

2019 Highlight

The U.S. Department of Energy sets goals for carrying out its mission in an environmentally sustainable manner that supports a policy of national energy security and addresses global environmental challenges. Hanford Site contractors continues to make substantial progress in meeting these goals for the Hanford Site. Below are the highlights of the progress cumulative through 2019.

Electronic Stewardship

The Hanford Site disposed of 100% of electronics through government programs and certified recyclers in fiscal year 2019. For the electronics acquisition goal, 97.5% of eligible electronic procurements met the Electronic Product Environmental Assessment Tool (EPEAT) standard.

Water Management

The Hanford Site continued to reduce potable and non-potable water consumption intensity in fiscal year 2019 at 73% (gal/ft²) and 37% (gal/ft²) reduction, respectively.

Renewable Energy Intensity

The Hanford Site derived 8.7% of electricity from renewable energy sources.

Environmental Management System Best Practices

Mission Support Alliance improved the electronic Environmental Activity Screening System for Mission Support Alliance-led projects that ensures inclusion of environmental personnel for the appropriate evaluations.

3.0 Environmental Management System

MM Oates

The U.S. Department of Energy Richland Operations Office (DOE-RL) and Office of River Protection (DOE-ORP) requires Hanford Site contractors to develop and operate under an Integrated Safety Management System (ISMS). In accordance with contract obligations, each contractor maintains an Environmental Management System (EMS) that is an integral part of the ISMS and conforms to ISO 14001, *Environmental Management Systems*. In 2015, all but one Hanford Site contractor established ISMSs as mandated by their contracts with DOE-RL and DOE-ORP. An EMS is a systematic approach to environmental performance ensuring planned activities lead to continual improvement and demonstrating to stakeholders a commitment to the environment. The ISMSs are intended to protect workers, the public, and the environment by integrating environmental, safety, and health considerations into the way work is planned, performed, and improved. DOE-RL and DOE-ORP verified that Hanford Site entities incorporated appropriate environmental program elements within their ISMS under the authority of DOE O 450.2, *Integrated Safety Management*. The dates of approval for the Hanford Site contractors' ISMS are provided in Table 3-1.

Performance related to EMS must be reported annually to U.S. Department of Energy, Headquarters (DOE-HQ). Each contractor is given an overall ranking of red, not meeting requirements; yellow, on track

to meet requirements; or green, meeting requirements, based on the previous fiscal year's (FY) performance. Rankings for Hanford Site contractors are provided in Table 3-1 along with rankings for both DOE-RL and DOE-ORP.

As the services and infrastructure contractor for the Hanford Site, Mission Support Alliance (MSA) developed HNF-54800, *Hanford ORP/RL Site Sustainability Plan*, for the Hanford Site in FY 2020 with input from 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, *Departmental Sustainability*. This Order mandates that U.S. Department of Energy sites use EMSs as the platform for sustainability program implementation. Environmental objectives were established and maintained in FY 2019, as were plans for recycling, environmentally preferred procurement management, and electronic asset stewardship. Sustainability plans are available on the MSA website link in Table 3-2.

Several contractors have made their environmental policy and environmental aspects available to the public through company internet websites (Table 3-2).

Table 3-1. DOE Contract Actions and Contractor Implementation. (2 Pages)

Actions, Implementation	Richland Operations Office				Office of River Protection		
	HPMC	CHPRC	MSA	WCH	VNSFS	BNI	WRPS
Contractor Start Date	Oct 1, 2012	Oct 1, 2008	Aug 24, 2009	Aug 27, 2005	Nov 22, 2015	Dec 11, 2000	Oct 1, 2008
DOE Approval of Contractor ISMS	NA	Nov 2009	Jan 2011	Nov 2007	Oct 2016	Feb 2003	Sept 2009
Direction to Implement EO 13423	Oct 2012	Oct 2008	Aug 2009	June 2009	Nov 2015	NA	Oct 2008
Direction to Implement EO 13514	NA	June 2012	May 2011	Oct 2012	Nov 2015	NA	Mar 2011
Direction to Implement CRD O 430.2B	NA	June 2009	Aug 2009	June 2009	NA	NA	Oct 2008
Direction to Cancel CRD O 430.2B	NA	July 2012	July 2012	Oct 2012	NA	NA	Sept 2014
Direction to Implement CRD O 450.1A	Oct 2012	June 2009	Aug 2009	June 2009	NA	NA	Oct 2009
Direction to Cancel CRD O 450.1A	Oct 2012	July 2012	Dec 2012	Oct 2012	NA	NA	Sept 2014
Direction to Implement CRD O 436.1	Sept 2014	July 2012	July 2012	Oct 2012	Nov 2015	NA	Oct 2013
Contractor EMS Established	Oct 2012	Nov 2009	Dec 2009	Sept 2009	Sept 2016	NA	Sept 2009
ISO 14001 Certification	NA	Jul 2012/ 2015/ 2018	Sept 2011/ 2014/ 2017	NA	NA	NA	NA
DOE Declared CRD O 450.1A Conformance	NA	Dec 2009	Dec 2009	Nov 2009	NA	NA	Sept 2009

