



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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January 15, 2021

21-NWP-011

Brian T. Vance, Manager  
Richland Operations Office  
United States Department of Energy  
PO Box 550, MSIN: H5-30  
Richland, Washington 99352

Ty Blackford, President and CEO  
CH2M HILL Plateau Remediation Company  
PO Box 1600, MSIN: A7-01  
Richland, Washington 99352

Re: Non-Financial Records Review on August 27, 2020, for Hexone Storage and Treatment Facility, RCRA Site ID: WA7890008967, Nuclear Waste Program (NWP) Compliance Index No.: 20.715

Dear Brian T. Vance and Ty Blackford:

The Department of Ecology's compliance report of this review is enclosed. The report cites one concern and one area of non-compliance.

As of September 24, 2020, this area of non-compliance has been addressed.

Specific deficiencies not listed in the enclosed compliance report as violations do not relieve your facility from having to comply with all applicable regulations.

If you have questions or need further information, please contact me at (509) 212-1516 or [adam.shaffer@ecy.wa.gov](mailto:adam.shaffer@ecy.wa.gov).

Sincerely,

Digitally signed by Shaffer,  
Adam (ECY)  
Date: 2021.01.15 10:35:23  
-08'00'

Adam Shaffer  
Dangerous Waste Compliance Inspector  
Nuclear Waste Program

as/tla  
Enclosure

cc: See page 2

Brian T. Vance and Ty Blackford  
January 15, 2021  
Page 2 of 2

21-NWP-011  
Hexone Storage and Treatment Facility  
RCRA Site ID: WA7890008967  
NWP Compliance Index No.: 20.715  
Inspection Date: August 27, 2020

cc electronic w/enc:

Dave Bartus, EPA  
Dave Einan, EPA  
Cheryl Williams, EPA  
Ben Harp, USDOE-ORP  
Duane Carter, USDOE-RL  
Al Farabee, USDOE-RL  
Tony McKarns, USDOE-RL  
Allison Wright, USDOE-RL  
Danielle Collins, CHPRC  
Linda Petersen, CHPRC  
Jon Perry, MSA  
Steve Szendre, MSA  
ERWM Staff, YN  
Susan Leckband, HAB  
Jeff Burrigh, ODOE  
Max Woods, ODOE  
Shawna Berven, WDOH  
John Martell, WDOH  
Deb Alexander, Ecology  
David Bowen, Ecology  
Kathy Conaway, Ecology  
Tabitha Liebrecht, Ecology  
Jared Mathey, Ecology

Nina Menard, Ecology  
John Price, Ecology  
Johnathon Rogers, Ecology, NWP  
Compliance Index File: 20.715  
Stephanie Schleif, Ecology  
Adam Shaffer, Ecology  
NWP RIM Coordinators, Ecology  
Environmental Portal  
TPA Administrative Record  
Hanford Facility Operating Record  
CHPRC Correspondence Control  
MSA Correspondence Control  
USDOE-ORP Correspondence  
Control  
USDOE-RL Correspondence Control  
EPA Region 10 Hanford Field Office  
Correspondence Control

cc w/o enc:

Mason Murphy, CTUIR  
Jack Bell, NPT  
Laurene Contreras, YN



## **Facility Background**

In 2019, the United States Department of Energy Hanford Site reported as a Large Quantity Generator of hazardous waste on their Dangerous Waste Annual Report.

According to the *Hexone Facility Dangerous Waste Permit Application Part A Form*, Revision 7, dated October 1, 2008, (Part A Form), the facility is located in the 200 West Area of the Hanford Site. The Hexone Facility is described as follows:

- Below-grade carbon steel tank, 276-S-141 – 24,000 gallons tank storage capacity (Approximately 20,000 gallons of mixed waste were stored and treated annually).
- Below-grade carbon steel tank, 276-S-142 – 24,000 gallons tank storage capacity (Approximately 16,000 gallons of mixed waste were stored and treated annually).
- A distillation system – 3,000 gallon treatment capacity per day.
- Railroad tank cars – 40,000 gallon container storage capacity.

The Hexone Facility stored reagent-grade methyl isobutyl ketone (hexone) for the Reduction and Oxidation (REDOX) Plant from 1951 through 1967. After 1967, the Hexone Facility received and stored liquid mixed waste from the REDOX Plant and possibly the Hot Semi-works Plant. Activities associated with the 276-S-141 and 276-S-142 tanks can be found in the Part A Form, which included storage of radioactively contaminated hexone from a one-time campaign to separate americium, curium, and promethium from reactor blanket fuel.

