3.0 Environmental Management System

SL Vaughn

DOE requires Hanford Site contractors to develop and operate under an Integrated Safety Management System (ISMS). In accordance with contract obligations, contractors maintain an EMS that is consistent with ISO 14001 standard. In 2015, all but one Hanford Site contractor established ISMS as mandated by their contracts with DOE. These systems 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 verified that Hanford Site entities incorporated appropriate environmental program elements within their ISMS under the authority of DOE M 450.4-1, *Integrated Safety Management System Manual*. The dates that DOE approved the Hanford Site contractor's ISMS are provided in Table 3.1. Table 3.2 lists applicable DOE orders and their approval dates.

Table 3.1. DOE Contract Actions and Contractor Implementation

	Richland Operations Office			Office of River Protection			
Actions, Implementation	**HPMC**	**CHPRC**	**MSA**	**WCH**	**ATL**	**BNI**	**WRPS**
Contractor Start Date	Oct 1, 2012	Oct 1, 2008	Aug 24, 2009	Aug 27, 2005	May 5, 2005	Dec 11, 2000	Oct 1, 2008
DOE Approval of Contractor ISMS	NA	Nov 2009	Jan 2011	Nov 2007	Mar 2006	Feb 2003	Sept 2009
Direction to Implement DOE EO 13423	Oct 2012	Oct 2008	Aug 2009	June 2009	NA	NA	Oct 2008
Direction to Implement DOE EO 13514	NA	June 2012	May 2011	Oct 2012	NA	NA	Mar 2011
Direction to Implement DOE O 430.2B	NA	June 2009	Aug 2009	June 2009	NA	NA	Oct 2008
Direction to Cancel DOE O 430.2B	NA	July 2012	July 2012	Oct 2012	NA	NA	Sept 2014
Direction to Implement DOE O 450.1A	Oct 2012	June 2009	Aug 2009	June 2009	Nov 2009	NA	Oct 2009
Direction to Cancel DOE O 450.1A	Oct 2012	July 2012	Dec 2012	Oct 2012	Sept 2013	NA	Sept 2014
Direction to Implement DOE O 436.1	NA	July 2012	July 2012	Oct 2012	NA	NA	Oct 2013
Contractor EMS Established	Oct 2012	Nov 2009	Dec 2009	Sept2009	NA	NA	Sept 2009
ISO 14001 Certification	NA	Jul 2012/ 2015	Sept 2011/ 2014	NA	NA	NA	NA
DOE Declared DOE O 450.1A Conformance	NA	Dec 2009	Dec 2009	Nov 2009	NA	NA	Sept 2009
Most Recent Declaration of Conformance	NA	Jul 2015	Sept 2014	Sept 2015	NA	NA	Sept 2015
Contractor EMS Scorecard Rating	Red	Green	Green	Green	Red	Red	Green
EMS Scorecard for 2014	Green			Yellow			

ATL=Advanced Technologies and Laboratories, Inc., BNI=Bechtel National, Inc., CHPRC=CH2M Plateau Remediation Company, EMS=Environmental Management System, HPMC=HPMC Occupational Medical Services, MSA=Mission Support Alliance, LLC, WCH=Washington Closure Hanford, LLC, WRPS=Washington River Protection Solutions, LLC

Table 3.2. DOE Order and Executive Order Issuance

Order	Approval Date
DOE Order 450.1	January 15, 2003
Executive Order 13423	January 26, 2007
DOE Order 430.2B	February 27, 2008
DOE Order 450.1A	June 4, 2008
Executive Order 13514	October 8, 2009
DOE Order 436.1	May 2, 2011
Executive Order 13693	March 25, 2015

Performance related to EMS must be reported annually to DOE Headquarters (HQ). Each contractor is given an overall ranking of red, yellow, or green based on the previous fiscal year's performance. Rankings for Hanford Site contractors are provided in Table 3.1 along with rankings for both RL and ORP.

As the services and infrastructure contractor for the Hanford Site, MSA developed a sustainability plan for the Hanford Site in 2015 with input from 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 2015, as were plans for recycling, environmentally preferred procurement management, and electronic asset stewardship.

Several contractors have made their environmental policy and environmental aspects available to the public through company Internet websites (Table 3.3). 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.