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Actions, Implementation	Richland Operations Office				Office of River Protection		
	HPMC	CHPRC	MSA	WCH	VNSFS	BNI	WRPS
Most Recent Declaration of Conformance	March 2016	Sept 2018	Sept 2018	Sept 2018	Sept 2019	NA	Sept 2018
Contractor EMS Scorecard Rating	Green	Green	Green	NA	Green	NA	Green
DOE EMS Scorecard for 2019	Green			NA	Green		
NOTE: Green = meeting requirements NA = Not Applicable BNI = Bechtel National, Inc. CHPRC = CH2M Plateau Remediation Company DOE = U.S. Department of Energy EMS = Environmental Management System HPMC = HPMC Occupational Medical Services MSA = Mission Support Alliance, LLC WCH = Washington Closure Hanford, LLC VNSFS = Veolia Nuclear Solutions Federal Services WRPS = Washington River Protection Solutions, LLC							

Table 3-2. Hanford Site Environmental Management System Internet Links.

Contractor	Website	Category
CHPRC	http://chprc.hanford.gov/files.cfm/PRC-POL-EP-5054.pdf	Policy
MSA	http://msa.hanford.gov/files.cfm/ems.pdf	Policy, Aspects
VNSFS	http://wadv.wastrencloud.com/?page_id=601	Policy
WRPS	http://wrpstoc.com/tank-operations/environmental-management/	Policy, Aspects
CHPRC = CH2M Plateau Remediation Company MSA = Mission Support Alliance, LLC VNSFS = Veolia Nuclear Solutions Federal Services WRPS = Washington River Protection Solutions, LLC		

3.1 Environmental Performance Measures

In consultation with DOE-RL, DOE-ORP, and other Hanford Site prime contractors, MSA tracks environmental performance measures for the Hanford Site. Performance measures address the goals of DOE O 436.1. The measures developed in response to this Order include toxic and hazardous material reduction, sustainable acquisition, compliance with electronic product environmental assessment tool standards, sanitary waste diversion, electricity use, facility fuel use, water use, vehicle fuel use, alternative fuel vehicle acquisitions, and greenhouse gas reduction.

Baseline data was obtained in accordance with guidance in the Order. Where no guidance was available, data from FY 2009 or FY 2010 were used to establish performance baselines. Performance measurement data are used as a tool to ensure environmental goals within the DOE Orders are appropriately managed. Performance related to EMS must be reported annually to DOE-HQ.

3.1.1 Fleet Management

The acquisition target for alternative fuel vehicles was not met in FY 2019 (Figure 3-1). DOE-HQ required that a minimum of 75% of all non-mission critical light-duty vehicles purchased during FY 2019 be alternative fuel vehicles (DOE O 436.1). Acquisitions for 43% of Hanford light duty vehicles were hybrid, electric, or use E85 (ethanol) fuel.

3.1.2 Alternative Fuel Use

The petroleum-based fuel target was met for FY 2019; however, the target for alternative fuel was missed (Figure 3-2). Mission and contract structure changes since FY 2005 continue to challenge target achievement. The requirement specifies that Hanford Site contractors' fleets operate alternative fuel vehicles exclusively on alternative fuels to the maximum extent possible. This will reduce the amount of petroleum-based fuels used annually by 20% by FY 2015 relative to an FY 2005 baseline and maintain that level thereafter. The requirement includes increasing the amount of alternative fuels used annually by 10% or 2% annually by FY 2015 relative to an FY 2005 baseline and maintain that level thereafter.

