2.0 Compliance Summary

JR Draper

For the protection of human health and the environment through safe operations, the Hanford Site has compliance programs designed to meet federal, state, and local environmental laws, regulations, and requirements and comply with the U.S. Department of Energy (DOE) orders, notices, directives, policies, and guidance (see Section 2.9). These measures include specific requirements, actions, plans, and schedules identified in the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement [TPA]) (Ecology et al. 1989a) and other compliance or consent agreements. The U.S. Department of Energy, Richland Operations Office (DOE-RL) and Office of River Protection (DOE-ORP) recognize the importance of maintaining a proactive program of self-assessment and regulatory reporting to ensure that environmental compliance is achieved and maintained at the Hanford Site. This report fulfills reporting requirements for the annual compliance status under the environmental standards specified in DOE O 231.1B, Chg 1, *Environmental, Safety and Health Reporting*. The Order addresses DOE/National Nuclear Security Administration receiving timely, accurate information about events that have affected or could adversely affect the health, safety, and security of the public or workers, the environment, the operations of DOE facilities, or the credibility of DOE.

Section 2.0 summarizes the laws and regulations that govern Hanford Site activities with regard to federal environmental protection statutes and associated state and local environmental regulations. This section discusses both permits required under specific environmental protection regulations and the U.S. Environmental Protection Agency (EPA) or Washington State Department of Ecology (Ecology)-issued notices of violation or non-compliance. Notices of violation are the regulatory means of informing organizations that their work activities are not meeting requirements; notices of non-compliance are informal notifications of regulatory violations.

2.1 Hazardous Materials and Waste Management Statutes and Regulations

This section provides compliance information regarding federal environmental statutes and regulations related to hazardous materials and waste management at the Hanford Site.

2.1.1 Federal Facility Compliance Act of 1992

SW Davis, SL Brasher

Enacted by Congress on October 6, 1992, the *Federal Facility Compliance Act of 1992* (Public Law 102-386) amends Section 6001 of the *Resource Conservation and Recovery Act of 1976* (RCRA) to specify that the U.S. waives sovereign immunity from civil and administrative fines and penalties for RCRA violations. In addition, the RCRA requires EPA to conduct annual inspections of all federal facilities. Authorized states are given authority to conduct inspections of federal facilities to enforce compliance with state hazardous waste programs. A portion of Public Law 102-386 also requires DOE to provide mixed waste information to EPA and the states. DOE provides this information annually as part of the Hanford Site Mixed Waste Land Disposal Restrictions Summary Reports pursuant to TPA Milestone M-026-01. In 2016, *Calendar Year 2015 Hanford Site Mixed Waste Land Disposal Restrictions Summary Report* (DOE/RL-2016-08) met the reporting requirement.

2.1.2 Resource Conservation and Recovery Act of 1976

DI Weyns

Congress enacted RCRA in 1976 to protect human health and the environment. In 1984, the *Hazardous and Solid Waste Amendments* (Public Law 98-616) reauthorized RCRA, imposing new requirements on hazardous waste management. RCRA's central principle is to establish cradle-to-grave management to track hazardous waste from its generation to treatment, storage, and disposal (TSD). The Hanford Site dangerous waste activities are subject to applicable provisions of WAC 173-303, "Dangerous Waste Regulations," including provisions in the WAC chapter as applied in the TPA.

2.1.2.1 Hanford Facility RCRA Permit

JK Perry

EPA assigned the Hanford Site a single EPA identification number for permitting purposes (WA7890008967); as such, the Hanford Site is a single RCRA facility, though there are numerous TSD units spread over large geographic areas. The permit is issued to the following seven permittees:

- DOE-RL and DOE-ORP as the owners/operators
- Five of DOE's contractors
  - Bechtel National, Inc.
  - CH2M Plateau Remediation Company (CHPRC)
  - Mission Support Alliance, LLC (MSA); the permit identifies MSA as a permittee but not a co-operator
  - Pacific Northwest National Laboratory
  - Washington River Protection Solutions, LLC (WRPS).

Washington state dangerous waste regulations (WAC 173-303) require Ecology to reissue a permit after a term of up to 10 years. The initial permit was issued on September 27, 1994, for a 10-year term. DOE submitted a permit renewal application on March 30, 2004. The permit expired on September 27, 2004; since that time, Ecology has been endeavoring to prepare and issue a new permit. Until a new permit is issued, DOE continues to operate under the expired permit *Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste* (Hanford Facility Dangerous Waste Permit; Ecology 1994).

In May 2012, Ecology issued a draft renewal permit (Ecology 2012). Ecology received more than 4,000 comments on the draft renewal permit during the comment period held from May 1 to October 22, 2012. Ecology received approximately 1,800 comments from the public and 3,000 comments from the DOE. Issues raised during the comment period identified substantial new questions; as a result, Ecology plans to make revisions and reopen the public comment period for the draft renewal permit. Ecology expects this process to take several years. The process will include the following activities:

- Review and evaluate the comments received from the first comment period

- Revise the permit based on significant information and issues raised
- Re-issue the permit with revisions and responses to the original comments
- Reopen the comment period for sections that were changed
- Prepare responses to the next round of public comments
- Issue the final permit.

Ecology has completed activities associated with the first bullet above. Activities associated with the second bullet are underway.

During 2016, permit modifications were processed to change requirements for the following TSD units pursuant to WAC 173-303-830, "Permit Changes":

- Liquid Effluent Retention Facility and 200 Areas Effluent Treatment Facility (Operating Unit Group 3)
- 242-A Evaporator (Operating Unit Group 4)
- 325 Hazardous Waste Treatment Unit (Operating Unit Group 5)
- Hanford Tank Waste Treatment and Immobilization Plant (WTP) (Operating Unit 10)
- Integrated Disposal Facility (IDF; Operating Unit 11)
- 400 Area Waste Management Unit (Operating Unit Group 16)
- 207-A South Retention Basins
- 225B Waste Encapsulation and Storage Facility
- Low-level burial grounds.

2.1.2.2 Regulatory Agency Inspections

JW Cammann

The Regulatory Agency Inspection Database includes documentation for regulatory agency inspections of DOE facilities on the Hanford Site managed by the DOE-RL, DOE-ORP, and Pacific Northwest Site Office (DOE-PNSO). Regulatory agency inspections can result in noncompliance or enforcement actions for alleged violations of applicable federal, state, and local laws and regulations. As such, the Regulatory Agency Inspection Database links to the Environmental Action Tracking System. The Environmental Action Tracking System documents alleged regulatory noncompliance and enforcement actions and their status for the Hanford Site (see Section 2.9).

During calendar year (CY) 2016, 80 regulatory agency inspections were conducted at DOE facilities on the Hanford Site: Ecology - 39, WDOH- 33, EPA - 2, the City of Richland - 1, and DOE - 5.

Ecology inspections were conducted by the Nuclear Waste Program Office located in Richland, Washington. EPA Region 10 inspections focused on air quality at the 618-10 Burial Ground and PUREX pathways 1 and 8 including oversight of Ecology and WDOH inspections under EPA-delegated authority. WDOH inspections were performed primarily by the Office of Radiation Protection, Richland, Washington. The WDOH Office of Drinking Water in Spokane, Washington, also performed a sanitary survey of the 300 and 400 Area drinking water systems. The City of Richland inspection focused on the 300 Area of the Hanford Site to evaluate compliance with Industrial Wastewater Discharge Permit (CR-IU-010) requirements, including the monitoring of wastewater discharges to the publicly owned treatment works. DOE-RL, DOE-ORP, and DOE-PNSO facility inspections are performed in accordance with the terms and conditions of the Air Operating Permit, Radioactive Air Emissions License, Wastewater Discharge Permits and RCRA permit. Inspections are supported by the Hanford Site contractors responsible for the facilities being inspected.

Regulatory agency inspections can result in alleged violations of regulations and other concerns. If deemed appropriate, regulatory agencies may initiate a variety of enforcement and compliance actions, which are discussed further in Section 2.9.

RCRA Inspections. The Ecology inspections focused on TSD unit compliance with the Hanford Facility Dangerous Waste Permit (Ecology 1994) and WAC 173-303. The TSD units and other facilities inspected during 2016 included the following:

- 200 Areas Effluent Treatment Facility
- Waste Encapsulation Storage Facility
- 222-S Laboratory
- 400 Area Waste Management Unit
- 207-A Retention Basin
- 242-A Evaporator
- 325 Building
- 204-AR Waste Unloading Facility
- B-Plant
- Liquid Effluent Retention Facility
- 600 Area Fuel Station
- Hexone Storage and Treatment Facility
- Central Waste Complex
- Low-level Burial Grounds Trenches 31 and 34
- Plutonium Finishing Plant
- Plutonium Uranium Extraction Facility (PUREX)/PUREX Storage Tunnel
- Double-shell tank and single-shell-tank tank farms
- T-Plant
- Waste Receiving and Processing Facility
- 90-day accumulation areas
- Satellite accumulation areas
- Universal waste management operations.
- Nonradioactive Dangerous Waste Landfill
- Groundwater Monitoring Network Wells
- 100-DR Cocooned Reactor
- Low-level Burial Grounds Green Islands.

Section II.O of the RCRA permit addresses general inspection requirements required in accordance with WAC 173-303-320. General inspections are conducted in addition to the TSD unit inspections specified in Parts III, V, and VI of the RCRA permit. The RCRA permit requires general inspections of the 100, 200-East, 200-West, 300, and 400 Areas and the Columbia River shoreline. Inspections are performed annually in these areas by DOE-RL and Hanford contractors to identify and correct potential malfunctions, deterioration, operator errors, and discharges that may cause or lead to the release of dangerous waste constituents to the environment or that threaten human health. In accordance with RCRA permit requirements, Ecology is notified of the general inspections at least 7 days in advance to allow their participation. RCRA permit general inspection summary reports are maintained in the Hanford Facility Operating Record and Regulatory Agency Inspection Database.

Clean Air Act Inspections

JW Cammann and CJ Perkins

In 2016, the WDOH inspections focused on compliance of major and minor stack air emission units as well as diffuse and fugitive emission sources, with the Hanford Site Air Operating Permit and Radioactive Air Emissions License (FF-01). Ecology inspections included discharge points (e.g., emergency engines/generators) and packaged boiler systems regulated under the Hanford Site Air Operating Permit.

During the period from March through September 2016, the WDOH Radioactive Air Emissions Section inspected the compliance of the Hanford air sample collection process, tracking, analysis, verification, validations, and reporting to determine compliance with the Radioactive Air Emissions license (RAEL FF-01) and WAC 246-247 (specifically, 40 CFR 61, Appendix B, Method 114). The inspection consisted of document review, witnessing of sample handling and tracking, laboratory visits, and finalization of the reported data.

Items recognized as good practice regarding the Environmental Surveillance ambient air sampling program included good contamination control during sample collection and transport, thorough verification of field information, excellent data verification, and validation processes.

2.1.2.3 RCRA Groundwater Monitoring

MJ Hartman

The Soil and Groundwater Remediation Project (see Section 8) monitors 25 RCRA units on the Hanford Site. LERF (Section 5.3.4.2) and IDF (Section 5.3.3.7) operate under Part III of the RCRA permit (WA7890008967). The other TSD units monitored under RCRA are scheduled to be closed under Part V of the RCRA permit (WA7890008967). Section 8 includes a summary of groundwater monitoring activities for the RCRA units during 2016. DOE/RL-2016-66, *Hanford Site RCRA Groundwater Monitoring Report for 2016*, includes detailed groundwater monitoring information.

2.1.3 Comprehensive Environmental Response, Compensation, and Liability Act of 1980

JW Cammann, GT Berlin

In 1980, Congress passed the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) to address response, compensation, and liability for past releases or potential releases of hazardous substances, pollutants, and contaminants to the environment. Because the operation of nuclear production and disposal facilities at the Hanford Site has resulted in past releases of hazardous substances, pollutants, or contaminants, the facility is subject to CERCLA provisions.

For waste sites where hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure, CERCLA requires a review every 5 years to evaluate the implementation and performance of a remedy to determine if the remedy is or will be protective of human health and the environment. The 5-year review requirement applies to all remedial actions selected under CERCLA Section 121. The CERCLA Five-Year Review Report documents the methods, findings, and conclusions of the 5-year reviews, which can require institutional controls (ICs) and/or National Resource Damage Assessment and Restoration Program mitigation. The results of the four 5-year reviews conducted since 2000 are documented in the *USDOE Hanford Site First Five-Year Review Report* (EPA 2001a); DOE/RL-2006-20, *Second CERCLA Five-Year Review Report for the Hanford Site*; DOE/RL-2011-56, *Hanford Site Third CERCLA Five-Year Review Report;* and DOE/RL-2016-01, *Hanford Site Fourth CERCLA Five-Year Review Report*.

On September 29, 2016, a draft version of the Hanford Site Fourth CERCLA Five-Year Review Report (DOE/RL-2016-01, Draft A, Rev 1) addressing 2011 through 2015 was completed and transmitted to EPA for review (16-AMRP-0284). Based on subsequent feedback received from EPA and other agencies, work continued on this report through the remainder of CY 2016 and into CY 2017. This report aligns with EPA's latest guidance on 5-year review reports, as well as recent training provided to multi-federal agencies as they strive for more consistent reports and the use of substantive tables and figures to more concisely present information that supports the protectiveness statements. On March 27, 2017, the DOE-RL transmitted the final Hanford Site Fourth CERCLA Five-Year Review Report to the EPA (17-AMRP-0127). On May 4, 2017, the EPA sent a letter to DOE-RL approving the Hanford Site fourth CERCLA five-year review report.