Table 3.3. Hanford Site Environmental Management System Internet Links

Contractor	Website	Category
CHPRC	http://chprc.hanford.gov/files.cfm/prc-pol-sh-5053.pdf	Policy
MSA	http://msa.hanford.gov/files.cfm/ems.pdf	Policy, Aspects
WCH	http://www.washingtonclosure.com/about_us/environmental_stewardship	Policy, Aspects
WRPS	http://wrpstoc.com/tank-operations/environmental-management/	Policy, Aspects

3.1 Environmental Performance Measures

In consultation with DOE and other Hanford Site prime contractors, MSA developed and maintains environmental performance measures for the Hanford Site. Performance measures address the goals of DOE O 436.1, Executive Order 13423, and Executive Order 13514. The measures developed in response to these executive and DOE orders include regulated waste reduction; toxic and hazardous material reduction; sustainable acquisition; compliance with electronic product environmental assessment tool standards; sanitary waste diversion; construction waste diversion; electricity use; facility fuel use; water use; vehicle fuel use; numbers of alternative fuel vehicles; on-time environmental deliverables; environmental inspections; environmental non-compliances; and greenhouse gas reduction. Baseline data were obtained in accordance with guidance in the orders.

Where no guidance was available, data from 2009 or 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 HQ.

Fleet Management. The acquisition target for alternative fuel vehicles was not met in 2015 (Figure 3.1). DOE requires that a minimum of 100% of all non-mission critical light-duty vehicles purchased during FY 2015 be alternative fuel vehicles (DOE O 436.1).

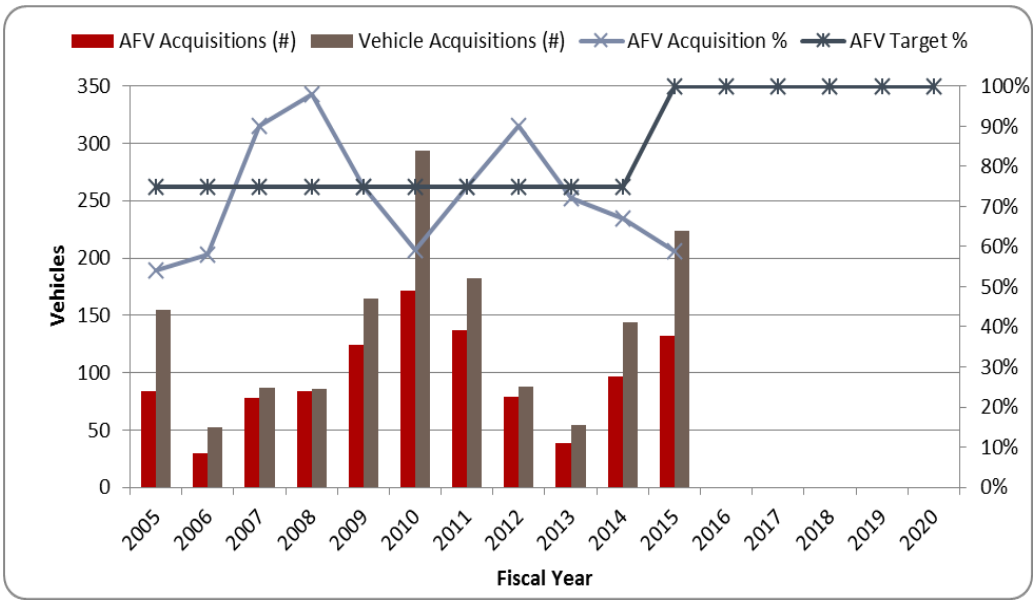

Figure 3.1. Fleet Management – Acquisitions FYs 2005–2020
AFV = alternative fuel vehicle

Alternative Fuel Use. The alternative fuel use target was surpassed for FY 2015, as was the target for petroleum-based fuel use (Figure 3.2). The requirement specifies that Hanford Site contractors fleets operate alternative fuel vehicles exclusively on alternative fuels to the maximum extent possible to reduce the amount of petroleum-based fuels used by 2% annually through FY 2020, relative to a FY 2005 baseline and to increase the amount of alternative fuels used by 10% annually through to FY 2015 relative to a FY 2005 baseline (Executive Order 13514 [74 FR 52117]).

