative collection of meteorological data currently is required to support environmental monitoring activities for ensuring that Hanford Site operations involving airborne releases of hazardous material comply with applicable Federal, state, and local environmental protection laws and regulations, executive orders, and internal department policies. Characterization of atmospheric transport and diffusion conditions (e.g., wind speed, wind direction, stability) in the vicinity of the Hanford Site facilities is essential for consequence assessments of airborne releases of hazardous materials. Other meteorological conditions (e.g., precipitation, temperature, and atmospheric moisture) are important to environmental surveillance activities (both routine and nonroutine) such as air concentration and ground deposition monitoring.

6.1.2 Event Scene Consequence Assessments

These assessments will be conducted at the event scene by the ICP staff. The ICP staff should continuously evaluate the environmental conditions for inhabitants of the command post and relocate the command post as necessary.

6.1.3 Area Consequence Assessments

It is necessary to evaluate the consequences of releases of radioactive and nonradioactive materials at locations beyond the immediate vicinity of the event scene. This is typically within a defined Hanford Site area (e.g., 100K, 200E, 200W, 300 Area) and includes all areas outside of the event scene and within the immediately affected area. The types of evaluations that should be conducted are those that affect the ability of operations staff to safely shutdown operational facilities and those that affect the ability of residents to take protective actions. This activity typically is performed by the UDAC for impacts to other Hanford Site populations.

6.1.4 National Atmospheric Release Advisory Center

The NARAC capacity shall be used as the backup to the primary source of consequence assessment, and as a source for corroborating or confirming consequence assessment information. Meteorological data and information on source terms for actual or potential releases of hazardous materials to the atmosphere is available to NARAC to facilitate near real-time computations.

6.2 COORDINATION OF CONSEQUENCE ASSESSMENT RESULTS

The UDAC has the primary responsibility for overall onsite and offsite consequence assessment for the Hanford Site. The UDAC staff shall continuously assess event conditions that may include:

- release source terms;
- mitigation efforts;
- onsite and offsite field team data; and
- meteorological conditions.

Modeling tools shall be used to predict the consequences of a release of hazardous materials. The results of these calculations are shared with onsite and offsite emergency responders and appropriate PARs are disseminated to affected individuals.

RL shall make provisions for representatives from Washington and Oregon to participate in the consequence assessment, field team coordination, and the offsite PAR development process.

7.0 PROTECTIVE ACTIONS AND REENTRY

An important part of the emergency management program at the Hanford Site is the planning for physical measures that may be needed to protect workers and the public from adverse health effects resulting from the release of hazardous materials. The initial response to any emergency will be to immediately protect the health and safety of persons in the immediate area. Identification of released material is essential to determine appropriate protective actions. Containment, treatment, and disposal assessment will be the secondary responses. This section describes the areas that may be impacted and the protective actions that may be needed; and ensures that reentry activities are properly and safely accomplished, and recovery and post-emergency activities commence properly.

7.1 EMERGENCY PLANNING ZONES

Emergencies at site facilities may require actions only on the Hanford Site or may affect offsite areas. The Hanford Site emergency management program uses the EPZ concept to focus emergency planning activities. The EPZs are designated areas, based upon EPHAs, in which predetermined protective actions may be required.

The extent of a planning zone is based on the distance that a particular substance could expect to be dispersed in a particular form. The two types of exposure "pathways" for both radiological and nonradiological hazardous materials are delineated below.

- Plume Exposure Pathways: Exposure to a passing cloud, or plume, of the substance resulting in direct contact of the substance with the exterior of the body or through inhalation of the substance.

- Ingestion Exposure Pathway: Dispersal of the substance to various internal organs following the ingestion (eating or drinking) of contaminated foodstuffs or water.

RL shall develop EPZs for the Hanford Site, as determined necessary by EPHAs, and submit them to affected states and counties for their use in emergency planning. Additionally, approved EPZs shall be submitted to the DOE-HQ Director, Office of Emergency Operations and the Program Secretarial Officer.

7.1.1 Plume Exposure Pathway Emergency Planning Zones

The extent of the plume exposure EPZ for radiological hazards is based upon the potential for exposure by the:

- inhalation exposure from the passing radioactive plume; and/or
- whole body external exposure to beta or gamma radiation from the plume and from deposited radioactive material.

The extent of the plume exposure EPZ for nonradiological hazardous materials is based upon the potential for exposure by:

- inhalation from the plume; and/or
- skin or eye contact with the plume.

Either of these exposure routes could dominate, depending upon the toxicological and physicochemical characteristics of the hazardous material.

The plume exposure pathway EPZ includes the area of the hazardous material spill, areas immediately surrounding the spill or release, and downwind areas projected to receive significant concentrations of hazardous materials. Plume exposure EPZs have been determined for each facility based on the radiological, nonradiological, or mixed (radiological and nonradiological) hazards. Area plume exposure EPZs (i.e., 100, 200, and 300 Areas) are determined by the largest facility EPZ in that area. The plume exposure EPZs are described in Table 7-1.

Figure 7-1 shows the plume exposure EPZs for geographical areas on the Hanford Site with potential offsite consequences.

Table 7-1

Hanford Site Area Plume Emergency Planning Zones

LOCATION	TYPE OF HAZARD DETERMINING EPZ SIZE	RADIUS OF ZONE[1]
100K Area	Radiological	8.0 kilometers/5.0 miles
200W Area	Radiological	16.0 kilometers/10.0 miles
200E Area	Radiological	5.0 kilometers/3.1 miles
300 Area	Radiological	3.5 kilometers/2.2 miles

[1]For the purposes of EPZ definition, the receptor location is defined as the south and/or west shore of the Columbia River.

7.1.2 Ingestion Exposure Pathway Emergency Planning Zone

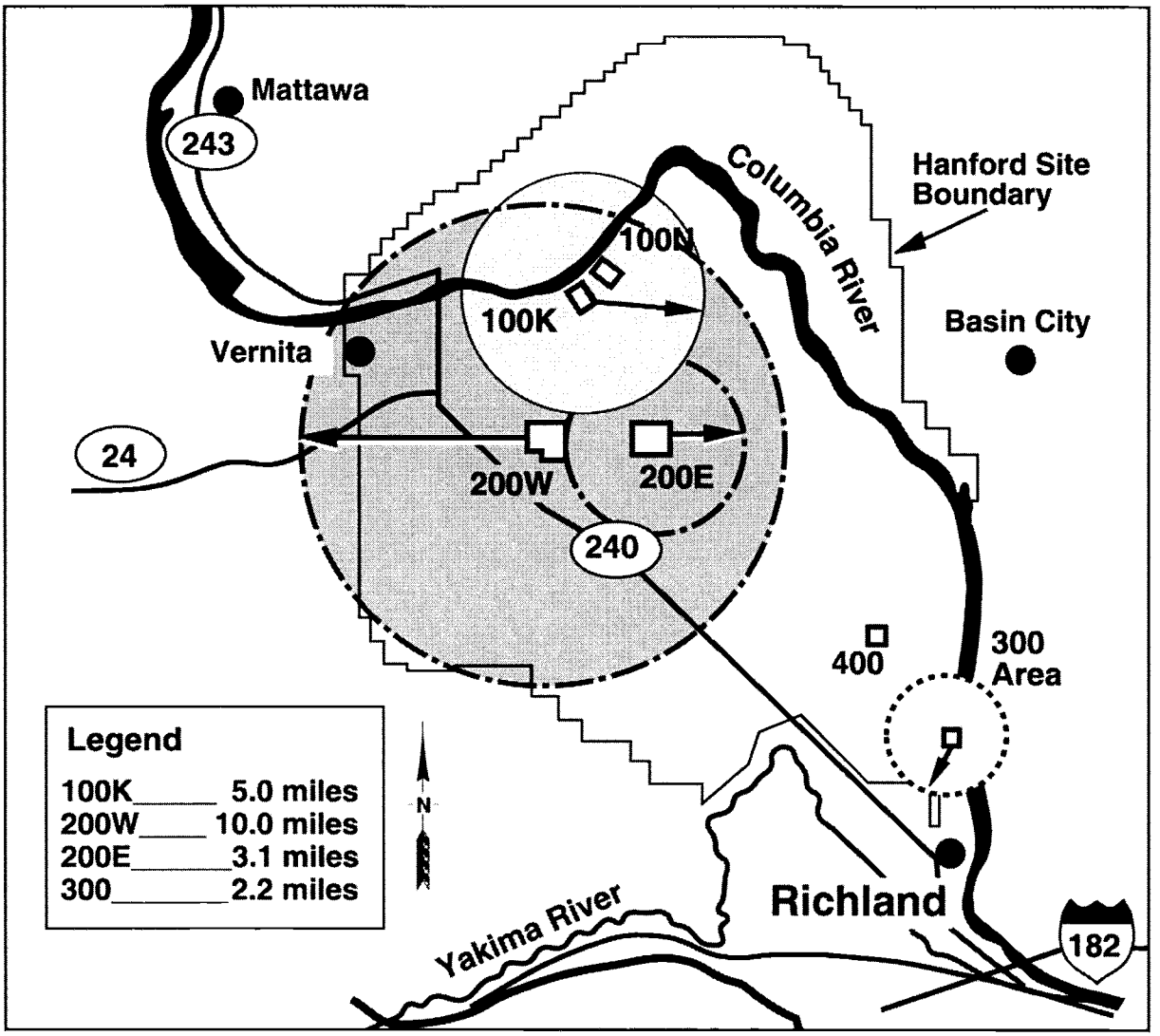
The ingestion exposure pathway EPZ for radiological and nonradiological incidents involving Hanford Site facilities corresponds to the 50-mile (80-kilometer) EPZ for Energy Northwest (Columbia Generating Station). The principal exposure from this pathway would be from ingestion of contaminated water or foods such as milk, fresh vegetables, or aquatic foodstuffs. Facility, onsite, and offsite populations may be subject to exposure through the ingestion exposure pathway. The ingestion exposure EPZ is shown on Figure 7-2.

Offsite protective actions within the ingestion exposure pathway EPZ are the responsibility of the counties and the states. The states of Washington and Oregon are responsible for developing and applying derived intervention levels for implementation of protective actions within the ingestion planning zone.

These intervention levels are based on Food and Drug Administration (FDA) guidelines and are described in respective state procedures. The intervention levels are stated in terms of concentrations of radioactivity on the ground, in the soil, and in vegetation, milk, and water, which guide emergency responders in implementation of interdiction of foodstuffs to preclude exceeding appropriate Protective Action Guidelines (PAGs).

Figure 7-1

Plume Exposure Emergency Planning Zones



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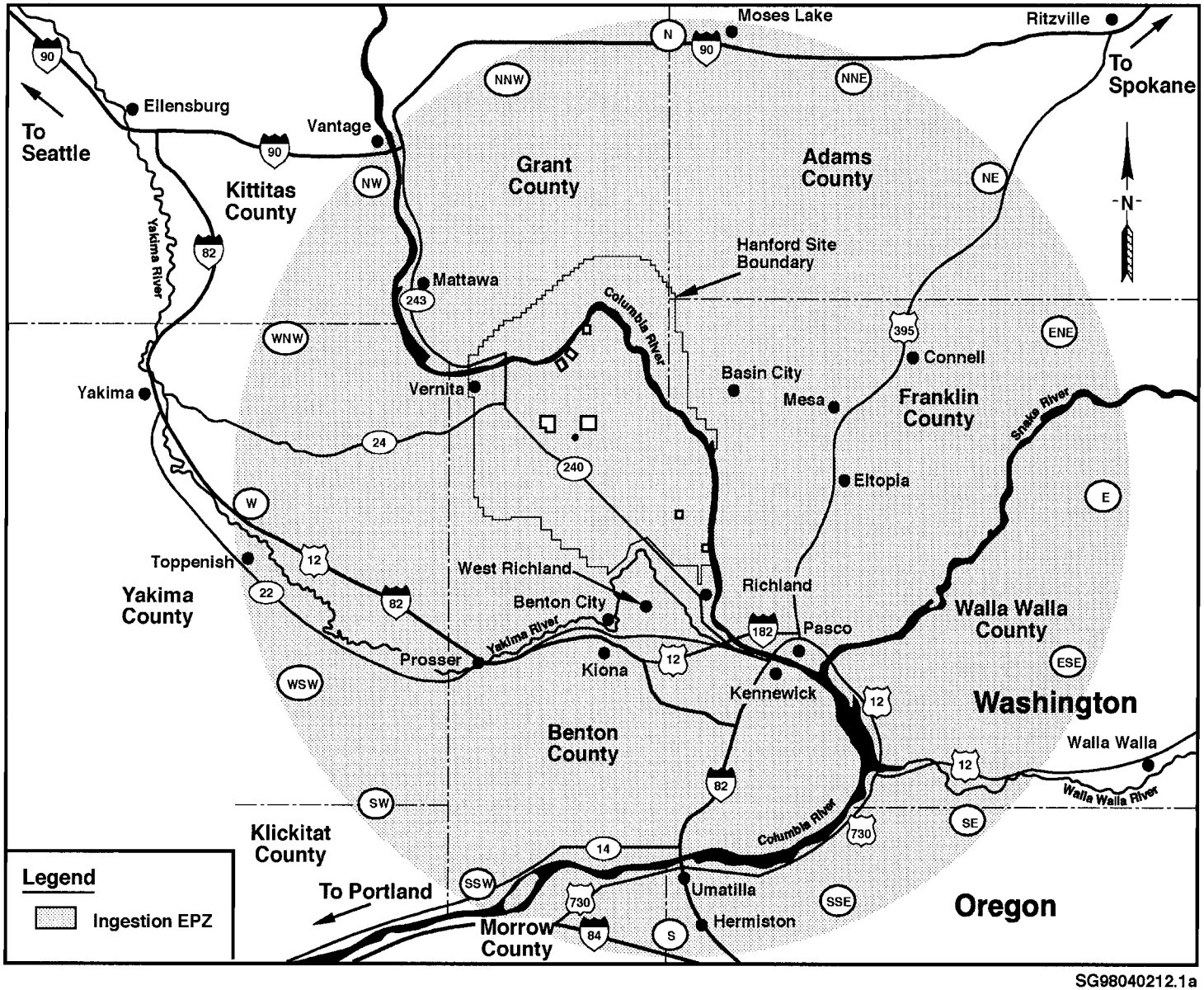

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Figure 7-2
Ingestion Exposure Emergency Planning Zone

7.2 PROTECTIVE ACTIONS

Protective actions are those actions taken to preclude or reduce the exposure of individuals to hazardous materials following an accidental release at the Hanford Site. Protective actions must be promptly and effectively implemented or recommended for implementation, as needed, to minimize the consequences of emergencies and to protect the health and safety of workers and the public. Protective actions must be implemented individually or in combination to reduce exposures to a wide range of hazardous materials. Protective actions must be reassessed throughout an emergency and modified as conditions change.

Protective actions shall be predetermined for onsite personnel and the public and shall include:

- methods for controlling, monitoring, and maintaining records of personnel exposures to hazardous materials (radiological and nonradiological);
- procedures to implement the separate protective actions of sheltering and/or evacuation of workers;
- methods for controlling access to contaminated areas and for decontaminating personnel or equipment exiting the area;
- actions to be taken to increase the effectiveness of protective actions (i.e., heating, ventilation, and air conditioning shutdown during sheltering);
- methods for providing timely protective action recommendations, such as sheltering, evacuation, relocation, and food control, to appropriate offsite agencies;
- specific protective action criteria for use in protective action decision making; and
- the administration of medications.

7.2.1 Exposure Guideline Levels for Radiological Releases

PAGs are used to determine the appropriate PAR. The RL directs the use of the PAGs adopted by the states of Washington and Oregon, which are based on the PAGs published in the Environmental Protection Agency (EPA) 400 manual, Manual of Protective Action Guides and Protective Actions For Nuclear Incidents (EPA 1992). These PAGs are intended to apply to projected doses from exposures from airborne releases of radioactive materials and subsequent depositions during the early, intermediate, and late phases of an accident. The pathways considered include external gamma and beta dose from direct exposure to airborne materials and from deposited material, and the committed dose to internal organs from inhalation of radioactive material.

The projected dose values for initiating protective actions (evacuation or sheltering) specified by the states of Washington and Oregon is 1 rem total effective dose equivalent, where the projected dose represents the sum of the effective dose equivalent resulting from exposure to external sources and the committed effective dose equivalent from all significant inhalation pathways during the early phase. The PAG values for committed dose equivalent to the thyroid and the skin are 5 and 50 times larger, respectively.

The EPA PAGs are stated in terms of committed dose. Dose incurred prior to initiation of protective action (and after the early phase of an event) normally are not included when considering whether or not to take protective actions. In other words, it is intended that the PAG values be compared to the dose that can be avoided by taking protective actions.

The PAG acronym used in this plan shall be interpreted to mean where the total effective dose equivalent of 1 rem to standard man is the sum of the effective dose equivalent from exposure to external sources and the committed effective dose equivalent from inhalation during the early phase.

Response levels corresponding to these PAGs shall be derived for the specific radionuclides, foodstuffs, and animal feeds of interest according to the FDA recommendations.

7.2.2 Exposure Guideline Levels for Nonradiological Releases

For chemicals, the protective action criteria, listed in order of preference, are used: Acute Exposure Guideline Levels (AEGLs) [using the one hour emergency exposure period] promulgated by the EPA; Emergency Response Planning Guidelines published by the American Industrial Hygiene Association; and Temporary Emergency Exposure Limits (TEELs) developed by DOE. For these criteria, the exposure level to be used represents no irreversible health effects.

To determine whether a chemical consequence exceeds the protective action criteria, the highest time-weighted average concentration predicted or measured for any 15-minute period (i.e., the maximum or peak 15-minute time-weighted average concentration) should be compared to the protective action criteria. For exposure periods of less than 15 minutes, concentrations for comparison with the guidelines may be calculated over a shorter time period (e.g., the exposure duration).

For hazardous biological materials identified in subsection 1.3.3.2 of this plan, protective action criteria are considered exceeded and immediate protective actions are required for any actual or potential release of agents or toxins outside of secondary containment barriers. Long-term protective action criteria are specified by state or local public health officials.

7.2.3 Onsite Protective Actions

7.2.3.1 Hanford Emergency Operations Center. The Hanford EOC emergency procedures shall detail response actions to be taken in order to prevent or reduce exposures.

These procedures shall include provisions for:

- emergency communications to site personnel;
- decontamination of personnel and equipment, including those evacuated from the site, as appropriate;
- determination of the contaminated area surrounding the affected facility; and
- area or site evacuation planning.

7.2.3.2 Facilities

7.2.3.2.1 General Purpose Facilities. General purpose facilities shall maintain an emergency response capability that enables them to implement appropriate protective actions when ordered and to respond to standard facility emergencies (e.g., fires).

These capabilities shall include provisions for:

- facility take cover to include shutdown, when appropriate, of heating, ventilation, and air-conditioning systems;

- facility evacuation including persons with permanent or temporary disabilities and transient personnel (i.e., persons not normally assigned to the facility);
- emergency communications to facility personnel;
- identification of potentially exposed personnel and ensuring they receive appropriate follow-up evaluation;
- predetermined facility evacuation routes, staging areas, and transportation in the event of an area or site evacuation; and
- personnel accountability per subsection 7.2.3.4.

Each employee is responsible for his/her own health and safety and for taking appropriate actions in accordance with emergency signals and/or instructions.

7.2.3.2.2 Low-hazards and Hazardous Facilities. Site contractor emergency procedures for low-hazards and hazardous facilities shall provide for the immediate actions to be taken to prevent or reduce exposures. These procedures, which are implemented by the BED/BW or IC, shall include provisions for:

- facility take cover to include shutdown, when appropriate, of heating, ventilation, and air-conditioning systems;
- facility evacuation including persons with permanent or temporary disabilities and transient personnel (i.e., persons not normally assigned to the facility);
- ensuring that facility emergency response personnel are equipped with adequate dosimetry equipment to allow for the accurate evaluation of their exposures;
- controlling and monitoring radiation and hazardous material exposures to facility emergency personnel as low as reasonably achievable (ALARA);
- emergency communications to facility personnel;
- informing the POC whenever facility take cover or evacuation sirens are activated;
- shutdown of operations or other operating actions;
- identification of essential personnel per subsection 7.2.3.2.4;
- identification of exposed and potentially exposed personnel and ensuring they receive appropriate follow-up evaluation;
- predetermined facility evacuation routes, staging areas, and transportation in the event of an area or site evacuation;
- protective equipment, monitoring, and decontamination capabilities for hazardous materials present at the facility;
- access control; and
- personnel accountability per subsection 7.2.3.4.

Each employee is responsible for his/her own health and safety and for taking appropriate actions in accordance with emergency signals and/or instructions.

7.2.3.2.3 Lockdown. The intent of a lockdown is to enable security forces to better protect special nuclear materials in the event that a security barrier has been compromised. Currently, implementation of a lockdown is only applicable to the 200 Area Interim Storage Area complex. Lockdown does not preclude implementation of protective actions. Protective actions during lockdown activities shall be coordinated between the Shift Operations Manager and security forces. If the take cover alarm sounds during a lockdown, all personnel, including security personnel without proper personal protective equipment, will move to an indoor location and a security perimeter will be established.

7.2.3.2.4 Essential Personnel. Those designated by the facility management or site contractor as the minimum number of personnel who provide necessary services or support to maintain facilities and/or equipment in a safe shutdown or operational mode. Minimum staff as delineated in a facility safety analysis report or authorization basis may be considered essential personnel.

7.2.3.2.5 Long Term/Total Facility Evacuations. Emergencies on the Hanford Site may result in long-term and total evacuation of facilities. Low-hazards and hazardous facilities shall consider preplanning for long-term and total evacuation. If the facility determines that preplanning is necessary, those actions identified shall be integrated into the appropriate facility plans and/or procedures.

7.2.3.3 Remote and Transient Locations. Site contractors shall establish processes to ensure that all employees can receive emergency messages, are accounted for, and are able to take appropriate protective actions in accordance with this plan and site-wide emergency procedures.

Special planning may be needed to meet these requirements for some select types of work, such as:

- workers that are assigned to locations where there are no fixed Hanford Site Emergency Alerting System devices or no nearby buildings that provide adequate take cover protection; or
- workers whose routine work location is transient (varies or changes periodically).

Planning must ensure that workers are aware of the specific process for their work location (i.e., how they would be notified, where they would go and who to report to) and must be maintained to account for changes in work location or other conditions that could affect the ability to take appropriate action. Contractors shall test processes established for remote locations and transient workers.

7.2.3.4 Personnel Accountability. Each facility on the Hanford Site shall provide for an evacuation accountability system commensurate with the hazards associated with the facility. The accountability shall be conducted immediately after emergency evacuation has been completed to ensure that all employees and transient personnel (i.e., persons not normally assigned to the facility) are properly accounted for.

7.2.3.5 Access Control. During an emergency, access will be controlled to impacted areas. Procedures shall be maintained to allow emergency personnel access to controlled areas as necessary. Access to the ICP or event scene requires the approval of the IC. Site contractors shall maintain access control procedures that include logging entries, providing dose assessments, and maintaining exposure records for all emergency workers.

7.2.3.6 Area or Site Take Cover. Emergency procedures/checklists shall be maintained to provide instructions for implementing an area or site take cover. These procedures/checklists shall include, as a minimum, criteria for the implementation, notification, and termination of an area or site take cover. Hanford Patrol shall be responsible for implementing initial take cover protective actions until the Hanford EOC is operational.

7.2.3.7 Area or Site Evacuation. Emergency procedures/checklists shall be maintained by Hanford Patrol and RL/ORP/PNSO to provide instructions for implementing an area or site emergency evacuation. These procedures/checklists shall include, as a minimum, criteria for establishing an evacuation plan, determining the evacuation routes (primary and alternate), notifying facilities, and coordinating and conducting the actual evacuation. Hanford Patrol shall be responsible for implementing initial evacuation protective actions until the Hanford EOC is operational.

Evacuation routes for the Hanford Site are shown in Figure 7-3. Specific routes will be determined at the time of the event based on event magnitude, location, and meteorology. Private and government vehicles are available to provide transportation in the event of an emergency evacuation. Periodic drills and exercises are performed to ensure that an adequate employee-to-vehicle ratio is maintained to provide a timely and safe evacuation of personnel.

7.2.4 Offsite Protective Actions

Initial PARs appropriate for each emergency classification have been predetermined by RL and adjacent counties. These initial, preplanned PARs, as indicated by the event classification and location, shall be included in the initial notification to offsite agencies. The determination for the need for additional PARs shall be based on consequence assessments that indicate when applicable protective action criterion may be exceeded at the Hanford Site boundary. Notifications to the state and the counties adjacent to the site are delineated in subsection 5.1.1.2.1. The notification shall include PARs as appropriate.

Immediate protective actions decisions within the plume exposure pathway are the responsibility of the appropriate county. Protective action decisions by offsite authorities within the plume EPZ may include access control, sheltering, and evacuation.

Protective action decision notification to populations within the plume EPZ is the responsibility of the counties and is primarily provided using the Emergency Alert System (EAS). Benton, Franklin, and Grant County residents within the radiological plume EPZs receive the EAS messages via tone alert radios in their homes. Persons on or along the Columbia River are alerted by sirens or boat patrols. County emergency plans and procedures address protective action decisions, public warning, evacuation routes, and assistance centers.

Protective action decisions for the ingestion exposure EPZ are the responsibility of the state. The Hanford EOC shall provide the states with hazards assessment data necessary to identify areas where persons must be relocated or where food control is necessary. The states will coordinate implementation of the protective action with the impacted counties.

Notification to populations with the ingestion EPZ shall be accomplished by affected counties and the states using the EAS, as appropriate, and news media reports. State and county emergency workers shall follow protective guidance as established by the states.

7.2.5 Protective Equipment and Supplies

Protective responses for minimizing radiological exposure and contamination include the use of protective clothing and respiratory equipment. As applicable, each site contractor shall develop procedures to identify the location, issuance and use of emergency equipment.

Additionally, HPMC shall be responsible for obtaining and approving the use of a thyroid blocking agent, such as potassium iodide, which may be used by Hanford emergency workers in the event of a release of radioiodine from Energy Northwest's Columbia Generating Station. Each site employer shall determine their need for the use of a thyroid blocking agent and, as applicable in coordination with the Site Medical Director, develop procedures for acquiring and administration of the agent during Energy Northwest events involving the need for radioiodine protection.

7.3 REENTRY

Reentry (also referred to as entry into the hot zone) is the act of reentering a facility or affected area that has been evacuated or closed to personnel access during the course of an emergency for the purpose of performing emergency activities or assessing facility damage to determine if the emergency can be terminated, and/or for determining the extent of required recovery activities. Reentry can be performed at any time before termination of the emergency and during recovery activities.

Prior to event termination, the IC shall be responsible for determining appropriate protective measures for personnel reentering the event facility or area and for authorizing entry into the hot zone to perform time-urgent actions including rescue or evacuation of personnel remaining in the incident scene hazard area and mitigation activities to protect life, environment, and property. For actions that are not time-urgent and in situations where additional facility-specific expertise is needed, the IC should confer with the BED, if available, prior to entry into the hot zone.

Reentry planning shall include contingency planning to ensure the safety of reentry personnel, such as planning for the rescue of reentry teams. All individuals involved in reentry shall receive a hazards/safety briefing prior to emergency response activities consistent with Federal, state, and local laws or regulations.

The event contractor will determine the accessibility of the site areas during and after the emergency and evaluate the advisability of reentry operations as required. Current operating records and other essential information for evaluating the emergency may be used in making these decisions.

During recovery, the Onsite Recovery Director is responsible for reentry authorization.

7.3.1 Reentry Exposure Consideration

The means shall exist for estimating exposure to hazardous materials (radiological and nonradiological) and for protecting workers and the general public from exposure during reentry and recovery activities.

The guiding principle is to minimize the risk of injury to those persons participating in the rescue and recovery activities; however, this principle must be balanced against the immediate objective of retrieving a deceased victim, protecting property, saving lives, or mitigating a secondary event.

Individuals responsible for authorizing reentry must carefully examine any proposed actions involving further hazardous or radioactive material exposure by weighing the risks of exposure, actual or potential, against its benefits. Exposure probability, the biological consequences related to dose, and the number of people exposed are the essential elements to be evaluated in making a risk determination.

Emergency situations involving the saving of lives require separate criteria than those actions required to retrieve deceased victims or to save property. The limits for radiation exposure for reentry activities shall be in accordance with contractor-specific radiological protection program documentation, which is based on 10 CFR 835.1301 requirements.

An individual whose occupational dose has exceeded the numerical value of any of the limits specified in contractor-specific radiological protection program documentation as a result of an authorized emergency exposure may be permitted to return to work in radiological areas during the current year providing that requirements of 10 CFR 835.1301 are met.

Limits for nonradiological hazardous materials will be established using the lowest limits of:

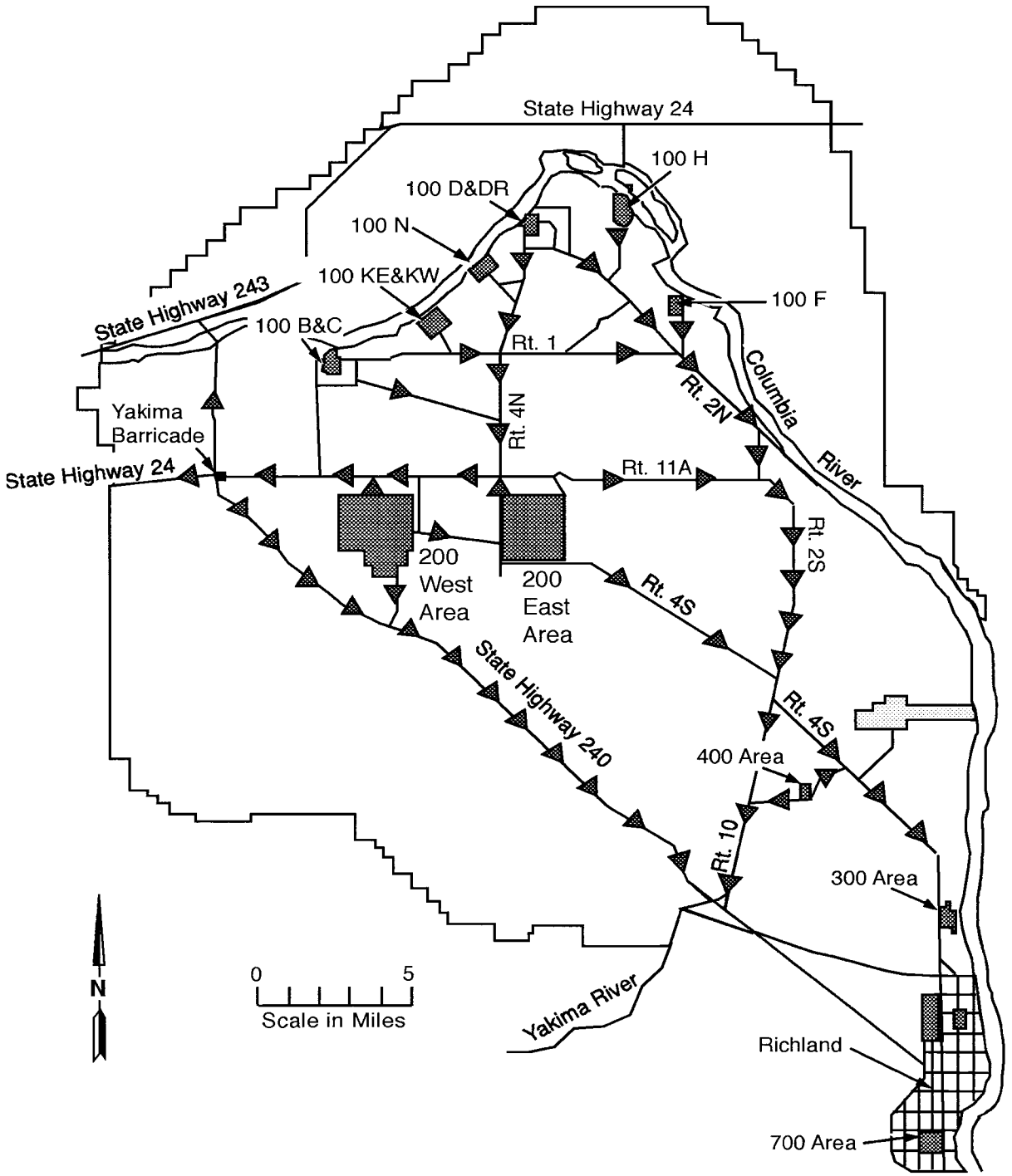
- OSHA permissible exposure limits;
- American Conference of Governmental Industrial Hygienists Threshold Limit Values; and
- specific Washington State Department of Labor and Industries permissible exposure limits mandated by RL/ORP/PNSO (e.g., asbestos).

7.3.2 Termination of Protective Actions

The relaxation or lifting of protective actions generally shall be based on facility conditions and consequence assessments. The Policy Team will decide when onsite protective actions can be modified, after consultation with the SMT. The Policy Team will provide recommendations to affected counties and states for the relaxation of offsite emergency protective actions (i.e., evacuation or sheltering within the plume EPZ). The states shall be responsible for decisions on relaxation of ingestion protective actions, based on data provided by the UDAC.

Figure 7-3

Hanford Site Evacuation Routes[1]



H97030245.30R4

[1] Permit requirement: Figure 7-3, Class 1 Modification 9/30/00

8.0 EMERGENCY MEDICAL SUPPORT

RL/ORP/PNSO shall ensure that provisions exist on the Hanford Site for emergency medical aid, triage, and decontamination, and the planning for mass casualty situations. Because of the potential for injuries to be accompanied by radiological contamination, medical support shall include documented arrangements with offsite medical facilities to accept and treat contaminated, injured personnel for emergency medical services not provided on the site. A synopsis of the MOUs with offsite medical facilities can be found in Table 3-1 of this plan.

8.1 EMERGENCY MEDICAL RESPONSIBILITIES

Medical treatment and preparation for mass casualty situations shall be planned in advance in accordance with DOE O 440.1A (or replacement directive), to include workers contaminated by hazardous material. Hanford Site organizations are authorized by RL/ORP/PNSO to provide the medical response to onsite emergencies. Their roles and responsibilities are outlined in the following subsections. Specific procedures related to each major organization involved in site emergencies are located within documentation maintained by the respective organization.

A Hanford Site medical emergency is defined as any medical incident that results in the activation of the 911 emergency response system.

A mass casualty incident is defined as a medical incident that at first overwhelms the ability of the responders and/or medical care facilities to initially provide normal levels of care to injured victims.

Sharing patient information between onsite and offsite health care providers during emergencies shall be consistent with the requirements of the Health Insurance Portability and Accountability Act of 1996 and applicable MOUs.

8.1.1 Hanford Fire Department

The Hanford Fire Department, which includes emergency medical technicians and paramedics, is the lead agency for responding to medical emergencies. In this capacity, the Hanford Fire Department is responsible for:

- operating according to the Mid-Columbia Emergency Medical Services and Trauma Council and their medical program director;
- meeting requirements including, but not limited to:
  - patient care;
  - triage at the site;
  - ambulance transport of injured or ill employees to medical facilities and, if available, arranging for air transport directly from the site in extreme medical situations; and
  - notification and activation of mutual aid assistance that may be needed during the emergency
- implementing the Hanford Incident Command System to manage and control major medical incidents;

- requesting assistance from HPMC when additional medical support is needed; and
- coordinating a temporary morgue for Hanford fatalities.

8.1.2 HPM Corporation Occupational Medical Services

The primary role of HPMC during onsite medical emergencies is to provide support to the IC as requested. In this capacity, HPMC is responsible for:

- providing medical support, treatment, and facilities (e.g., physicians, physician assistants, occupational health nurses, behavioral health clinicians, and other related medical support staff) for emergencies in support to the IC;
- providing support for the medical treatment of employees who have received internal or external contamination from radioactive, chemical, or biologic exposures;
- maintaining an appropriate supply of pharmaceuticals for use in Hanford emergencies;
- coordinating the site medical activities with the medical program director of Mid-Columbia Emergency Medical Services and Trauma, local hospitals, and other medical organizations as appropriate; and
- managing and providing staffing for the Health Care Centers.

8.1.3 Hanford Patrol

The Patrol Operations Center operates the site 911 emergency response system. As part of the medical response, the POC is responsible for:

- contacting the Hanford Fire Department when a request for fire and/or emergency medical services has been received;
- contacting the HPMC on-call provider for medical incidents involving radiological or chemical exposures; and
- providing information regarding onsite medical emergencies to appropriate contractor organizations.

8.1.4 Hanford Internal and External Dosimetry and Whole Body Counting Programs

During medical emergencies that involve internal or external radionuclide contamination, these programs provide support (e.g., *in vivo* radio assays, bioassay program, exposure evaluators) to HPMC and other medical personnel to help determine the appropriate medical treatment.

8.1.5 Other Hanford Site Contractors

Site contractor health physics and radiation protection technologists and/or industrial hygienists provide decontamination for injuries, as appropriate. Hanford Site contractors also provide support for transportation, security, notifications, communications, etc., as described in respective subsections of section 2.0.

8.1.6 Local Hospitals

Through memorandums of understanding with RL, Kadlec Regional Medical Center in Richland, Trios Health in Kennewick, and Lourdes Medical Center in Pasco provide emergency health care for patients delivered by the Hanford Fire Department.

This care includes:

- accepting patients transported by Hanford Fire Department as the result of Hanford emergencies;
- assuming responsibility for patient care once patient arrives at the hospital; and
- coordinating with Mid-Columbia Emergency Medical Services, Tri-City Trauma Services, and other agencies for support and air transport as needed.

A copy of each MOU is provided in Appendix B.

8.2 MEDICAL EMERGENCY FACILITIES AND EQUIPMENT

8.2.1 Health Care Centers

The Health Care Centers are located in Richland and in the 200 West Area. HPMC operates the Health Care Centers to provide initial medical care to patients with occupational injuries or illnesses that do not require hospitalization. The Health Care Centers are staffed by occupational health nurses, physicians, physician assistants, and medical technologists. Initial medical care for minor medical emergencies may be provided at these centers before transport to a local hospital.

8.2.2 Site Decontamination Equipment

Decontamination equipment is available at a number of locations on the Hanford Site. Equipment or facilities range from eye washes, showers, and skin decontamination kits, to a mobile hazardous materials decontamination unit operated by the Hanford Fire Department.

8.2.3 Medical Emergency Equipment

Equipment for cardiopulmonary resuscitation, cardiac defibrillation, and advanced cardiac life support; supplies and equipment for the management of trauma; and equipment to support rescue and/or extrication of casualties are maintained by the Hanford Fire Department. Supplies for triage are available on board each Hanford Fire Department ambulance.

8.2.4 Medical Emergency Transportation

Ambulances shall be maintained and operated by the Hanford Fire Department. Provisions shall be made for air transportation of contaminated patients to medical facilities for specialized medical treatment. Transportation support beyond that provided by the Hanford Fire Department shall be coordinated according to mutual aid and trauma service agreements.

8.2.5 Offsite Medical Facilities

The three local hospitals, Kadlec Regional Medical Center in Richland, Trios Health in Kennewick, and Lourdes Medical Center in Pasco, provide treatment for emergency patients from the Hanford Site; however, because of proximity, Kadlec Medical Center is the facility most often used by the site. These hospitals have combined to provide Level Three trauma care for the community.

Memorandums of understanding with each hospital are maintained by RL. A copy of each MOU is contained in Appendix B. Other offsite medical facilities may be involved in Hanford medical emergencies through agreements with the local hospitals.

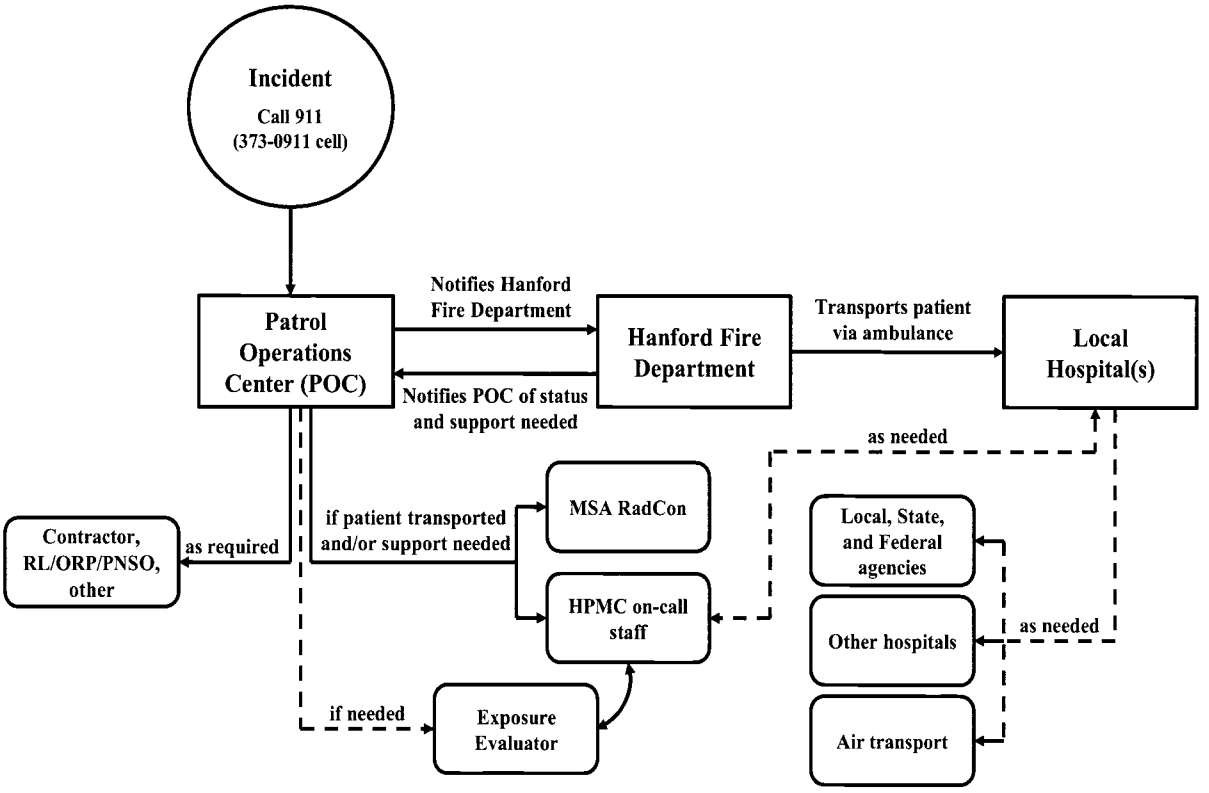
RL shall ensure the provision of training and exercise support related to the services provided to the site. HPMC shall provide medical expertise on radiological and chemical exposure decontamination and treatment, as requested.

8.3 MEDICAL EMERGENCY COMMUNICATIONS

The communications process during a Hanford medical emergency is illustrated in Figure 8-1.

Figure 8-1

Medical Emergency Response Communications



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9.0 EMERGENCY TERMINATION AND RECOVERY

Predetermined criteria for termination of emergencies, assignment and make-up of a recovery organization, and site recovery plan development shall be maintained in DOE-0223, *Emergency Plan Implementing Procedures*. Recovery shall include notifications associated with termination of an emergency and establishment of criteria for resumption of normal operations.

9.1 TERMINATION OF THE EMERGENCY

In general, response activities are terminated when the situation has been stabilized. At this point, potential threats to workers, the public, and the environment have been characterized, conditions no longer meet established emergency categorization criteria, and it appears unlikely that conditions will deteriorate. Once the emergency has been declared terminated, activities may then focus on recovery.

It is the function of the BED/BW/IC to declare the termination of an event after applicable criterion has been met where the Hanford EOC has not been activated.

In an event where the Hanford EOC has been activated, the BED, IC, and Site Emergency Director must confer and agree that termination can be declared and communicate the information to the Emergency Manager.

Termination shall be coordinated with offsite agencies responsible for offsite emergency response and notification. The Emergency Manager will coordinate the termination recommendation with the state and county representatives and make the official emergency termination declaration. The Policy Team will proceed with official notification to offsite emergency agencies that the emergency is terminated and the recovery phase has been initiated. Notification will be done through the Hanford EOC emergency communications network. The criteria for the termination decision and the basis for relaxing applicable offsite PARs will be included in the notification as appropriate. Termination information will also be provided to the media and public.

9.2 RECOVERY PLANNING

Prior to termination of the emergency event, a recovery organization shall be formed and a recovery plan developed, if determined necessary, in accordance with established procedure. The recovery organization shall develop and implement plans necessary to return the affected facility and surrounding areas to normal. Restart of operations is performed in accordance with the approved plans. RL/ORP/PNSO shall direct recovery planning for Hanford Site facilities and support the offsite recovery efforts of Federal, state, and local agencies.

For recovery from events that require implementation of the Hanford ICS but not activation of the Hanford EOC, a recovery organization shall be assembled commensurate with the activities necessary to resume facility operations.

For recovery from events where the Hanford EOC has been activated, recovery planning shall include dissemination of information to offsite agencies regarding the emergency and possible relaxation of public protective actions; planning for decontamination actions; establishment of a recovery organization; development of reporting requirements; and establishment of criteria for resumption of normal operations.

Depending on the event contractor, RL/ORP/PNSO shall determine the type of accident investigation necessary and ensure that actions are performed in accordance with DOE O 225.1B, *Accident Investigations* (DOE 2011). In addition, RL/ORP/PNSO with assistance from the event contractor, shall provide for investigation of emergency root cause(s) and corrective action(s) to prevent recurrence in accordance with DOE requirements.

9.2.1 Planning and Operations for Onsite Recovery

For events where the Hanford EOC has been activated, the Emergency Manager shall determine the extent of recovery planning needed. If there was no measurable release of radiological or nonradiological hazardous materials to the environment, no effects to the offsite or to other onsite facilities, and the facility can be returned to pre-emergency conditions by using normal facility work processes, a formal site recovery plan is not necessary.

If a recovery plan is deemed necessary, the Emergency Manager shall designate a Recovery Manager who is responsible for assessing the extent of recovery actions necessary and determining the organization needed to implement recovery operations, and an Onsite Recovery Director who is responsible for appointing members of the Onsite Recovery Team and developing the Site Recovery Plan.

Detailed procedures for recovery planning are contained in DOE-0223, *Emergency Plan Implementing Procedures*.

9.2.2 Planning and Operations for Offsite Recovery

The states of Washington and Oregon are responsible for determining when the relaxation of protective measures can begin, and will make offsite reentry and recovery decisions. The states shall coordinate recovery activities with the affected counties, who will coordinate local public health actions and disaster assistance. Recovery actions also will be coordinated with RL/ORP/PNSO.

The major areas of effort for offsite recovery include:

- maintenance of access and traffic control of contaminated areas until cleanup is accomplished;
- imposition of control measures on possibly contaminated food and dairy products until radioactivity or chemical contaminant levels are deemed acceptable or the products are decontaminated or destroyed;
- dissemination of public health advice for individuals with noncommercial sources of food and dairy products;
- direction of decontamination activities, by way of natural radioactive decay, contamination removal, burial, treatment, or dilution;
- determination of radioactivity or chemical contaminant levels by field and laboratory analysis;
- documentation of population doses, individual doses, and environmental radioactivity or chemical contaminant levels; and
- dissemination of public information.

RL/ORP/PNSO shall provide representatives to state recovery task forces, as requested.

9.2.3 Incompatible Waste[1]

After an event, the BED/BW and/or Onsite Recovery Director and staff shall provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility. The BED/BW and/or Onsite Recovery Director and staff shall further ensure that no waste that might be incompatible with the released material is treated, stored, and/or disposed of until cleanup is completed.

Cleanup activities shall be performed by trained site personnel. In order to meet 29 CFR 1910.120(q)(11) criteria, such personnel shall have completed the training requirements of 29 CFR 1910.38(a), 29 CFR 1910.134, 29 CFR 1910.1200, and other appropriate safety and health training made necessary by the tasks that they are expected to perform (e.g., personnel protective equipment, decontamination procedures). In addition, all equipment to be used in the performance of the clean-up work shall be in serviceable condition and shall have been inspected prior to use.

Activities may include, but are not limited to:

- neutralization of corrosive spills;
- chemical treatment of reactive materials to reduce hazards;
- overpacking or transfer of contents from leaking containers;
- use of sorbents to contain and/or absorb leaking liquids for containerization and disposal;
- decontamination of solid surfaces impacted by released material, e.g., intact containers, equipment, floors, containment systems, etc.;
- disposal of contaminated porous materials that cannot be decontaminated and any contaminated soil;
- containerization and sampling of recovered materials for classification and determination of proper disposal technique; and
- follow up sampling of decontaminated surfaces to determine adequacy of cleanup techniques as appropriate.

Waste from cleanup activities shall be designated and managed as newly generated waste. A field check for compatibility before storage shall be performed, as necessary, to ensure that incompatible wastes are not placed in the same container and containers of waste are placed in storage areas appropriate for their compatibility class.

If it is determined that incompatibility of waste was a factor in the incident, the BED/BW and/or Onsite Recovery Director and staff ensures that the cause is corrected. Examples would be modification of an incompatibility chart or increased scrutiny of waste from a generating unit when incorrectly designated waste caused or contributed to an incident.

[1] Permit requirement: Subsection 9.2.3, Class 1 Modification 6/30/01

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10.0 PUBLIC INFORMATION

Public information is an integral part of the emergency management program at the Hanford Site. Accurate, candid, and timely information consistent with requirements of the Freedom of Information Act and the Privacy Act shall be provided to site workers and the public before, during, and after emergencies to establish facts and avoid speculation. RL/ORP/PNSO shall coordinate interagency and public information activities at the regional level and coordinate directly with DOE-HQ.

RL/ORP/PNSO and state and local governments share the responsibility to provide this information. RL/ORP/PNSO shall develop a public information program, including methods and procedures, to provide for the:

- education of the public and employees on what to do in the event of an emergency;
- dissemination of accurate, timely information during an emergency; and
- dissemination of information to help the public and employees recover after an emergency.

Coordination with offsite agencies that have the responsibility to provide emergency warning, instructions, and information to the public is vital to the success of the public information program. The RL communications organization shall have the lead in coordinating the public information program with offsite agencies. Interfaces and assistance provided to offsite agencies related to public information shall be documented in MOUs. Applicable MOUs are contained in Appendix B.

10.1 EMERGENCY PUBLIC INFORMATION PROGRAM

RL/ORP/PNSO and site contractor personnel shall cooperatively ensure that an adequate emergency public information program is established, staffed, and maintained, commensurate with site hazards, to ensure that information can be provided to the public and media during an emergency.

Adherence to emergency public information policies and requirements shall be demonstrated during exercises, appraisals/evaluations, and approved training programs.

10.2 EMERGENCY PUBLIC INFORMATION ORGANIZATION

The emergency public information organization shall be made up of RL/ORP/PNSO and site contractor personnel working under the direction of the Public Information Director or designee. Personnel assignments shall correspond as closely as possible to normal duties. Two components within the Hanford EOC have responsibilities for emergency public information: the Policy Team and the JIC.

Emergency public information support to offsite responses under the RAP is addressed in DOE/RL-92-49, *U.S. Department of Energy Radiological Assistance Program Response Plan Region 8.*

10.2.1 Policy Team

The Policy Team has overall responsibility for emergency public information. The Public Information Director provides direction to the JIC and reports to the Emergency Manager.

Communications with the JIC are available via telephone, computer, and facsimile equipment. Cable television service is available in the Hanford EOC for viewing local and national news reports.

10.2.1.1 Responsibilities. The Public Information Director (or designee) is responsible for:

- timely and accurate release of information to the public and media;
- advising the Emergency Manager on actions and responses that will reduce public uncertainty;
- approving the release of emergency information;
- informing DOE-HQ of emergency public information actions; and
- protecting the organization's image/credibility as they relate to emergency responses, control, and recovery.

The Web Page Coordinator is responsible for developing event information.

10.2.2 Joint Information Center

Public information activities at the Hanford Site are coordinated with offsite agencies through a JIC. The Hanford JIC is a dedicated facility located in Richland, Washington. Access to this area is controlled. The JIC may also use other portions of the building to conduct news conferences and media interviews.

Personnel shall be assigned to provide support in media services, public and media inquiry, JIC management and administrative activities, and media monitoring. Persons with facility-specific technical expertise related to the emergency shall be assigned to participate in the JIC emergency public information activities, as appropriate, and be given a protocol briefing prior to news conferences.

10.2.2.1 Information Release. Information is released in a variety of ways from a number of official sources. The emergency public information program at the Hanford Site is designed with the JIC as the single point from which emergency information is released. This allows the Hanford Site and offsite agencies to coordinate the accurate and timely release of public information.

RL shall encourage the participation of impacted offsite agencies in the JIC. In addition to RL/ORP/PNSO and Hanford Site contractors, the states of Washington and Oregon, and the counties within the plume EPZs of the Hanford Site have included this participation in their emergency plans. The JIC is the primary source of information to the public on the event, corrective actions, and potential ramifications. Additionally, local authorities utilize the JIC as their means to provide information to the media and the public. State agencies may release information directly from the state emergency center; however, coordination through the JIC is recommended.