The distillation campaign took place from July to December 1990 and included pumping mixed waste from the 276-S-141 and 276-S-142 tanks through the distillation system to decrease the radioactivity of the waste. The mixed waste was sent to railroad tank cars located within the Hexone Facility, where it was stored until the mixed waste was transferred to an off-site incinerator in June of 1992. The railroad cars were decontaminated, sampled, and released for other uses on the Hanford site. Three distillation vessels associated with the Hexone Facility that contained process residue were sampled and sent for management as mixed waste at the Central Waste Complex.

According to the Part A Form, currently the 276-S-141 and 276-S-142 tanks each contain from 5 to 30 gallons of mixed waste (93% normal paraffin hydrocarbon and 7% hexone) and up to 250 gallons of phosphate tar. In 2002, the two tanks were stabilized by filling them with grout. The purge system was then deactivated. According to the Part A Form, dangerous waste codes associated with the Hexone Facility include F003 and D001 due to the hexone stored in the 276-S-141 and 276-S-142 tanks. Additionally, it appears the dangerous waste was mistakenly assigned a state-only toxic dangerous waste code, WT02, as the waste was previously designated with F003 and D001 federal waste codes. Other dangerous waste codes associated with the Hexone Facility can be found on the Part A Form.

## **Compliance Background**

The Department of Ecology's Silver Memo, *Close Out Form for Environmental Compliance Issues Identified in DOE/RL Letter 95-PCA-342*, dated July 6, 1995 (Close Out Form #16.6.2:40.16) established that the Hexone tanks including the cover gas system and the liquid level monitors must be inspected weekly.

On November 6, 1998, USDOE informed Ecology that the Hexone Facility would be managed under the *REDOX Facility Surveillance and Maintenance Plan*, DOE/RL-98-19, as referenced in a 1998 draft version of that document transmitted to Ecology (Accession Number D199046833) which stated:

Certain Treatment, Storage, and Disposal (TSD) standards of Washington Administrative Code (WAC) 173-303 apply to the Hexone Storage Tanks at REDOX. These tanks have been deemed unfit for use and are therefore subject to the requirements of 40 Code of Federal Regulations (CFR) 265.196 as invoked by WAC 173-303-400. In addition, WAC 173-303-400 invokes standards of WAC 173-303-280 through -440, including provisions for security, personnel training, general inspections, contingency planning and emergency preparedness, and facility recordkeeping and reporting. Particularly relevant with regards to the REDOX Surveillance and Maintenance (S&M) activities are the inspection requirements of WAC 173-303-320. As agreed to with the regulators, these requirements are met by performing a weekly inspection to ensure proper operation of the associated nitrogen cover system. Additionally, weekly inspection of the liquid level monitors is performed. Any problems identified during inspections are remedied. Inspection records are kept in the Hanford Facility Operating Record. (*Close Out Form for Environmental Compliance Issues Identified in DOE/RL Letter 95-PCA-342*, dated July 6, 1995; Tracking Number 16.6.2: 40.16, approved January 13, 1997 [DOE-RL 1995].)

It appears that the draft version was not finalized, and Ecology has not observed a final version of DOE/RL-98-19 that included surveillance and maintenance of the Hexone Facility. During an Ecology inspection in 2000 (Compliance Index #00.178), the inspector observed the standards agreed upon in Close Out Form #16.6.2:40.16 were not performed. The agreement was subsequently rescinded as a result of the inspection.

The Hexone Storage and Treatment Facility Tanks 276-S-141 and 276-S-142 are also identified in the Tri-Party Agreement (TPA) Milestone M-037-10, which was created in principal as part of the *Tentative Agreement on Hanford Federal Facility Agreement and Consent Order Change Forms Implementing Changes to the Central Plateau Cleanup*, dated March 31, 2010, and approved by both parties on October 26, 2010. M-037-10 requires completion of unit-specific closure requirements according to the dangerous waste closure plan by September 30, 2020.

Sampling and analysis was performed to support the interim stabilization of the tanks which resulted from dangerous waste violations found in the Ecology inspection in 2000 (Compliance Index #00.178, see below). The unapproved, draft closure plan, *Hexone Storage and Treatment Facility Closure Plan*, DOE\RL-2009-112, Revision 0, was published in May of 2010 and is based on that analysis. The draft closure plan calls for excavation and removal of the tanks, visual inspection and sampling of soil beneath the tanks and removal of soil should dangerous waste contamination be found. The closure schedule in the draft plan estimates this process will take 26 months including documentation, design, and procurement. By that schedule, if it were approved in order to meet M-037-10 deadline, closure activity would have had to begin sometime in fiscal year 2018. The draft schedule in the closure plan does not include any time for the treatment of waste.

