

Hanford Site Pollution Prevention and Waste Minimization Program Plan

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

Contractor for the U.S. Department of Energy
under Contract 89303320DEM000031



P.O. Box 943
Richland, Washington 99352

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CONTENTS

1.0 INTRODUCTION..... 1

 1.1 Scope 2

 1.2 Site Description and Operations 3

2.0 ENVIRONMENTAL POLICY 3

3.0 LEGAL AND OTHER REQUIREMENTS 3

 3.1 CRD O 436.1 Supp Rev. 0 Requirements 4

 3.2 RCRA Requirements 5

 3.3 Other Requirements 5

4.0 POLLUTION PREVENTION/WASTE MINIMIZATION ORGANIZATION AND STRUCTURE 6

 4.1 Hanford Mission Integration Solutions Pollution Prevention/Waste Minimization Program Manager 6

 4.2 Pollution Prevention/Waste Minimization Program..... 6

 4.3 Roles and Responsibilities 7

 4.3.1 Line Organizations 7

 4.3.2 Energy Management 7

 4.3.3 Facilities Operations & Maintenance..... 7

 4.3.4 Environmental Support Staff 7

 4.3.5 Environmental Management System 8

 4.3.6 Environmental Programs Subject Matter Experts 8

 4.3.7 Sustainable Acquisition 8

 4.3.8 Fleet Maintenance 8

 4.3.9 Information Management Services 9

 4.3.10 Asset Control..... 9

 4.3.11 Industrial Hygiene..... 9

 4.3.12 P2/Waste Min Points of Contact..... 9

 4.4 Relationship with the U.S. Department of Energy 10

 4.5 Training 10

 4.6 Records Management/Document Control 10

 4.7 Data Analysis and Reporting Requirements 11

 4.8 Evaluation of Compliance..... 11

5.0	POLLUTION PREVENTION PROGRAM IMPLEMENTATION.....	12
5.1	Energy Efficiency, Greenhouse Gas Emissions Avoidance or Reduction, and Petroleum Product Reduction	12
5.2	Renewable Energy	13
5.3	Water Conservation	13
5.4	Sustainable Acquisition.....	13
5.5	Chemical management	13
5.5.1	Toxic and Hazardous Chemical Reduction	13
5.5.2	Mercury Reduction.....	14
5.5.3	Lead Use Assessment.....	14
5.5.4	Ozone Depleting Substances	14
5.6	Vehicle Fleet Management	14
5.7	Electronic Stewardship.....	14
5.8	High Performance Construction, Lease, Operation, and Maintenance of Buildings	14
5.9	Pollution and Waste Prevention and Recycling.....	15
5.10	Regional and Local Integration Planning.....	15
6.0	REPORTING.....	15
6.1	Annual Pollution Prevention Performance Reporting to the U.S Department of Energy.....	15
6.2	Resource Conservation and Recovery Act Waste Minimization Certification	15
6.3	Annual Dangerous Waste Report	16
6.4	Hanford Site Sustainability Plan.....	16
6.5	Annual Site Environmental Report.....	16
6.6	Environmental Management System Reports.....	16
7.0	AWARENESS AND OUTREACH.....	16
8.0	REFERENCES	17

ACRONYMS AND ABBREVIATIONS

AFV	alternative fuel vehicles
ASER	Annual Site Environmental Report
CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
CFR	<i>Code of Federal Regulations</i>
CPG	Comprehensive Procurement Guidelines
D&D	Decontamination and Decommissioning
DEAR	Department of Energy Acquisition Regulation
DOE	U.S. Department of Energy
DOE-HQ	U.S. Department of Energy-Headquarters
DOE-ORP	U.S. Department of Energy, Office of River Protection
DOE-RL	U.S. Department of Energy, Richland Operations Office
ECO	Environmental Compliance Officer
EMS	Environmental Management System
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPEAT	Electronic Product Environmental Assessment Tool
GHG	greenhouse gas
HMIS	Hanford Mission Integration Solutions, LLC
HSSP	Hanford Site Sustainability Plan
ISO	International Organization for Standardization
IT	information technology
MA	Mission Assurance
NEPA	<i>National Environmental Policy Act of 1969</i>
NPL	National Priorities List
ODS	ozone depleting substances
P2	pollution prevention
P2/Waste Min	Pollution Prevention/Waste Minimization
POC	Point of Contact
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
SA	sustainable acquisition
SME	Subject Matter Expert
USDA	U.S. Department of Agriculture
WAC	<i>Washington Administrative Code</i>
WMin	Waste Minimization

DEFINITIONS

Biobased Product. A product determined by the U.S. Department of Agriculture (USDA) Secretary to be a commercial or industrial product (other than food or feed) that is composed, in whole or in significant part, of biological products or renewable domestic agricultural materials (including plant, animal, and marine materials) or forestry materials.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). Regulation enacted in 1980 to address problems associated with inactive or abandoned hazardous waste sites. Provisions were designed to respond comprehensively to problems associated with “inactive” hazardous waste sites. These regulations contain the procedures and standards that are to be followed in the cleanup of these sites. CERCLA contains enforcement provisions. These provisions identify the classes of parties liable under CERCLA, detail the causes of action under the statute, and provide guidance on settlements with the U.S. Environmental Protection Agency (EPA). In 1986, CERCLA was amended by the *Superfund Amendments and Reauthorization Act of 1986* that was directed specifically at federal agencies.

Cleanup/Stabilization Waste. Cleanup/stabilization waste consists of one-time operations waste produced from environmental restoration activities, including primary and secondary waste associated with retrieval and remediation operations, “legacy wastes,” and any wastes from decontamination and decommissioning/transition operations, and any wastes that are generated on a one-time basis, such as construction wastes.

