

### 3.0 Environmental Management System (EMS)

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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 *Environmental Management Systems – Requirements with Guidance for Use*. All but one Hanford Site contractor has 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 the applicable DOE orders and their approval dates.

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.

MSA, as the services and infrastructure contractor for the Hanford Site, developed a sustainability plan for the Hanford Site in 2014 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 2014, 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 3.1. DOE Contract Actions and Contractor Implementation*

DOE Contract Actions & Contractor Implementation	Richland Operations Office				Office of River Protection		
	HPMC	CHPRC	MSA	WCH	ATL	BNI	WRPS
Contractor Start Date	October 1, 2012	October 1, 2008	August 24, 2009	August 27, 2005	May 5, 2005	December 11, 2000	October 1, 2008
DOE Approval of Contractor ISMS	NA	November 2009	January 2011	November 2007	March 2006	February 2003	September 2009
Direction to Implement DOE EO 13423	October 2012	October 2008	August 2009	June 2009	NA	NA	October 2008
Direction to Implement DOE EO 13514	NA	June 2012	May 2011	October 2012	NA	NA	March 2011
Direction to Implement DOE O 430.2B	NA	June 2009	August 2009	June 2009	NA	NA	October 2008
Direction to Cancel DOE O 430.2B	NA	July 2012	July 2012	October 2012	NA	NA	September 2014

*Table 3.1. DOE Contract Actions and Contractor Implementation*

DOE Contract Actions & Contractor Implementation	Richland Operations Office				Office of River Protection		
	HPMC	CHPRC	MSA	WCH	ATL	BNI	WRPS
Direction to Implement DOE O 450.1A	October 2012	June 2009	August 2009	June 2009	November 2009	NA	October 2009
Direction to Cancel DOE O 450.1A	October 2012	July 2012	December 2012	October 2012	September 2013	NA	September 2014
Direction to Implement DOE O 436.1	NA	July 2012	July 2012	October 2012	NA	NA	October 2013
Contractor EMS Established	October 2012	November 2009	December 2009	September 2009	NA	NA	September 2009
ISO 14001 Certification	NA	July 2012	Sept. 2011/2014	NA	NA	NA	NA
DOE Declared DOE O 450.1A Conformance	NA	December 2009	December 2009	November 2009	NA	NA	September 2009
Most Recent Declaration of Conformance	NA	November 2009	September 2014	November 2012	NA	NA	September 2012
Contractor EMS Scorecard Rating	Red	Green	Green	Green	Red	Red	Green
EMS Scorecard for 2014	Green			Yellow			
ATL	= Advanced Technologies and Laboratories, Inc.		HPMC	= HPMC Occupational Medical Services.			
BNI	= Bechtel National, Inc.		MSA	= Mission Support Alliance, LLC.			
CHPRC	= CH2M HILL Plateau Remediation Company.		WCH	= Washington Closure Hanford, LLC.			
EMS	= Environmental Management System.		WRPS	= Washington River Protection Solutions, LLC.			

*Table 3.2. DOE Order and Executive Order Issuance*

Order	Approval Date
<a href="#">DOE Order 450.1</a>	January 15, 2003
<a href="#">Executive Order 13423</a>	January 26, 2007
<a href="#">DOE Order 430.2B</a>	February 27, 2008
<a href="#">DOE Order 450.1A</a>	June 4, 2008
<a href="#">Executive Order 13514</a>	October 8, 2009
<a href="#">DOE Order 436.1</a>	May 2, 2011

*Table 3.3. Hanford Site Environmental Management System Internet Links*

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

### 3.1 Environmental Performance Measures

MSA, in consultation with DOE and other Hanford Site prime contractors, developed and maintains environmental performance measures for the Hanford Site. Performance measures address the goals of [DOE O 436.1](#), [Executive Order 13423](#) (72 FR 3919), and [Executive Order 13514](#) (74 FR 52117). 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.