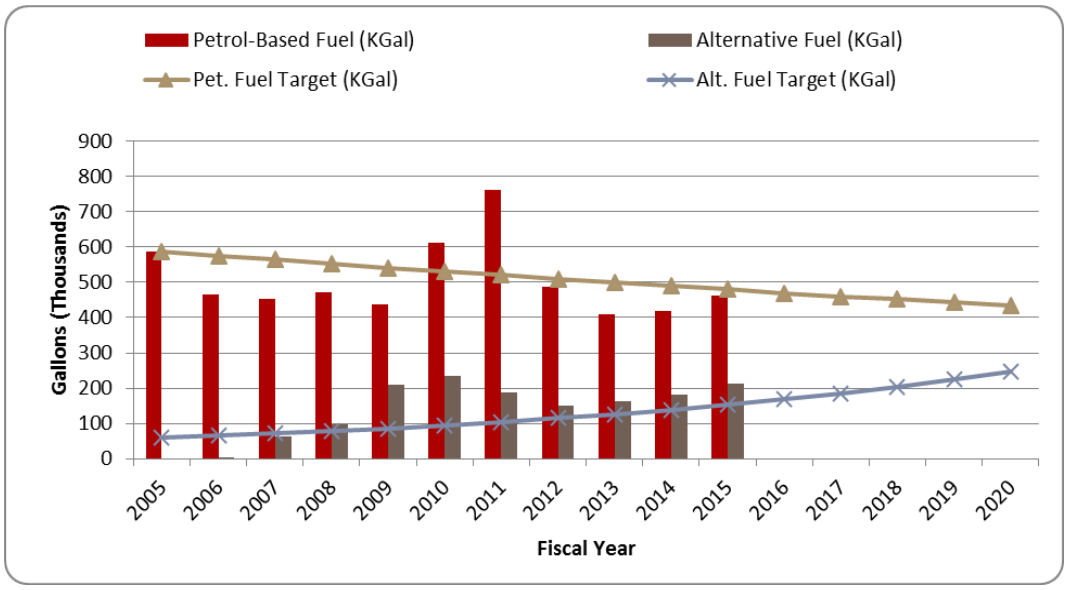

Figure 3.2. Vehicle Fuel Use – FYs 2005–2015 with Target Objectives through 2020

Potable and Non-potable Water Use. The target objectives for potable and non-potable were met in FY 2015 (Figure 3.3). As specified by Executive Order 13514 (74 FR 52117), water use requirements stipulate the reduction of potable water consumption intensity by 2% annually through FY 2020 or 26% by the end of FY 2020, relative to a baseline of water consumption in FY 2007. Correspondingly, there is a requirement to reduce non-potable water use by 2% annually through the end of FY 2020 or 20% by the end of FY 2020 relative to a FY 2010 baseline.