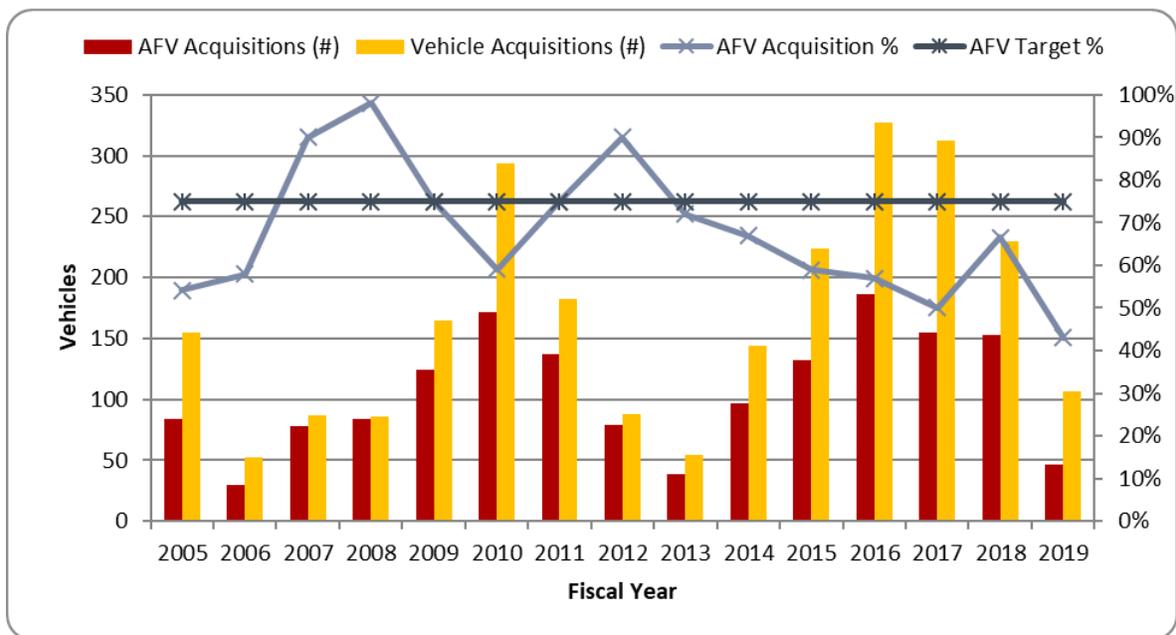


Figure 3-1. Fleet Management – Acquisitions Fiscal Years 2005 through 2019.

NOTE: AFV stands for alternative fuel vehicle

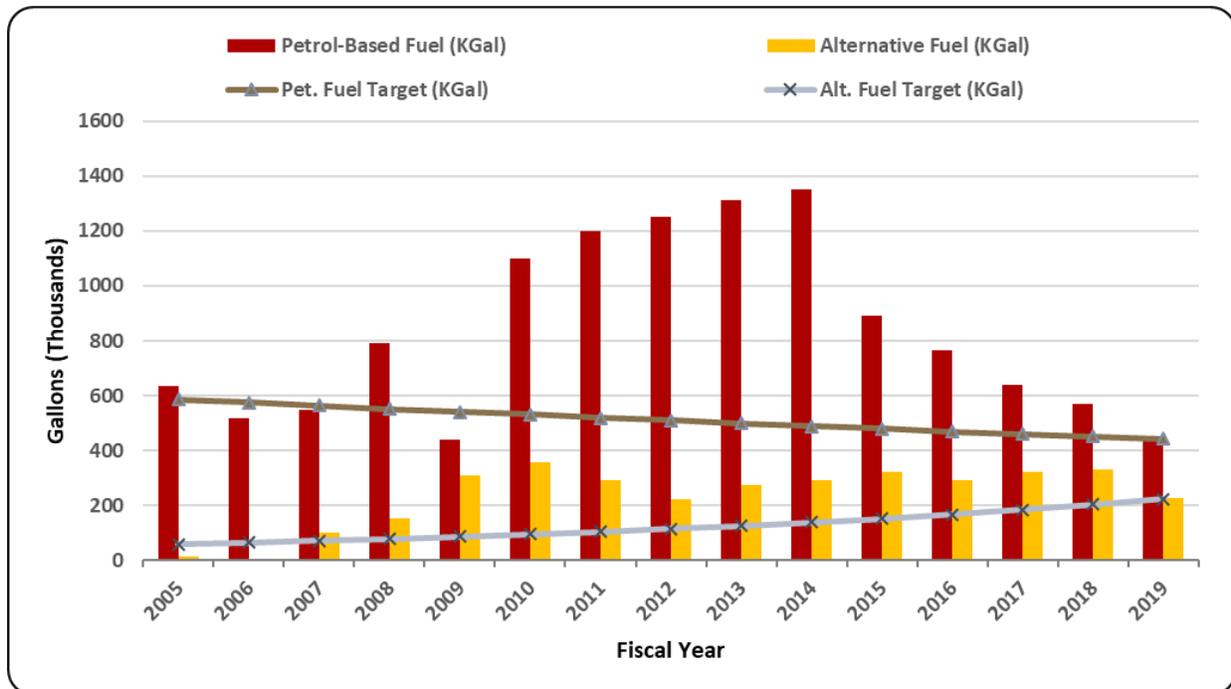


Figure 3-2. Vehicle Fuel Use – Fiscal Years 2005 through 2019.