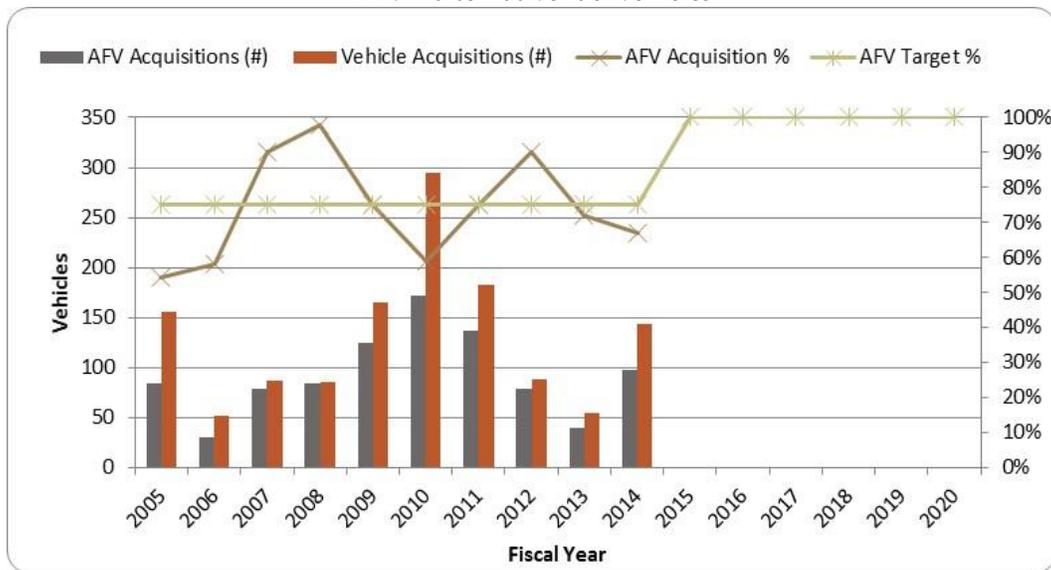
Where no guidance was available, data from 2009 or 2010 were used to establish performance baselines. Performance measurement data are used as a tool to ensure environmental goals within the DOE orders are appropriately managed. Performance related to EMS must be reported annually to HQ.

**Fleet Management.** The acquisition target for alternative fuel vehicles was not met in 2014 (Figure 3.1). DOE requires that a minimum of 75 percent of all non-mission critical light-duty vehicles purchased during FY 2014 be alternative fuel vehicles ([DOE O 436.1](#)). This percentage increases to 100 percent beginning in FY 2015.

Figure 3.1. Fleet Management – Acquisitions

(FY 2005 through FY 2020)

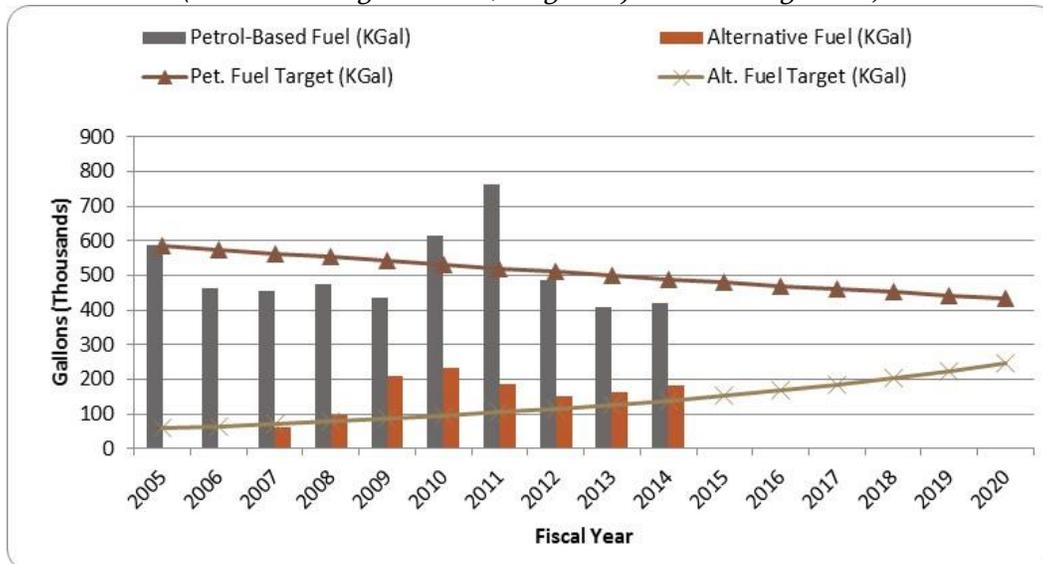
AFV = alternative fuel vehicles



**Alternative Fuel Use.** The alternative fuel use target was surpassed for FY 2014, 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 percent annually through FY 2020, relative to a FY 2005 baseline and to increase the amount of alternative fuels used by 10 percent annually through to FY 2015, relative to a FY 2005 baseline ([Executive Order 13514](#) [74 FR 52117]).