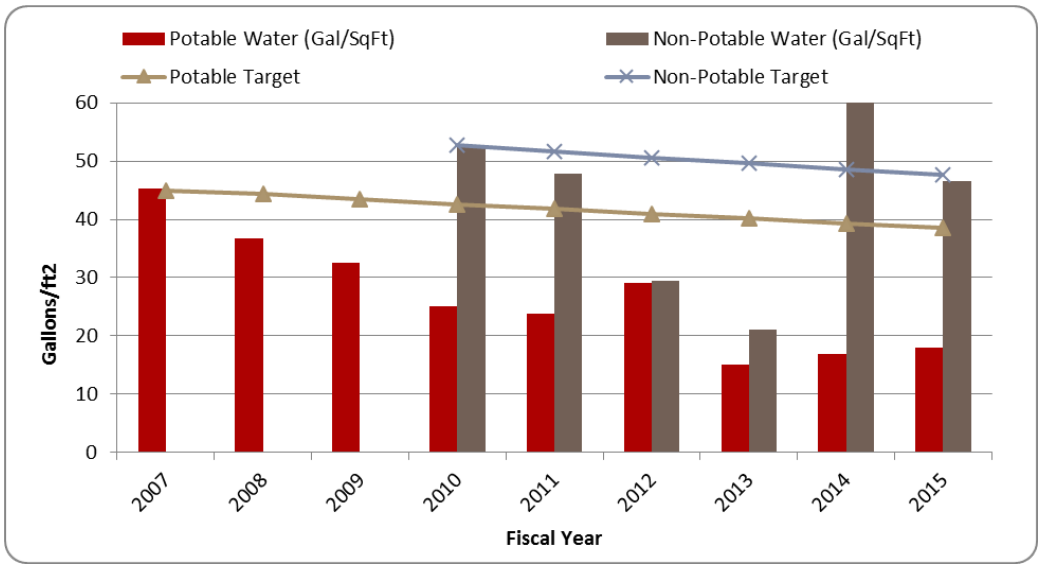

Figure 3.3. Water Use – FYs 2007–2015 with Target Objectives through 2015

Electricity Use. The target objective for green electricity was met; however, the target objective for standard electricity was not met in FY 2015 (Figure 3.4). Targets and objectives for electricity use designate improvements to increase energy efficiency and energy management. Requirements call for the reduction of standard electricity use by 3% annually or 45% through the end of FY 2020 relative to the FY 2003 baseline, and an increase in renewable energy consumption (green electricity) equivalent to 7.5% of the annual electricity and thermal consumption total by FY 2010.

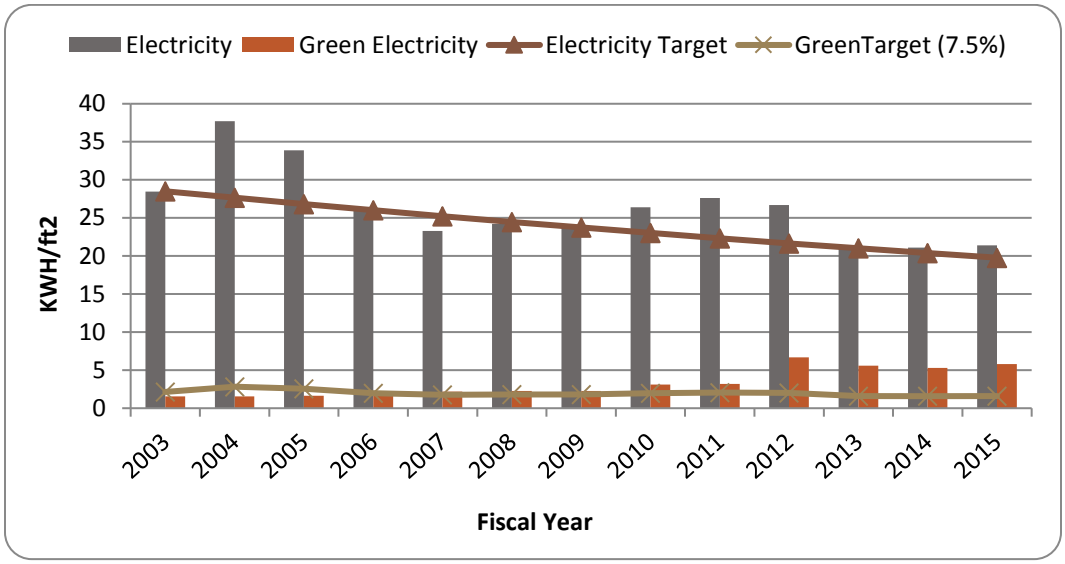

Figure 3.4. Electricity Use – FYs 2003–2015 with Target Objectives through 2015

Facility Fuel Use. The target objectives for facility fuel use were met in FY 2015 (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.