This latest CERCLA 5-year review report evaluates the protectiveness of 30 operable units with remedies that have been documented in interim or final Records of Decision (RODs). Approximately 16 operable units that have been documented in interim or final RODs do not have remedies at this time. They will be addressed in future 5-year review reports as additional RODs are issued. A breakdown of the source and groundwater operable units that are in scope and out of scope for Hanford's fourth CERCLA 5-year review report is provided below.

- In scope (operable units with interim or final RODs):
  - Source operable units: 100-BC-1, 100-BC-2, 100-FR-1, 100-FR-2, 100-IU-2, 100-IU-6, 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, 100-KR-1, 100-KR-2, 100-NR-1, 300-FF-1, 300-FF-2, 200-CU-1, 200-CU-3, 200-DF-1, 200-CW-5, 200-PW-1, 200-PW-3, 200-PW-6, 1100-EM-1.
  - Groundwater operable units: 100-FR-3, 100-HR-3, 100-KR-4, 100-NR-2, 300-FF-5, 200-UP-1, 200-ZP-1.
- Out of scope (operable units without RODs):
  - Source operable units: 100-OL-1, 200-BC-1, 200-CB-1, 200-CP-1, 200-CR-1, 200-CW-1, 200-DV-1, 200-EA-1, 200-IS-1, 200-OA-1, 200-SW-1, 200-SW-2, and 200-WA-1.
  - Groundwater: 100-BC-5, 200-BP-5, and 200-PO-1.

2.1.3.1 Superfund Amendments and Reauthorization Act of 1986. The *Superfund Amendments and Reauthorization Act of 1986* (SARA; Public Law 107-377) amended CERCLA on October 17, 1986. SARA reflected EPA's experience in administering the complex Superfund program during its first 6 years and made the following important changes and additions to the program:

- Stressed the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites
- Required Superfund actions to consider the standards and requirements found in other state and federal environmental laws and regulations
- Provided new enforcement authorities and settlement tools

- Increased state involvement in every phase of the Superfund program
- Increased the focus on human health problems posed by hazardous waste sites
- Encouraged greater citizen participation in making decisions on how sites should be cleaned up
- Increased the size of the trust fund to $8.5 billion.

SARA also required EPA to revise the Hazard Ranking System to ensure that it accurately assessed the relative degree of risk to human health and the environment posed by uncontrolled hazardous waste sites that may be placed on the National Priorities List.

2.1.4 Emergency Planning and Community Right-to-Know Act of 1986

GM Fritz

Title III of SARA, also known as the *Emergency Planning and Community Right-to-Know Act of 1986* (EPCRA), requires owners and operators of facilities that handle certain hazardous chemicals onsite to provide information on the release, storage, and use of these chemicals to organizations responsible for emergency response planning. EPCRA has four major provisions: emergency planning, emergency release notification, hazardous chemical inventory reporting, and toxic chemical release inventory reporting. Table 2-1 summarizes sections of EPCRA and its requirements, including two annual reports: the Tier Two Emergency and Hazardous Chemical Inventory, which provides information about hazardous chemicals stored at each facility in amounts exceeding minimum threshold levels, and the Toxic Chemical Release Inventory, which describes total annual releases of certain toxic chemicals and associated waste management activities. Table 2-2 provides an overview of reporting under the EPRCA during 2016.

Table 2-1. Emergency Planning and Community Right-to-Know Act Requirements Summary. (2 Pages)

Section	CFR Section	Reporting Criteria	Due Date	Agencies Receiving Report
302	40 CFR 355, "Emergency Planning and Notification"	Presence of an extremely hazardous substance in quantity equal to or greater than threshold planning quantity at any one time.	Within 60 days of threshold planning quantity exceedance	Local Emergency Planning Committee; State Emergency Response Commission
		Change occurring at a facility that is relevant to emergency planning.	Within 30 days after change has occurred	Local Emergency Planning Committee
304		Release of an extremely hazardous substance or a CERCLA hazardous substance in quantity equal to or greater than reportable quantity.	Initial notification: immediate (within 15 min of knowledge of reportable release). Written follow-up within 14 days of release.	Local Emergency Planning Committee; State Emergency Response Commission

Table 2-1. Emergency Planning and Community Right-to-Know Act Requirements Summary. (2 Pages)

Section	CFR Section	Reporting Criteria	Due Date	Agencies Receiving Report
311	40 CFR 370, "Hazardous Chemical Reporting"	The presence at any one time at a facility an OSHA hazardous chemical in quantity ≥10,000 lbs (4,500 kg) or an extremely hazardous substance in quantity equal to or greater than threshold planning quantity or 500 lbs (230 kg), whichever is less.	Revised list of chemicals due within 3 months of a chemical exceeding a threshold	Local Emergency Planning Committee; State Emergency Response Commission; Local Fire Departments
312		The presence at any one time at a facility an OSHA hazardous chemical in quantity equal to or greater than 10,000 lbs (4,500 kg), or an extremely hazardous substance in quantity equal to or greater than threshold planning quantity or 500 lbs (230 kg), whichever is less.	Annually by March 1	Local Emergency Planning Committee; State Emergency Response Commission; Local Fire Departments
313	40 CFR 372, "Toxic Chemical Release Reporting"	Manufacture, process, or use at a facility, any listed Toxic Release Inventory chemical in excess of threshold amount during a CY. Thresholds are 25,000 lbs (11,300 kg) for manufactured or processed or 10,000 lbs (4,500 kg) for otherwise used except for persistent, bio-accumulative, toxic chemicals with thresholds under 100 lbs (45 kg).	Annually by July 1	EPA; State Emergency Response Commission

OSHA = Occupational Safety and Health Administration

Table 2-2. Emergency Planning and Community Right-to-Know Compliance Reporting.

Section	Description of Reporting	Status	Notes
302	Emergency planning notifications	Yes	
304	Extremely hazardous substance release notification	Not required	No releases occurred
311	Material safety data sheet	Yes	
312	Chemical inventory	Yes	
313	Toxic release inventory	Yes	

The *2016 Hanford Site Tier Two Emergency and Hazardous Chemical Inventory* (DOE/RL-2017-12) was submitted to Ecology's Community Right-To-Know Unit; local emergency planning committees for Benton, Franklin, and Grant counties; and the City of Richland and Hanford Site Fire Department before the annual March 1 deadline. The Hanford Site had 54 hazardous chemicals that exceeded the reporting thresholds. One chemical category (lead acid batteries, which contain sulfuric acid, an extremely hazardous substance) exceeded the reporting threshold for offsite locations (700 Area, 1100 Area, and the Federal Building). Table 2-3 lists the average quantities of the 10 hazardous chemicals stored in greatest quantity on the Hanford Site in 2016.

Table 2-3. Average Quantity of the 10 Hazardous Chemicals Stored in Greatest Quantities.

CAS#	Chemical	TPQ	Average Amount (lb/kg)
7647-14-5	Sodium Chloride	10,000	4,291,036 /1,946,381
7440-23-5	Sodium	10,000	4,624,378 /2,097,583
8012-95-1	Mineral Oil	10,000	1,163,719 /527,854
00-00-0	Diesel fuel (Grades 1 and/or 2)	10,000	1,004,894/455,812
65997-15-1	Portland Cement	10,000	642,992 /291,656
68131-74-8	Fly Ash (Class F)	10,000	430,000/195,045
7664-93-9	Sulfuric Acid	500	336,481/152,625
00-00-0	Lead Acid Batteries	500	260,054/117,959
14808-60-7	Silica, Crystalline-Quartz	10,000	268,372/121,731
1305-78-88	Calcium Oxide	10,000	255,300115,802

The *2016 Hanford Site Toxic Chemical Release Inventory* report (DOE/RL-2017-36) was submitted to EPA and Ecology before the annual July 1 deadline. During CY 2016, the Hanford Site exceeded activity thresholds for lead, naphthalene, propylene, toluene, and xylene. Information concerning these chemicals is described in Table 2-4.

Table 2-4. Toxic Chemicals Exceeding Reporting Thresholds.

Chemical	CAS No.	Non-Exempt Use Description
Lead	7439-92-1	Ammunition fired during range practice by Hanford Safeguards and Security
Naphthalene	91-20-3	Diesel used for stationary equipment
Propylene	115-07-1	Propane gas used sitewide
Xylene	1330-20-7	Gasoline used for stationary equipment
Toluene	108-88-3	Gasoline used for stationary equipment

2.1.5 Reportable Releases

ME Carlson

Federal regulations establish reporting requirements for certain environmental releases that must be reported to the National Response Center. The National Response Center is the central point of contact for reporting hazardous substance and oil spills. Reportable releases include spills or discharges of hazardous substances to the environment other than releases permitted under state or federal law. CERCLA Section 103 requires reporting for releases of hazardous substances that equal or exceed specified reportable quantities, including releases that are continuous and stable in quantity and rate but exceed specified limits. Washington State regulations (WAC 173-303-145, "Spills and Discharges into the Environment") also require that spills or non-permitted discharges of dangerous waste or hazardous substances to the environment be reported. The requirement applies to spills or discharges onto the ground, into groundwater or surface water (Columbia River), or in the air such that human health or the environment are threatened, regardless of the quantity of dangerous waste or hazardous substance.

During the reporting period, hazardous substance releases were conservatively assessed under WAC 173-303-145, and none of these events required notification to Ecology. These relatively minor spill events primarily involved petroleum products from leaking equipment and vehicles (e.g., hydraulic fluid, diesel fuel, and motor oil). These spills have all been logged per Contractor Requirements Document 436.1. All of these spilled products were cleaned up and all resulting materials (e.g., absorbents and impacted soils) were processed for disposal in accordance with applicable requirements.

2.1.6 Toxic Substances Control Act

DI Weyns

The Hanford Site has a well-structured program that complies with the *Toxic Substances Control Act* (TSCA; Public Law 94-469) requirements that primarily involve regulation of polychlorinated biphenyls (PCBs). TSCA also regulates other constituents, such as asbestos, lead-based paint, and radon. The applicability of TSCA to the management of these constituents at the Hanford Site is discussed below:

- Lead-based Paint
  - The TSCA regulations for lead-based paint are applicable to residential and child-occupied facilities and do not apply to Hanford activities.
- Radon
  - The radon regulations in TSCA pertain to schools and public or assisted-housing and do not apply to Hanford activities.
- Asbestos
  - Asbestos at the Hanford Site is primarily regulated by the Clean Air Act (CAA) and Occupational Safety and Health Administration (OSHA).
  - However, TSCA accreditation and training requirements provided in 40 CFR 763, Appendix C - Asbestos Model Accreditation Plan are applicable and Hanford must comply with minimum training standards for personnel engaged in asbestos abatement activities.
- PCBs – federal regulations for PCB use, storage, and disposal are provided in 40 CFR 761, "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions." Background information regarding Hanford Site PCB management activities are as follows:
  - PCB wastes on the Hanford Site are stored and/or disposed of in accordance with 40 CFR 761.
  - Some radioactive PCB waste remains in extended storage onsite pending the development of adequate treatment and disposal technologies and capacities.
  - Electrical equipment that might contain PCBs is maintained and serviced in accordance with 40 CFR 761.

- Signed on August 31, 2000, *The Hanford PCB Framework Agreement 8/31/00: Framework Agreement for Management of Polychlorinated Biphenyls (PCBs) in Hanford Tank Waste* (EPA et al. 2000) resulted in the TPA agencies and DOE contractors working together to resolve the regulatory issues associated with managing PCB waste at the WTP, tank farms, and affected waste management units adjacent to the tank farms.

- DOE-RL submitted the *2015 Polychlorinated Biphenyl Annual Report* (DOE/RL-2016-39) and *2015 Hanford Site Polychlorinated Biphenyl Annual Document Log* (DOE/RL-2016-40) to EPA on June 28, 2016, as required by 40 CFR 761.180, "Records and Monitoring." These documents describe the PCB waste management and disposal activities occurring on the Hanford Site.

- Work performed under risk-based disposal approvals (RBDA) continued in 2016, including but not limited to single-shell tank waste retrieval activities in accordance with EPA Phase I and II RBDAs for the use of double-shell tank PCB remediation waste in accordance with 40 CFR 761.61(c), "PCB Remediation Waste." Note: Phase I identifies general conditions that apply to the overall strategy and retrieval process, and Phase II identifies tank-specific conditions.

- Work was performed at the 242-A Evaporator under the RBDA for the 200 Areas Liquid Waste Processing Facilities.

- The EPA's 2005 RBDA letter allowed for the solidification of the K-Basins North Load-Out Pit (NLOP) sludge, which was a multi-phasic (mixture of liquid and non-liquid phases) PCB remediation waste. The waste was solidified at the Hanford Site T-Plant facility to meet radiological treatment standards in preparation for disposal.

- Condition 5 of the NLOP RBDA, requires DOE to submit to EPA plans and schedules for final decontamination and/or disposal of the NLOP treatment system. As of 2016, DOE is developing plans to place additional K-Basins sludge containers in T-Plant, which will require removal of the NLOP treatment equipment. When the K-Basins Sludge Project is finalized, EPA will be notified of plans to decontaminate or dispose of the NLOP treatment equipment.