*Figure 3.2. Vehicle Fuel Use*

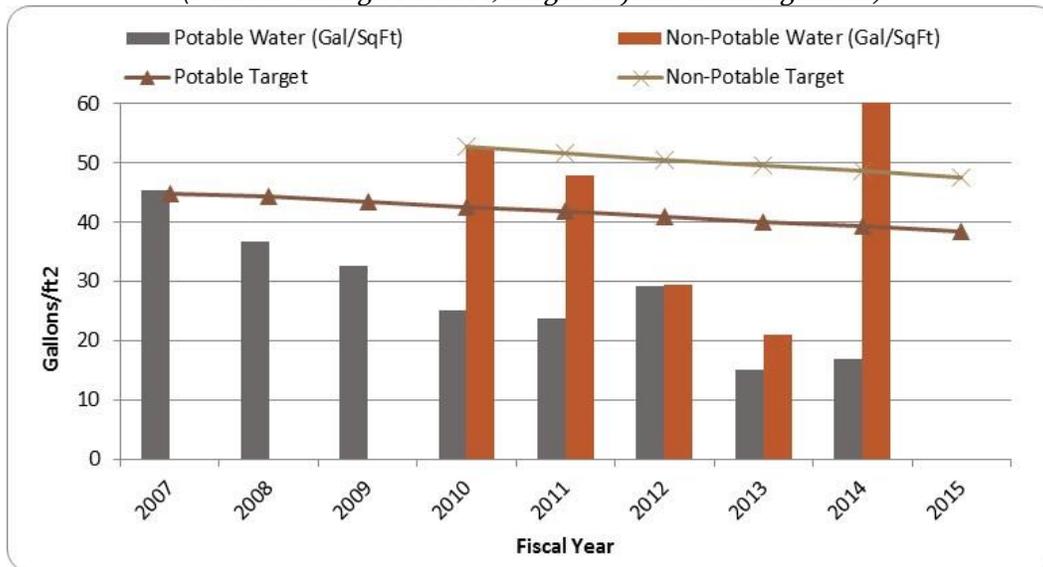
*(FY 2005 through FY 2014, Target Objectives through 2020)*



**Potable and Non-Potable Water Use.** The target objectives for potable was met in FY 2014. However, the target for non-potable water use was not (Figure 3.3). The increase in non-potable water use in FY 2014 was due to several breaks in the 24-inch distribution line and operation of the 242-A Evaporator. Water use requirements, as specified by Executive Order 13514 (74 FR 52117), stipulate the reduction of potable water consumption intensity by 2 percent annually through FY 2020, or 26 percent 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 percent annually through the end of FY 2020, or 20 percent by the end of FY 2020, relative to a FY 2010 baseline.

Figure 3.3. Water Use

(FY 2007 through FY 2014, Target Objectives through 2015)