3.1.3 Potable and Non-potable Water Use

The target objectives for potable water and non-potable water were met in FY 2019 (Figure 3-3). Fluctuations in target achievement can occur due to industrial processes that use large amounts of non-potable water, such as evaporator campaigns. Water use requirements stipulate the reduction of potable water consumption intensity by 2% annually through FY 2025 or 36% by the end of FY 2025, relative to a baseline of water consumption in FY 2007. In addition, there is a requirement to reduce non-potable water use by 2% annually through the end of FY 2025 or 30% by the end of FY 2025 relative to an FY 2010 baseline.

3.1.4 Electricity Use

As directed by Executive Order 13693, this metric has changed to track renewable electric energy as a percentage of the total electricity usage. Requirements call for renewable electric energy to account for no less than 10% of the total electricity use in FY 2016 to 2017 and working towards increasing by 2.5% each year to reach 30% of total usage by FY 2025. The target objective for renewable electric energy was not met in FY 2019 (Figure 3-4) representing 8.7% of total electricity usage. Renewable electric energy is defined in Executive Order 13693 as electricity produced or displaced by solar, wind, biomass, landfill gas, ocean, geothermal, geothermal heat pumps, micro-turbines, municipal solid waste, or new hydroelectric generation.

3.1.5 Facility Fuel Use

The target objectives for facility fuel use were met in FY 2019 (Figure 3-5). Objectives were established to demonstrate improvements in energy efficiency and effective management of energy use. The target requirements include reducing energy use by 3% annually (or 45% through the end of FY 2020) relative to the FY 2003 baseline.

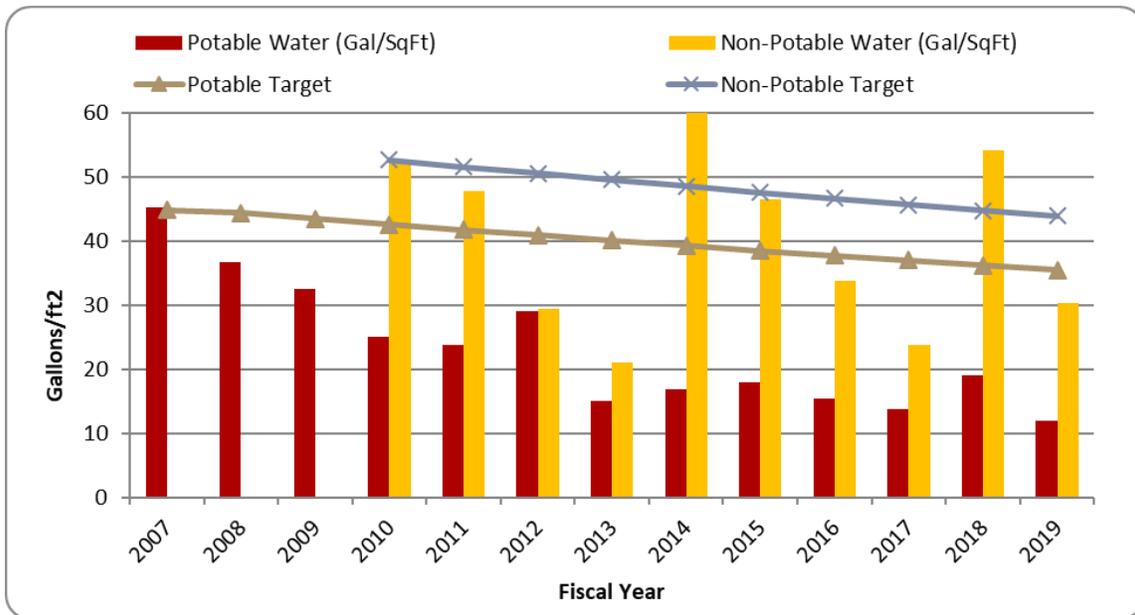


Figure 3-3. Water Use – Fiscal Years 2007 through 2019.