Cleanup/stabilization activities that generate wastes do not necessarily occur at a single point in time, but may last for several years while producing wastes. By definition, these activities are not considered to be routine (periodic and/or ongoing), because the waste is a direct result of past operations and activities, rather than a current process. Newly generated wastes that are produced during these “one-time operations” are considered a secondary waste stream and are separately accounted for whenever possible. This secondary (newly generated) waste usually results from common activities such as handling, sampling, treatment, repackaging, shipping, etc.

Dangerous Waste. Hazardous waste regulated by State of Washington, Department of Ecology under *Washington Administrative Code (WAC) 173-303*, “Dangerous Waste Regulations.”

Designated Products. Products that are or can be made from recovered materials that have been designated in the Comprehensive Procurement Guidelines (CPG) through EPA's formal rulemaking process (also referred to as "designated items").

Generator. Each contractor within the scope of the Pollution Prevention/Waste Minimization (P2/Waste Min) Program whose activities or processes produce waste.

Goal. A specific result toward which efforts are directed.

Hazardous Substance. Any hazardous substance listed as a hazardous substance in the *Emergency Planning and Community Right-To-Know Act* and any further updates, and all ozone-depleting compounds, as defined by the *Montreal Protocol of October 1987* and any further updates of the protocol.

Hazardous Waste. Those solid wastes that exhibit any of the characteristics of hazardous waste identified in Title 40 Code of Federal Regulations (CFR) Part 261, “Identification and Listing of Hazardous Waste,” Subpart C, “Characteristics of Hazardous Waste,” (i.e., ignitable, corrosive, reactive, or toxic), or that are listed in 40 CFR 261, Subpart D, “Lists of Hazardous Wastes.”

Metrics. Quantifiable data relevant to “how much” of a commodity is being measured (pounds, volume in L/m³).

Mixed Waste. Waste containing both radioactive and hazardous components, as defined by the *Atomic Energy Act of 1954* and *Resource Conservation and Recovery Act of 1976* (RCRA), respectively.

Non-Routine Waste. Waste generated from one-time activities associated with new construction, deactivation, demolition, decontamination and decommissioning (D&D), and spill cleanup.

Objectives. Description of the measurable goals for environmental performance.

Ozone-Depleting Substances (ODS). Chemical compounds that cause or contribute significantly to the destruction of the stratospheric ozone layer beyond natural reactions.

Pollutant. A substance whose dispersion into the environment has a deleterious effect on the ecosystem.

Pollution Prevention (P2). Preventing or reducing the generation of pollutants, contaminants, hazardous substances, or wastes at the source, or reducing the amount for treatment, storage, and disposal through recycling.

Post-Consumer Materials. A material or finished product that has served its intended use and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item. Post-consumer materials are part of the broader category of recovered materials.

RCRA-Regulated Waste. Solid waste, not specifically excluded from regulations under 40 CFR 261.4, or delisted by petition, that is either a listed hazardous waste (40 CFR 261.30 to 261.33) or exhibits the characteristics of a hazardous waste (40 CFR 261.20 to 261.24).

RCRA Section 6002. RCRA Section 6002, as amended, directs EPA to designate items that are or can be produced with recovered materials and to recommend practices for buying these items. Among other things, RCRA Section 6002 also provides criteria for EPA to consider when selecting items for designation, and requires procuring agencies to establish affirmative procurement programs for designated items.

Recovered Materials. Waste materials and byproducts that have been recovered or diverted from solid waste, but do not include materials and byproducts generated from, and commonly reused within, an original manufacturing process.

Recycling. Recycling techniques are characterized as use, reuse, and reclamation techniques (resource recovery). Use or reuse involves the return of a potential waste material either to the originating process as a substitute for an input material or to another process as an input material. Reclamation is the processing or regeneration of a material to recover a useable product.

Routine Operations Waste. Normal operations waste produced from any type of production, analytical and/or research and development laboratory operations; treatment, storage, or disposal operations; “work-for-others;” or any periodic and recurring work that is considered ongoing. The term “normal operations” refers to the type of ongoing process (e.g., production), not the specific activity that produced the waste. Periodic laboratory or facility clean-outs and spill cleanups that occur as a result of these processes are also considered normal operations.

Sanitary Waste. All non-hazardous and non-radioactive waste disposed in a sanitary landfill including demolition waste, industrial wastes, and wastes such as garbage generated by normal housekeeping activities.

Segregation. The practice of separating or isolating contaminated materials from non-contaminated materials, or the separation/isolation of one waste type from another in an attempt to minimize the amount of the more noxious (and costly) material for disposal.

Source Reduction. The elimination or reduction of waste generation at the source. Source reduction activities and techniques include substitution of less hazardous materials, process optimization or modification, technology changes and administrative changes (inventory control), and housekeeping practices (material segregation). Source reduction results in reducing or eliminating potential waste material existing from a process.

Sustainable Acquisition (SA). A program that ensures that items composed of recovered materials will be purchased to the maximum extent practicable, consistent with Federal law and procurement regulations (RCRA, Section 6002 and 40 CFR Part 247, “Comprehensive Procurement Guideline for Products Containing Recovered Materials”). Guidance on this program has been issued and is updated as EPA issues additional guidelines. The list of EPA-designated products may be found at <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program#products>.

Treatment. Any method, technique, or process (including neutralization) designed to change the physical, chemical, or biological character or composition of any hazardous radioactive or sanitary waste so as to neutralize such waste, to recover energy or material resources from the waste, or to render such waste non-hazardous; safer to transport, store, or dispose; or amenable for recovery or storage; or reduced in volume.

Universal Waste. Certain types of dangerous waste can be handled under the simplified Universal Waste (UW) rules. UW management allows much easier waste management than regular dangerous waste requirements. Three categories of waste can be managed as UW: (1)

batteries, (2) lights and lamps, and (3) mercury-containing equipment, such as thermometers, thermostats, or switches and delays.