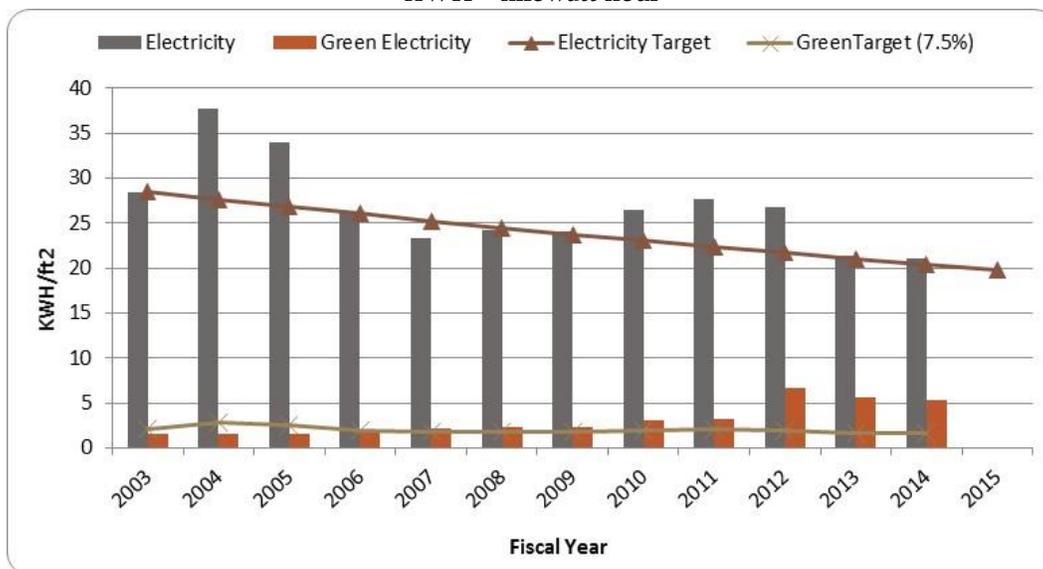


**Electricity Use.** The target objective for green electricity was met; however, the target objective for standard electricity was not met in FY 2014 (Figure 3.4). Targets and objectives for electricity use designate improvements to increase energy efficiency and energy management. Requirements call for the reduction of standard electricity use by 3 percent annually, or 45 percent 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 percent of the annual electricity and thermal consumption total by FY 2010.

Figure 3.4. Electricity Use

(FY 2003 through FY 2014, Target Objectives through 2015)

KWH = kilowatt hour



**Facility Fuel Use.** The target objectives for facility fuel use were met in FY 2014 (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 percent annually (or 45 percent through the end of FY 2020) relative to the FY 2003 baseline.

**Facility Energy Use.** The target objective for facility energy use was met in FY 2014 (Figure 3.6). Requirements call for the reduction of energy use, a combination of electricity, fuel oil, and natural gas use, by 3 percent annually, or 45 percent through the end of FY 2020, relative to the FY 2003 baseline.

**Electronic Product Environmental Assessment Tool.** The target objectives for the electronic product environmental assessment tool were exceeded in FY 2014, with 99 percent of the purchases meeting the requirements (Figure 3.7). [Executive Order 13514](#) (74 FR 52117) specifies 95 percent 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.

**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 percent 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 2014.

Figure 3.5. Facility Fuel Use

(FY 2003 through FY 2014, Target Objectives through 2015)

KBTU = one thousand British thermal units

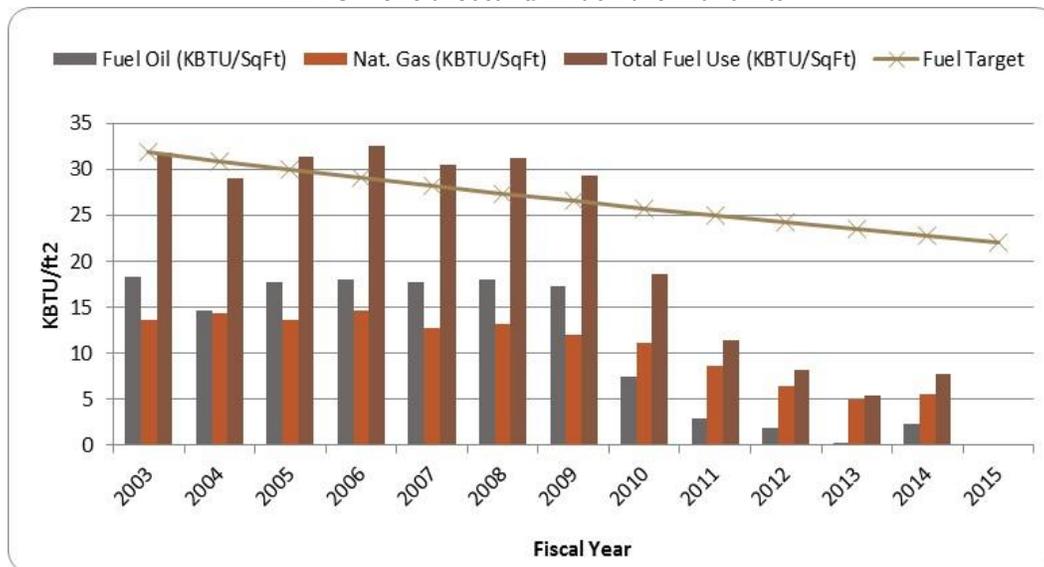


Figure 3.6. Facility Energy Use

(FY 2003 through FY 2014, Target Objectives through 2015)  
KBTU = one thousand British thermal units