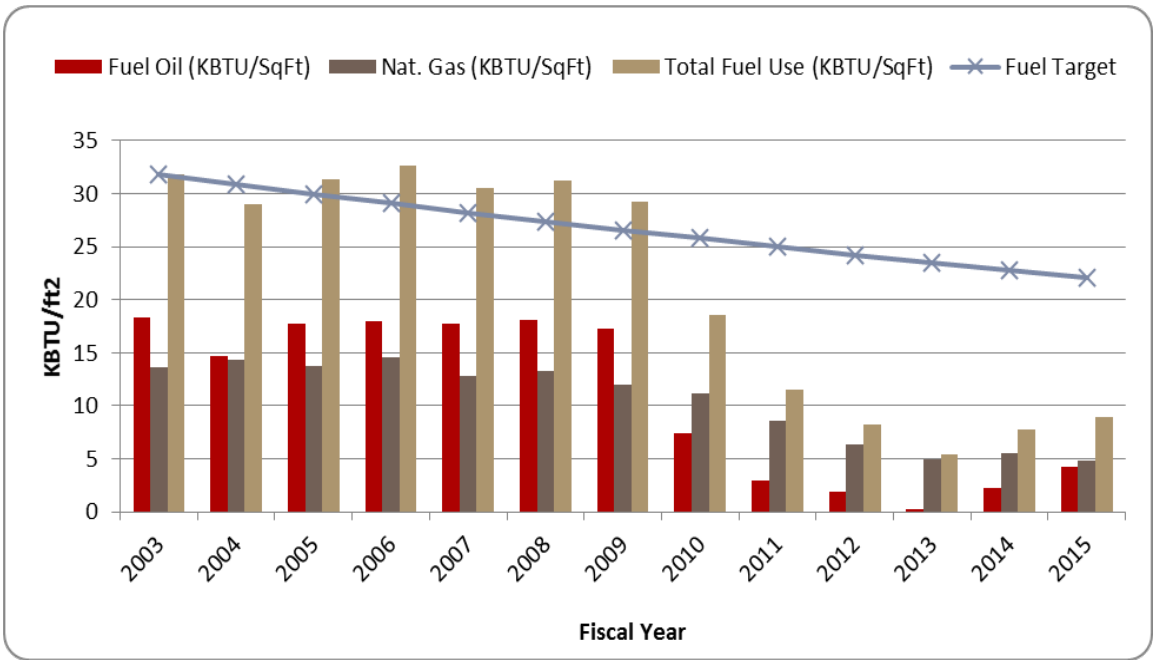

Figure 3.5. Facility Fuel Use – FYs 2003–2015 with Target Objectives through 2015
KBTU=one thousand British thermal units

Facility Energy Use. The target objective for facility energy use was met in FY 2015 (Figure 3.6). Requirements call for the reduction of energy use, a combination of electricity, fuel oil, and natural gas use by 3% annually or 45% through the end of FY 2020 relative to the FY 2003 baseline.

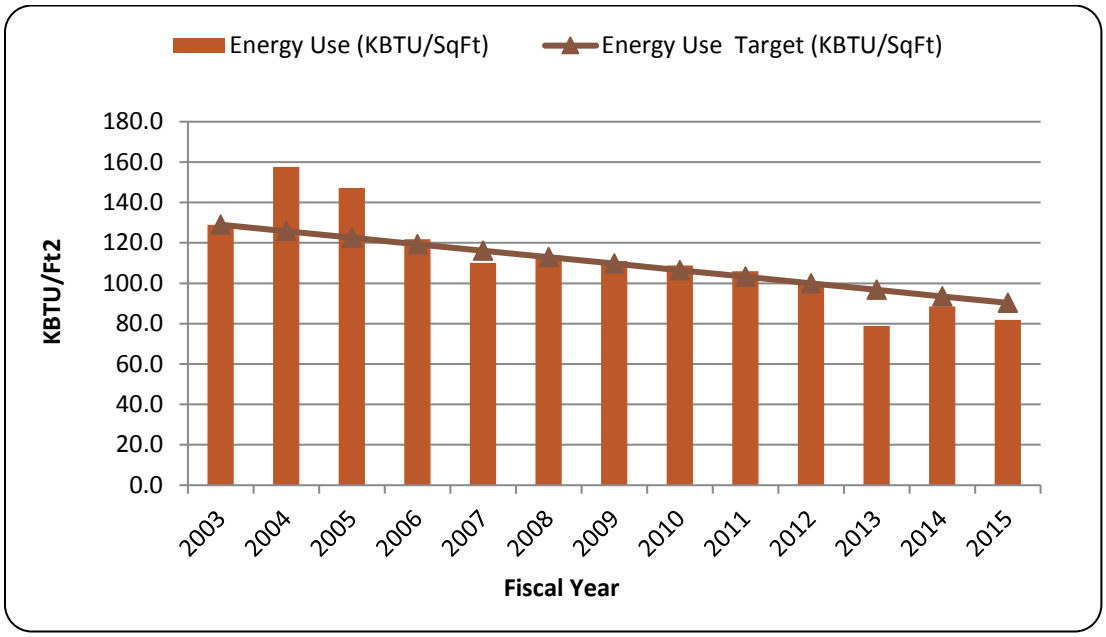

Figure 3.6. Facility Energy Use – FYs 2003–2015 with Target Objectives through 2015

Electronic Product Environmental Assessment Tool. The target objectives for the electronic product environmental assessment tool were exceeded in FY 2015, with 99% of the purchases meeting the requirements (Figure 3.7). Executive Order 13514 (74 FR 52117) specifies 95% of procured electronic assets (notebooks, computers, and monitors) must comply with the electronic product environmental assessment tool standard in an effort to reduce or eliminate the environmental impacts of electronic assets by incorporating electronic stewardship practices.