2.1.7 National Environmental Policy Act of 1969

ES Pennala

The *National Environmental Policy Act of 1969* (NEPA) is the basic national charter for protection of the environment. It establishes policy, sets goals, and provides means for carrying out the policy. It contains "action-forcing" provisions to ensure that federal agencies act according to the letter and spirit of the Act [40 CFR 1500.1(a)]. NEPA requires federal agencies to assess the environmental consequences of proposed actions prior to making decisions that may have environmental effects. The Council on Environmental Quality (CEQ) regulations that implement NEPAs (40 CFR 1500-1508) and

DOE's NEPA implementing regulations (10 CFR 1021) ensure compliance with the letter and spirit of NEPA.

Proposed actions are evaluated in accordance with CEQ regulations and DOE NEPA implementing regulations to determine whether an EIS or EA is required; or the proposed action is categorically excluded (CX) from preparation of an EIS or EA. This section provides the status of NEPA documentation

(EISs, EAs, and CXs) completed or underway at the Hanford Site during CY 2016. NEPA documentation completed in early CY 2017 is also mentioned, where applicable. Hanford Site NEPA documentation is available online at http://www.hanford.gov/page.cfm/Documents.

2.1.7.1 Hanford Site Environmental Impact Statements. This section summarizes the status of EISs completed or underway at the Hanford Site during CY 2016.

Natural Gas Pipeline EIS (DOE/EIS-0467). On January 23, 2012, DOE published a "Notice of Intent To Prepare an Environmental Impact Statement for the Acquisition of a Natural Gas Pipeline and Natural Gas Utility Service at the Hanford Site, Richland, Washington, and Notice of Floodplains and Wetlands Involvement (DOE/EIS-0467)" in the *Federal Register* (77 FR 3255). The pipeline would deliver natural gas to support the WTP (Section 5.6) and the 242-A Evaporator (Section 5.4.4.4) operations in 200-East Area. The proposed pipeline would begin from a new interconnect tap on the existing Williams Northwest Pipe transmission line in Franklin County north of the Pasco, Washington, airport and run westerly across non-DOE lands under the Columbia River, crossing near the Hanford Site 300 Area before turning northwest and paralleling Route 4S. The pipeline would terminate at the WTP and 242-A Evaporator.

DOE postponed preparation of the EIS in 2015 to better align the completion of the EIS with planned future operations of facilities on Hanford's Central Plateau. In the spring of 2016, DOE began evaluating steps to continue preparation of the EIS and is currently working on a schedule for publication of a Draft EIS for public review.

2.1.7.2 Hanford Site Environmental Assessments. Hanford Site EAs that were completed in CY 2016 or underway are described in the following section.

Final Environmental Assessment for Proposed Conveyance of Land at the Hanford Site, Richland, Washington (DOE/EA-1915).The Tri-City Development Council (TRIDEC), a DOE designated Community Reuse Organization and 501(c)(6) nonprofit corporation, submitted a proposal to DOE in May 2011 (amended October 2011) requesting the transfer of approximately 1,641 ac of land located in the southeastern corner of the Hanford Site near the City of Richland in Benton County, Washington, for economic development purposes.DOE prepared an EA and issued a Final EA and FONSI on September 30, 2015.

The significance of potential environmental impacts was considered based on "context and intensity" per the CEQ regulations (40 CFR 1508.27). No potentially significant impacts were identified in the EA; however, DOE committed to implement the mitigation measures in a Mitigation Action Plan (MAP) to better achieve an environmentally-preferable outcome. The *Mitigation Action Plan Annual Report Calendar Year 2016* (DOE/EA-1915) was issued with a date of December 2016.

Final Environmental Assessment for Expansion of Borrow Areas on the Hanford Site (DOE/EA-1934-FEA-2013). The *Environmental Assessment for Expansion of Borrow Areas on the Hanford Site* (2013) evaluated the potential environmental impacts of expansion or continued use of existing sand and gravel pits located on the Hanford Site (Pits F, H, N, 6, 9, 18, 21, 23, 24, 30, and 34) and established one new borrow area source in the 100 Area for ongoing construction activities and fill material following remediation activities.

The significance of potential environmental impacts was considered based on "context and intensity" per the CEQ regulations (40 CFR 1508.27). No potentially significant impacts were identified in the EA; however, DOE committed to implement the mitigation measures in a Mitigation Action Plan (MAP) to better achieve an environmentally-preferable outcome. The *2016 Annual Report for Mitigation Action Plan* (DOE/EA-1934) was issued with a date of February 2017.

Environmental Assessment for Rebuild of the North Loop 230-kV Electrical Transmission Line (DOE/EA-2033). A portion of the electric power needs at Hanford is provided from the North Loop electrical transmission line, which is part of an existing system that was built in the 1940s. Because of the age of the system and deteriorating condition of the conductors, hardware, and support structures, the existing system will not support the continued long-term cleanup mission of the Hanford Site Central Plateau, which is projected until at least 2060.

To provide reliable power, DOE proposes to rebuild approximately 28 miles of the North Loop transmission line in the northern part of the Hanford Site with approximately 20 miles of single- and double-circuit line. The North Loop line would be reduced by approximately 8 miles. The proposed project would require reconfiguring switching stations and substation components, installing equipment and conductors, building and reconditioning access roads, removal of structures, and other ancillary activities. DOE made a determination to prepare an EA for the rebuild-of the transmission line on February 1, 2016. Preparation of the EA is ongoing.

Environmental Assessment for Benton-Othello 115-kV Transmission Line Rebuild Project (DOE/EA-2038). DOE is preparing an EA to assess potential environmental effects of Avista Utilities' (Avista) proposal to rebuild 12.6 miles of the Benton-Othello Switching Station (Benton-Othello) electrical transmission line on the Hanford Site. Sections of the electrical transmission line were built in the 1920s and 1940s, and most of the structures, conductor, and associated components are physically worn posing risks to safety and reliability. The upgrade would begin 0.5 miles south of State Route 24, on the Hanford Site. The northern 10.6 miles of the electrical transmission line crosses the Monument, which is managed jointly by DOE and the US Fish and Wildlife Service (USFWS).

DOE made a determination to prepare an EA for the rebuild of the transmission line on April 6, 2016. A Public Scoping Notice to prepare an EA was issued on January 3, 2017. Avista, in coordination with DOE and other agencies with jurisdiction, has been conducting field studies and preparing a Biological Evaluation, Wetland Assessment, Floodplain Assessment, and Cultural Resources Report.

Environmental Assessment Energy Northwest WNP-1/4 Lease Renewal (DOE/EA-2044). In 1975, the Washington Public Power Supply System (now known as Energy Northwest) obtained a lease from the U.S. Government for Washington Nuclear Projects Number 1 and Number 4 (WNP-1/4), which included options for renewing the lease. DOE's proposed action, was renewal of an existing lease, and the EA analyzed activities authorized by the proposed lease amendment.

Activities that were authorized included subleasing office and warehouse space, and transitioning from groundwater wells to surface water to supply Energy Northwest's Industrial Development Complex (IDC) with potable water. The existing water distribution system would be used to transport water from the Columbia River to the IDC.

DOE made a determination to prepare an EA on June 15, 2016. The EA and FONSI were issued on January 6, 2017.

2.1.7.3 Hanford Site Categorical Exclusions. Categorical exclusions encompass classes of actions that DOE has analyzed and determined do not individually or cumulatively have a significant effect on the environment and for which neither an EA nor an EIS is required (10 CFR 1021).

The DOE NCO approved a total of 38 categorical exclusions during CY 2016. Of these, 36 were annual categorical exclusions, to cover routine and recurring work activities planned to be performed during FY 2017 at the Hanford Site (Mission Support Alliance – 21, CH2M Plateau Remediation Company – 8, and Pacific Northwest National Laboratory – 7). The two remaining categorical exclusions were activity-specific to cover the "National Park Service Centennial Bike Ride" and the "Plutonium Man Bike Race" on the Hanford Site. Annual and activity-specific categorical exclusions approved by the DOE NCO may be viewed at http://www.hanford.gov/page.cfm/CategoricalExclusions.

2.1.8 Institutional Controls Plan

R Ranade

The MSA Long Term Stewardship (LTS) program is responsible for managing ICs along the River Corridor with the exception of a portion of the 100-K Area. CHPRC is responsible for the ICs associated with groundwater. The *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions* (DOE/RL 2001-41) describes the Institutional Controls for the Hanford Site in accordance with CERCLA and/or RCRA decision documents. The CERCLA decision documents present the selected remedial actions chosen in accordance with CERCLA as amended by the SARA and implemented under 40 CFR 300. CERCLA decision documents are developed as part of the cleanup mission at the Hanford Site. The selected remedies chosen may include ICs and the CERCLA decision documents identify the specific requirements for these controls.

ICs are primarily administrative in nature and typically are used to augment the engineered components of a selected remedy to minimize the potential for human exposure to residual contaminants. Active ICs, such as controlling access to the Hanford Site or activities that may affect remedial action, are generally employed during remediation. After remediation is completed, passive ICs are employed such as permanent markers, retaining public records and archives, or sustaining regulations regarding land or resource use. ICs such as drilling and excavation restrictions for waste sites with contamination below 15 ft, monitoring and controlling access to the area, and warning signs also may be employed after remediation is completed.

As required by DOE-RL-2001-41, ICs are assessed annually as required by the CERCLA and/or RCRA decision. Hanford Site contractors provide an annual update on the effectiveness of the ICs to EPA and Ecology at the area unit managers meetings each September. Minutes from the unit managers' meeting are available on the TPA Administrative Record Public Information Repository website (http://pdw.hanford.gov/arpir/). The Hanford Site CERCLA 5-year review also includes a rollup of the issues/actions noted during of the annual assessments.

The MSA LTS organization is responsible for managing ICs related to Hanford Site access control and the wastes sites in the River Corridor area. The IC assessments conducted in FY 2016 found the following:

- Warning signs along the Hanford Site boundary and at the entrance of the River Corridor areas where cocooned reactor buildings are located were in place and visible.

- The fence along State Route 240 was found to have broken wire strands in four places. The broken wire strands were replaced. Other fencing was intact.

- Eighty "No Trespassing" signs were missing, damaged, and/or could not be seen from the Columbia River. MSA LTS has initiated a project to identify and replace the missing signs.

- The Excavation Permits and Site Evaluation Processes were used successfully to ensure compliance with ICs, which require the restriction of drilling or excavating into the deep zone (below 15 ft [4.6 m]).

- Five reportable trespassing incidents occurred from October 2015 to September 2016 and were reported to the Benton County Sherriff's office.

- The 300 Area Fire Station is in compliance with the final 300 Area ROD ICs and DOE directives regarding fire hydrant testing.

Operable units in the Central Plateau of the Hanford Site also have a number of ICs in both interim and final ROD documents. In CY 2016, an assessment of ICs at 200-UP-1 Operable Unit, 221-U Facility, and 200-ZP-1 Operable Unit identified no deficiencies.

2.1.9 Federal Insecticide, Fungicide, and Rodenticide Act

JM Rodriguez

EPA administers the *Federal Insecticide, Fungicide, and Rodenticide Act* (7 U.S.C. 136 et seq.). The Washington State Department of Agriculture administers standards to regulate implementation of the Act in the state, including RCW 15.58, "Washington Pesticide Control Act," RCW 17.21, "Washington Pesticide Application Act," and rules relating to general pesticide use codified in WAC 16-228, "General Pesticide Rules." Commercial pesticides are applied on the Hanford Site by commercial pesticide operators that are listed on one of two commercial pesticide applicator licenses and by a licensed private commercial applicator.

2.2 Radiation Protection Statutes and Regulations

W Boyd

The Hanford Site is subject to radiation protection statutes and regulations designed to protect the health and safety of the public, workforce, and the environment. Relevant laws and regulations are described in the following sections.

2.2.1 Atomic Energy Act of 1954

To ensure proper management of radioactive materials, the *Atomic Energy Act of 1954* (AEA; 42 U.S.C. 2011 et seq.) and its amendments include provisions to delegate roles and responsibilities to control radioactive materials and nuclear energy primarily to DOE, the U.S. Nuclear Regulatory Commission (NRC), and EPA. Through the AEA, DOE regulates the control of radioactive materials under its authority, including the TSD of low-level radioactive waste from its operations. Sections of the AEA authorize DOE

to establish radiation protection standards for itself and its contractors. Accordingly, DOE promulgated a series of regulations (e.g., 10 CFR 820, "Procedural Rules for DOE Nuclear Activities"; 10 CFR 830, "Nuclear Safety Management"; and 10 CFR 835, "Occupational Radiation Protection"). Additional DOE directives to protect public health and the environment from potential risks associated with radioactive materials include DOE O 435.1, Chg. 1, *Radioactive Waste Management*, and DOE O 458.1, *Radiation Protection of the Public and Environment*. Hanford Site operations are subject to these regulations and directives.

DOE directives may be accessed via the Departmental Directives Program website at https://www.directives.doe.gov/. DOE technical standards may be accessed via the DOE Office of Environment, Health, Safety & Security website at http://energy.gov/ehss/services/nuclear-safety/department-energy-technical-standards-program.