Waste Minimization (WMin). An action that economically avoids or reduces the generation of waste by source reduction, reduces the toxicity of hazardous waste, improves energy usage or recycling. This action will be consistent with the general goal of minimizing present and future threats to human health, safety, and the environment.

Waste Reduction. Reduction of the total amount of waste that is generated and disposed of by the U.S. Department of Energy (DOE) operations through WMin and treatment activities.

1.0 INTRODUCTION

The Pollution Prevention/Waste Minimization (P2/Waste Min) Program is a central element across the Hanford Site. This P2/Waste Min Program is multi-faceted and applies to all routine and non-routine activities that use resources and generate waste. Routine operations consist of production, analytical, research and development, treatment, storage, and disposal operations, and other ongoing periodic or recurring work. Non-routine operations consist of one-time activities associated with new construction, deactivation, demolition, decontamination and decommissioning (D&D), and spill cleanup. The term “waste” includes hazardous waste, chemical waste, state-regulated waste, low-level radioactive waste, mixed waste, and sanitary waste, as well as inefficient use of resources and overconsumption (e.g., buying more than is needed for the project). The term “resources” is all encompassing and includes any raw material, product, energy source, or natural resource used to fulfill the Hanford Site’s mission. This plan applies to all operations and associated support activities throughout the Hanford Site.

This plan provides specific information on how the Hanford Site P2/Waste Min Program will identify, develop, and implement the goals, activities, and budget necessary to accomplish program implementation. This plan is one of a hierarchical series that includes directives from Executive Orders called out in CRD O 436.1 Supp Rev. 0, *Department Sustainability*, as well as programs required by *Resource Conservation and Recovery Act (RCRA) 3002(b) and 3005(h)* and Department of Energy Acquisition Regulation (DEAR) (48 CFR 970.5204-2, “Laws, Regulations, and DOE Directives”).

P2/Waste Min applies to all Hanford Site projects, facilities, and services. The contractual requirements for an Environmental Management System (EMS), including P2/Waste Min policies, have been incorporated into the contracts for the Hanford prime contractors listed below. The prime contractors and their subcontractors are required to implement the U.S. Department of Energy’s (DOE’s) P2/Waste Min policies. Implementation of the P2/Waste Min Program is based upon CRD O 436.1 Supp Rev. 0. CRD O 436.1 Supp Rev. 0 is not included in the contract for Bechtel National, Inc, but has been incorporated into the major prime contracts for the contractors listed below.

- Hanford Mission Integration Solutions, LLC (HMIS)
- Central Plateau Remediation Company (CPCCo)
- Washington River Protection Solutions, LLC (WRPS)
- HPMC Occupational Medical Services (HPMC)
- Hanford Laboratory Management and Integration (HLMI)

Hanford prime contractors and their subcontractors are committed to developing and implementing an effective P2/Waste Min Program. P2/Waste Min is viewed as a “good business” practice and is required under the RCRA regulations. The P2/Waste Min Program’s purpose is to promote and integrate environmental sustainability into all Hanford Site operations and contribute to the overall effectiveness of the Hanford Site environmental program. Identification of environmental risks and the ability to develop and apply P2/Waste Min-based solutions becomes a critical means to:

- Reduce waste
- Conserve resources
- Reduce pollution or minimize pollutant releases to the environment from Hanford prime contractors and all associated subcontractor activities and operations.

The environmental sustainability ethic is supported by the Hanford Site prime contractors' Environmental Policies, which outline the importance of being responsible stewards of the environment and incorporate sustainable environmental stewardship practices as a core value in all our operations.

1.1 SCOPE

The scope of the Hanford Site P2/Waste Min Program is to provide an organized, comprehensive, and continual effort to reduce hazardous, universal, and sanitary waste; to conserve resources; and to prevent or minimize pollutant releases to the environment from Hanford prime contractors and all associated subcontractor activities and operations.

Reducing hazardous, universal, and sanitary waste is accomplished through:

- Maintaining and continually improving an effective recycling program
- Continually improving on waste diversion from landfills
- Waste minimization practices
- Chemical management
- Sustainable acquisition (SA).

Conserving resources is accomplished through:

- Continual improvement in energy and water use reduction and conservation
- Electronic stewardship
- SA
- High performance construction, lease, operation, and maintenance of buildings.

Reducing or minimizing pollutant releases is accomplished through:

- Energy conservation and greenhouse gas (GHG) emission reduction
- Fleet management
- SA.

The P2/Waste Min Program provides technical support to contractor staff to meet their mission needs with the goals of optimizing resource efficiency and minimizing waste. This is accomplished by developing, maintaining, and enhancing the corporate infrastructure to integrate P2/Waste Min concepts into daily work activities.

P2/Waste Min progress is reported through the EMS Metrics, the Hanford Site Sustainability Plan (HSSP), DOE Sustainability Dashboard, and the Annual Site Environmental Report (ASER).

The P2/Waste Min Program supports submittal of data for a variety of awards offered by federal and state government agencies.

1.2 SITE DESCRIPTION AND OPERATIONS

The Hanford Site, in southeastern Washington State, is approximately 1,517 km² (586 mi²) of semi-arid shrub and grasslands located just north of the confluence of the Snake and Yakima rivers with the Columbia River. The Hanford Site, formerly known as the Hanford Engineer Works, was established by the federal government in 1943 and, until 1989, was dedicated primarily to the production of plutonium for national defense and the management of the resulting waste. With the shutdown of the production facilities in the 1970s and 1980s, DOE ended the production of nuclear materials for weapons at the Hanford Site.

In 1989, portions of the Hanford Site were placed on the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) National Priorities List (NPL) as contaminated sites requiring cleanup action. Top priorities include a reduction in risk and a reduction in the time required to complete the cleanup mission, as well as a reduction in the amount of land managed actively by DOE. Since 1989, portions of the Hanford Site have been cleaned up (i.e., decontaminated and decommissioned) and released for other uses. The Hanford Site is presently managed by DOE Richland Operations Office (DOE-RL) and DOE Office of River Protection (DOE-ORP).