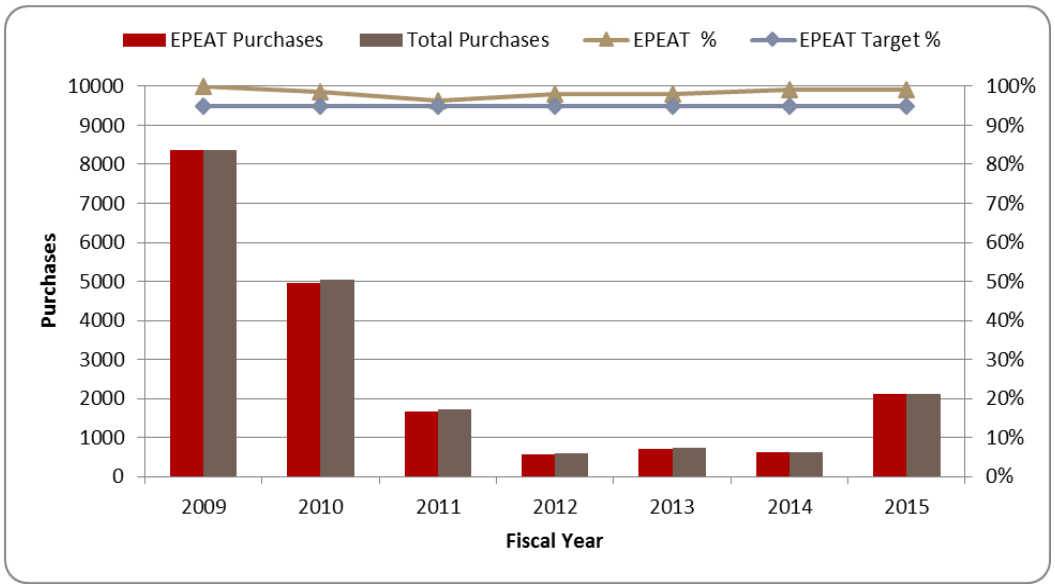

Figure 3.7. Electronic Product Environmental Assessment Tool Standards Compliance – FYs 2009–2015 with Target Objectives through 2015

Sanitary Waste Reduction. The target objective for sanitary waste reduction requires the diversion of post-consumer materials suitable for reuse and recycling from landfills by 10% per year based on a FY 2010 baseline (Figure 3.8). More Hanford Site sanitary waste was recycled than was sent to landfills in FY 2015.