The information release functions of the JIC include:

- coordination of emergency information with affected agencies;
- conducting news conferences;
- rumor control;
- response to telephone inquiries from the public and media; and
- information to employees.

Information is reviewed prior to issuance to ensure that no classified or unclassified controlled information is contained in the release. In situations involving classified or unclassified controlled information, the JIC will provide sufficient unclassified information to explain the emergency response and protective actions required for the health and safety of workers and the public.

10.2.2.1.1 Emergency Information. The JIC will provide emergency information to the media, appropriate offsite agencies, and DOE-HQ.

Initial emergency information or public statements shall be approved by the Public Information Director. Subsequent updates shall be coordinated with DOE-HQ.

Each offsite agency shall develop and approve its own emergency information. However, proposed information should be shared with agencies to ensure accuracy and consistency of information being released.

10.2.2.1.2 News Conferences. News conferences are conducted from the JIC with spokespersons from local, state, and affected Federal agencies, and the Hanford Site. Conferences will be conducted, as the situation warrants, to provide an opportunity for the media to ask questions of responding agencies.

10.2.2.1.3 Rumor Control. Rumors may be identified by any member of the onsite or offsite emergency response organization. Within the JIC, the telephone teams and the media monitor are the primary identifiers of rumors. Any misinformation identified will be corrected as soon as possible through emergency web page updates, news releases, news conferences, and the telephone teams.

10.2.2.1.4 Telephone Teams. Telephone teams, staffed by site personnel, will answer questions from the public and media. Telephone teams will make use of emergency web page updates, news releases, emergency broadcast messages, fact sheets, and contacts with agency JIC representatives to provide information necessary to respond to inquiries.

10.2.2.1.5 Media Tours. Media tours of the affected area may be provided, if appropriate.

10.2.2.1.6 Information to Hanford Site Personnel. Information regarding work schedules, route closures, and other critical information is provided to site personnel via the Hanford Site Emergency Alerting System. Information to off-duty personnel is provided through the media.

10.2.2.2 Staffing and Responsibilities. JIC staffing shall be outlined in JIC procedures and shall provide functions to include:

- the timely release of accurate and understandable information to the public and media, and for responses to public inquiries;
- conducting news conferences with participation from Hanford Site personnel and appropriate offsite agencies;
- reviewing television broadcasts and news websites for inaccuracies;
- identifying and correcting rumors and inaccuracies;
- producing event information, media advisories, and fact sheets;
- relaying press announcements to the media, providing updates to the media not present at the JIC, and providing responses to incoming media phone queries;

- ensuring the review of information drafted for the media or the public for technical accuracy, security sensitivities, or classified information; and
- transmitting priority employee messages and safety information to employees.

In addition to the JIC Manager and site contractor communications staff, the JIC Decision Team is composed of Public Information Officers from Benton, Franklin, and/or Grant Counties, the states of Washington and Oregon, and involved Federal agencies. The basic function of the team is to jointly coordinate releases of information to the media and to provide accurate and timely information to the public regarding operations in their jurisdictions.

10.3 PUBLIC EDUCATION

RL shall assist the jurisdictions within Hanford Site EPZs in the development and implementation of programs to educate their residents on the actions to take in the event of an emergency at the Hanford Site.

RL shall participate, as requested, in public meetings sponsored by state, tribal, or local emergency management officials to make the public aware of DOE activities in the region, the potential risk from these activities, and the Hanford Site emergency preparedness program.

RL shall, as appropriate, provide information to the public and the media for major exercises in order to educate the local community on Hanford Site activities to test the emergency preparedness program. This information will be coordinated with local emergency management officials.

10.3.1 Plume Emergency Planning Zone Public Education

The state of Washington and Benton, Franklin, and Grant Counties have instituted a public education program to ensure that the members of the public within a plume EPZ of the Hanford Site are aware of the proper actions to take following notification of an emergency. The counties' programs have been identified in their respective emergency plans. These plans, developed cooperatively with RL and Energy Northwest, include:

- annual distribution of an emergency information calendar for residents within the plume EPZs;
- distribution of a brochure for farmers and growers;
- distribution of information for special audiences, such as boaters and Spanish-speaking residents;
- periodic public meetings; and
- annual surveys to determine the effectiveness of these programs.

Information provided to residents includes:

- a description of the hazards;
- how they will be notified;
- protective actions they may be asked to take (i.e., sheltering or evacuation);
- evacuation routes and where to go if they are asked to evacuate;

- special provisions for schools or other special facilities; and
- how those with special needs can get help.

10.3.2 Ingestion Emergency Planning Zone Public Education

The states of Washington and Oregon, affected tribal organizations, and counties are responsible to provide education to residents within the ingestion EPZ. Information may include:

- a description of the potential impact of an emergency on residents and the agriculture community;
- preventive measures to help avoid or reduce the impact if a release occurs; and
- actions to take during and after a release.

Information may be provided through the dissemination of printed materials to target audiences, conducting public meetings and providing information to the media.

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11.0 EMERGENCY FACILITIES AND EQUIPMENT

The provision of facilities and equipment adequate to support emergency response, including the capability to notify employees of an emergency to facilitate the safe evacuation of employees from the work place, immediate work area, or both shall be addressed. Facility-specific equipment may be listed in respective building emergency plans and/or procedures.

11.1 EMERGENCY FACILITIES

This section contains a description of facilities that have been equipped for emergency control, operations, and coordination. The functions, staffing, and activation criteria of the Hanford EOC are described in the various subsections of section 2.0.

11.1.1 Hanford Emergency Operations Center

The Hanford EOC is located in Richland, Washington. The Hanford EOC location provides favorable proximity to the emergency management and response staff, the DOE-HQ Emergency Communications Network, and to additional office space.

Additionally, the Hanford EOC is outside of Hanford Site facility plume EPZs thus ensuring a high probability of the Hanford EOC being habitable following an emergency on the Hanford Site. An emergency power generator is available to supply power to essential emergency equipment in the event of loss of normal power.

Primary and backup means of communication are available and capable of operating with other DOE elements and with other Federal, tribal, state, and local response organizations as applicable.

An alternate Hanford EOC has been established in the event the Hanford EOC becomes uninhabitable for any reason.

11.1.2 Hanford Patrol Operations Center

The POC monitors the emergency response (911 and 373-0911 for cellular phones) and business (373-3800) numbers, and acts as the single point-of-contact for the Hanford Site.

The POC notifies and/or dispatches the:

- Hanford Fire Department, including ambulance and the Hazardous Material Response Team;
- Hanford Patrol;
- HPMC on-call provider;
- Transportation on-call representative;
- EDO; and
- Benton County Sheriff personnel assigned to Hanford Site.

The POC also is responsible for:

- alarm monitoring;

- activation of designated Hanford Site Emergency Alerting System components to initiate onsite protective actions; and
- assisting in dispatch and radio communications for emergency responders.

11.1.3 Hanford Emergency Operations Center Shift Office

The Hanford EOC Shift Office is a 24-hour operational facility equipped to communicate information regarding occurrences at or affecting the Hanford Site to site contractor personnel and to state and local emergency management organizations.

Specific responsibilities of the Hanford EOC Shift Office include:

- activating designated Hanford Site Emergency Alerting System components to initiate onsite protective actions and activate the Hanford EOC; and
- providing notifications to the DOE-HQ EOC and state and local emergency management agencies.

Hanford EOC Shift Office notification responsibilities are covered further in applicable subsections of section 5.0. Specific operational desk instructions shall be maintained by the Hanford EOC Shift Office.

11.1.4 Medical Emergency Facilities

Capabilities for medical aid, triage, and personnel decontamination shall be available onsite. Emergency Medical Support is described further in section 8.0.

Medical emergency facilities include the following.

- Health Care Centers: Health Care Centers are located in Richland and in the 200 West Area. Health Care Centers provide initial medical care to patients with occupational injuries or illnesses that do not require hospitalization. Ambulance service is provided by the Hanford Fire Department.
- Site Decontamination Facilities: Personnel decontamination sites are located in several locations in the 100, 200, and 300 Areas.

Agreements shall be in place between RL and local hospitals for backup medical treatment. A copy of each MOU is contained in Appendix B.

11.1.5 State and County Emergency Centers

The Benton County Emergency Center is located in Richland, Washington.

The Franklin County Emergency Center is located in Pasco, Washington.

The Grant County Emergency Center is located in Moses Lake, Washington.

The Washington State Emergency Center is located at Camp Murray in Tacoma, Washington.

The Oregon Department of Energy Emergency Center is located in Salem, Oregon.

11.2 EMERGENCY EQUIPMENT[1]

Adequate personal protective equipment and other equipment and supplies (e.g., detectors, decontamination equipment) shall be available and operable to meet emergency preparedness requirements and the needs determined by the results of the EPHA, if required, and for emergency response personnel to carry out their respective duties and responsibilities.

Emergency and backup equipment (including monitoring devices) shall be located in readily accessible areas away from the scene of the potential accident. Equipment shall be available, as appropriate, to provide functions for the potential, credible emergencies such as:

- emergency dosimetry;
- personnel protection;
- radiation control monitoring instrumentation;
- monitoring of personnel, facilities, and the environment onsite and offsite;
- emergency medical treatment onsite;
- meteorological evaluation;
- handling of personnel contaminated with radioactive or toxic materials, and fatalities;
- supplying emergency power, water, and sanitation;
- emergency transportation for personnel evacuation;
- movement of earth or heavy loads; and
- emergency communications, including portable and secure communications equipment, as required.

To ensure equipment reliability, emergency equipment should, to the extent practical, be the same equipment used for routine operations. RL/ORP/PNSO and the site contractors maintain a variety of light and heavy equipment and supplies that could be diverted from routine use to emergency use, if needed.

All equipment that could be used in an emergency response is listed in site contractor property system databases, which can be quickly accessed to determine the current status of each piece of equipment.

As applicable, the BED/BW/IC and/or the Onsite Recovery Director and staff shall ensure that all equipment is cleaned and fit for its intended use before operations are resumed. This may include actions to ensure that depleted stocks of neutralizing and absorbing materials are replenished, self-contained breathing apparatus are cleaned and refilled, fire extinguishers are recharged or replaced, and protective clothing is cleaned (or disposed of) and restocked.

11.2.1 Assessment Equipment

Emergency equipment shall be available, as appropriate, to allow an early and reliable determination of the seriousness of an accident. The equipment for both emergency and continuing assessment of the facilities and environment at the Hanford Site consists of dosimeters, criticality detectors and alarms, and effluent and environmental monitoring equipment.

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[1] Permit requirement:Subsection 11.2, Class 1 Modification 12/31/08

Aerial surveillance and monitoring, performed by the Aerial Measuring System (DOE Nevada Operations Office), may be requested as a DOE emergency response asset.

11.2.1.1 Nuclear Accident Dosimeter. The Hanford Site nuclear accident dosimeter is a stationary device that provides neutron and gamma dose information following a criticality or high-level radiation event. The dosimeter satisfies the requirements for an emergency dosimetry system by providing a system capable of determining the:

- neutron dose (in rads);
- photon dose in the presence of neutrons (from 10 to 10,000 rads); and
- neutron flux in each of five energy intervals, which permits calculation of the neutron dose equivalent in rem.

Instructions for recovery of these dosimeters are contained in site contractor procedures.

11.2.1.2 Emergency Instrumentation. Under emergency conditions, many needed supplies and equipment would be drawn from the instrument and equipment pool used for normal operations at the Hanford Site. This ensures that multiple sources of supplies are available and that the equipment is calibrated, maintained, and ready for use by personnel involved in controlling the emergency.

11.2.2 Fire Control Equipment

Buildings are equipped with fire control equipment, such as automatic fire-suppression (sprinkler) systems and portable fire extinguishers, in accordance with National Fire Protection Association (NFPA) codes and standards. The fire protection equipment is inspected, tested, and maintained in accordance with NFPA codes and standards.

11.2.3 Personal Protective Equipment

Buildings shall have safety showers and eyewash stations, located as necessary, in accordance with applicable regulations. Drainage from these stations shall be contained. In addition to these stations, portable eyewash equipment shall be maintained at protective storage areas as necessary. The eyewash and shower stations shall be inspected regularly.

Protective clothing and respiratory protective equipment shall be maintained for use during both routine and emergency operations. Equipment not provided by the Hanford Fire Department shall be identified in low-hazards and hazardous facility documentation (e.g., building emergency plans/procedures).

11.2.4 Spill Control and Contamination Supplies

Spill control and contamination supplies shall be located in facilities as necessary. Supplies may include absorbent materials for organic or inorganic materials; diatomaceous earth for liquid waste spills; neutralizing sorbents for response to acid or caustic spills; containers and salvage containers (e.g., overpacks); and brooms, shovels, and miscellaneous spill response supplies.

11.2.5 Decontamination Operation Equipment

The T Plant Complex, located in the 200 West Area, provides equipment decontamination services for the Hanford Site that is not time urgent.

11.2.6 Evacuation Vehicles

Building management shall ensure that vehicles are available to move all personnel from their facility. This may be accomplished by a combination of government-owned and private vehicles. If insufficient vehicles are available, the BED can coordinate the response of additional transportation assets through the Hanford EOC.

11.2.7 Hanford Patrol

Hanford Patrol maintains a large inventory of security response equipment, including transportation, weaponry, protective equipment, and communication.

11.2.8 Hanford Fire Department[2]

The Hanford Fire Department maintains a large inventory of firefighting, hazardous material response, and rescue equipment. The Hanford Fire Department also operates the site ambulance service from the various area fire stations. Mutual aid agreements with local fire departments provide additional backup capabilities.

11.3 MAINTENANCE AND TESTING OF ALARM AND COMMUNICATION SYSTEMS

Building management shall ensure that preventive maintenance is performed on facility emergency sirens and criticality alarm systems by the responsible maintenance organizations in accordance with the established preventive maintenance procedures. The site contractor responsible for the Hanford Site Emergency Alerting System and river sirens shall ensure that preventive maintenance is performed in accordance with DOE-0223, *Emergency Plan Implementing Procedures*.

Testing of facility emergency siren and criticality alarm systems, area sirens, the Hanford Site Emergency Alerting System, and river sirens shall be performed in accordance with DOE-0223, *Emergency Plan Implementing Procedures*, to ensure operability.

As applicable, the organization(s) responsible for communications with DOE-HQ and offsite agencies shall test communications systems at least annually or as often as needed to ensure that communication systems are operational.

11.4 INVENTORY OF EMERGENCY EQUIPMENT

Emergency equipment shall be inventoried in accordance with site contractor inventory control procedures to ensure availability in the event of an emergency.

[2] Permit requirement:Subsection 11.2.8, Class 1 Modification 6/30/10

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12.0 TRAINING AND DRILLS

In addition to training that site personnel receive on their day-to-day functions, a comprehensive, coordinated, and documented program of training and drills for developing and/or maintaining specific emergency response capabilities shall be an integral part of the Hanford Site emergency management program. The program shall apply to emergency response personnel and organizations that are expected to respond to onsite emergencies. Training and drills are part of the DOE O 151.1C Operational Emergency Base and Operational Emergency Hazardous Material Programs.

12.1 GENERAL TRAINING REQUIREMENTS

12.1.1 General Employee Training

Initial training and periodic drills shall be provided to all workers who may be required to take protective actions (e.g., assembly, evacuation) when they are employed, when their expected actions change, or when the facility-specific emergency plan/procedure changes. This may be provided through general employee training and participation in drills or exercises.

Refresher training shall be provided annually to Hanford Site employees who are likely to witness a hazardous material release and who are required to notify proper authorities of the release.

In addition, site personnel are provided information on the specific emergency response documentation for their facility. Information is also provided to each employee, which describes the emergency signals, basic instructions, and the emergency response structure. By telephone, site personnel can hear a recording of the emergency signals. Drills and exercises provide additional training for site personnel on the specific actions of their building.

12.2 HANFORD EMERGENCY RESPONSE ORGANIZATION TRAINING REQUIREMENTS

A formal training program shall be provided for the instruction of all personnel (i.e., primary and alternate) comprising the Hanford Site ERO to include both initial training and annual refresher training. Training shall include the requisite National Incident Management System training, as deemed required by position.

Training programs should be systematic and performance based (i.e., based on the analysis of tasks to be performed during an emergency) and developed using performance objectives that place emphasis on team training and facility-specific emergency response scenarios. Training requirements for each ERO position should be identified in a formal training program description or plan. Training methods should include a mix of classroom instruction/training, tabletop exercises or walk-throughs, and drills.

Annual refresher training should include lessons learned from past drills and exercises, changes to plans and procedures, and lessons learned from actual events at DOE and other industrial facilities. Training on changes may need to occur prior to scheduled refresher training to ensure safe and effective response.

12.2.1 Hanford Emergency Operations Center Staff Training

Site personnel assigned to the Hanford EOC shall receive training prior to assignment to an activation list and at least annually thereafter. If requested, offsite personnel with designated positions in the Hanford EOC receive initial orientation training.

12.2.2 Incident Command Organization Training

Personnel working in assigned roles of the Incident Command Organization shall, as applicable, receive incident command and task-specific training or an overview prior to assignment and at least annually thereafter. The training or overview shall include roles, responsibilities, and authorities for the respective position within the Incident Command Organization.

Personnel directing or supervising response actions must be trained for all tasks they assign to be performed and have the same level of qualification for emergency response as the personnel being directed.

12.2.2.1 Facility/Building Emergency Response Organization Training. Minimum training requirements for standard facility/building ERO positions (including designated supplementary personnel) for general purpose, low hazards and hazardous facilities are listed in Table 12-1. Each site contractor shall evaluate, as applicable, the need for additional training, and the training level requirements commensurate with the hazards for each emergency response duty.

12.2.2.2 Site Contractor Emergency Response Personnel Training. Site contractor emergency response personnel requiring certification/qualification are identified as 911 dispatchers, ICs, firefighters performing defensive or offensive operations in the incident scene hazard area, and/or emergency medical personnel. These personnel shall obtain and maintain such certification/qualification.

12.2.2.3 Other Emergency Response Support Personnel Training. Skilled support personnel and specialist employees are not designated members of the Hanford ERO and, as such, are not required to meet specific Hanford ERO training requirements. However, other safety measures or training are required, as delineated in the following subsections, to ensure that such personnel are protected against hazards that may be present at the event scene.

12.2.2.3.1 Skilled Support Personnel. Site support personnel who are skilled in the operation of certain equipment, such as mechanized earth moving or digging equipment or crane and hoisting equipment, and who are needed temporarily to perform immediate emergency support work that will or may expose them to hazards at the event scene shall be given an initial briefing prior to their participation in any emergency response. The initial briefing shall include instruction in the wearing of appropriate personal protective equipment, what hazards are involved, and what duties are to be performed. All other appropriate safety and health precautions shall be used to assure the safety and health of these personnel. This training meets the requirements of 29 CFR 1910.120(q)(4).

12.2.2.3.2 Specialist Personnel. Personnel who, in the course of their regular job duties, work with and are trained in the hazards of specific hazardous (radiological and nonradiological) substances and who will be called upon to provide technical advice or assistance to the IC shall receive training or demonstrate competency in the area of their specialization annually. This training meets the requirements of 29 CFR 1910.120(q)(5).

Table 12-1

Facility/Building Emergency Response Organization Training Requirements

GENERAL PURPOSE FACILITY ERO	
Position	**Required Training**
BED/BW	HAMMER/Hanford training: • General purpose facility[1] OR Contractor developed facility-specific training to address: • An overview of Hanford ICS[1] AND Contractor developed facility-specific training to address: • BED/BW responsibilities[1] • Facility emergency procedures, as applicable[1] • Emergency checklist duties (identified in DOE-0223)[1]
Staging Area Manager Personnel Accountability Aide (or other contractor title for personnel performing the same or similar function)	Contractor developed facility-specific training to include: • Staging Area Manager/Personnel Accountability Aide orientation[1]

[1]Before assignment and annually thereafter

Table 12-1

Facility/Building Emergency Response Organization Training Requirements (cont.)

LOW-HAZARDS FACILITY ERO	
Position	**Required Training**
BED/BW	HAMMER/Hanford training: • Low-hazards facility[1] OR Contractor developed facility-specific training to address: • An overview of Hanford ICS[1] AND Contractor developed facility-specific training to address: • BED/BW responsibilities[1] • Hazard communications and waste management[1] • Facility emergency procedures, Health and Safety Plans, as applicable[1] • Emergency checklist duties (identified in DOE-0223)[1]
Staging Area Manager Personnel Accountability Aide (or other contractor title for personnel performing the same or similar function)	Contractor developed facility-specific training to include: • Staging Area Manager/Personnel Accountability Aide responsibilities[1]

[1]Before assignment and annually thereafter

Table 12-1

Facility/Building Emergency Response Organization Training Requirements (cont.)

HAZARDOUS FACILITY ERO	
Position	**Required Training**
BED	HAMMER/Hanford training: • BED[1] • Hanford ICS[1] Contractor developed facility-specific training to address: • Hazard communication and waste management[1] • Safety Basis, EPHAs, building emergency plans, etc.[1] • Facility emergency procedures (EALs, emergency response procedures, etc.), as applicable)[1] • Emergency checklist duties (identified in DOE-0223) [1] • Demonstrate proficiency in evaluated drill or exercise[1]
Facility Operations Specialist	HAMMER/Hanford training: • Hanford ICS[1] Contractor developed facility-specific training to include: • Hazard communication and waste management[1] • Building emergency plans[1] • Facility emergency procedures (emergency response procedures, etc.), as applicable [1] • Emergency checklist duties (identified in DOE-0223)[1] • Demonstrate proficiency in evaluated drill or exercise[2]
ICP Communicator ICP Hazards Communicator Hazard Assessor (chemical/radiological)	HAMMER/Hanford training: • Hanford ICS[1] Contractor developed facility-specific training to include: • Hazard communication and waste management[1] • Facility emergency procedures (emergency response procedures, etc.), as applicable [1] • Emergency checklist duties (identified in DOE-0223)[1] • Demonstrate proficiency in evaluated drill or exercise[2]

Table 12-1

Facility/Building Emergency Response Organization Training Requirements (cont.)

HAZARDOUS FACILITY ERO (cont.)	
Position	**Required Training**
Staging Area Manager	HAMMER/Hanford training: • Hanford ICS[1] Contractor developed facility-specific training to include: • Hazard communication and waste management[1] • Facility emergency procedures (emergency response procedures, etc.), as applicable[1] • Emergency checklist duties (identified in DOE-0223) [1]
Personnel Accountability Aide (or other contractor title for personnel performing the same or similar function)	Contractor developed facility-specific training to include: • Personnel Accountability Aide responsibilities[1]
Supplementary ERO personnel (facility personnel that do not have emergency checklist duties identified in DOE-0223 but are assigned to support the facility ERO during event response)	HAMMER/Hanford training: • Hanford ICS[1] OR Contractor developed facility-specific training to include: • An overview of Hanford ICS (e.g., Hanford ICS template or equivalent)[1]

[1]Before assignment and annually thereafter
[2]Annually

12.3 TRAINING PROGRAM EVALUATION

Emergency preparedness training programs shall include evaluation methods to ensure that all emergency response personnel are trained in the program elements pertinent to their position and are able to respond effectively in an emergency.

The effectiveness of the emergency preparedness training program shall be evaluated during the conduct of drills and exercises. Performance shall be documented as part of the drill and exercise critiques and will be used for program improvements.

The programs shall also contain self-assessment activities that analyze overall training program effectiveness. Results of self-assessment activities will be utilized to upgrade and improve the emergency preparedness training program.

12.4 RECORD KEEPING

The emergency preparedness training programs for the Hanford Site will include a consistent, auditable method for maintaining training records. The system will include a means for tracking attendance and for reminding employees when refresher training is needed.

The system should be incorporated into site contractor/site central training record organizations when possible.

12.5 VISITOR ORIENTATION

Visitors such as vendors, subcontractors, consultants, and regulatory agency personnel that are issued a Hanford-specific badge will receive orientation information regarding safety, security, and emergency preparedness requirements prior to entering the Hanford Site. The host for visitors from other DOE sites or Federal agencies possessing a government-issued personal identity verification credential is responsible for escorting the visitors or providing the orientation information.

12.6 OFFSITE TRAINING SUPPORT

No offsite training support has been identified to substitute for existing emergency preparedness training courses. However, emergency response personnel may participate in training opportunities offered by other field elements or offsite agencies that may benefit the emergency response organization.

12.7 OFFSITE PERSONNEL TRAINING

Emergency-related information, transportation information, and training on site-specific conditions and hazards shall be made available to offsite personnel who may be required to participate in response to an emergency at the Hanford Site. The training will be provided in support of, and in conjunction with, the counties, tribes, and states at their request.

Offsite agencies that participate in the Hanford EOC are given the opportunity to participate in training and drills related to their respective functions.

Area hospitals and local ambulance providers receive training on the handling and care of radiologically contaminated patients from Energy Northwest and county emergency management organizations.

12.8 INSTRUCTOR TRAINING AND QUALIFICATION

The emergency preparedness training programs shall identify and document course instructor qualifications. Instructor qualification criteria shall be in accordance with contractor procedures where applicable. Emergency preparedness program managers have the responsibility for qualification of instructors for each course offered. The qualification process shall identify required experience and/or academic requirements for instructors.

12.9 DRILLS

Drills shall be conducted as necessary to ensure that Hanford Site personnel are knowledgeable of response to alarms (e.g., fire, evacuation, take cover, etc.).

Additionally, drills shall provide supervised, "hands-on" training and application sessions for members of the facility/building ERO. These sessions provide an opportunity to demonstrate and maintain individual and organizational proficiency. Drills should be of sufficient scope and frequency to ensure an adequately staffed and trained facility/building ERO. At a minimum, facility/building ERO members shall participate in a drill or exercise at least annually as defined in contractor-specific procedures or other documentation. In order to ensure response proficiency is maintained, drills will be assessed and/or graded to identify and document training needs and areas of less than adequate performance.

12.9.1 Drill Definitions

There are five types of drills conducted at the Hanford Site – protective action, functional, operational, emergency preparedness, and no-notice.

12.9.1.1 Protective Action Drill. Protective action drills focus on employee safety to ensure that facility personnel are knowledgeable of response to alarms, including take cover or an evacuation to a staging area. Examples of such drills include plume release, fire, and bomb threat. Protective action drills may be combined with operational or emergency preparedness drills, or with area-wide take cover or evacuation drills for facilities located on the Hanford Site.

12.9.1.2 Functional Drill. Functional drills involve a specific function of the emergency response organization not normally associated with a specific facility. Examples of a functional drill include field team dispatch and control, Columbia River alerting, Hanford EOC, Hanford EOC Shift Office staff, POC staff, Emergency Duty Officers, and Hanford Fire Department responders.

12.9.1.3 Operational Drill. Operational drills focus on an event that can be mitigated through the use of facility response procedures and allows for the demonstration of nonemergency notifications. Operational drills may also include the use of the appropriate *Emergency Plan Implementing Procedures* (DOE-0223) or other contractor-specific emergency management documentation and may be performed using a tabletop format. The drills should be performed at the direction of the facility/building manager and documented to include concerns or demonstrated lack of knowledge regarding action(s) taken. Examples of operational drills include alarm response, contamination spread, and other applicable operating functions. Operational drills may be evaluated during operational readiness reviews, readiness assessments, conduct of operation assessments, and assessments performed for compliance with DOE O 426.2, *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities* (if included in contractor contract).

12.9.1.4 Emergency Preparedness Drill. Emergency preparedness drills involve designated facility emergency response personnel and the Hanford Incident Command System. Such drills could include tabletop drills, ICP limited drills, walk-through training drills (controller interaction with players as coaches or instructors), and evaluated drills (no controller interaction with players for coaching or instruction). The type of drill to be conducted shall be clearly communicated to all participants, observers, and evaluators.

Emergency preparedness drills require the use of the appropriate *Emergency Plan Implementing Procedures* (DOE-0223) or other contractor-specific emergency management documentation and, at a minimum, should demonstrate:

- implementation and coordination of facility and/or area (i.e., 100 Area, 200 Area, 300 Area, etc.) protective actions such as take cover or evacuation;
- event recognition and categorization/classification (hazardous facilities only);

- event mitigation;
- emergency and environmental notifications and communications; and
- interface with other Incident Command Organization functions and other affected facilities.

12.9.1.5 No-Notice Drill. No-notice drills are conducted without prior notification to the participants to evaluate response. No-notice drills require implementation of adequate drill controls such as precautions, limitations, simulations, and trained controllers staged at appropriate locations when necessary.

12.9.2 Drill Development and Conduct

Minimum drill requirements are delineated in the following subsections. Additional criteria may be contained in contractor-specific documentation.

12.9.2.1 General Purpose Facilities. Protective action drills shall be conducted at general purpose facilities, as applicable, to meet DOE O 151.1C Operational Emergency Base Program requirements. At a minimum, contractors with such facilities shall conduct building evacuation drills (e.g., fire drill), consistent with Federal regulations (e.g., 41 CFR 102-74-360), local ordinances, or National Fire Protection Association Standards. Drills shall be conducted at least annually to ensure that personnel are able to safely evacuate their work area. In addition, general purpose facility personnel located on the Hanford Site and within a plume exposure EPZ shall participate in a take cover or evacuation drill each calendar year to ensure that facility personnel are knowledgeable of response to alarms. Each contractor is responsible for ensuring that drills are conducted and documented for their respective facilities as applicable.

12.9.2.2 Low-hazards Facilities. Protective action, operational, and emergency preparedness drills shall be conducted at low-hazards facilities, as applicable, to meet DOE O 151.1C Operational Emergency Base Program requirements. Contractors with such facilities shall ensure that personnel are knowledgeable of response to facility-specific alarms and establish a drill program to ensure adequate training and proficiency for all emergency response personnel. Each contractor is responsible for ensuring that drills are conducted and documented for their respective facilities, as applicable.

Drills should be designed to demonstrate proficiency for as many of the following items, as appropriate, for the facility being drilled:

- initial event discovery and notification;
- response to fire and medical emergencies;
- response to spills and releases of hazardous materials including the detection and monitoring of such releases;
- protective actions (including take cover or evacuation);
- activation of the initial ICP;
- personnel accountability;
- event assessment to determine RCRA contingency plan implementation and notification; and
- personnel decontamination.

NOTE: Low-hazards facilities operating under the governing requirements of 29 CFR 1910.38 (i.e., those facilities where personnel evacuate from the danger area when an emergency occurs and are not permitted to assist in handling the emergency) need only meet the annual protective action drill requirement as identified in subsection 12.9.2.1 of this plan.

12.9.2.3 Hazardous Facilities. Protective action, operational, and emergency preparedness drills shall be conducted at hazardous facilities, as applicable, to meet DOE O 151.1C Operational Emergency Hazardous Material Program requirements. Contractors with such facilities shall ensure that facility personnel are knowledgeable of required responses to facility-specific alarms and establish a drill program to ensure adequate training and proficiency for all facility emergency response personnel.

A graded approach to the number, frequency, type, and extent of facility emergency preparedness and functional drills shall be based on the hazards present in the facility or those to which the functional organization would be expected to respond, including severe events with cascading effects[1]. Each contractor required to conduct drills shall develop an annual drill schedule.

Drills should be designed to demonstrate proficiency for as many of the following items, as appropriate, for the facility being drilled:

- initial event discovery and notification;
- response to fire and medical emergencies;
- response to spills and releases of hazardous materials including the detection and monitoring of such releases;
- protective actions (including take cover or evacuation);
- activation of the initial ICP;
- event classification and notification;
- event assessment to determine RCRA contingency plan implementation and notification;
- personnel accountability;
- personnel decontamination; and
- event termination including reentry and recovery.

Each contractor shall identify an emergency preparedness coordinator who is responsible for the design and execution of the facility/contractor emergency preparedness drill program. The responsibilities of the emergency preparedness coordinator include, but are not limited to:

- ensuring the adequacy of the drill package, including the scenario;
- selecting the drill control organization;
- assigning a grade to the drill and issuing the drill report; and
- entering findings into the appropriate commitment tracking system.

[1]Drills that focus on severe events should be conducted periodically and include events that result in hazards from adjacent facilities, if applicable to contractor, and can cause the loss of infrastructure capabilities (e.g., power, communications, support services, etc.).

The emergency preparedness coordinator should serve as the lead controller for emergency preparedness drills whenever possible.

Emergency preparedness drills shall be conducted by a qualified, trained, and experienced control organization. Each contractor shall identify an adequate number of drill coordinators who have successfully completed drill coordinator training or demonstrated equivalent training or experience. Additionally, drill controllers shall be qualified to control areas of performance assigned; and for emergency preparedness and functional drills shall have attended drill controller/evaluator training. Site contractors, however, may authorize equivalent training.

Emergency preparedness and functional drill packages contain, as a minimum:

- drill scope, objectives, and limitations;
- scenario and timeline;
- technical data (e.g., realistic plant conditions, proper source terms, etc.); and
- evaluation criteria.

An evaluated emergency preparedness drill that consists of a drill package identified above, a list of participants, and a facility-level evaluation and critique (drill report) meets the DOE O 151.1C annual facility exercise requirement (see subsection 13.1 of this plan).

Operational and/or emergency preparedness drills shall be conducted with a frequency sufficient to provide proficiency and complete confidence in response capability. Personnel assigned emergency duties should participate in drills covering emergency events or hazardous conditions in their respective facility (e.g., fire, injury, spill, radiological release, loss of power, or loss of ventilation). Where proficiency is not achieved, more than one drill per event or hazardous condition should be considered.

Evacuation drills shall be conducted at least annually for hazardous facilities having a criticality event potential to maintain familiarity with emergency procedures.

12.9.3 Drill Scheduling and Coordination

Drills that require support or resources outside of the facility or project, including the POC, Hanford EOC Shift Office, Hanford Fire Department, Hanford Patrol, Hanford EOC, Hanford Site Emergency Alerting System activation, or MSA drill team, shall be coordinated though the MSA Emergency Management Program. In addition, drills that require Hanford Fire Department and/or Hanford Patrol resources to enter radiological or other areas that require exit controls (i.e., monitoring, sign in/out, etc.) that could delay Hanford Fire Department and/or Hanford Patrol response shall be submitted to Hanford Fire Department and/or Hanford Patrol management for review and written approval prior to conducting the drill.

No-notice drills require coordination with the MSA Emergency Management Program to ensure that appropriate controls are in place to prevent safety, security, or operations-related issues from arising during the conduct of the drill, and to ensure that players fully understand the extent of play required.

12.9.4 Emergency Preparedness and Functional Drill Evaluation

For evaluated emergency preparedness and functional drills, each drill objective shall be graded. The evaluation process and definition of each grade shall be delineated in contractor-specific procedures or other documentation.

A participant critique (debrief or hot wash) shall be conducted as soon as possible following the drill to provide preliminary feedback on objectives and to allow participants to conduct a self-assessment. Areas of inadequate response or improvement should also be addressed.

The emergency preparedness coordinator is responsible for the drill and will receive the report from the lead controller. For evaluated emergency preparedness drills conducted to meet the DOE O 151.1C annual facility exercise requirement, the final drill report shall be submitted to RL SES and the respective DOE Emergency Preparedness office, as applicable.

13.0 EXERCISES

Exercises provide the opportunity for participants to demonstrate their proficiency in assigned emergency response duties, and are used to determine or validate the adequacy of emergency procedures, facilities, equipment, training, and personnel response. As such, each element of the Hanford Site ERO shall participate in a drill or exercise at least annually.

13.1 EXERCISE PROGRAM

The Hanford Site Emergency Exercise Program organization shall establish and maintain a formal exercise program to validate all elements of the Hanford Site emergency management program over a five-year period. Each exercise shall have specific objectives and shall be fully documented (e.g., by scenario packages that include objectives, scope, timelines, injects, controller instructions, and evaluation criteria).

Exercises shall be evaluated as applicable and a critique process, which includes gathering and documenting observations of the participants, shall be established. Corrective action items that are identified as a result of the critique process shall be incorporated into the Hanford Site emergency management program.

The Hanford Site Emergency Exercise Program organization shall exercise the emergency preparedness response capability of selected hazardous facilities annually as designated in the exercise schedule.

> NOTE: Hazardous facilities (or groups of hazardous facilities with a common facility-level ERO) that are not selected in the annual site exercise schedule shall exercise its emergency response capability annually and include at least facility-level evaluation and critique. An evaluated emergency preparedness drill, as delineated in subsection 12.9.2.3 of this plan, meets the DOE O 151.1C annual facility exercise requirement.

Evaluations of annual facility exercises or evaluated emergency preparedness drills by DOE entities (e.g., RL/ORP/PNSO or DOE-HQ organizations) shall be performed periodically so that each facility has external DOE evaluation at least every three years.

Site contractors with hazardous facilities or that have organizations and functions that respond to events shall:

- comply with annual exercise schedule issued by RL Security and Emergency Services (SES);
- support development, conduct, and evaluation of exercises at their facility or involving their functional areas;
- provide members to participate in the scenario development process when their facility or function is involved;
- provide controllers and or evaluators for conduct and evaluation of exercises; and
- require participation by their appropriate staff in exercise and associated training.

The Hanford EOC elements and resources shall participate in one evaluated exercise annually as designated in the exercise schedule. This exercise shall be designed to test and demonstrate the site's integrated emergency response capability. The basis for the exercises shall be rotated among hazardous facilities.

Adherence to Operational Emergency notification and reporting requirements shall be demonstrated in all emergency management exercises.

13.2 EXERCISE DEFINITIONS

There are two types of exercises conducted at the Hanford Site – limited and field. Each exercise is defined in the following subsections.

13.2.1 Limited Exercise

A limited exercise tests and validates the responsibilities of the Incident Command Organization (event scene response), and allows POC, Hanford EOC Shift Office, and Hanford EOC staff to practice their assigned emergency response duties. As such, only the Incident Command Organization is evaluated. There is no offsite involvement.

Communication links, at a minimum, should include the:

- POC;
- Hanford EOC Shift Office;
- IC to the Site Emergency Director;
- ICP Communicator to Event Scene Liaison; and
- ICP Hazards Communicator to the UDAC Hazards Communicator.

The Hanford Site shall conduct three limited exercises per year, unless otherwise directed by RL.

13.2.2 Field Exercise

A field exercise tests and validates the responsibilities of all aspects of the Hanford Site ERO, which includes the Incident Command Organization, Hanford EOC, POC, and the Hanford EOC Shift Office. Offsite involvement may include DOE-HQ, state and county emergency centers, and supporting staff such as radiological field teams. The Hanford Site shall conduct one field exercise per year, unless otherwise directed by RL.

A tabletop or dress rehearsal exercise may be conducted prior to the field exercise. A tabletop exercise allows the Hanford Site ERO and designated offsite responders to work through a scenario in one room, under tabletop conditions, to demonstrate how each facet of a major response organization contributes to an emergency response. A dress rehearsal provides an opportunity for the Hanford Site ERO to work together as a team. No evaluation is conducted for the tabletop or rehearsal exercise.

13.3 EXERCISE DEVELOPMENT AND CONDUCT

Exercises shall be of sufficient scope and frequency to ensure the development and maintenance of an adequate response capability, including severe events with cascading effects[1].

The Hanford Site Emergency Exercise Program organization shall be responsible for:

- developing and maintaining procedures to implement the requirements of the exercise program;
- developing, maintaining, and communicating a five-year and annual schedule of exercises;
- developing and maintaining an exercise objectives matrix that identifies the elements to be tested during the conduct of exercises and determining appropriate objectives based on approved procedures to be tested and verified; and
- providing controller/evaluator training to ensure trained controllers/evaluators are available for exercises.

Exercises that require Hanford Fire Department and/or Hanford Patrol resources to enter radiological or other areas that require exit controls (i.e., monitoring, sign in/out, etc.) that could delay Hanford Fire Department and/or Hanford Patrol response shall be submitted to Hanford Fire Department and/or Hanford Patrol management for review and written approval prior to conducting the exercise.

Proposed goals and objectives shall be provided to RL SES for review prior to each exercise. A scenario shall be developed to ensure that events occur to address the objectives. A draft exercise package shall be submitted to RL SES for review, comment, and approval. The package shall be supported by documentation that contains, but is not limited to, the exercise scope, its objectives and corresponding evaluation criteria, a narrative description of the scenario, timeline, and a list of participants. For field exercises, the approved exercise package is submitted to the Program Secretarial Officer and the DOE-HQ Office of Emergency Operations director for information, preferably 30 days prior to conduct of the field exercise.

Exercise package records shall be maintained in accordance with the DOE Records Schedules and the General Record Schedules published by the National Archives and Records Administration.

13.4 EXERCISE EVALUATION AND CORRECTIVE ACTION

The Hanford Site Emergency Exercise Program organization shall ensure that an evaluation is conducted for each exercise. Exercise evaluations shall be based on specific standards and criteria issued by DOE-HQ.

Exercise evaluation reports must be completed within 30 working days and submitted to RL SES. Evaluation reports for field exercises shall also be submitted to the Program Secretarial Officer, and the DOE-HQ Office of Emergency Operations director.

Corrective action plans for limited and field exercises shall be completed within 30 working days of receipt of the final evaluation report.

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[1]Exercises that focus on severe events should be conducted periodically and include events that impact multiple facilities and can cause the loss of infrastructure capabilities (e.g., onsite and offsite power, communications, roadways, support services, unavailability of mutual aid, etc.).

Completion of exercise corrective actions shall include a verification and validation process, independent of those who performed the corrective actions, that verifies that the corrective action has been put in place and that validates that the corrective action has been effective in resolving the original finding. Corrective actions involving revision of procedures or training should be completed before the next exercise.

A system to formally track exercise deficiencies and weaknesses to completion shall be maintained. Improvement items will be provided to the appropriate organization for implementation as required. A system to provide trending and lessons learned shall also be maintained for exercises.

Quarterly reports shall be provided to RL SES on the status of all formally tracked corrective actions.

13.5 OFFSITE COORDINATION

Offsite agencies, including DOE-HQ, state, local, and appropriate Federal organizations, shall be invited to participate in the annual field exercises (and preparatory tabletop exercise, if conducted). Participation by offsite agencies is dependent upon the scenario and the agencies desired level of participation.

Coordination of offsite participation shall be accomplished through a Scenario Review Group (SRG), which shall meet periodically prior to an exercise to develop the exercise scenario package. Exercise needs of offsite agencies shall be discussed with the SRG and included in the scenario, to the extent possible, without compromising the onsite exercise requirements.

13.6 NO-NOTICE EXERCISES

The Hanford Site shall participate in a program of no-notice exercises, conducted at the discretion of the DOE-HQ Office of Emergency Operations, to determine if the Hanford Emergency Response Organization accomplishes selected objectives based on applicable plans, procedures, and/or other established requirements. Involvement is limited to providing trusted agents and responding when the exercise is conducted, unless otherwise specified by DOE-HQ Office of Emergency Operations.

14.0 PROGRAM ADMINISTRATION

The basic purpose of program administration is to establish and maintain effective organizational management and control of the emergency management program. While ORP/PNSO and its contractors participate in an integrated Hanford Site emergency management program, RL retains the primary responsibility to oversee, coordinate, and assess the emergency management programs of the Hanford Site contractors. RL will ensure the preparation and maintenance of plans and procedures necessary for RL/ORP/PNSO to carry out its responsibilities during an emergency and will schedule through ORP/PNSO any activities (i.e., drills, exercises, assessments) of ORP/PNSO contractors.

14.1 EMERGENCY MANAGEMENT PROGRAM ADMINISTRATOR

The RL Manager has the responsibility for administering the overall Hanford Site emergency management program and has delegated the authority to develop, implement, and maintain the emergency management program to the RL SES director. The RL Emergency Preparedness Program Manager of RL SES carries out these responsibilities. Key program decisions and/or policy changes will be coordinated with ORP/PNSO prior to implementation. The ORP/PNSO Managers have the responsibility for administering their respective field office emergency management program and for participating in the Hanford Site emergency management program.

Each site contractor shall designate an individual to implement site- and contractor-level emergency management program requirements. This individual shall also assist, as necessary, in the development and maintenance of this plan and applicable implementing procedures; development of Emergency Readiness Assurance Plans (ERAP) and annual updates; development and conduct of training and exercise programs; coordination of assessment activities; development of related documentation; and coordination of emergency resources.

14.1.1 Emergency Management Functions at the Richland Operations Office/Office of River Protection/Pacific Northwest Site Office

The RL/ORP/PNSO Emergency Preparedness staff functions, as appropriate to the responsibilities described above, related to overseeing site contractor emergency preparedness programs include:

- ensuring that EPHAs and hazards surveys are adequately performed and documented;
- reviewing and recommending approval of the respective ERAPs, and submitting the ERAP to the respective Program Secretarial Officer and the DOE-HQ Office of Emergency Operations director for inclusion in the annual report;
- assessing facility emergency preparedness programs to verify compliance with appropriate Federal and state directives and policy;
- submitting DOE Order requirement exemption requests, as necessary, for approval by the respective Program Secretarial Officer and Office of Emergency Operations director;
- reviewing exercise packages and exercise evaluation reports for their respective field office; and
- reviewing written reports of evaluations of declared events.

RL Emergency Preparedness Program Manager functions to ensure that RL/ORP/PNSO can carry out its responsibilities in an emergency include:

- assigning a senior emergency preparedness representative to the Emergency Management Advisory Committee;
- revising and updating this plan and the *Emergency Plan Implementing Procedures* (DOE-0223) in accordance with the current version of DOE O 151.1 and other appropriate Federal and state regulations, and ensuring integration within the overall emergency management program;
- implementing and maintaining the Hanford Site emergency exercise program, approving site exercise packages prior to the exercise, and issuing exercise evaluation reports;
- interfacing with Federal, tribal, state, and local emergency management organizations;
- maintaining and negotiating agreements with state and county response agencies, Federal assistance agencies, and maintaining agreements with medical and fire support agencies;
- providing training to state and local emergency response personnel, as requested;
- recruiting and training staff for the Hanford EOC; and
- maintaining the Hanford EOC facility and equipment.

14.2 EMERGENCY READINESS ASSURANCE PROGRAM

The emergency readiness assurance program shall establish a framework and associated mechanisms for assuring that emergency plans, implementing procedures, and resources are adequate by ensuring that they are sufficiently maintained, exercised, and evaluated (including assessment and appraisal) and that appropriate and timely improvements are made in response to needs identified through coordinated and comprehensive emergency planning, training and drills, exercises, and evaluations. The emergency readiness assurance program shall consist of evaluations, improvements, and ERAPs.

14.2.1 Evaluations

Evaluations identify findings in emergency management programs and/or provide assurance that emergency capabilities are sufficient to implement emergency plans. Readiness assurance evaluation activities include program and exercise evaluations, tracking performance indicators, and no-notice exercises.

14.2.1.1 Program Evaluations. Contractors shall conduct an annual self-assessment of their emergency management programs.

RL shall assess the Hanford Site emergency management program annually. In addition, RL/ORP/PNSO shall evaluate the emergency management program of each site contractor under its supervision at least once every three years. RL/ORP/PNSO shall notify the Program Secretarial Officer of its evaluation schedule.

Program evaluations (including appraisals and assessments) shall be based on specific standards and criteria issued by the DOE-HQ Office of Emergency Operations. Program evaluation results shall be documented in the ERAP.

14.2.1.2 Exercise Evaluations. Exercise evaluation requirements are delineated in section 13.4 of this plan.

14.2.1.3 Performance Indicators. RL/ORP/PNSO and its contractors shall participate in a program of performance indicators (including performance measures and metrics) to capture and track objective data regarding the performance of emergency management programs in key functional areas. Performance indicator data shall be collected and subsequently included in annual ERAPs.

14.2.1.4 No-Notice Exercises. No-notice exercise requirements are delineated in section 13.6 of this plan.

14.2.2 Improvements

Appropriate and timely improvements are made in response to needs identified through coordinated emergency planning, program assistance activities, evaluations, training, drills, and exercises.

14.2.2.1 Corrective Actions. The following corrective action requirements supplement those in DOE O 414.1A, *Quality Assurance*. Continuous improvement in the emergency management program results from implementation of corrective actions for findings (e.g., deficiencies, weaknesses) in all types of evaluations, including both internal and external evaluations.

Reports of RL/ORP/PNSO evaluations of site contractor emergency management programs shall be submitted to the Program Secretarial Officer and the Office of Emergency Operations director. Evaluation reports must be completed within 30-working days.

Corrective action plans shall be developed within 30-working days of receipt of the final evaluation report. Corrective actions shall be completed as soon as possible. Corrective actions addressing revision of procedures or training of personnel should be completed before the next annual self-assessment of the program.

Completion of corrective actions shall include a verification and validation process, independent of those who performed the corrective action, that verifies that the corrective action has been put in place, and validates that the corrective action has been effective in resolving the original finding.

14.2.2.2 Lessons Learned. RL/ORP/PNSO and site contractor emergency management programs shall include a system for incorporating, tracking, and trending lessons learned from training, drills, exercises, actual responses, and a site-wide lessons learned program. In addition, RL/ORP/PNSO/and site contractors shall participate in the DOE Corporate Lessons Learned Program.

Lessons learned should be used to determine scope, objectives, and frequency of future drills and exercises.

14.2.3 Emergency Readiness Assurance Plans

RL/ORP and their respective site contractor Emergency Preparedness personnel shall participate in the preparation of a consolidated ERAP. As such, individual facility ERAPS are not provided.

The ERAP is a planning tool to identify and develop needed resources and improvements, and to highlight changes and achievements in the emergency management program. In keeping with 31 U.S.C. 1115 and 1116, the ERAP shall identify what the goals were for the fiscal year that ended (e.g., September 30) and the degree to which these goals were accomplished. This ERAP shall also identify the goals for the next fiscal year (e.g., which starts on October 1).

Site contractor Emergency Preparedness personnel shall submit initial or updated emergency planning and preparedness activities information, as indicated above, to RL SES by September 30 each year, or as otherwise directed by RL SES, for review and inclusion in the consolidated ERAP.

The RL Emergency Preparedness Program Manager shall review and finalize the consolidated ERAP for approval by the RL Manager (or designee). Concurrence from ORP shall be obtained prior to approval by the RL Manager. The consolidated ERAP shall be submitted to the Program Secretarial Officer and DOE-HQ Office of Emergency Operations director by November 30 each year.

PNSO and PNNL shall submit information through the DOE Office of Science as directed.

14.3 DOCUMENT CONTROL

This plan and RL/ORP/PNSO and site contractor implementing procedures shall be controlled distribution documents. RL/ORP/PNSO and site contractors shall use a document control system to ensure that controlled copies are up to date and available at locations where they may be needed in an emergency. RL/ORP/PNSO and site contractors shall determine the internal and external controlled copy distribution of the emergency plan and respective implementing procedures.

14.3.1 Review and Update of the Hanford Emergency Management Plan and Richland Operations Office/Office of River Protection/Pacific Northwest Site Office and Site Contractor Implementing Procedures

This plan and DOE-0223, *Emergency Plan Implementing Procedures*, will be reviewed at least annually. Revision of this plan and DOE-0223 may be initiated at any time deemed necessary and shall be concurred upon by RL/ORP/PNSO and site contractors, as applicable. Plan revisions shall be approved by the RL Manager (or designee). A procedure describing the development, revision, review, and approval process is delineated in DOE-0223.

A controlled copy of the approved plan and DOE-0223 (if requested) shall be submitted to the DOE-HQ Office of Emergency Operations and the Program Secretarial Officer.

Site contractor emergency plans (e.g., building emergency plans) and implementing procedures shall be reviewed at least annually.

14.3.1.1 Review and Update Based on WAC 173-303.[1] Portions of this plan, together with Hanford Site location/activity-specific documentation established to meet contingency plan requirements, must be reviewed and immediately amended, if necessary, whenever:

- applicable regulations or the Hanford Facility RCRA Permit are revised;
- this plan or the location/activity-specific building emergency plan/procedure fails in an emergency;
- the Hanford Site facilities/activities change (e.g., design, operation, maintenance, etc.) in a way that materially increases the potential for fires, explosions, or releases of dangerous waste or dangerous waste constituents, or in a way that changes the response necessary in an emergency; or
- the list of emergency equipment changes.

[1] Permit requirement: Subsection 14.3.1.1, Class [1]1 Modification 9/30/00

14.3.2 Review of Agreements

Agreements with local, state, and Federal officials and agencies (as contained in Appendix B) are maintained by RL SES and are reviewed periodically (unless otherwise stated) and revised as needed. Updates may be initiated either by RL or by the agreement official or agency. RL SES shall maintain documentation of the review.

14.3.3 Classified Information

RL/ORP/PNSO and site contractors shall ensure that emergency preparedness documents, such as plans, procedures, scenarios, and assessments, are reviewed, as necessary, for classified and Unclassified Controlled Nuclear Information (UCNI) by an authorized derivative classifier or UCNI reviewing official.

14.3.4 Supporting Documents

RL SES shall maintain copies of documents and records that support the emergency management program (i.e., technical data, hazards assessments, ERAPs, and plans and procedures). Records of training, drills, and exercises shall be maintained to document status of the program and provide direction for improvements.