2.2.2 DOE O 458.1, Radiation Protection of the Public and the Environment

The purpose of DOE O 458.1 is to establish standards and requirements for conduct of DOE and DOE contractor operations with respect to radiological protection of the public and the environment. This Order was developed and issued consistent with DOE's policy to implement legally applicable radiation protection requirements; consider and adopt, as appropriate, recommendations by authoritative organizations (e.g., the National Council on Radiation Protection and Measurements and the International Commission on Radiological Protection); and adopt and implement standards generally consistent with those of the NRC for DOE facilities and activities not subject to NRC authority. Specifically, relative to guidance, standards, and regulatory requirements existing at the time of its issuance, this Order adopted applicable standards issued by the National Council on Radiation Protection and Measurements and International Commission on Radiological Protection, incorporated regulatory requirements applicable to DOE operations, and consolidated and upgraded DOE guidance for contaminated property.

DOE O 458.1 applies to all DOE elements and contractors performing work for DOE, as provided by law and/or contract, and as implemented by the appropriate contracting officer. This Order was developed and issued under the authority of the AEA as amended, which authorizes DOE to provide for the radiological health and safety of the public for operations conducted under DOE direction.

Relative to the radiological health and safety of the public, the goals of DOE O 458.1 are to ensure that DOE operations achieve the following:

- Maintain radiation exposures to the public within established limits
- Control radioactive contamination through the management of real and personal property
- Ensure potential exposures to the public are as far below established limits as is reasonably achievable
- Ensure DOE facilities have the capabilities consistent with the types of operations conducted to monitor routine and non-routine releases and to assess doses to the public.

In addition to providing radiological protection to the public, the objective of DOE O 458.1 is to provide radiological protection of the environment to the extent practical.

DOE O 458.1 also provides derived concentrations as reference values for conducting radiological environmental protection programs at operational DOE facilities and sites. Table 2-5 provides the radiation standards (dose limits) for protection of the public from all routine DOE concentrations. These DOE-derived concentrations are based on a committed dose standard of 100 mrem (1 millisievert [mSv]) due to ingestion, inhalation, or direct exposure during a given year, and are provided for three exposure pathways: ingestion of water, inhalation of air, and immersion in a gaseous cloud. This Order also provides radiological protection requirements and guidelines for cleanup of residual radioactive material, management of the resulting wastes and residues, and clearance of property.
These requirements and guidelines are applicable at the time the property is released.

Table 2-5. Radiation Standards for Public Protection from All Routine DOE Concentrations.

All Pathways (DOE O 458.1)		
Effective dose equivalent for any member of the public from all routine DOE operations [a] shall not exceed values below.		
	Effective Dose Equivalent [b]	
	mrem/yr	**mSv/yr**
Routine public dose	100	1
Potential authorized temporary public dose [c]	500	5
Dose to Native Aquatic Animal Organisms from Liquid Discharges (DOE O 458.1)		
Radioactive material in liquid waste discharged to natural waterways shall not cause an absorbed dose [d] to native aquatic animal organisms that exceed 1 rad (10 milligray [mGy]) per day.		
Drinking Water Pathway Only: 40 CFR 9, 141, and 142 (65 FR 76708, "National Primary Drinking Water Regulations; Radionuclides; Final Rule"); WAC 246-290, "Group A Public Water Supplies;" and DOE O 458.1		
Radionuclide concentrations in DOE-operated public drinking water supplies shall not cause persons consuming the water to receive an effective dose equivalent greater than 4 mrem (0.04 mSv)/yr. DOE operations shall not cause private or public drinking water systems downstream of the facility discharge to exceed the radiological drinking water limits in 40 CFR 9, *OMB Approvals Under the Paperwork Reduction Act*; 141, *National Primary Drinking Water Regulations*; and 142, *National Primary Drinking Water Regulations Implementation*.		
Air Pathways Only (40 CFR 61, "National Emission Standards for Hazardous Air Pollutants")		
Public dose limit at location of maximum annual air concentration as a consequence of routine DOE operations [a]	**Effective Dose Equivalent [a]**	
	mrem/year	**mSv/year**
	10	0.1

NOTE: Radiation doses received from natural background, residual weapons testing and nuclear accident fallout, medical exposure, and consumer products are excluded from the implementation of these dose limits.

[a] Routine DOE operations imply normal, planned activities and do not include actual or potential accidental or unplanned releases.

[b] Effective dose equivalent is expressed in rem (or mrem) and Sv (or mSv).

[c] Authorized temporary annual dose limits may be greater than 100 mrem (1 mSv)/yr but cannot exceed 500 mrem (5 mSv)/yr if unusual circumstances exist that make avoidance of doses impracticable to the public. DOE-RL is required to request and receive specific authorization from DOE-HQ for an increase from the routine public dose limit to a temporary annual dose limit.

[d] Absorbed dose is expressed in rad (or millirad) with the corresponding value in gray (or mGy) in parentheses.

mrem = millirem
mSv = millisievert
rem = roentgen equivalent in man
Sv = sievrert

2.2.3 DOE O 435.1, Radioactive Waste Management

OA Farabee, JA Reddick

The purpose of DOE O 435.1 is to establish requirements to manage high-level waste, transuranic waste, and low-level waste, including the radioactive component of mixed waste (high-level waste, transuranic waste, and low-level waste containing chemically hazardous constituents) in a safe manner that is protective of the worker, public health, and the environment. The Order takes a cradle-to-grave approach to managing waste and includes requirements for waste generation, storage, treatment, disposal, and post-closure monitoring of facilities.

Radioactive waste shall be managed such that the requirements of other DOE orders, standards, and regulations are met, including 10 CFR 835; DOE O 440.1B, *Worker Protection Program for DOE (Including the National Nuclear Security Administration) Federal Employees*; and DOE O 458.1, *Radiation Protection of the Public and the Environment*. For facilities undergoing CERCLA removal actions or CERCLA remedial actions DOE O 435.1 may not be Applicable or Relevant and Appropriate Requirements (ARARs).

2.3 Air Quality Statutes and Regulations

RA Kaldor

Below is information on federal, state, and local statutes applicable to the Hanford Site air quality program.

2.3.1 Air Quality Regulatory Authority

The federal *Clean Air Act* was enacted to protect and enhance air quality and is the legal basis for federal, state, and local air quality regulations. Originally passed in 1963, the law has been revised extensively on numerous occasions. The most recent revision, the *Clean Air Act Amendments of 1990* (Public Law 101-549) provides the framework for a significant portion of current federal air quality regulations. The Washington Clean Air Act (RCW 70.94), which parallels and supplements federal law, has been revised periodically to keep pace with federal changes. EPA provides high-level programmatic oversight of the air quality program on the Hanford Site and has delegated authority for implementing applicable *Clean Air Act* regulations to designated state and local regulatory agencies.

WDOH regulates radioactive air emissions on the Hanford Site by enforcing applicable federal requirements in 40 CFR 61, "National Emission Standards for Hazardous Air Pollutants," Subparts A and H; state requirements in WAC 173-480, "Ambient Air Quality Standards and Emission Limits for Radionuclides"; and WAC 246-247, "Radiation Protection – Air Emissions." Federal regulations for radioactive air emissions are contained in 40 CFR 61, Subpart H, "National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities."

Ecology regulates criteria and toxic air pollutant emissions at the Hanford Site by enforcing applicable federal requirements in 40 CFR 52, "Approval and Promulgation of Implementation Plans"; 40 CFR 60, "Standards of Performance for New Stationary Sources"; 40 CFR 61; 40 CFR 63, "NESHAPs for Source Categories"; 40 CFR 68, "Chemical Accident Prevention Provisions"; and 40 CFR 82, "Protection of Stratospheric Ozone"; as well as the state requirements in WAC 173-400, "General Regulations for Air Pollution Sources"; WAC 173-460, "Controls for New Sources of Toxic Air Pollutants"; WAC 173-480; and WAC 173-491, "Emission Standards and Controls for Sources Emitting Gasoline Vapors." Criteria and toxic air pollutant emissions are often referred to as nonradioactive air emissions at the Hanford Site.

Criteria pollutants are particulate matter, nitrogen oxides, sulfur oxides, carbon monoxide, lead, and volatile organic compounds. Toxic air pollutants are other chemical contaminants as regulated by Washington State.

The Benton Clean Air Agency regulated demolition and asbestos renovation activities at the Hanford Site in accordance with federal requirements in 40 CFR 61, Subpart M, "National Emission Standard for Asbestos." The Benton Clean Air Agency regulates outdoor burning activities at the Hanford Site in accordance with state requirements in WAC 173-425, "Outdoor Burning."

2.3.2 Air Permits

RA Kaldor, JW Cammann

Hanford Site contractors evaluate each proposed new or modified emission unit using the new source review requirements of radioactive air emissions (WAC 246-247, "Radiation Protection – Air Emissions") and criteria and toxic air pollutants (WAC 173-400-110, "New Source Review (NSR) for Sources and Portable Sources" and WAC 173-460-040, "New Source Review") to determine whether a notice of construction application must be submitted to the WDOH and/or Ecology (as applicable) for approval before construction or operation of the proposed source.

Hanford Site radioactive air emission sources are operated in accordance with the Radioactive Air Emissions License for the DOE-RL Hanford Site, License FF-01 issued by the WDOH in February 2012. The FF-01 license is a compilation of all applicable radioactive air emission requirements and is renewed every 5 years. For each emission unit, the FF-01 license includes either an approval to modify/construct or an operating license. Overall, Hanford Site radioactive air emissions are controlled to sufficiently low levels to ensure the resultant exposure to any offsite individual remains well below the 10 mrem (100 microsievert [µSv])/yr specified in 40 CFR 61.92, "Standard." Hanford Site radioactive air emissions data are published annually in the radionuclide air emissions report for the Hanford Site (DOE/RL-2017-17, *Radionuclide Air Emissions Report for the Hanford Site, Calendar Year 2016*).

As a major source of air pollutants, the Hanford Site is subject to the air operating permit requirements in 40 CFR 70, "State Operating Permit Programs," and WAC 173-401, "Operating Permit Regulation." In coordination with WDOH and the Benton Clean Air Agency, Ecology issued Renewal 2 of the Air Operating Permit for a period of 5 years, effective April 1, 2013. Renewal 2 was issued to incorporate new WDOH and Ecology air emission licenses, approval orders, and updated regulatory requirements. The Air Operating Permit is a compilation of applicable *Clean Air Act* requirements for both radioactive and criteria/toxic air pollutant emissions, including the radioactive air emissions license FF-01 issued by WDOH and Notice of Construction Approval Orders issued by Ecology. The Air Operating Permit requires the submittal of semiannual reports to the regulatory agencies documenting the status of required monitoring and permit deviations. In addition, an annual report documenting the compliance status of Hanford Site emission sources against applicable *Clean Air Act* requirements, and an annual report that documents total emissions of criteria and toxic pollutants is also required.

The WDOH, Ecology, and the Benton Clean Air Agency conduct inspections of Hanford Site emission sources to verify compliance with applicable *Clean Air Act* requirements. Hanford Site contractors and DOE actively work to resolve any potential compliance issues identified during these inspections. During 2016, regulatory agencies conducted 35 *Clean Air Act* inspections on the Hanford Site. A total of four violations were alleged involving airborne radioactive materials at the 618-10 Burial Ground and failure

to monitor stack air emissions continuously or operating outside sampling system design parameters at PUREX, B-Plant, and the Canister Storage Building (Section 2.1.2.2.).

2.4 Water Quality Statutes and Regulations

M Kamberg

This section provides information on federal, state, and local requirements and permits for water quality protection.

2.4.1 Federal Permit – Discharges to Columbia River

The *Clean Water Act of 1977*, as amended, applies to discharges to surfacewaters in the United States. At the Hanford Site, regulations are applied through 40 CFR 122, "EPA Administered Permit Programs: The National Pollutant Discharge Elimination System." DOE does not currently have any discharges to the Columbia River requiring permits.

2.4.2 State Waste Discharge Permit – Discharges to the Soil Column/Groundwater

Ecology's Wastewater Discharge Permit program regulates discharges to state waters, including groundwater. Four Ecology state waste discharge permits, all held by DOE, were in effect during 2016: ST-4500, ST0004502, ST0004511, and ST0045514. Ecology's wastewater discharge permits page is located at http://www.ecy.wa.gov/programs/nwp/permitting/wwd/index.html.

Two Ecology general permits for sand and gravel were in effect (and issued to Bechtel National Inc.) during 2016: WAG-50-5180 and WAG-50-5181. WDOH issues annual permits to DOE to operate Hanford Site onsite sewage systems, which include some holding-tank sewage systems. Most onsite sewage systems (septic systems) operate under permits issued by the WDOH.

2.4.3 Local Discharge Permit – Discharges to the City of Richland Sewer

The City of Richland regulates industrial wastewater discharges to its sewer collection system in accordance with City of Richland Code Chapter 17.30, *Richland Pretreatment Act*. DOE holds Permit No. CR-IU010, which allows discharges from the 300 Area facilities. The current Permit was renewed in 2016 and will expire November 30, 2021.

2.4.4 Safe Drinking Water Act of 1974

BR Stenson

The *Safe Drinking Water Act of 1974* (SDWA; 42 U.S.C. 300f) established a cooperative program among local, state, and federal agencies to institute drinking water regulations applicable to all public water systems in the United States. States were granted primary responsibility (known as primacy) for administering and enforcing the SDWA. To obtain primacy, states were required to meet certain criteria, including adoption of regulations equal to or more stringent than EPA regulations.