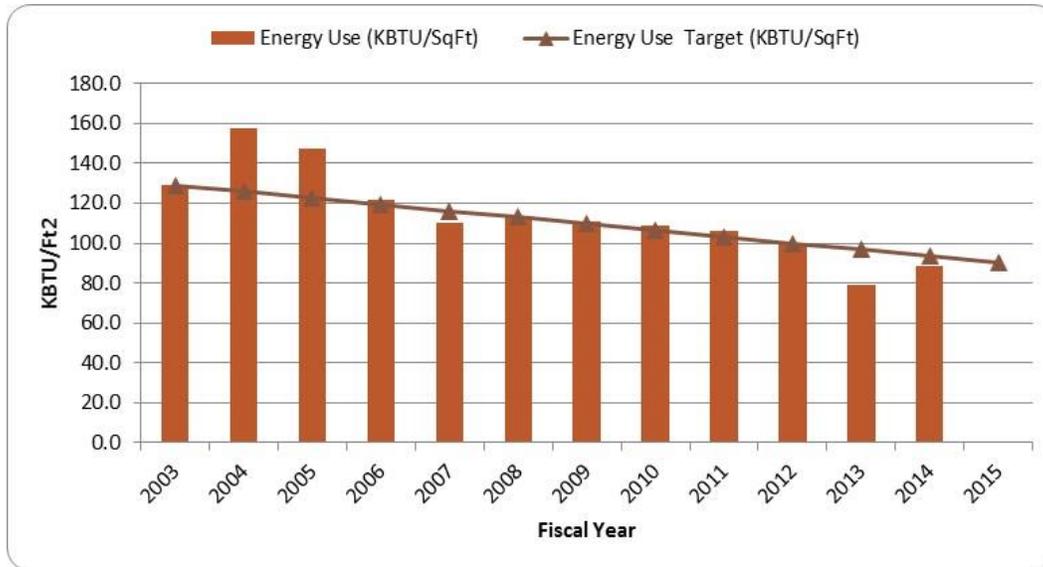
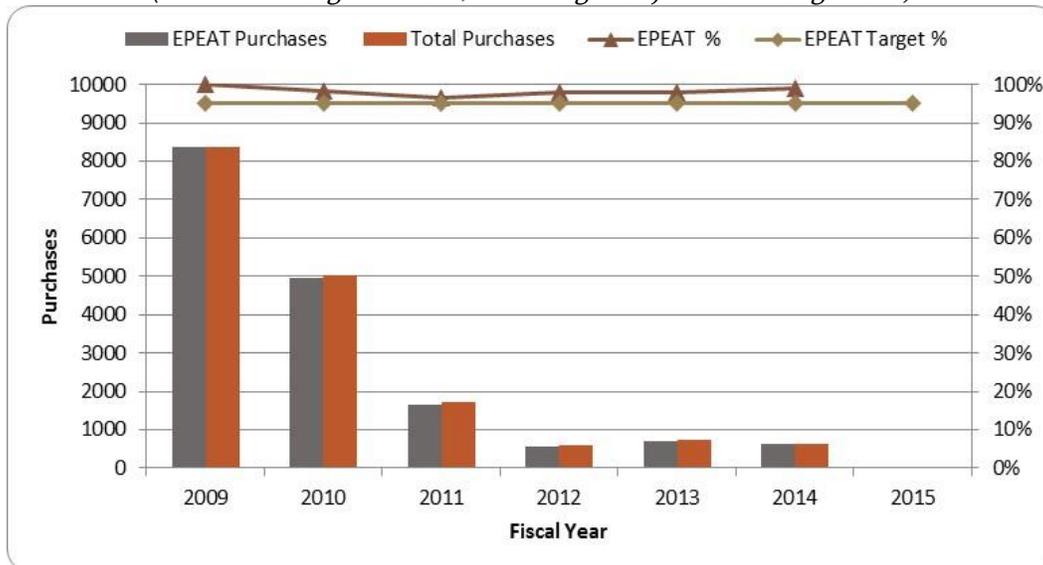
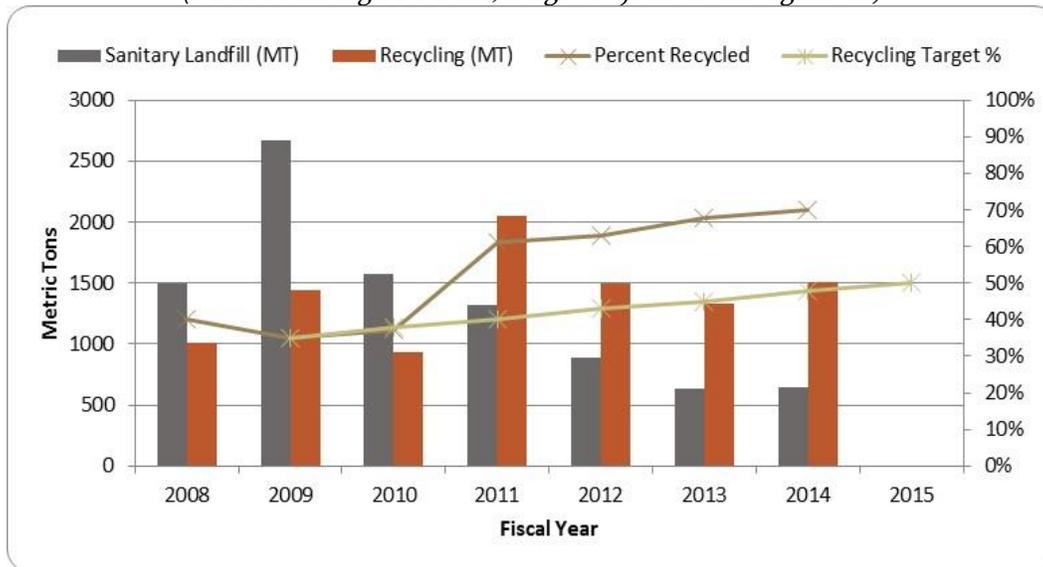