2.0 ENVIRONMENTAL POLICY

It is the mission of the Hanford Site contractors to be responsible stewards of the environment. Sustainable environmental stewardship and pollution prevention practices shall be incorporated as a core value in all operations. As the Hanford Site mission integration contractor, HMIS is committed to achieving environmental excellence through the systematic integration of environmental protection and compliance, as well as worker health and safety protection and quality principles, throughout our operations. To this end, HMIS will establish, document, implement, maintain, and continually improve a Pollution Prevention/Waste Minimization Program that will be an integral component of the Hanford Site.

3.0 LEGAL AND OTHER REQUIREMENTS

The P2/Waste Min concepts first appeared in RCRA. An expressed concern was to minimize the generation of hazardous waste through process substitution, materials recovery, recycling, reuse, and treatment. It established the reduction or elimination of hazardous waste as national policy and required hazardous waste generators and RCRA permit holders to have a program in place to minimize waste.

The [*Pollution Prevention Act of 1990*](#) expanded on RCRA, formulating the following policy known as the waste management hierarchy for addressing management of waste and pollutants:

The Congress hereby declares to be the national policy of the United States that pollution should be prevented or reduced at the source whenever feasible; pollution that cannot be prevented or reduced should be recycled in an environmentally safe manner whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or other release into the environment should be emphasized only as a last resort and should be conducted in an environmentally safe manner.

The requirements of the P2/Waste Min Program are defined by CRD O 436.1 Supp Rev. 0, as well as Section 3005(h) of RCRA [42 USC 6925(h)] and associated implementing requirements. Provided below is an overview of the P2/Waste Min Program Requirements.

3.1 CRD O 436.1 SUPP REV. 0 REQUIREMENTS

CRD O 436.1 Supp Rev. 0 requires the Hanford Site prime contractors to establish and implement activities that support DOE sustainability goals and requires submittal of reports and data specified by DOE contracts. In addition, the Hanford Site contractors strive to maintain an EMS Plan that aligns with International Organization for Standardization (ISO) 14001 to implement Site Sustainability Plans that include objectives that contribute to achieving the sustainability requirements outlined in CRD O 436.1 Supp Rev. 0. These objectives will be reviewed and updated annually. This document is to be reviewed and updated as needed by the P2/Waste Min Manager to ensure consistency with current sustainability goals. The sustainability goals of the overall Hanford Site P2/Waste Min Program include:

- Energy efficiency, GHG emissions avoidance or reduction, and petroleum product reduction
- Renewable energy, including bioenergy
- Water conservation
- SA
- Pollution and waste prevention and recycling
- Reduction or elimination of acquisition and use of toxic or hazardous chemicals (chemical management)
- High performance construction, lease, operation, and maintenance of buildings
- Vehicle/fleet management
- Electronic stewardship.

3.2 RCRA REQUIREMENTS

The P2/Waste Min Program requirements imposed under the RCRA are summarized below:

RCRA P2 Driver(s)	Requirement Text
<ul style="list-style-type: none"> • WAC 173-303-380(1)(q) • 40 CFR 264.73(b)(9) • RCRA Permit Condition II.Z • Section 3005(h) of RCRA, 42 USC 6925(h) 	<p><i>A certification by the permittee no less often than annually, that the permittee has a program in place to reduce the volume and toxicity of hazardous waste that they generate to the degree determined by the permittee to be economically practicable; and the proposed method of treatment, storage or disposal is that practicable method currently available to the permittee which minimizes the present and future threat to human health and the environment</i></p>
<ul style="list-style-type: none"> • WAC 173-303-180(8) • 40 CFR 262.27 	<p><i>A generator who initiates a shipment of hazardous waste must certify to one of the following statements in Item 15 of the uniform hazardous waste manifest:</i></p> <p><i>(a) "I am a large quantity generator. I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment;" or</i></p> <p><i>(b) "I am a medium quantity generator. I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford."</i></p>

3.3 OTHER REQUIREMENTS

Other key pieces of environmental legislation and directives also incorporate aspects of P2/Waste Min. These include but are not limited to the [National Environmental Policy Act of 1969](#) (NEPA) and *Washington Administrative Code (WAC) 173-307*, "Pollution Prevention Plans."

4.0 POLLUTION PREVENTION/WASTE MINIMIZATION ORGANIZATION AND STRUCTURE

4.1 HANFORD MISSION INTEGRATION SOLUTIONS POLLUTION PREVENTION/WASTE MINIMIZATION PROGRAM MANAGER

- The HMIS P2/Waste Min Program Manager will provide technical leadership regarding P2/Waste Min activities at the Hanford Site.
- The HMIS P2/Waste Min Program Manager or delegate will routinely assess regulatory requirements for relevance and applicability to the P2/Waste Min Program.

4.2 POLLUTION PREVENTION/WASTE MINIMIZATION PROGRAM

As the Hanford Site mission integration contractor, HMIS' P2/Waste Min Program integrates with other Hanford contractors and their subcontractors' professionals with expertise in strategies, practices, and technologies to assist in achieving sustainability goals. The lead for the Hanford Site P2/Waste Min Program is the HMIS P2/Waste Min Program Manager and Site Sustainability Program Coordinator. The P2/Waste Min Program provides the following services, as requested:

- Assessments and other methodologies as requested, based on the line owner's preference to analyze waste streams and processes that generate waste.
- Researching potential product substitutions, process changes, and SAs that result in resource conservation and the reduction or elimination of hazardous and toxic chemical use and resultant waste.
- Providing data on the purchases of recycled-content, biobased-content, WaterSense products, and Electronic Product Environmental Assessment Tool (EPEAT) equipment, as well as ENERGY STAR®¹ electronics, as requested.
- Cost-benefit analyses for P2 opportunities.
- Identification of recycling opportunities and improvement and coordination of recycling efforts.
- Recognition of line and support organization accomplishments and promoting awareness for P2/Waste Min.
- Providing recycling data to DOE, state, and federal regulatory agencies, prime contractor Environmental Departments, and associated line organizations, as requested.