Washington State was awarded primacy in 1978; the State Board of Health and WDOH became partners in developing and enforcing state drinking water regulations. Hanford Site water systems were designated as public in 1986 and became formally registered as public under WDOH jurisdiction in 1987.

The SDWA was amended in 1986 and 1996 (Public Law 104-182). Although 1986 amendments included provisions that emphasized treatment to ensure safe drinking water, 1996 amendments focused on

source water protection, water system improvements funding, operator training, public information, and strengthening EPA's scientific work, including a risk and cost benefit analysis in establishing drinking water standards. Between 1975 and 2006, these amendments resulted in the development of 18 new drinking water regulations. Post-1996 regulations have included more complex compliance determinations and more advanced treatment technologies. Based on site-specific conditions, many public water systems are either using or investigating new treatment technologies to comply with the increasingly complex requirements.

The EPA's microbial and disinfection byproduct rules include nine drinking water regulations, address acute threats from microbial contamination, and address chronic threats from disinfectant residuals and disinfection byproducts. Disinfection byproducts are sometimes formed when an oxidizing agent like chlorine is added to water during the water treatment process to kill or inactivate harmful organisms that may cause various diseases. Chlorine is a very active substance and reacts with naturally occurring substances, like organic material and bacteria, to form compounds known as disinfection byproducts. These rules limit disinfectant residuals and disinfection byproducts in the distribution systems while improving particle removal in the drinking water treatment plants. In 2016, affected Hanford Site water systems demonstrated compliance with the filtration and disinfection treatment technique requirements and limits for disinfectant residuals and disinfection byproducts.

To protect worker health using public water supplies on the Hanford Site, water systems were monitored during 2016 for microbiological, chemical, physical, and radiological constituents. There were no microbiological detections during the 2016 monitoring cycle, and all chemical concentrations in drinking water were well below the maximum contaminant levels established by EPA. Table 2-6 provides selected drinking water standards. System-specific information and analytical results for 2016 radiological monitoring are summarized in Section 7.1.3.

Table 2-6. Selected Drinking Water Standards. (2 Pages)

Constituent	DWS [a]		Agency [b]
Antimony	6 µg/L	0.006 ppm	EPA, WDOH
Arsenic	10 µg/L	0.01 ppm	EPA, WDOH
Barium	2,000 µg/L	2 ppm	EPA, WDOH
Cadmium	5 µg/L	0.005 ppm	EPA
Carbon tetrachloride	5 µg/L	0.005 ppm	EPA, WDOH
Trihalomethanes [c]	80 µg/L	0.08 ppm	EPA
Chromium	100 µg/L	0.1 ppm	EPA, WDOH
cis-1,2-Dichloroethene	70 µg/L	0.07 ppm	EPA, WDOH
Copper	1,300 µg/L	1.3 ppm	EPA
Cyanide	200 µg/L	0.2 ppm	EPA, WDOH
Fluoride	4 mg/L	4 ppm	EPA, WDOH
Lead	15 µg/L	0.015 ppm	EPA
Mercury (inorganic)	2 µg/L	0.002 ppm	EPA, WDOH
Methylene chloride	5 µg/L	0.005 ppm	EPA, WDOH
Nitrate, as NO_3^-	10 mg/L	10 ppm	EPA, WDOH
Nitrite, as NO_2^-	1.0	1.0 ppm	EPA, WDOH
Selenium	50 µg/L	0.05 ppm	EPA, WDOH
Tetrachloroethene	5 µg/L	0.005 ppm	EPA, WDOH
Thallium	2 µg/L	0.002 ppm	EPA, WDOH
Trichloroethene	5 µg/L	0.005 ppm	EPA, WDOH
Antimony-125	300 pi/L [d]	11.1 Bq/L	EPA
Beta particle and photon activity	4 mrem/yr [e]	40 µSv/yr	EPA, WDOH

Table 2-6. Selected Drinking Water Standards. (2 Pages)

Constituent	DWS [a]		Agency [b]
Carbon-14	2,000 pCi/L [d]	74.1 Bq/L	EPA
Cesium-137	200 pCi/L [d]	7.4 Bq/L	EPA
Cobalt-60	100 pCi/L [d]	3.7 Bq/L	EPA
Iodine-129	1 pCi/L [d]	0.037 Bq/L	EPA
Ruthenium-106	30 pCi/L [d]	1.11 Bq/L	EPA
Strontium-90	8 pCi/L [d]	0.296 Bq/L	EPA, WDOH
Technetium-99	900 pCi/L [d]	33.3 Bq/L	EPA
Total alpha (excluding uranium)	15 pCi/L [d]	0.56 Bq/L	EPA, WDOH
Tritium	20,000 pCi/L [d]	740 Bq/L	EPA, WDOH
Uranium	30 µg/L	0.03 ppm	EPA, WDOH

[a] Maximum contaminant level for drinking water supplies.
[b] WDOH at WAC 246-290; EPA at 40 CFR 141, "National Primary Drinking Water Regulations;" 40 CFR 143, "National Secondary Drinking Water Regulations;" and *Drinking Water Regulations and Health Advisories* (EPA 1996).
[c] Standard is for total trihalomethanes.
[d] EPA DWSs for radionuclides were derived based on a 4-mrem/yr dose standard using maximum permissible concentrations in water specified in *National Bureau of Standards Handbook 69* (U.S. Department of Commerce 1963, as amended).
[e] Beta and gamma radioactivity from anthropogenic radionuclides. Annual average concentration shall not produce an annual dose from anthropogenic radionuclides equivalent to the total body or any internal organ dose >4 mrem/yr. If two or more radionuclides are present, the sum of their annual dose equivalents shall not exceed 4 mrem/yr. Compliance may be assumed if annual average concentrations of total beta, tritium, and strontium-90 are <50, 20,000, and 8 pCi/L, respectively.

Bq = Becquerel
DWS = drinking water standards
L = liter
Mg = milligrams
pCi = picocuries
ppm = parts per million
µg = micrograms
yr = year

2.4.5 Surface Water Standards

The state of Washington has established surface water quality standards to protect public health and public enjoyment of the waters and for the propagation and protection of fish, shellfish, and wildlife. The standards apply to all surface water and water courses within the jurisdiction of the state of Washington. For the Hanford area, this primarily encompasses the Columbia River. The standards are contained within WAC 173-201A.

2.5 Natural and Cultural Resources

This section provides information on federal statutes and assessments related to ecological and cultural resource compliance at the Hanford Site.

2.5.1 Ecological Compliance

JA Pottmeyer

The *Hanford Site Biological Resources Management Plan* (BRMP; DOE/RL-96-32) requires that all Hanford Site projects with the potential to affect biological resources adversely conduct an ecological compliance review before the project starts. DOE uses the review to determine if the project will comply with the *Endangered Species Act of 1973* (16 U.S.C. 1531), the *Migratory Bird Treaty Act of 1918* (MBTA; 16 U.S.C. 703), and the *Bald and Golden Eagle Protection Act* (16 U.S.C. 668–668c) as well as Executive Order 11988, "Floodplain Management," and Executive Order 11990, "Protection of Wetlands." The review also addresses whether other significant resources such as Washington State-listed species of concern, wetlands, and native shrub-steppe habitats are adequately considered during the project planning process. When adverse effects are identified, mitigation actions are prescribed. Mitigation actions may include avoidance of significant resources, minimization of effects, and rectification or compensation if resources are affected.

There were 158 ecological compliance reviews requested during FY 2016, including 143 reviews to support general Hanford Site activities and 15 reviews for River Corridor environmental restoration activities. By comparison, 188 ecological compliance reviews were performed in 2015 including 155 reviews to support general Hanford Site activities and 33 reviews for River Corridor environmental restoration activities.

2.5.1.1 Endangered Species Act of 1973 (16 U.S.C. 1531). Several protected species of plants and animals exist on the Hanford Site and along the Hanford Reach of the Columbia River. Upper Columbia River Steelhead trout (*Oncorhynchus mykiss*) and spring-run Chinook salmon (*Oncorhynchus tshawytscha*) are listed under the *Endangered Species Act of 1973* (16 U.S.C. 1531) as either threatened or endangered (50 CFR 17, "Endangered and Threatened Wildlife and Plants," Subpart B, "Lists") and occur onsite. Critical habitat for these species has been designated within the Hanford Reach. The bull trout (*Salvelinus confluentus*) is also listed under 16 U.S.C. 1531 and may occasionally occur in the Hanford Reach; critical habitat for bull trout was designated in the Hanford Reach in 2010 (USFWS 2010). The *Threatened and Endangered Species Management Plan: Salmon, Steelhead, and Bull Trout* (DOE/RL-2000-27) is in place for all three fish species. Two plant species, the Umtanum desert buckwheat (*Eriogonum codium*) and White Bluffs bladderpod (*Physaria douglasii* ssp. *tupleshensis*) are now listed under 16 U.S.C. 1531. Other species on the Hanford Site are listed by the WDFW as endangered, threatened, or sensitive (see Section 11.2).

2.5.1.2 *Migratory Bird Treaty Act* (16 U.S.C. 703). The MBTA prohibits taking or disturbing listed migratory birds or their feathers, eggs, or nests. Over 200 species of birds that regularly occur on the Hanford Site are protected under this Act. All Hanford Site projects with a potential to affect federal or state-listed species of concern complied with the requirements of this Act by using the ecological compliance review process as described in the BRMP (DOE/RL-96-32). When applicable, ecological reviews produce recommendations to minimize adverse impacts to migratory birds, such as performing work outside of the nesting season and minimizing the loss of habitat. Hanford Site biologists maintain migratory bird permits issued by the USFWS that allow for certain MBTA-related actions. A report of all activities conducted under this permit is provided to USFWS annually.

2.5.1.3 *Bald and Golden Eagle Protection Act* (16 U.S.C. 668). 16 U.S.C. 668 provides for the protection of the bald eagle and golden eagle by prohibiting, except under certain specified conditions, the taking, possession, or commerce of such birds. The *Bald Eagle Management Plan for the Hanford Site, South*

Central Washington (DOE/RL-94-150) directs Hanford Site activities in accordance with current federal and state regulations and guidelines. This management plan outlines seasonal access restrictions around documented nesting and communal roosting sites at the Hanford Site and establishes guidelines for the protection of perches, roosts, and nest sites. When applicable, ecological reviews have produced recommendations to minimize adverse impacts to bald eagles, including performing work outside of the winter season; staying out of established buffer areas; or entering buffer areas at mid-day, minimizing impacts by avoiding eagle roosting periods.

2.5.1.4 Executive Orders 11988 and 11990. Executive Order 11988 and Executive Order 11990 require federal agencies to minimize the loss or degradation of wetlands on federal lands and account for floodplain management when developing water- and land-use plans, respectively. DOE implements the requirements of these two executive orders through 10 CFR 1022, "Compliance with Floodplain and Wetlands Environmental Review Requirements." It is DOE policy to 1) restore and preserve natural and beneficial values served by floodplains; 2) minimize the destruction, loss, or degradation of wetlands; and 3) preserve and enhance the natural and beneficial value of wetlands. Compliance with these executive orders, as well as the wetland provisions of the *Clean Water Act of 1977* (33 U.S.C. 1251), are implemented at the Hanford Site through the ecological compliance review process in conjunction with the appropriate site environmental compliance officers. The compliance process includes the identification, protection, and, when necessary, mitigation of wetlands and floodplains on the Hanford Site.

2.5.2 Cultural Resource Compliance

CD Currie

The *Department of Energy Management of Cultural Resources* (DOE P 141.1) requires compliance with cultural resource-related laws and regulations to include the *Antiquities Act of 1906* (54 U.S.C. 320301-320303), *Historic Sites Act of 1935* (54 U.S.C. 320301-320303; 18 U.S.C. 1866(b)), *National Historic Preservation Act of 1966* (54 U.S.C. 300101), NEPA (42 U.S.C. 4321 et seq.), *Archaeological and Historic Preservation Act of 1974* (54 U.S.C. 312501-312508), *American Indian Religious Freedom Act of 1978* (42 U.S.C. 1996), *Archaeological Resources Protection Act of 1979* (16 U.S.C. 470aa-mm), and *Native American Graves Protection and Repatriation Act* (Public Law 101-601).

Regulations applicable to cultural resources include 36 CFR 60, "National Register of Historic Places"; 36 CFR 63, "Determinations of Eligibility for Inclusion in the National Register of Historic Places"; 36 CFR 65, "National Historic Landmarks Program"; 36 CFR 79, "Curation of Federally-Owned and Administered Archaeological Collections"; 36 CFR 800, "Protection of Historic Properties"; 43 CFR 7, Protection of Archaeological Resources"; and 43 CFR 10, "Native American Graves Protection and Repatriation and Regulations."

Executive orders applicable to cultural resources include Executive Order 11593, "Protection and Enhancement of the Cultural Environment"; Executive Order 13007, "Indian Sacred Sites"; Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments"; Executive Order 13287, "Preserve America"; and Presidential Proclamation 7319, *Establishment of the Hanford Reach National Monument* (65 FR 37253). Refer to Section 11.3 for details regarding the Hanford Site Cultural and Historic Resources Programs.