Figure 3.7. Electronic Product Environmental Assessment Tool Standards Compliance

(FY 2009 through FY 2014, with Target Objectives through 2015)



*Figure 3.8. Sanitary Waste Reduction  
 (FY 2008 through FY 2014, Target Objectives through 2015)*



**Regulated Waste Reduction.** The target objective for regulated waste reduction was met in FY 2014 (Figure 3.9). Objectives for regulated waste reduction on the Hanford Site include eliminating or minimizing waste generation 5 percent 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 increased in FY 2014 (Figure 3.10).

*Figure 3.9. Regulated Waste Reduction  
 (FY 2008 through FY 2014, Target Objectives to 2015)*

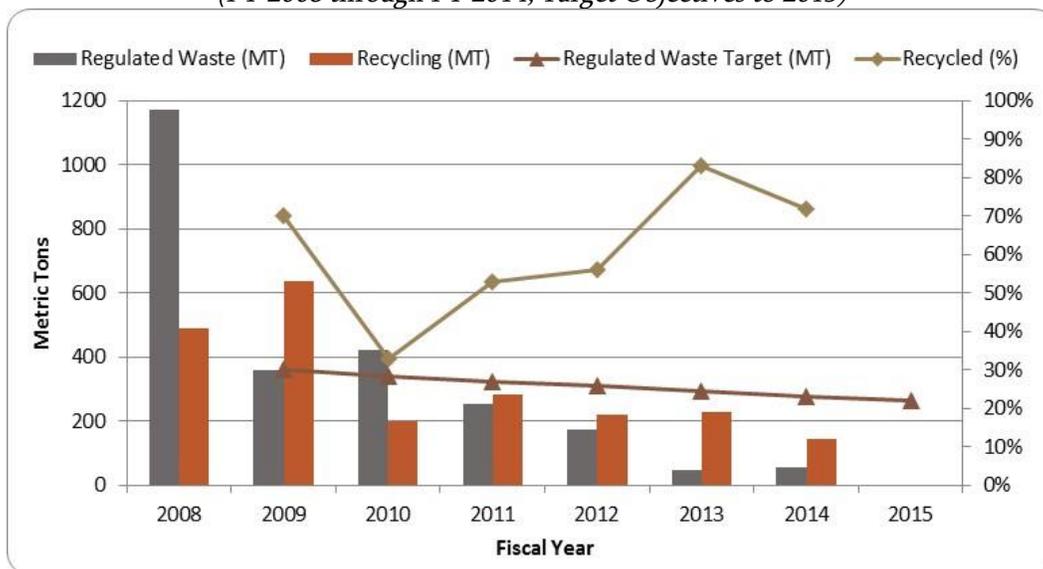
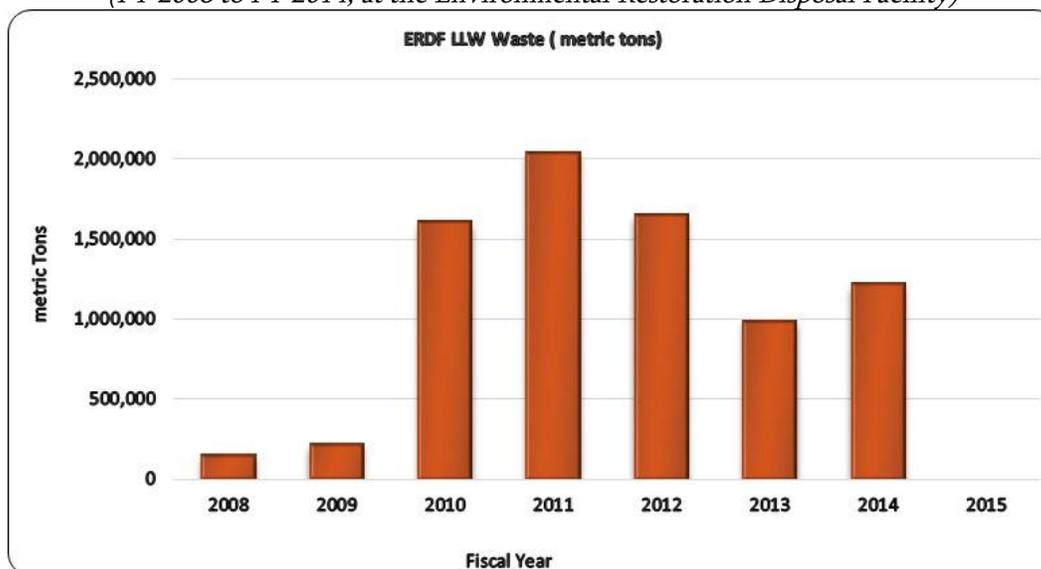