Hanford Site contractors shall maintain records that will provide documentation of the facility emergency preparedness program and to support the preparation of the ERAP, work plans, etc.

14.3.5 Vital Records

A program shall be established to ensure that emergency documents, regardless of media, essential to continued functioning or reconstruction of an organization during and after an emergency, are identified as vital records and managed per 36 CFR 1223, DOE O 243.2, *Vital Records*, and additional contract-specific documents, if applicable. The vital records program ensures the protection and availability of information critical to effective emergency response management.

RL/ORP/PNSO and site contractors shall review their respective emergency documents identified as vital records at least annually to ensure that the documents are up-to-date and immediately accessible, and to determine necessary additions to or deletions from the vital records list.

The *Emergency Plan Implementing Procedures* (DOE-0223) and contractor EPHAs shall be stored at the Hanford EOC (primary and alternate) in paper form so they can be used without reliance on mechanical equipment. Other emergency operating records designated as vital shall be stored at the Hanford EOC (primary and alternate) in electronic format.

14.3.6 Emergency Records

RL/ORP/PNSO and site contractor emergency procedures that contain information for review and reconstruction of major communications and actions taken during a declared emergency shall be regarded as emergency records. These records include, but are not limited to, logs and documentation produced by the respective emergency response organizations (i.e., Incident Command Organization and the Hanford EOC). RL SES shall maintain emergency records generated during the operation of the Hanford EOC and may also request copies of emergency records generated at other emergency response locations.

In addition, provisions shall be in place for the control, monitoring, and maintenance of permanent records of onsite personnel exposures to internal/external radiological and nonradiological hazardous materials in response to emergency conditions. Exposure records shall be stored in accordance with existing site records retention requirements.

14.3.7 Plan Locations[2]

Copies of this plan are maintained at:

- RL and ORP Emergency Preparedness program offices;
- each contractor Emergency Preparedness office and other locations as specified by the respective contractor;
- Hanford Fire Department (area fire stations);
- Hanford EOC Shift Office;
- Hanford Emergency Operations Center (primary and alternate); and
- the Patrol Operations Center.

Copies of the plan are also maintained at the following offsite agencies (per their request) to meet the WAC 173-303-350(4) requirement:

- Pasco Police Department;
- Adams County Sheriff's Office;
- Pasco Fire Department;
- College Place Fire Department;
- Kadlec Regional Medical Center;
- Lourdes Medical Center;
- Trios Health;
- Benton County Emergency Management Center;
- Franklin County Emergency Management Center; and
- Grant County Emergency Management Center.

Copies of location-specific documentation are provided to offsite agencies as requested.

[2] Permit requirement: Subsection 14.3.7, Class 1 Modification 6/30/14

15.0 REFERENCES

Atomic Energy Act of 1954, 42 USC 2011 et seq., Public Law 83-703, as amended.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 USC 9601 et seq.

DOE, 2005, *Comprehensive Emergency Management System*, DOE O 151.1C, U.S. Department of Energy, Washington, D.C.

DOE, 2011, *Accident Investigations*, DOE O 225.1B, U.S. Department of Energy, Washington, D.C.

DOE, 2011, *Occurrence Reporting and Processing of Operations Information*, DOE O 232.2, U.S. Department of Energy, Washington, D.C.

DOE, 2010, *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*, DOE O 426.2, U.S. Department of Energy, Washington, D.C.

DOE, 2007, *Emergency Management Guide*, U.S. Department of Energy, Washington, D.C.

DOE, 1992a, *U.S. Department of Energy, Richland Operations Office, Emergency Plan Implementing Procedures*, DOE-0223, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL, 2008, *U.S. Department of Energy Radiological Assistance Program Response Plan Region 8*, DOE/RL-92-49, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

EPA, 1992, *Manual of Protective Action Guides and Protective Actions for Nuclear Incidents*, U.S. Environmental Protection Agency, Washington, D.C.

NFPA 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, National Fire Protection Association, (latest edition).

Resource Conservation and Recovery Act of 1976, 42 USC 6901 et seq.

Superfund Amendment and Reauthorization Act of 1986, 42 USC 11001 et seq.

10 CFR 835.1301, General Provisions et seq.

29 CFR 1910.38, Emergency Action Plans.

29 CFR 1910.120, Hazardous Waste Operations and Emergency Response.

36 CFR 1223, Maintaining Vital Records.

40 CFR 761, Polychlorinated biphenyls (PCB) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.

41 CFR 102-74-360, What are the specific accident and fire prevention responsibilities of occupant agencies?

49 CFR, Transportation et seq.

WAC 173-303-040, Definitions.

WAC-173-303-090, Dangerous Waste Characteristics.

WAC 173-303-100, Dangerous Waste Criteria.

WAC 173-303-350, Contingency Plan and Emergency Procedures.

WAC 173-303-360, Emergencies.

APPENDIX A

DOCUMENTATION CROSSWALK MATRIX

REQUIREMENT SOURCE	REQUIREMENT DESCRIPTION	HOW IS REQUIREMENT MET?
WAC 173-303-340 Introduction	Preparedness and prevention. Facilities must be designed, constructed, maintained, and operated to minimize the possibility of fire, explosion, or any unplanned sudden or nonsudden release of dangerous waste or dangerous waste constituents to air, soil, or surface or ground water, which could threaten the public health or the environment. This Section describes preparations and preventive measures, which help avoid or mitigate such situations.	The Hanford Site is a singular facility made of individual TSD units.
WAC 173-303-340(1) (Permit requirement)	Required equipment. Required equipment. All facilities must be equipped with the following, unless it can be demonstrated to the department that none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified below: (a) An internal communications or alarm system capable of providing immediate emergency instruction to facility personnel; (b) A device, such as a telephone or a hand-held, two-way radio, capable of summoning emergency assistance from local police departments, fire departments, or state or local emergency response teams; (c) Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment; and (d) Water at adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems. All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be tested and maintained as necessary to assure its proper operation in time of emergency.	Unit level: Equipment is documented in accordance WAC 173-303-350(3)(e) in Parts III, V, and VI of the Hanford Facility Dangerous Waste Permit (WA7890008967).
WAC 173-303-340(2) (Permit requirement)	Access to communications or alarms. Personnel must have immediate access to the signaling devices described in the situations below: (a) Whenever dangerous waste is being poured, mixed, spread, or otherwise handled, all personnel involved must have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee, unless such a device is not required in subsection (1) of this Section; (b) If there is ever just one employee on the premises while the facility is operating, he must have immediate access to a device, such as a telephone or a hand-held, two-way radio, capable of summoning external emergency assistance, unless such a device is not required in subsection (1) of this Section.	Site personnel are provided access to signaling devices.
WAC 173-303-340(3) (Permit requirement)	Aisle space. The owner or operator must maintain aisle space to allow the unobstructed movement of personnel. Fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency, unless it can be demonstrated to the department that aisle space is not needed for any of these purposes.	Unit level: Parts III, V, and VI of the Hanford Facility Dangerous Waste Permit (WA7890008967).
WAC 173-303-340(4) (Permit requirement)	Arrangements with local authorities. The owner or operator must attempt to make the following arrangements, as appropriate for the type of waste handled at his facility and the potential need for the services of these organizations, unless the hazards posed by wastes handled at the facility would not require these arrangements: (a) Arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of dangerous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to roads inside the facility, and possible evacuation routes; (b) Arrangements to familiarize local hospitals with the properties of dangerous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility; (c) Agreements with state emergency response teams, emergency response contractors, and equipment suppliers; and (d) Where more than one party might respond to an emergency, agreements designating primary emergency authority and agreements with any others to provide support to the primary emergency authority.	Site level: DOE/RL-94-02, Sections 3.2.3, 3.3.1, 3.3.2, 3.4, 3.4.1.1, 3.4.1.2, 3.4.1.3, 3.7, and Table 3-1, Memoranda of Understanding.

REQUIREMENT SOURCE	REQUIREMENT DESCRIPTION	HOW IS REQUIREMENT MET?
WAC 173-303-340(5)	Where state or local authorities decline to enter into such agreements, the owner, or operator must document the refusal in the operating record.	Site level: If authorities decline, the documentation will be maintained in the Hanford Facility Operating Record.
WAC 173-303-350(1)	Purpose. The purpose of this Section and WAC 173-303-360 is to lessen the potential impact on the public health and the environment in the event of an emergency circumstance, including a fire, explosion, or unplanned sudden or nonsudden release of dangerous waste or dangerous waste constituents to air, soil, surface water, or ground water by a facility. A contingency plan must be developed to lessen the potential impacts of such emergency circumstances, and the plan must be implemented immediately in such emergency circumstances.	Site level: DOE/RL-94-02 Unit level: Contingency plans for Parts III, V, and VI of the Hanford Facility Dangerous Waste Permit (WA7890008967).
WAC 173-303-350(2)	Each owner or operator must have a contingency plan at his facility. A contingency plan must be developed to lessen the potential impacts of such emergency circumstances, and the plan must be implemented immediately in such emergency circumstances.	Site-level: DOE/RL-94-02 Unit-level: Contingency plans for Parts III, V, and VI of the Hanford Facility Dangerous Waste Permit (WA7890008967).
WAC 173-303-350(3)(a) (Permit requirement)	The contingency plan must contain the following: (a) A description of the actions which facility personnel must take to comply with this Section and WAC 173-303-360;	Site-level: DOE/RL-94-02, Section 1.3.4. Unit-level: Contingency plans for Parts III, V, and VI of the Hanford Facility Dangerous Waste Permit (WA7890008967).
WAC 173-303-350(3)(b) (Permit requirement)	The contingency plan must contain the following: (b) A description of the actions which will be taken in the event that a dangerous waste shipment, which is damaged or otherwise presents a hazard to the public health and the environment, arrives at the facility, and is not acceptable to the owner or operator, but cannot be transported, pursuant to the requirements of WAC 173-303-370(5), Manifest system, reasons for not accepting dangerous waste shipments;	Site-level: DOE/RL-94-02, Section 1.3.4. Unit-level: Contingency plans for Parts III, V, and VI of the Hanford Facility Dangerous Waste Permit (WA7890008967).
WAC 173-303-350(3)(c) (Permit requirement)	The contingency plan must contain the following: (c) A description of the arrangements agreed to by local police departments, fire departments, hospitals, contractors, and state and local emergency response teams to coordinate emergency services as required in WAC 173-303-340(4);	Site-level: DOE/RL-94-02, Sections 3.2.3, 3.3.1, 3.3.2, 3.4, 3.4.1.1, 3.4.1.2, 3.4.1.3, 3.7, and Table 3-1.
WAC 173-303-350(3)(d) (Permit requirement)	The contingency plan must contain the following: (d) A current list of names, addresses, and phone numbers (office and home) of all persons qualified to act as the emergency coordinator required under WAC 173-303-360(1). Where more than one person is listed, one must be named as primary emergency coordinator, and others must be listed in the order in which they will assume responsibility as alternates. For new facilities only, this list may be provided to the department at the time of facility certification (as required by WAC 173-303-810(14)(a)(i)), rather than as part of the permit application;	Site-level: DOE/RL-94-02, Section 2.2, discusses personnel job titles, which will fill duties and responsibilities of the Emergency Coordinator, described in WAC 173-303-360. Unit-level: Contingency plans for Parts III, V, and VI of the Hanford Facility Dangerous Waste Permit (WA7890008967).
WAC 173-303-350(3)(e) (Permit requirement)	The contingency plan must contain the following: (e) A list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems, and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.	Site-level: DOE/RL-94-02, Section 11.2.8.Unit-level: Contingency plans for Parts III, V, and VI of the Hanford Facility Dangerous Waste Permit (WA7890008967).

REQUIREMENT SOURCE	REQUIREMENT DESCRIPTION	HOW IS REQUIREMENT MET?
WAC 173-303-350(3)(f) (Permit requirement)	The contingency plan must contain the following: (f) An evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe the signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes.	Site-level: DOE/RL-94-02, Figure 7-3, and Table 5-1. Unit-level: Contingency plans for Parts III, V, and VI of the Hanford Facility Dangerous Waste Permit (WA7890008967).
WAC 173-303-350(4) (Permit requirement)	Copies of contingency plan. A copy of the contingency plan and all revisions to the plan shall be: (a) Maintained at the facility; and (b) Submitted to all local police departments, fire departments, hospitals, and state and local emergency response teams that may be called upon to provide emergency services.	Site-level: DOE/RL-94-02, Section 14.3.7.
WAC 173-303-350(5) (Permit requirement)	Amendments. The owner or operator shall review and immediately amend the contingency plan, if necessary, whenever: (a) Applicable regulations or the facility permit are revised; (b) The plan fails in an emergency; (c) The facility changes (in its design, construction, operation, maintenance, or other circumstances) in a way that materially increases the potential for fires, explosions, or releases of dangerous waste or dangerous waste constituents, or in a way that changes the response necessary in an emergency; (d) The list of emergency coordinators changes; or (e) The list of emergency equipment changes.	Site-level: DOE/RL-94-02, Section 14.3.1.1.
WAC 173-303-355(1) (Permit requirement)	Owners or operators must coordinate preparedness and prevention planning and contingency planning efforts, conducted under WAC 173-303-340 and -350 with local emergency planning committees established pursuant to Title III of the 1986 Superfund Amendments and Reauthorization Act.	Site-level: DOE/RL-94-02, Sections 3.1, 3.1.1, and 3.4.
WAC 173-303-355(2)	Appropriate and generally accepted computer models should be utilized to determine the impacts of a potential catastrophic air release due to fire, explosion, or other accidental releases of hazardous constituents. Evacuation plans prepared pursuant to WAC 173-303-350(3)(d) must include those effected persons and areas identified through these modeling efforts.	Site-level: DOE/RL-94-02, Sections 2.2.2.3.3, and 1.3.3.2.
WAC 173-303-360(1) (Permit requirement)	Emergency coordinator. At all times, there must be at least one employee either on the facility premises or on call with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the facility's contingency plan, required by WAC 173-303-350(2), all operations and activities at the facility, the location and properties of all wastes handled, the location of all records within the facility, and the facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan.	Site-level: DOE/RL-94-02, Section 1.3.4 and 2.2.
WAC 173-303-360(2)(a) (Permit requirement)	Emergency procedures. The following procedures must be implemented in the event of an emergency. (a) Whenever there is an imminent or actual emergency situation, the emergency coordinator (or his designee when the emergency coordinator is on call) must immediately: (i) Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and (ii) Notify appropriate state or local agencies with designated response roles if their help is needed.	Site-level: DOE/RL-94-02, Sections 1.3.4 and 5.2.1.
WAC 173-303-360(2)(b) (Permit requirement)	Emergency procedures. (b) Whenever there is a release, fire, or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and areal extent of any released materials.	Site-level: DOE/RL-94-02, Sections 2.2.1.1.2(f) and 2.2.1.1.3(g).
WAC 173-303-360(2)(c) (Permit requirement)	Emergency procedures. (c) Concurrently, the emergency coordinator shall assess possible hazards to human health and the environment (considering direct, indirect, immediate, and long-term effects) that may result from the release, fire, or explosion.	Site-level: DOE/RL-94-02, Section 4.2.

REQUIREMENT SOURCE	REQUIREMENT DESCRIPTION	HOW IS REQUIREMENT MET?
WAC 173-303-360(2)(d) (Permit requirement)	Emergency procedures. (d) If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health or the environment, he must report his findings as follows: (i) If his assessment indicates that evacuation of local areas may be advisable, he must immediately notify appropriate local authorities. He must be available to help appropriate officials decide whether local areas should be evacuated; and (ii) He must immediately notify the department and either the government official designated as the on-scene coordinator, or the National Response Center (using their 24-hour toll free number (800) 424-8802).	Site-level: DOE/RL-94-02, Sections 2.2.1.1.2(a) & (d), 2.2.1.1.3 (a), & (e), 5.1.1, 5.1.1.2, 5.1.2, and 5.1.2.1.
WAC 173-303-360(2)(e) (Permit requirement)	Emergency procedures. (e) His assessment report must include: (i) Name and telephone number of reporter; (ii) Name and address of facility; (iii) Time and type of incident (e.g., release, fire); (iv) Name and quantity of material(s) involved, to the extent known; (v) The extent of injuries, if any; and (vi) The possible hazards to human health or the environment outside the facility.	Site-level: DOE/RL-94-02, Sections 2.2.1.1.2(d), 2.2.1.1.3(e), 5.1.1, 5.1.1.2, and 5.1.2.1.
WAC 173-303-360(2)(f) (Permit requirement)	Emergency procedures. (f) During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other dangerous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting, and containing released waste, and removing or isolating containers.	Site-level: DOE/RL-94-02, Sections 2.2.1.1.2.f and 2.2.1.1.3.g.
WAC 173-303-360(2)(g) (Permit requirement)	Emergency procedures. (g) If the facility stops operations in response to a fire, explosion, or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.	Site-level: DOE/RL-94-02, Sections 2.2.1.1.2.f and 2.2.1.1.3.g.
WAC 173-303-360(2)(h) (Permit requirement)	Emergency procedures. (h) Immediately after an emergency, the emergency coordinator must provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.	Site-level: DOE/RL-94-02, Section 9.2.3.
WAC 173-303-360(2)(i) (Permit requirement)	Emergency procedures. (i) The emergency coordinator must ensure that, in the affected area(s) of the facility: (i) No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and (ii) All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.	Site-level: (i) DOE/RL-94-02, Section 9.2.3. Site-level: (ii) DOE/RL-94-02, Section 11.2.
WAC 173-303-360(2)(j) (Permit requirement)	Emergency procedures. (j) The owner or operator must notify the department, and appropriate local authorities, that the facility is in compliance with (i) of this subsection before operations are resumed in the affected area(s) of the facility.	Site-level: DOE/RL-94-02, Section 5.1.2.3.
WAC 173-303-360(2)(k) (Permit requirement)	Emergency procedures. (k) The owner or operator must note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within fifteen days after the incident, he must submit a written report on the incident to the department. The report must include: (i) Name, address, and telephone number of the owner or operator; (ii) Name, address, and telephone number of the facility; (iii) Date, time, and type of incident (e.g., fire, explosion); (iv) Name and quantity of material(s) involved; (v) The extent of injuries, if any; (vi) An assessment of actual or potential hazards to human health or the environment, where this is applicable; (vii) Estimated quantity and disposition of recovered material that resulted from the incident; (viii) Cause of incident; and (ix) Description of corrective action taken to prevent reoccurrence of the incident.	Site-level: DOE/RL-94-02, Section 5.1.2.2.

REQUIREMENT SOURCE	REQUIREMENT DESCRIPTION	HOW IS REQUIREMENT MET?
40 CFR 761.65(c)(1)(iv) and (c)(7)(ii) SPCC Plans for PCBs	Temporary Storage Areas (less than 30-days). (c)(1)(iv): PCB containers containing liquid PCBs at concentrations of ≥50 ppm, provided a Spill Prevention, Control and Countermeasure Plan has been prepared for the temporary storage area in accordance with part 112 of this chapter and the liquid PCB waste is in packaging authorized in the DOT Hazardous Materials Regulations at 49 CFR parts 171 through 180 or stationary bulk storage tanks (including rolling stock such as, but not limited to, tanker trucks, as specified by DOT). (c)(7)(ii): The owners or operators of any facility using containers described in paragraph (c)(7)(i) of this Section, shall prepare and implement a Spill Prevention Control and Countermeasure (SPCC) Plan as described in Part 112 of this title. In complying with 40 CFR Part 112, the owner or operator shall read "oil(s)" as "PCB(s)" whenever it appears. The exemptions for storage capacity, 40 CFR 112.1(d)(2), and the amendment of SPCC plans by the Regional Administrator, 40 CFR 112.4, shall not apply unless some fraction of the liquids stored in the container are oils as defined by Section 311 of the Clean Water Act.	Site-level: DOE/RL-94-02, Sections 1.1 (fourth paragraph), 1.2 (first bullet, sixth dash and second bullet, fourth dash), and 2.2.1.1.2 (first paragraph). Unit-level: Contingency plans for Parts III, V, and VI of the Hanford Facility Dangerous Waste Permit (WA7890008967).

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APPENDIX B

MEMORANDA OF UNDERSTANDING

This appendix contains copies of memoranda of understanding between the U.S. Department of Energy Richland Operations Office and the agencies listed in the table below.

Agency/Title	Page
State of Washington	3
State of Oregon	9
Benton County	15
Franklin County	21
Grant County	27
Energy Northwest	33
AREVA NP, Inc.	37
Lourdes Medical Center	41
Kadlec Medical Center	45
Kennewick General Hospital	49
Tri-County Mutual Aid Agreement	53
Mutual Law Enforcement Assistance (NOTE: Includes signature pages for Adams, Benton, Franklin, Grant, and Yakima County Sheriffs' Offices; Kennewick, Pasco, Richland, and West Richland Police Departments; and Washington State Patrol)	57
U.S. Fish and Wildlife Service and Mid-Columbia River National Wildlife Refuge Complex	71
Washington Department of Fish and Wildlife	75

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Military Department # U12-004

DOH Contract #N 19907
WSDA Contract # K1057

MEMORANDUM OF UNDERSTANDING
BETWEEN
U.S. DEPARTMENT OF ENERGY, RICHLAND OPERATIONS OFFICE
AND
WASHINGTON STATE
FOR
EMERGENCY PREPAREDNESS

I. PURPOSE

The purpose of this Memorandum of Understanding (MOU) is to describe the areas of cooperation between the State of Washington (State) and the U.S. Department of Energy (DOE), Richland Operations Office (RL) and Office of River Protection (ORP) (hereafter DOE Hanford), in their planning for and response to emergencies (referenced in Hanford Emergency Management Plan, DOE/RL-94-02) at the Hanford Site. It also describes assistance DOE Hanford will provide to the State for other radiological emergencies that originate on, or may affect, the Hanford Site.

The concept of operations, specific responsibilities and requirements that apply to the parties to this MOU are described in their respective emergency response plans and implementing procedures.

II. REFERENCES AND AUTHORITY

Hanford Emergency Management Plan, DOE/RL-94-02

DOE/RL Emergency Plan Implementing Procedures, DOE-0223

National Response Framework (NRF), January 2008

Washington State Integrated Fixed Facility Radiological & Chemical Protection Plan, March 2008

Washington State Emergency Operations Plan (EOP), April 2008

Chapter 38.52, Revised Code of Washington (RCW)

Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, EPA 400-R-92-0001

It is understood that all of the above references are current at the time of this writing. Any future changes to these references will be documented in the annual letter of review.

III. AREA OF RESPONSIBILITY

For the purpose of emergency preparedness planning ONLY, the following definitions of areas of responsibility shall generally apply:

A. DOE Hanford

DOE Hanford is responsible for working with state and local governments to protect public health and safety in the event of an emergency at the Hanford Site. DOE Hanford is responsible for those areas within Hanford Site boundaries as described in Hanford Emergency Management Plan, DOE/RL-94-02, excluding lands north and east of the Columbia River, river islands, lands owned or used by the Bonneville Power Administration, lands leased to Energy Northwest and lands owned or leased

to the State of Washington. RL shall coordinate all aspects of this agreement on behalf of RL and ORP.

B. State of Washington

Washington State is responsible for safeguarding the citizens, property, environment, and economy in those areas outside the Hanford Site, up to approximately a fifty-mile radius around the Hanford Site, except for portions within the State of Oregon.

IV. RESPONSE

A. Protective Action Criteria

The Protective Action Guides (PAGs) utilized by DOE Hanford to determine emergency classification and associated protective actions for radiological releases will be consistent with those contained in the Washington State Department of Health, Office of Radiation Protection, Radiological Emergency Response Plan and Procedures. The Emergency Response Planning Guides (ERPGs) utilized by DOE Hanford to determine emergency classification and associated protective actions for non-radiological releases will be those developed and approved by the American Industrial Hygiene Association.

B. Protective Action Recommendations

In the early phase of an emergency as defined in the Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, EPA 400-R-92-001, DOE Hanford has the responsibility for consequence assessment and developing associated Protective Action Recommendations (PARs). Consequence assessment and PAR development takes place in the Unified Dose Assessment Center (UDAC) located in the DOE Hanford Emergency Operations Center (EOC). In the early phase, DOE Hanford takes the lead in determining the radioactive plume footprint both onsite and offsite. In the intermediate and late phases the State has responsibility for consequence assessment and developing associated PARs and plume footprint. DOE Hanford will make the resources of the UDAC available to the State in the intermediate and late phases for purposes of dose assessment and PAR development.

C. Protective Action Decisions

DOE Hanford is responsible for making and implementing Protective Action Decisions (PADs) for all personnel within the Hanford Site boundaries. Washington State and affected counties are responsible for making and implementing PADs for emergency workers and the public within affected areas outside Hanford Site boundaries.

D. Radiological Support

As available, DOE Hanford will provide radiological monitoring field teams to assist in the identification of the plume footprint and relocation and food control boundaries. DOE Hanford will also provide radiological monitoring resources to assist the State in conducting monitoring and decontamination of the public at designated boat launches on the Columbia River. If requested, DOE Hanford will provide the State assistance in radiation exposure evaluation. These resources will be provided until other resources are available.

Military Department # U12-004

E. Medical Treatment Support

As available, DOE Hanford will provide the State assistance in health hazards assessment and medical treatment advice until such time as other resources are available to assist the State.

F. Exchange of Emergency Information

1. Notifications

DOE Hanford will maintain a Crash telephone and fax machine system, which enables DOE Hanford to provide prompt emergency notifications of events, including emergency classification levels and PARs simultaneously to Washington State Emergency Operations Center and the Hanford plume emergency planning zone (EPZ) counties of Benton, Franklin and Grant. Washington State Military Department, EMD, as the single point of contact for the State, will provide notifications to ingestion EPZ counties and any other state agencies that are procedurally required.

DOE Hanford and the State will provide liaisons to each other's EOCs, as available, to assist in information exchange.

2. Technical Data

As participants in the UDAC, State staff will have access to all technical data. Prior to arrival of State staff, DOE Hanford will transmit technical data directly to the State EOC and plume EPZ counties, as appropriate.

3. Emergency Public Information

During an emergency, media releases from DOE Hanford and the State will be coordinated to the maximum extent practical. DOE Hanford will activate a Joint Information Center (JIC), which is the primary location from which information will be released by DOE Hanford and the offsite agencies represented there. Each agency will focus its statements on issues within its responsibility. DOE Hanford agrees to provide accommodations and timely information within the JIC for the State to fulfill its public information responsibilities.

V. PREPAREDNESS

A. Coordination

DOE Hanford and the State will provide copies of applicable emergency plans and procedures to each other to ensure consistency. DOE Hanford and the State shall meet on an as needed basis to review the status of plans, procedures, agreements, and capabilities that may require revision and/or further development.

B. Exercises

DOE Hanford shall provide an opportunity for State participation in an annual Hanford Site emergency exercise, to the extent negotiated between DOE Hanford and the State. Washington State Emergency Management Division will coordinate the participation of other state agencies, as appropriate.

Military Department # U12-004

C. Public Education

Upon request, DOE Hanford will assist the State in the development of educational materials concerning Hanford Site hazards and appropriate actions to be taken by the general public in the event of an emergency at the Hanford Site.

VI. NON-EMERGENCY EVENT INFORMATION

Events may occur on the Hanford Site that do not meet DOE Hanford Emergency Action Level criteria but may generate public concern or could possibly escalate into an emergency. DOE Hanford will notify EMD and the plume EPZ Counties of non-emergency events, called Abnormal Events, in accordance with DOE Hanford plans and procedures. No offsite actions are necessary in response to these non-emergency events.

VII. OTHER EMERGENCIES

In the event of a radiological emergency not occurring at a DOE facility but originating on, or potentially affecting the Hanford Site, DOE Hanford will provide radiological monitoring assistance to the State, as available. These resources will be provided until other resources are available.

In the event a Columbia Generating Station emergency requires evacuation of the Columbia River, DOE Hanford will provide radiological monitoring resources to assist the State in conducting monitoring and decontamination of the public at designated boat launches, in accordance with county and State procedures.

VIII. EFFECTIVE DATE, MODIFICATION AND TERMINATION

Upon execution, this agreement supersedes any and all previous editions. The period of performance of this agreement shall commence as of the final dated signature and full execution of this agreement and end on **February 28, 2018**. The agreement may be amended at any time by mutual written consent of the parties. Any party may terminate this agreement by providing 60 days written notice to the other party. It is also provided that this agreement may be renewed every **six** years upon written notification by either party of the intent to do so, no later than 30 days before the conclusion of the performance period. Each party will conduct an annual review of the MOU to ensure that it is still appropriate based upon current plans and procedures. If the MOU is found to require significant changes, EMD will coordinate with DOE Hanford to update the MOU. If no significant changes are needed, EMD will coordinate with DOE Hanford to document minor changes that can be incorporated in the next scheduled revision.

IN WITNESS WHEREOF, the PARTIES hereto have executed this AGREEMENT as of the last date written below:

Military Department # U12-004

APPROVED FOR THE STATE OF WASHINGTON

Christine Gregoire

Governor Christine Gregoire

12/10/12
Date

Assistant Attorney General

6/20/12
Date

APPROVED FOR THE U.S. DEPARTMENT OF ENERGY, RICHLAND OPERATIONS OFFICE

Matthew McCormick, Manager

9/28/12
Date

Military Department # U12-004

RECORD OF CONCURRENCE
MEMORANDUM OF UNDERSTANDING
BETWEEN
THE STATE OF WASHINGTON
AND
U.S. DEPARTMENT OF ENERGY-RICHLAND OPERATIONS OFFICE

Bret D. Daugherty, Major General
The Adjutant General
Director, Washington Military Department

11/27/12
Date

Dan Newhouse, Director
Washington State
Department of Agriculture

10/24/2012
Date

Mary Selecky, Secretary
Washington State
Department of Health

10/17/2012
Date

RECEIVED

OCT 17 2012

DOH Contracts Office

Memorandum of Understanding

Between

The U.S. Department of Energy Richland Operations Office

and

The Oregon Department of Energy

for

Emergency Preparedness

I. PURPOSE

This Memorandum of Understanding (MOU) establishes a framework for cooperation and outlines responsibilities between the U.S. Department of Energy (DOE) Richland Operations Office (RL) and Office of River Protection (ORP) (hereafter DOE Hanford) and the Oregon Department of Energy (hereafter Oregon Energy) on behalf of the State of Oregon (hereafter Oregon) for preparedness and response to emergencies at the Hanford Site, a former nuclear production complex located in the State of Washington. This MOU also documents agreements to provide non-emergency event information to Oregon Energy.

An accident involving one of Hanford's facilities could result in the release of radioactive materials into the environment. This could impact Oregon residents, natural resources, agricultural products, and the Columbia River. These facilities include, but are not limited to, hazardous waste processing and storage facilities, underground waste storage tanks and research laboratories.

The responsibilities, requirements, and obligations identified in this MOU are consistent with DOE Hanford's and Oregon's emergency response plans and implementing procedures.

II. AUTHORITY

A. DOE Hanford

DOE Hanford is responsible for working with state and local governments to protect public health and safety in the event of an accident at Hanford. DOE Hanford is responsible for activities that occur in those areas within the Hanford Site boundaries, excluding lands north and east of the Columbia River, river islands, lands owned or used by the Bonneville Power Administration, lands leased to Energy Northwest and lands owned or leased to the State of Washington. DOE RL will coordinate all aspects of this agreement on behalf of DOE RL and DOE ORP.

B. Oregon

The Governor of Oregon is responsible for emergency preparedness and response in Oregon (Oregon Revised Statutes [ORS] 401.035). Oregon Energy has authority and responsibility for emergency preparedness and response to radiological accidents at fixed facilities and nuclear power plants (ORS 469.533) with potential impacts to Oregon. Oregon Energy will coordinate all aspects of this agreement on behalf of its jurisdictions. For Hanford emergencies, this includes portions of Morrow and Umatilla counties that are within 50 miles of the Hanford Site.

III. OBJECTIVES

DOE Hanford and Oregon Energy agree to coordinate their emergency preparedness programs for accidents at Hanford to establish and ensure consistent policies and procedures to:

- Protect public health, safety and the environment, and
- Promote public awareness of and confidence in Oregon's and DOE Hanford's response to an accident.

IV. EMERGENCY RESPONSIBILITIES

In the event of a Hanford Alert, Site Area or General Emergency, as defined in the Hanford Emergency Management Plan DOE/RL-94-02, DOE Hanford will promptly notify Oregon of the event. Notification includes providing the emergency classification and other pertinent information. The Oregon Energy Emergency Operations Center (EOC) and the DOE Hanford EOC will be activated and field teams will be dispatched as appropriate. Oregon Energy will notify and provide information to ingestion counties (Morrow and Umatilla) and make additional notifications as necessary.

Emergency Phase: (Plume)	DOE Hanford will advise Oregon Energy of recommended actions to protect residents as determined in emergency plans and procedures.
Intermediate Phase: (Ingestion)	Oregon Energy and Morrow and Umatilla counties, with the assistance of DOE Hanford, will identify Food Control Areas.
Recovery Phase:	Oregon Energy will direct recovery operations to restore conditions in Morrow and Umatilla counties to the pre-emergency status.

A. Emergency Information

During a Hanford emergency, the exchange of information between DOE Hanford and Oregon Energy will be via commercial telephone, fax machine, and crash telephone system. Oregon Energy may send representatives to the DOE Hanford EOC to facilitate information

exchange. DOE Hanford may send a representative to the Oregon Energy EOC for the same purpose.

- **Notification**

  DOE Hanford is responsible for providing prompt notification to Oregon Energy about emergencies on site. The Hanford Emergency Operations Center (EOC) Shift Office will notify the Oregon Emergency Response System (OERS) via the Crash phone and will also page the Oregon Energy Duty Officer to provide the notification. These notifications will be followed-up by a fax notification.

  Oregon Energy will immediately initiate appropriate notifications as described in the Oregon Columbia Generating Station/Hanford Emergency Response Plan. Upon activation of the Oregon Energy EOC, Oregon Energy will maintain communications with DOE Hanford via the crash line.

  Prior to the activation of DOE Hanford EOC, the EOC Shift Office will provide all essential information to Oregon by fax on an emergency notification form. Once the DOE Hanford EOC is operational, technical data and other important information will be provided from the DOE Hanford EOC.

- **Technical Data**

  Oregon Energy representatives at the Unified Dose Assessment Center (UDAC) will have access to all technical data. Prior to the arrival of Oregon Energy staff, DOE Hanford will transmit technical information directly to the Oregon Energy EOC.

- **Emergency Public Information**

  Emergency information released to the media and the public will be coordinated between DOE Hanford and offsite agencies to the extent practical. DOE Hanford will activate a Joint Information Center (JIC) to coordinate the release of emergency information from DOE Hanford and offsite agencies. Each response organization will focus its news release on issues within its responsibility.

  Oregon Energy will disseminate emergency information regarding Oregon's Protective Action Decisions (PADs) for emergency workers and the public. Morrow and Umatilla counties may also issue news releases or other emergency information. Information on state and local emergency response activities will also be included in the news releases. DOE Hanford will provide timely information and accommodations within the JIC for Oregon Energy representatives to fulfill public information responsibilities.

B. Emergency Measures and Criteria

The emergency measures identified and defined in this section provide for resources and actions necessary to protect the health and safety of emergency workers and the public within the plume and ingestion Emergency Planning Zones in the event of a Hanford accident.

- **Monitoring and Assessment**

DOE Hanford is responsible for monitoring and assessment within the Hanford Site boundaries. DOE Hanford will assist Washington and Oregon with assessment and, as resources are available, with offsite radiological monitoring. DOE Hanford and Oregon Energy will maintain procedures to ensure the coordination of onsite and offsite monitoring and assessment. To ensure the coordination of these activities, DOE Hanford will establish and maintain a UDAC at the DOE Hanford EOC. Oregon Energy representatives responding to the UDAC will work with DOE Hanford staff to determine the magnitude and location of radioactive material releases to the environment.

Emergency Phase:	DOE Hanford takes the lead in determining the radioactive plume footprint both onsite and offsite.
Intermediate Phase:	Oregon Energy takes the lead in determining relocation and Food Control Areas within Oregon. DOE Hanford will continue to provide UDAC staff to assist Oregon activities.

DOE Hanford will provide radiological monitoring field teams, as available, to assist offsite monitoring. DOE Hanford will assist Oregon Energy in identifying and securing additional federal resources if necessary.

- **Protective Actions**

DOE Hanford will assist Oregon Energy in developing ingestion Protective Action Recommendations (PARs) for emergency workers and the public. PARs will be developed based on Oregon's Protective Action Guides (PAGs). Oregon's PAGs are consistent with the Food and Drug Administration PAGs. The PAGs apply the quantity and duration of a radiological release with the analysis of field team and instrumentation data to develop PARs. Prior to the arrival of Oregon Energy staff, DOE Hanford UDAC staff will provide the Oregon Energy EOC with the necessary technical data to develop the PARs.

DOE Hanford is responsible for making and implementing PADs for all personnel within the Hanford Site boundaries. Oregon Energy is responsible for making and implementing PADs for emergency workers and the public offsite within affected areas of Oregon.

- **Recovery/Reentry Operations**

  Onsite recovery/reentry operations will be conducted in accordance with the DOE Hanford Emergency Management Plan and Emergency Implementing Procedures.

  A Recovery/Reentry Decision Group will be established to coordinate offsite activities following emergencies at Hanford as described in the Oregon Columbia Generating Station/Hanford Emergency Response Plan. DOE Hanford will provide a representative and assistance to the Oregon Energy EOC Decision Group upon request.

C. PREPAREDNESS

- **Coordination**

  DOE Hanford and Oregon Energy will meet periodically to review the status of plans, procedures, agreements, and capabilities that may require discussion, revision, and/or further development.

- **Exercises**

  DOE Hanford will provide an opportunity for offsite participation in annual exercises. Oregon Energy will determine the level of participation in the annual DOE Hanford exercise.

- **Public Education**

  Upon request, DOE Hanford will assist Oregon Energy in the development of educational materials concerning radiation, its hazards, and appropriate actions to be taken by the public in the event of a Hanford accident.

V. NON-EMERGENCY EVENT INFORMATION

Events may occur on the Hanford Site that do not meet emergency criteria but may generate public concern or escalate into an emergency. In order to enable Oregon Energy to respond effectively to these events, DOE Hanford will notify Oregon Energy of non-emergency events in accordance with DOE Hanford plans and procedures. Non-emergency events include those that meet criteria for Abnormal Events and Occurrence Reporting. No offsite actions are necessary in response to non-emergency events.

A. Abnormal Events

These events could escalate into emergencies or generate public concern or media interest. The EOC Shift Office will notify Oregon as soon as possible and in all cases within 30 minutes following categorization of the event. The EOC Shift Office will page the Oregon Energy Duty Officer to provide this notification.

B. Occurrence Reports

Occurrence Reports are prepared for incidents that may have some degree of impact on safe facility operations, worker or public safety and health, regulatory compliance, or public/business interests. The EOC Shift Office will send Occurrence Reports to Oregon on a weekly basis.

VI. EFFECT OF THIS MOU

- This MOU is neither a fiscal nor a funds obligation document.
- This Agreement is strictly for internal management purposes for each of the Parties. It is not legally enforceable and shall not be construed to create any legal obligation on the part of any of the Parties. This MOU shall not be construed to provide a private right or cause of action for or by any person or entity. Nonetheless, each Party shall make all reasonable efforts to fulfill its respective emergency responsibilities and comply with all other provisions of this Agreement.
- All agreements herein are subject to, and will be carried out in compliance with, all applicable Federal laws, regulations and other legal requirements.

VII. TERMS OF AGREEMENT

This agreement will become effective upon approval and shall remain in effect until canceled by either party by 30 days prior written notice to the other party. This agreement may be amended or modified only upon written agreement signed by all parties to the agreement.

APPROVED ON BEHALF OF THE OREGON DEPARTMENT OF ENERGY:

Lisa Schwartz, Director

7/16/13
Date

APPROVED FOR THE U.S. DEPARTMENT OF ENERGY RICHLAND OPERATIONS OFFICE:

Matt McCormick, Manager

7/1/13
Date

REVISED 082511

MEMORANDUM OF UNDERSTANDING BETWEEN U.S. DEPARTMENT OF ENERGY, RICHLAND OPERATIONS OFFICE AND BENTON COUNTY EMERGENCY SERVICES FOR EMERGENCY PREPAREDNESS

I. PURPOSE

The purpose of this Memorandum of Understanding (MOU) is to describe the areas of cooperation between Benton County and its incorporated jurisdictions and the U.S. Department of Energy (DOE), Richland Operations Office (RL) and Office of River Protection (ORP) (hereafter DOE Hanford), in their planning for and response to emergencies at the Hanford Site. It also describes assistance DOE Hanford will provide to Benton County for other radiological emergencies that originate on, or may affect, the Hanford Site.

The concept of operations, specific responsibilities and requirements that apply to the parties to this MOU are described in detail in their respective emergency response plans and procedures.

II. AREAS OF RESPONSIBILITY

For the purpose of emergency preparedness planning ONLY, the following definitions of areas of responsibility shall generally apply:

A. Benton County

This agreement applies to Benton County and its incorporated jurisdictions. Benton County Emergency Services (BCES), as an interlocal government agency under RCW 39.34, is responsible for emergency management activities and shall coordinate all aspects of this agreement on behalf of the jurisdictions within Benton County.

B. DOE Hanford

DOE Hanford is responsible for those areas within Hanford Site boundaries, excluding lands north and east of the Columbia River, river islands, lands owned or used by the Bonneville Power Administration, lands leased to Energy Northwest and lands owned or leased to the State of Washington. RL shall coordinate all aspects of this agreement on behalf of RL and ORP.

III. RESPONSE

A. Protective Action Criteria

The Protective Action Guides (PAGs) utilized by DOE Hanford to determine emergency classification and associated protective actions for radiological releases will be consistent with those contained in the *Washington State Department of Health, Division of Radiation Protection, Radiological Emergency Response Plan and Procedures*. The protective action criteria utilized by DOE Hanford to determine emergency classification and associated protective actions for non-radiological releases will be, listed in order of preference, Acute Exposure Guideline Levels (AEGLs) promulgated by the U.S. Environmental Protection Agency (EPA), Emergency Response Planning Guidelines (ERPGs) published by the American Industrial Hygiene Association, and Temporary Emergency Exposure Limits (TEELs) developed by DOE's Subcommittee on Consequence Assessment and Protective Actions.

B. Protective Action Recommendations

In the early phase of an emergency, DOE Hanford has the responsibility for dose assessment and developing associated Protective Action Recommendations (PARs) to provide to BCES. Dose assessment and PAR development takes place in the Unified Dose Assessment Center (UDAC) located in the DOE Hanford Emergency Operations Center (EOC). In the intermediate and late phases, Washington State has responsibility for dose assessment and developing associated PARs to provide to BCES. DOE Hanford will make the resources of the UDAC available to Washington State in the intermediate and late phases for purposes of dose assessment and PAR development.

C. Radiological Support

As available, DOE Hanford will provide radiological monitoring field teams to assist in the identification of the plume footprint and relocation and food control boundaries in Benton County. DOE Hanford will also provide radiological monitoring resources to assist Washington State in conducting monitoring and decontamination of the public at designated boat launches on the Columbia River. These resources will be provided until other resources are available.

D. Columbia River Alerting

DOE Hanford will maintain ten emergency sirens along the Columbia River, located between the Vernita Bridge and the Old Hanford Townsite, to alert boaters that may be on the river in the event of an emergency. Benton, Franklin, and Grant Counties will be responsible to determine when to alert the boaters and to activate the siren system. In order to facilitate siren activation by the Counties, DOE Hanford will maintain siren control stations at the Benton and Franklin County EOCs. In the event that the Benton and Franklin County EOCs are unable to activate the sirens, activation will be performed by DOE Hanford at the direction of the Counties. Upon request, DOE Hanford will provide personnel in boats to respond to designated

locations to warn boaters to avoid the evacuated area.

Special projects on the Hanford Site may require DOE Hanford to have the capability to provide emergency warning to boaters on the Columbia River with DOE's own resources. In the event of an emergency at one of these special projects, DOE will assume responsibility to warn boaters and control access to the potentially affected area of the river. Benton, Franklin or Grant Counties will provide personnel in boats to relieve Hanford resources as available. As part of the special project planning, DOE Hanford will coordinate with Benton, Franklin and Grant Counties to revise emergency procedures to enable DOE Hanford to activate the emergency river sirens and send DOE resources to warn boaters.

E. Exchange of Emergency Information

1. Notifications

DOE Hanford will maintain a Crash telephone system, which enables DOE Hanford to provide prompt emergency notifications and protective action recommendations to BCES. Southeast Communications will be the single point of contact for BCES until the Benton County EOC is declared operational.

DOE Hanford and BCES will provide liaisons to each other's EOCs, as available, to assist in information exchange.

2. Emergency Public Information

During an emergency, media releases from DOE Hanford and BCES will be coordinated to the maximum extent practical. DOE Hanford will activate a Joint Information Center (JIC), which is the primary location from which information will be released by DOE Hanford and the offsite agencies represented there. Each agency will focus its statements on issues within its responsibility. DOE Hanford agrees to provide accommodations and timely information within the JIC for BCES and/or Benton County to fulfill its public information responsibilities.

IV. PREPAREDNESS

A. Coordination

DOE Hanford and BCES will provide copies of applicable emergency plans and procedures to each other to ensure consistency. DOE Hanford and BCES shall meet periodically to review the status of plans, procedures, agreements, and capabilities that may require revision and/or further development.

B. Exercises

DOE Hanford shall provide an opportunity for BCES participation in an annual exercise, to the extent negotiated between DOE Hanford and BCES. BCES will coordinate the participation of emergency response organizations within the County.

C. Public Education

Upon request, DOE Hanford will assist BCES in the development of educational materials concerning Hanford hazards and appropriate actions to be taken by the general public in the event of an emergency at the Hanford Site.

V. OTHER EMERGENCIES

In the event a Columbia Generating Station emergency requires evacuation of the Columbia River, DOE Hanford will provide radiological monitoring resources to assist Washington State in conducting monitoring and decontamination of the public at designated boat launches. At the request of BCES, DOE Hanford will provide personnel and boats to designated locations to warn boaters to avoid the evacuated area.

VI. TERMS OF AGREEMENT

This agreement will become effective upon signature and will continue until it is canceled by any party in writing with at least thirty (30) days advance notice to the other parties. This agreement may be amended or modified only upon written agreement signed by all parties to the agreement.

APPROVED AS TO FORM

Attorney
City of Richland / BCES

8/26/11
Date

APPROVED FOR BENTON COUNTY EMERGENCY SERVICES

Chairman
Benton County Emergency Services Executive Board

8/25/11
Date

APPROVED FOR THE U.S. DEPARTMENT OF ENERGY, RICHLAND OPERATIONS OFFICE

Matt S. McCormick, Manager

11/28/11
Date

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MEMORANDUM OF UNDERSTANDING BETWEEN U.S. DEPARTMENT OF ENERGY, RICHLAND OPERATIONS OFFICE AND FRANKLIN COUNTY FOR EMERGENCY PREPAREDNESS

I. PURPOSE

The purpose of this Memorandum of Understanding (MOU) is to describe the areas of cooperation between Franklin County and its incorporated jurisdictions and the U.S. Department of Energy, Richland Operations Office (RL) and Office of River Protection (ORP) (hereafter DOE Hanford), in their planning for and response to emergencies at the Hanford Site. It also describes assistance DOE Hanford will provide to Franklin County, for other radiological emergencies that originate on, or may affect, the Hanford Site.

The concept of operations, specific responsibilities and requirements that apply to the parties to this MOU are described in their respective emergency response plans and procedures.

II. AREAS OF RESPONSIBILITY

For the purpose of emergency preparedness planning ONLY, the following definitions of areas of responsibility shall generally apply:

A. Franklin County

This agreement applies to Franklin County and its incorporated jurisdictions. Franklin County Emergency Management, as the political subdivision of Franklin County responsible for emergency management activities, shall coordinate all aspects of this agreement on behalf of the jurisdictions within Franklin County.

B. DOE Hanford

DOE Hanford is responsible for those areas within Hanford Site boundaries, excluding lands north and east of the Columbia River, river islands, lands owned or used by the Bonneville Power Administration, lands leased to Energy Northwest and lands owned or leased to the State of Washington. RL shall coordinate all aspects of this agreement on behalf of RL and ORP.

III. RESPONSE

A. Protective Action Criteria

The Protective Action Guides (PAGs) utilized by DOE Hanford to determine emergency classification and associated protective actions for radiological releases will be consistent with those contained in the *Washington State Department of Health, Division of Radiation Protection, Radiological Emergency Response Plan and Procedures.* The protective action criteria utilized by DOE Hanford to determine emergency classification and associated protective actions for non-radiological releases will be, listed in order of preference, Acute Exposure Guideline Levels (AEGLs) promulgated by the U.S. Environmental Protection Agency (EPA), Emergency Response Planning Guidelines (ERPGs) published by the American Industrial Hygiene Association, and Temporary Emergency Exposure Limits (TEELs) developed by DOE's Subcommittee on Consequence Assessment and Protective Actions.

B. Protective Action Recommendations

In the early phase of an emergency DOE Hanford has the responsibility for dose assessment and developing associated Protective Action Recommendations (PARs) to provide to Franklin County. Dose assessment and PAR development takes place in the Unified Dose Assessment Center (UDAC) located in the DOE Hanford Emergency Operations Center (EOC). In the intermediate and late phases Washington State has responsibility for dose assessment and developing associated PARs to provide to Franklin County. DOE Hanford will make the resources of the UDAC available to Washington State in the intermediate and late phases for purposes of dose assessment and PAR development.

C. Radiological Support

As available, DOE Hanford will provide radiological monitoring field teams to assist in the identification of the plume footprint and relocation and food control boundaries in Franklin County. DOE Hanford will also provide radiological monitoring resources to assist Washington State in conducting monitoring and decontamination of the public at designated boat launches on the Columbia River. These resources will be provided until other resources are available.

D. Columbia River Alerting

DOE Hanford will maintain ten emergency sirens along the Columbia River, located between the Vernita Bridge and the Old Hanford Townsite, to alert boaters that may be on the river in the event of an emergency. Benton, Franklin and Grant Counties will be responsible to determine when to alert the boaters and to activate the siren system. In order to facilitate siren activation by the Counties, DOE Hanford will maintain siren control stations at the Benton and Franklin County EOCs. In the event that the Benton and Franklin County EOCs are unable to activate the sirens, activation will be performed by DOE Hanford at the direction of the Counties. Upon

request, DOE Hanford will provide personnel in boats to respond to designated locations to warn boaters to avoid the evacuated area.

Special projects on the Hanford Site may require DOE Hanford to have the capability to provide emergency warning to boaters on the Columbia River with DOE's own resources. In the event of an emergency at one of these special projects, DOE will assume responsibility to warn boaters and control access to the potentially affected area of the river. Benton, Franklin or Grant Counties will provide personnel in boats to relieve Hanford resources as available. As part of the special project planning, DOE Hanford will coordinate with Benton, Franklin and Grant Counties to revise emergency procedures to enable DOE Hanford to activate the emergency river sirens and send DOE Hanford resources to warn boaters.

E. Exchange of Emergency Information

1. Notifications

DOE Hanford will maintain a CRASH telephone system, which enables DOE Hanford to provide prompt emergency notifications and protective action recommendations to Franklin County. Franklin County Dispatch will be the single point of contact for Franklin County until the Franklin County EOC is declared operational.

DOE Hanford and Franklin County will provide liaisons to each other's EOCs, as available, to assist in information exchange.

2. Emergency Public Information

During an emergency, media releases from DOE Hanford and Franklin County will be coordinated to the maximum extent practical. DOE Hanford will activate a Joint Information Center (JIC), which is the primary location from which information will be released by DOE Hanford and the offsite agencies represented there. Each agency will focus its statements on issues within its responsibility. DOE Hanford agrees to provide accommodations and timely information within the JIC for Franklin County to fulfill its public information responsibilities.

IV. PREPAREDNESS

A. Coordination

DOE Hanford and Franklin County will provide copies of applicable emergency plans and procedures to each other to ensure consistency. DOE Hanford and Franklin County shall meet periodically to review the status of plans, procedures, agreements, and capabilities that may require revision and/or further development.

B. Exercises

DOE Hanford shall provide an opportunity for Franklin County participation in an annual exercise, to the extent negotiated between DOE Hanford and Franklin County. Franklin County will coordinate the participation of emergency response organizations within the County.

C. Public Education

Upon request, DOE Hanford will assist Franklin County in the development of educational materials concerning Hanford hazards and appropriate actions to be taken by the general public in the event of an accident at the Hanford Site.

V. OTHER EMERGENCIES

In the event a Columbia Generating Station emergency requires evacuation of the Columbia River, DOE Hanford will provide radiological monitoring resources to assist Washington State in conducting monitoring and decontamination of the public at designated boat launches. At the request of Franklin County, DOE Hanford will provide personnel and boats to designated locations to warn boaters to avoid the evacuated area.