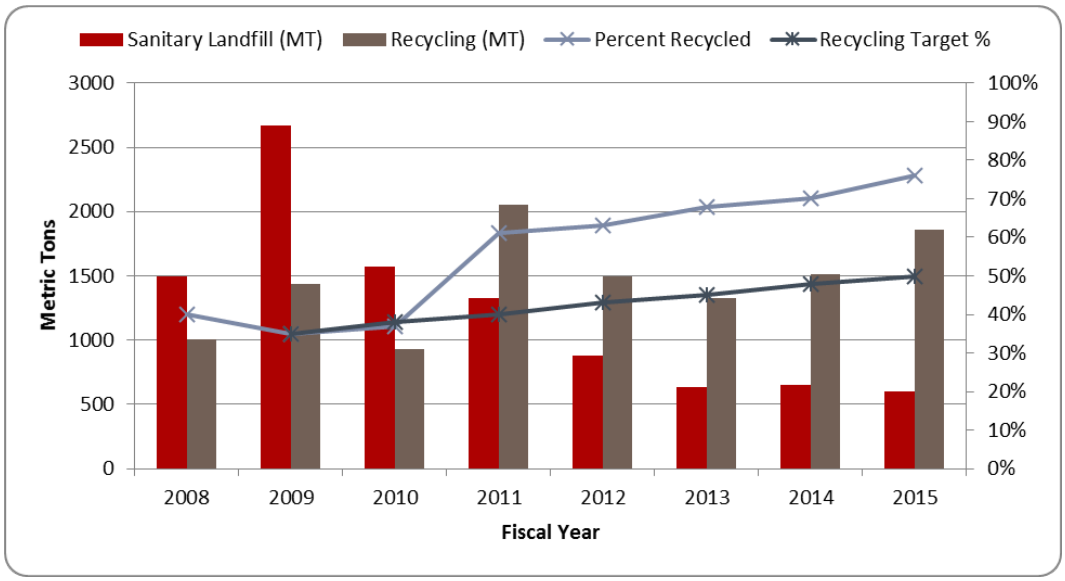

Figure 3.8. Sanitary Waste Reduction – FYs 2008–2015 with Target Objectives through 2015

Regulated Waste Reduction. The target objective for regulated waste reduction was met in FY 2015 (Figure 3.9). Objectives for regulated waste reduction on the Hanford Site include eliminating or minimizing waste generation 5% annually (based on FY 2009 generation) through source reduction, including segregation, substitution, and reuse that would otherwise require storage, treatment, and long-term monitoring and surveillance. Regulated waste includes waste such as hazardous, universal, special, and state-regulated industrial and radioactive waste not suitable for disposal in sanitary or construction and demolition landfills. Regulated waste from Hanford's ERDF is not included in Figure 3.9. Waste to this facility decreased in FY 2015 (Figure 3.10).

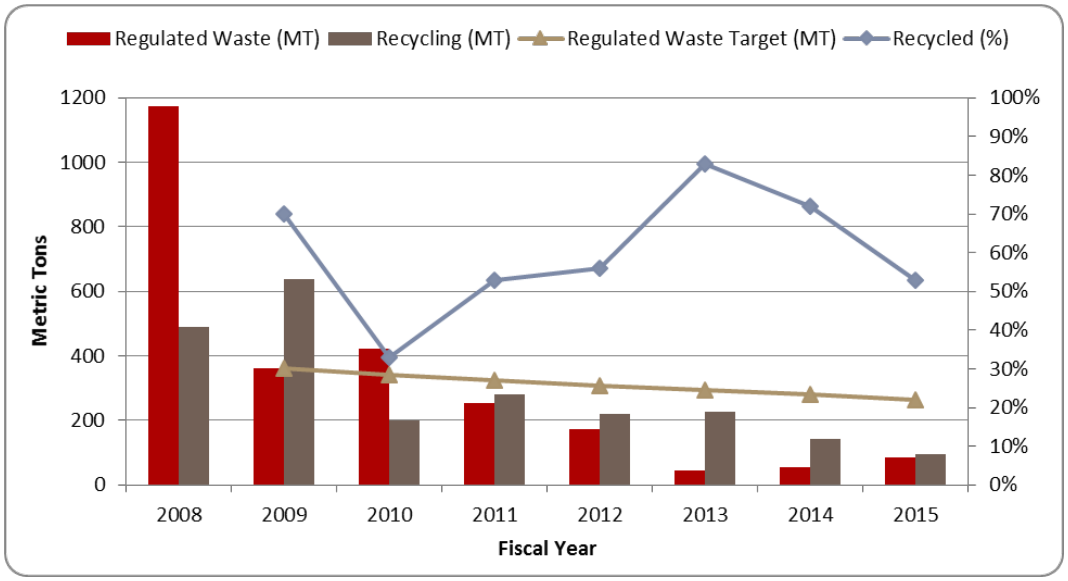

Figure 3.9. Regulated Waste Reduction – FYs 2008–2015 with Target Objectives through 2015