On September 26, 2018, Ecology conducted a Non-Financial Records Review (NRR) inspection (Compliance Index #18.650) of the Hexone Storage and Treatment Facility. The Ecology Compliance Report documented no areas of non-compliance.

On September 17, 2019, Ecology conducted a focused compliance inspection (Compliance Index #19.680) of the Hexone Storage and Treatment Facility. The Ecology Compliance Report documented the following areas of non-compliance:

1. The dangerous waste training plan did not include all of the required dangerous waste trainings for the Field Work Supervisor position.
2. The fenced area, which contains underground Tanks 276-S-141 and 276-A-142, had no labels or markings indicating a toxic hazard along the perimeter or at the entrance to the active portion to the Hexone Storage and Treatment Facility.
3. The operating records for the following containers did not contain Land Disposal Restriction notification statements: HEXO-92-000001, HEXO-92-000002, HEXO-92-000009, HEXO-92-000010, HEXO-92-000014, HEXO-92-000015, HEXO-92-000016, HEXO-92-000017, HEXO-92-000018, HEXO-92-000019, and HEXO-92-000028.

### **Inspection Summary**

On August 27, 2020, I sent an email along with a document request to USDOE-RL, CHPRC, and Mission Support Alliance (MSA) personnel announcing a non-financial records review focused on the facility training records (NRR-TPR) of the Hexone Storage and Treatment Facility. On September 24, 2020, CHPRC and USDOE provided Ecology with documentation fulfilling the request.

### **Training Records for Field Work Supervisors**

I reviewed training records against the requirements (see table below) in the *Central Plateau Risk Management Dangerous Waste Training Plan*, PRC-STD-TQ-40236, Revision 2, Change 2, effective December 11, 2019. This section covers training records for personnel that hold the title of Field Work Supervisor (FWS) during the period from September 1, 2018 until August 26, 2020 including Brian Cordray, and William Doremus.

**The Requirements for Field Work Supervisor (FWS)**

<b>Course Number</b>	<b>Course Title</b>	<b>Frequency</b>	<b>Training Type</b>
000001	Hanford General Employee Training (Computer Based Training)	Annual	Contingency Plan Training
290200	Central Plateau Risk Management Orientation and Facility Emergency Hazards Identification Checklist (Computer Based Training)	Annual	Contingency Plan Training
02006G or 035100	Waste Management Awareness (Classroom) (02006G does not require refresher training)	Initial	Operations Training
035100	Container Management Initial (Classroom)	Initial	Operations Training
035110	Container Waste Management Refresher (Computer Based Training)	Annual	Operations Training

**Cordray, Brian — Field Work Supervisor (FWS)**

<b>Course Number</b>	<b>Course Title</b>	<b>Frequency</b>	<b>Dates Taken</b>
000001 & 000019	Hanford General Employee Training (Computer Based Training)	Annual	07/18/2016 06/26/2019
290200	Central Plateau Risk Management Orientation and Facility Emergency Hazards Identification Checklist (Computer Based Training)	Annual	03/18/2020 (2019 missing)
02006G or 035100	Waste Management Awareness (Classroom) (02006G does not require refresher training)	Initial	06/13/2001
035100	Container Management Initial (Classroom)	Initial	N/A
035110	Container Waste Management Refresher (Computer Based Training)	Annual	N/A

In the training records provided, I observed Brian Cordray was missing course 290200 *Central Plateau Risk Management Orientation and Facility Emergency Hazards Identification Checklist* during calendar year 2019. This course is required on an annual basis for the FWS employment position.

**Doremus, William — Field Work Supervisor (FWS)**

<b>Course Number</b>	<b>Course Title</b>	<b>Frequency</b>	<b>Dates Taken</b>
000001 & 000019	Hanford General Employee Training (Computer Based Training)	Annual	04/15/2016 03/02/2020
290200	Central Plateau Risk Management Orientation and Facility Emergency Hazards Identification Checklist (Computer Based Training)	Annual	02/20/2020 (2019 missing)
02006G or 035100	Waste Management Awareness (Classroom) (02006G does not require refresher training)	Initial	08/07/2001
035100	Container Management Initial (Classroom)	Initial	09/19/2007
035110	Container Waste Management Refresher (Computer Based Training)	Annual	09/29/2014

In the training records provided, I observed William Doremus was missing *Hanford General Employee Training* during 2019. In 2019 course 290200 *Central Plateau Risk Management Orientation and Facility Emergency Hazards Identification Checklist* was also missing. These courses are required on an annual basis for the FWS employment position.