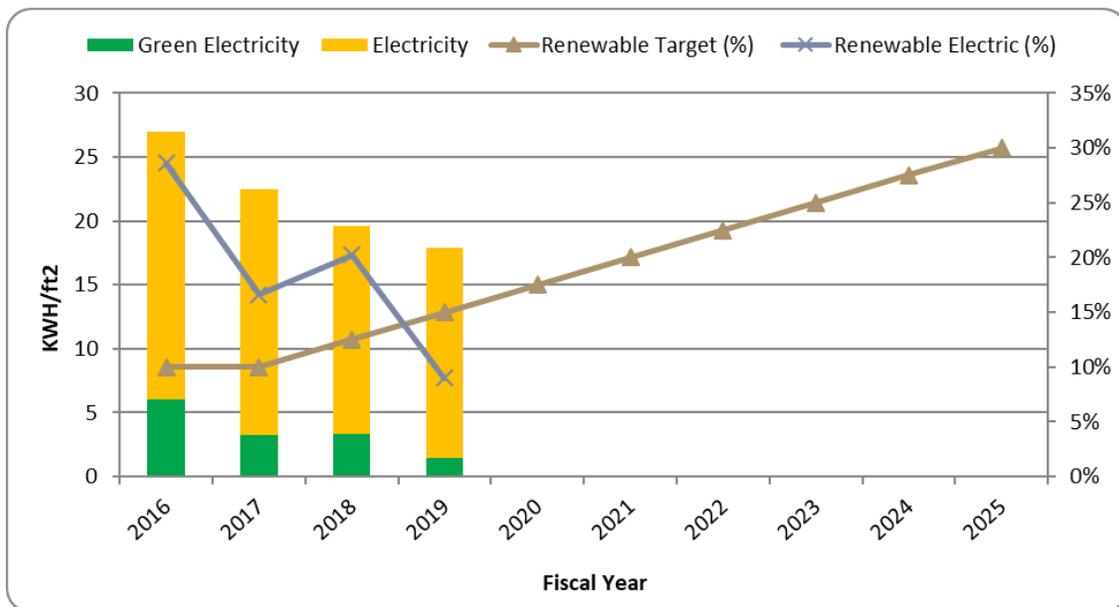


Figure 3-4. Electricity Use – Fiscal Years 2016 through 2019 with Target Objectives through 2025.

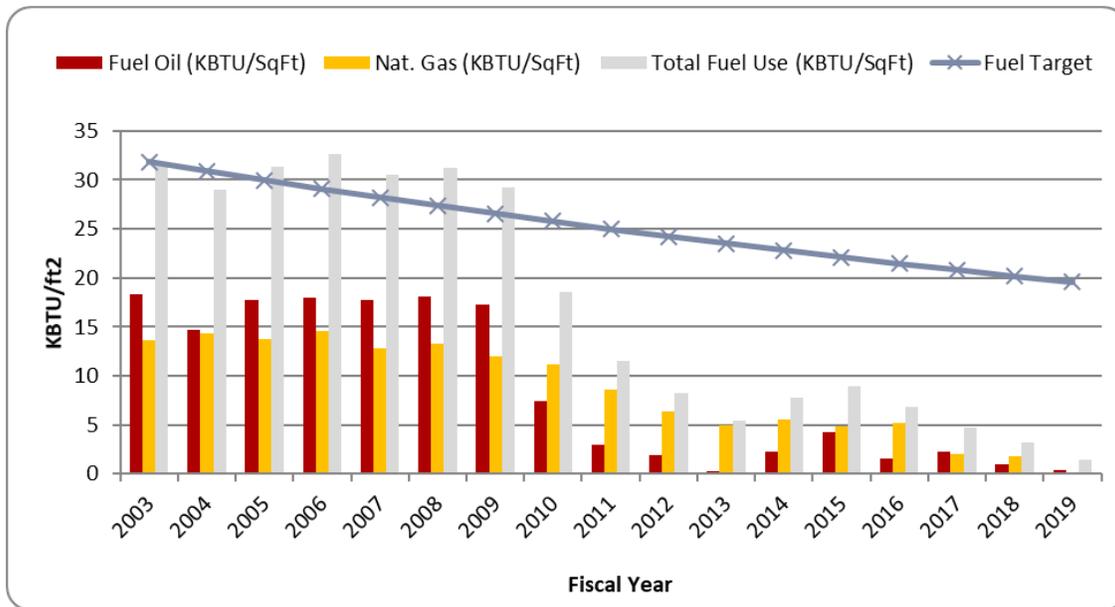


Figure 3-5. Facility Fuel Use – Fiscal Years 2003 through 2019.

NOTE: KBTU stands for one thousand British thermal units

3.1.6 Facility Energy Use

The target objective for facility energy use has been extended per Executive Order 13693.

Requirements call for the reduction of energy use (a combination of electricity, fuel oil, and natural gas) by 25% by the end of FY 2025 or 2.5% annually relative to the FY 2015 baseline. The target objective was met in FY 2019 (Figure 3-6). Note: In Figure 3-6, FY 2015 and FY 2016 data was corrected for data inclusion consistency with Hanford Site contractors, Pacific Northwest National Laboratory, and Hanford Tank Waste Treatment and Immobilization Plant operations.