¹ ENERGY STAR is a registered trademark of the U.S. Environmental Protection Agency.

4.3 ROLES AND RESPONSIBILITIES

The P2/Waste Min Program is an element of the Hanford Site Sustainability Program, which is responsible for identifying, managing, and supporting the management of energy conservation opportunities, water conservation, GHG emission reductions, and P2/Waste Min opportunities.

The P2/Waste Minimization Program Manager/Site Sustainability Program Coordinator is to reference this document along with the Environmental Position Description for responsibilities and implementing procedures, as well as review and update these if changes are made to this document altering the P2/Waste Minimization job responsibilities.

The P2/Waste Min Program interfaces with different contractor organizations, as well as community organizations, to implement the requirements of the P2/Waste Min Program. The function of these organizations and relationship to the P2/Waste Min Program is described below.

4.3.1 Line Organizations

The line organization is the key functional unit for the implementation of P2/Waste Min opportunities, as well as Waste Management; Mission Assurance (MA); and EMS requirements. Line organizations, with assistance from their managers, their environmental support staff (which may include Environmental Compliance Officers [ECOs]), waste management services, and the P2/Waste Min staff, are responsible for:

- Reviewing operating practices to identify areas of improvement.
- Evaluating and implementing cost-effective, alternative practices to reduce pollution, maximize recycling, conserve resources, and purchase recycled and biobased-content products.

4.3.2 Energy Management

Energy Management is a function performed through the Hanford Site Sustainability Program and is responsible for identifying energy conservation opportunities, water conservation, decreased fuel usage, and other resource preservation.

4.3.3 Facilities Operations & Maintenance

The management, operations, and maintenance of existing buildings and utilities; planning, designing, modifying, and constructing new buildings; and providing environmentally sound site services, is essential to Hanford operations. The facilities maintenance and operations personnel carry out these functions. The P2/Waste Min Program works with facility counterparts to ensure recycling efforts are taken and environmentally preferable practices are used:

4.3.4 Environmental Support Staff

The Hanford Site contractors provide environmental support staff who advise and assist line organizations with environmental issues to ensure regulatory compliance. Often environmental

support staff will work closely with line staff and other waste management and environmental professionals to identify P2/Waste Min opportunities, in addition to the identification and resolution of other environmental issues. The environmental support staff, in coordination with Industrial Hygiene and waste management support staff, are also available to evaluate new chemical products, on an as-needed basis, for the purpose of ensuring environmental compliance and to identify P2/Waste Min opportunities.

4.3.5 Environmental Management System

The EMS is a continuing cycle of planning, implementing, evaluating, and improving processes to achieve environmental goals. Hanford's prime contractor EMSs provide an integrated approach for management to identify and manage environmental risks. P2/Waste Min is a technical arm of respective prime contractor EMSs, assisting with implementation of contractor goals that align with P2/Waste Min goals including waste prevention, toxic material reduction, SAs, and recycling.

4.3.6 Environmental Programs Subject Matter Experts

Hanford Site contractors and their subcontractors employ environmental professionals with expertise in the various environmental regulations, (e.g., air quality, wastewater, and stormwater). The P2/Waste Min staff work with these Subject Matter Experts (SME) to ensure that P2/Waste Min projects and activities are implemented in full compliance with applicable regulations.

4.3.7 Sustainable Acquisition

Supplies and services at Hanford can be procured by one of the following methods: contracts, purchase requisitions, or P-cards. Each of these purchasing methods is subject to the SA, recycle-content, biobased-content, and electronic stewardship requirements. Hanford Site prime contractor Procurement departments, and/or SA SME, as directed in their respective contracts, are responsible for providing support and implementing an SA program for U.S. Environmental Protection Agency (EPA) designated products with recycled content and U.S. Department of Agriculture's (USDA) Federal BioPreferred Procurement Program. Contract language requiring EPEAT and ENERGY STAR registered products be incorporated into electronic office equipment, environmentally preferred products, biobased products, and recycled content products, should be carried out by the appropriate SA departments.

The P2/Waste Min Program works with Procurement and SA SMEs on the above issues and assists them in developing language for new and proposed contracts to ensure that purchases are environmentally sustainable and include life cycle environmental assessments, where applicable.

4.3.8 Fleet Maintenance

The Fleet Services Department operates the Motor Pool Complex where they perform preventative, predictive, and corrective maintenance activities on vehicles, forklifts, heavy equipment, and carts controlled by HMIS. P2/Waste Min provides Fleet Services with technical support regarding SA products and practices.

4.3.9 Information Management Services

Information Management Services establishes program controls for information management performance reporting, energy savings, and EMS integration. The P2/Waste Min Program works with Information Management Services to track and report purchases of EPEAT equipment, as well as ENERGY STAR electronics in support of annual reporting.

4.3.10 Asset Control

Asset Control is responsible for the management of property-numbered equipment (property), surplus material from line organizations, scrap metal, and other equipment of value that can be repurposed via the Asset Disposition Program. The P2/Waste Min staff works with Asset Control to maximize reuse and recycling opportunities and collect respective data.

4.3.11 Industrial Hygiene

The mission of the Industrial Hygiene program is to provide services and tools to enable the workforce to reduce the risk of work-related diseases and illnesses and the incidence of regulatory non-compliances. Industrial Hygiene primarily involves the control of occupational health hazards that occur during the course of work.

4.3.12 P2/Waste Min Points of Contact

The P2/Waste Min points of contact (POC) meet as needed to discuss opportunities for the success and/or failure of current reuse and recycling activities and the need for waste diversion for certain waste streams. P2/Waste Min POCs give assistance to field personnel, as requested. Below are examples of some of the activities the P2/Waste Min POCs may participate in.