VI. TERMS OF AGREEMENT

This agreement will become effective upon signature and will continue until it is canceled by either party in writing with at least thirty (30) days advance notice to the other party. This agreement may be amended or modified only upon written agreement signed by all parties to the agreement.

APPROVED AS TO FORM

Shawn Sant, Prosecuting Attorney

Date 12/1/2011

APPROVED FOR FRANKLIN COUNTY

Matt Watkins, Chairman
Franklin County Emergency Management Executive Board

Date 12/9/11

APPROVED FOR THE U.S. DEPARTMENT OF ENERGY, RICHLAND OPERATIONS OFFICE

Matt S. McCormick, Manager

Date 12/28/11

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MEMORANDUM OF UNDERSTANDING BETWEEN U.S. DEPARTMENT OF ENERGY, RICHLAND OPERATIONS OFFICE AND GRANT COUNTY FOR EMERGENCY PREPAREDNESS

I. PURPOSE

The purpose of this Memorandum of Understanding (MOU) is to describe the areas of cooperation between Grant County and its incorporated jurisdictions and the U.S. Department of Energy (DOE), Richland Operations Office (RL) and Office of River Protection (ORP) (hereafter DOE Hanford), in their planning for and response to emergencies at the Hanford Site. It also describes assistance DOE Hanford will provide to Grant County for other radiological emergencies that originate on, or may affect, the Hanford Site.

The concept of operations, specific responsibilities and requirements that apply to the parties to this MOU are described in detail in their respective emergency response plans and procedures.

II. AREAS OF RESPONSIBILITY

For the purpose of emergency preparedness planning ONLY, the following definitions of areas of responsibility shall generally apply:

A. Grant County

This agreement applies to Grant County and its incorporated jurisdictions. Grant County Emergency Management shall coordinate all aspects of this agreement on behalf of the jurisdictions within Grant County.

B. DOE Hanford

DOE Hanford is responsible for those areas within Hanford Site boundaries, excluding lands north and east of the Columbia River, river islands, lands owned or used by the Bonneville Power Administration, lands leased to Energy Northwest and lands owned or leased to the State of Washington. RL shall coordinate all aspects of this agreement on behalf of RL and ORP.

III. RESPONSE

A. Protective Action Criteria

The Protective Action Guides (PAGs) utilized by DOE Hanford to determine emergency classification and associated protective actions for radiological releases will be consistent with those contained in the Washington State Department of Health, Division of Radiation Protection, Radiological Emergency Response Plan and Procedures. The protective action criteria utilized by DOE Hanford to determine emergency classification and associated protective actions for non-radiological releases will be, listed in order of preference, Acute Exposure Guideline Levels (AEGLs) promulgated by the U.S. Environmental Protection Agency (EPA), Emergency Response Planning Guidelines (ERPGs) published by the American Industrial Hygiene Association, and Temporary Emergency Exposure Limits (TEELs) developed by DOE's Subcommittee on Consequence Assessment and Protective Actions.

B. Protective Action Recommendations

In the early phase of an emergency DOE Hanford has the responsibility for dose assessment and developing associated Protective Action Recommendations (PARs) to provide to Grant County. Dose assessment and PAR development takes place in the Unified Dose Assessment Center (UDAC) located in the DOE Hanford Emergency Operations Center (EOC). In the intermediate and late phases, Washington State has responsibility for dose assessment and developing associated PARs to provide to Grant County. DOE Hanford will make the resources of the UDAC available to Washington State in the intermediate and late phases for purposes of dose assessment and PAR development.

C. Radiological Support

As available, DOE Hanford will provide radiological monitoring field teams to assist in the identification of the plume footprint and relocation and food control boundaries in Grant County. DOE Hanford will also provide radiological monitoring resources to assist Washington State in conducting monitoring and decontamination of the public at designated boat launches on the Columbia River. These resources will be provided until other resources are available.

D. Columbia River Alerting

DOE Hanford will maintain ten emergency sirens along the Columbia River, located between the Vernita Bridge and the Old Hanford Townsite, to alert boaters that may be on the river in the event of an emergency. Benton, Franklin and Grant Counties will be responsible to determine when to alert the boaters and to activate the siren system. In order to facilitate siren activation by the Counties, DOE Hanford will maintain siren control stations at the Benton and Franklin County EOCs. In the event that the Benton and Franklin County EOCs are unable to activate the sirens, activation will be performed by DOE Hanford at the direction of the Counties. Upon request, DOE Hanford will provide personnel in boats to respond to designated

locations to warn boaters to avoid the evacuated area.

Special projects on the Hanford Site may require DOE Hanford to have the capability to provide emergency warning to boaters on the Columbia River with DOE's own resources. In the event of an emergency at one of these special projects, DOE will assume responsibility to warn boaters and control access to the potentially affected area of the river. Benton, Franklin or Grant Counties will provide personnel in boats to relieve Hanford resources as available. As part of the special project planning, DOE Hanford will coordinate with Benton, Franklin and Grant Counties to revise emergency procedures to enable DOE Hanford to activate the emergency river sirens and send DOE Hanford resources to warn boaters.

E. Exchange of Emergency Information

1. Notifications

DOE Hanford will maintain a Crash telephone system, which enables DOE Hanford to provide prompt emergency notifications and protective action recommendations to Grant County. The Multi-Agency Communications Center will be the single point of contact for Grant County until the Grant County EOC is declared operational.

DOE Hanford and Grant County will provide liaisons to each other's EOCs, as available, to assist in information exchange.

2. Emergency Public Information

During an emergency, media releases from DOE Hanford and Grant County will be coordinated to the maximum extent practical. DOE Hanford will activate a Joint Information Center (JIC), which is the primary location from which information will be released by DOE Hanford and the offsite agencies represented there. Each agency will focus its statements on issues within its responsibility. DOE Hanford agrees to provide accommodations and timely information within the JIC for Grant County to fulfill its public information responsibilities.

IV. PREPAREDNESS

A. Coordination

DOE Hanford and Grant County will provide copies of applicable emergency plans and procedures to each other to ensure consistency. DOE Hanford and Grant County shall meet periodically to review the status of plans, procedures, agreements, and capabilities that may require revision and/or further development.

B. Exercises

DOE Hanford shall provide an opportunity for Grant County participation in an annual exercise to the extent negotiated between DOE Hanford and Grant County. Grant

County will coordinate the participation of emergency response organizations within the County.

C. *Public Education*

Upon request, DOE Hanford will assist Grant County in the development of educational materials concerning Hanford hazards and appropriate actions to be taken by the general public in the event of an accident at the Hanford Site.

V. OTHER EMERGENCIES

In the event a Columbia Generating Station emergency requires evacuation of the Columbia River, DOE Hanford will provide radiological monitoring resources to assist Washington State in conducting monitoring and decontamination of the public at designated boat launches. At the request of Grant County, DOE Hanford will provide personnel and boats to designated locations to warn boaters to avoid the evacuated area.

VI. TERMS OF AGREEMENT

This agreement will become effective upon signature and will continue until it is canceled by either party in writing with at least thirty (30) days advance notice to the other party. This agreement may be amended or modified only upon written agreement signed by all parties to the agreement.

APPROVED AS TO FORM

Derek A Lee, Prosecuting Attorney

11/30/11
Date

APPROVED FOR GRANT COUNTY

Carolann Swartz, Chairperson
Grant County Board of Commissioners

12/5/11
Date

APPROVED FOR THE U.S. DEPARTMENT OF ENERGY, RICHLAND OPERATIONS OFFICE

Matt S. McCormick, Manager

12/29/11
Date

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MEMORANDUM OF UNDERSTANDING
BETWEEN
ENERGY NORTHWEST
AND
U.S. DEPARTMENT OF ENERGY, RICHLAND OPERATIONS OFFICE,
FOR
EMERGENCY PREPAREDNESS AND RESPONSE

I. PURPOSE

This memorandum of understanding (MOU) reaffirms the established framework of cooperation between Energy Northwest and the U.S. Department of Energy (DOE), Richland Operations Office (RL) and Office of River Protection (ORP) (hereafter referred to as DOE Hanford), in the planning for and response to emergencies at the Hanford Site. Fire and ambulance response is covered under a separate agreement.

II. BACKGROUND

Emergencies occurring at Hanford facilities or the Columbia Generating Station may affect other facilities on the Hanford Site. In addition, both parties actively coordinate emergency preparedness activities and provide support to some of the same local and state agencies, which present further opportunities for coordination and resource sharing.

The Columbia Generating Station Site is defined as the 1.2 mile Exclusion Area plus the pipeline corridor leading to the Columbia River pump house.

The Hanford Site is defined as those areas within the Hanford Site boundaries, excluding lands north and east of the Columbia River, river islands, lands owned or used by the Bonneville Power Administration, lands leased to Energy Northwest, and lands owned or leased to the State of Washington.

III. OBJECTIVE

The objective of this MOU is to identify responsibilities and areas of cooperation and assistance that may be provided for emergency preparedness and response.

IV. RESPONSIBILITIES

DOE Hanford is responsible for direction and overview for all emergency response actions required within the Hanford Site, as defined above. DOE-RL shall coordinate all aspects of this agreement on behalf of DOE-RL and DOE-ORP.

Energy Northwest is responsible for direction and overview of emergency response actions required on the Columbia Generating Station Site. Both parties are responsible to provide prompt notification to designated points of contact and, as necessary, protective action recommendations to the other in the event of an emergency at their facilities.

V. IMPLEMENTATION

A. Communications

Energy Northwest will use existing DOE Hanford communications systems through the Patrol Operations Center (POC) and Occurrence Notification Center (ONC) for emergency communications between Energy Northwest and DOE Hanford. Energy Northwest will provide emergency communications capabilities in the form of a radio link to the POC and DOE Hanford Emergency Operations Center (EOC), and a special telephone circuit between Energy Northwest facilities and POC, DOE Hanford EOC, Benton County EOC, Franklin County EOC, and the State of Washington. DOE Hanford will provide emergency communications capabilities in the form of a special telephone circuit between POC, ONC, and DOE Hanford EOC and Energy Northwest EOF, Benton County EOC, Franklin County EOC, Grant County EOC, the State of Washington, and the State of Oregon. DOE Hanford and Energy Northwest will participate in periodic testing, as necessary, to assure operation of the communications capabilities and to meet any regulatory requirement for this function.

Energy Northwest will allow DOE Hanford radio control access to Energy Northwest's radiological field team radio repeater located on Rattlesnake Ridge. DOE Hanford will provide the leased circuits, interface equipment, and radio control unit necessary to implement this function. DOE Hanford will participate in periodic testing of the system to assure operational readiness and compliance with regulatory requirements.

Energy Northwest and DOE provide equipment to Benton and Franklin Counties for activation control of DOE and Energy Northwest Columbia River sirens. In order to minimize the equipment necessary for the Counties to simultaneously activate both DOE and Energy Northwest river sirens, it is agreed that all the river sirens and associated siren control equipment will operate on the same radio frequencies as the Energy Northwest river sirens. Energy Northwest will maintain the FCC radio frequency licenses for its sirens and DOE will maintain the NTIA radio frequency authorizations for the 10 DOE-owned river sirens which will operate on the same frequencies as the Energy Northwest river sirens.. DOE will maintain the joint river siren control equipment at Benton and Franklin Counties while Energy Northwest will maintain the radio equipment at both sites. The Hanford ONC will obtain approval from Energy Northwest for any changes to the encoding system or test plans.

B. Emergency Facilities and Equipment

Mutual assistance, as needed and available, will be provided in the areas of facilities and equipment for personnel decontamination, first aid, evacuation reassembly areas, respiratory protective equipment, radiological protective clothing, vehicles, radiological survey instruments,and resources for river alerting.

C. Treatment of Radiologically Contaminated Persons

DOE Hanford will provide assistance, as requested and available, in treatment of radiologically contaminated or exposed, injured patients. Assistance will be provided by DOE Hanford contractors specializing in medical treatment and exposure/uptake evaluation.

D. Radiation Control and Meteorology Data

Environmental and meteorology data and radiological release evaluation data will be exchanged. If the emergency is at a DOE Hanford facility or outside the Columbia Generating Station Site, DOE Hanford will have responsibility for primary dose assessment, development of protective action recommendations, and field team control. If the emergency originates at the Columbia Generating Station Site, Energy Northwest will have responsibility for dose assessment and development of protective action recommendations. DOE will retain field team control responsibilities on the Hanford Site. Due to DOE Hanford's unique ownership of Hanford facilities and properties, DOE Hanford shall participate, along with Energy Northwest and the State of Washington in the development of joint dose assessment and protective action recommendations and coordination of field teams in Energy Northwest's Meteorological Unified Dose Assessment Center.

E. Training and Exercises

Coordination of training and exercise opportunities is encouraged. Energy Northwest and DOE Hanford shall coordinate exercises and training opportunities as appropriate.

F. Public Information

In cooperation with Benton and Franklin Counties, DOE Hanford and Energy Northwest will jointly assist these counties in the development of educational materials concerning the emergency preparedness program for the Hanford Site and the Columbia Generating Station Site, including information regarding appropriate actions to be taken by the general public in the event of an emergency.

G. Emergency Public Information

If the emergency originates on the Hanford Site, outside the Columbia Generating Station Site, DOE Hanford will have primary emergency public information responsibility. If the emergency originates at the Columbia Generating Station Site, Energy Northwest will have the primary emergency public information responsibility. DOE Hanford and Energy Northwest shall participate as partners in the Energy Northwest or DOE Hanford Joint Information Center.

VI. LIMITATIONS

The specific areas of assistance, as defined above, will be provided based on availability, and are limited to those actions necessary to protect onsite personnel, the public health and safety, and the environment in the event of an emergency at the Hanford Site and/or the Columbia Generating Station Site.

VII COST RECOVERY

When the parties to this MOU agree to provide equipment, services, etc., this implies each party will pay the attendant costs and expenses associated with that equipment, service, etc., unless otherwise specified. If either party is responding to the other due to an actual (i.e., declared) emergency event, then the parties will act in good faith to take steps to provide a mechanism for reimbursement for all reasonable costs resulting from a request for services consistent with applicable contracting requirements.

IX TERM OF AGREEMENT

This memorandum of understanding will become effective upon the latter date of signature by the parties. It shall continue until cancelled or amended by either of the parties upon 60 days written notice to the other party. Amendments or modification shall be in writing and signed by both parties to this agreement.

APPROVED FOR THE U.S. DEPARTMENT OF ENERGY, RICHLAND OPERATIONS OFFICE:

Keith A. Klein,
Manager

5/7/07
Date

APPROVED FOR ENERGY NORTHWEST:

W.S. Oxenford,
Vice President, Technical Services

3/29/07
Date

Memorandum of Understanding

between

AREVA NP Inc.

and

U.S. Department of Energy, Richland Operations Office

April 2011

PURPOSE

This Memorandum of Understanding (MOU) establishes a means by which the U.S. Department of Energy, Richland Operations Office (RL) can assist AREVA NP Inc. (AREVA NP) through the use of RL facilities during an emergency at the AREVA NP plant site in Richland, Washington.

BACKGROUND

AREVA NP has identified a potential need for an alternate emergency operations center (EOC) and alternate locations at which to conduct consequence assessment and employee staging during an emergency. Due to the close proximity of the AREVA NP site to the Hanford site there is the potential that Hanford facilities and workers could be impacted from an accidental release of hazardous materials at the AREVA NP site. The ability of AREVA NP to conduct effective emergency operations is key to the protection of Hanford workers and property.

STATEMENT OF OBJECTIVES

1. Develop an arrangement to provide support to AREVA NP that will also support RL's ability to protect Hanford workers and facilities;

2. Identify the scope and limitations of RL support to AREVA NP in the event of an AREVA NP emergency; and

3. Identify the activities and associated responsibilities necessary to ensure the preparedness of the Parties to provide and coordinate the requested support.

IMPLEMENTATION

If a hazardous material (toxic chemical or radiological) release occurs at AREVA NP, AREVA NP will notify the Hanford Occurrence Notification Center. This notification will include a brief description of the incident, the emergency classification level, the nature and quantity of hazardous materials released, and protective action recommendations, as available.

If AREVA NP is unable to use their facilities for emergency operations, consequence assessment, or employee staging,

AREVA NP will:

- Notify the Hanford Occurrence Center (376-2900) of the facility support they request.

- If an alternate EOC or employee staging area is requested, AREVA NP will also notify the HAMMER work control (376-5353) to advise that use of HAMMER facilities is required.

- If an alternate location for conducting consequence assessment is needed, AREVA NP will send consequence assessment personnel to the Hanford EOC to perform those functions.

RL will:

- Provide the AREVA NP personnel responding to the Hanford EOC the use of equipment to perform consequence assessment duties.

- Provide space at HAMMER, as available during normal HAMMER business hours, for an alternate AREVA NP EOC when requested. The space should provide adequate shelter for approximately 20 response personnel, and be supplied with chairs, working surfaces and electrical outlets.

- Provide an outdoor location for use as an alternate employee staging area when requested. The location should provide space to hold 600-700 AREVA NP personnel.

As preparation for the emergency support covered under this agreement,

AREVA NP will:

- Provide RL with any AREVA NP tools needed by AREVA NP consequence assessment personnel, e.g. computer software, procedure or supplies.

- Contact HAMMER work control at least two weeks in advance to request use of HAMMER facilities for AREVA NP exercises or drills.

RL will:

- Maintain consequence assessment tools, as provided by AREVA NP, in the Hanford EOC for use by AREVA NP personnel.

LIMITATIONS

The Parties understand that emergencies affecting the Hanford site or Hanford facilities would take precedence over all other uses of the RL facilities.

COST RECOVERY

AREVA NP agrees to reimburse RL on a full cost recovery basis for the use of Hanford facilities.

DISCLOSURE

Any press releases, media announcements, and advertising that pertain to this MOU, shall be provided by both Parties prior to release, except for those done under the Freedom of Information Act (5 U.S.C. 552).

EFFECTIVE DATE / TERMINATION

This agreement will become effective upon signature and will continue until it is canceled by either party in writing with at least thirty (30) days advance notice to the other party. This agreement may be amended or modified only upon written agreement signed by all parties to the agreement.

APPROVED

By: _____
(Signature)

Matthew S. McCormick, Manager
Richland Operations Office
United States Department of Energy

5/6/11
Date

By: _____
(Signature)

R. E. Link, Manager
Environmental, Health, Safety & Licensing
AREVA NP Inc.

4/19/11
Date

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MEMORANDUM OF UNDERSTANDING BETWEEN THE U.S. DEPARTMENT OF ENERGY RICHLAND OPERATIONS OFFICE AND LOURDES MEDICAL CENTER

I. PURPOSE

This memorandum of understanding (MOU) sets forth the understanding of the parties on the mutual cooperation which the parties seek to provide in instances which could result in Lourdes Medical Center (hereafter Lourdes) admission, treatment, and care of personnel who may have been injured and/or contaminated (radiologically, chemically and/or biologically) while performing work for the U.S. Department of Energy, Richland Operations Office (RL), Office of River Protection (ORP), and Pacific Northwest Site Office (PNSO) (hereafter DOE Hanford), their prime contractors, and subcontractors on the Hanford Site. This memorandum also establishes the cooperative framework by which Lourdes and DOE Hanford will work together in the planning for and response to emergencies at the Hanford Site.

II. BACKGROUND

Emergencies occurring at Hanford facilities have the potential to affect both site and community medical response capabilities. The Lourdes, DOE Hanford, and its contractors take part in the coordination and support of local emergency preparedness activities. This provides opportunity to not only coordinate response actions, but also facilitates the optimal utilization of shared resources.

III. OBJECTIVE

The objective of this MOU is to identify areas of cooperation and assistance that may be provided as a result of emergency response planning activities or during an actual emergency event.

IV. RESPONSIBILITIES

DOE HANFORD

RL shall coordinate all aspects of this agreement on behalf of RL, ORP, and PNSO. Access to specialized professional expertise contained within the Hanford workforce for distinctive issues that can confront DOE Hanford and its contractors is available to Lourdes by contacting the Patrol Operations Center on 373-3800 or the Occurrence Notification Center on 376-2900.

DOE Hanford intends to put forth its best effort in providing the following services and professional resources:

Health physics support to the emergency department staff;

Occupational medical physicians or physician assistant's support to the emergency department as requested;

Material Safety Data Sheets;

The scheduling and planning of joint emergency exercises;

The replacement of material used from any pre-stored radiation emergency kit; and

A liaison to respond to Lourdes to act as an advocate for the patient and provides an information link to the patient's employer.

LOURDES

Lourdes intends to put forth its best effort to:

Contact the Hanford Site Occupational Medical Contractor physician on-call (373-3800 and request medical support) for all Hanford personnel with suspected or confirmed occupational chemical, biologic, or radiation exposure;

Consider in its treatment and/or admission of injured, exposed and/or contaminated personnel, the application of accepted medical practice, and its responsibility to limit admissions to those numbers which can be properly handled; and

Participate in Hanford Emergency Exercises.

AREAS OF COOPERATION

The Hanford Site Occupational Medical Contractor, Lourdes, and DOE Hanford will work cooperatively to address issues including, but not limited to, interaction among the parties, areas of mutual concern, resource requirements, and quality of care.

The Hanford Site Medical Director will work in cooperation with Lourdes medical staff to develop a mutually agreeable set of protocols for diagnosis of work related injuries and illnesses, including cases involving chemical,

biologic, and/or radiation contamination injuries. These protocols will be reviewed and/or modified as necessary.

DOE Hanford and the Hanford Site Occupational Medical Contractor as requested by Lourdes will provide training in the medical management of the radiologically contaminated person.

V. DISCLOSURE

The parties will use their best efforts to assure that press releases, media announcements, and advertising by the parties, pertaining to this MOU, or the joint activities performed hereunder, have been reviewed and approved by both parties prior to release.

VI. TERM OF AGREEMENT

This MOU and its attachment(s) will become effective upon the latter date of the signature by the parties. It shall continue until canceled by either or the parties upon thirty days (30) written notice to the other party. Amendments or modifications of the MOU shall be in writing and signed by both parties to the agreement.

APPROVED FOR THE U.S. DEPARTMENT OF ENERGY RICHLAND OPERATIONS OFFICE

Keith Klein, Manager — **Date** 5/7/07

APPROVED FOR LOURDES MEDICAL CENTER

John Serle, President & CEO — **Date** 4-24-07

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MEMORANDUM OF UNDERSTANDING BETWEEN THE U.S. DEPARTMENT OF ENERGY RICHLAND OPERATIONS OFFICE AND KADLEC MEDICAL CENTER

I. PURPOSE

This memorandum of understanding (MOU) sets forth the understanding of the parties on the mutual cooperation which the parties seek to provide in instances which could result in Kadlec Medical Center's (KMC) admission, treatment, and care of personnel who may have been injured and/or contaminated (radiologically, chemically and/or biologically) while performing work for the U.S. Department of Energy, Richland Operations Office (RL), Office of River Protection (ORP), and Pacific Northwest Site Office (PNSO) (hereafter DOE Hanford), their prime contractors, and subcontractors on the Hanford Site. This memorandum also establishes the cooperative framework by which KMC and DOE Hanford will work together in the planning for and response to emergencies at the Hanford Site.

II. BACKGROUND

Emergencies occurring at Hanford facilities have the potential to affect both site and community medical response capabilities. The KMC, DOE Hanford, and its contractors take part in the coordination and support of local emergency preparedness activities. This provides opportunity to not only coordinate response actions, but also facilitates the optimal utilization of shared resources.

III. OBJECTIVE

The objective of this MOU is to identify areas of cooperation and assistance that may be provided as a result of emergency response planning activities or during an actual emergency event.

IV. RESPONSIBILITIES

DOE HANFORD

RL shall coordinate all aspects of this agreement on behalf of RL, ORP, and PNSO. Access to specialized professional expertise contained within the Hanford workforce for distinctive issues that can confront DOE Hanford and its contractors is available to KMC by contacting the Patrol Operations Center on 373-3800 or the Occurrence Notification Center on 376-2900.

DOE Hanford intends to put forth its best effort in providing the following services and professional resources:

Health physics support to the emergency department staff;

Occupational medical physicians or physician assistant's support to the emergency department as requested;

Material Safety Data Sheets;

The scheduling and planning of joint emergency exercises;

The replacement of material used from any pre-stored radiation emergency kit; and

A liaison to respond to KMC to act as an advocate for the patient and provides an information link to the patient's employer.

KMC

KMC intends to put forth its best effort to:

Contact the Hanford Site Occupational Medical Contractor physician on-call (373-3800 and request medical support) for all Hanford personnel with suspected or confirmed occupational chemical, biologic, or radiation exposure;

Consider in its treatment and/or admission of injured, exposed and/or contaminated personnel, the application of accepted medical practice, and its responsibility to limit admissions to those numbers which can be properly handled; and

Participate in Hanford Emergency Exercises.

AREAS OF COOPERATION

The Hanford Site Occupational Medical Contractor, KMC, and DOE Hanford will work cooperatively to address issues including, but not limited to, interaction among the parties, areas of mutual concern, resource requirements, and quality of care.

The Hanford Site Medical Director will work in cooperation with KMC medical staff to develop a mutually agreeable set of protocols for diagnosis of work related injuries and illnesses, including cases involving chemical,

biologic, and/or radiation contamination injuries. These protocols will be reviewed and/or modified as necessary.

DOE Hanford and the Hanford Site Occupational Medical Contractor as requested by KMC will provide training in the medical management of the radiologically contaminated person.

V. DISCLOSURE

The parties will use their best efforts to assure that press releases, media announcements, and advertising by the parties, pertaining to this MOU, or the joint activities performed hereunder, have been reviewed and approved by both parties prior to release.

VI. TERM OF AGREEMENT

This MOU and its attachment(s) will become effective upon the latter date of the signature by the parties. It shall continue until canceled by either or the parties upon thirty days (30) written notice to the other party. Amendments or modifications of the MOU shall be in writing and signed by both parties to the agreement.

APPROVED FOR THE U.S. DEPARTMENT OF ENERGY RICHLAND OPERATIONS OFFICE

Keith Klein, Manager — **Date** 5/7/07

APPROVED FOR KADLEC MEDICAL CENTER

Julie L. Meek, Vice President Finance — **Date** 04/18/07

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MEMORANDUM OF UNDERSTANDING BETWEEN THE U.S. DEPARTMENT OF ENERGY RICHLAND OPERATIONS OFFICE AND KENNEWICK GENERAL HOSPITAL

I. PURPOSE

This memorandum of understanding (MOU) sets forth the understanding of the parties on the mutual cooperation which the parties seek to provide in instances which could result in Kennewick General Hospital (hereafter KGH) admission, treatment, and care of personnel who may have been injured and/or contaminated (radiologically, chemically and/or biologically) while performing work for the U.S. Department of Energy, Richland Operations Office (RL), Office of River Protection (ORP), and Pacific Northwest Site Office (PNSO) (hereafter DOE Hanford), their prime contractors, and subcontractors on the Hanford Site. This memorandum also establishes the cooperative framework by which KGH and DOE Hanford will work together in the planning for and response to emergencies at the Hanford Site.

II. BACKGROUND

Emergencies occurring at Hanford facilities have the potential to affect both site and community medical response capabilities. The KGH, DOE Hanford, and its contractors take part in the coordination and support of local emergency preparedness activities. This provides opportunity to not only coordinate response actions, but also facilitates the optimal utilization of shared resources.

III. OBJECTIVE

The objective of this MOU is to identify areas of cooperation and assistance that may be provided as a result of emergency response planning activities or during an actual emergency event.

IV. RESPONSIBILITIES

DOE HANFORD

RL shall coordinate all aspects of this agreement on behalf of RL, ORP, and PNSO. Access to specialized professional expertise contained within the Hanford workforce for distinctive issues that can confront DOE Hanford and its contractors is available to KGH by contacting the Patrol Operations Center on 373-3800 or the Occurrence Notification Center on 376-2900.

DOE Hanford intends to put forth its best effort in providing the following services and professional resources:

Health physics support to the emergency department staff;

Occupational medical physicians or physician assistant's support to the emergency department as requested;

Material Safety Data Sheets;

The scheduling and planning of joint emergency exercises;

The replacement of material used from any pre-stored radiation emergency kit; and

A liaison to respond to KGH to act as an advocate for the patient and provides an information link to the patient's employer.

KGH

KGH intends to put forth its best effort to:

Contact the Hanford Site Occupational Medical Contractor physician on-call (373-3800 and request medical support) for all Hanford personnel with suspected or confirmed occupational chemical, biologic, or radiation exposure;

Consider in its treatment and/or admission of injured, exposed and/or contaminated personnel, the application of accepted medical practice, and its responsibility to limit admissions to those numbers which can be properly handled; and

Participate in Hanford Emergency Exercises.

AREAS OF COOPERATION

The Hanford Site Occupational Medical Contractor, KGH, and DOE Hanford will work cooperatively to address issues including, but not limited to, interaction among the parties, areas of mutual concern, resource requirements, and quality of care.

The Hanford Site Medical Director will work in cooperation with KGH medical staff to develop a mutually agreeable set of protocols for diagnosis of work related injuries and illnesses, including cases involving chemical,

biologic, and/or radiation contamination injuries. These protocols will be reviewed and/or modified as necessary.

DOE Hanford and the Hanford Site Occupational Medical Contractor as requested by KGH will provide training in the medical management of the radiologically contaminated person.

V. DISCLOSURE

The parties will use their best efforts to assure that press releases, media announcements, and advertising by the parties, pertaining to this MOU, or the joint activities performed hereunder, have been reviewed and approved by both parties prior to release.

VI. TERM OF AGREEMENT

This MOU and its attachment(s) will become effective upon the latter date of the signature by the parties. It shall continue until canceled by either or the parties upon thirty days (30) written notice to the other party. Amendments or modifications of the MOU shall be in writing and signed by both parties to the agreement.

APPROVED FOR THE U.S. DEPARTMENT OF ENERGY RICHLAND OPERATIONS OFFICE

Keith Klein, Manager — **Date** 5/7/07

APPROVED FOR KENNEWICK GENERAL HOSPITAL

Glen Marshall, CEO — **Date** 3/1/07

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Tri-County Mutual Aid Agreement

This Agreement, made and entered into on this __5th__ day of __February__, 1998 by and between the Cities of Richland, Kennewick, Pasco, Prosser, and College Place; Benton County Emergency Services; Franklin County Emergency Management; and the Fire Protection Districts of Benton County #1, Benton County #2, Benton County #3, Benton County #4, Benton County #5, Benton County #6, Franklin County #3, Walla Walla County #4, Walla Walla County #5 and the United States Department of Energy, Richland Operations Office, which maintains an organized and equipped fire department, hereinafter referred to as the "Hanford Fire Department" and collectively referred to hereafter as "The Parties."

The Parties, pursuant to authority granted by RCW 39.34.030, RCW Title 52, and Public Law 46 (Title 42 USC, Section 1856), do hereby agree to respond in accordance with the terms and conditions as set forth below;

Witnesseth:
Whereas, each of The Parties, who are signatories, hereto maintains equipment and personnel for the suppression of fires within its own jurisdiction and areas, and

Whereas, The Parties desire the ability to augment the fire and emergency medical protection available in their various establishments, districts, agencies, and municipalities in the event of large fires or conflagrations or other disasters, and

Whereas, the lands or districts of The Parties are situated in such a manner so that mutual assistance in a fire or medical emergency is operationally feasible, and

Whereas, it is the policy of The Parties and of their governing bodies to conclude such agreements wherever practicable, and

Whereas, it is mutually deemed sound, desirable, practicable, and beneficial for The Parties to render assistance to one another in accordance with these terms:

Therefore Be It Agreed That:

1. Whenever it is considered necessary by the commanding officer of a fire agency belonging to a party to this agreement, or by the commanding officer of any such fire agency actually present at any fire or other emergency, including medical emergency, to request assistance under the terms of this agreement, is authorized to do so, and the commanding officer of the department receiving the request, or any authorized representatives of such commanding officer, shall expeditiously take the following actions:

Tri-County Mutual Aid Agreement *February 5, 1998*

A. Immediately determine if apparatus and personnel can be spared in response to the call and advise the requesting commander if such assistance is not available.

B. Determine what apparatus and personnel might be most effectively dispatched,

C. Determine the mission to be assigned in accordance with the detailed plans and procedures of operation drawn in accordance with this agreement by the technical heads of the fire agencies concerned.

D. Promptly dispatch apparatus and personnel with instructions as to their mission.

2. A. Rendering assistance under the terms of this agreement shall not be mandatory.

B. The Parties recognize that additional special risks exist at the Hanford Site. During incidents involving radiological, mixed hazardous waste, and special conditions, assistance to the Hanford Fire Department will be provided as requested.

3. A. Each party to this agreement waives all claims against the other party or parties for compensation for any loss, damage, personal injury or death occurring in consequence of the performance of this agreement.

B. Parties to this agreement can seek reimbursement for services under contractual or service agreements.

C. No party to this Agreement shall be required to pay compensation to any other party for services rendered. The mutual advantages and protection afforded by this Agreement shall be adequate consideration.

D. Each party shall indemnify and hold harmless each of the other parties, their officers, agents, contractors, servants and employees from any and all liability for such losses, expenses, damages, personal injury or death arising out of fire protection assistance rendered pursuant to this agreement. All such claims and related rights are hereby expressly waived with the exception of claims for injuries and property damage resulting from nuclear incidents as defined at 42 USC Section 2014(q) which may be subject to indemnification under the provisions of the Price-Anderson Act, 42 USC Section 2210.

E. Parties to this agreement will not hold any joint properties.

Tri-County Mutual Aid Agreement *February 5, 1998*

4. The commanding officer requesting assistance shall assume full charge of the incident. Command of an incident may only be assumed under a written delegation of authority. However, the involved agency maintains overall responsibility of the incident. If the officer specifically requests that a senior officer of a fire agency furnishing assistance assist with command, the requesting officer shall not, by requesting assistance be relieved of his responsibility for the operation. The apparatus, personnel and equipment of the agency rendering assistance shall be under the immediate supervision of and shall be the immediate responsibility of the senior responding officer or the commanding officer of the department rendering assistance.

5. Inherent in this plan is the need and requirement for training of all participating district/departments. Individual, company, and agency training is required as a prerequisite and must be on-going and upgraded to ensure the qualification of personnel and the quality of the responses in performance, integration, and safety.

6. The chief fire officer and personnel of the fire agencies of The Parties are invited and encouraged on a reciprocal basis, to frequently visit each other's activities for guided familiarization tours consistent with local security requirements and as feasible, to jointly conduct pre-fire planning inspections, drills, and interdepartmental multi-agency training exercises may be conducted to maintain proficiency on an agreed-upon schedule.

7. The commanding officers of the cooperating fire agencies shall constitute the administrations board and are authorized to meet and draft any detailed plans and operational procedures necessary to effectively implement this agreement. Such plans and procedures of operation shall become effective upon ratification by the signatory parties.

8. It is agreed to by the participating parties that future participation by additional entities shall be subject to approval by the Tri-County Fire Chiefs' Association. The governing bodies of the participating entities hereby delegate this approval authority to their respective representatives.

9. This agreement shall become effective upon the date entered and remain in full force and effect until canceled by mutual agreement of the parties'. Individuals/single parties will provide written notice of withdrawal by any party to the other parties giving a minimum of ten (10) days' notice of said cancellation.

Tri-County Mutual Aid Agreement *February 5, 1998*

In Witness Whereof, the parties hereto have executed this agreement the day and year first above written.

11/4/97	11/4/97
City of Richland — Date	City of Kennewick — Date
11-3-97	10-28-97
City of Pasco — Date	City of Prosser — Date
10/27/97	
City of College Place — Date	Benton County Fire District #1 — Date
11/3/97	10-28-97
Benton County Fire District #2 — Date	Benton County Fire District #3 — Date
10-21-97	11-5-97
Benton County Fire District #4 — Date	Benton County Fire District #5 — Date
10-21-97	11/10/97
Benton County Fire District #6 — Date	Franklin County Fire District #3 — Date
10/22/97	
Walla Walla County Fire District #4 — Date	Walla Walla County Fire District #5 — Date
10-17-97	11-06-97
Benton County Emergency Services — Date	Franklin County Emergency Mgmt. — Date
11/21/97	
John D. Wagoner, Manager U.S. Department of Energy Richland Operations Office — Date	

MEMORANDUM OF UNDERSTANDING
FOR MUTUAL LAW ENFORCEMENT ASSISTANCE
(March 13, 2009)

This Memorandum of Understanding (MOU) is entered into between the U.S. Department of Energy (DOE), Richland Operations Office (RL), Security and Emergency Services Division (SES), and the following law enforcement agencies:

- Adams County Sheriff's Office, Adams County, Washington
- Benton County Sheriff's Office, Benton County, Washington
- Franklin County Sheriff's Office, Franklin County, Washington
- Grant County Sheriff's Office, Grant County, Washington
- Yakima County Sheriff's Office, Yakima County, Washington
- Kennewick Police Department, Kennewick, Washington
- Pasco Police Department, Pasco, Washington
- Richland Police Department, Richland, Washington
- West Richland Police Department, West Richland, Washington
- Tri-City Detachment, Washington State Patrol, Kennewick, Washington

RECITALS

1. The above listed departments are the principal law enforcement agencies of their respective municipalities and/or counties. The Hanford Site is located in Benton County and adjacent to Adams, Franklin, Yakima, and Grant Counties.

2. This agreement is entered into by DOE pursuant to the Economy Act, 31 U.S.C. § 1535, the Atomic Energy Act of 1954, 42 U.S.C. § 7256, as amended, and DOE Manual 470.4-3, and by the above listed law enforcement agencies pursuant to RCW 10.93.130, which provides that any law enforcement agency may contract with any other such agency to provide mutual law enforcement assistance in order that the parties may perform their responsibilities described above. This MOU will be reviewed annually.

3. The sheriffs and police chiefs of the above listed agencies and the SES Director shall jointly administer this agreement.

4. There shall be no funds or property held under this agreement.

ARTICLE I – Scope

The general scope of this agreement includes mutual law enforcement assistance, loan of special equipment, and other assistance (i.e. canine support), which may be identified by the parties from time to time. Specifically, the parties agree as follows:

A. The sheriffs and police chiefs of the above listed agencies, at their discretion and to the extent allowed by law, agree to commit available manpower and other resources to assist RL security or law enforcement in emergencies on the Hanford Site. DOE will provide training and special equipment and materials to facilitate response by the above listed enforcement agencies.

B. RL, at its discretion and to the extent allowed by law, will provide assistance to the above listed law enforcement agencies in the execution of their law enforcement responsibilities. Assistance may include temporary use of certain property and equipment, including where appropriate and necessary, operators of such equipment; and use of facilities (to include, but not be limited to, the Emergency Vehicle Operations Course). RL may require individual employees of the law enforcement agencies to sign general release and indemnification agreements as a condition of granting approval for use of, or training with, DOE property or facilities (to include but not be limited to EVOC).

ARTICLE II – Request for Assistance

A. Requests for assistance from RL shall generally be made by the sheriffs and police chiefs or their official designees and shall be addressed to the SES Director. Each request shall be subject to approval on an individual basis. Upon approval, the requested assistance will be provided, subject to the provisions of this agreement and any additional conditions to which the parties agree.

   - Exception: Requests by the law enforcement agencies for assistance from RL requiring an immediate or emergency response shall be made through the on-duty Hanford Patrol Shift Commander.

B. Requests for assistance from the law enforcement agencies shall generally be made by the SES Director, and shall be addressed to affected sheriffs and police chiefs. Each request shall be subject to approval on an individual basis. Assistance provided by the aforementioned law enforcement agencies shall be subject to the provisions of this agreement and any additional conditions to which the parties agree.

   - Exception: In the event of a Hanford Site security emergency, the on-duty Hanford Patrol Shift Commander shall request assistance from the aforementioned law enforcement agencies via the South East Communications Center (SECOM).
   - These requests will be in accordance with specific RL response plans and will comply to the extent possible, with the polices and/or guidelines of the enforcement agencies and may include:

     - Support on the Hanford Site with personnel and/or equipment;
     - Support for fresh pursuit either on or beyond the Hanford Site for the purposes of preventing the escape or effecting the detainment of any person who commits a misdemeanor or felony or is suspected of having committed a misdemeanor or felony on the Hanford Site. Such support may include:

       (a) Establishing road blocks at requested locations at the outer perimeter of the Hanford Site if possible and safe;
       (b) Deployment of spike strips;
       (c) Secondary pursuit support to Hanford Patrol units; and
       (d) Other assistance as determined at the time of need.

C. If the assistance provided by any of the parties includes providing personnel, such personnel may operate under the general direction of, but shall not be deemed to be an employee of, the

receiving parties.

D. RL may at its option provide any assistance requested through one or more of its Hanford on-site operating contractors.

ARTICLE III – Termination

This agreement shall commence on the date(s) indicated in ARTICLE V, and is intended to be of indefinite duration. This agreement or any activity there under may be terminated upon 30 days written notice by either party to the other party. Notwithstanding the above, the parties agree to exercise their best efforts to avoid terminating any individual activity in order to support the ability of each party to fulfill its mission This agreement may be amended in writing at any time by agreement of the undersigned parties.

ARTICLE IV – Compensation
Except as otherwise agreed in individual cases, no compensation shall be paid by the DOE or by the law enforcement agencies for assistance rendered pursuant to this agreement.

ARTICLE V – Effect of this MOU

This MOU is neither a fiscal nor a funds obligation document.

This agreement is strictly for internal management purposes for each of the parties. It is not legally enforceable and shall not be construed to create any legal obligation on the part of any of the parties. This agreement shall not be construed to provide a private right or cause of action for or by any person or entity.

All agreements herein are subject to, and will be carried out in compliance with, all Federal applicable laws, regulations and other legal requirements.

ARTICLE VI – Disclaimer of Warrantees

Neither the DOE nor the aforementioned law enforcement agencies make any representations or warranty as to the physical condition or usefulness of any equipment, information, or other assistance exchanged under this agreement or the fitness for any particular purpose to which any such equipment, information, or other assistance may be put by the recipient.

ARTICLE VII – Loss or Damage to Property or Equipment

Property and equipment, which may be loaned by one party to the other under this agreement, shall be returned in as good condition as when it was received by the using party, reasonable wear and tear accepted. The using party agrees to reimburse the lending party for any loss or damage of any nature to the property or equipment that is caused by or arises from activities of the user.

ARTICLE VIII – Agreement

The sheriffs and police chiefs of the aforementioned law enforcement agencies shall not assign this agreement or any interest therein or any claim there under, except as expressly authorized in writing by DOE.

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the dates indicated below (a separate signature/approval page is provided for each agency).

APPROVED:

Adams County Sheriff

By: Doug Barger, Sheriff

Date: 04-07-09

Richland Operations Office
Security and Emergency Services Division

By: Gary S. Loiacono, Director

Date: 3/30/09

RECEIVED
APR 10 2009
DOE-RLCC

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the dates indicated below (a separate signature/approval page is provided for each agency).

APPROVED:

Benton County Sheriff

By: Larry Taylor, Sheriff

4-3-09
Date

Richland Operations Office
Office of Security and Emergency Services

By: Gary S. Loiacono, Director

3/30/09
Date

RECEIVED
APR 07 2009
DOE-RLCC

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the dates indicated below (a separate signature/approval page is provided for each agency).

APPROVED:

Franklin County Sheriff

By: Richard Lathim, Sheriff

Date: 4/7/09

Richland Operations Office
Security and Emergency Services Division

By: Gary S. Loiacono, Director

Date: 3/30/09

RECEIVED
APR - 9 2009
DOE-RLCC

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the dates indicated below (a separate signature/approval page is provided for each agency).

APPROVED:

Grant County Sheriff Office

Frank DeTrolio — 4-6-09

By: Sheriff Frank T. DeTrolio — Date:

Richland Operations Office
Security and Emergency Services Division

G. S. Loiacono — 3/30/09

By: Gary S. Loiacono, Director — Date:

RECEIVED
APR - 8 2009
DOE-RLCC

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the dates indicated below (a separate signature/approval page is provided for each agency).

APPROVED:

Yakima County Sheriff

By: Ken Irwin, Sheriff

Date: 4-7-09

Richland Operations Office
Security and Emergency Services Division

By: Gary S. Loiacono, Director

Date: 3/30/09

RECEIVED
APR 10 2009
DOE-RLCC

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the dates indicated below (a separate signature/approval page is provided for each agency).

APPROVED:

Kennewick Police Department

By: Ken Hohenberg, Chief

Date: 04/27/09

Richland Operations Office
Security and Emergency Services Division

By: Gary S. Loiacono, Director

Date: 3/20/09

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the dates indicated below (a separate signature/approval page is provided for each agency).

APPROVED:

Pasco Police Department

By: Denis Austin, Chief

Date: 4-3-09

Richland Operations Office
Security and Emergency Services Division

By: Gary S. Loiacono, Director

Date: 3/30/09

RECEIVED
APR 07 2009
DOE-RLCC

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the dates indicated below (a separate signature/approval page is provided for each agency).

APPROVED:

Richland Police Department

By: Tony Corsi, Chief

Date: 04 02 09

Richland Operations Office
Security and Emergency Services Division

By: Gary S. Loiacono, Director

Date: 3/30/09

RECEIVED
R 07 2009
OE-RLCC

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the dates indicated below (a separate signature/approval page is provided for each agency).

APPROVED:

West Richland Police Department

By: ~~Mark Panther~~, Chief
Layne Erdman

Date: 4-2-09

Richland Operations Office
Security and Emergency Services Division

By: Gary S. Loiacono, Director

Date: 3/30/09

RECEIVED
APR - 8 2009
DOE-RLCC

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the dates indicated below (a separate signature/approval page is provided for each agency).

APPROVED:

Washington State Patrol

By: John R. Batiste, Chief

4.29.09
Date:

Richland Operations Office
Security and Emergency Services Division

By: Gary S. Loiacono, Director

3/30/09
Date:

APPROVED AS TO FORM

ASSISTANT ATTORNEY GENERAL

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MEMORANDUM OF UNDERSTANDING FOR MUTUAL LAW ENFORCEMENT ASSISTANCE (July 2, 2009)

This Memorandum of Understanding (MOU) is entered into between the U.S. Department of Energy (DOE), Richland Operations Office (RL), Security and Emergency Services Division (SES), and the U.S. Fish and Wildlife Service (FWS), Region 1, Office of Refuge Law Enforcement (ORLE) and Mid-Columbia River National Wildlife Refuge Complex (NWRC), for mutual law enforcement assistance on the Hanford Site and the Hanford Reach National Monument.

RECITALS

1. The RL protective forces (Hanford Patrol) exercise law enforcement authority and maintain security on the Hanford Site as federal officers authorized to carry firearms and make arrests pursuant to Section 161(k) of the Atomic Energy Act of 1954, as amended (42 U.S.C. § 2201(k)).

2. This agreement is entered into by both agencies pursuant to the Economy Act, 31 U.S.C. § 1535, by the DOE pursuant to the authority of the Atomic Energy Act of 1954, 42 U.S.C. § 7256, as amended, and DOE Manual 470.4.3, and by the FWS pursuant to the authority of the Fish & Wildlife Act of 1956, 16 U.S.C. § 742 and the Fish & Wildlife Coordination Act, 16 U.S.C. §§ 661 through 667, and will be reviewed annually.

3. The Region 1, Chief ORLE, the Project Leader, Mid-Columbia River NWRC, and the SES Director shall jointly administer this agreement.

4. There shall be no funds or property held or transferred under this agreement.

ARTICLE I - Scope

The general scope of this agreement includes mutual law enforcement assistance, loan of special equipment, and other assistance, which may be identified by the parties from time to time. Specifically, the parties agree as follows:

A. The FWS Region 1 ORLE and Mid-Columbia River NWRC at their discretion and to the extent allowed by law, agree to commit available manpower and other resources to assist RL with security or law enforcement emergencies on the Hanford Site. DOE will provide training and special equipment and materials to facilitate response by FWS officers.

B. RL, at its discretion and to the extent allowed by law, will provide assistance to the FWS in the execution of its law enforcement responsibilities. Assistance may include law enforcement backup assistance on the Hanford Reach National Monument; temporary use of certain property and equipment, including where appropriate and necessary, operators of such equipment; and utilization of facilities (to include, but not be limited to, the Emergency Vehicle Operations Course (EVOC), Firearms Training Facilities, and

secondary Dispatch Services);. RL may, as appropriate, require individual employees of FWS to sign general release and indemnification agreements as a condition of granting approval for use of, or training with, DOE property or facilities (to include but not be limited to EVOC).

ARTICLE II - Request for Assistance

A. Requests for assistance from RL shall generally be made by the Region 1 Chief ORLE, Project Leader Mid-Columbia River NWRC or their official designees and shall be addressed to the SES Director. Each request shall be subject to approval on an individual basis. Upon approval, the requested assistance will be provided, subject to the provisions of this agreement and any additional conditions to which the parties agree.

   ~ Exception: Requests by the FWS for assistance from RL requiring an immediate or emergency response shall be made through the on-duty Hanford Patrol Shift Commander.

B. Requests for assistance from the FWS shall generally be made by the SES Director, and shall be addressed to the Region 1 Chief ORLE or Project Leader Mid-Columbia River NWRC. Each request shall be subject to approval on an individual basis. Assistance provided by the aforementioned law enforcement agencies shall be subject to the provisions of this agreement and any additional conditions to which the parties agree.

   ~ Exception: In the event of a Hanford Site security emergency, the on-duty Hanford Patrol Shift Commander shall request assistance from the FWS North Columbia Basin Zone Officer, or nearest available FWS Officer via the South East Communications Center (SECOM) or Washington State Patrol Dispatch. These requests will be in accordance with specific RL response plans and will comply, to the extent possible, with the policies and/or guidelines of the FWS and may include:

   - Support on the Hanford Site with personnel and/or equipment;
   - Support for fresh pursuit either on or beyond the Hanford Site for the purposes of preventing the escape or effecting the detainment of any person who commits a misdemeanor or felony or is suspected of having committed a misdemeanor or felony on the Hanford Site. Such assistance may include:

     (a) Establishing road blocks at requested locations at the outer perimeter of the Hanford Site if possible and safe;
     (b) Deployment of spike strips;
     (c) Secondary pursuit supports to Hanford Patrol units; and
     (d) other assistance as determined at the time of need.

C. If the assistance provided by any of the parties includes providing personnel, such personnel may operate under the general direction of, but shall not be deemed to be an employee of, the receiving parties.

D. RL may, at its option, provide any assistance requested pursuant to this MOU through one or more of its Hanford on-site operating contractors.

ARTICLE III - Termination

This agreement shall commence on the date(s) indicated in ARTICLE V, and is intended to be of indefinite duration. This agreement or any activity there under may be terminated upon 30 days' written notice by either party to the other party. Notwithstanding the above, the parties agree to exercise their best efforts to avoid terminating any individual activity in order to support the ability of each party to fulfill its mission. This agreement may be amended in writing at any time by mutual agreement of the undersigned parties.

ARTICLE IV - Compensation

Except as otherwise agreed in individual cases, no compensation shall be paid by the DOE or by the FWS for assistance rendered pursuant to this agreement.

ARTICLE V - Effect of this MOU

1. This MOU is neither a fiscal nor a funds obligation document.

2. This Agreement is strictly for internal management purposes for each of the Parties. It is not legally enforceable and shall not be construed to create any legal obligation on the part of any of the Parties. This Agreement shall not be construed to provide a private right or cause of action for or by any person or entity.

3. All agreements herein are subject to, and will be carried out in compliance with, all Federal applicable laws, regulations, policies and other legal requirements.

ARTICLE VI – Agreement

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the dates indicated below (a separate signature/approval page is provided for each agency).

APPROVED:

Region 1, Office of Refuge Law Enforcement

7/15/09

By: Jon Storey, Chief Date

Project Leader, Mid-Columbia River NWRC

7/16/09

By: Greg Hughes, Project Leader Date

DOE Richland Operations Office
Security and Emergency Services Division

7/28/09

By: Gary S. Loiacono, Acting Director Date

MEMORANDUM OF UNDERSTANDING FOR LAW ENFORCEMENT ASSISTANCE

This Memorandum of Understanding (MOU) is between the U.S. Department of Energy (DOE), Richland Operations Office (RL), Security and Emergency Services Division (SES), and the Washington Department of Fish and Wildlife (WDFW) Enforcement Program.

RECITALS

1. The RL protective forces (Hanford Patrol) exercise law enforcement authority and maintain security on the Hanford Site as federal officers authorized to carry firearms and make arrests pursuant to Section 161(k) of the Atomic Energy Act of 1954 (42 U.S.C. § 2201(k)), as amended.
2. WDFW Fish and Wildlife Officers (FWOs) are general authority law enforcement officers for Washington State, who routinely enforce all State laws pursuant to RCW 10.93 and 77.15.075.
3. This agreement is pursuant to the authority of the Atomic Energy Act of 1954, as amended, and RCW 10.93.130, which provides for mutual law enforcement assistance in Washington.
4. The Chief of the WDFW Enforcement Program and the SES Director shall jointly administer this agreement.
5. There shall be no funds transferred or held under this agreement.