3.1.7 Electronic Product Environmental Assessment Tool

The target objective for the Electronic Product Environmental Assessment Tool was met in FY 2019 with 97.5% of the purchases meeting the requirements (Figure 3-7). The requirements in Executive Order 13693 specify 95% of procured electronic assets (i.e., notebooks, computers, tablets, monitors, servers, and mobile phones) must comply with the standard in an effort to reduce or eliminate the environmental impacts of electronic assets by incorporating electronic stewardship practices. Fluctuations in the total amount of electronic products purchased can occur due to changes in federal requirements and funding.

3.1.8 Sanitary Waste Reduction

The target objective for sanitary waste reduction requires the diversion of post-consumer materials suitable for reuse and recycling from landfills to a target of 50% annually by FY 2015, based on an FY 2009 baseline (Figure 3-8), and maintain that level thereafter. The sanitary waste objective was not achieved in FY 2019. Note: In Figure 3-8, FY 2011 through FY 2016 sanitary waste disposal data was corrected and may reflect different recycling percentages than reports in previous fiscal years. Corrected fiscal year data still meets the sanitary waste objective of 50% reduction.

3.1.9 Regulated Waste Reduction

Efforts toward regulated waste reduction on the Hanford Site include eliminating or minimizing regulated waste generation through source reduction, including segregation, substitution, and reuse. Regulated waste includes waste such as hazardous, universal, special, and state-regulated industrial not suitable for disposal in sanitary or construction and demolition landfills. Regulated waste from the Hanford Site's Environmental Restoration Disposal Facility is displayed in Figure 3-9.

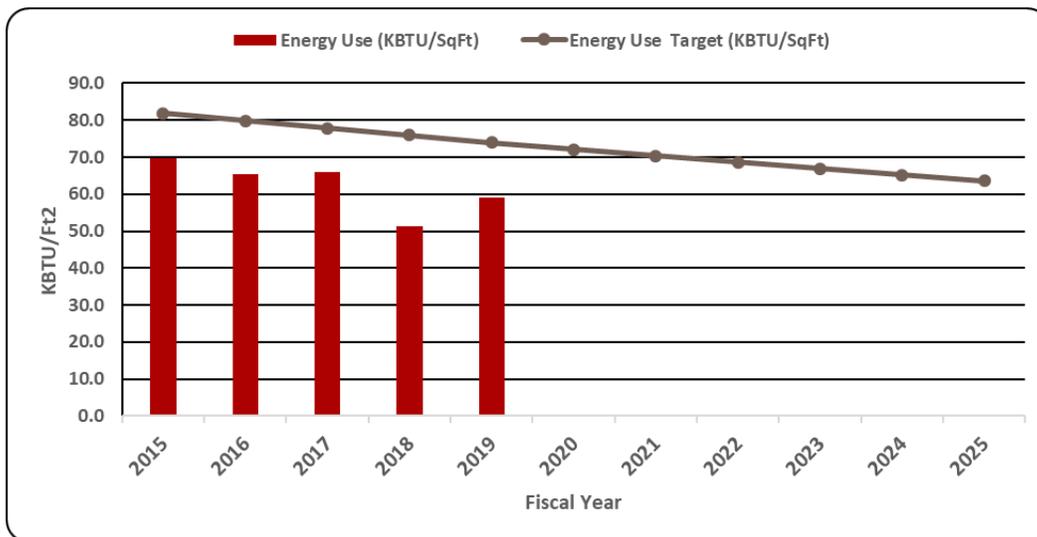


Figure 3-6. Facility Energy Use – Fiscal Years 2015 through 2019 with Target Objectives through 2025.