- Attend and participate regularly in EMS meetings.
- Assist personnel in arranging for delivery and pickup of recycle commodities at collection areas through the Service Catalog.
- Assist in collecting and presenting quarterly recycling, waste diversion, and waste generation data.
- Utilize various assessments and other methodologies when requested based on the line owner's preference to analyze waste streams and processes that generate waste.
- Assist facilities and operations in achieving goals (e.g., waste reduction, post-consumer recycling, and SA).
- Assist with establishing objectives for particular SA activities.
- Assist in waste reduction activities by researching avenues where commodities can be re-used or recycled versus wasted out.

4.4 RELATIONSHIP WITH THE U.S. DEPARTMENT OF ENERGY

The DOE-RL/DOE-ORP offices provide oversight to P2/Waste Min activities throughout the Hanford Site. The prime contractors and their subcontractors work together with DOE to ensure regulatory compliance and protection of human health and the environment during implementation of P2/Waste Min activities. HMIS' Program Manager and DOE facilitate communications through periodic meetings on the status of the Hanford Site P2/Waste Min Program performance. The DOE P2/Waste Min Program POC is invited to P2/Waste Min Program meetings to discuss activities, successes, and potential issues. DOE provides the external POC whose roles include:

- Interfacing with EPA
- Communicating with the public
- Making decisions and setting policy that obligates DOE
- Providing oversight to Hanford's P2/Waste Min Program.

4.5 TRAINING

Training is managed using the Success Factors Learning Management system. Specific job-related training requirements are determined by managers using the Training Selection Tool, the Employee Job Task Analysis, and the Automated Job Hazards Analysis. Managers are responsible for ensuring that all training requirements and completions are entered into the Success Factors Learning Management system.

P2/Waste Min training is provided in the Hanford General Employee Training. Contractor specific training is identified by individual training plans and company policy.

Training may also be facilitated through the various contractors' communications methods to reach the workforce (e.g., contractor newsletters, safety briefings, etc.).

4.6 RECORDS MANAGEMENT/DOCUMENT CONTROL

Hanford Site prime contractors have plans, policies, and procedures describing their respective Records Management Controls and Document Control protocol. Records Management addresses the information, of any type and in any form, that may become a record or needs to be addressed to facilitate the identification and management of record information. This includes paper documents, electronic files (e.g., word processing documents, spreadsheets, and digital photographs), email messages, computer systems and their data, etc.

Document Control is for documents that are required to be managed in a manner that ensures they are properly prepared; adequately reviewed and approved; distributed to, and properly used by those responsible for performing the task, activity, or function described within the document; and revised or changed in a manner that ensures that configuration control is maintained and adequately documented.

EMS-specific and P2/Waste Min records describe the results of Hanford projects and facilitate the administrative processes that allow the Hanford prime contractors to show continual

environmentally sustainable improvements. These records are the proof and evidence of decisions, progress, and accomplishments of EMS stated annual goals and must be managed in accordance with approved Records Management Controls and Document Control protocol.

4.7 DATA ANALYSIS AND REPORTING REQUIREMENTS

In anticipation of data requests and requirements arising from the HMIS contract with DOE, the HMIS P2/Waste Min Program Manager coordinates the collection, analysis, and reporting of waste generation and diversion data. These coordination efforts include:

- Collection of Pollution Prevention/Waste Minimization data such as:
 - Diversion of non-hazardous solid waste.
 - Diversion of construction and demolition debris.
 - Reducing paper use (30 percent postconsumer content required).
 - Reduction in use of hazardous and non-hazardous chemicals.
 - Implementation of integrated pest management practices.
 - DOE use of acceptable alternative chemicals and processes.
 - DOE's decreased use of chemicals where such a decrease will assist the DOE in meeting the GHG emission reduction targets of CRD O 436.1 Supp Rev. 0.
- Ensure appropriate document control of formal records for P2/Waste Min data and reports.
- Work with Procurement/Supply Chain to improve ease and accuracy of reporting of SA data by working with Procurement personnel and management to improve identification of recycle and biobased-content products at time of purchase.
- Continue development of biobased tracking procedures as biobased purchases increase.
- Work with information technology (IT) electronic vendors to refine EPEAT reporting.
- Post environmental performance reports on EMS SharePoint.
- Provide requested activity reports to management.

4.8 EVALUATION OF COMPLIANCE

Evaluation of compliance is maintained in part by annual reviews and assessments. The HMIS P2/Waste Min Program Manager is responsible for annually reviewing regulatory updates potentially applicable to the program and to determine if changes in requirements are necessary. The P2/Waste Min Program Manager also ensures that the new and changing regulatory requirements are addressed.

The assessment program includes two types of assessments: (1) Independent Assessments, conducted by the Performance Oversight organization, and (2) Management Assessments, led by the line managers responsible for the work or programs being assessed.

Assessment activities include:

- Determine the most appropriate method to track progress of the P2/Waste Min Program Plan activities.
- Revise the P2/Waste Min Program Plan annually, as needed.
- Complete opportunities for improvement actions in a timely manner.
- Conduct assessments according to requested schedule.

5.0 POLLUTION PREVENTION PROGRAM IMPLEMENTATION

The P2/Waste Min Program is implemented by conducting activities aligned with Section 3.0 requirements. The implementation activities support development of the DOE's sustainability goals as well as additional activities in focus areas deemed important by the P2/Waste Min Program. The implementation activities integrate P2/Waste Min processes into Hanford work activities in a manner that optimizes processes, reduces environmental hazards, conserves environmental resources, minimizes life cycle cost and liabilities, and strives for environmental sustainability.