ARTICLE I – Scope

The general scope of this agreement includes mutual law enforcement assistance, loan of equipment, and other assistance, which may be identified by the parties from time to time. Specifically, the parties agree as follows:

A. The Chief of the WDFW Enforcement Program, at his or her discretion and to the extent allowed by law, agrees to commit available manpower and other resources to assist RL in dealing with security or law enforcement emergencies on the Hanford Site. DOE will provide training and special equipment and materials to facilitate the response by WDFW.

   Additionally, while conducting routine boat patrols on the Hanford Reach of the Columbia River, FWOs will enforce trespass and other laws on the federal lands adjacent to the river, particularly in the area from the Vernita Bridge to the Bonneville Power Administration powerlines.

B. WDFW may loan road-worthy, used vehicles to the HAMMER Training Facility for use on the Emergency Vehicle Operations Course (EVOC). With prior coordination with HAMMER scheduling personnel, WDFW staff may use these vehicles on the HAMMER EVOC

C. RL will assist WDFW in its law enforcement responsibilities. Assistance may include temporary use of certain property and equipment (which may include individuals to operate such equipment), utilization of facilities (including, but not limited to EVOC and firearms ranges), and other forms of assistance. RL may require individual WDFW staff to sign

general release and indemnification agreements, as a condition of granting approval for use of, or training with or in, U.S. government property or facilities.

ARTICLE II – Routine Requests for Assistance

A. The WDFW Chief of Enforcement or designee shall submit routine requests for assistance from RL to the SES Director. Each request shall be subject to approval on an individual basis. RL may, at its option, provide requested assistance through one or more of its Hanford on-site operating contractors. Assistance provided by RL shall be subject to the provisions of this agreement and any additional conditions to which the parties agree.

B. The SES Director or designee shall submit routine requests for assistance from WDFW to the Chief of Enforcement. Each request shall be subject to approval on an individual basis. Assistance provided by WDFW shall be subject to the provisions of this agreement and any additional conditions to which the parties agree.

ARTICLE III – Emergency Requests for Assistance

A. During a Hanford Site security emergency, the on-duty Hanford Patrol Shift Commander may request assistance from WDFW by contacting Washington State Patrol Communications in Kennewick or FWOs directly via radio or cell phone. WDFW may provide support on the Hanford Site with personnel and/or equipment, secondary pursuit support to Hanford Patrol units, and other law enforcement assistance as determined at the time of need.

B. In an emergency on or adjacent to the Hanford Site, WDFW FWOs may request assistance from the on-duty Hanford Patrol Shift Commander by radio or cell phone. Hanford Patrol may provide emergency support to FWOs on the Hanford Site and other law enforcement assistance as determined at the time of need.

C. The law enforcement officers providing emergency assistance may operate under the general direction of, but shall not be deemed to be an employee of, the receiving parties.

ARTICLE IV– Duration and Termination

This agreement shall commence on the date indicated in ARTICLE IX for an indefinite duration. This agreement or any activity thereunder may be terminated upon 30 days written notice by either party to the other party. The parties agree to attempt to avoid terminating any individual activity in order to support the ability of each party to fulfill its mission. This agreement may be amended in writing at any time by agreement of the parties.

ARTICLE V – Waiver of Claims

A. Except as otherwise provided in ARTICLE VIII, the United States of America, by and through DOE, for the sole consideration of any benefits derived from this agreement, hereby waives, relinquishes, remises, releases and forever discharges the Washington Department of Fish and Wildlife from any and all claims, actions, causes of actions, demands, rights, damages, costs, loss of service, expenses, and compensation whatsoever, which the

undersigned now has/have or which may hereafter accrue on account of or in any way growing out of any and all known and unknown, foreseen and unforeseen bodily and personal injuries and property damage and the consequences thereof, resulting or to result in consequence of assistance rendered or activity conducted by WDFW under this agreement or resulting or to result in consequences of use of WDFW property.

B. Except as otherwise provided in ARTICLE VIII, Washington State, by and through WDFW, for the sole consideration of any benefits derived from this agreement, hereby waives, relinquishes, remises, release and forever discharges DOE, its officers, contractors, and employees from any and all claims, actions, cause of actions, demands, rights, damages, costs, loss of service, expenses, and compensation whatsoever, which the undersigned now has/have or which may hereafter accrue on account of or in any way growing out of any and all known and unknown, foreseen and unforeseen bodily and personal injuries and property damage and the consequences thereof, resulting or to result in consequence of assistance rendered or activity conducted by the aforementioned law enforcement agencies under this agreement, or resulting or to result in consequences of use of DOE property or facilities.

ARTICLE VI – Payment

Except as otherwise agreed by the parties in individual cases, no compensation shall be paid by the DOE or the WDFW for law enforcement assistance rendered pursuant to this agreement.

ARTICLE VII – Disclaimer of Warrantees

Either the DOE nor WDFW make any representations or warranty as to the physical condition or usefulness of any equipment, information, or other assistance exchanged under this agreement or the fitness for any particular purpose to which any such equipment, information, or other assistance may be put by the recipient.

ARTICLE VIII – Loss or Damage to Property or Equipment

The parties may loan property or equipment to one another. The property or equipment should be returned to the lender in the same general condition as it was when borrowed. Should the borrowed property or equipment be lost or damaged, the borrowing party shall repair, replace or pay the cost of replacing the item to the lending party. The parties may, however, agree to an alternative arrangement, such as rendering services in exchange for the lost or damaged equipment or providing alternative property or equipment.

ARTICLE IX – Agreement

A. This MOU is neither a fiscal nor a funds obligation document.

B. This Agreement is strictly for internal management purposes for each of the Parties. It is not legally enforceable and shall not be construed to create any legal obligation on the part of any of the Parties. This Agreement shall not be construed to provide a private right or cause of action for or by any person or entity.

C. All agreements herein are subject to, and will be carried out in compliance with, all Federal applicable laws, regulations and other legal requirements.

D. WDFW shall not assign this agreement or any interest therein or any claim thereunder, except as expressly authorized in writing by DOE.

IN WITNESS WHEREOF, the parties have executed this agreement as of the dates indicated below.

APPROVALS:

For the **Washington Department of Fish and Wildlife**

By: Bruce Bjork, WDFW Chief of Enforcement — Date: 4-16-09

By: William Brooks, *C.P.M.*, WDFW Contracts Officer — Date: APR 15 2009

For **Richland Operations Office**
Security and Emergency Services Division

By: Gary L. Loiacono, Acting Director — Date: 4/28/09

Permit Equivalency Notice

PDC Number:	24590-LAW-PEN-ENV-14-0001		
PEN Title:	Incorporate LAW IQRPE Report In Permit to Reflect Change in Document Number		
Date Prepared:	1/27/2014	Originator:	W. Remsen

Source Document Driving Equivalency Determination (If Applicable)

Source Document Number	Rev	Source Document Name
24590-CM-HC4-HXYG-00240-02-00008	00C	IQRPE Structural Integrity Assessment Report For LAW LVP HEPA Filter Housings (LVP-HEPA-00001A/2A/3A and -00001B/2B)

Affected Permit Information

Permit Number:	WA7890008967, Part III, Operating Unit Group 10, Appendix 9.11	Revision:	8c dated August 2012

Permit Equivalence Information

Specific Section(s)/Condition(s) Affected:
DWP Operating Unit Group 10, Appendix 9.11

Description of Substitution/Equivalence: (Attach supplemental information)

This Permit Equivalency Notice (PEN) is submitted in accordance with DWP Condition III.10.C.10.

BNI assigned a new document number to the LAW IQRPE assessment report addressing the LVP HEPA Filter Housings. Ecology is requested to replace 24590-CM-HC4-HXYG-00240-02-00008, Rev. 00A *IQRPE Structural Integrity Assessment Report For LAW LVP HEPA Filter Housings (LVP-HEPA-00001A/2A/3A and -00001B/2B)* located in DWP Operating Unit Group 10 Appendix 9.11 with 24590-CM-HC4-HXYG-00240-02-00008, Rev. 00C.

24590-CM-HC4-HXYG-00240-02-00008, Rev 00A was added to the permit as part of 24590-LAW-PCN-ENV-13-001 that was approved by Ecology on 4/18/2013.

- Shortly after it was issued Rev 00A was inadvertently cancelled
- Rev 00B is a single page WTP form that was used to cancel Rev 00A
- Rev 00C is a complete IQRPE report that was issued to replace Rev 00A
- The only difference between Rev 00A and Rev 00C is the Title Page.

The attached IQRPE assessment report 24590-CM-HC4-HXYG-00240-02-00008, Rev 00C is maintained in the WTP RCRA Operating Record in accordance with WAC 173-303-380 and DWP Condition III.10.C.4.

WTP Environmental Manager Approval

Signer: Brad Erlandson		3/25/14
Print/Type Name	*Signature*	*Date*

Quarter Ending March 31, 2013 24590-LAW-PCN-ENV-12-001

Hanford Facility RCRA Permit Modification Notification Form
Part III, Operating Unit 10
Waste Treatment and Immobilization Plant

Index

Page 2 of 3: Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant
Add the Independent Qualified Registered Professional Engineer (IQRPE) Structural Integrity Assessment Report for the LAW Secondary Containment Bulge Enclosures to Appendix 9.11 of the Dangerous Waste Permit (DWP).

Submitted by Co-Operator:

Donna Busche 12/12/12

D. M. Busche Date

Reviewed by ORP Program Office:

12/26/12

D. L. Noyes Date

Quarter Ending March 31, 2013 24590-LAW-PCN-ENV-12-001

Hanford Facility RCRA Permit Modification Notification Form	
Unit: **Waste Treatment and Immobilization Plant**	Permit Part: **Part III, Operating Unit 10**

Description of Modification:

The purpose of this Class 1 prime modification is to add the IQRPE Structural Integrity Assessment Report for LAW Secondary Containment Bulge Enclosures to Appendix 9.11 of the DWP:

Appendix 9.11			
Delete	Not applicable - See discussion below	Add:	IQRPE Structural Integrity Assessment Report for LAW Secondary Containment Bulge Enclosures, AREVA-IA-3008143-000 - 24590-CM-HC4-HXYG-00240-02-00006

This modification requests Ecology approval and incorporation into the permit the integrity assessment report. Based on discussions with Ecology, it was agreed that a single IQRPE structural integrity assessment report would be submitted to more clearly describe the design and structural integrity of the bulges addressed in the below-referenced LAW ancillary equipment IQRPE integrity assessment reports in Appendix 9.11.

The following IQRPE structural integrity assessment reports in the DWP specifically described or identified as ancillary equipment, the LAW Facility bulges:

- Structural Integrity Assessment Report for LAW LCP Ancillary Equipment (AREVA-IA-3001932-000 - 24590-CM-HC4-HXYG-00211 – CCN: 200246)
- Structural Integrity Assessment of the Low-Activity Waste (LAW) Melter Feed Process System (LFP) Elev. 3'0" Ancillary Equipment (COGEMA-IA-055 - 24590-CM-HC4-HXYG-00138-02-00029)
- Structural Integrity Assessment Report for LAW LOP Ancillary Equipment (AREVA-IA-3002314-000 - 24590-CM-HC4-HXYG-00211 – CCN: 169561)
- Structural Integrity Assessment Report for LAW RLD Ancillary Equipment (AREVA-IA-3001885-000 - 24590-CM-HC4-HXYG-00211 – CNN: 200242)

This modification provides a single final integrity assessment report for the LAW bulges based on the review of data from reference documents such as specifications, plant drawings, vendor fabrication drawings, mechanical data sheets, system descriptions, engineering calculations, structural design criteria and codes, and secondary containment plans and designs.

For each item of "Information Assessed" in the structural integrity assessment report, the items listed under the "Source of Information" column were reviewed and found to furnish adequate design requirements and controls to ensure the design fully satisfies the requirements of Washington Administrative Code, WAC-173-303-640, *Dangerous Waste Regulations, Tank Systems.*

This modification requests Ecology approval and incorporation of the following list of outstanding change documents into the permit. Although not yet incorporated into the revised documents attached to this PCN, this list of outstanding DCNs is intended to be incorporated into this modification.

None

In accordance with Permit Condition III.10.C.2.e, this permit modification sent to Ecology may include page changes to the Permit, attachments, and permit application supporting documentation.

Quarter Ending March 31, 2013 24590-LAW-PCN-ENV-12-001

WAC 173-303-830 Modification Class:	Class 1	Class 1	Class 2	Class 3
Please mark the Modification Class:		X		

Enter relevant WAC 173-303-830, Appendix I Modification citation number: NA

Enter wording of WAC 173-303-830, Appendix I Modification citation:

In accordance with WAC 173-303-830(4)(d)(i), this modification notification is requested to be reviewed and approved as a Class 1 modification. WAC 173-303-830(4)(d)(ii)(A) states, "Class 1 modifications apply to minor changes that keep the permit current with routine changes to the facility or its operation. These changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment. In the case of Class 1 modifications, the director may require prior approval."

Modification Approved/Concur: ☑ Yes ☐ Denied (state reason below) Reason for denial:	Reviewed by Ecology: S. Dahl 6-18-14 Date

ISSUED BY
WP-NTP PMO

R11549963

24590-CM-HC4-HXYG-00240-02-00006

REV 00A

SUBCONTRACT SUBMITTAL
REVIEW NOT REQUIRED

AREVA

AFS-12-0274

November 28, 2012

Mr. Gary Ellers
Subcontracts Administrator
Bechtel National RPP-WTP Project
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 SECONDARY CONTAINMENT BULGE ENCLOSURES (LCP/LFP/LOP/RLD) IA-3008143-000

The structural integrity assessment of the subject secondary containment bulge enclosures have been completed per the contract requirements and is enclosed for your use. The assessment found that the design is sufficient to ensure the secondary containment bulge enclosures 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,

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

llm

Enclosure (1)

cc: D. C. Pfluger, MS5-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-3008143-000

IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT
FOR
LAW SECONDARY CONTAINMENT BULGE ENCLOSURES (LCP/LFP/LOP/RLD)

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-3008143-000

IQRPE STRUCTURAL INTEGRITY ASSESSMENT REPORT FOR LAW SECONDARY CONTAINMENT BULGE ENCLOSURES (LCP/LFP/LOP/RLD)

"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 Secondary Containment Bulge Enclosures (LCP/LFP/LOP/RLD), 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 fifty (50) pages numbered one (1) through fifty (50).

TARLOK SINGH HUNDAL
STATE OF WASHINGTON
20213
REGISTERED
PROFESSIONAL ENGINEER

T S Hundal

Signature

11/28/12

Date

Scope	Scope of this Integrity Assessment	The scope of this integrity assessment includes nine LAW bulge enclosures (LCP-BULGE-00001/2/3, LFP-BULGE-00001/2, LOP-BULGE-00001/2, and RLD-BULGE-00001/4), also listed herein as bulges, bulge units, or plant items associated with the subject system as shown on General Arrangement Drawings 24590-LAW-P1-P01T-00001 and - 00004. These bulge enclosures house and act as secondary containment to numerous waste lines components such piping, valves, actuators, instruments, and associated equipment as shown on various listed Reference drawings. The bulges serve the purpose to provide quick, convenient, and safe containment enclosures for the maintenance of various serviceable components of different systems as shown on the drawings. The bulge enclosures (LCP-BULGE-00001/2/3, LFP-BULGE-00001/2, LOP-BULGE-00001/2, and RLD-BULGE-00004) are mounted on the concrete floor slab in Room L-0202 @ Elevation 28'-0" and bulge enclosure (RLD-BULGE-00001) is mounted on the concrete floor slab in Room L-B001A @ Elevation (-) 21'-0" of the LAW facility. Page contents description: Pages 1 and 2: Applicable to all below listed nine LAW bulge enclosures Pages 3-14: Applicable to LCP-BULGE-00001/2/3 Pages 15-26: Applicable to LFP-BULGE-00001/2 Pages 27-38: Applicable to LOP-BULGE-00001/2 Pages 39-50: Applicable to RLD-BULGE-00001/4.
Summary of Assessment		For each item of "Information Assessed" (i.e., Criteria) on the following pages, the documents 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, Task Order T-008, Specifications, and Plant Drawings generally common to all LAW Bulges.	Material Requisition (MR): 24590-CM-MRD-PY33-00001, Rev. 5, Bulges (Process). Task Order T-008 (Technical Services Subcontract): 24590-QL-HC4-W000-00085, Rev. 2, Finite Element Analysis of LAW and PTF Bulges including Attachments 2 & 3 of Task Order T-008. Specifications: The following Specifications with their respective revision and Specification Change Notices (SCNs) are listed in the above listed MR and Task Order T-008: 24590-WTP-3PS-MX00-T0001, Engineering Specification for Process Bulge Design and Fabrication ; 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-FB01-T0001, Engineering Specification for Structural Design Loads for Seismic Category III & IV Equipment and Tanks; 24590-WTP-3PS-SS00-T0002, Engineering Specification for Welding of Structural Stainless Steel and Welding of Structural Carbon Steel to Structural Stainless Steel; 24590-WTP-3PS-AFPS-T0001, Engineering Specification for Shop Applied Special Protective Coatings for Steel Items and Equipment. 24590-WTP-3PS-MV00-T0001, Engineering Specification for Pressure Vessel Design and Fabrication; 24590-WTP-3PS-MV00-T0003, Engineering Specification for Pressure Vessel Fatigue Analysis; 24590-WTP-3PS-G000-T0014, Engineering Specification for Supplier Design Analysis. Plant Drawings: 24590-LAW-P1-P01T-00001, Rev. 3, LAW Vitrification Building General Arrangement Plan at El. (-) 21'-0"; 24590-LAW-P1-P01T-00002, Rev. 6, LAW Vitrification Building General Arrangement Plan at El. 3'-0"; 24590-LAW-P1-P01T-00004, Rev. 4, LAW Vitrification Building General Arrangement Plan at El. 28'-0"; 24590-LAW-P1-P01T-00007, Rev. 8, LAW Vitrification Building General Arrangement Section A-A, B-B, and S-S; 24590-LAW-DB-S13T-00007, Rev. 3, LAW Vitrification Building Main Building Conc. Forming Plan Zone 1 @ El. (-) 21'-0"; 24590-LAW-DB-S13T-00014, Rev. 5, LAW Vitrification Building Main Building Partial Conc. Forming Plan Zone 1 @ El. 3'-0"; 24590-LAW-DB-S13T-00020, Rev. 1, LAW Vitrification Building Main Building Partial Conc. Forming Plan Zone 7 @ El. 2'-0" (Process Cells); 24590-LAW-DB-S13T-00021, Rev. 2, LAW Vitrification Building Main Building Partial Conc. Forming Plan Zone 8 @ El. 2'-0 (Process and Effluent Cells); 24590-LAW-DB-S13T-00024, Rev. 5, LAW Vitrification Building Main Building Partial Conc. Forming Plan Zone 1 @ El. 28'-0"; 24590-LAW-DB-S13T-00031, Rev. 6, LAW Vitrification Building Main Building Partial Conc. Forming Plan Zone 8 @ El. 28'-0"; 24590-LAW-DB-S13T-00032, Rev. 5, LAW Vitrification Building General Partial Conc. Forming Plan Zone 7 West @ El. 28'-0"; 24590-LAW-DB-S13T-00033, Rev. 5, LAW Vitrification Building General Partial Conc. Forming Plan Zone 7 East @ El. 28'-0"; 24590-LAW-S1-S15T-00375, Rev. 0, LAW Vitrification Building Main Building (+) 28' Elevation Bulge Anchorage Details, (including FCNs: 24590-WTP-FC-M-08-0164, -0173, -0181, -0194, & -0201, and 24590-WTP-FC-M-09-0006 & -0034); 24590-LAW-DD-S13T-00019, Rev. 3, LAW Vitrification Building Main Building Special Embed Plates; 24590-WTP-DD-S13T-00002, Rev. 7, Civil/Structural Standards-Standard Embed Plates.

References (cont'd)	Vendor Drawings for LCP Bulges	Vendor Fabrication Drawings (*Bechtel Status Code 1 Drawings): 24590-CM-POA-PY33-00002-06-00001, Rev. 00G, Concentrate Receipt Bulge (LCP-BULGE-00001) Outline, Dimensions & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00002, Rev. 00G, Concentrate Receipt Bulge (LCP-BULGE-00001) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00031, Rev. 00G, Concentrate Receipt Bulge (LCP-BULGE-00001) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00032, Rev. 00G, Concentrate Receipt Bulge (LCP-BULGE-00001) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00033, Rev. 00G, Concentrate Receipt Bulge (LCP-BULGE-00001) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00034, Rev. 00E, Enclosure & Cover (LCP-BULGE-00001) Subassembly, Sheet 1of 5; 24590-CM-POA-PY33-00002-06-00035, Rev. 00E, Enclosure & Cover (LCP-BULGE-00001) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00036, Rev. 00E, Enclosure & Cover (LCP-BULGE-00001) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00037, Rev. 00E, Enclosure & Cover (LCP-BULGE-00001) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00038, Rev. 00E, Enclosure & Cover (LCP-BULGE-00001) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00039, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00001) Subassembly, Sheet 1of 3; 24590-CM-POA-PY33-00002-06-00040, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00001) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00041, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00001) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00151, Rev. 00F, Column Davit Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00152, Rev. 00F, Column Davit Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00153, Rev. 00F, Column Davit Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00003, Rev. 00I, Concentrate Receipt Bulge (LCP-BULGE-00002) Outline, Dimensions & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00004, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00002) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00044, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00002) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00045, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00002) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00046, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00002) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00047, Rev. 00F, Enclosure & Cover (LCP-BULGE-00002) Subassembly, Sheet 1of 5; 24590-CM-POA-PY33-00002-06-00048, Rev. 00F, Enclosure & Cover (LCP-BULGE-00002) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00049, Rev. 00F, Enclosure & Cover (LCP-BULGE-00002) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00050, Rev. 00F, Enclosure & Cover (LCP-BULGE-00002) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00051, Rev. 00F, Enclosure & Cover (LCP-BULGE-00002) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00052, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00002) Subassembly, Sheet 1of 3; 24590-CM-POA-PY33-00002-06-00053, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00002) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00054, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00002) Details, Sheet 3;

Reference (cont'd)	Vendor Drawings, Plant Drawings, Mechanical Data Sheets, and System Description for LCP Bulges	Vendor Fabrication Drawings (cont'd): 24590-CM-POA-PY33-00002-06-00005, Rev. 00I, Concentrate Receipt Bulge (LCP-BULGE-00003) Outline, Dimensions & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00006, Rev. 00I, Concentrate Receipt Bulge (LCP-BULGE-00003) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00057, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00003) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00058, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00003) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00059, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00003) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00060, Rev. 00F, Enclosure & Cover (LCP-BULGE-00003) Subassembly, Sheet 1of 5; 24590-CM-POA-PY33-00002-06-00061, Rev. 00F, Enclosure & Cover (LCP-BULGE-00003) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00062, Rev. 00F, Enclosure & Cover (LCP-BULGE-00003) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00063, Rev. 00F, Enclosure & Cover (LCP-BULGE-00003) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00064, Rev. 00F, Enclosure & Cover (LCP-BULGE-00003) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00065, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00003) Subassembly, Sheet 1of 3; 24590-CM-POA-PY33-00002-06-00066, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00003) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00067, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00003) Details, Sheet 3; * Bechtel Status Code 1 Drawing is an "as fabricated vendor drawing" approved/accepted by Bechtel. Plant Drawings: 24590-LAW-M6-LCP-00001001, Rev. 0, P&ID- LAW, LAW Concentrate Receipt Process System LCP-BULGE-00001; 24590-LAW-M6-LCP-00001004, Rev. 0, P&ID- LAW, LAW Concentrate Receipt Process System LCP-BULGE-00002 (Sheet 1 of 2); 24590-LAW-M6-LCP-00001005, Rev. 0, P&ID- LAW, LAW Concentrate Receipt Process System LCP-BULGE-00002 (Sheet 2 of 2); 24590-LAW-M6-LCP-00002001, Rev. 0, P&ID- LAW, LAW Concentrate Receipt Process System LCP-BULGE-00003 (Sheet 1 of 2); 24590-LAW-M6-LCP-00002002, Rev. 0, P&ID- LAW, LAW Concentrate Receipt Process System LCP-BULGE-00003 (Sheet 2 of 2). Mechanical Data Sheets (MDS): 24590-LAW-MXD-LCP-00001, Rev. 4, Mechanical Systems Data Sheet: Process Bulge (LCP-BULGE-00001); 24590-LAW-MXD-LCP-00002, Rev. 3, Mechanical Systems Data Sheet: Process Bulge (LCP-BULGE-00002); 24590-LAW-MXD-LCP-00003, Rev. 3, Mechanical Systems Data Sheet: Process Bulge (LCP-BULGE-00003). System Description: 24590-LAW-3YD-LCP-00001, Rev. 3, System Description for the LAW Concentrate Receipt Process (LCP), (including SDCN # 24590-LAW-3YN-LCP-00005).

	Information Assessed	Source of Information	Assessment
Design	The bulge enclosures secondary containment design standards and codes used are appropriate and adequate for their intended use.	Specifications, Drawings, and Mechanical Data Sheets listed above under References; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 2, Alternate Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials.	The Engineering Specification for Process Bulge Design and Fabrication requires that various components of the LCP bulge enclosures be designed, fabricated, tested, and delivered in accordance with the requirements specified in the codes and standards listed in the Source of Information column in this section. Supplemental detailed requirements for the LCP bulge enclosures fabrication are specified in various engineering specifications listed 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 Mechanical Data Sheets (MDS) for the LCP bulges list their Quality Level as (CM) and Seismic Category as (SC-IV). The Vendor Fabrication drawings show that approximate dimensions of LCP-BULGE-00001 are 105" L x 32" W x 31" H with a davit crane used for maintenance and the approximate dimensions of LCP-BULGE-00002/3 are 93" L x 47" W x 32" H. Each enclosure has removable top cover and its various components and support frame are built with various stainless steel grade materials as shown on the drawings. The MDS for each unit requires that it be designed for temperature range of 59° F to 113° F and pressure range of (-) 2" WC to full hydrostatic test pressure WC. MDS also provide applicable nozzle and fatigue loads. The design codes and standards listed in the Source of Information column are appropriate and adequate to provide secondary containment design for the intended use of the bulges.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	The bulge enclosure components, supports, and foundation design include full weight of bulge enclosure.	Mechanical Data Sheets, Drawings, and Specifications listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation).	The Engineering Specification for Process Bulge Design and Fabrication identifies the system to be of commercial grade (CM) quality and the seismic category to be SC-IV. The drawings show that the secondary containment enclosure components are fully welded to confine any waste spillage within them. Any spill within the LCP bulge enclosures is drained into RLD-SUMP-00029/31 located at lower floor Elevation 3'-0" which have the radar leak detection devices to alarm any spillage incidents. Each enclosure structure is attached to and supported by structural steel framing members. The Structural Design Criteria uses appropriate applicable standards to define design loads and load combinations. The Basis of Design and the MDS documents require that along with dead weights of the components, the weight of the bulge filled with water, and the specified temperature and pressure environmental conditions should be appropriately included in the loads and load combinations. Review of the LCP bulge design calculation and drawing documents shows that the support system for each unit has adequate strength to sustain the aforementioned loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Furthermore, Chapter 14 of the Basis of Design document requires that the foundation underlying the bulge supports must be adequate to sustain the full load of the units, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment for the plant items on this floor (Elev. 28'-0").

	Information Assessed	Source of Information	Assessment
Design (cont'd)	Design calculation approach and design basis of support and foundation with design standard and codes references such as AISC codes are adequate.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation).	The Basis of Design document provides many fundamental general requirements for support and foundation design. The Structural Design Criteria and Design Criteria for Equipment Seismic and Environmental Qualification documents provide adequate detailed design criteria for the design of support steel framing and concrete foundations and footings. AISC M016 and UBC 1997 codes are referenced for support design of SC-IV structural steel components. The design calculation documents and drawings reviewed show that each LCP bulge secondary containment enclosure and support system is adequately designed to meet the applicable code requirements.

	Information Assessed	Source of Information	Assessment
Foundation	Foundation material is compatible with the support structure.	Specifications, Mechanical Data Sheets, and Drawings listed above under References.	The Engineering Specification for Process Bulge Design and Fabrication and MDS require that stainless steel material be used for all bulge enclosure components. The drawings show that the LAW LCP bulges (LCP-BULGE-00001/2/3) are located in Room L-0202 at floor Elevation 28'-0" of the LAW building. The stainless steel support structure frame is welded to the carbon steel base plates which in turn are welded (anchored) to the carbon steel plates embedded in concrete floor slab. All components are weld compatible with each other as per Engineering Specification for Welding of Structural Stainless Steel and Welding of Structural Carbon Steel to Structural Stainless Steel.
	If in an area subject to flooding, the Bulge is anchored.	Drawings and Mechanical Data Sheets listed above under References; 24590-LAW-PER-M-02-002, Rev. 7, Dangerous Waste Permit (DWP) Liner Heights in the LAW Facility; 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation).	As shown on the referenced drawings, the LCP bulge enclosures included in this assessment are located in Room L-0202 @ Floor Elev. 28'-0" of the LAW facility. The DWP Liner Heights document does not identify any flooding condition in Room L-0202, nor do the Mechanical Data Sheets identify any submergence conditions of the bulge enclosures, therefore, they need not be evaluated for anchoring due to any buoyant forces. However, in order to sustain any other applicable forces such as seismic, nozzle, and internal hydrostatic loads, these units are adequately anchored by welding to the embedded steel plates in the concrete floor slab as shown on the drawings and in the Misc. Equipment Anchorage calculation documents.
	Foundation 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 LCP bugles considered in this assessment are installed in the LAW facility at Floor Elev. 28'-0" which is not subject to frost heave. Therefore, the foundation beneath these units is not subject to the frost heave effects.

	Information Assessed	Source of Information	Assessment
Seismic	Seismic considerations have been adequately addressed.	Specifications, Mechanical Data Sheets, and Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10 Secondary Containment Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The Secondary Containment Design, Structural Design Criteria, and Design Criteria for Seismic and Environmental Qualification documents provide detailed information of design methodology, materials, loads, and load combinations applicable for the LCP bulge enclosures. The Engineering Specification for Process Bulge Design and Fabrication and MDS documents identify the Quality Level of the bulges to be CM and the Seismic Classification as SC-IV. The bulge enclosure system design loads combinations are taken from UBC 1997 code and analysis for SC-IV secondary containment enclosure is performed in accordance with the Specification for Structural Design Loads for Seismic Category III/IV Equipment and Tanks document. The AISC M016 code is used for the design of SC-IV secondary containment enclosure and support frame, as applicable. The frame structure is designed to sustain all applicable loads including seismic and its bases are adequately welded to the embedded steel plates in concrete floor slab supporting the bulge units. The design calculation documents and drawings reviewed show that sound engineering techniques are used for adequate consideration of forces due to applicable seismic event.

	Information Assessed	Source of Information	Assessment
Compatibility	The stored waste is compatible with its secondary containment and leak detection hardware based on a detailed chemical and physical analysis of the wastes used and other information sources.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-J-02-002, Rev. 4, Leak Detection in Secondary Containment Systems; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation).	The Basis of Design document states that the secondary containment components are to be appropriately lined and any leaks or spills will be removed within 24 hours of a leak detection or in as timely a manner as possible. Based on a detailed chemical and physical analysis of the wastes and other process information sources, the Material Selections document identifies appropriate compatible corrosion resistant materials (stainless steel) for the bulge units' secondary containment components and leak detection hardware. Leak detection technology and methods are described in Leak Detection in Secondary Containment Systems document. The drawings and design calculations reviewed show that the stainless steel as recommended in Material Selections document is used for the fabrication of the LCP bulges. The Secondary Containment Design document provides adequate typical construction details including attachment details for the leak detection equipment to be used for secondary containment where required.

	Information Assessed	Source of Information	Assessment
Strength	The design shows that the secondary containment has sufficient strength and thickness to prevent failure owing to pressure gradients, static head during a release, physical contact with the waste, climatic conditions, seismic event, and the stress of daily operations (e.g., vehicular traffic).	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The LAW general arrangement drawings show the LCP bulges are located inside the building. Pressure gradients, static head during a release, physical contact with the waste, climatic conditions, and the stresses of daily operations are adequately stated as design goals in the Basis of Design document. The Secondary Containment Design document describes and provides references to the design methodology, materials of construction, loads, and load combinations (including seismic loads) for the LAW facility secondary containment components. The LCP secondary containment bulge enclosures being considered are located in the room inside the LAW Vitrification Building rather than being directly buried in ground, therefore, pressure gradients and vehicular traffic are not considered applicable load cases. The design calculations, drawings, and related design change documents such as DCNs, FCNs, BODCNs, NCRs, CDRs, and SDDRs were reviewed. The review of these aforementioned design media documents show that the secondary containment enclosures of the said bulges have been adequately designed to provide sufficient strength required to sustain the forces due to applicable load cases including full hydrostatic load and design basis seismic event. Furthermore, the review, acceptance, and approval of design media by BNI, provides added assurance of the sound design of the secondary containment having sufficient strength required for the intended use of these bulges.

	Information Assessed	Source of Information	Assessment
Strength (cont'd)	The secondary containment system has sufficient strength in the presence of operational stresses from site-specific conditions (i.e., frost, precipitation etc.).	Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-3PS-NLLR-T0002, Rev. 1, Engineering Specification for Furnishing, Detailing, Fabrication, Delivery and Installation of Stainless Steel Liner Plates; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation).	The LAW facility drawings show that the secondary containment units being considered are installed inside the building. Because they are located inside the building, precipitation and frost are not applicable load cases. The Secondary Containment Design document identifies the applicable load cases (operational stresses) from site specific conditions that must be considered in the design. The Engineering Specification for Furnishing Stainless Steel Liner Plates includes specific provisions for protection and repair of completed liners during the construction process. The Material Selections for Building Secondary Containment document addresses the potential effects of operations conditions on metal liner and the associated maintenance requirements. The design calculation documents reviewed show that the LCP bulge secondary containment components are adequately designed and have sufficient strength to sustain the applicable design loads.

	Information Assessed	Source of Information	Assessment
Foundation Integrity	The secondary containment is adequately supported by the enclosure structure frame and foundation below has adequate strength	Drawings listed above under References; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation); 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	Review of the design calculation and drawings documents shows that the support system for each LCP bulge unit has adequate strength to sustain the applicable design loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Chapter 14 of the Basis of Design document requires that the foundation underlying each bulge enclosure support system must be adequate to sustain the loads from the weight of the bulge unit filled with water, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment for the plant items on this floor.
Infiltration	The design or operation prevents run-on or infiltration of precipitation into the secondary containment.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design to provide adequate measures to prevent run-on or infiltration of precipitation. The LCP bulges are located inside the LAW Vitrification Building where they are protected from direct run-on or infiltration of precipitation by the building structure as shown in the general arrangement drawings. Therefore, this section is not applicable to the secondary containment of the LCP bulges being assessed.
	The design includes an external moisture barrier or other means to prevent moisture from entering the room.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design include provisions to prevent external moisture intrusion. The LCP bulges shown on the general arrangement drawings are inside the LAW Vitrification Building which protects them from precipitation and surface water percolation, therefore, this section is not applicable to them.

	Information Assessed	Source of Information	Assessment
Liner System	The containment area is free of cracks or gaps and the design discusses methods of their minimization.	24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection.	The Basis of Design document requires the liner system to be free of cracks and gaps. The Secondary Containment Design document provides current adequate design requirements, and codes and standards to design leak tight liners. This document includes appropriate details for installation of stainless steel components free of cracks and gaps. The Material Selections document provides adequate requirements for the secondary containment components materials.
	The design has considered the compatibility of the secondary containment elements with the waste and for preventing it from migrating into the concrete slab below.	24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design.	The Material Selections document contains information on the compatibility of secondary containment stainless steel material usage for containing the waste. The Secondary Containment Design document provides standard installation details for the secondary containment components of the LCP bulges which ensure leak-tight connections that will prevent the migration of the waste onto the concrete slab below.

References (cont'd)	Vendor Drawings for LFP Bulges	Vendor Fabrication Drawings (*Bechtel Status Code 1 Drawings): 24590-CM-POA-PY33-00002-06-00011, Rev. 00F, Melter 1-Feed/Prep Bulge (LFP-BULGE-00001) Outline, Dim. & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00012, Rev. 00F, Melter 1-Feed/Feed Bulge (LFP-BULGE-00001) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00104, Rev. 00G, Melter 1-Feed/Prep Bulge (LFP-BULGE-00001) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00105, Rev. 00G, Melter 1-Feed/Prep Bulge (LFP-BULGE-00001) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00106, Rev. 00G, Melter 1-Feed/Prep Bulge (LFP-BULGE-00001) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00107, Rev. 00F, Enclosure & Cover (LFP-BULGE-00001) Subassembly, Sheet 1of 6; 24590-CM-POA-PY33-00002-06-00108, Rev. 00F, Enclosure & Cover (LFP-BULGE-00001) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00109, Rev. 00F, Enclosure & Cover (LFP-BULGE-00001) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00110, Rev. 00F, Enclosure & Cover (LFP-BULGE-00001) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00111, Rev. 00F, Enclosure & Cover (LFP-BULGE-00001) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00112, Rev. 00F, Enclosure & Cover (LFP-BULGE-00001) Details, Sheet 6; 24590-CM-POA-PY33-00002-06-00113, Rev. 00E, Enclosure Support Frame (LFP-BULGE-00001) Subassembly, Sheet 1of 3; 24590-CM-POA-PY33-00002-06-00114, Rev. 00E, Enclosure Support Frame (LFP-BULGE-00001) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00115, Rev. 00E, Enclosure Support Frame (LFP-BULGE-00001) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00013, Rev. 00F, Melter 2-Feed/Prep Bulge (LFP-BULGE-00002) Outline, Dim. & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00014, Rev. 00F, Melter 2-Feed/Feed Bulge (LFP-BULGE-00002) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00120, Rev. 00G, Melter 2-Feed/Prep Bulge (LFP-BULGE-00002) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00121, Rev. 00G, Melter 2-Feed/Prep Bulge (LFP-BULGE-00002) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00122, Rev. 00G, Melter 2-Feed/Prep Bulge (LFP-BULGE-00002) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00123, Rev. 00F, Enclosure & Cover (LFP-BULGE-00002) Subassembly, Sheet 1of 6; 24590-CM-POA-PY33-00002-06-00124, Rev. 00F, Enclosure & Cover (LFP-BULGE-00002) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00125, Rev. 00F, Enclosure & Cover (LFP-BULGE-00002) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00126, Rev. 00F, Enclosure & Cover (LFP-BULGE-00002) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00127, Rev. 00F, Enclosure & Cover (LFP-BULGE-00002) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00128, Rev. 00F, Enclosure & Cover (LFP-BULGE-00002) Details, Sheet 6; 24590-CM-POA-PY33-00002-06-00129, Rev. 00E, Enclosure Support Frame (LFP-BULGE-00002) Subassembly, Sheet 1of 3; 24590-CM-POA-PY33-00002-06-00130, Rev. 00E, Enclosure Support Frame (LFP-BULGE-00002) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00131, Rev. 00E, Enclosure Support Frame (LFP-BULGE-00002) Details, Sheet 3. * Bechtel Status Code 1 Drawing is an "as fabricated vendor drawing" approved/accepted by Bechtel.

Reference (cont')	Plant Drawings, Mechanical Data Sheets, and System Description for LFP Bulges	Plant Drawings: 24590-LAW-M6-LFP-00001005, Rev. 0, P&ID- LAW Melter Feed Process System Melter 1, Feed Preparation and Feed LFP-BULGE-00001; 24590-LAW-M6-LFP-00001006, Rev. 0, P&ID- LAW Melter Feed Process System Melter 1, Feed Preparation and Feed LFP-BULGE-00001; 24590-LAW-M6-LFP-00003005, Rev. 0, P&ID- LAW Melter Feed Process System Melter 2, Feed Preparation and Feed LFP-BULGE-00002; 24590-LAW-M6-LFP-00003006, Rev. 0, P&ID- LAW Melter Feed Process System Melter 2, Feed Preparation and Feed LFP-BULGE-00002. Mechanical Data Sheets (MDS): 24590-LAW-MXD-LFP-00001, Rev. 4, Mechanical Systems Data Sheet: Process Bulge (LFP-BULGE-00001); 24590-LAW-MXD-LFP-00002, Rev. 4, Mechanical Systems Data Sheet: Process Bulge (LFP-BULGE-00002). System Description: 24590-LAW-3YD-LFP-00001, Rev. 3, System Description for the Low Activity Waste Melter Feed Process System (LFP), (including SDCN # 24590-LAW-3YN-LFP-00006 and -00008).

	Information Assessed	Source of Information	Assessment
Design	The bulge enclosures secondary containment design standards and codes used are appropriate and adequate for their intended use.	Specifications, Drawings, and Mechanical Data Sheets listed above under References; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 2, Alternate Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials.	The Engineering Specification for Process Bulge Design and Fabrication requires that various components of the bulge enclosures be designed, fabricated, tested, and delivered in accordance with the requirements specified in the codes and standards listed in the Source of Information column in this section. Supplemental detailed requirements for the Bulge Enclosures fabrication are specified in various engineering specifications listed 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 Mechanical Data Sheets (MDS) for the LFP bulges list their Quality Level as (CM) and Seismic Category as (SC-IV). The Vendor Fabrication drawings show that dimensions of each of the LFP bulge enclosures are 109" L x 49" W x 31" H. Each enclosure and its various components and support frame are built with various stainless steel grade materials as shown on the drawings. The MDS for each unit requires that it be designed for temperature range of 59° F to 113° F and pressure range of (-) 2" WC to full hydrostatic test pressure WC. MDS also provide applicable nozzle and fatigue loads. The design codes and standards listed in the Source of Information column are appropriate and adequate to provide secondary containment design for the intended use of the LFP bulges.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	The bulge enclosure components, supports, and foundation design include full weight of bulge enclosure.	Mechanical Data Sheets, Drawings, and Specifications listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation).	The Engineering Specification for Process Bulge Design and Fabrication identifies the system to be of commercial grade (CM) quality and the seismic category to be SC-IV. The drawings show that the secondary containment enclosure components are fully welded to confine any waste spillage within them. Any spill within the enclosures is drained into RLD-SUMP-00030/32 located at lower floor Elevation 3'-0" which have radar leak detection devices to alarm any spillage incidents. Each enclosure structure is attached to and supported by structural steel framing members. The Structural Design Criteria uses appropriate applicable standards to define design loads and load combinations. The Basis of Design and the MDS documents require that along with dead weights of the components, the weight of the bulge filled with water, and the specified temperature and pressure environmental conditions should be appropriately included in the loads and load combinations. Review of the LFP bulge design calculation and drawing documents shows that the support system for each unit has adequate strength to sustain the aforementioned loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Furthermore, Chapter 14 of the Basis of Design document requires that the foundation underlying the bulge supports must be adequate to sustain the full load of the units, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment for the plant items on this floor (Elev. 28'-0").

	Information Assessed	Source of Information	Assessment
Design (cont'd)	Design calculation approach and design basis of support and foundation with design standard and codes references such as AISC codes are adequate.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation).	The Basis of Design document provides many fundamental general requirements for support and foundation design. The Structural Design Criteria and Design Criteria for Equipment Seismic and Environmental Qualification documents provide adequate detailed design criteria for the design of support steel framing and concrete foundations and footings. AISC M016 and UBC 1997 codes are referenced for support design of SC-IV structural steel components. The design calculation documents and drawings reviewed show that each of the LFP bulge secondary containment enclosures and support systems are adequately designed to meet the applicable code requirements.

	Information Assessed	Source of Information	Assessment
Foundation	Foundation material is compatible with the support structure.	Specifications, Mechanical Data Sheets, and Drawings listed above under References.	The Engineering Specification for Process Bulge Design and Fabrication and MDS require that stainless steel material be used for all LFP bulge enclosure components. The drawings show that the LAW bulges (LFP-BULGE-00001/2) are located in Room L-0202 at floor Elevation 28'-0" of the LAW building. The stainless steel support structure frame is welded to the carbon steel base plates which in turn are welded (anchored) to the carbon steel plates embedded in concrete floor slab. All components are weld compatible with each other as per Engineering Specification for Welding of Structural Stainless Steel and Welding of Structural Carbon Steel to Structural Stainless Steel.
	If in an area subject to flooding, the bulge is anchored.	Drawings, Specifications, and Mechanical Data Sheets listed above under References; 24590-LAW-PER-M-02-002, Rev. 7, Dangerous Waste Permit (DWP) Liner Heights in the LAW Facility; 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation).	As shown on the referenced drawings, the bulge enclosures included in this assessment are located in Room L-0202 @ Floor Elev. 28'-0" of the LAW facility. The DWP Liner Heights document does not identify any flooding condition in Room L-0202, nor do the Mechanical Data Sheets identify any submergence conditions of the LFP bulge enclosures, therefore, they need not be evaluated for anchoring due to any buoyant forces. However, in order to sustain any other applicable forces such as seismic, nozzle, and internal hydrostatic loads, these units are adequately anchored by welding to the embedded steel plates in the concrete floor slab as shown on the drawings and in the Misc. Equipment Anchorage calculation documents.
	Foundation 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 LFP bugles considered in this assessment are installed in the LAW facility at Floor Elev. 28'-0" which is not subject to frost heave. Therefore, the foundation beneath these units is not subject to the frost heave effects.

	Information Assessed	Source of Information	Assessment
Seismic	Seismic considerations have been adequately addressed.	Specifications, Mechanical Design Sheets, and Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10 Secondary Containment Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Anchorage Calculation).	The Secondary Containment Design, Structural Design Criteria, and Design Criteria for Seismic and Environmental Qualification documents provide detailed information of design methodology, materials, loads, and load combinations applicable for the LFP bulge enclosures. The Engineering Specification for Process Bulge Design and Fabrication and MDS documents identify the Quality Level of the Bulges to be CM and the Seismic Classification as SC-IV. The LFP bulge enclosure system design loads combinations are taken from UBC 1997 code and analysis for SC-IV secondary containment enclosure is performed in accordance with the Specification for Structural Design Loads for Seismic Category III/IV Equipment and Tanks document. The AISC M016 code is used for the design of SC-IV secondary containment enclosure and support frame, as applicable. The frame structure is designed to sustain all applicable loads including seismic and its bases are adequately welded to the embedded steel plates in concrete floor slab supporting the bulge units. The design calculation documents and drawings reviewed show that sound engineering techniques are used for adequate consideration of forces due to applicable seismic event.

	Information Assessed	Source of Information	Assessment
Compatibility	The stored waste is compatible with its secondary containment and leak detection hardware based on a detailed chemical and physical analysis of the wastes used and other information sources.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-J-02-002, Rev. 4, Leak Detection in Secondary Containment Systems; 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation).	The Basis of Design document states that the secondary containment components are to be appropriately lined and any leaks or spills will be removed within 24 hours of a leak detection or in as timely a manner as possible. Based on a detailed chemical and physical analysis of the wastes and other process information sources, the Material Selections document identifies appropriate compatible corrosion resistant materials (stainless steel) for the bulge units' secondary containment components and leak detection hardware. Leak detection technology and methods are described in Leak Detection in Secondary Containment Systems document. The drawings and design calculations reviewed show that the stainless steel as recommended in Material Selections document is used for the fabrication of the LFP bulges. The Secondary Containment Design document provides adequate typical construction details including attachment details for the leak detection equipment to be used for secondary containment where required.

	Information Assessed	Source of Information	Assessment
Strength	The design shows that the secondary containment has sufficient strength and thickness to prevent failure owing to pressure gradients, static head during a release, physical contact with the waste, climatic conditions, seismic event, and the stress of daily operations (e.g., vehicular traffic).	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The LAW general arrangement drawings show LFP bulges are located inside the building. Pressure gradients, static head during a release, physical contact with the waste, climatic conditions, and the stresses of daily operations are adequately stated as design goals in the Basis of Design document. The Secondary Containment Design document describes and provides references to the design methodology, materials of construction, loads, and load combinations (including seismic loads) for the LAW facility secondary containment components. The LFP secondary containment bulge enclosures being considered are located in the room inside the LAW Vitrification Building rather than being directly buried in ground, therefore, pressure gradients and vehicular traffic are not considered applicable load cases. The design calculations, drawings, and related design change documents such as DCNs, FCNs, BODCNs, NCRs, CDRs, and SDDRs were reviewed. The review of these aforementioned design media documents show that the secondary containment enclosures of the said bulges have been adequately designed to provide sufficient strength required to sustain the forces due to applicable load cases including full hydrostatic load and design basis seismic event. Furthermore, the review, acceptance, and approval of design media by BNI, provides added assurance of the sound design of the secondary containment having sufficient strength required for the intended use of these bulges.

	Information Assessed	Source of Information	Assessment
Strength (cont'd)	The secondary containment system has sufficient strength in the presence of operational stresses from site-specific conditions (i.e., frost, precipitation etc.).	Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-3PS-NLLR-T0002, Rev. 1, Engineering Specification for Furnishing, Detailing, Fabrication, Delivery and Installation of Stainless Steel Liner Plates; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation).	The LAW facility drawings show that the secondary containment units being considered are installed inside the building. Because they are located inside the building, precipitation and frost are not applicable load cases. The Secondary Containment Design document identifies the applicable load cases (operational stresses) from site specific conditions that must be considered in the design. The Engineering Specification for Furnishing Stainless Steel Liner Plates includes specific provisions for protection and repair of completed liners during the construction process. The Material Selections for Building Secondary Containment document addresses the potential effects of operations conditions on metal liner and the associated maintenance requirements. The design calculation documents reviewed show that the secondary containment components are adequately designed and have sufficient strength to sustain the applicable design loads.

	Information Assessed	Source of Information	Assessment
Foundation Integrity	The secondary containment is adequately supported by the enclosure structure frame and foundation below has adequate strength	Drawings listed above under References; 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation); 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	Review of the design calculation and drawings documents shows that the support system for each of the LFP bulge unit has adequate strength to sustain the applicable design loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Chapter 14 of the Basis of Design document requires that the foundation underlying each bulge enclosure support system must be adequate to sustain the loads from the weight of the bulge unit filled with water, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment for the plant items on this floor.
Infiltration	The design or operation prevents run-on or infiltration of precipitation into the secondary containment.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design to provide adequate measures to prevent run-on or infiltration of precipitation. The LFP bulges are located inside the LAW Vitrification Building where they are protected from direct run-on or infiltration of precipitation by the building structure as shown in the general arrangement drawings. Therefore, this section is not applicable to the secondary containment bulge units being assessed.
	The design includes an external moisture barrier or other means to prevent moisture from entering the room.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design include provisions to prevent external moisture intrusion. The LFP bulges shown on the general arrangement drawings are inside the LAW Vitrification Building which protects them from precipitation and surface water percolation, therefore, this section is not applicable to them.

	Information Assessed	Source of Information	Assessment
Liner System	The containment area is free of cracks or gaps and the design discusses methods of their minimization.	24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection.	The Basis of Design document requires the liner system to be free of cracks and gaps. The Secondary Containment Design document provides current adequate design requirements, and codes and standards to design leak tight liners. This document includes appropriate details for installation of stainless steel components free of cracks and gaps. The Material Selections document provides adequate requirements for the secondary containment components materials.
	The design has considered the compatibility of the secondary containment elements with the waste and for preventing it from migrating into the concrete slab below.	24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design.	The Material Selections document contains information on the compatibility of secondary containment stainless steel material usage for containing the waste. The Secondary Containment Design document provides standard installation details for the secondary containment components of the LFP bulges which ensures leak-tight connections that will prevent the migration of the waste onto the concrete slab below.