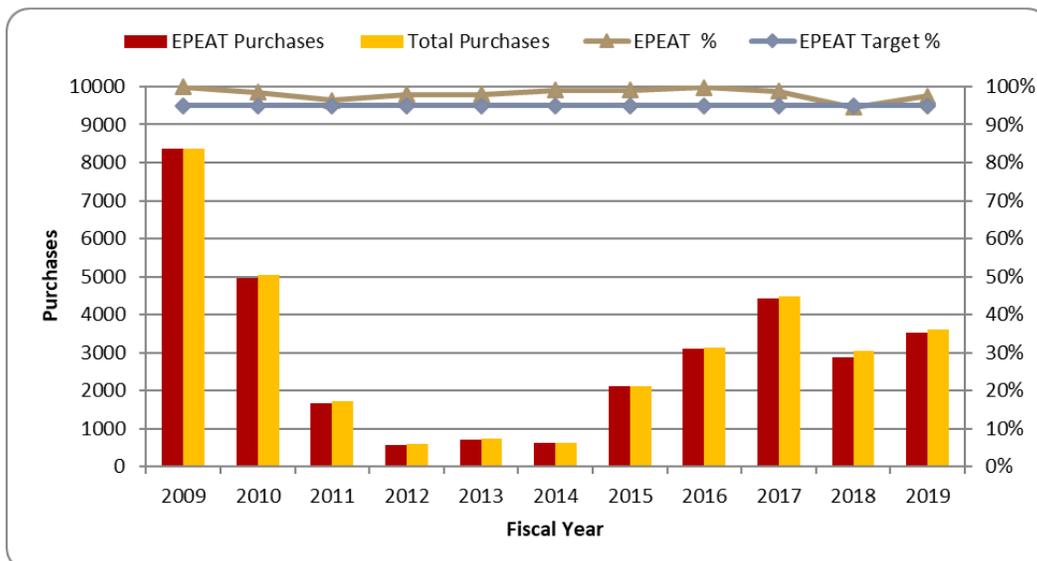


Figure 3-7. Electronic Product Environmental Assessment Tool Standards Compliance.

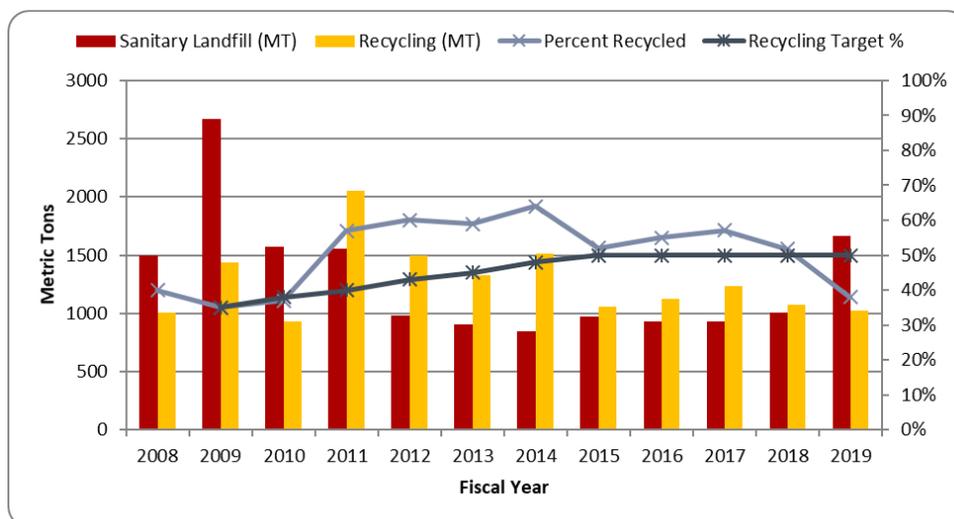


Figure 3-8. Sanitary Waste Reduction.

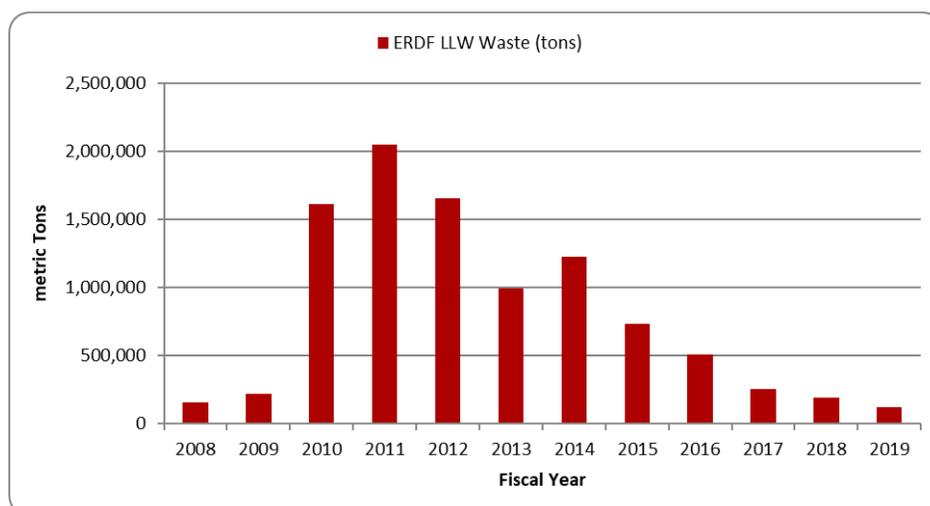


Figure 3-99. Onsite Waste Disposal– Fiscal Years 2008 through 2019 at the Environmental Restoration Disposal Facility.