2.6 Sustainability Statutes

JR Draper

The federal government is committed to avoiding the depletion of natural resources. Federal requirements and guidance have been initiated for agencies to follow. The following are additional statutes implemented at the Hanford Site.

2.6.1 Chemical Management Systems

ML Hermanson

Each Hanford Site contractor maintains a formal program to manage chemicals used by their respective contracts. These chemical management programs apply to the acquisition, use, storage, transportation, and final disposition of all chemicals used at Hanford. A central sitewide information system (The Safety Data Sheets-Material Safety Data Sheets [SDS-MSDS] Database), used by all Hanford Site contractors, maintains an inventory of chemical product SDS and MSDS. The SDS-MSDS Database is available to all Site employees with access to the Hanford Local Area Network. An information only copy of the SDS-MSDS Database has been made available outside the Hanford Local Area Network in a public domain. This public domain copy makes the manufacturers SDS and MSDS documents available to public emergency responders, should the need arise, when any chemicals managed by a Hanford contractor are shipped offsite. The SDS-MSDS Database is also the information point of entry for the Hanford Site's Chemical Inventory Tracking System (CITS).

Each chemical product is entered into the CITS Database and is profiled identifying information such as the percentage of pure chemical constituents; Specific Gravity; flash point; physical state; National Fire Protection Association (NFPA) 704 classification; Occupational Safety and Health Administration 29 CFR 1910.1200, "Hazard Communication"; hazard class; and category. Codes are applied to each chemical constituent that identify reporting requirement categories.

Hanford Site contractors assign personnel to enter information into CITS to track the inventory of their company's chemicals from acquisition, use, storage, and transportation through final disposition. Using the CITS inventory quantity and location data combined with the chemical product profile information, data sets are generated to support company hazard communication and required reporting such as EPCRA Toxic Release Inventory, NFPA 1 Maximum Allowable Quantity (MAQ) limitations, and DOE Sustainable Environmental Stewardship goals.

2.6.2 Pollution Prevention Program (42 U.S.C. 133)

MM Rehberg

The *Pollution Prevention Act of 1990* (42 U.S.C. 133) requires that pollution be prevented or reduced at the source whenever possible, and pollution that cannot be prevented be recycled or treated in an environmentally safe manner. The Hanford Site Sustainability Plan (HNF-54800) was created to promote sustainability, natural and cultural resource preservation, and the integration of sustainable practices into management functions and mission activities. DOE is responsible for the Hanford Site Sustainability Plan and provides the Site Sustainability Guidance to Hanford Site contractors to build a comprehensive approach to site sustainability. This plan provides goals and expectations for the implementation of energy conservation opportunities, water conservation initiatives, greenhouse gas emission reductions, waste minimization, and pollution prevention.

DOE O 436.1, *Departmental Sustainability*, establishes pollution prevention and environmental stewardship requirements. In accordance with these requirements, pollution prevention and waste minimization activities are documented, tracked, and reported. Table 2-7 summarizes Hanford Site pollution prevention and waste minimization quantities recycled in FY 2016.

Table 2-7. Recycle Quantities.

Material	FY 2016 Total (metric tons)
Non-hazardous Solid Wastes	
Cardboard	89.10
CI Shredded Paper	616.26
Furniture	142.80
Plastic Bottles	36.39
Tires	42.51
Wood Pallets	60.85
Activated Carbon	36.29
Ferrous Metal	124.18
Non-ferrous Metals	18.60
Software/Media	3.62
Aluminum Cans	2.36
MSA Zero Waste Picnic	0.16
Subtotal	**1173.12**
Regulated Solid Wastes	
Aerosol Cans	0.00
Antifreeze	2.81
Antifreeze – Fleet	2.28
Ballasts	2.14
Batteries	3.89
Fluorescent Bulbs	9.11
Lamps	0.00
Lead Acid Batteries	24.20
Lead Acid Batteries (Fleet)	11.65
PCB Waste Oil <50ppm	4.33
Toner Cartridges	5.35
Used Engine Oils (Fleet)	17.97
Used Oil	27.13
WCH Cartridge	0.58
Subtotal	**111.44**
TOTAL	**1284.45**

2.6.2.1 Pollution Prevention and Waste Minimization Accomplishments and Awards. The Hanford Site received one DOE, federal agency, state agency, or industry-sponsored award for pollution prevention and waste minimization accomplishments in CY 2016. The Green Electrics Council notified The Hanford Site that they received a three-star 2017 Electronic Product Environmental Assessment Tool (EPEAT) Purchasers Award for the combined application MSA submitted on behalf of MSA, CHPRC, and WRPS for CY 2016 (Figure 2-1). The goal of the EPEAT Purchaser Awards is to recognize excellence in the procurement of green and sustainable electronics among a wide range of organizations. The EPEAT-registered product categories are computers and displays, imaging equipment, and televisions with rating tiers of gold, silver, and bronze. EPEAT Purchasers earn one star for each product category for

which they have a written policy in place that requires the purchase of EPEAT-registered electronics registered in the EPEAT green-rating system. For 2016, those who received EPEAT Awards were collectively responsible for more than $16.8 million in energy savings, greenhouse gas reductions equivalent to removing 29,786 passenger cars from the road for a year, and a reduction of more than 702 metric tons of hazardous waste.

Figure 2-1. The 2017 EPEAT Purchaser Awards Reception Featuring Representatives from DOE, EPEAT, Green Electronics Council, MSA, and Other Award Winners.

2.6.2.2 Accomplishments. The Hanford Site has recycled 85% of non-hazardous solid waste and certain hazardous waste, excluding construction and demolition (C&D) debris. In 2016, 1,284 metric tons of non-hazardous (i.e., plastic, aluminum, cardboard, paper, wood, and metal) and hazardous (i.e., antifreeze, batteries, bulbs, and oils) wastes were recycled through Hanford Site programs administered through the Mission Support Contract. Along with material recycling and diversion, the Site strives to reduce greenhouse gases Scopes 1, 2, and 3. Emissions for FY 2016 decreased from FY 2015 largely due to a decrease in facility energy use and non-fleet fuel use, and an increase in waste diversion from landfills. Reported greenhouse gas emissions for FY 2016 were 46,829 metric tons of carbon dioxide equivalent compared with 102,645 metric tons carbon dioxide equivalent from the FY 2008 baseline and 71,693 metric tons carbon dioxide equivalent reported for FY 2015. There was a 34.5% reduction in Scope 3 greenhouse gas emissions for the Hanford Site in FY 2016 from the FY 2008 baseline; emissions in FY 2016 were 27,259 metric tons carbon dioxide equivalent, whereas emissions in FY 2008 were 41,426 metric tons carbon dioxide equivalent. Greenhouse gas emissions from employee commuting, business travel, offsite wastewater treatment, and contracted solid waste disposal are primarily dependent on work locations and the number of workers employed at the Hanford Site.

During FY 2016, contractors at the Hanford Site continued to divert C&D from landfill disposal. The Hanford Site diverted approximately 59% (2,028 metric tons) of C&D debris from the inert landfill. Hanford continues to make efforts to divert C&D materials suitable for reuse and recycle from landfills. One of the larger contributors of C&D diversion in FY 2016 was from utilizing road repair debris for structural base and wood utility poles for fence posts as part of the Hanford Site's footprint reduction

scope of work. The following are some ongoing Hanford Site projects and operations expected to increase the generation of C&D debris in FY 2017:

- Eleven miles of electrical distribution line removal
- Rebuild of 1st St. from Canton Ave. to the IDF entrance
- Pump-and-treat filter upgrades
- Land clearing operations for construction
- Reducing waterline pipe size and runs.

2.6.3 Environmental Orders

One DOE order and one Presidential Executive Order address sustainability and are complied with at the Hanford Site.

Executive Order 13693 superseded Executive Order 13423 and established a policy for federal agencies to conduct legally, environmentally, economically, and fiscally sound environmental, transportation, and energy-related activities in an integrated, efficient, continuously improving, and sustainable manner. The Order established goals for the following areas: improved energy efficiency; reduced greenhouse gas emissions; use of renewable energy sources; renewable energy generation; reduced water consumption; acquisition of bio based, environmentally preferable, energy-efficient, water-efficient, and recycled products; reduced use of toxic and hazardous chemicals and materials; increased waste minimization, prevention, and recycling; use of sustainable building practices; reduced use of petroleum products for vehicles; and electronics stewardship. In addition, Executive Order 13423 requires that an Environmental Management System (EMS) be established as the mechanism for managing environmental goals, as well as other impacts to the environment from Hanford Site operations, and establishing environmental objectives and targets. The Order also requires establishing environmental management training, environmental compliance review and auditing, and leadership awards to recognize outstanding environmental, energy, or transportation management performance.

Executive Order 13693 superseded Executive Order 13514 and states that federal agencies shall increase energy efficiency; measure, report, and reduce their greenhouse gas emissions from direct and indirect activities; conserve and protect water resources through efficiency, reuse, and stormwater management; eliminate waste, recycle, and prevent pollution; leverage agency acquisitions to foster markets for sustainable technologies and environmentally preferable materials, products, and services; design, construct, maintain, and operate high performance sustainable buildings in sustainable locations; strengthen the vitality and livability of the communities in which federal facilities are located; and inform federal employees about and involve them in the achievement of these goals. In addition, Executive Order 13514 requires that targets for baseline Scope 1 (generated from site operations and activities) and Scope 2 (associated with the purchase of energy [electricity, heat, or steam] used by Hanford Site contractors) greenhouse gas emissions, along with 2020 reduction targets, be established.

Similar numbers for Scope 3 (emissions associated with ancillary activities related to Hanford Site operations, including business travel, employee commuting, vendor activities, delivery services) emissions must be established. Executive Order 13514 also sets goals for improved water use efficiency and management, promotion of pollution prevention and waste elimination, advancement of regional and local integrated planning, implementation of sustainable building lifecycle management practices, advancement of sustainable acquisition, and promotion of electronics stewardship. Executive Order 13514 requires continued implementation of a formal sustainable EMS.

DOE O 436.1 requires developing a Site Sustainability Plan integrated with the Hanford Site operational plans. In addition, the Order requires developing an EMS certified to or conforming with the ISO 14001:2015 standard, submittal of sustainability goal data and reports as well as EPCRA reporting. Implementation of DOE orders and executive orders by Hanford Site contractors is addressed in Section 3.0.

As the Hanford Site services and infrastructure contractor, MSA updated the sustainability plan (HNF-54800) for the Hanford Site in 2016 with input from DOE and Hanford Site contractors. The plan describes the energy management program and identifies planned energy efficiency, water conservation, transportation fleet management, and sustainable buildings activities, as required by DOE O 436.1. Environmental objectives developed in 2010 were maintained in 2016, as were plans for recycling, environmentally preferred procurement management, and electronic asset stewardship (see Section 3.0).

2.7 Occurrence Reporting and Processing of Operations Information

ME Carlson

Releases of radioactive and regulated materials to the environment are reported to DOE and other federal and state agencies as required by law. The specific agencies notified depend on the type, amount, and location of each release event. This section addresses releases or potential releases to the environment that may not be documented by other reporting mechanisms during the reporting period. All Hanford Site occurrences are reported to the Hanford Emergency Operations Center Shift Office and subsequently recorded in the Occurrence Reporting and Processing System. This system is a DOE electronic database that tracks occurrence reports across the DOE complex (DOE M 231.1-2, *Occurrence Reporting and Processing of Operations Information*). The following sections summarize occurrences that may have impacted the Hanford Site environment in 2016. The occurrences are arranged according to significance category, which are assigned based on the nature and severity of the occurrence. The categories include Operational Emergency; Recurring; or Category 1 (significant impact), Category 2 (moderate impact), Category 3 (minor impact), and Category 4 (some impact).

2.7.1 Operational Emergency; Recurring; or Category 1

There were no Hanford Site environmental occurrences ranked as Operational Emergency, Recurring, or Category 1, Significant Impacts.

2.7.2 Operational Emergency; Recurring; or Category 2

There were no Hanford Site environmental occurrences ranked as Operational Emergency, Recurring, or Category 2, Moderate Impacts.

2.7.3 Operational Emergency; Recurring; or Category 3

There were no Hanford Site environmental occurrences ranked as Operational Emergency, Recurring, or Category 3, Minor Impacts.

2.7.4 Operational Emergency; Recurring; or Category 4

Category 4 occurrences are defined as having some impact on safe facility operations, worker or public safety and health, regulatory compliance, or public and business interests. Summarized below is a

Category 4 occurrence with potential environmental implications that occurred on the Hanford Site during the reporting period and the discoveries of legacy contamination.

2.7.4.1 Discovery of Legacy Contamination. Each year on the Hanford Site, legacy contamination is spread from environmental conditions. Some contamination is discovered during routine survey work. Biological vectors also spread contamination; tumbleweeds, rodents, and birds are all common biological vectors. Tumbleweeds have a deep taproot that can sequester contamination from below the soil surface into the plant body on the surface. Rodents eat vegetation located in contaminated areas and deposit contaminated feces outside of the contaminated area. Birds build nests and occasionally use materials from contaminated areas, resulting in contamination transfer to uncontaminated areas. Of these three biological vectors, contaminated tumbleweeds occur most frequently and have the potential to transfer contamination the farthest distance from the original locations. High winds may contribute to the spread of legacy contamination beyond posted areas. Reports of legacy contamination that are discovered throughout the year are consolidated into quarterly reports. In 2016, there were 47 documented occurrences of legacy contamination.