References	Vendor Drawings for LOP Bulges	Vendor Fabrication Drawings (*Bechtel Status Code 1 Drawings): 24590-CM-POA-PY33-00002-06-00007, Rev. 00F, Melter 1-Valve Bulge (LOP-BULGE-00001) Outline, Dimensions & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00008, Rev. 00F, Melter 1-Valve Bulge (LOP-BULGE-00001) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00070, Rev. 00J, Melter 1-Valve Bulge (LOP-BULGE-00001) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00071, Rev. 00J, Melter 1-Valve Bulge (LOP-BULGE-00001) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00072, Rev. 00I, Melter 1-Valve Bulge (LOP-BULGE-00001) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00073, Rev. 00F, Enclosure & Cover (LOP-BULGE-00001) Subassembly, Sheet 1of 7; 24590-CM-POA-PY33-00002-06-00074, Rev. 00F, Enclosure & Cover (LOP-BULGE-00001) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00075, Rev. 00F, Enclosure & Cover (LOP-BULGE-00001) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00076, Rev. 00F, Enclosure & Cover (LOP-BULGE-00001) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00077, Rev. 00F, Enclosure & Cover (LOP-BULGE-00001) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00078, Rev. 00G, Enclosure & Cover (LOP-BULGE-00001) Details, Sheet 6; 24590-CM-POA-PY33-00002-06-00079, Rev. 00F, Enclosure & Cover (LOP-BULGE-00001) Details, Sheet 7; 24590-CM-POA-PY33-00002-06-00080, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00001) Subassembly, Sheet 1of 4; 24590-CM-POA-PY33-00002-06-00081, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00001) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00082, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00001) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00083, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00001) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00151, Rev. 00F, Column Davit Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00152, Rev. 00F, Column Davit Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00153, Rev. 00F, Column Davit Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00009, Rev. 00F, Melter 2-Valve Bulge (LOP-BULGE-00002) Outline, Dimensions & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00010, Rev. 00F, Melter 2-Valve Bulge (LOP-BULGE-00002) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00087, Rev. 00J, Melter 2-Valve Bulge (LOP-BULGE-00002) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00088, Rev. 00J, Melter 2-Valve Bulge (LOP-BULGE-00002) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00089, Rev. 00I, Melter 2-Valve Bulge (LOP-BULGE-00002) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00090, Rev. 00F, Enclosure & Cover (LOP-BULGE-00002) Subassembly, Sheet 1of 7; 24590-CM-POA-PY33-00002-06-00091, Rev. 00F, Enclosure & Cover (LOP-BULGE-00002) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00092, Rev. 00F, Enclosure & Cover (LOP-BULGE-00002) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00093, Rev. 00F, Enclosure & Cover (LOP-BULGE-00002) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00094, Rev. 00F, Enclosure & Cover (LOP-BULGE-00002) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00095, Rev. 00H, Enclosure & Cover (LOP-BULGE-00002) Details, Sheet 6; 24590-CM-POA-PY33-00002-06-00096, Rev. 00F, Enclosure & Cover (LOP-BULGE-00002) Details, Sheet 7; 24590-CM-POA-PY33-00002-06-00097, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00002) Subassembly, Sheet 1of 4; 24590-CM-POA-PY33-00002-06-00098, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00002) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00099, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00002) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00100, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00002) Details, Sheet 4; * Bechtel Status Code 1 Drawing is an "as fabricated vendor drawing" approved/accepted by Bechtel.

Reference (cont')	Plant Drawings, Mechanical Data Sheets, and System Description for LOP Bulges	Plant Drawings: 24590-LAW-M6-LOP-00001003, Rev. 0, P&ID- LAW Primary Offgas Process System Melter 1, LOP-BULGE-00001; 24590-LAW-M6-LOP-00002003, Rev. 0, P&ID- LAW Primary Offgas Process System Melter 2, LOP-BULGE-00002 (w/DCNL # 00005); Mechanical Data Sheets (MDS): 24590-LAW-MXD-LOP-00001, Rev. 4, Mechanical Systems Data Sheet: Process Bulge (LOP-BULGE-00001); 24590-LAW-MXD-LOP-00002, Rev. 4, Mechanical Systems Data Sheet: Process Bulge (LOP-BULGE-00002). 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 # 24590-LAW-3YN-LOP-00011, -00012, and -00013).

	Information Assessed	Source of Information	Assessment
Design	The bulge enclosures secondary containment design standards and codes used are appropriate and adequate for their intended use.	Specifications, Drawings, and Mechanical Data Sheets listed above under References; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 2, Alternate Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials.	The Engineering Specification for Process Bulge Design and Fabrication requires that various components of the bulge enclosures be designed, fabricated, tested, and delivered in accordance with the requirements specified in the codes and standards listed in the Source of Information column in this section. Supplemental detailed requirements for the bulge enclosures fabrication are specified in various engineering specifications listed 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 Mechanical Data Sheets (MDS) for the LOP bulges list their Quality Level as (CM) and Seismic Category as (SC-III). The Vendor Fabrication drawings show that dimensions of each LOP bulge enclosure are 142" L x 50" W x 35" H, with a davit crane used for maintenance. Each bulge enclosure has removable top cover and its various components and support frame are built with various stainless steel grade materials as shown on the drawings. The MDS for each bulge unit requires that it be designed for temperature range of 59° F to 113° F and pressure range of (-) 2" WC to full hydrostatic test pressure WC. MDS also provide applicable nozzle and fatigue loads. The design codes and standards listed in the Source of Information column are appropriate and adequate to provide secondary containment design for the intended use of the LOP bulges.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	The bulge enclosure components, supports, and foundation design include full weight of bulge enclosure.	Mechanical Data Sheets, Drawings, and Specifications listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation).	The Engineering Specification for Process Bulge Design and Fabrication identifies the system to be of commercial grade (CM) quality and the seismic category to be SC-III. The drawings show that the secondary containment enclosure components are fully welded to confine any waste spillage within them. Any spill within the LOP bulge enclosures is drained into RLD-SUMP-00029/31 located at lower floor at Elevation 3'-0" which have radar leak detection devices to alarm any spillage incidents. Each enclosure structure is attached to and supported by structural steel framing members. The Structural Design Criteria uses appropriate applicable standards to define design loads and load combinations. The Basis of Design and the MDS documents require that along with dead weights of the components, the weight of the bulge filled with water, and the specified temperature and pressure environmental conditions should be appropriately included in the loads and load combinations. Review of the LOP bulge design calculation and drawing documents shows that the support system for each unit has adequate strength to sustain the aforementioned loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Furthermore, Chapter 14 of the Basis of Design document requires that the foundation underlying the bulge supports must be adequate to sustain the full load of the units, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment for the plant items on this floor (Elev. 28'-0").

	Information Assessed	Source of Information	Assessment
Design (cont'd)	Design calculation approach and design basis of support and foundation with design standard and codes references such as AISC codes are adequate.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC N690,Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities (as tailored for the Project); AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation).	The Basis of Design document provides many fundamental general requirements for support and foundation design. The Structural Design Criteria and Design Criteria for Equipment Seismic and Environmental Qualification documents provide adequate detailed design criteria for the design of support steel framing and concrete foundations and footings. AISC M016 and UBC 1997 codes are referenced for support design of SC-III structural steel components. Design Calculation documents and drawings reviewed show that each LOP bulge secondary containment enclosure and support system is adequately designed to meet the applicable code requirements.

	Information Assessed	Source of Information	Assessment
Foundation	Foundation material is compatible with the support structure.	Specifications, Mechanical Data Sheets and Drawings listed above under References.	The Engineering Specification for Process Bulge Design and Fabrication and MDS require that stainless steel material be used for all bulge enclosure components. The drawings show that the LAW bulges (LOP-BULGE-00001/2) are located in Room L-0202 at floor Elevation 28'-0" of the LAW building. The stainless steel support structure frame is welded to the carbon steel base plates which in turn are welded (anchored) to the carbon steel plates embedded in concrete floor slab. All components are weld compatible with each other as per Engineering Specification for Welding of Structural Stainless Steel and Welding of Structural Carbon Steel to Structural Stainless Steel.
	If in an area subject to flooding, the bulge is anchored.	Drawings and Mechanical Data Sheets listed above under References; 24590-LAW-PER-M-02-002, Rev. 7, Dangerous Waste Permit (DWP) Liner Heights in the LAW Facility; 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation).	As shown on the referenced drawings, the bulge enclosures included in this assessment are located in Room L-0202 @ Floor Elev. 28'-0" of the LAW facility. The DWP Liner Heights document does not identify any flooding condition in Room L-0202, nor do the Mechanical Data Sheets identify any submergence conditions of the LOP bulge enclosures, therefore, they need not be evaluated for anchoring due to any buoyant forces. However, in order to sustain any other applicable forces such as seismic, nozzle, and internal hydrostatic loads, these units are adequately anchored by welding to the embedded steel plates in the concrete floor slab as shown on the drawings and in the Misc. Equipment Anchorage calculation documents.
	Foundation 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 LOP bugles considered in this assessment are installed in the LAW facility at Floor Elev. 28'-0" which is not subject to frost heave. Therefore, the foundation beneath these units is not subject to the frost heave effects.

	Information Assessed	Source of Information	Assessment
Seismic	Seismic considerations have been adequately addressed.	Specifications, Mechanical Data Sheets, and Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10 Secondary Containment Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The Secondary Containment Design, Structural Design Criteria, and Design Criteria for Seismic and Environmental Qualification documents provide detailed information of design methodology, materials, loads, and load combinations applicable for the LOP bulge enclosures. The Engineering Specification for Process Bulge Design and Fabrication and MDS documents identify the Quality Level of the LOP bulges to be CM and the Seismic Classification as SC-III. The bulge enclosure system design loads combinations are taken from UBC 1997 code and analysis for SC-III secondary containment enclosure is performed in accordance with the Specification for Structural Design Loads for Seismic Category III/IV Equipment and Tanks document. The AISC M016 code is used for the design of SC-III secondary containment enclosure and support frame, as applicable. The frame structure is designed to sustain all applicable loads including seismic and its bases are adequately welded to the embedded steel plates in concrete floor slab supporting the bulge units. The design calculation documents and drawings reviewed show that sound engineering techniques are used for adequate consideration of forces due to applicable seismic event.

	Information Assessed	Source of Information	Assessment
Compatibility	The stored waste is compatible with its secondary containment and leak detection hardware based on a detailed chemical and physical analysis of the wastes used and other information sources.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-J-02-002, Rev. 4, Leak Detection in Secondary Containment Systems; 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation).	The Basis of Design document states that the secondary containment components are to be appropriately lined and any leaks or spills will be removed within 24 hours of a leak detection or in as timely a manner as possible. Based on a detailed chemical and physical analysis of the wastes and other process information sources, the Material Selections document identifies appropriate compatible corrosion resistant materials (stainless steel) for the bulge units' secondary containment components and leak detection hardware. Leak detection technology and methods are described in Leak Detection in Secondary Containment Systems document. The drawings and design calculations reviewed show that the stainless steel as recommended in Material Selections document is used for the fabrication of the LOP bulges . The Secondary Containment Design document provides adequate typical construction details including attachment details for the leak detection equipment to be used for secondary containment where required.

	Information Assessed	Source of Information	Assessment
Strength	The design shows that the secondary containment has sufficient strength and thickness to prevent failure owing to pressure gradients, static head during a release, physical contact with the waste, climatic conditions, seismic event, and the stress of daily operations (e.g., vehicular traffic).	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The LAW general arrangement drawings show that the LOP bulges are located inside the building. Pressure gradients, static head during a release, physical contact with the waste, climatic conditions, and the stresses of daily operations are adequately stated as design goals in the Basis of Design document. The Secondary Containment Design document describes and provides references to the design methodology, materials of construction, loads, and load combinations (including seismic loads) for the LAW facility secondary containment components. The LOP secondary containment bulge enclosures being considered are located in the room inside the LAW Vitrification Building rather than being directly buried in ground, therefore, pressure gradients and vehicular traffic are not considered applicable load cases. The design calculations, drawings, and related design change documents such as DCNs, FCNs, BODCNs, NCRs, CDRs, and SDDRs were reviewed. The review of these aforementioned design media documents show that the secondary containment enclosures of the said bulges have been adequately designed to provide sufficient strength required to sustain the forces due to applicable load cases including full hydrostatic load and design basis seismic event. Furthermore, the review, acceptance, and approval of design media by BNI, provides added assurance of the sound design of the secondary containment having sufficient strength required for the intended use of these bulges.

	Information Assessed	Source of Information	Assessment
Strength (cont'd)	The secondary containment system has sufficient strength in the presence of operational stresses from site-specific conditions (i.e., frost, precipitation etc.).	Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-3PS-NLLR-T0002, Rev. 1, Engineering Specification for Furnishing, Detailing, Fabrication, Delivery and Installation of Stainless Steel Liner Plates; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation).	The LAW facility drawings show that the secondary containment units being considered are installed inside the building. Because they are located inside the building, precipitation and frost are not applicable load cases. The Secondary Containment Design document identifies the applicable load cases (operational stresses) from site specific conditions that must be considered in the design. The Engineering Specification for Furnishing Stainless Steel Liner Plates includes specific provisions for protection and repair of completed liners during the construction process. The Material Selections for Building Secondary Containment document addresses the potential effects of operations conditions on metal liner and the associated maintenance requirements. The design calculation documents reviewed show that the LOP secondary containment components are adequately designed and have sufficient strength to sustain the applicable design loads.

	Information Assessed	Source of Information	Assessment
Foundation Integrity	The secondary containment is adequately supported by the enclosure structure frame and foundation below has adequate strength	Drawings listed above under References; 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation); 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	Review of the Design Calculation and drawings documents shows that the support system for each Bulge unit has adequate strength to sustain the applicable design loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Chapter 14 of the Basis of Design document requires that the foundation underlying each Bulge Enclosure support system must be adequate to sustain the loads from the weight of the bulge unit filled with water, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment for the plant items on this floor.
Infiltration	The design or operation prevents run-on or infiltration of precipitation into the secondary containment.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design to provide adequate measures to prevent run-on or infiltration of precipitation. The LOP secondary containment bulges are located inside the LAW Vitrification Building where they are protected from direct run-on or infiltration of precipitation by the building structure as shown in the general arrangement drawings. Therefore, this section is not applicable to the secondary containment of the LOP bulges being assessed.
	The design includes an external moisture barrier or other means to prevent moisture from entering the room.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design include provisions to prevent external moisture intrusion. The LOP bulges shown on the general arrangement drawings are inside the LAW Vitrification Building which protects them from precipitation and surface water percolation, therefore, this section is not applicable to them.

	Information Assessed	Source of Information	Assessment
Liner System	The containment area is free of cracks or gaps and the design discusses methods of their minimization.	24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection.	The Basis of Design document requires the liner system to be free of cracks and gaps. The Secondary Containment Design document provides current adequate design requirements, and codes and standards to design leak tight liners. This document includes appropriate details for installation of stainless steel components free of cracks and gaps. The Material Selections document provides adequate requirements for the secondary containment components materials.
	The design has considered the compatibility of the secondary containment elements with the waste and for preventing it from migrating into the concrete slab below.	24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design.	The Material Selections document contains information on the compatibility of secondary containment stainless steel material usage for containing the waste. The Secondary Containment Design document provides standard installation details for the secondary containment components of the LOP bulges which ensures leak-tight connections that will prevent the migration of the waste onto the concrete slab below.

References	Vendor Drawings for RLD Bulges	Vendor Fabrication Drawings (*Bechtel Status Code 1 Drawings): 24590-CM-POA-PY33-00001-01-01, Rev. 00D, General Layout Drawing (RLD-BULGE-00001); 24590-CM-POA-PY33-00001-10-03, Rev. 00C, General Layout-Details (RLD-BULGE-00001); 24590-CM-POA-PY33-00001-10-04, Rev. 00C, Main Piping Layout Drawing (RLD-BULGE-00001); 24590-CM-POA-PY33-00001-10-05, Rev. 00B, Main Frame Structural Drawing (RLD-BULGE-00001); 24590-CM-POA-PY33-00001-10-06, Rev. 00B, Containment Layout Drawing (RLD-BULGE-00001); 24590-CM-POA-PY33-00001-22-03, Rev. 00A, Main Piping Layout Drawing (RLD-BULGE-00001); 24590-CM-POA-PY33-00001-25-01, Rev. 00D, Wash Water Details (RLD-BULGE-00001); 24590-CM-POA-PY33-00002-06-00015, Rev. 00F, Plant Wash/SBS Condensate (RLD-BULGE-00004) Outline, Dim. & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00016, Rev. 00F, Plant Wash/SBS Condensate (RLD-BULGE-00004) Outline, Dim. & Det., Sh. 2; 24590-CM-POA-PY33-00002-06-00136, Rev. 00G, Plant Wash/SBS Condensate (RLD-BULGE-00004) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00137, Rev. 00G, Plant Wash/SBS Condensate (RLD-BULGE-00004) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00138, Rev. 00G, Plant Wash/SBS Condensate (RLD-BULGE-00004) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00139, Rev. 00F, Enclosure & Cover (RLD-BULGE-00004) Subassembly, Sheet 1of 5; 24590-CM-POA-PY33-00002-06-00140, Rev. 00F, Enclosure & Cover (RLD-BULGE-00004) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00141, Rev. 00F, Enclosure & Cover (RLD-BULGE-00004) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00142, Rev. 00F, Enclosure & Cover (RLD-BULGE-00004) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00143, Rev. 00F, Enclosure & Cover (RLD-BULGE-00004) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00144, Rev. 00E, Enclosure Support Frame (RLD-BULGE-00004) Subassembly, Sheet 1of 3; 24590-CM-POA-PY33-00002-06-00145, Rev. 00E, Enclosure Support Frame (RLD-BULGE-00004) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00146, Rev. 00E, Enclosure Support Frame (RLD-BULGE-00004) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00151, Rev. 00F, Column Davit Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00152, Rev. 00F, Column Davit Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00153, Rev. 00F, Column Davit Assembly, Sheet 3. * Bechtel Status Code 1 Drawing is an "as fabricated vendor drawing" approved/accepted by Bechtel.

Reference (cont')	Plant Drawings, Mechanical Data Sheets, and System Description for RLD Bulges	Plant Drawings: 24590-LAW-M6-RLD-00002003, Rev. 0, P&ID- LAW Radioactive Liquid Waste Disposal System C3/C5 Drain/Sump Collection RLD-BULGE-00001; 24590-LAW-M6-RLD-00002004, Rev. 0, P&ID- LAW Radioactive Liquid Waste Disposal System C3/C5 Drain/Sump Collection RLD-BULGE-00001; 24590-LAW-M6-RLD-00001005, Rev. 0, P&ID- LAW Radioactive Liquid Waste Disposal System Plant Wash & SBS Condensate Collection RLD-BULGE-00004; 24590-LAW-M6-RLD-00001006, Rev. 0, P&ID- LAW Radioactive Liquid Waste Disposal System Plant Wash & SBS Condensate Collection RLD-BULGE-00004. Mechanical Data Sheets (MDS): 24590-LAW-MXD-RLD-00001, Rev. 2, Mechanical Systems Data Sheet: Process Bulge (RLD-BULGE-00001); 24590-LAW-MXD-RLD-00002, Rev. 5, Mechanical Systems Data Sheet: Process Bulge (RLD-BULGE-00004). System Description: 24590-LAW-3YD-RLD-00001, Rev. 2, System Description for the LAW Radioactive Liquid Waste Disposal (RLD) System, (including SDCN # 24590-LAW-3YN-RLD-00006).

	Information Assessed	Source of Information	Assessment
Design	The bulge enclosures secondary containment design standards and codes used are appropriate and adequate for their intended use.	Specifications, Drawings, and Mechanical Data Sheets listed above under References; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 2, Alternate Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials.	The Engineering Specification for Process Bulge Design and Fabrication requires that various components of the RLD bulge enclosures be designed, fabricated, tested, and delivered in accordance with the requirements specified in the codes and standards listed in the Source of Information column in this section. Supplemental detailed requirements for the RLD bulge enclosures fabrication are specified in various engineering specifications listed 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 Mechanical Data Sheets (MDS) for the RLD bulges list their Quality Level as (CM) and Seismic Category as (SC-III). The Vendor Fabrication drawings show that the approx. dimensions of RLD-BULGE-00001 are 109" L x 78" W x 99" H, with an operating platform including 42" high handrails above. The Vendor Fabrication drawings show that the approx. dimensions of RLD-BULGE-00004 are 107" L x 56" W x 34" H, with a davit crane used for maintenance. Each enclosure has removable top cover/access plates and its various components and support frame are built with various stainless steel grade materials as shown on the drawings. The MDS for each unit requires that it be designed for temperature range of 59° F to 113° F and pressure range of (-) 2" WC to full hydrostatic test pressure WC. MDS also provide applicable nozzle and fatigue loads. The design codes and standards listed in the Source of Information column are appropriate and adequate to provide secondary containment design for the intended use of the RLD bulges.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	The bulge enclosure components, supports, and foundation design include full weight of bulge enclosure.	Mechanical Data Sheets, Drawings, and Specifications listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation); 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The Engineering Specification for Process Bulge Design and Fabrication identifies the system to be of commercial grade (CM) quality and the seismic category to be SC-III. The drawings show that the secondary containment enclosure components are fully welded to confine any waste spillage within them. Any spill within the RLD-BULGE-00001 enclosure is drained into RLD-SUMP-00028 located in floor at Elevation (-) 21'-0", and any spill within the RLD-BULGE-00004 enclosure is drained into RLD-SUMP-00036 located in floor at Elevation 3'-0". Each sump has a radar leak detection device to alarm any spillage incidents. Each enclosure structure is attached to and supported by structural steel framing members. The Structural Design Criteria uses appropriate applicable standards to define design loads and load combinations. The Basis of Design and the MDS documents require that along with dead weights of the components, the weight of the bulge filled with water, and the specified temperature and pressure environmental conditions should be appropriately included in the loads and load combinations. Review of the RLD bulge design calculation and drawing documents shows that the support system for each unit has adequate strength to sustain the aforementioned loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Furthermore, Chapter 14 of the Basis of Design document requires that the foundation underlying the bulge supports must be adequate to sustain the full load of the units, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment assessment report for the plant items on floor (Elev. - 21'-0") and floor (Elev. + 28'-0").

	Information Assessed	Source of Information	Assessment
Design (cont'd)	Design calculation approach and design basis of support and foundation with design standard and codes references such as AISC codes are adequate.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation). 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The Basis of Design document provides many fundamental general requirements for support and foundation design. The Structural Design Criteria and Design Criteria for Equipment Seismic and Environmental Qualification documents provide adequate detailed design criteria for the design of support steel framing and concrete foundations and footings. AISC M016 and UBC 1997 codes are referenced for support design of SC-III structural steel components. Design Calculation documents and drawings reviewed show that each RLD bulge secondary containment enclosure and support system is adequately designed to meet the applicable code requirements.

	Information Assessed	Source of Information	Assessment
Foundation	Foundation material is compatible with the support structure.	Specifications, Mechanical Data Sheets, and Drawings listed above under References.	The Engineering Specification for Process Bulge Design and Fabrication and MDS require that stainless steel material be used for all bulge enclosure components. The drawings show that the RLD-BULGE-00001 is located in Room L-B001A at floor Elevation (-) 21'-0" and RLD-BULGE-00004 is located in Room L-0202 at floor Elevation 28-0" of the LAW building. The stainless steel support structure frame is welded to the carbon steel base plates which in turn are welded (anchored) to the carbon steel plates embedded in concrete floor slab. All components are weld compatible with each other as per Engineering Specification for Welding of Structural Stainless Steel and Welding of Structural Carbon Steel to Structural Stainless Steel.
	If in an area subject to flooding, the Bulge is anchored.	Drawings and Mechanical Data Sheets listed above under References; 24590-LAW-PER-M-02-002, Rev. 7, Dangerous Waste Permit (DWP) Liner Heights in the LAW Facility; 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation); 24590-LAW-DDC-S13T-00019, Rev. 0, Elevation +3'-0" Slab Embedded Plates (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The referenced drawings show that RLD-BULGE-00001 is located in Room L-B001A @ Floor Elev.(-) 21'-0" and RLD-BULGE 00004 is located in Room L-0202 @ Floor Elev. 28'-0" of the LAW facility. The DWP Liner Heights document does not identify any flooding condition in these rooms, nor do the Mechanical Data Sheets identify any submergence conditions of the RLD bulge enclosures, therefore, they need not be evaluated for anchoring due to any buoyant forces. However, in order to sustain any other applicable forces such as seismic, nozzle, and internal hydrostatic loads, these units are adequately anchored by welding to the embedded steel plates in the concrete floor slab as shown on the drawings and in the Misc. Equipment Anchorage and design calculation documents.
	Foundation 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 RLD bulges considered in this assessment are installed in the LAW facility @ Floor Elev. (-) 21'-0" and 28'-0" which are not subject to frost heave. Therefore, the foundation beneath these units is not subject to the frost heave effects.

	Information Assessed	Source of Information	Assessment
Seismic	Seismic considerations have been adequately addressed.	Specifications, Mechanical Data Sheets, and Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10 Secondary Containment Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation). 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The Secondary Containment Design, Structural Design Criteria, and Design Criteria for Seismic and Environmental Qualification documents provide detailed information of design methodology, materials, loads, and load combinations applicable to the RLD bulge enclosures. The Engineering Specification for Process Bulge Design and Fabrication and MDS documents identify the Quality Level of the Bulges to be CM and the Seismic Classification as SC-III. The RLD bulge enclosure system design loads combinations are taken from UBC 1997 code and analysis for SC-III secondary containment enclosure is performed in accordance with the Specification for Structural Design Loads for Seismic Category III/IV Equipment and Tanks document. The AISC M016 code is used for the design of SC-III secondary containment enclosure and support frame, as applicable. The frame structure is designed to sustain all applicable loads including seismic and its bases are adequately welded to the embedded steel plates in concrete floor slab supporting the RLD bulges. The design calculation documents and drawings reviewed show that sound engineering techniques are used for adequate consideration of forces due to applicable seismic event.

	Information Assessed	Source of Information	Assessment
Compatibility	The stored waste is compatible with its secondary containment and leak detection hardware based on a detailed chemical and physical analysis of the wastes used and other information sources.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-J-02-002, Rev. 4, Leak Detection in Secondary Containment Systems; 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation).	The Basis of Design document states that the secondary containment components are to be appropriately lined and any leaks or spills will be removed within 24 hours of a leak detection or in as timely a manner as possible. Based on a detailed chemical and physical analysis of the wastes and other process information sources, the Material Selections document identifies appropriate compatible corrosion resistant materials (stainless steel) for the RLD bulge secondary containment components and leak detection hardware. Leak detection technology and methods are described in Leak Detection in Secondary Containment Systems document. The drawings and design calculations reviewed show that the stainless steel as recommended in Material Selections document is used for the fabrication of the RLD bulges. The Secondary Containment Design document provides adequate typical construction details including attachment details for the leak detection equipment to be used for secondary containment where required.

	Information Assessed	Source of Information	Assessment
Strength	The design shows that the secondary containment has sufficient strength and thickness to prevent failure owing to pressure gradients, static head during a release, physical contact with the waste, climatic conditions, seismic event, and the stress of daily operations (e.g., vehicular traffic).	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The LAW general arrangement drawings show RLD bulges are located inside the building. Pressure gradients, static head during a release, physical contact with the waste, climatic conditions, and the stresses of daily operations are adequately stated as design goals in the Basis of Design document. The Secondary Containment Design document describes and provides references to the design methodology, materials of construction, loads, and load combinations (including seismic loads) for the LAW facility secondary containment components. The RLD secondary containment bulge enclosures being considered are located in the room inside the LAW Vitrification Building rather than being directly buried in ground, therefore, pressure gradients and vehicular traffic are not considered applicable load cases. The design calculations, drawings, and related design change documents such as DCNs, FCNs, BODCNs, NCRs, CDRs, and SDDRs were reviewed. The review of these aforementioned design media documents show that the secondary containment enclosures of the said bulges have been adequately designed to provide sufficient strength required to sustain the forces due to applicable load cases including full hydrostatic load and design basis seismic event. Furthermore, the review, acceptance, and approval of design media by BNI, provides added assurance of the sound design of the secondary containment having sufficient strength required for the intended use of these bulges.

	Information Assessed	Source of Information	Assessment
Strength (cont'd)	The secondary containment system has sufficient strength in the presence of operational stresses from site-specific conditions (i.e., frost, precipitation etc.).	Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-3PS-NLLR-T0002, Rev. 1, Engineering Specification for Furnishing, Detailing, Fabrication, Delivery and Installation of Stainless Steel Liner Plates; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation).	The LAW facility drawings show that the secondary containment units being considered are installed inside the building. Because they are located inside the building, precipitation and frost are not applicable load cases. The Secondary Containment Design document identifies the applicable load cases (operational stresses) from site specific conditions that must be considered in the design. The Engineering Specification for Furnishing Stainless Steel Liner Plates includes specific provisions for protection and repair of completed liners during the construction process. The Material Selections for Building Secondary Containment document addresses the potential effects of operations conditions on metal liner and the associated maintenance requirements. The Design Calculation documents reviewed show that the secondary containment components are adequately designed and have sufficient strength to sustain the applicable design loads.

	Information Assessed	Source of Information	Assessment
Foundation Integrity	The secondary containment is adequately supported by the enclosure structure frame and foundation below has adequate strength.	Drawings listed above under References; 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation); 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	Review of the design calculation and drawings documents shows that the support system for each RLD bulge has adequate strength to sustain the applicable design loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Chapter 14 of the Basis of Design document requires that the foundation underlying each Bulge Enclosure support system must be adequate to sustain the loads from the weight of the bulge unit filled with water, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment integrity assessment report for the plant items on a specific floor elevation.
Infiltration	The design or operation prevents run-on or infiltration of precipitation into the secondary containment.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design to provide adequate measures to prevent run-on or infiltration of precipitation. The RLD secondary containment bulges are located inside the LAW Vitrification Building where they are protected from direct run-on or infiltration of precipitation by the building structure as shown in the general arrangement drawings. Therefore, this section is not applicable to the RLD bulges being assessed.
	The design includes an external moisture barrier or other means to prevent moisture from entering the room.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design include provisions to prevent external moisture intrusion. The RLD bulges shown on the general arrangement drawings are inside the LAW Vitrification Building which protects them from precipitation and surface water percolation, therefore, this section is not applicable to them.

	Information Assessed	Source of Information	Assessment
Liner System	The containment area is free of cracks or gaps and the design discusses methods of their minimization.	24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection.	The Basis of Design document requires the liner system to be free of cracks and gaps. The Secondary Containment Design document provides current adequate design requirements, and codes and standards to design leak tight liners. This document includes appropriate details for installation of stainless steel components free of cracks and gaps. The Material Selections document provides adequate requirements for the secondary containment components materials.
	The design has considered the compatibility of the secondary containment elements with the waste and for preventing it from migrating into the concrete slab below.	24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design.	The Material Selections document contains information on the compatibility of secondary containment stainless steel material usage for containing the waste. The Secondary Containment Design document provides standard installation details for the secondary containment components of the RLD bulges which ensures leak-tight connections that will prevent the migration of the waste onto the concrete slab below.

Scope	Scope of this Integrity Assessment	The scope of this integrity assessment includes nine LAW bulge enclosures (LCP-BULGE-00001/2/3, LFP-BULGE-00001/2, LOP-BULGE-00001/2, and RLD-BULGE-00001/4), also listed herein as bulges, bulge units, or plant items associated with the subject system as shown on General Arrangement Drawings 24590-LAW-P1-P01T-00001 and - 00004. These bulge enclosures house and act as secondary containment to numerous waste lines components such piping, valves, actuators, instruments, and associated equipment as shown on various listed Reference drawings. The bulges serve the purpose to provide quick, convenient, and safe containment enclosures for the maintenance of various serviceable components of different systems as shown on the drawings. The bulge enclosures (LCP-BULGE-00001/2/3, LFP-BULGE-00001/2, LOP-BULGE-00001/2, and RLD-BULGE-00004) are mounted on the concrete floor slab in Room L-0202 @ Elevation 28'-0" and bulge enclosure (RLD-BULGE-00001) is mounted on the concrete floor slab in Room L-B001A @ Elevation (-) 21'-0" of the LAW facility. Page contents description: Pages 1 and 2: Applicable to all below listed nine LAW bulge enclosures Pages 3-14: Applicable to LCP-BULGE-00001/2/3 Pages 15-26: Applicable to LFP-BULGE-00001/2 Pages 27-38: Applicable to LOP-BULGE-00001/2 Pages 39-50: Applicable to RLD-BULGE-00001/4.
Summary of Assessment		For each item of "Information Assessed" (i.e., Criteria) on the following pages, the documents 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, Task Order T -008, Specifications, and Plant Drawings generally common to all LAW Bulges.	Material Requisition (MR): 24590-CM-MRD-PY33-00001, Rev. 5, Bulges (Process). Task Order T-008 (Technical Services Subcontract): 24590-QL-HC4-W000-00085, Rev. 2, Finite Element Analysis of LAW and PTF Bulges including Attachments 2 & 3 of Task Order T-008. Specifications: The following Specifications with their respective revision and Specification Change Notices (SCNs) are listed in the above listed MR and Task Order T-008: 24590-WTP-3PS-MX00-T0001, Engineering Specification for Process Bulge Design and Fabrication ; 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-FB01-T0001, Engineering Specification for Structural Design Loads for Seismic Category III & IV Equipment and Tanks; 24590-WTP-3PS-SS00-T0002, Engineering Specification for Welding of Structural Stainless Steel and Welding of Structural Carbon Steel to Structural Stainless Steel; 24590-WTP-3PS-AFPS-T0001, Engineering Specification for Shop Applied Special Protective Coatings for Steel Items and Equipment. 24590-WTP-3PS-MV00-T0001, Engineering Specification for Pressure Vessel Design and Fabrication; 24590-WTP-3PS-MV00-T0003, Engineering Specification for Pressure Vessel Fatigue Analysis; 24590-WTP-3PS-G000-T0014, Engineering Specification for Supplier Design Analysis. Plant Drawings: 24590-LAW-P1-P01T-00001, Rev. 3, LAW Vitrification Building General Arrangement Plan at El. (-) 21'-0"; 24590-LAW-P1-P01T-00002, Rev. 6, LAW Vitrification Building General Arrangement Plan at El. 3'-0"; 24590-LAW-P1-P01T-00004, Rev. 4, LAW Vitrification Building General Arrangement Plan at El. 28'-0"; 24590-LAW-P1-P01T-00007, Rev. 8, LAW Vitrification Building General Arrangement Section A-A, B-B, and S-S; 24590-LAW-DB-S13T-00007, Rev. 3, LAW Vitrification Building Main Building Conc. Forming Plan Zone 1 @ El. (-) 21'-0"; 24590-LAW-DB-S13T-00014, Rev. 5, LAW Vitrification Building Main Building Partial Conc. Forming Plan Zone 1 @ El. 3'-0"; 24590-LAW-DB-S13T-00020, Rev. 1, LAW Vitrification Building Main Building Partial Conc. Forming Plan Zone 7 @ El. 2'-0" (Process Cells); 24590-LAW-DB-S13T-00021, Rev. 2, LAW Vitrification Building Main Building Partial Conc. Forming Plan Zone 8 @ El. 2'-0 (Process and Effluent Cells); 24590-LAW-DB-S13T-00024, Rev. 5, LAW Vitrification Building Main Building Partial Conc. Forming Plan Zone 1 @ El. 28'-0"; 24590-LAW-DB-S13T-00031, Rev. 6, LAW Vitrification Building Main Building Partial Conc. Forming Plan Zone 8 @ El. 28'-0"; 24590-LAW-DB-S13T-00032, Rev. 5, LAW Vitrification Building General Partial Conc. Forming Plan Zone 7 West @ El. 28'-0"; 24590-LAW-DB-S13T-00033, Rev. 5, LAW Vitrification Building General Partial Conc. Forming Plan Zone 7 East @ El. 28'-0"; 24590-LAW-S1-S15T-00375, Rev. 0, LAW Vitrification Building Main Building (+) 28' Elevation Bulge Anchorage Details, (including FCNs: 24590-WTP-FC-M-08-0164, -0173, -0181, -0194, & -0201, and 24590-WTP-FC-M-09-0006 & -0034); 24590-LAW-DD-S13T-00019, Rev. 3, LAW Vitrification Building Main Building Special Embed Plates; 24590-WTP-DD-S13T-00002, Rev. 7, Civil/Structural Standards-Standard Embed Plates.

References (cont'd)	Vendor Drawings for LCP Bulges	Vendor Fabrication Drawings (*Bechtel Status Code 1 Drawings): 24590-CM-POA-PY33-00002-06-00001, Rev. 00G, Concentrate Receipt Bulge (LCP-BULGE-00001) Outline, Dimensions & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00002, Rev. 00G, Concentrate Receipt Bulge (LCP-BULGE-00001) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00031, Rev. 00G, Concentrate Receipt Bulge (LCP-BULGE-00001) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00032, Rev. 00G, Concentrate Receipt Bulge (LCP-BULGE-00001) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00033, Rev. 00G, Concentrate Receipt Bulge (LCP-BULGE-00001) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00034, Rev. 00E, Enclosure & Cover (LCP-BULGE-00001) Subassembly, Sheet 1of 5; 24590-CM-POA-PY33-00002-06-00035, Rev. 00E, Enclosure & Cover (LCP-BULGE-00001) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00036, Rev. 00E, Enclosure & Cover (LCP-BULGE-00001) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00037, Rev. 00E, Enclosure & Cover (LCP-BULGE-00001) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00038, Rev. 00E, Enclosure & Cover (LCP-BULGE-00001) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00039, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00001) Subassembly, Sheet 1of 3; 24590-CM-POA-PY33-00002-06-00040, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00001) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00041, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00001) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00151, Rev. 00F, Column Davit Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00152, Rev. 00F, Column Davit Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00153, Rev. 00F, Column Davit Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00003, Rev. 00I, Concentrate Receipt Bulge (LCP-BULGE-00002) Outline, Dimensions & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00004, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00002) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00044, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00002) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00045, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00002) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00046, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00002) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00047, Rev. 00F, Enclosure & Cover (LCP-BULGE-00002) Subassembly, Sheet 1of 5; 24590-CM-POA-PY33-00002-06-00048, Rev. 00F, Enclosure & Cover (LCP-BULGE-00002) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00049, Rev. 00F, Enclosure & Cover (LCP-BULGE-00002) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00050, Rev. 00F, Enclosure & Cover (LCP-BULGE-00002) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00051, Rev. 00F, Enclosure & Cover (LCP-BULGE-00002) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00052, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00002) Subassembly, Sheet 1of 3; 24590-CM-POA-PY33-00002-06-00053, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00002) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00054, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00002) Details, Sheet 3;

Reference (cont'd)	Vendor Drawings, Plant Drawings, Mechanical Data Sheets, and System Description for LCP Bulges	Vendor Fabrication Drawings (cont'd): 24590-CM-POA-PY33-00002-06-00005, Rev. 00I, Concentrate Receipt Bulge (LCP-BULGE-00003) Outline, Dimensions & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00006, Rev. 00I, Concentrate Receipt Bulge (LCP-BULGE-00003) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00057, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00003) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00058, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00003) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00059, Rev. 00H, Concentrate Receipt Bulge (LCP-BULGE-00003) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00060, Rev. 00F, Enclosure & Cover (LCP-BULGE-00003) Subassembly, Sheet 1of 5; 24590-CM-POA-PY33-00002-06-00061, Rev. 00F, Enclosure & Cover (LCP-BULGE-00003) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00062, Rev. 00F, Enclosure & Cover (LCP-BULGE-00003) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00063, Rev. 00F, Enclosure & Cover (LCP-BULGE-00003) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00064, Rev. 00F, Enclosure & Cover (LCP-BULGE-00003) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00065, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00003) Subassembly, Sheet 1of 3; 24590-CM-POA-PY33-00002-06-00066, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00003) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00067, Rev. 00E, Enclosure Support Frame (LCP-BULGE-00003) Details, Sheet 3; * Bechtel Status Code 1 Drawing is an "as fabricated vendor drawing" approved/accepted by Bechtel. Plant Drawings: 24590-LAW-M6-LCP-00001001, Rev. 0, P&ID- LAW, LAW Concentrate Receipt Process System LCP-BULGE-00001; 24590-LAW-M6-LCP-00001004, Rev. 0, P&ID- LAW, LAW Concentrate Receipt Process System LCP-BULGE-00002 (Sheet 1 of 2); 24590-LAW-M6-LCP-00001005, Rev. 0, P&ID- LAW, LAW Concentrate Receipt Process System LCP-BULGE-00002 (Sheet 2 of 2); 24590-LAW-M6-LCP-00002001, Rev. 0, P&ID- LAW, LAW Concentrate Receipt Process System LCP-BULGE-00003 (Sheet 1 of 2); 24590-LAW-M6-LCP-00002002, Rev. 0, P&ID- LAW, LAW Concentrate Receipt Process System LCP-BULGE-00003 (Sheet 2 of 2). Mechanical Data Sheets (MDS): 24590-LAW-MXD-LCP-00001, Rev. 4, Mechanical Systems Data Sheet: Process Bulge (LCP-BULGE-00001); 24590-LAW-MXD-LCP-00002, Rev. 3, Mechanical Systems Data Sheet: Process Bulge (LCP-BULGE-00002); 24590-LAW-MXD-LCP-00003, Rev. 3, Mechanical Systems Data Sheet: Process Bulge (LCP-BULGE-00003). System Description: 24590-LAW-3YD-LCP-00001, Rev. 3, System Description for the LAW Concentrate Receipt Process (LCP), (including SDCN # 24590-LAW-3YN-LCP-00005).

	Information Assessed	Source of Information	Assessment
Design	The bulge enclosures secondary containment design standards and codes used are appropriate and adequate for their intended use.	Specifications, Drawings, and Mechanical Data Sheets listed above under References; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 2, Alternate Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials.	The Engineering Specification for Process Bulge Design and Fabrication requires that various components of the LCP bulge enclosures be designed, fabricated, tested, and delivered in accordance with the requirements specified in the codes and standards listed in the Source of Information column in this section. Supplemental detailed requirements for the LCP bulge enclosures fabrication are specified in various engineering specifications listed 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 Mechanical Data Sheets (MDS) for the LCP bulges list their Quality Level as (CM) and Seismic Category as (SC-IV). The Vendor Fabrication drawings show that approximate dimensions of LCP-BULGE-00001 are 105" L x 32" W x 31" H with a davit crane used for maintenance and the approximate dimensions of LCP-BULGE-00002/3 are 93" L x 47" W x 32" H. Each enclosure has removable top cover and its various components and support frame are built with various stainless steel grade materials as shown on the drawings. The MDS for each unit requires that it be designed for temperature range of 59° F to 113° F and pressure range of (-) 2" WC to full hydrostatic test pressure WC. MDS also provide applicable nozzle and fatigue loads. The design codes and standards listed in the Source of Information column are appropriate and adequate to provide secondary containment design for the intended use of the bulges.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	The bulge enclosure components, supports, and foundation design include full weight of bulge enclosure.	Mechanical Data Sheets, Drawings, and Specifications listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation).	The Engineering Specification for Process Bulge Design and Fabrication identifies the system to be of commercial grade (CM) quality and the seismic category to be SC-IV. The drawings show that the secondary containment enclosure components are fully welded to confine any waste spillage within them. Any spill within the LCP bulge enclosures is drained into RLD-SUMP-00029/31 located at lower floor Elevation 3'-0" which have the radar leak detection devices to alarm any spillage incidents. Each enclosure structure is attached to and supported by structural steel framing members. The Structural Design Criteria uses appropriate applicable standards to define design loads and load combinations. The Basis of Design and the MDS documents require that along with dead weights of the components, the weight of the bulge filled with water, and the specified temperature and pressure environmental conditions should be appropriately included in the loads and load combinations. Review of the LCP bulge design calculation and drawing documents shows that the support system for each unit has adequate strength to sustain the aforementioned loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Furthermore, Chapter 14 of the Basis of Design document requires that the foundation underlying the bulge supports must be adequate to sustain the full load of the units, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment for the plant items on this floor (Elev. 28'-0").

	Information Assessed	Source of Information	Assessment
Design (cont'd)	Design calculation approach and design basis of support and foundation with design standard and codes references such as AISC codes are adequate.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation).	The Basis of Design document provides many fundamental general requirements for support and foundation design. The Structural Design Criteria and Design Criteria for Equipment Seismic and Environmental Qualification documents provide adequate detailed design criteria for the design of support steel framing and concrete foundations and footings. AISC M016 and UBC 1997 codes are referenced for support design of SC-IV structural steel components. The design calculation documents and drawings reviewed show that each LCP bulge secondary containment enclosure and support system is adequately designed to meet the applicable code requirements.

	Information Assessed	Source of Information	Assessment
Foundation	Foundation material is compatible with the support structure.	Specifications, Mechanical Data Sheets, and Drawings listed above under References.	The Engineering Specification for Process Bulge Design and Fabrication and MDS require that stainless steel material be used for all bulge enclosure components. The drawings show that the LAW LCP bulges (LCP-BULGE-00001/2/3) are located in Room L-0202 at floor Elevation 28'-0" of the LAW building. The stainless steel support structure frame is welded to the carbon steel base plates which in turn are welded (anchored) to the carbon steel plates embedded in concrete floor slab. All components are weld compatible with each other as per Engineering Specification for Welding of Structural Stainless Steel and Welding of Structural Carbon Steel to Structural Stainless Steel.
	If in an area subject to flooding, the Bulge is anchored.	Drawings and Mechanical Data Sheets listed above under References; 24590-LAW-PER-M-02-002, Rev. 7, Dangerous Waste Permit (DWP) Liner Heights in the LAW Facility; 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation).	As shown on the referenced drawings, the LCP bulge enclosures included in this assessment are located in Room L-0202 @ Floor Elev. 28'-0" of the LAW facility. The DWP Liner Heights document does not identify any flooding condition in Room L-0202, nor do the Mechanical Data Sheets identify any submergence conditions of the bulge enclosures, therefore, they need not be evaluated for anchoring due to any buoyant forces. However, in order to sustain any other applicable forces such as seismic, nozzle, and internal hydrostatic loads, these units are adequately anchored by welding to the embedded steel plates in the concrete floor slab as shown on the drawings and in the Misc. Equipment Anchorage calculation documents.
	Foundation 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 LCP bugles considered in this assessment are installed in the LAW facility at Floor Elev. 28'-0" which is not subject to frost heave. Therefore, the foundation beneath these units is not subject to the frost heave effects.

	Information Assessed	Source of Information	Assessment
Seismic	Seismic considerations have been adequately addressed.	Specifications, Mechanical Data Sheets, and Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10 Secondary Containment Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The Secondary Containment Design, Structural Design Criteria, and Design Criteria for Seismic and Environmental Qualification documents provide detailed information of design methodology, materials, loads, and load combinations applicable for the LCP bulge enclosures. The Engineering Specification for Process Bulge Design and Fabrication and MDS documents identify the Quality Level of the bulges to be CM and the Seismic Classification as SC-IV. The bulge enclosure system design loads combinations are taken from UBC 1997 code and analysis for SC-IV secondary containment enclosure is performed in accordance with the Specification for Structural Design Loads for Seismic Category III/IV Equipment and Tanks document. The AISC M016 code is used for the design of SC-IV secondary containment enclosure and support frame, as applicable. The frame structure is designed to sustain all applicable loads including seismic and its bases are adequately welded to the embedded steel plates in concrete floor slab supporting the bulge units. The design calculation documents and drawings reviewed show that sound engineering techniques are used for adequate consideration of forces due to applicable seismic event.

	Information Assessed	Source of Information	Assessment
Compatibility	The stored waste is compatible with its secondary containment and leak detection hardware based on a detailed chemical and physical analysis of the wastes used and other information sources.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-J-02-002, Rev. 4, Leak Detection in Secondary Containment Systems; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation).	The Basis of Design document states that the secondary containment components are to be appropriately lined and any leaks or spills will be removed within 24 hours of a leak detection or in as timely a manner as possible. Based on a detailed chemical and physical analysis of the wastes and other process information sources, the Material Selections document identifies appropriate compatible corrosion resistant materials (stainless steel) for the bulge units' secondary containment components and leak detection hardware. Leak detection technology and methods are described in Leak Detection in Secondary Containment Systems document. The drawings and design calculations reviewed show that the stainless steel as recommended in Material Selections document is used for the fabrication of the LCP bulges. The Secondary Containment Design document provides adequate typical construction details including attachment details for the leak detection equipment to be used for secondary containment where required.

	Information Assessed	Source of Information	Assessment
Strength	The design shows that the secondary containment has sufficient strength and thickness to prevent failure owing to pressure gradients, static head during a release, physical contact with the waste, climatic conditions, seismic event, and the stress of daily operations (e.g., vehicular traffic).	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The LAW general arrangement drawings show the LCP bulges are located inside the building. Pressure gradients, static head during a release, physical contact with the waste, climatic conditions, and the stresses of daily operations are adequately stated as design goals in the Basis of Design document. The Secondary Containment Design document describes and provides references to the design methodology, materials of construction, loads, and load combinations (including seismic loads) for the LAW facility secondary containment components. The LCP secondary containment bulge enclosures being considered are located in the room inside the LAW Vitrification Building rather than being directly buried in ground, therefore, pressure gradients and vehicular traffic are not considered applicable load cases. The design calculations, drawings, and related design change documents such as DCNs, FCNs, BODCNs, NCRs, CDRs, and SDDRs were reviewed. The review of these aforementioned design media documents show that the secondary containment enclosures of the said bulges have been adequately designed to provide sufficient strength required to sustain the forces due to applicable load cases including full hydrostatic load and design basis seismic event. Furthermore, the review, acceptance, and approval of design media by BNI, provides added assurance of the sound design of the secondary containment having sufficient strength required for the intended use of these bulges.

	Information Assessed	Source of Information	Assessment
Strength (cont'd)	The secondary containment system has sufficient strength in the presence of operational stresses from site-specific conditions (i.e., frost, precipitation etc.).	Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-3PS-NLLR-T0002, Rev. 1, Engineering Specification for Furnishing, Detailing, Fabrication, Delivery and Installation of Stainless Steel Liner Plates; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation).	The LAW facility drawings show that the secondary containment units being considered are installed inside the building. Because they are located inside the building, precipitation and frost are not applicable load cases. The Secondary Containment Design document identifies the applicable load cases (operational stresses) from site specific conditions that must be considered in the design. The Engineering Specification for Furnishing Stainless Steel Liner Plates includes specific provisions for protection and repair of completed liners during the construction process. The Material Selections for Building Secondary Containment document addresses the potential effects of operations conditions on metal liner and the associated maintenance requirements. The design calculation documents reviewed show that the LCP bulge secondary containment components are adequately designed and have sufficient strength to sustain the applicable design loads.

	Information Assessed	Source of Information	Assessment
Foundation Integrity	The secondary containment is adequately supported by the enclosure structure frame and foundation below has adequate strength	Drawings listed above under References; 24590-CM-POA-PY33-00002-09-00006, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-02-00069, Rev. 00E, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-09-00007, Rev. 00C, Concentrate Receipt Bulge Structural and Shell Design Analysis (LCP-BULGE-00003) (Design Calculation); 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	Review of the design calculation and drawings documents shows that the support system for each LCP bulge unit has adequate strength to sustain the applicable design loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Chapter 14 of the Basis of Design document requires that the foundation underlying each bulge enclosure support system must be adequate to sustain the loads from the weight of the bulge unit filled with water, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment for the plant items on this floor.
Infiltration	The design or operation prevents run-on or infiltration of precipitation into the secondary containment.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design to provide adequate measures to prevent run-on or infiltration of precipitation. The LCP bulges are located inside the LAW Vitrification Building where they are protected from direct run-on or infiltration of precipitation by the building structure as shown in the general arrangement drawings. Therefore, this section is not applicable to the secondary containment of the LCP bulges being assessed.
	The design includes an external moisture barrier or other means to prevent moisture from entering the room.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design include provisions to prevent external moisture intrusion. The LCP bulges shown on the general arrangement drawings are inside the LAW Vitrification Building which protects them from precipitation and surface water percolation, therefore, this section is not applicable to them.

	Information Assessed	Source of Information	Assessment
Liner System	The containment area is free of cracks or gaps and the design discusses methods of their minimization.	24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection.	The Basis of Design document requires the liner system to be free of cracks and gaps. The Secondary Containment Design document provides current adequate design requirements, and codes and standards to design leak tight liners. This document includes appropriate details for installation of stainless steel components free of cracks and gaps. The Material Selections document provides adequate requirements for the secondary containment components materials.
	The design has considered the compatibility of the secondary containment elements with the waste and for preventing it from migrating into the concrete slab below.	24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design.	The Material Selections document contains information on the compatibility of secondary containment stainless steel material usage for containing the waste. The Secondary Containment Design document provides standard installation details for the secondary containment components of the LCP bulges which ensure leak-tight connections that will prevent the migration of the waste onto the concrete slab below.