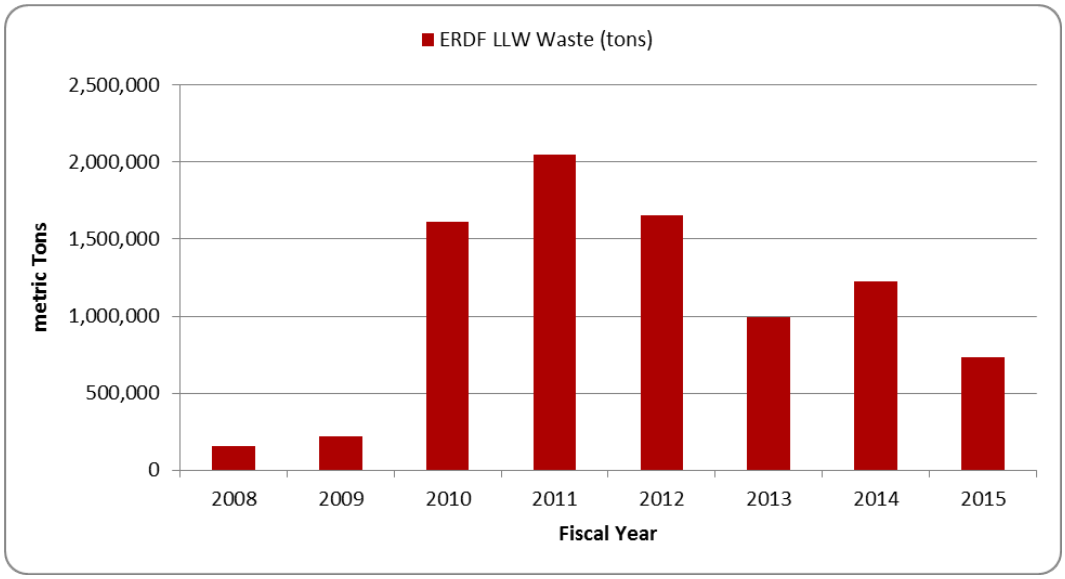

Figure 3.10. On-site Waste Disposal – FYs 2008–2015 at the Environmental Restoration Disposal Facility

In addition to these metrics, each contractor has established company-specific performance measures within their EMS.

3.2 Hanford Site Awards and Recognition

SW Davis

3.2.1 HPMC Occupational Medical Services

HPMC OMS self-declared conformance to ISO 14001:2004 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.

3.2.2 CH2M Plateau Remediation Company

The Environmental Compliance & Quality Assurance Organization conducted an independent assessment to review implementation of CHPRC's environmental management system (EMS) as described in PRC-MP-EP-40182, *EMS Manual*, and its conformance with ISO 14001:2004. Employee awareness of CHPRC's Environmental Policy and environmental roles and responsibilities was assessed, and an effectiveness review of FY 2015 EMS audit corrective actions was conducted. CHPRC's internal audit was followed up by a required surveillance audit. NSF-International Strategic Registrations, Ltd., an American National Standards Institute National Accreditation Board-accredited certification body for the international standard ISO 14001, conducted its annual surveillance audit of the CHPRC EMS June 20–23, 2016. Two auditors reviewed CHPRC documents, visited four CHPRC Projects, interviewed CHPRC workers to discuss CHPRC implementation of the ISO core elements, and met with CHPRC senior staff members to gauge management commitment. No non-conformances and two opportunities for improvement were issued, and no Corrective and Preventative Action Plan was necessary. The auditors concluded that CHPRC remains compliant with the ISO 14001 standard and recommended continuation of ISO 14001 certification for another year.

3.2.3 Mission Support Alliance, LLC

MSA completed its required surveillance audit for 2015 to maintain its ISO 14001:2004 registration with a follow up surveillance audit in 2016 and a reassessment in 2017. MSA's EMS coordinator, also presented the Environmental Leadership Award 2015. The award was established to recognize outstanding environmental performance by employees. This year's winner is the MSA Zero Waste Company Picnic Team.

MSA's increased efforts on accessing utility incentives available through the BPA to offset the cost of project implementation. Integration of this activity into not only projects but routine maintenance began to yield positive results toward the end of FY 2015 with incentives issued for efficiency upgrades at two facilities that netted a cost avoidance of $9,124.

3.2.4 Washington Closure Hanford, LLC

At the Project Management Institute's Global Congress 2015–North America conference held in October 2015, WCH was one of three finalists for the international Project of the Year Award. WCH placed second but was recognized at the conference for its tremendous progress. In addition, WCH won the 21st Annual Project of the Year award from the Project Management Institute Columbia River Basin Chapter in March 2015. The award recognizes, honors, and publicizes our team for superior performance and execution of exemplary project management.