Figure 3.10. Onsite Waste Disposal

(FY 2008 to FY 2014, 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 Advanced Technologies and Laboratories

In October 2013, ATL received *EHS Today* magazine's America's Safest Companies Award for demonstrating transformational environment, safety, and health leadership in the form of support from management and employee involvement; innovative solutions to safety challenges; injury and illness rates significantly lower than the average for their industries; comprehensive training programs; evidence that prevention of incidents is the cornerstone of the safety process; and excellent communication internally and externally about the value of safety. In February 2014, ATL completed 3 years without a recordable or lost workday or illness event. In April 2014, DOE-HQ completed its Voluntary Protection Program (VPP) recertification of ATL at the VPP Star level for the third consecutive time since receiving Star status in 2008. In August 2014, ATL received its second consecutive DOE-HQ VPP Star of Excellence Award for having occupational injury and illness rates greater than 50% below the industry average. ATL has worked in a Hazard Category 3 nuclear facility since May 2005 without a radiological skin or clothing contamination event or an uptake of radiological material. Finally, in December 2014, ATL received the Hazardous Materials Identification and Control Research Award from the Eastern Washington Chapter of Certified Hazardous Material Managers in recognition of ATL's implementation of radiofrequency identification (RFID) technology to manage more than 5,000 chemical containers, improving the accuracy of the inventory while significantly reducing the time it takes to complete the inventory, and reducing the potential for chemical spills and ergonomic injuries.

### **3.2.2 CH2M Hill Plateau Remediation Company**

CHPRC attained VPP Star status in 2014. CHPRC also maintained certification of its [ISO 14001:2004](#) status in 2014 by successfully passing an external surveillance. The audit team had zero findings and zero opportunities for improvements (OFI), as well as three areas the lead auditor deemed “Best in Class.” In summer 2014, CHPRC received an honorable mention from the Washington E3 Green Apple Awards for its 2014 zero waste events.

### **3.2.3 Mission Support Alliance, LLC**

MSA, Safeguards and Security, and HAMMER all attained Star status in the VPP in 2014. MSA also renewed certification to the ISO 14001:2004 standard in 2014 by successfully passing a reassessment audit of its EMS by a third party registrar.

### **3.2.4 Washington Closure Hanford, LLC**

The National Safety Council recognized WCH in July 2014 for achieving 1 million hours of safe work.