References (cont'd)	Vendor Drawings for LFP Bulges	Vendor Fabrication Drawings (*Bechtel Status Code 1 Drawings): 24590-CM-POA-PY33-00002-06-00011, Rev. 00F, Melter 1-Feed/Prep Bulge (LFP-BULGE-00001) Outline, Dim. & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00012, Rev. 00F, Melter 1-Feed/Feed Bulge (LFP-BULGE-00001) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00104, Rev. 00G, Melter 1-Feed/Prep Bulge (LFP-BULGE-00001) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00105, Rev. 00G, Melter 1-Feed/Prep Bulge (LFP-BULGE-00001) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00106, Rev. 00G, Melter 1-Feed/Prep Bulge (LFP-BULGE-00001) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00107, Rev. 00F, Enclosure & Cover (LFP-BULGE-00001) Subassembly, Sheet 1of 6; 24590-CM-POA-PY33-00002-06-00108, Rev. 00F, Enclosure & Cover (LFP-BULGE-00001) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00109, Rev. 00F, Enclosure & Cover (LFP-BULGE-00001) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00110, Rev. 00F, Enclosure & Cover (LFP-BULGE-00001) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00111, Rev. 00F, Enclosure & Cover (LFP-BULGE-00001) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00112, Rev. 00F, Enclosure & Cover (LFP-BULGE-00001) Details, Sheet 6; 24590-CM-POA-PY33-00002-06-00113, Rev. 00E, Enclosure Support Frame (LFP-BULGE-00001) Subassembly, Sheet 1of 3; 24590-CM-POA-PY33-00002-06-00114, Rev. 00E, Enclosure Support Frame (LFP-BULGE-00001) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00115, Rev. 00E, Enclosure Support Frame (LFP-BULGE-00001) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00013, Rev. 00F, Melter 2-Feed/Prep Bulge (LFP-BULGE-00002) Outline, Dim. & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00014, Rev. 00F, Melter 2-Feed/Feed Bulge (LFP-BULGE-00002) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00120, Rev. 00G, Melter 2-Feed/Prep Bulge (LFP-BULGE-00002) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00121, Rev. 00G, Melter 2-Feed/Prep Bulge (LFP-BULGE-00002) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00122, Rev. 00G, Melter 2-Feed/Prep Bulge (LFP-BULGE-00002) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00123, Rev. 00F, Enclosure & Cover (LFP-BULGE-00002) Subassembly, Sheet 1of 6; 24590-CM-POA-PY33-00002-06-00124, Rev. 00F, Enclosure & Cover (LFP-BULGE-00002) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00125, Rev. 00F, Enclosure & Cover (LFP-BULGE-00002) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00126, Rev. 00F, Enclosure & Cover (LFP-BULGE-00002) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00127, Rev. 00F, Enclosure & Cover (LFP-BULGE-00002) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00128, Rev. 00F, Enclosure & Cover (LFP-BULGE-00002) Details, Sheet 6; 24590-CM-POA-PY33-00002-06-00129, Rev. 00E, Enclosure Support Frame (LFP-BULGE-00002) Subassembly, Sheet 1of 3; 24590-CM-POA-PY33-00002-06-00130, Rev. 00E, Enclosure Support Frame (LFP-BULGE-00002) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00131, Rev. 00E, Enclosure Support Frame (LFP-BULGE-00002) Details, Sheet 3. * Bechtel Status Code 1 Drawing is an "as fabricated vendor drawing" approved/accepted by Bechtel.

Reference (cont')	Plant Drawings, Mechanical Data Sheets, and System Description for LFP Bulges	Plant Drawings: 24590-LAW-M6-LFP-00001005, Rev. 0, P&ID- LAW Melter Feed Process System Melter 1, Feed Preparation and Feed LFP-BULGE-00001; 24590-LAW-M6-LFP-00001006, Rev. 0, P&ID- LAW Melter Feed Process System Melter 1, Feed Preparation and Feed LFP-BULGE-00001; 24590-LAW-M6-LFP-00003005, Rev. 0, P&ID- LAW Melter Feed Process System Melter 2, Feed Preparation and Feed LFP-BULGE-00002; 24590-LAW-M6-LFP-00003006, Rev. 0, P&ID- LAW Melter Feed Process System Melter 2, Feed Preparation and Feed LFP-BULGE-00002. Mechanical Data Sheets (MDS): 24590-LAW-MXD-LFP-00001, Rev. 4, Mechanical Systems Data Sheet: Process Bulge (LFP-BULGE-00001); 24590-LAW-MXD-LFP-00002, Rev. 4, Mechanical Systems Data Sheet: Process Bulge (LFP-BULGE-00002). System Description: 24590-LAW-3YD-LFP-00001, Rev. 3, System Description for the Low Activity Waste Melter Feed Process System (LFP), (including SDCN # 24590-LAW-3YN-LFP-00006 and -00008).

	Information Assessed	Source of Information	Assessment
Design	The bulge enclosures secondary containment design standards and codes used are appropriate and adequate for their intended use.	Specifications, Drawings, and Mechanical Data Sheets listed above under References; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 2, Alternate Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials.	The Engineering Specification for Process Bulge Design and Fabrication requires that various components of the bulge enclosures be designed, fabricated, tested, and delivered in accordance with the requirements specified in the codes and standards listed in the Source of Information column in this section. Supplemental detailed requirements for the Bulge Enclosures fabrication are specified in various engineering specifications listed 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 Mechanical Data Sheets (MDS) for the LFP bulges list their Quality Level as (CM) and Seismic Category as (SC-IV). The Vendor Fabrication drawings show that dimensions of each of the LFP bulge enclosures are 109" L x 49" W x 31" H. Each enclosure and its various components and support frame are built with various stainless steel grade materials as shown on the drawings. The MDS for each unit requires that it be designed for temperature range of 59° F to 113° F and pressure range of (-) 2" WC to full hydrostatic test pressure WC. MDS also provide applicable nozzle and fatigue loads. The design codes and standards listed in the Source of Information column are appropriate and adequate to provide secondary containment design for the intended use of the LFP bulges.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	The bulge enclosure components, supports, and foundation design include full weight of bulge enclosure.	Mechanical Data Sheets, Drawings, and Specifications listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation).	The Engineering Specification for Process Bulge Design and Fabrication identifies the system to be of commercial grade (CM) quality and the seismic category to be SC-IV. The drawings show that the secondary containment enclosure components are fully welded to confine any waste spillage within them. Any spill within the enclosures is drained into RLD-SUMP-00030/32 located at lower floor Elevation 3'-0" which have radar leak detection devices to alarm any spillage incidents. Each enclosure structure is attached to and supported by structural steel framing members. The Structural Design Criteria uses appropriate applicable standards to define design loads and load combinations. The Basis of Design and the MDS documents require that along with dead weights of the components, the weight of the bulge filled with water, and the specified temperature and pressure environmental conditions should be appropriately included in the loads and load combinations. Review of the LFP bulge design calculation and drawing documents shows that the support system for each unit has adequate strength to sustain the aforementioned loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Furthermore, Chapter 14 of the Basis of Design document requires that the foundation underlying the bulge supports must be adequate to sustain the full load of the units, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment for the plant items on this floor (Elev. 28'-0").

	Information Assessed	Source of Information	Assessment
Design (cont'd)	Design calculation approach and design basis of support and foundation with design standard and codes references such as AISC codes are adequate.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation).	The Basis of Design document provides many fundamental general requirements for support and foundation design. The Structural Design Criteria and Design Criteria for Equipment Seismic and Environmental Qualification documents provide adequate detailed design criteria for the design of support steel framing and concrete foundations and footings. AISC M016 and UBC 1997 codes are referenced for support design of SC-IV structural steel components. The design calculation documents and drawings reviewed show that each of the LFP bulge secondary containment enclosures and support systems are adequately designed to meet the applicable code requirements.

	Information Assessed	Source of Information	Assessment
Foundation	Foundation material is compatible with the support structure.	Specifications, Mechanical Data Sheets, and Drawings listed above under References.	The Engineering Specification for Process Bulge Design and Fabrication and MDS require that stainless steel material be used for all LFP bulge enclosure components. The drawings show that the LAW bulges (LFP-BULGE-00001/2) are located in Room L-0202 at floor Elevation 28'-0" of the LAW building. The stainless steel support structure frame is welded to the carbon steel base plates which in turn are welded (anchored) to the carbon steel plates embedded in concrete floor slab. All components are weld compatible with each other as per Engineering Specification for Welding of Structural Stainless Steel and Welding of Structural Carbon Steel to Structural Stainless Steel.
	If in an area subject to flooding, the bulge is anchored.	Drawings, Specifications, and Mechanical Data Sheets listed above under References; 24590-LAW-PER-M-02-002, Rev. 7, Dangerous Waste Permit (DWP) Liner Heights in the LAW Facility; 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation).	As shown on the referenced drawings, the bulge enclosures included in this assessment are located in Room L-0202 @ Floor Elev. 28'-0" of the LAW facility. The DWP Liner Heights document does not identify any flooding condition in Room L-0202, nor do the Mechanical Data Sheets identify any submergence conditions of the LFP bulge enclosures, therefore, they need not be evaluated for anchoring due to any buoyant forces. However, in order to sustain any other applicable forces such as seismic, nozzle, and internal hydrostatic loads, these units are adequately anchored by welding to the embedded steel plates in the concrete floor slab as shown on the drawings and in the Misc. Equipment Anchorage calculation documents.
	Foundation 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 LFP bugles considered in this assessment are installed in the LAW facility at Floor Elev. 28'-0" which is not subject to frost heave. Therefore, the foundation beneath these units is not subject to the frost heave effects.

	Information Assessed	Source of Information	Assessment
Seismic	Seismic considerations have been adequately addressed.	Specifications, Mechanical Design Sheets, and Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10 Secondary Containment Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Anchorage Calculation).	The Secondary Containment Design, Structural Design Criteria, and Design Criteria for Seismic and Environmental Qualification documents provide detailed information of design methodology, materials, loads, and load combinations applicable for the LFP bulge enclosures. The Engineering Specification for Process Bulge Design and Fabrication and MDS documents identify the Quality Level of the Bulges to be CM and the Seismic Classification as SC-IV. The LFP bulge enclosure system design loads combinations are taken from UBC 1997 code and analysis for SC-IV secondary containment enclosure is performed in accordance with the Specification for Structural Design Loads for Seismic Category III/IV Equipment and Tanks document. The AISC M016 code is used for the design of SC-IV secondary containment enclosure and support frame, as applicable. The frame structure is designed to sustain all applicable loads including seismic and its bases are adequately welded to the embedded steel plates in concrete floor slab supporting the bulge units. The design calculation documents and drawings reviewed show that sound engineering techniques are used for adequate consideration of forces due to applicable seismic event.

	Information Assessed	Source of Information	Assessment
Compatibility	The stored waste is compatible with its secondary containment and leak detection hardware based on a detailed chemical and physical analysis of the wastes used and other information sources.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-J-02-002, Rev. 4, Leak Detection in Secondary Containment Systems; 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation).	The Basis of Design document states that the secondary containment components are to be appropriately lined and any leaks or spills will be removed within 24 hours of a leak detection or in as timely a manner as possible. Based on a detailed chemical and physical analysis of the wastes and other process information sources, the Material Selections document identifies appropriate compatible corrosion resistant materials (stainless steel) for the bulge units' secondary containment components and leak detection hardware. Leak detection technology and methods are described in Leak Detection in Secondary Containment Systems document. The drawings and design calculations reviewed show that the stainless steel as recommended in Material Selections document is used for the fabrication of the LFP bulges. The Secondary Containment Design document provides adequate typical construction details including attachment details for the leak detection equipment to be used for secondary containment where required.

	Information Assessed	Source of Information	Assessment
Strength	The design shows that the secondary containment has sufficient strength and thickness to prevent failure owing to pressure gradients, static head during a release, physical contact with the waste, climatic conditions, seismic event, and the stress of daily operations (e.g., vehicular traffic).	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The LAW general arrangement drawings show LFP bulges are located inside the building. Pressure gradients, static head during a release, physical contact with the waste, climatic conditions, and the stresses of daily operations are adequately stated as design goals in the Basis of Design document. The Secondary Containment Design document describes and provides references to the design methodology, materials of construction, loads, and load combinations (including seismic loads) for the LAW facility secondary containment components. The LFP secondary containment bulge enclosures being considered are located in the room inside the LAW Vitrification Building rather than being directly buried in ground, therefore, pressure gradients and vehicular traffic are not considered applicable load cases. The design calculations, drawings, and related design change documents such as DCNs, FCNs, BODCNs, NCRs, CDRs, and SDDRs were reviewed. The review of these aforementioned design media documents show that the secondary containment enclosures of the said bulges have been adequately designed to provide sufficient strength required to sustain the forces due to applicable load cases including full hydrostatic load and design basis seismic event. Furthermore, the review, acceptance, and approval of design media by BNI, provides added assurance of the sound design of the secondary containment having sufficient strength required for the intended use of these bulges.

	Information Assessed	Source of Information	Assessment
Strength (cont'd)	The secondary containment system has sufficient strength in the presence of operational stresses from site-specific conditions (i.e., frost, precipitation etc.).	Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-3PS-NLLR-T0002, Rev. 1, Engineering Specification for Furnishing, Detailing, Fabrication, Delivery and Installation of Stainless Steel Liner Plates; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation).	The LAW facility drawings show that the secondary containment units being considered are installed inside the building. Because they are located inside the building, precipitation and frost are not applicable load cases. The Secondary Containment Design document identifies the applicable load cases (operational stresses) from site specific conditions that must be considered in the design. The Engineering Specification for Furnishing Stainless Steel Liner Plates includes specific provisions for protection and repair of completed liners during the construction process. The Material Selections for Building Secondary Containment document addresses the potential effects of operations conditions on metal liner and the associated maintenance requirements. The design calculation documents reviewed show that the secondary containment components are adequately designed and have sufficient strength to sustain the applicable design loads.

	Information Assessed	Source of Information	Assessment
Foundation Integrity	The secondary containment is adequately supported by the enclosure structure frame and foundation below has adequate strength	Drawings listed above under References; 24590-QL-HC4-W000-00085-T08-02-00001, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LFP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00002, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Feed/Prep Valve Bulge (24590-LAW-PY-LFP-BULGE-00002) (Design Calculation); 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	Review of the design calculation and drawings documents shows that the support system for each of the LFP bulge unit has adequate strength to sustain the applicable design loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Chapter 14 of the Basis of Design document requires that the foundation underlying each bulge enclosure support system must be adequate to sustain the loads from the weight of the bulge unit filled with water, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment for the plant items on this floor.
Infiltration	The design or operation prevents run-on or infiltration of precipitation into the secondary containment.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design to provide adequate measures to prevent run-on or infiltration of precipitation. The LFP bulges are located inside the LAW Vitrification Building where they are protected from direct run-on or infiltration of precipitation by the building structure as shown in the general arrangement drawings. Therefore, this section is not applicable to the secondary containment bulge units being assessed.
	The design includes an external moisture barrier or other means to prevent moisture from entering the room.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design include provisions to prevent external moisture intrusion. The LFP bulges shown on the general arrangement drawings are inside the LAW Vitrification Building which protects them from precipitation and surface water percolation, therefore, this section is not applicable to them.

	Information Assessed	Source of Information	Assessment
Liner System	The containment area is free of cracks or gaps and the design discusses methods of their minimization.	24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection.	The Basis of Design document requires the liner system to be free of cracks and gaps. The Secondary Containment Design document provides current adequate design requirements, and codes and standards to design leak tight liners. This document includes appropriate details for installation of stainless steel components free of cracks and gaps. The Material Selections document provides adequate requirements for the secondary containment components materials.
	The design has considered the compatibility of the secondary containment elements with the waste and for preventing it from migrating into the concrete slab below.	24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design.	The Material Selections document contains information on the compatibility of secondary containment stainless steel material usage for containing the waste. The Secondary Containment Design document provides standard installation details for the secondary containment components of the LFP bulges which ensures leak-tight connections that will prevent the migration of the waste onto the concrete slab below.

References	Vendor Drawings for LOP Bulges	Vendor Fabrication Drawings (*Bechtel Status Code 1 Drawings): 24590-CM-POA-PY33-00002-06-00007, Rev. 00F, Melter 1-Valve Bulge (LOP-BULGE-00001) Outline, Dimensions & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00008, Rev. 00F, Melter 1-Valve Bulge (LOP-BULGE-00001) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00070, Rev. 00J, Melter 1-Valve Bulge (LOP-BULGE-00001) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00071, Rev. 00J, Melter 1-Valve Bulge (LOP-BULGE-00001) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00072, Rev. 00I, Melter 1-Valve Bulge (LOP-BULGE-00001) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00073, Rev. 00F, Enclosure & Cover (LOP-BULGE-00001) Subassembly, Sheet 1of 7; 24590-CM-POA-PY33-00002-06-00074, Rev. 00F, Enclosure & Cover (LOP-BULGE-00001) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00075, Rev. 00F, Enclosure & Cover (LOP-BULGE-00001) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00076, Rev. 00F, Enclosure & Cover (LOP-BULGE-00001) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00077, Rev. 00F, Enclosure & Cover (LOP-BULGE-00001) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00078, Rev. 00G, Enclosure & Cover (LOP-BULGE-00001) Details, Sheet 6; 24590-CM-POA-PY33-00002-06-00079, Rev. 00F, Enclosure & Cover (LOP-BULGE-00001) Details, Sheet 7; 24590-CM-POA-PY33-00002-06-00080, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00001) Subassembly, Sheet 1of 4; 24590-CM-POA-PY33-00002-06-00081, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00001) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00082, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00001) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00083, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00001) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00151, Rev. 00F, Column Davit Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00152, Rev. 00F, Column Davit Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00153, Rev. 00F, Column Davit Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00009, Rev. 00F, Melter 2-Valve Bulge (LOP-BULGE-00002) Outline, Dimensions & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00010, Rev. 00F, Melter 2-Valve Bulge (LOP-BULGE-00002) Outline, Dimensions & Details, Sh. 2; 24590-CM-POA-PY33-00002-06-00087, Rev. 00J, Melter 2-Valve Bulge (LOP-BULGE-00002) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00088, Rev. 00J, Melter 2-Valve Bulge (LOP-BULGE-00002) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00089, Rev. 00I, Melter 2-Valve Bulge (LOP-BULGE-00002) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00090, Rev. 00F, Enclosure & Cover (LOP-BULGE-00002) Subassembly, Sheet 1of 7; 24590-CM-POA-PY33-00002-06-00091, Rev. 00F, Enclosure & Cover (LOP-BULGE-00002) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00092, Rev. 00F, Enclosure & Cover (LOP-BULGE-00002) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00093, Rev. 00F, Enclosure & Cover (LOP-BULGE-00002) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00094, Rev. 00F, Enclosure & Cover (LOP-BULGE-00002) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00095, Rev. 00H, Enclosure & Cover (LOP-BULGE-00002) Details, Sheet 6; 24590-CM-POA-PY33-00002-06-00096, Rev. 00F, Enclosure & Cover (LOP-BULGE-00002) Details, Sheet 7; 24590-CM-POA-PY33-00002-06-00097, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00002) Subassembly, Sheet 1of 4; 24590-CM-POA-PY33-00002-06-00098, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00002) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00099, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00002) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00100, Rev. 00E, Enclosure Support Frame (LOP-BULGE-00002) Details, Sheet 4; * Bechtel Status Code 1 Drawing is an "as fabricated vendor drawing" approved/accepted by Bechtel.

Reference (cont')	Plant Drawings, Mechanical Data Sheets, and System Description for LOP Bulges	Plant Drawings: 24590-LAW-M6-LOP-00001003, Rev. 0, P&ID- LAW Primary Offgas Process System Melter 1, LOP-BULGE-00001; 24590-LAW-M6-LOP-00002003, Rev. 0, P&ID- LAW Primary Offgas Process System Melter 2, LOP-BULGE-00002 (w/DCNL # 00005); Mechanical Data Sheets (MDS): 24590-LAW-MXD-LOP-00001, Rev. 4, Mechanical Systems Data Sheet: Process Bulge (LOP-BULGE-00001); 24590-LAW-MXD-LOP-00002, Rev. 4, Mechanical Systems Data Sheet: Process Bulge (LOP-BULGE-00002). 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 # 24590-LAW-3YN-LOP-00011, -00012, and -00013).

	Information Assessed	Source of Information	Assessment
Design	The bulge enclosures secondary containment design standards and codes used are appropriate and adequate for their intended use.	Specifications, Drawings, and Mechanical Data Sheets listed above under References; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 2, Alternate Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials.	The Engineering Specification for Process Bulge Design and Fabrication requires that various components of the bulge enclosures be designed, fabricated, tested, and delivered in accordance with the requirements specified in the codes and standards listed in the Source of Information column in this section. Supplemental detailed requirements for the bulge enclosures fabrication are specified in various engineering specifications listed 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 Mechanical Data Sheets (MDS) for the LOP bulges list their Quality Level as (CM) and Seismic Category as (SC-III). The Vendor Fabrication drawings show that dimensions of each LOP bulge enclosure are 142" L x 50" W x 35" H, with a davit crane used for maintenance. Each bulge enclosure has removable top cover and its various components and support frame are built with various stainless steel grade materials as shown on the drawings. The MDS for each bulge unit requires that it be designed for temperature range of 59° F to 113° F and pressure range of (-) 2" WC to full hydrostatic test pressure WC. MDS also provide applicable nozzle and fatigue loads. The design codes and standards listed in the Source of Information column are appropriate and adequate to provide secondary containment design for the intended use of the LOP bulges.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	The bulge enclosure components, supports, and foundation design include full weight of bulge enclosure.	Mechanical Data Sheets, Drawings, and Specifications listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation).	The Engineering Specification for Process Bulge Design and Fabrication identifies the system to be of commercial grade (CM) quality and the seismic category to be SC-III. The drawings show that the secondary containment enclosure components are fully welded to confine any waste spillage within them. Any spill within the LOP bulge enclosures is drained into RLD-SUMP-00029/31 located at lower floor at Elevation 3'-0" which have radar leak detection devices to alarm any spillage incidents. Each enclosure structure is attached to and supported by structural steel framing members. The Structural Design Criteria uses appropriate applicable standards to define design loads and load combinations. The Basis of Design and the MDS documents require that along with dead weights of the components, the weight of the bulge filled with water, and the specified temperature and pressure environmental conditions should be appropriately included in the loads and load combinations. Review of the LOP bulge design calculation and drawing documents shows that the support system for each unit has adequate strength to sustain the aforementioned loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Furthermore, Chapter 14 of the Basis of Design document requires that the foundation underlying the bulge supports must be adequate to sustain the full load of the units, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment for the plant items on this floor (Elev. 28'-0").

	Information Assessed	Source of Information	Assessment
Design (cont'd)	Design calculation approach and design basis of support and foundation with design standard and codes references such as AISC codes are adequate.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC N690,Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities (as tailored for the Project); AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation).	The Basis of Design document provides many fundamental general requirements for support and foundation design. The Structural Design Criteria and Design Criteria for Equipment Seismic and Environmental Qualification documents provide adequate detailed design criteria for the design of support steel framing and concrete foundations and footings. AISC M016 and UBC 1997 codes are referenced for support design of SC-III structural steel components. Design Calculation documents and drawings reviewed show that each LOP bulge secondary containment enclosure and support system is adequately designed to meet the applicable code requirements.

	Information Assessed	Source of Information	Assessment
Foundation	Foundation material is compatible with the support structure.	Specifications, Mechanical Data Sheets and Drawings listed above under References.	The Engineering Specification for Process Bulge Design and Fabrication and MDS require that stainless steel material be used for all bulge enclosure components. The drawings show that the LAW bulges (LOP-BULGE-00001/2) are located in Room L-0202 at floor Elevation 28'-0" of the LAW building. The stainless steel support structure frame is welded to the carbon steel base plates which in turn are welded (anchored) to the carbon steel plates embedded in concrete floor slab. All components are weld compatible with each other as per Engineering Specification for Welding of Structural Stainless Steel and Welding of Structural Carbon Steel to Structural Stainless Steel.
	If in an area subject to flooding, the bulge is anchored.	Drawings and Mechanical Data Sheets listed above under References; 24590-LAW-PER-M-02-002, Rev. 7, Dangerous Waste Permit (DWP) Liner Heights in the LAW Facility; 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation).	As shown on the referenced drawings, the bulge enclosures included in this assessment are located in Room L-0202 @ Floor Elev. 28'-0" of the LAW facility. The DWP Liner Heights document does not identify any flooding condition in Room L-0202, nor do the Mechanical Data Sheets identify any submergence conditions of the LOP bulge enclosures, therefore, they need not be evaluated for anchoring due to any buoyant forces. However, in order to sustain any other applicable forces such as seismic, nozzle, and internal hydrostatic loads, these units are adequately anchored by welding to the embedded steel plates in the concrete floor slab as shown on the drawings and in the Misc. Equipment Anchorage calculation documents.
	Foundation 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 LOP bugles considered in this assessment are installed in the LAW facility at Floor Elev. 28'-0" which is not subject to frost heave. Therefore, the foundation beneath these units is not subject to the frost heave effects.

	Information Assessed	Source of Information	Assessment
Seismic	Seismic considerations have been adequately addressed.	Specifications, Mechanical Data Sheets, and Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10 Secondary Containment Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The Secondary Containment Design, Structural Design Criteria, and Design Criteria for Seismic and Environmental Qualification documents provide detailed information of design methodology, materials, loads, and load combinations applicable for the LOP bulge enclosures. The Engineering Specification for Process Bulge Design and Fabrication and MDS documents identify the Quality Level of the LOP bulges to be CM and the Seismic Classification as SC-III. The bulge enclosure system design loads combinations are taken from UBC 1997 code and analysis for SC-III secondary containment enclosure is performed in accordance with the Specification for Structural Design Loads for Seismic Category III/IV Equipment and Tanks document. The AISC M016 code is used for the design of SC-III secondary containment enclosure and support frame, as applicable. The frame structure is designed to sustain all applicable loads including seismic and its bases are adequately welded to the embedded steel plates in concrete floor slab supporting the bulge units. The design calculation documents and drawings reviewed show that sound engineering techniques are used for adequate consideration of forces due to applicable seismic event.

	Information Assessed	Source of Information	Assessment
Compatibility	The stored waste is compatible with its secondary containment and leak detection hardware based on a detailed chemical and physical analysis of the wastes used and other information sources.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-J-02-002, Rev. 4, Leak Detection in Secondary Containment Systems; 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation).	The Basis of Design document states that the secondary containment components are to be appropriately lined and any leaks or spills will be removed within 24 hours of a leak detection or in as timely a manner as possible. Based on a detailed chemical and physical analysis of the wastes and other process information sources, the Material Selections document identifies appropriate compatible corrosion resistant materials (stainless steel) for the bulge units' secondary containment components and leak detection hardware. Leak detection technology and methods are described in Leak Detection in Secondary Containment Systems document. The drawings and design calculations reviewed show that the stainless steel as recommended in Material Selections document is used for the fabrication of the LOP bulges . The Secondary Containment Design document provides adequate typical construction details including attachment details for the leak detection equipment to be used for secondary containment where required.

	Information Assessed	Source of Information	Assessment
Strength	The design shows that the secondary containment has sufficient strength and thickness to prevent failure owing to pressure gradients, static head during a release, physical contact with the waste, climatic conditions, seismic event, and the stress of daily operations (e.g., vehicular traffic).	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The LAW general arrangement drawings show that the LOP bulges are located inside the building. Pressure gradients, static head during a release, physical contact with the waste, climatic conditions, and the stresses of daily operations are adequately stated as design goals in the Basis of Design document. The Secondary Containment Design document describes and provides references to the design methodology, materials of construction, loads, and load combinations (including seismic loads) for the LAW facility secondary containment components. The LOP secondary containment bulge enclosures being considered are located in the room inside the LAW Vitrification Building rather than being directly buried in ground, therefore, pressure gradients and vehicular traffic are not considered applicable load cases. The design calculations, drawings, and related design change documents such as DCNs, FCNs, BODCNs, NCRs, CDRs, and SDDRs were reviewed. The review of these aforementioned design media documents show that the secondary containment enclosures of the said bulges have been adequately designed to provide sufficient strength required to sustain the forces due to applicable load cases including full hydrostatic load and design basis seismic event. Furthermore, the review, acceptance, and approval of design media by BNI, provides added assurance of the sound design of the secondary containment having sufficient strength required for the intended use of these bulges.

	Information Assessed	Source of Information	Assessment
Strength (cont'd)	The secondary containment system has sufficient strength in the presence of operational stresses from site-specific conditions (i.e., frost, precipitation etc.).	Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-3PS-NLLR-T0002, Rev. 1, Engineering Specification for Furnishing, Detailing, Fabrication, Delivery and Installation of Stainless Steel Liner Plates; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation).	The LAW facility drawings show that the secondary containment units being considered are installed inside the building. Because they are located inside the building, precipitation and frost are not applicable load cases. The Secondary Containment Design document identifies the applicable load cases (operational stresses) from site specific conditions that must be considered in the design. The Engineering Specification for Furnishing Stainless Steel Liner Plates includes specific provisions for protection and repair of completed liners during the construction process. The Material Selections for Building Secondary Containment document addresses the potential effects of operations conditions on metal liner and the associated maintenance requirements. The design calculation documents reviewed show that the LOP secondary containment components are adequately designed and have sufficient strength to sustain the applicable design loads.

	Information Assessed	Source of Information	Assessment
Foundation Integrity	The secondary containment is adequately supported by the enclosure structure frame and foundation below has adequate strength	Drawings listed above under References; 24590-QL-HC4-W000-00085-T08-02-00003, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 1 Valve Bulge (24590-LAW-PY-LOP-BULGE-00001) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00004, Rev. 00D, Structural Analysis of LAW & PTF Bulges, Melter 2 Valve Bulge (24590-LAW-PY-LOP-BULGE-00002) (Design Calculation); 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	Review of the Design Calculation and drawings documents shows that the support system for each Bulge unit has adequate strength to sustain the applicable design loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Chapter 14 of the Basis of Design document requires that the foundation underlying each Bulge Enclosure support system must be adequate to sustain the loads from the weight of the bulge unit filled with water, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment for the plant items on this floor.
Infiltration	The design or operation prevents run-on or infiltration of precipitation into the secondary containment.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design to provide adequate measures to prevent run-on or infiltration of precipitation. The LOP secondary containment bulges are located inside the LAW Vitrification Building where they are protected from direct run-on or infiltration of precipitation by the building structure as shown in the general arrangement drawings. Therefore, this section is not applicable to the secondary containment of the LOP bulges being assessed.
	The design includes an external moisture barrier or other means to prevent moisture from entering the room.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design include provisions to prevent external moisture intrusion. The LOP bulges shown on the general arrangement drawings are inside the LAW Vitrification Building which protects them from precipitation and surface water percolation, therefore, this section is not applicable to them.

	Information Assessed	Source of Information	Assessment
Liner System	The containment area is free of cracks or gaps and the design discusses methods of their minimization.	24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection.	The Basis of Design document requires the liner system to be free of cracks and gaps. The Secondary Containment Design document provides current adequate design requirements, and codes and standards to design leak tight liners. This document includes appropriate details for installation of stainless steel components free of cracks and gaps. The Material Selections document provides adequate requirements for the secondary containment components materials.
	The design has considered the compatibility of the secondary containment elements with the waste and for preventing it from migrating into the concrete slab below.	24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design.	The Material Selections document contains information on the compatibility of secondary containment stainless steel material usage for containing the waste. The Secondary Containment Design document provides standard installation details for the secondary containment components of the LOP bulges which ensures leak-tight connections that will prevent the migration of the waste onto the concrete slab below.

References	Vendor Drawings for RLD Bulges	Vendor Fabrication Drawings (*Bechtel Status Code 1 Drawings): 24590-CM-POA-PY33-00001-01-01, Rev. 00D, General Layout Drawing (RLD-BULGE-00001); 24590-CM-POA-PY33-00001-10-03, Rev. 00C, General Layout-Details (RLD-BULGE-00001); 24590-CM-POA-PY33-00001-10-04, Rev. 00C, Main Piping Layout Drawing (RLD-BULGE-00001); 24590-CM-POA-PY33-00001-10-05, Rev. 00B, Main Frame Structural Drawing (RLD-BULGE-00001); 24590-CM-POA-PY33-00001-10-06, Rev. 00B, Containment Layout Drawing (RLD-BULGE-00001); 24590-CM-POA-PY33-00001-22-03, Rev. 00A, Main Piping Layout Drawing (RLD-BULGE-00001); 24590-CM-POA-PY33-00001-25-01, Rev. 00D, Wash Water Details (RLD-BULGE-00001); 24590-CM-POA-PY33-00002-06-00015, Rev. 00F, Plant Wash/SBS Condensate (RLD-BULGE-00004) Outline, Dim. & Det., Sh. 1 of 2; 24590-CM-POA-PY33-00002-06-00016, Rev. 00F, Plant Wash/SBS Condensate (RLD-BULGE-00004) Outline, Dim. & Det., Sh. 2; 24590-CM-POA-PY33-00002-06-00136, Rev. 00G, Plant Wash/SBS Condensate (RLD-BULGE-00004) Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00137, Rev. 00G, Plant Wash/SBS Condensate (RLD-BULGE-00004) Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00138, Rev. 00G, Plant Wash/SBS Condensate (RLD-BULGE-00004) Assembly, Sheet 3; 24590-CM-POA-PY33-00002-06-00139, Rev. 00F, Enclosure & Cover (RLD-BULGE-00004) Subassembly, Sheet 1of 5; 24590-CM-POA-PY33-00002-06-00140, Rev. 00F, Enclosure & Cover (RLD-BULGE-00004) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00141, Rev. 00F, Enclosure & Cover (RLD-BULGE-00004) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00142, Rev. 00F, Enclosure & Cover (RLD-BULGE-00004) Details, Sheet 4; 24590-CM-POA-PY33-00002-06-00143, Rev. 00F, Enclosure & Cover (RLD-BULGE-00004) Details, Sheet 5; 24590-CM-POA-PY33-00002-06-00144, Rev. 00E, Enclosure Support Frame (RLD-BULGE-00004) Subassembly, Sheet 1of 3; 24590-CM-POA-PY33-00002-06-00145, Rev. 00E, Enclosure Support Frame (RLD-BULGE-00004) Details, Sheet 2; 24590-CM-POA-PY33-00002-06-00146, Rev. 00E, Enclosure Support Frame (RLD-BULGE-00004) Details, Sheet 3; 24590-CM-POA-PY33-00002-06-00151, Rev. 00F, Column Davit Assembly, Sheet 1 of 3; 24590-CM-POA-PY33-00002-06-00152, Rev. 00F, Column Davit Assembly, Sheet 2; 24590-CM-POA-PY33-00002-06-00153, Rev. 00F, Column Davit Assembly, Sheet 3. * Bechtel Status Code 1 Drawing is an "as fabricated vendor drawing" approved/accepted by Bechtel.

Reference (cont')	Plant Drawings, Mechanical Data Sheets, and System Description for RLD Bulges	Plant Drawings: 24590-LAW-M6-RLD-00002003, Rev. 0, P&ID- LAW Radioactive Liquid Waste Disposal System C3/C5 Drain/Sump Collection RLD-BULGE-00001; 24590-LAW-M6-RLD-00002004, Rev. 0, P&ID- LAW Radioactive Liquid Waste Disposal System C3/C5 Drain/Sump Collection RLD-BULGE-00001; 24590-LAW-M6-RLD-00001005, Rev. 0, P&ID- LAW Radioactive Liquid Waste Disposal System Plant Wash & SBS Condensate Collection RLD-BULGE-00004; 24590-LAW-M6-RLD-00001006, Rev. 0, P&ID- LAW Radioactive Liquid Waste Disposal System Plant Wash & SBS Condensate Collection RLD-BULGE-00004. Mechanical Data Sheets (MDS): 24590-LAW-MXD-RLD-00001, Rev. 2, Mechanical Systems Data Sheet: Process Bulge (RLD-BULGE-00001); 24590-LAW-MXD-RLD-00002, Rev. 5, Mechanical Systems Data Sheet: Process Bulge (RLD-BULGE-00004). System Description: 24590-LAW-3YD-RLD-00001, Rev. 2, System Description for the LAW Radioactive Liquid Waste Disposal (RLD) System, (including SDCN # 24590-LAW-3YN-RLD-00006).

	Information Assessed	Source of Information	Assessment
Design	The bulge enclosures secondary containment design standards and codes used are appropriate and adequate for their intended use.	Specifications, Drawings, and Mechanical Data Sheets listed above under References; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 2, Alternate Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials.	The Engineering Specification for Process Bulge Design and Fabrication requires that various components of the RLD bulge enclosures be designed, fabricated, tested, and delivered in accordance with the requirements specified in the codes and standards listed in the Source of Information column in this section. Supplemental detailed requirements for the RLD bulge enclosures fabrication are specified in various engineering specifications listed 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 Mechanical Data Sheets (MDS) for the RLD bulges list their Quality Level as (CM) and Seismic Category as (SC-III). The Vendor Fabrication drawings show that the approx. dimensions of RLD-BULGE-00001 are 109" L x 78" W x 99" H, with an operating platform including 42" high handrails above. The Vendor Fabrication drawings show that the approx. dimensions of RLD-BULGE-00004 are 107" L x 56" W x 34" H, with a davit crane used for maintenance. Each enclosure has removable top cover/access plates and its various components and support frame are built with various stainless steel grade materials as shown on the drawings. The MDS for each unit requires that it be designed for temperature range of 59° F to 113° F and pressure range of (-) 2" WC to full hydrostatic test pressure WC. MDS also provide applicable nozzle and fatigue loads. The design codes and standards listed in the Source of Information column are appropriate and adequate to provide secondary containment design for the intended use of the RLD bulges.

	Information Assessed	Source of Information	Assessment
Design (cont'd)	The bulge enclosure components, supports, and foundation design include full weight of bulge enclosure.	Mechanical Data Sheets, Drawings, and Specifications listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation); 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The Engineering Specification for Process Bulge Design and Fabrication identifies the system to be of commercial grade (CM) quality and the seismic category to be SC-III. The drawings show that the secondary containment enclosure components are fully welded to confine any waste spillage within them. Any spill within the RLD-BULGE-00001 enclosure is drained into RLD-SUMP-00028 located in floor at Elevation (-) 21'-0", and any spill within the RLD-BULGE-00004 enclosure is drained into RLD-SUMP-00036 located in floor at Elevation 3'-0". Each sump has a radar leak detection device to alarm any spillage incidents. Each enclosure structure is attached to and supported by structural steel framing members. The Structural Design Criteria uses appropriate applicable standards to define design loads and load combinations. The Basis of Design and the MDS documents require that along with dead weights of the components, the weight of the bulge filled with water, and the specified temperature and pressure environmental conditions should be appropriately included in the loads and load combinations. Review of the RLD bulge design calculation and drawing documents shows that the support system for each unit has adequate strength to sustain the aforementioned loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Furthermore, Chapter 14 of the Basis of Design document requires that the foundation underlying the bulge supports must be adequate to sustain the full load of the units, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment assessment report for the plant items on floor (Elev. - 21'-0") and floor (Elev. + 28'-0").

	Information Assessed	Source of Information	Assessment
Design (cont'd)	Design calculation approach and design basis of support and foundation with design standard and codes references such as AISC codes are adequate.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation). 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The Basis of Design document provides many fundamental general requirements for support and foundation design. The Structural Design Criteria and Design Criteria for Equipment Seismic and Environmental Qualification documents provide adequate detailed design criteria for the design of support steel framing and concrete foundations and footings. AISC M016 and UBC 1997 codes are referenced for support design of SC-III structural steel components. Design Calculation documents and drawings reviewed show that each RLD bulge secondary containment enclosure and support system is adequately designed to meet the applicable code requirements.

	Information Assessed	Source of Information	Assessment
Foundation	Foundation material is compatible with the support structure.	Specifications, Mechanical Data Sheets, and Drawings listed above under References.	The Engineering Specification for Process Bulge Design and Fabrication and MDS require that stainless steel material be used for all bulge enclosure components. The drawings show that the RLD-BULGE-00001 is located in Room L-B001A at floor Elevation (-) 21'-0" and RLD-BULGE-00004 is located in Room L-0202 at floor Elevation 28-0" of the LAW building. The stainless steel support structure frame is welded to the carbon steel base plates which in turn are welded (anchored) to the carbon steel plates embedded in concrete floor slab. All components are weld compatible with each other as per Engineering Specification for Welding of Structural Stainless Steel and Welding of Structural Carbon Steel to Structural Stainless Steel.
	If in an area subject to flooding, the Bulge is anchored.	Drawings and Mechanical Data Sheets listed above under References; 24590-LAW-PER-M-02-002, Rev. 7, Dangerous Waste Permit (DWP) Liner Heights in the LAW Facility; 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation); 24590-LAW-DDC-S13T-00019, Rev. 0, Elevation +3'-0" Slab Embedded Plates (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The referenced drawings show that RLD-BULGE-00001 is located in Room L-B001A @ Floor Elev.(-) 21'-0" and RLD-BULGE 00004 is located in Room L-0202 @ Floor Elev. 28'-0" of the LAW facility. The DWP Liner Heights document does not identify any flooding condition in these rooms, nor do the Mechanical Data Sheets identify any submergence conditions of the RLD bulge enclosures, therefore, they need not be evaluated for anchoring due to any buoyant forces. However, in order to sustain any other applicable forces such as seismic, nozzle, and internal hydrostatic loads, these units are adequately anchored by welding to the embedded steel plates in the concrete floor slab as shown on the drawings and in the Misc. Equipment Anchorage and design calculation documents.
	Foundation 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 RLD bulges considered in this assessment are installed in the LAW facility @ Floor Elev. (-) 21'-0" and 28'-0" which are not subject to frost heave. Therefore, the foundation beneath these units is not subject to the frost heave effects.

	Information Assessed	Source of Information	Assessment
Seismic	Seismic considerations have been adequately addressed.	Specifications, Mechanical Data Sheets, and Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10 Secondary Containment Design; 24590-WTP-DC-ST-01-001, Rev. 13, Structural Design Criteria; 24590-WTP-DC-ENG-06-001, Rev. 1, Design Criteria for Equipment Seismic and Environmental Qualification; AISC M016, Manual of Steel Construction, Allowable Stress Design, 9th Edition (as tailored for the Project), American Institute of Steel Construction; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-QL-HC4-W000-00085-T08-01-00001, Rev. 00C, FEA of LAW and PTF Bulges Analysis Methodology (Design Calculations); 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation). 24590-LAW-DDC-S13T-00028, Rev. 2, Misc. Equipment Anchorage (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The Secondary Containment Design, Structural Design Criteria, and Design Criteria for Seismic and Environmental Qualification documents provide detailed information of design methodology, materials, loads, and load combinations applicable to the RLD bulge enclosures. The Engineering Specification for Process Bulge Design and Fabrication and MDS documents identify the Quality Level of the Bulges to be CM and the Seismic Classification as SC-III. The RLD bulge enclosure system design loads combinations are taken from UBC 1997 code and analysis for SC-III secondary containment enclosure is performed in accordance with the Specification for Structural Design Loads for Seismic Category III/IV Equipment and Tanks document. The AISC M016 code is used for the design of SC-III secondary containment enclosure and support frame, as applicable. The frame structure is designed to sustain all applicable loads including seismic and its bases are adequately welded to the embedded steel plates in concrete floor slab supporting the RLD bulges. The design calculation documents and drawings reviewed show that sound engineering techniques are used for adequate consideration of forces due to applicable seismic event.

	Information Assessed	Source of Information	Assessment
Compatibility	The stored waste is compatible with its secondary containment and leak detection hardware based on a detailed chemical and physical analysis of the wastes used and other information sources.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-J-02-002, Rev. 4, Leak Detection in Secondary Containment Systems; 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation).	The Basis of Design document states that the secondary containment components are to be appropriately lined and any leaks or spills will be removed within 24 hours of a leak detection or in as timely a manner as possible. Based on a detailed chemical and physical analysis of the wastes and other process information sources, the Material Selections document identifies appropriate compatible corrosion resistant materials (stainless steel) for the RLD bulge secondary containment components and leak detection hardware. Leak detection technology and methods are described in Leak Detection in Secondary Containment Systems document. The drawings and design calculations reviewed show that the stainless steel as recommended in Material Selections document is used for the fabrication of the RLD bulges. The Secondary Containment Design document provides adequate typical construction details including attachment details for the leak detection equipment to be used for secondary containment where required.

	Information Assessed	Source of Information	Assessment
Strength	The design shows that the secondary containment has sufficient strength and thickness to prevent failure owing to pressure gradients, static head during a release, physical contact with the waste, climatic conditions, seismic event, and the stress of daily operations (e.g., vehicular traffic).	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation); 24590-CM-POA-PY33-00002-07-00001, Rev. 00G, Process Bulges Seismic Data Report (Design Calculation).	The LAW general arrangement drawings show RLD bulges are located inside the building. Pressure gradients, static head during a release, physical contact with the waste, climatic conditions, and the stresses of daily operations are adequately stated as design goals in the Basis of Design document. The Secondary Containment Design document describes and provides references to the design methodology, materials of construction, loads, and load combinations (including seismic loads) for the LAW facility secondary containment components. The RLD secondary containment bulge enclosures being considered are located in the room inside the LAW Vitrification Building rather than being directly buried in ground, therefore, pressure gradients and vehicular traffic are not considered applicable load cases. The design calculations, drawings, and related design change documents such as DCNs, FCNs, BODCNs, NCRs, CDRs, and SDDRs were reviewed. The review of these aforementioned design media documents show that the secondary containment enclosures of the said bulges have been adequately designed to provide sufficient strength required to sustain the forces due to applicable load cases including full hydrostatic load and design basis seismic event. Furthermore, the review, acceptance, and approval of design media by BNI, provides added assurance of the sound design of the secondary containment having sufficient strength required for the intended use of these bulges.

	Information Assessed	Source of Information	Assessment
Strength (cont'd)	The secondary containment system has sufficient strength in the presence of operational stresses from site-specific conditions (i.e., frost, precipitation etc.).	Drawings listed above under References; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-3PS-NLLR-T0002, Rev. 1, Engineering Specification for Furnishing, Detailing, Fabrication, Delivery and Installation of Stainless Steel Liner Plates; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation).	The LAW facility drawings show that the secondary containment units being considered are installed inside the building. Because they are located inside the building, precipitation and frost are not applicable load cases. The Secondary Containment Design document identifies the applicable load cases (operational stresses) from site specific conditions that must be considered in the design. The Engineering Specification for Furnishing Stainless Steel Liner Plates includes specific provisions for protection and repair of completed liners during the construction process. The Material Selections for Building Secondary Containment document addresses the potential effects of operations conditions on metal liner and the associated maintenance requirements. The Design Calculation documents reviewed show that the secondary containment components are adequately designed and have sufficient strength to sustain the applicable design loads.

	Information Assessed	Source of Information	Assessment
Foundation Integrity	The secondary containment is adequately supported by the enclosure structure frame and foundation below has adequate strength.	Drawings listed above under References; 24590-QL-HC4-W000-00085-T08-02-00007, Rev. 00C, Structural Analysis of LAW & PTF Bulges, Plant Wash/SBS Concentration Collection Vessel Valve Bulge (24590-LAW-PY-RLD-BULGE-00004) (Design Calculation); 24590-QL-HC4-W000-00085-T08-02-00008, Rev. 00B, Structural Analysis of LAW & PTF Bulges, LAW RLD C3/C5 Pump Bulge (24590-LAW-PY-RLD-BULGE-00001) (Design Calculation); 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	Review of the design calculation and drawings documents shows that the support system for each RLD bulge has adequate strength to sustain the applicable design loads and is in turn anchored (welded) to the steel embed plates in the concrete floor slab. Chapter 14 of the Basis of Design document requires that the foundation underlying each Bulge Enclosure support system must be adequate to sustain the loads from the weight of the bulge unit filled with water, which is out of scope of this assessment. The assessment of the adequacy of the underlying foundation slab is part of the final Structural Integrity Assessment Report for LAW Secondary Containment integrity assessment report for the plant items on a specific floor elevation.
Infiltration	The design or operation prevents run-on or infiltration of precipitation into the secondary containment.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design to provide adequate measures to prevent run-on or infiltration of precipitation. The RLD secondary containment bulges are located inside the LAW Vitrification Building where they are protected from direct run-on or infiltration of precipitation by the building structure as shown in the general arrangement drawings. Therefore, this section is not applicable to the RLD bulges being assessed.
	The design includes an external moisture barrier or other means to prevent moisture from entering the room.	Drawings listed above under References; 24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design.	The Basis of Design document requires the design include provisions to prevent external moisture intrusion. The RLD bulges shown on the general arrangement drawings are inside the LAW Vitrification Building which protects them from precipitation and surface water percolation, therefore, this section is not applicable to them.

	Information Assessed	Source of Information	Assessment
Liner System	The containment area is free of cracks or gaps and the design discusses methods of their minimization.	24590-WTP-DB-ENG-01-001, Rev. 1Q, Basis of Design; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design; 24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection.	The Basis of Design document requires the liner system to be free of cracks and gaps. The Secondary Containment Design document provides current adequate design requirements, and codes and standards to design leak tight liners. This document includes appropriate details for installation of stainless steel components free of cracks and gaps. The Material Selections document provides adequate requirements for the secondary containment components materials.
	The design has considered the compatibility of the secondary containment elements with the waste and for preventing it from migrating into the concrete slab below.	24590-WTP-PER-M-02-001, Rev. 3, Material Selections for Building Secondary Containment/Leak Detection; 24590-WTP-PER-CSA-02-001, Rev. 10, Secondary Containment Design.	The Material Selections document contains information on the compatibility of secondary containment stainless steel material usage for containing the waste. The Secondary Containment Design document provides standard installation details for the secondary containment components of the RLD bulges which ensures leak-tight connections that will prevent the migration of the waste onto the concrete slab below.

Quarter Ending March 31, 2014

24590-LAW-PCN-ENV-13-004

Hanford Facility RCRA Permit Modification Notification Form
Part III, Operating Unit 10
Waste Treatment and Immobilization Plant

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Page 2 of 3 Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant Update Low Activity Waste Facility (LAW) General Arrangement Drawings at plan elevations (-)21'-0", 3'0", 22'-0", and 28'-0" in Appendix 9.4 of the Dangerous Waste Permit.

Submitted by Co-Operator:

F. Beranek — 3/3/14 Date

Reviewed by ORP Program Office:

D. L. Noyes — 4/3/14 Date

Quarter Ending March 31, 2014 24590-LAW-PCN-ENV-13-004

Hanford Facility RCRA Permit Modification Notification Form	
Unit: **Waste Treatment and Immobilization Plant**	Permit Part: **Part III, Operating Unit 10**

Description of Modification:

The purpose of this Class 1 modification is to update General Arrangement Drawings for the Low-Activity Waste Facility at plan elevations (-)21'-0", 3'-0", 22'0", and 28'-0". The following drawings are submitted to replace those currently in Appendix 9.4 of the Dangerous Waste Permit:

Appendix 9.4			
Replace	24590-LAW-P1-P01T-00001, Rev 3 [1]	With	24590-LAW-P1-P01T-00001, Rev. 4
	24590-LAW-P1-P01T-00002, Rev 6 [2]		24590-LAW-P1-P01T-00002, Rev 7
	24590-LAW-P1-P01T-00003, Rev 4		24590-LAW-P1-P01T-00003, Rev. 5
	24590-LAW-P1-P01T-00004, Rev 4 [3]		24590-LAW-P1-P01T-00004, Rev. 5

Note. 1. Revision 3 was mistakenly removed from DWP Appendix 9.4 version 8C as noted in Table of Errata (CCN 179906)
2. Revision 6 is the current permitted version per 24590-LAW-PCN-ENV-12-002 approved by Ecology on 11/21/2012 (CCN 254085).
3. Revision 4 is the current permitted version per 24590-LAW-PCN-ENV-12-002 approved by Ecology on 11/21/2012.(CCN 254085)

This modification requests Ecology approval and incorporation into the permit, the specific changes identified by revision clouds and notes shown on the referenced drawings that have been issued since the last revision of the permitted drawings. Revisions are the result of ongoing design changes. The following identifies the changes made to the attached drawings:

24590-LAW-P1-P01T-00001

- Removed or relocated partition walls and doors
- Relocated south wall of L-B020A
- Added TOC callouts for clarity
- Revised Radiation/Contamination Classification for L-B028 from R3/C3 to R2/C2.
- Added/revised notes

24590-LAW-P1-P01T-00002

- Revised partition and fire walls
- Added horizontal coiling door in L-0102
- Revised Radiological/Contamination Classifications
- Added concrete pads for Carbon Dioxide Gas System equipment
- Added HVAC C2V-COND-00014A/B
- Minor revisions in addition to changes for clarity
- Added/revised notes

24590-LAW-P1-P01T-00003

- Revised partition walls
- Revised LAW Annex layout
- Added minor electrical equipment
- Minor revisions in addition to changes for clarity
- Added/revised notes
- Revised Radiological/Contamination Classifications

24590-LAW-P1-P01T-00004

- Revised partition walls and doors
- Added permanently mounted crossover walkway
- Revised equipment layouts
- Removed walls and coiling doors in Export Bay
- Minor revisions in addition to changes for clarity
- Added/revised notes

Quarter Ending March 31, 2014 24590-LAW-PCN-ENV-13-004

This permit change notification updates information in Appendix 9.4 to reflect current design. This Dangerous Waste Permit component may be re-evaluated to confirm design adequacy. If the re-evaluation results in future design changes, the changes will be reviewed by Ecology in subsequent permit modifications.

The following outstanding change documents (current as of 2/19/2014) have been submitted to Ecology pursuant to permit condition III.10,C.9.h and are maintained in the WTP Operating Record.