The P2/Waste Min Program objectives include:

- Promote P2/Waste Min
- Integrate environmental sustainability into Hanford Site operations and contribute to the overall effectiveness of the Hanford Site environmental program.
- Establish approaches for reducing the volume and toxicity of hazardous waste to the degree determined to be economically practicable.

Section 5.0 outlines the different aspects of the Hanford Site that are supported by the P2/Waste Min Program and CRD O 436.1 Supp Rev. 0.

5.1 ENERGY EFFICIENCY, GREENHOUSE GAS EMISSIONS AVOIDANCE OR REDUCTION, AND PETROLEUM PRODUCT REDUCTION

CRD O 436.1 Supp Rev. 0 sets forth goals to improve energy efficiency and reduce Scope 1, 2, and 3 GHG emissions. Scope 1 is direct GHG emissions from sources that are owned or controlled by a federal agency, such as a stack emission point. Scope 2 is direct GHG emissions resulting from the generation of electricity, heat, or steam. These emission points may include but are not limited to engines, boilers, and generators. Scope 3 GHG emissions come from sources not owned or directly controlled by, but related to, Hanford Site activities such as vendor supply chains, delivery services, and employee travel and commuting. The reduction of GHGs is accomplished through reduction of energy intensity, reduced fossil fuel use, fleet management,

and developing and implementing innovative policies and practices unique to Hanford Site operations.

5.2 RENEWABLE ENERGY

CRD O 436.1 Supp Rev. 0 sets forth the goal for an increased use of renewable energy, preferably from energy developed on the Hanford Site, with the ultimate goal of having at least half of the statutorily required renewable energy come from renewable sources. Hanford purchases renewable energy credits and makes use of some renewable energy sources such as solar power onsite.

5.3 WATER CONSERVATION

CRD O 436.1 Supp Rev. 0 sets forth goals for water conservation.

The Hanford Site has evaluated various methods to reduce overall water use. Due to the age of the water system, installation of low-flow devices is not feasible. However, evaluation of water reduction strategies, closure of processing facilities, and repair and maintenance of current water lines continues to reduce the amount of water used at the Hanford Site.

5.4 SUSTAINABLE ACQUISITION

CRD O 436.1 Supp Rev. 0 sets forth the goals in SA of goods and services.

The P2/Waste Min staff works with Procurement and line organizations to increase the purchase of sustainable products. P2/Waste Min personnel may assist in SA activities by researching preferable products and encouraging the purchase of recycled content and biobased products.

5.5 CHEMICAL MANAGEMENT

CRD O 436.1 Supp Rev. 0 sets forth goals for chemical management.

Each of the Hanford Site prime contractors have developed contractor specific procedures, which establish systems for the management of chemical products (excluding radioactive materials) on the Hanford Site. These procedures ensure that chemical products are properly reviewed, purchased, stored, used, and disposed. Specific objectives of the Chemical Management process include:

- Reduce waste
- Reduce chemical inventories on the Hanford Site
- Reduce chemical hazards during storage and use.

5.5.1 Toxic and Hazardous Chemical Reduction

By reducing the quantities and types of acquisitions in toxic and other hazardous chemicals, we can minimize or eliminate the potential for releases of toxic and hazardous chemicals that would otherwise require control, treatment, monitoring, and reporting. P2/Waste Min personnel can

assist in the process of determining safer chemicals and commodities that are environmentally friendly. This concept is a “mainstay concept” in P2/Waste Min.

5.5.2 Mercury Reduction

The Hanford Site is reducing mercury pollution potential by recycling mercury containing equipment per the universal waste regulations.

5.5.3 Lead Use Assessment

Lead use is being reduced at Hanford as the need for lead shielding is being reduced.

5.5.4 Ozone Depleting Substances

Reduction of ozone depleting substances (ODS) is addressed in DOE/RL-2010-86, *Hanford Site Ozone-Depleting Substance Program Plan*, which describes the programs and processes implemented at the Hanford Site to eliminate the acquisition, use, and release of ODS by maximizing the use of non-ODS alternatives.

5.6 VEHICLE FLEET MANAGEMENT

CRD O 436.1 Supp Rev. 0 sets forth goals to reduce the amount of fuel usage and optimize fleet vehicle usage.

The Hanford Site works to improve fleet efficiency practices, acquire more alternative fuel vehicles (AFV), and use alternative fuel and biodiesel to the maximum extent possible.

5.7 ELECTRONIC STEWARDSHIP

CRD O 436.1 Supp Rev. 0 sets forth goals for electronic stewardship.

The P2/Waste Min incorporates and promotes ongoing electronics stewardship practices geared to minimize the economic and environmental impacts of managing toxic byproducts and hazardous wastes.

5.8 HIGH PERFORMANCE CONSTRUCTION, LEASE, OPERATION, AND MAINTENANCE OF BUILDINGS

CRD O 436.1 Supp Rev. 0 sets forth goals for building construction, modification, operation, and maintenance.

The Hanford Site strives to meet the requirements outlined in the CRD O 436.1 Supp Rev. 0. High Performance and Sustainable Building requirements have been incorporated into Hanford Site contractor processes. New construction and building modifications are to comply with the “Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings.” The Hanford Site works to pursue cost-effective and innovative strategies to minimize consumption of energy, water, and materials.

5.9 POLLUTION AND WASTE PREVENTION AND RECYCLING

CRD O 436.1 Supp Rev. 0 sets forth goals which promote pollution and waste prevention and recycling.

The Hanford Site provides several recycling programs that assist in attaining the goals established in CRD O 436.1 Supp Rev. 0. In addition, programmatic initiatives may be established to ensure that the goals are met each year. Progress towards meeting the goals is reported annually in the HSSP, which is described in Section 6.4.

5.10 REGIONAL AND LOCAL INTEGRATION PLANNING

CRD O 436.1 Supp Rev. 0 sets forth goals to develop and advance regional and local integration planning.