3.2 Hanford Site Awards and Recognition

Hanford Site contractors strive to achieve awards and recognition for their EMSs. Annual audits provide feedback on system strengths and weaknesses to highlight contractor achievements and provide continual improvement opportunities.

3.2.1 HPMC Occupational Medical Services

HPMC Occupational Medical Services (HPMC-OMS) self-declared conformance to ISO 14001 on March 17, 2016. DOE-RL conducted the external audit on March 21, 2016. This contract requirement, due April 30, 2016, was completed ahead of schedule. The internal audit completed in

December 2018 identified one minor nonconformity related to training. HPMC-OMS maintained conformance and DOE-RL conducted the external audit in FY 2019.

3.2.2 CH2M Plateau Remediation Company

CH2M Plateau Remediation Company's (CHPRC) EMS, as described in PRC-MP-EP-40182, *Environmental Management System Manual*, was reviewed for conformance with ISO 14001 in June 2019.

NSF-International Strategic Registrations, Ltd., an American National Standards Institute National Accreditation Board-accredited certification body for the international standard ISO 14001, conducted its assessment audit of the CHPRC EMS. Two auditors reviewed CHPRC documents, visited CHPRC projects, interviewed CHPRC workers to discuss CHPRC implementation of the International Organization for Standardization core elements, and met with CHPRC senior staff members to gauge management commitment. Five "noteworthy practices" were reported. There were zero nonconformities and two opportunities for improvement. The auditors concluded that CHPRC remains compliant with the ISO 14001 standard and recommended certification to the 2015 revision. The FY 2020 external assessment is scheduled for July 2020.

3.2.3 Mission Support Alliance, LLC

MSA completed a surveillance audit in July 2019 to maintain certification with ISO 14001. There were three system strengths, no major or minor nonconformities, and four opportunities for improvement. Highlights included employee environmental awareness and culture, environmental enthusiasm expressed across all functions and levels, and the Enterprise Service Platform. Opportunities for improvement included protecting documents in case of natural disasters, strengthening procurement processes to outline environmental requirements, tracking avoided greenhouse gas emissions by department, and strengthening interface agreements to communicate environmental requirements. The auditors concluded that MSA remains compliant with the ISO 14001 standard and recommended continued certification to the 2015 revision.

MSA's EMS coordinator also presented the 2019 Environmental Leadership Awards. The awards were established to recognize outstanding environmental performance by employees. The FY 2019 winners conducted the first of its kind Hanford Site Pollinator Study, which identified over 2,000 native bees and 100 plants as pollinator friendly. The development of pollinator friendly seed mix and bee nest boxes improved project revegetation efforts on the site. The restoration and resource conservation efforts will help return the Hanford Site to its natural habitat.

3.2.4 Washington River Protection Solutions, LLC

In 2018, Washington River Protection Solutions (WRPS) updated the EMS documentation to reflect the updated ISO 14001 standard and successfully passed both the required documentation and onsite portion of the triennial EMS audit. There were no findings from the audit. The number one best practice was the integration of the EMS with the ISMS and integration with WRPS business practices. WRPS declared conformance to the ISO 14001 standard; the DOE-ORP notified DOE-HQ with a declaration of conformance with the ISO 14001 standard on September 19, 2018. In 2019, WRPS pursued integrating the WRPS business practices and the EMS integrated assessment of the ISO 14001 elements into the Tank Operations Assessment program and the Corrective Action System. International Organization for Standardization elements that are not assessed through this venue by the beginning of the third year will be audited internally before the next external audit.

3.2.5 Veolia Nuclear Solutions Federal Services

During FY 2019, Veolia Nuclear Solutions – Federal Services (VNSFS) conducted three assessments to review VHSFS Hanford Laboratory’s implementation of the EMS as described in WHL-MP-1044, “Environmental Management System Description,” and its conformance with ISO 14001. Nine minor findings and zero Opportunities for Improvement were identified. VNSFS’s last conformation audit was held in June 2019.

3.3 References

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Executive Order 13693. March 19, 2015. “Planning for Federal Sustainability in the Next Decade.” *Federal Register*, Office of the President, 80 FR 15871. Online at <https://energy.gov/sites/prod/files/2015/09/f26/EO13693.pdf>.

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ISO 14001. *Environmental Management Systems*. International Organization for Standardization. Geneva, Switzerland.

PRC-MP-EP-40182. 2019. *Environmental Management System Manual*. Rev. 4. CH2M Hill Plateau Remediation Company, Richland, Washington.

WHL-MP-1044. 2016. *Environmental Management System Description*. Wastren Advantage Inc. Hanford Laboratory, Richland, Washington.

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