24590-LAW-P1-P01T-00001

- 24590-WTP-FC-C-13-0371, *LAW-L-B0011B North Gypsum End of Wall Clarification*, transmitted by CCN 261724 on 12/11/2013
- 24590-LAW-P1N-P01T-00070, *Relocation of LAW FCU's*, transmitted by CCN 261726 on 1/8/2014

24590-LAW-P1-P01T-00002

- 24590-LAW-P1N-P01T-00065, *Replace horizontal coiling door with floor infill*, transmitted by CCN 261718 on 10/30/2013
- 24590-LAW-P1N-P01T-00072, *Remove Cage From Ladder To Elevation 17 feet 6 inches in Export Bay*, transmitted by CCN 261726 on 1/8/2014

24590-LAW-P1-P01T-00004

- 24590-LAW-P1N-P23T-00131, *Revise equipment layout of L-0205 and relocate door*, transmitted by CCN 261723 on 12/4/2013
- 24590-LAW-P1N-P01T-00069, *Place C2V-ACU-00005/06 and C2V-COND-00005/06 on Hold*, transmitted by CCN 261726 on 1/8/2014
- 24590-LAW-P1N-P01T-00070, *Relocation of LAW FCU's*, transmitted by CCN 261726 on 1/8/2014
- 24590-LAW-P1N-P01T-00074, *Release C2V-COND-00001/02/03 From Hold*, transmitted by CCN 261731 on 2/12/2014

In accordance with permit condition III.10.C.2.e, this permit modification sent to Ecology may include page changes to the Permit, attachments, and permit application supporting documentation.

WAC 173-303-830 Modification Class:	Class 1	Class [1]1	Class 2	Class 3
Please mark the Modification Class:	X			

Enter relevant WAC 173-303-830, Appendix I Modification citation number: NA

Enter wording of WAC 173-303-830, Appendix I Modification citation:

A.3 General Permit Provisions, Equipment replacement or upgrading with functionally equivalent components (e.g., pipes, valves, pumps, conveyors, controls)

Modification Approved/Concur: ☑ Yes ☐ Denied (state reason below)

Reason for denial:

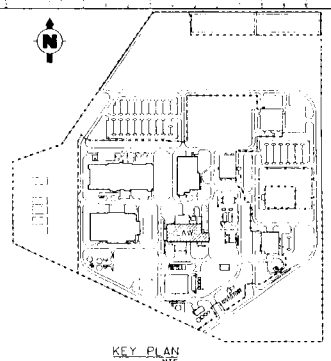
Reviewed by Ecology:

S. Dahl 4/23/14

S. Dahl Date

GENERAL NOTES:

1. SEE PLOT PLAN DRAWING 24590-BOF-P1-50-00001 FOR ADDITIONAL NOTES AND REFERENCES.
2. ALL OPERATING AREAS ARE DESIGNATED R2/C2 UNLESS NOTED OTHERWISE.
3. THE LOWER RADIATION ZONE DESIGNATION ASSUMES CONTAINER IS NOT PRESENT.
4. ALL SUB-CHANGE ROOMS ARE CLASSIFIED R2/C2 AND FUNCTION AS AN ENTRYWAY INTO CONTAMINATED AREAS FROM C2 CORRIDORS.
5. REFER TO DRAWING 24590-LAW-P1-P01T-00007, SECTION "A", FOR CONVERSIONS FROM LAW FACILITY ELEVATIONS TO SITE ELEVATIONS. LAW FACILITY ELEVATION 0'-0" EQUALS SITE ELEVATION 678'-0" MSL.
6. ITEMS NOT NORMALLY INSTALLED ARE SHOWN IN PLACE FOR REFERENCE. THESE INCLUDE POUR CAVE AND REWORK MSM'S AND HOISTS.
7. REMOVABLE HANDRAIL AND TOE PLATE TO BE FURNISHED BY CSA FOR ALL PERMANENT FLOOR HATCH OPENINGS IN ACCORDANCE WITH OSHA REQUIREMENTS FOR FALL PROTECTION.
8. DELETED



KEY PLAN
NTS

NOTES:

1. REFER TO DRAWING 24590-LAW-P1-P23T-01000 AND 01001 FOR EQUIPMENT IDENTIFICATION NUMBERS AND ROOM SCHEDULE.
2. CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
3. SEE REVISION 3 OF DRAWING FOR REVISION HISTORY.
4. THE RADIATION/CONTAMINATION CLASSIFICATIONS DEPICTED ON THE DRAWING ARE FOR DESIGN PURPOSES ONLY AND DO NOT NECESSARILY INDICATE THE ACTUAL RADIOLOGICAL CLASSIFICATION DURING RADIOACTIVE OPERATIONS.
5. ROOMS ARE OFFICIALLY IDENTIFIED BY ROOM NUMBERS ONLY. ROOM NUMBERS ARE ESTABLISHED AND CONTROLLED ON GENERAL ARRANGEMENT DRAWINGS ONLY. ROOM NUMBERS ARE NEEDED TO IDENTIFY ROOMS ON ENGINEERING DISCIPLINE DOCUMENTS, WHILE ROOM NUMBERS ARE CONTROLLED, THE MOST COMMON NAME OF ROOMS ASSOCIATED WITH EACH ROOM NUMBER ARE SHOWN FOR REFERENCE ONLY ON ARCHITECTURAL FLOOR PLANS.
6. FLOOR/LINER SLOPE IS REQUIRED IN ROOM L-B001B. SLOPE IS A MINIMUM OF 1% TOWARDS THE SUMP.
7. REVISED TO INCORPORATE THE FOLLOWING:

   24590-LAW-A1N-A1OT-00032: DELETED PARTITION WALL AND DOOR NEAR COLUMN LINE E.5/11 AND DOOR NEAR COLUMN L/7.

   24590-LAW-P1N-P01T-00059: ADDED NOTE 6.

   24590-LAW-P1N-P01T-00061: REVISED NOTE 4.

   24590-LAW-P1N-P01T-00064: RELOCATED C3V-FCU-00014/1B/39.

   24590-WTP-FC-C-08-0749: RELOCATED PARTITION WALL AND DOOR NEAR COLUMN LINE E.9/12.5.

   24590-WTP-FC-C-13-0064: REMOVED PARTITION WALL AND DOOR AT COLUMN E/12 IN ROOM LB009.

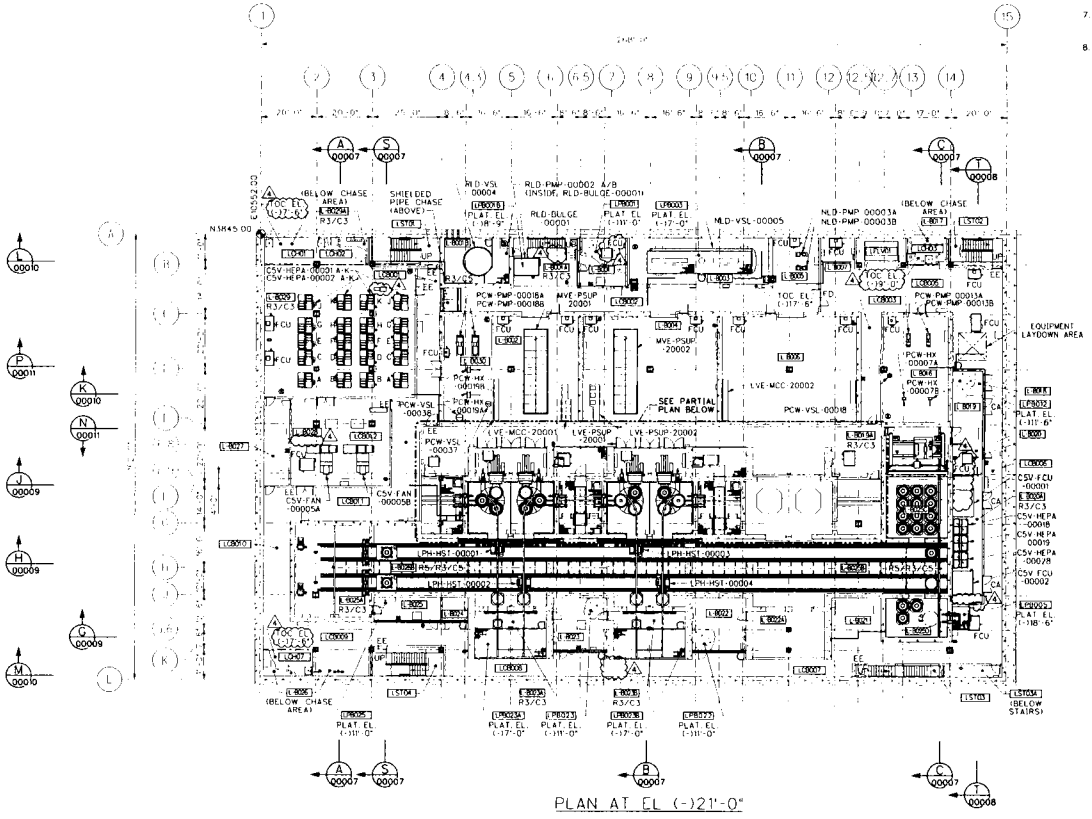
   RELOCATED SOUTH WALL OF L-B020A 1'-0" SOUTH.

   ADDED TOC CALLOUTS FOR CLARITY.

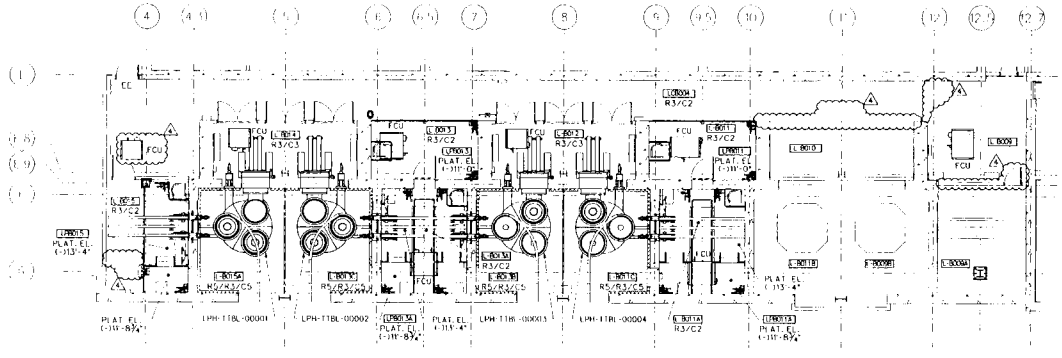
   REVISED RADIATION/CONTAMINATION CLASSIFICATION FOR L-B028 TO R2/C2 PER CCN 254517.

   REVISED ADR REVISION.

   ADDED NOTE 7. REVISED NOTE 3.



PLAN AT EL (-)21'-0"



PARTIAL PLAN AT POUR CAVES
SCALE: 1/8"=1'-0"

LEGEND:

CA	CONTROLLED ACCESS
EE	EMERGENCY EXIT
FCU	FAN COIL UNIT
FD	FIRE DOOR
MSL	MEAN SEA LEVEL
T.O.C.	TOP OF CONCRETE
L-BXXX	ROOM, CELL, (VAULT) OR TUNNEL
LCBXXX	CORRIDOR OR CONNECTING VESTIBULE
LMBXXX	MEZZANINE
LPBXXX	ROOM PLATFORM
LPCBXXX	CORRIDOR PLATFORM
LCHXX	CHASE
LSTXX	STAIR
LELVXX	ELEVATOR
(-)	SUMP
	EQUIPMENT LAYDOWN AREA
	CONCRETE
	CHECKERED PLATE
	GRATING
(+)	EMERGENCY EYEWASH
	LADDER
	LADDER W/CAGE
	CHASE ACCESS CEILING PANEL
(+)	EMERGENCY SHOWER/EYEWASH

REV	DESCRIPTION	ORG	CHKD	RVWD	APVD	DATE
4	INCORPORATED CHANGES IDENTIFIED IN NOTE 7					
3	INCORPORATED CHANGES IDENTIFIED IN NOTE 2					
2	INCORPORATED CHANGES IDENTIFIED IN NOTE 1					
0	ISSUED FOR CONSTRUCTION-SUBMITTES					
	DWG W/O N/A P1-000042, REV 0	JH	BM	N/A	SF	04 17 01

REVISION HISTORY

NIVEP PRETREATMENT PROJECT
WASTE TREATMENT PLANT
2435 STEVENS CENTER PLACE
RICHLAND, WA 99354

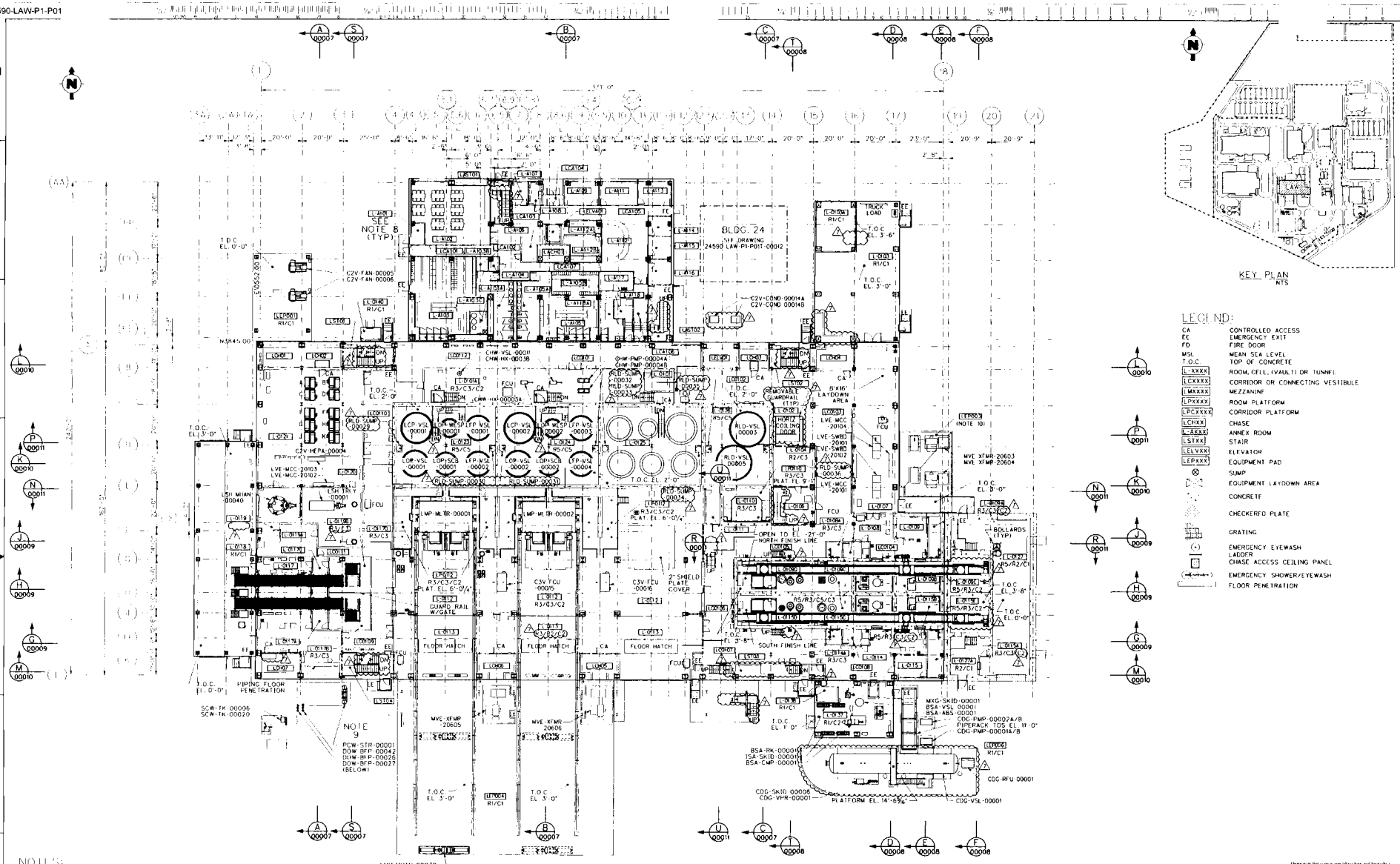
CONTRACT No. DE-AC27-01RV14136

LAW VITRIFICATION BUILDING GENERAL ARRANGEMENT PLAN AT EL. (-) 21'-0"

SCALE: 1/8"=1'-0"

24590-LAW-P1-P01T-00001

REV 4



PLAN AT EL 3'-0"

KEY PLAN
NTS

LEGEND:

CA	CONTROLLED ACCESS
EE	EMERGENCY EXIT
FD	FIRE DOOR
MSL	MEAN SEA LEVEL
T.O.C.	TOP OF CONCRETE
L-XXXX	ROOM, CELL, (VAULT) OR TUNNEL
LCXXXX	CORRIDOR OR CONNECTING VESTIBULE
LMXXXX	MEZZANINE
LPXXXX	ROOM PLATFORM
LPCXXXX	CORRIDOR PLATFORM
LCHXX	CHASE
L-AXXX	ANNEX ROOM
LSTXX	STAIR
LELXXX	ELEVATOR
LEPXXX	EQUIPMENT PAD
	SUMP
	EQUIPMENT LAYDOWN AREA
	CONCRETE
	CHECKERED PLATE
	GRATING
	EMERGENCY EYEWASH
	LADDER
	CHASE ACCESS CEILING PANEL
	EMERGENCY SHOWER/EYEWASH
	FLOOR PENETRATION

NOTES:

1. FOR GENERAL NOTES, SEE 24590-LAW-P1-P01T-00001.
2. CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
3. REFER TO DWG. 24590-LAW-P1-P01T-00003 22'-0" PLAN FOR ITEMS BELOW 28'-0" LEVEL AND NOT INDICATED ON THIS DRAWING.
4. REFER TO DRAWING 24590-LAW-P1-P23T-01002 AND 01003 FOR EQUIPMENT IDENTIFICATION NUMBERS.
5. DELETED
6. SEE REVISION 6 OF THIS DRAWING FOR REVISION HISTORY.
7. DELETED
8. LAW ANNEX ROOMS L-A117, A118, AND A118A ARE CLASSIFIED AS R2/C2. ALL REMAINING LAW ANNEX ROOMS ARE CLASSIFIED AS R1/C1.
9. REFER TO 24590-BOF-P1-50-00002 FOR CHILLED WATER BOOSTER PUMP LOCATION.
10. CONCRETE PAD LEP003 ASSOCIATED WITH MVE-XFMR-20603 AND MVE-XFMR-20604 WILL INCLUDE A CONTAINMENT CURB AND BE SLOPED TO A LOW POINT AT THE NORTHEAST CORNER OF THE SLAB. REFER TO CSA DRAWINGS FOR DETAILS.
11. THE RADIATION/CONTAMINATION CLASSIFICATIONS DEPICTED ON THE DRAWING ARE FOR DESIGN PURPOSES ONLY AND DO NOT NECESSARILY INDICATE THE ACTUAL RADIOLOGICAL CLASSIFICATION DURING RADIOACTIVE OPERATIONS.
12. ROOMS ARE OFFICIALLY IDENTIFIED BY ROOM NUMBERS ONLY. ROOM NUMBERS ARE ESTABLISHED AND CONTROLLED ON GENERAL ARRANGEMENT DRAWINGS. ONLY ROOM NUMBERS ARE NEEDED TO IDENTIFY ROOMS ON ENGINEERING DISCIPLINE DOCUMENTS, WHILE ROOM NUMBERS ARE CONTROLLED, THE MOST COMMON NAME OF ROOMS ASSOCIATED WITH EACH ROOM NUMBER ARE SHOWN FOR REFERENCE ONLY ON ARCHITECTURAL FLOOR PLANS.

13. REVISED TO INCORPORATE THE FOLLOWING:

24590-LAW-A1N-A10T-00077: REVISED PARTITION WALLS IN L-0103.

24590-LAW-P1N-P01T-00036: ADDED HORIZONTAL COILING DOOR IN L-0102.

24590 LAW P1N P01T 00061: REVISED NOTE 11.

24590-LAW-P1N-P01T-00066: REVISED NOTE 8.

REVISED RADIATION/CONTAMINATION CLASSIFICATIONS FOR L-0100A, L-0109B, L-0113, L-0115A, L-0150, L-0119 AND L-0119B, PER 24590-LAW-MAR-ENS-07-0001 AND E&NS RECOMMENDATIONS.

ADDED TAGS FOR RLD SUMPS.

ADDED CONCRETE PADS FOR CDG EQUIPMENT.

ADDED C2V-COND 00014A/B

REVISED FIRE BARRIER WALL AT BSA/FIRE RISER ROOM

RELOCATED GUARDRAIL IN LCH07 TO ACCOMMODATE DOOR LOCATION.

REMOVED GIRTS, CROSS-BRACING AND OVERHEAD BUILDING STEEL IN EXPORT BAY FOR CLARITY.

REMOVED TEMPORARY RAMPS IN TRUCK BAY.

REVISED STAIRS FOR CLARITY.

ADDED NOTE 13, REVISED NOTE 6, DELETED NOTE 7.

Please note that some equipment and hazardous materials, as defined in the Atomic Energy Act of 1954 (AEA), are regulated by the U.S. Department of Energy (DOE) in Orders issued to the DOE acting pursuant to the AEA authority. DOE asserts that pursuant to AEA, Atomic and nuclear weapons and authority to regulate source, special nuclear, and byproduct materials of DOE owned and/or facilities, but reserves, unless noted below, exclusive jurisdiction to promulgate rules, designations and purposes only.

REV	DESCRIPTION	DRG. CHKD	RVWD	APVD	DATE
7	REVISED TO INCORPORATE CHANGES IN NOTE 13	STC	JS	GC	8-29-11
6	REVISED TO INCORPORATE CHANGES IN NOTE 6	EMC	AFF	AH	PM	09/01/11
5	REVISED TO INCORPORATE CHANGES IN NOTE 6	TH	MA	JM	JG	04/23/07
4	ISSUED FOR DESIGN SUPERSEDES EAW-W375A-V PLCD043, REV. 0	BH	RM	N/A	GD	CT C3 C2

REVISION HISTORY

PROJECT NO. 24590
SITE HANFORD
AREA 200E
PROJECT NO. 29

BECHTEL

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
2435 STEVENS CENTER PLACE
RICHLAND, WA 99354

CONTRACT NO. DE-AC27-01RL14136

LAW VITRIFICATION BUILDING GENERAL ARRANGEMENT PLAN AT EL. 3'-0"

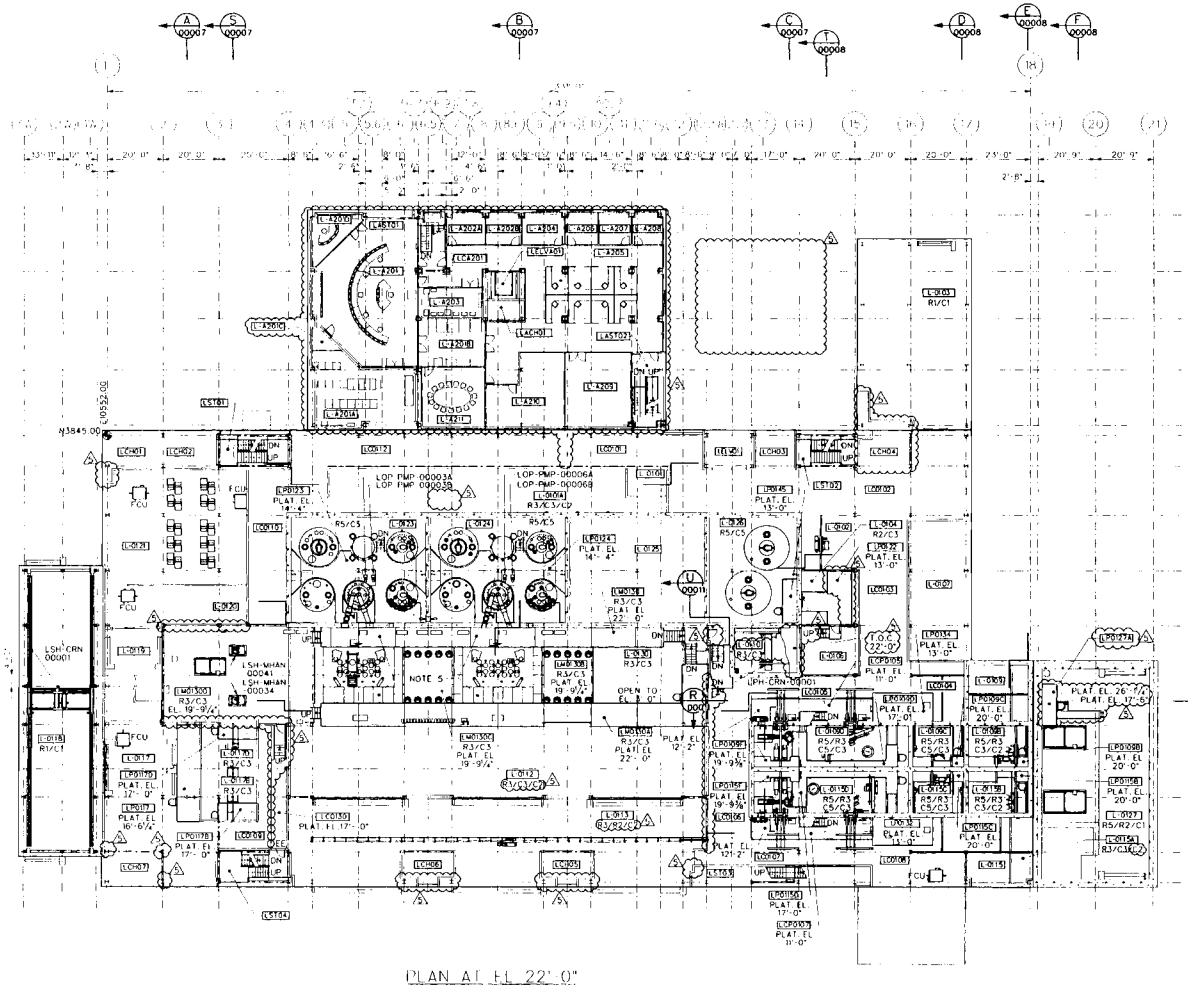
24590-LAW-P1-P01T-00002 — REV 7

SCALE: 1/4"=1'-0" — 24x36

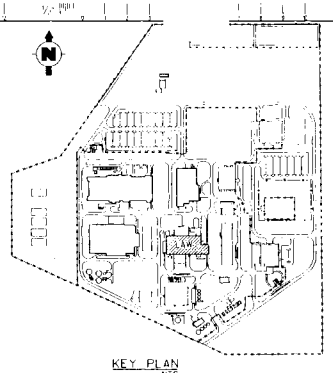
R1/610/R3

8-29-2011 11:14:49 AM

24590-LAW-P1-P01



PLAN AT EL 22'-0"



KEY PLAN
NTS

NOTES:

1. FOR GENERAL NOTES, SEE 24590-LAW-P1-P01T-00001.
2. CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING.
3. REFER TO DWG. 24590-LAW-P1-P01T-00002, FOR ITEMS BELOW 28'-0" LEVEL AND NOT INDICATED ON THIS DRAWING.
4. SEE REVISION 4 OF THIS DRAWING FOR REVISION HISTORY.
5. REMOVABLE DECK PLATE PROVIDES ACCESS FOR INSPECTION AND REMOVAL OF MELTER OFFGAS SPOOLS, MELTER FEED LINES AND MELTER DISCHARGE HEATERS. DO NOT PERMANENTLY INSTALL ANY EQUIPMENT IN THESE AREAS.
6. DELETED
7. ALL ANNEX ROOMS SHOWN ON THIS DRAWING ARE CLASSIFIED AS R1/C1.
8. ROOMS ARE OFFICIALLY IDENTIFIED BY ROOM NUMBERS ONLY. ROOM NUMBERS ARE ESTABLISHED AND CONTROLLED ON GENERAL ARRANGEMENT DRAWINGS. ONLY ROOM NUMBERS ARE NEEDED TO IDENTIFY ROOMS ON ENGINEERING DISCIPLINE DOCUMENTS. WHILE ROOM NUMBERS ARE CONTROLLED, THE MOST COMMON NAME OF ROOMS ASSOCIATED WITH EACH ROOM NUMBER ARE SHOWN FOR REFERENCE ONLY ON ARCHITECTURAL FLOOR PLANS.
9. REVISED TO INCORPORATE THE FOLLOWING:

   24590-LAW-A1N-A1OT-00034: REVISED PARTITION WALLS.

   24590-LAW-A1N-A1OT-00038: REVISED LELVA01.

   24590-LAW-P1N-P01T-00054: ADDED NOTE 8.

   24590-LAW-P1N-P01T-00056: ADDED LPD127A CAGE FOR LADDER TO 17'-6" SUBSEQUENTLY DELETED.

   24590-LAW-P1N-P01T-00067: REVISED LAW ANNEX LAYOUT.

   24590-LAW-P1N-P23T-00013: ADDED MINOR ELECTRICAL EQUIPMENT

   REVISED PLATFORM LPD122.

   RELOCATED FCU NEAR COLUMN LINE C/7 TO 3'-0" ELEVATION GENERAL ARRANGEMENT (24590-LAW-P1-P01T-00002).

   ADDED CEILING AT TGC 22'-0" FOR L-0110 AND ADDED ROOM LABEL WITH RAD/CON CLASSIFICATION.

   REVISED PARTITION WALLS.

   ADDED ROOM LABELS AND RAD/CON CLASSIFICATIONS (NOT CLOUDED).

   ADJUSTED CUT, REVISED DEPICTION OF STAIRS, REMOVED GIRTS/CROSS BRACING AND REMOVED ALTERNATE CRANE POSITIONS IN THE FINISH LINES FOR CLARITY (NOT CLOUDED).

   BLDG. 24 IS BELOW 22'-0" AND THEREFORE, WILL NOT BE REFERENCED.

   UPDATED LEGEND. REVISED ADR.

   ADDED NOTES 7 AND 9. REVISED NOTES 3 AND 4.

LEGEND:

FCU	FAN COIL UNIT
L-XXXX	ROOM CELL (VAULT OR TUNNEL)
LCXXXX	CORRIDOR OR CONNECTING VESTIBULE
LMXXXX	MEZZANINE
LPXXXX	ROOM PLATFORM
LCPXXXX	CORRIDOR PLATFORM
L-AXXX	ANNEX
LCAXXX	ANNEX CORRIDOR
LASTXX	ANNEX STAIR
	CONCRETE
	CHECKERED PLATE
	GRATING
	LADDER
	LADDER W/CAGE

REV	DESCRIPTION	ORIG	CHKD	REVWD	APVD	DATE
5	REVISED TO INCORPORATE CHANGES IN NOTE 9	DLL	CWS	PR	ORJ	12/19/03
4	REVISED TO INCORPORATE CHANGES IN NOTE 4	DLL	CWS	PR	RK	2.8.03
3	REVISED TO INCORPORATE CHANGES IN NOTE 4	DLL	CWS	PR	RK	2.8.03
0	ISSUED FOR DESIGN SUPERVISEES DWG #17/24 X PLUM044, REV 0	MG	HM	CJM	MM	11.15.02

REVISION HISTORY

ISSUED BY REPORT DOC	PROJECT No. 24590		
	SITE HANFORD		
	AREA 200E		
ISSUE STAMP	BUILDING No. 26		
ORIGINATOR	ORJ, L. MARK		10.16.02
CHECKER	MOLSON-KEEN, ROBERT		10.16.02
APPROVER	MYATT, MARK		10.16.02
REVIEWER	WANDLER, CLIFFORD		11.13.02

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
2435 STEVENS CENTER PLACE
RICHLAND, WA 99354

CONTRACT No. DE-AC27-01RL14136

LAW VITRIFICATION BUILDING GENERAL ARRANGEMENT PLAN AT EL. 22'-0"

SCALE 1/4"=1'-0" | 24590-LAW-P1-P01T-00003 | REV 5

CONFORM TO REQUIRED FOR DRAWING TYPES IDENTIFIED IN 24590-WTP-MP-MS-002

CONTROL 44x34 COMPUTER GENERATED MANUAL DESIGN CHANGES NOT ALLOWED

R11626232

Prime contractor, special contractor, and beneficiary materials are defined in the Atomic Energy Act of 1954 (AEA) or regulated under U.S. Department of Energy (DOE) facilities authorized by DOE acting pursuant to the AEA authority. DOE asserts that pursuant to AEA, it has sole and exclusive responsibility and authority to regulate nuclear, special nuclear, and byproduct materials at DOE-owned nuclear facilities. Information contained herein or such nuclear materials is provided for general design purposes only.

24590-LAW-P1-P01

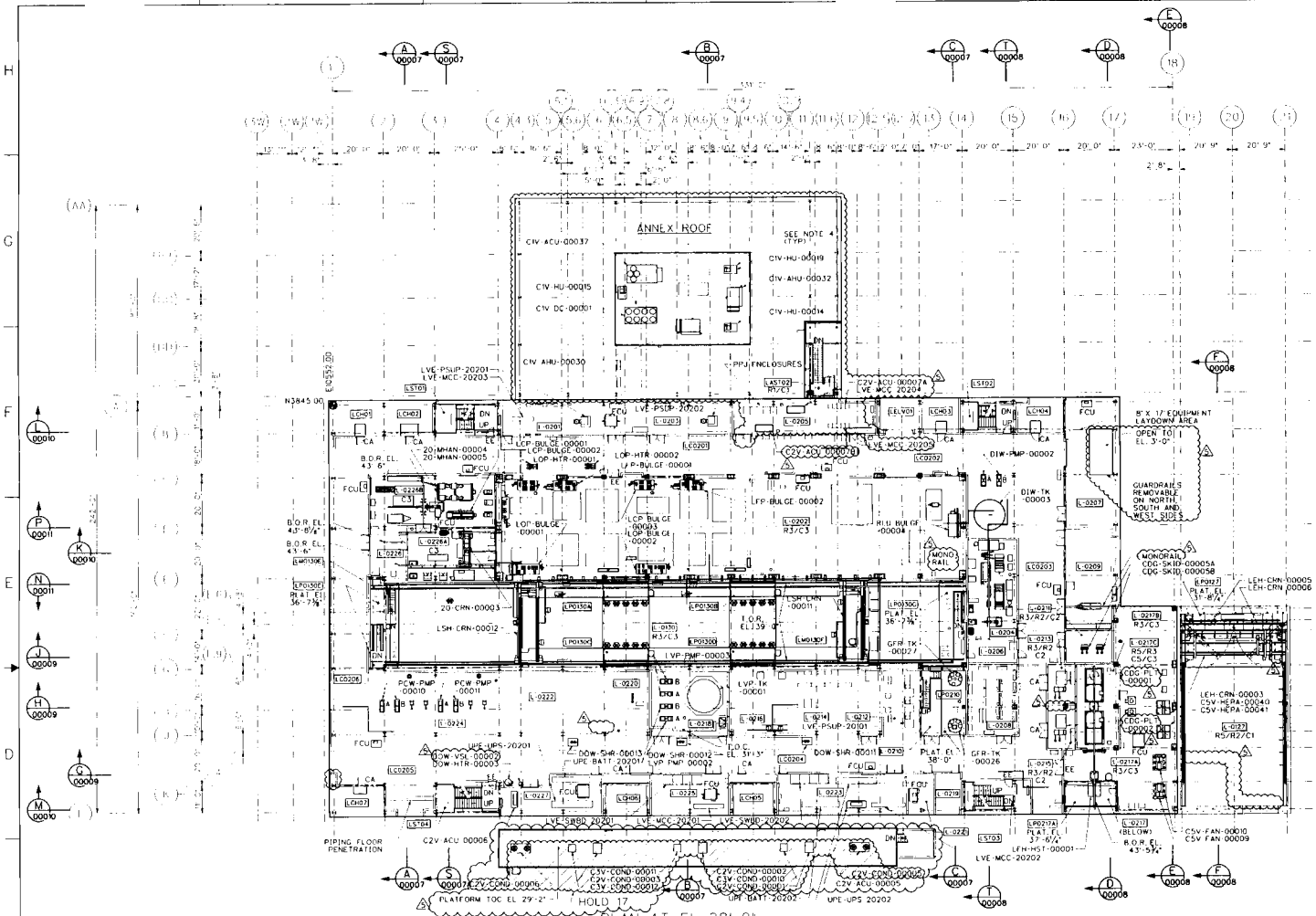

ANNEX ROOF
C1V ACU-00037
C1V HU-00015
C1V DC-00001
C1V AHU-00030
C1V HU-00019
C1V AHU-00032
C1V HU-00014
SEE NOTE 4 (TYP)
PPJ ENCLOSURES
LVE-PSUP-20201
LVE-MCC-20203
LVE-PSUP-20202
LVE-MCC-20205
C2V ACU-00007A
LVE-MCC-20204
8' X 17' EQUIPMENT LAYDOWN AREA
OPEN TO EL. 3'-0"
GUARDRAILS REMOVABLE ON NORTH, SOUTH AND WEST SIDES
MONORAIL CDG-SKID-00005A
CDG-SKID-00005B
LEH-CRN-00005
LEH-CRN-00006
LEH-CRN-00003
C5V-HEPA-00040
C5V-HEPA-00041
C5V-FAN-00010
C5V-FAN-00009
LEH-HST-00001
LVE-MCC-20202
C2V ACU 00006
PIPING FLOOR PENETRATION
C3V-COND-00001
C2V-COND-00002
C3V-COND-00003
C2V-COND-00004
C2V-ACU-00005
C2V-COND-00006
UPE-BATT-20202
UPE-UPS-20202
PLATFORM TOC EL 29'-2"
HOLD 17
LVE-SWBD-20201
LVE-MCC-20201
LVE-SWBD-20202
DOW-VSL-00009
DOW-HTR-00003
UPE-UPS-20201
DOW-SHR-00013
UPE-BATT-20201
DOW-SHR-00012
LVP-PMP-00002
DOW-SHR-00011
LVP-TK-00001
LVP-PMP-00003
LSH-CRN-00012
20-CRN-00003
PCW-PMP-00010
PCW-PMP-00011
LCP-BULGE-00001
LCP-BULGE-00002
LOP-HTR-00001
LOP-HTR-00002
LVP-BULGE-00004
LOP-BULGE-00001
LCP-BULGE-00003
LOP-BULGE-00002
LFP-BULGE-00002
RIU-BULGE-00004
DIW-PMP-00002
DIW-TK-00003
20-MHAN-00004
20-MHAN-00005
B.O.R. EL. 43'-6"
B.O.R. EL. 43'-6"
B.O.R. EL. 43'-6"
PLAT. EL. 36'-7¾"
T.O.R. EL. 39'-0"
GFR-TK-00027
GFR-TK-00026
PLAT. EL. 38'-0"
PLAT. EL. 37'-6½"
PLAT. EL. 31'-8¼"
B.O.R. EL. 43'-5¼"
(BELOW)
MONO-RAIL
CDG-PL-00001
CDG-PL-00002
R5/R2/C1
R5/R3/C5/C3
R3/C3
R3/R2/C2
R3/R2/C1
R3/R2/C2
R3/R2/C2
R3/R2/C2

Table III.10.E.B – LAW Vitrification Plant Tank Systems Description

Dangerous and/or Mixed Waste Tank Systems Name	Unit Designation	Engineering Description (Drawing Nos, Specification Nos, etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
LAW Concentrate Receipt Process System LCP-VSL-00001 (LAW Melter 1 Concentrate Receipt Vessel) LCP-VSL-00002 (LAW Melter 2 Concentrate Receipt Vessel)	LCP	**24590-LAW** -M5-V17T-P0001, Rev 0 -M5-V17T-P0002, Rev 0 -M6-LCP-00001002, Rev 0 -M6-LCP-00001003, Rev 0 -M6-LCP-00002003, Rev 0 -M6-LCP-00002004, Rev 0 -MV-LCP-P0001, Rev 0 -MV-LCP-P0002, Rev 0 -MVD-LCP-P0004, Rev 1 -MVD-LCP-P0005, Rev 1 -N1D-LCP-P0001, Rev 1 -P1-P01T-00002, Rev ~~5~~7 -P1-P01T-00011, Rev 6	Section 4.1.3.1; Tables 4-3 and 4-6; and Figures C1-1 and C1-3 of Operating Unit Group 10, Addendum C of this Permit.	LCP-VSL-00001 = 18,130 LCP-VSL-00002 = 18,130
LAW Melter Feed Process System LFP-VSL-00001 (Melter 1 Feed Preparation Vessel) LFP-VSL-00002 (Melter 1 Feed Vessel) LFP-VSL-00003 (Melter 2 Feed Preparation Vessel) LFP-VSL-00004 (Melter 2 Feed Vessel)	LFP	**24590-LAW** -M5-V17T-P0001, Rev 0 -M5-V17T-P0002, Rev 0 - -M6-LFP-00001001, Rev 0 -M6-LFP-00001002, Rev 0 -M6-LFP-00001003, Rev 0 -M6-LFP-00001004, Rev 0 -M6-LFP-00001005, Rev 0 -M6-LFP-00001006, Rev 0 -M6-LFP-00003001, Rev 0 -M6-LFP-00003002, Rev 0 -M6-LFP-00003003, Rev 0 -M6-LFP-00003004, Rev 0 -M6-LFP-00003005, Rev 0	Section 4.1.3.1; Tables 4-3 and 4-6; and Figures C1-1 and C1-3 of Operating Unit Group 10, Addendum C of this Permit.	LFP-VSL-00001 = 9,123 LFP-VSL-00002 = 9,123 LFP-VSL-00003 = 9,123 LFP-VSL-00004 = 9,123

Table III.10.E.B – LAW Vitrification Plant Tank Systems Description

Dangerous and/or Mixed Waste Tank Systems Name	Unit Designation	Engineering Description (Drawing Nos, Specification Nos, etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
		-M6-LFP-00003006, Rev 0 -MV-LFP-P0001, Rev 0 -MV-LFP-P0002, Rev 0 -MV-LFP-P0004, Rev 0 -MV-LFP-P0005, Rev 0 -MVD-LFP-P0007, Rev 1 -MVD-LFP-P0008, Rev 1 -MVD-LFP-P0010, Rev 1 -MVD-LFP-P0011, Rev 1 -P1-P01T-00002, Rev ~~5~~7 -N1D-LFP-00004, Rev 2 -N1D-LFP-00006, Rev 0		
LAW Secondary Off-gas/Vessel Vent Process System LVP-TK-00001 (LAW Caustic Collection Tank)	LVP	**24590-LAW** -M5-V17T-P0011, Rev 1 -P1-P01T-00004, Rev ~~3~~5 - -MT-LVP-00004, Rev 1 -MTD-LVP-P0001, Rev 0 -N1D-LVP-00002, Rev 2	Section 4.1.3.3; Tables 4-3 and 4-6; and Figures C1-1 and C1-3 of Operating Unit Group 10, Addendum C of this Permit.	LVP-TK-00001= 14,232
LAW Primary Off-gas Process System LOP-VSL-00001 (LAW Melter 1 SBS Condensate Vessel) LOP-VSL-00002 (LAW Melter 2 SBS Condensate Vessel)	LOP	**24590-LAW** -M5-V17T-P0007, Rev 0 -M5-V17T-P0008, Rev 0 -M6-LOP-P0001, Rev 2 -M6-LOP-P0002, Rev2 -MV-LOP-P0001, Rev 0 -MV-LOP-P0002, Rev 0 -MVD-LOP-P0004, Rev 1 -MVD-LOP-P0005, Rev 1 -N1D-LOP-00002, Rev 3	Section 4.1.3.3; Tables 4-3 and 4-6; and Figures C1-1 and C1-3 of Operating Unit Group 10, Addendum C of this Permit.	LOP-VSL-00001 = 9,056 LOP-VSL-00002 = 9,056

Table III.10.E.B – LAW Vitrification Plant Tank Systems Description

Dangerous and/or Mixed Waste Tank Systems Name	Unit Designation	Engineering Description (Drawing Nos, Specification Nos, etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
		-P1-P01T-00002, Rev ~~57~~ -		
LAW Vitrification Plant Radioactive Liquid Waste Disposal System RLD-VSL-00003 (Plant Wash Vessel) RLD-VSL-00004 (C3/C5 Drains/Sump Collection Vessel) RLD-VSL-00005 (SBS Condensate Collection Vessel)	RLD	**24590-LAW** -M5-V17T-P0014, Rev 2 -M6-RLD-00001001, Rev 0 -M6-RLD-00001002, Rev 0 -M6-RLD-00001003, Rev 0 -M6-RLD-00001004, Rev 0 -M6-RLD-00001005, Rev 0 -M6-RLD-00001006, Rev 0 -M6-RLD-00002001, Rev 0 -M6-RLD-00002002, Rev 0 -M6-RLD-00002003, Rev 0 -M6-RLD-00002004, Rev 0 -M6-RLD-00002005, Rev 0 -M6-RLD-00003001, Rev 0 -M6-RLD-00003002, Rev 0 -M6-RLD-00003003, Rev 0 -MVD-RLD-P0001, Rev 1 -MVD-RLD-P0006, Rev 2 -MVD-RLD-P0007, Rev 2 -MV-RLD-P0001, Rev 2 -MV-RLD-P0002, Rev 1 -MV-RLD-P0003, Rev 1 -P1-P01T-00001, Rev ~~34~~ -P1-P01T-00002, Rev ~~57~~ - -N1D-RLD-00001, Rev 5 -N1D-RLD-00002, Rev 3 -N1D-RLD-00005, Rev 4	Section 4.1.3.4; Tables 4-3 and 4-6; and Figures C1-1 and C1-3 of Operating Unit Group 10, Addendum C of this Permit.	RLD-VSL-00003 = 25,780 RLD-VSL-00004 = 7696 RLD-VSL-00005 = 25,780

Table III.10.E.K - LAW Vitrification Plant Tank Systems Primary[a] Containment Sump Systems

Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions[b] (feet) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)
RESERVED	RESERVED	RESERVED	RESERVED

Footnotes:
[a] Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in WAC-173-303-640.
[b]Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).

Table III.10.E.L - LAW Vitrification Plant Tank Systems Secondary Containment Systems, Including Sumps, Bulges, Autosamplers, and Floor Drains

Sump or Drain Line I.D.# & Room Location	Maximum Sump (gallons) or Drain Line (gallons per minute) Capacity	Sump Type/Nominal Operating Volume (gallons)	Sump or Drain Line Dimensions[a] (inches) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)
RLD-SUMP-00028 L-B001B (C3/C5 Drains/Sump Collection Vessel Cell, El. –21')	59	Dry Sump	24" Dia. By 30" deep Stainless Steel (6% Mo)	**24590-LAW** ~~-M6-RLD-00002001, Rev 0~~ ~~-M6-RLD-00002002, Rev 0~~ ~~-M6-RLD-00002003, Rev 0~~ ~~-M6-RLD-00002004, Rev 0~~ -M6-RLD-00002005, Rev 0 -P1-P01T-00001, Rev ~~3~~4
RLD-SUMP-00029 L-0123 (Process Cell, El. +3'	3~~0~~7	Dry Sump	30" Dia. By 12" deep Stainless Steel (6% Mo)	**24590-LAW** ~~-M6-RLD-00003001, Rev 0~~ -M6-RLD-00003002, Rev 0 ~~-M6-RLD-00003003, Rev 0~~

Table III.10.E.L - LAW Vitrification Plant Tank Systems Secondary Containment Systems, Including Sumps, Bulges, Autosamplers, and Floor Drains

Sump or Drain Line I.D.# & Room Location	Maximum Sump (gallons) or Drain Line (gallons per minute) Capacity	Sump Type/Nominal Operating Volume (gallons)	Sump or Drain Line Dimensions[a] (inches) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)
				-P1-P01T-00002, Rev ~~6~~~~5~~7
RLD-SUMP-00030 L-0123 (Process Cell, El. +3')	3~~0~~7	Dry Sump	30" Dia. By 12" deep Stainless Steel (6% Mo)	**24590-LAW** ~~-M6-RLD-00003001, Rev 0~~ -M6-RLD-00003002, Rev 0 ~~-M6-RLD-00003003, Rev 0~~ -P1-P01T-00002, Rev ~~6~~~~5~~7
RLD-SUMP-00031 L-0124 Process Cell Sump, El. +3')	3~~0~~7	Dry Sump	30" Dia. By 12" deep Stainless Steel (6% Mo)	**24590-LAW** ~~-M6-RLD-00003001, Rev 0~~ -M6-RLD-00003002, Rev 0 ~~-M6-RLD-00003003, Rev 0~~ -P1-P01T-00002, Rev ~~5~~~~6~~7
RLD-SUMP-00032 L-0124 (Process Cell, El. +3')	3~~0~~7	Dry Sump	30" Dia. By 12" deep Stainless Steel (6% Mo)	**24590-LAW** ~~-M6-RLD-00003001, Rev 0~~ -M6-RLD-00003002, Rev 0 ~~-M6-RLD-00003003, Rev 0~~ -P1-P01T-00002, Rev ~~6~~7
RLD-SUMP-00035 L-0126 (Effluent Cell, El. +3')	3~~0~~7	Dry Sump	30" Dia. By 12" deep Stainless Steel (6% Mo)	**24590-LAW** ~~-M6-RLD-00003001, Rev 0~~ ~~-M6-RLD-00003002, Rev 0~~ -M6-RLD-00003003, Rev 0 -P1-P01T-00002, Rev ~~5~~~~6~~7

Table III.10.E.L - LAW Vitrification Plant Tank Systems Secondary Containment Systems, Including Sumps, Bulges, Autosamplers, and Floor Drains

Sump or Drain Line I.D.# & Room Location	Maximum Sump (gallons) or Drain Line (gallons per minute) Capacity	Sump Type/Nominal Operating Volume (gallons)	Sump or Drain Line Dimensions[a] (inches) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)
RLD-SUMP-00036 L-0126 (Effluent Cell, El. +3')	3~~0~~7	Dry Sump	30" Dia. By 12" deep Stainless Steel (6% Mo)	**24590-LAW** ~~-M6-RLD-00003001, Rev 0~~ ~~-M6-RLD-00003002, Rev 0~~ -M6-RLD-00003003, Rev 0 -P1-P01T-00002, Rev ~~5~~67
Drain Line ID# = RLD-FD-00001 L-B001B (RLD-BULGE-00001 Drain, El. -21')	N/A	N/A	2" Dia. 316L	**24590-LAW** ~~-M6-RLD-00002001, Rev 0~~ ~~-M6-RLD-00002002, Rev 0~~ -M6-RLD-00002003, Rev 0 ~~-M6-RLD-00002004, Rev 0~~ ~~-M6-RLD-00002005, Rev 0~~
Drain Line ID# = RLD-FD-00035 L-0126 (RLD-BULGE-0000-4 Drain El. +3')	N/A	N/A	2" Dia. 6 % Mo	**24590-LAW** ~~-M6-RLD-00001001, Rev 0~~ ~~-M6-RLD-00001002, Rev 0~~ ~~-M6-RLD-00001003, Rev 0~~ ~~-M6-RLD-00001004, Rev 0~~ -M6-RLD-00001005, Rev 0 ~~-M6-RLD-00001006, Rev 0~~
Drain Line ID# = LOF-FD-00001 L-0123 (LOP-BULGE-00001 drain El. +3)	N/A	N/A	2" Dia. 6 % Mo	**24590-LAW** -M6-LOP-~~P~~00001003, Rev ~~2~~0
Drain Line ID# = LCP-FD-00001 L-0123 (LCP-BULGE-00001 Drain, El. +3')	N/A	N/A	2" Dia. 316L	**24590-LAW** -M6-LCP-00001001, Rev 0

Table III.10.H.A - LAW Plant Miscellaneous Unit System Description

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables and Figures
LAW Melter Process System LMP-MLTR-00001 (LAW Melter 1) LMP-MLTR-00002 (LAW Melter 2)	LMP	**24590-LAW** -P1-P01T-00002, Rev ~~5~~7 -P1-P01T-00003, Rev 5	Section 4.1.3.2, Table C-8, and Figures C1-1, C1-3 and C1-21 in Operating Unit Group 10, Addendum C of this Permit.
LAW Primary Offgas Process System LOP-FCLR-00001 (Melter 1 Primary Film Cooler) LOP-FCLR-00002 (Melter 1Standby Film Cooler No. 2) LOP-FCLR-00003 (Melter 2 Primary Film Cooler) LOP-FCLR-00004 (Melter 2 Standby Film Cooler)	LOP	**24590-LAW** -P1-P01T-00002, Rev ~~5~~7 -M6-LOP-P0001, Rev 2 -M6-LOP-P0002, Rev 2 -P1-P01T-00003, Rev 5	Section 4.1.3.3, Table C-8, and Figures C1-1, C1-3 and C1-21 in Operating Unit Group 10, Addendum C of this Permit.
LAW Primary Offgas Process System (Cont.) LOP-SCB-00001 (Melter 1 Submerged Bed Scrubber) LOP-SCB-00002 (Melter 2 Submergered Bed Scrubber)	LOP	**24590-LAW** -M5-V17T-P0007, Rev 0 -M5-V17T-P0008, Rev 0 -M6-LOP-P0001, Rev 2 -M6-LOP-P0002, Rev 2 -MK-LOP-P0001001, Rev 0 -MK-LOP-P0001002, Rev 0 -MK-LOP-P0001003, Rev 0	Section 4.1.3.3, Table C-8, and Figures C1-1 and C1-3 in Operating Unit Group 10, Addendum C of this Permit.