The Hanford Site personnel routinely meet with community leaders, public transit leaders, working groups, and regional planning groups to ensure that planned activities are coordinated and integrated with local and regional goals.

6.0 REPORTING

Below is a summary of reports where P2/Waste Min reporting is required.

6.1 ANNUAL POLLUTION PREVENTION PERFORMANCE REPORTING TO THE U.S DEPARTMENT OF ENERGY

The U.S. Department of Energy-Headquarters (DOE-HQ) requires that each DOE complex prepare an annual report containing its waste generation and recycling, SAs, electronics stewardship and recycling data, and GHGs for the previous fiscal year as required by CRD O 436.1 Supp Rev. 0.

Some of the data required for the Sustainability Dashboard is gathered quarterly in the HMIS EMS SharePoint site to support data collection for the HSSP and EMS Metrics.

Each Hanford prime contractor is to assimilate data related to sustainable accomplishments and submit this data to HMIS for input into the Sustainability Dashboard.

6.2 RESOURCE CONSERVATION AND RECOVERY ACT WASTE MINIMIZATION CERTIFICATION

The Hanford Facility RCRA Permit (Condition II.Z), in accordance with WAC 173-303-380(1), and Section 3005(h) of RCRA, 42 USC 6925(h), require the Permittees to place an annual certification in the Hanford Facility Operating Record, Unit-Specific Files, to certify that a program is in place to reduce the quantity and toxicity of hazardous wastes generated to a degree that is economically practicable. The ECOs, or other environmental representatives, are responsible for ensuring this certification is completed and filed in the Hanford Facility Operating Record, Unit-Specific files of the permitted facilities.

6.3 ANNUAL DANGEROUS WASTE REPORT

The Dangerous Waste regulations [WAC 173-303-390(2)(g) and -390(2)(h)] require inclusion of P2 information in the Annual Dangerous Waste Report (ADWR). Based on Ecology Publication Number 04-04-028c, Hanford is exempt from the above reporting requirement. Accordingly, the P2 information is not included in the ADWR. Additional information about this exemption is provided in RAM 17-001.

6.4 HANFORD SITE SUSTAINABILITY PLAN

The Hanford Site Sustainability Program prepares the HSSP annually in accordance with guidance provided by DOE-HQ. The HSSP embraces the goals of CRD O 436.1 Supp Rev. 0, and presents Hanford Site activities or projects that support key sustainability goals and/or performance expectations. The HSSP provides relevant narratives accompanied by numerical performance data (i.e., annual energy costs, energy consumption, square footage, and water usage) for the Hanford Site contractors.

The goals of the overall HSSP promote economic, environmental, and social sustainability for the Hanford Site and support the long-term success of its missions.

6.5 ANNUAL SITE ENVIRONMENTAL REPORT

Per DOE Order 231.1B, *Environment, Safety and Health Reporting*, Hanford prime contractors support HMIS in the preparation of the Annual Site Environmental Report (ASER) that describes environmental releases, environmental monitoring activities, significant environmental compliance programs, and waste management programs. The P2/Waste Min Program Manager is responsible for preparing and submitting the portions of the report relevant to pollution prevention including accomplishments in waste reduction, awareness, SA, reuse/recycling, and awards, as well as waste generation and recycling data.

6.6 ENVIRONMENTAL MANAGEMENT SYSTEM REPORTS

The Hanford Site P2/Waste Min POCs and other departmental group managers provide input to their respective EMS programs.

7.0 AWARENESS AND OUTREACH

Awareness activities are used to inform the public and the Hanford workforce about the benefits of environmental sustainability and P2/Waste Min activities. Awareness and outreach programs teach workers and the general population “how to participate in environmentally friendly activities.” Outreach activities can include recycling campaigns, presentations, Earth Day and Earth Month events, newsletters, and website management.

8.0 REFERENCES

[40 CFR 247](#), “Comprehensive Procurement Guideline for Products Containing Recovered Materials,” Title 40, *Code of Federal Regulations*, Part 247, as amended.

[40 CFR 261](#), “Identification and Listing of Hazardous Waste,” Title 40, *Code of Federal Regulations*, Part 261, as amended.

[48 CFR 970](#), “DOE Management and Operating Contracts,” Title 48, *Code of Federal Regulations*, Part 970, as amended.

Atomic Energy Act of 1954, 42 USC 2011, et seq.

[Comprehensive Environmental Response, Compensation, and Liability Act of 1980](#), 42 USC 9601, et seq.

CRD O 436.1 Supp Rev. 0, *Departmental Sustainability*, U.S. Department of Energy, Washington, D.C.

[DOE Order 231.1B](#), *Environment, Safety and Health Reporting*, U.S. Department of Energy, Washington, D.C.

DOE/RL-2010-86, *Hanford Site Ozone-Depleting Substance Program Plan*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

[“Emergency Planning and Community Right to Know,”](#) 42 USC 11001, et seq.

[Executive Order 13693](#), *Planning for Federal Sustainability in the Next Decade*, March 19, 2015.

[HPSB Guiding Principles](#), *Guiding Principles for Sustainable Federal Buildings and Associated Instructions*, Council on Environmental Quality, February 2016.

HPSB, *High Performance and Sustainable Buildings Implementation Plan*, U.S. Department of Energy, August 15, 2008.

International Organization for Standardization (ISO) 14001:2015 International Standard, *Environmental Management Systems--Requirements with Guidance for Use*.

[National Environmental Policy Act of 1969](#), 42 USC 4321, et seq.

[Pollution Prevention Act of 1990](#), 42 USC 13101, et seq.

[Resource Conservation and Recovery Act of 1976](#), 42 USC 6901, et seq.

[WAC 173-303](#), “Dangerous Waste Regulations,” *Washington Administrative Code*, Olympia, Washington.

[WAC 173-307](#), “Pollution Prevention Plans,” *Washington Administrative Code*, Olympia, Washington.