2.8 Standards and Permits

JK Perry, RA Kaldor, M Kamberg, JW Wilde

Hanford Site operations must conform to a variety of government standards and permits. The primary environmental quality standards and permits applicable to Hanford Site operations are listed in Table 2-8.

Table 2-8. Environmental Permits. (3 Pages)

Dangerous Waste Permit (RCRA)
Hanford Facility RCRA Permit (WA7890008967) was issued on September 27, 1994, and has undergone several revisions. The permit expired on September 27, 2004; however, Permit WA7890008967, Rev. 8C remains in effect until a new permit is issued. Ecology issued a draft permit for public review and comment, from May 1, 2012 through October 22, 2012 (Ecology 2012). Ecology received more than 4,000 comments on the draft permit, including approximately 1,800 comments from the public and 3,000 comments from the DOE. Because information and arguments brought up during the comment period raised substantial new questions, Ecology plans to revise the draft permit and reopen the comment period (see Section 2.1.2.1).
Air Permits
Hanford Site Air Operating Permit 00-05-006, Renewal 2, covers operations on the Hanford Site having a potential to emit airborne emissions. This permit was effective on April 1, 2013, and expires March 31, 2018. The permit is intended to provide a compilation of applicable Clean Air Act requirements for radioactive and non-radioactive emissions at the Hanford Site. It will be implemented through federal and state programs (see Section 2.3.2).
Radioactive Air Emissions License for the Department of Energy Richland Operations Office Hanford Site (License FF-01) is issued to RL by WDOH. This permit was effective February 23, 2012, and expires December 31, 2017. The FF-01 license is a compilation of all applicable radioactive air emission requirements and is incorporated into the Hanford Site Air Operating Permit as an Attachment, pursuant to WAC 246-247-060(7).
Drinking Water Permits
ID# 00177 J is a permit to operate the 100-K Area drinking water system. WDOH issues the permit.
ID# 00100 4 is a permit to operate the 200-West Area drinking water system. WDOH issues the permit.

Table 2-8. Environmental Permits. (3 Pages)

ID# 41840 8 is a permit to operate the 300 Area drinking water system. WDOH issues the permit.
ID# 41947 0 is a permit to operate the 400 Area drinking water system. WDOH issues the permit.
Wastewater Permits
Permit CR-IU010, 300 Area Industrial Wastewater Discharge Permit, is issued to DOE-RL by the City of Richland. Permit CR-IU010 governs the discharges from the 300 Area facilities into the City of Richland sewer collection system. This permit expires November 30, 2021.
HAN002 through HAN075 permit onsite sewage systems to operate on the Hanford Site. WDOH issues these permits.
Permit ST-0004500, State Waste Discharge Permit, allows treated wastewater from the Effluent Treatment Facility to be discharged to the State-Approved Land Disposal Site. This permit is effective until December 31, 2019.
Permit ST0004502, State Waste Discharge Permit, allows treated effluent from the 200-East and 200-West Areas to be discharged to the 200 Areas Treated Effluent Disposal Facility. This permit is effective until June 30, 2017. ST0004502 requires reapplication for permit renewal by June 30, 2016. The permit renewal application was verified as having been received by Washington State Department of Ecology on June 28, 2016.
Permit ST0004511 is a Categorical State Waste Discharge Permit that authorizes the discharge of wastewater from maintenance, construction, and hydro testing activities and allows for cooling water, condensate, and industrial stormwater discharges at the Hanford Site. This permit expires December 31, 2018.
Permit ST0045514, State Waste Discharge Permit, is for the 200-West Area Evaporative Sewage Lagoon a domestic wastewater treatment facility located northeast of the 200-West Area. The facility consists of double-lined evaporative lagoons and is designed to have no liquid discharge to the ground. The system provides domestic wastewater treatment for the 200-West and 600 Areas, and treatment for domestic wastewater hauled from the 200-East Area and other locations within the Hanford Site.
Permit WAG-50-5180, Washington State Sand and Gravel General Permit for the Concrete Batch Plant in the 200-East Area. The Concrete Batch Plant supports construction of WTP; its primary function is making concrete. The permit provides coverage for discharges of process water and stormwater associated with Ready Mix Concrete operations. Bechtel National is the permit owner. This permit expires March 31, 2021.
Permit WAG-50-5181, Washington State Sand and Gravel General Permit for Pit 30 Quarry in the 200-East Area. Ecology issued the permit to Bechtel National, Inc.as owner/operator. The Pit 30 Quarry supports the construction of the WTP, and the primary function is making construction sand and gravel. This permit expires March 31, 2021.
Wildlife Permits
Permit MB60138B-1, Federal Fish and Wildlife Permit, issued by the U.S. Fish and Wildlife Service to DOE-RL, authorizes the collection of migratory birds for ecological monitoring, and danger to human safety and health including control of contamination. This permit expires March 31, 2018.
Permit MB05788C-0, Federal Fish and Wildlife Permit, issued by the U.S. Fish and Wildlife Service to DOE-RL, authorizes the trimming and maintenance of a Bald Eagle nest located on a Bonneville Power Administration Tower. This permit expires December 31, 2017.
Review Reference Number 13260-2009-I-0121, Federal Fish and Wildlife Section 10 Review, issued to Environmental Assessment Services in July 2009, for the potential of incidental take of salmonids during fishing activities in the Columbia River. This review has no expiration listed.
Review Reference Number 13260-2011-I-0080, Federal Fish and Wildlife Section 7 Review, issued to DOE in July 2011 for the potential of incidental take of bull trout during fishing activities in the Columbia River. This review has no expiration listed.
Permit 15-221a, Scientific Collection Permit issued by WDFW to MSA for May 2015 through May 2016 (extended through June 2016), authorizes food fish, shellfish, game fish, and wildlife collection for research purposes. This permit is renewed annually.
Permit 16-250, Scientific Collection Permit issued by WDFW to MSA for June 2016 through June 2017, authorizes the collection of food fish, shellfish, game fish, and wildlife for research purposes. This permit is renewed annually.

Table 2-8. Environmental Permits. (3 Pages)

Agency Contact Information		
State of Washington Department of Ecology P.O. Box 47600 Olympia, WA 98504-7600	U.S. Environmental Protection Agency Region 10 1200 Sixth Ave. Seattle, WA 98101	U.S. Department of Energy Richland Operations Office 825 Jadwin Ave. Richland, WA 99352
U.S. Fish and Wildlife Service Migratory Bird Permit Office 911 NE 11th Ave. Portland, OR 97232-4181	Washington State Department of Health P.O. Box 47890 Olympia, WA 98504-7890	

2.9 Environmental Noncompliance

JW Cammann

Hanford Site operations are affected and, in many cases, regulated by numerous federal and state agencies enforcing legal requirements that address environmental compliance. For example, the DOE has sole authority to take action on matters under the AEA. In some cases, other federal agencies such as the Council on Environmental Quality, EPA, and U. S. Fish and Wildlife Service have authority to regulate activities pursuant to the NEPA; CERCLA; *Endangered Species Act*; and MBTA. The EPA has delegated authority to the State of Washington Departments of Ecology and Health to regulate activities in accordance with the RCRA, *Clean Air Act*, and *Clean Water Act*. In still other cases, state laws for licensing and permitting apply to activities and have resulted in the Hanford Site Radioactive Air Emissions License, RCRA Permit, Air Operating Permit, and State Waste Discharge Permits.

In general, the laws, regulations, and other requirements applicable to Hanford Site operations include, but may not be limited to, those that address environmental quality; air quality and noise; water resources; hazardous waste and materials management; radioactive waste and materials management; ecological resources; cultural and paleontological resources; worker safety and health; radiological safety and radiation protection; transportation; emergency planning, pollution prevention, and conservation; and environmental justice. It is DOE's policy to carry out its mission in a regulatory compliant and sustainable manner to maximize energy and water efficiency; minimize chemical toxicity and harmful environmental releases; promote renewable and other clean energy development; and conserve natural, cultural, and ecological resources while sustaining assigned mission activities. This section discusses the environmental noncompliances alleged by regulatory agencies at the Hanford Site during CY 2016.

2.9.1 Regulatory Agencies

During CY 2016, there were 27 regulatory agency compliance actions filed against the DOE and its contractors for alleged violations of regulatory requirements (1 by WDOH, 25 by Ecology, and 1 by EPA Region 10) or other enforceable agreements. Twenty-four of the 27 compliance actions resulted from regulatory agency inspections of DOE facilities on the Hanford Site (see Section 2.1.2.2). The compliance actions resulted in 128 concerns and 66 compliance actions. DOE-RL was fined $50,000 for alleged improper container labeling, inadequate waste designations, incomplete waste inventory records, noncompliant inspection logs, failure to conduct weekly inspections, and universal waste accumulation at T-Plant. On September 12, 2016 DOE-RL's Plateau Remediation Contractor appealed the $50,000 fine to the Pollution Control Hearing Board. On June 29, 2017 DOE-RL's Plateau Remediation Contractor and

Ecology signed a "Settlement Agreement and Joint Motion to Dismiss" (CHPRC-1702829). The agreement requires establishment of a 90-day hazardous waste accumulation area at the T-Plant Complex and complete waste designation within defined time periods. The agreement also requires updating of the facility operating record for the T-Plant Complex.

Table 2-9 summarizes the alleged environmental noncompliances by program area. Table 2-10 summarizes the 27 alleged environmental noncompliances filed against the DOE and its contractors during CY 2016 including a description of the alleged noncompliances. Figure 2-2 shows alleged environmental noncompliance concerns, violations, and associated fines.

Table 2-9. Alleged Environmental Noncompliance Summary by Program Area, 2010–2015.

Program Area	2011	2012	2013	2014	2015	2016
CAA	0	0	4	2	3	1
CWA	0	0	0	0	1	0
RCRA	1	2	4	7	16	22
CERCLA	0	3	1	0	0	1
Others	1	2	1	1	7	3
Total Notices of Violation	2	7	10	10	27	27

Table 2-10. Summary of Alleged Environmental Noncompliances for CY 2016. (4 Pages)

Agency	Document Number	Title	Alleged Noncompliance Description
Ecology	2017-05	ECOLOGY NOTICE OF DEFICIENCY REGARDING CLOSURE NOTICE FOR CONTAINER STORAGE AREAS LOCATED IN 400 AREA WASTE MANAGEMENT UNIT	Failure to submit closure notice for 400 Area Waste Management Unit (WMU) Interim Storage Facility (ISA) and Fuel Storage Facility (FSF) per WAC 173-303-610(3)(c) and RCRA Permit.
Ecology	2017-04	ECOLOGY WARNING LETTER FOR DANGEROUS WASTE VIOLATIONS BASED ON 6/7-9/2016 GROUNDWATER OPERATION AND MAINTENANCE INSPECTION	Incomplete inspection records, no specific conductance exceedances confirmation sampling, failure to sample for ICP metals (mercury, selenium, and lead), failure to implement groundwater QA program.
Ecology	2017-03	ECOLOGY WARNING LETTER FOR ALLEGED DANGEROUS WASTE VIOLATIONS AT PUREX PLANT AND PUREX TUNNELS BASED ON 4/28/2016 INSPECTION	Failure to determine whether a white powder discovered during the 2015 annual surveillance of the PUREX Plant and PUREX Tunnels designates as dangerous waste under WAC-173-303.
Ecology	2017-02	ECOLOGY WARNING LETTER FOR ALLEGED DANGEROUS WASTE VIOLATIONS AT LLBG MIXED WASTE TRENCHES 31/34 BASED ON 5/11/2016 INSPECTION	Dangerous waste containers not properly marked/labeled with major risks, full printed names on inspection logs, fire extinguisher locations and evacuation routes in Contingency Plan.
Ecology	2017-01	ECOLOGY WARNING LETTER FOR ALLEGED VIOLATIONS OF DANGEROUS WASTE REGULATIONS AT CENTRAL WASTE COMPLEX BASED ON INSPECTION ON 6/13/2016	Transfer dangerous waste stored in Container #Z7610-210 to a container that is in good condition or overpack Container #Z7610-210 into a container that is in good

Table 2-10. Summary of Alleged Environmental Noncompliances for CY 2016. (4 Pages)

Agency	Document Number	Title	Alleged Noncompliance Description
			condition; container labeling with major risks.
Ecology	2016-28	ECOLOGY WARNING LETTER BASED ON INSPECTION OF B-PLANT ON 4/28/2016	Failure to place time of inspection on round sheets; failure to use full printed name and signature on round sheets.
Ecology	2016-27	INITIATION OF DISPUTE RESOLUTION PER TPA ACTION PLAN SECTION 9 REGARDING NEED FOR PUREX CANYON CLOSURE PLAN	Failure to develop and maintain a closure plan for PUREX Canyon in the operating record in accordance with 40 CFR 265 Subpart G and 265.197.
Ecology	2016-26	ECOLOGY WARNING LETTER BASED ON SITEWIDE INSPECTION OF DANGEROUS WASTE TRAINING PROGRAM ON 1/12/2016	Develop Dangerous Waste Training Plans for 183-H Solar Evaporation Basins and 300 Area Process Trenches, place in operating record. Revise TFC-PLN-07 Dangerous Waste Training Plan to include missing job titles/descriptions.
Ecology	2016-25	ECOLOGY WARNING LETTER FOR DANGEROUS WASTE COMPLIANCE INSPECTION AT WESF ON 5/26/2016	Inspection records without dates, times, and printed name and handwritten signature of the inspector per WAC 173-303-320(2)(d).
Ecology	2016-24	ECOLOGY COMPLIANCE INSPECTION REPORT, ADMINISTRATIVE ORDER, AND NOTICE OF PENALTY FOR DANGEROUS WASTE REGULATION VIOLATIONS AT T-PLANT	Improper container labeling, inadequate waste designations, incomplete waste inventory records, noncompliant inspection logs, failure to conduct inspections weekly, universal waste accumulation exceeding 1 year allowed.
Ecology	2016-23	ECOLOGY WARNING LETTER BASED ON 3/23/2016 DANGEROUS WASTE COMPLIANCE INSPECTION AT WASTE RECEIVING AND PROCESSING FACILITY	Within 60 days provide documentation that the roof leaks in 2404-WB have been repaired or placed on a schedule for remedy.
Ecology	2016-22	NOTICE OF CORRECTION FOR 241-AZ-301 CONDENSATE WASTE DESIGNATION AND LOADING STATION	Correct the designation of the AZ-301 condensate and provide Ecology with a revised designation.
Ecology	2016-21	ECOLOGY WARNING LETTER BASED ON DANGEROUS WASTE COMPLIANCE INSPECTION AT 242-A EVAPORATOR ON SEPTEMBER 23, 2015	Inadequate dangerous waste signage on loading room rollup door; incomplete dangerous waste inspection reports; missing fire system inspections; inadequate personnel training.
Ecology	2016-20	WARNING LETTER FOR DANGEROUS WASTE COMPLIANCE INSPECTION ON 3/24/2016 AT THE 241-CX TANK SYSTEM	Incomplete inspection log sheets.
Ecology	2016-19	DISAPPROVAL OF HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER CHANGE CONTROL FORM M-89-16-01	Ecology disapproval of TPA Change Control Form M-89-16-01 regarding TPA Milestone M-089-06 for the 324 Building Closure Plan.
Ecology	2016-18	ECOLOGY WARNING LETTER FOR DANGEROUS WASTE COMPLIANCE INSPECTION AT ETF/LERF ON JUNE 25, 2015	Well identification tags lacking, Groundwater Monitoring Plan updates, permit modifications lacking, inspection log deficiencies, operating record deficiencies,

Table 2-10. Summary of Alleged Environmental Noncompliances for CY 2016. (4 Pages)

Agency	Document Number	Title	Alleged Noncompliance Description
			missing integrity assessments, and improper DW accumulation.
Ecology	2016-17	ECOLOGY WARNING LETTER FOR DANGEROUS WASTE COMPLIANCE INSPECTION AT HEXONE STORAGE AND TREATMENT FACILITY ON 3/14/16	Incomplete information on Hexone Storage and Treatment Facility inspection record; missing time of inspection.
Ecology	2016-16	ECOLOGY NOTICE OF CONCERNS BASED ON CENTRALIZED CONSOLIDATION/RECYCLE CENTER INSPECTION ON 11/17/2015	No regulatory noncompliances. Ecology identified three concerns that do not require a response including UW accumulation longer than 1 year at CCRC, information on bill of lading, and need to update CCRC management plan.
Ecology	2016-15	ECOLOGY WARNING LETTER FOR DANGEROUS WASTE COMPLIANCE INSPECTION AT 222-S LABORATORY DANGEROUS-MIXED WASTE STORAGE AREAS ON 9/22/2015	Noncompliance with dangerous waste regulations regarding inspection reports and inclusion of printed name of inspector, signature, notation of observations, date, and nature of repairs or remedial actions.
Ecology	2016-14	ECOLOGY WARNING LETTER FOR DANGEROUS WASTE COMPLIANCE INSPECTION AT SINGLE SHELL TANK FARM SYSTEM ON 7/28/2015	Violation of dangerous waste regulations regarding proper filling out of hazardous waste manifests with physical site address and failure to conduct inspections every 7 days.
Ecology	2016-13	ECOLOGY WARNING LETTER FOR DANGEROUS WASTE COMPLIANCE INSPECTION AT SOLID WASTE OPERATIONS COMPLEX ON 10/22/2014	Missing CWC annual ignitable/reactive inspection records for 2009; inspections not being performed annually; incomplete inspection records missing time of inspection; DWMUs not authorized to treat/store dangerous/mixed waste.
Ecology	2016-12	ECOLOGY WARNING LETTER FOR DANGEROUS WASTE COMPLIANCE INSPECTION AT PUREX PLANT AND STORAGE TUNNELS ON 3/12/2015	Noncompliance with dangerous waste regulations involving inspection record deficiencies, Building Emergency Plan deficiencies, inadequate tank signage/labeling, inadequate inspections.
WDOH	2016-11	GENERAL NOTICE OF POTENTIAL VIOLATION OF CODE OF FEDERAL REGULATIONS 40 CFR 61.93 AND HANFORD RADIOACTIVE AIR EMISSIONS LICENSE FF-01	Failure to continuously monitor stack air emissions or operating outside of sampling system design parameters at emission units 291-A-1, 296-B-1, and 296-H-212.
EPA	2016-10	FAILURE TO COMPLY WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) AT THE 618-10 BURIAL GROUND	Failure to comply with Applicable or Relevant and Appropriate Requirements (ARARs) at the 618-10 Burial Ground leading to release of radioactive contaminants into areas accessible by the public.
Ecology	2016-09	ECOLOGY WARNING LETTER FOR DANGEROUS WASTE COMPLIANCE INSPECTION AT DOUBLE-SHELL TANKS SYSTEM ON 6/30/2015	Lack of closure schedule for 204-AR WUS tank system; incomplete inspection records missing name of inspector, date/time of inspection, observations, and remedial/repair actions.

Table 2-10. Summary of Alleged Environmental Noncompliances for CY 2016. (4 Pages)

Agency	Document Number	Title	Alleged Noncompliance Description
Ecology	2016-08	INITIATION OF DISPUTE RESOLUTION ON DISAPPROVAL OF TPA CHANGE CONTROL FORMS M-47-15-01 AND M-90-15-01	This involves initiation of dispute resolution to address DOE-ORP proposed changes to TPA milestones that were disapproved by Ecology.
Ecology	2016-07	ECOLOGY WARNING LETTER FOR DANGEROUS WASTE COMPLIANCE INSPECTION AT CENTRAL WASTE COMPLEX ON 4/1/2015	Violations of WAC 173-303 relating to documentation for disposal, containers in poor condition, inability to inspect containers, containers lacking accumulation start dates, and incomplete inspection records.

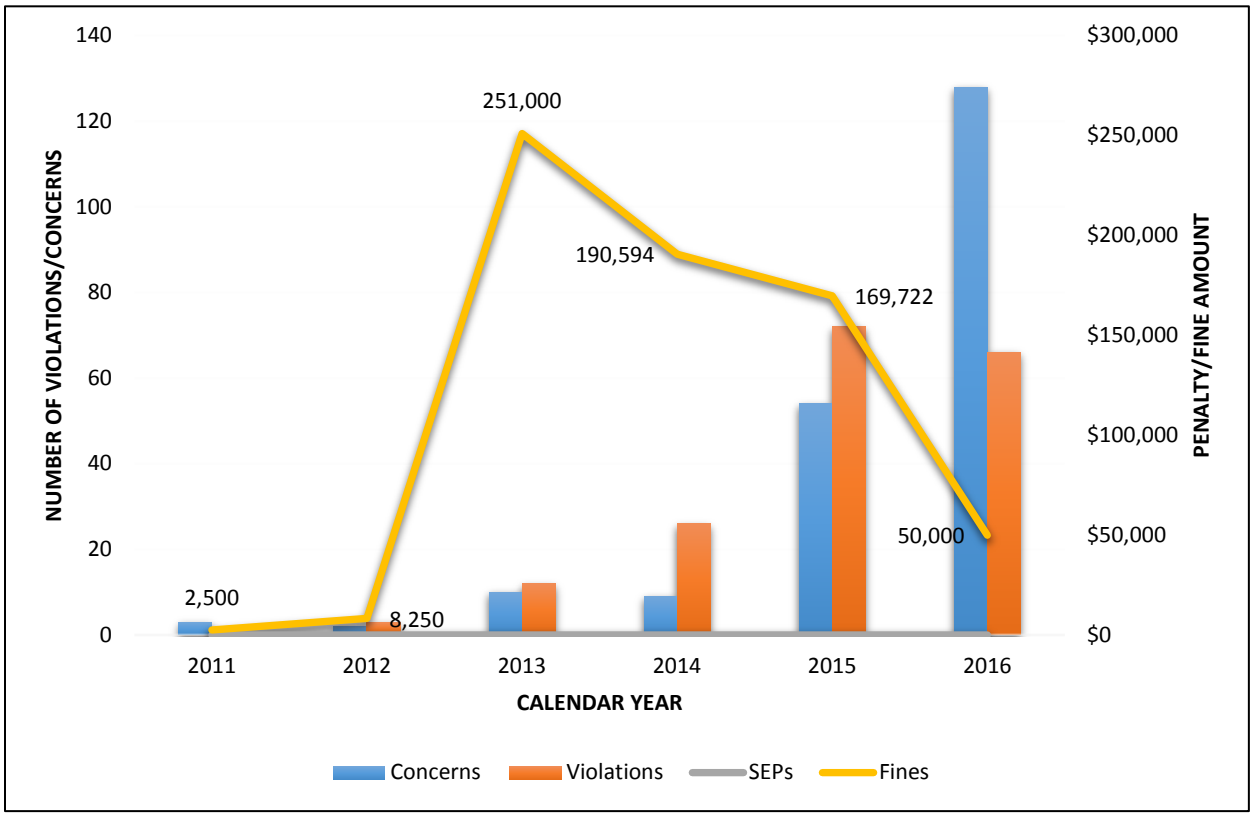

Figure 2-2. Alleged Environmental Noncompliance Violations, Concerns, and Associated Fines Summary.

NOTE 1: Supplemental environmental projects (SEPs) performed to benefit the local community in lieu of a penalty payment.
NOTE 2: The $50,000 fine in CY 2016 was appealed to the Pollution Control Hearing Board. On June 29, 2017, DOE-RL's Plateau Remediation Contractor and Ecology signed a "Settlement Agreement and Joint Motion to Dismiss" (CHPRC-1702829).

To avoid litigation expense and to settle administrative or judicial claims or causes of action a regulatory agency may have against them, DOE and its contractors, without admitting fault or liability, may enter into Agreed Orders and other negotiated regulatory agreements to resolve regulatory agency allegations asserted therein. Nothing in the agreements or in the execution and implementation of the terms and conditions of the agreements shall be taken as an admission of liability by DOE and its contractors, and DOE and its contractors neither admit nor deny the specific factual allegations contained therein. Regulatory agencies progress through a variety of tools to gain compliance, usually starting with a warning letter or letter of noncompliance. If the warning does not result in compliance, then enforcement actions can escalate to notices, orders, or civil penalties issued by the Washington State Attorney General. Although DOE and its contractors may receive warning letters from regulatory agencies, such letters do not constitute formal enforcement actions represented by notices, orders, or civil penalties issued by the Washington State Attorney General that may be appealed.

2.9.2 Waste Water Permit Deviations

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During CY 2016, there were 11 non-compliances reported to regulatory agencies for wastewater permit deviations (2 to WDOH, 9 to Ecology). Of the 11 events, 9 of them involved State Waste Discharge Permits, and 2 of involved Large Onsite Sewage System permits. In all cases, the required actions to stop and correct the non-compliant conditions were taken and regulatory notifications were made in accordance with the applicable permit requirements. Table 2-11 shows the dates of non-compliance, applicable Permit Numbers, Regulatory Agencies and Reasons for each deviation.

Table 2-11. CY 2016 Wastewater Permit Deviations.

Date	Permit Number Deviated	Reported To	Reason(s)
March 9	ST0004502	Ecology	Exceeded monthly chloroform average in February and March 2016.
April 15	ST0004502	Ecology	Missed performing required pH and conductivity surveillances from April 15 through 18, 2016, due to power outage.
April 23	ST0004511	Ecology	Outside water faucet with hose attached at MO-412 200W was left on.
June 17	ST0004500	Ecology	Leaking air vacuum relief valve in manhole MH-ETF-09.
June 20	HAN 011	Health	Lift station overfilled (2607-Z) 200-West.
September 5	ST0004502	Ecology	Leaking air vacuum relief valve in manhole TL-01.
September 12	HAN 049	Health	Air vent seepage due to blockage in distribution line between 6607-18 and 2607-EP.
October 1	ST0004502	Ecology	Unauthorized discharge of chemical rinsate from WESF to TEDF.
November 4	ST0004511	Ecology	Unplanned release during hydrotest of WTP Plant Cooling Water lines exceeded Condition S1.B.2 instantaneous flow rate limit of 150 gallons per minute.
December 14	ST0004502	Ecology	Leaking air vacuum relief valve in manhole TL-04.
December 28	ST0004502	Ecology	Nitrate analysis not performed within required hold time in December 2016.

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