**Training Records for Nuclear Control Officers**

I reviewed training records against the requirements (see table below) in the *Central Plateau Risk Management Dangerous Waste Training Plan*, PRC-STD-TQ-40236, Revision 2, Change 2, effective December 11, 2019. This section covers training records for Deborah Older, who holds the title of Nuclear Control Officer (NCO) during the period from September 1, 2018 until August 26, 2020.

**The Requirements for Nuclear Control Officer (NCO)**

<b>Course Number</b>	<b>Course Title</b>	<b>Frequency</b>	<b>Training Type</b>
000001	Hanford General Employee Training (Computer Based Training)	Annual	Contingency Plan Training
290200	Central Plateau Risk Management Orientation and Facility Emergency Hazards Identification Checklist (Computer Based Training)	Annual	Contingency Plan Training
035100	Container Management Initial (Classroom)	Initial	Operations Training
035110	Container Waste Management Refresher (Computer Based Training)	Annual	Operations Training
290004	Central Plateau Risk Management NCO Waste Handler Qualification	Every 2 Years	Operations Training

**Older, Deborah — Nuclear Control Officer (NCO)**

<b>Course Number</b>	<b>Course Title</b>	<b>Frequency</b>	<b>Dates Taken</b>
000001 & 000019	Hanford General Employee Training (Computer Based Training)	Annual	05/24/2016 03/10/2020
290200	Central Plateau Risk Management Orientation and Facility Emergency Hazards Identification Checklist (Computer Based Training)	Annual	03/10/2020 (2019 missing)
035100	Container Management Initial (Classroom)	Initial	08/21/2017
035110	Container Waste Management Refresher (Computer Based Training)	Annual	5/30/2019 (Quarantine)
290004	Central Plateau Risk Management NCO Waste Handler Qualification	Every 2 Years	12/04/2018

In the training records provided, I observed Deborah Older was missing *Hanford General Employee Training* during 2019. In 2019 course 290200 *Central Plateau Risk Management Orientation and Facility Emergency Hazards Identification Checklist* was also missing. These courses are required on an annual basis for the NCO employment position.

### Compliance Problems

The Dangerous Waste inspection on August 27, 2020, found the following compliance problems.

Each problem is covered in three parts:

- (1) **Citation from the regulations**
- (2) **Specific observations** from the inspection that highlight the problem
- (3) **Required actions** needed to fix the problem and achieve compliance

The problems listed below must be corrected to comply with Washington Dangerous Waste Regulations (Chapter 173-303 WAC), or other environmental laws or regulations. Complete the required actions listed below and respond to Ecology at the following address within the times specified below. Include all supporting documentation such as photographs, records, and statements explaining the actions taken and dates completed to return to compliance.

Attention: Adam Shaffer  
Washington Department of Ecology  
Nuclear Waste Program  
3100 Port of Benton Blvd  
Richland, WA 99354

You may request an extension of the deadlines to achieve compliance. Make the request in writing, including the reasons an extension is necessary and proposed date(s) for completion, and send it to Adam Shaffer before the date specified above. Ecology will provide a written approval or denial of your request.

**If you have any questions about information in this Compliance Report, please call:  
Adam Shaffer at (509) 212-1516**

This does not relieve you of your continuing responsibility to comply with the regulations at all times.

- 1) **WAC 173-303-400(3), as referenced by the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion Revision 8C – Condition I.A Effect of Permit.**

**WAC 173-303-330 *Personnel Training***

**(1) Training program. The facility owner or operator must provide a program of classroom instruction or on-the-job training for facility personnel. This program must teach personnel to perform their duties in a way that ensures the facility's compliance with this chapter 173-303 WAC, must teach facility personnel dangerous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed, must ensure that facility personnel are able to respond effectively to emergencies, and must include those elements set forth in the training plan required in subsection (2) of this section. In addition:**

- (a) The training program must be directed by a person knowledgeable in dangerous waste management procedures, and must include training relevant to the positions in which the facility personnel are employed;**
- (b) Facility personnel must participate in an annual review of the training provided in the training program;**
- (c) This program must be successfully completed by the facility personnel:**
  - (i) Within six months after these regulations become effective; or**
  - (ii) Within six months after their employment at or assignment to the facility, or to a new position at the facility, whichever is later.**
- (d) Employees hired after the effective date of these regulations must be supervised until they complete the training program; and**
- (e) At a minimum, the training program must familiarize facility personnel with emergency equipment and systems, and emergency procedures. The program must include other parameters as set forth by the department, but at a minimum must include, where applicable:**
  - (i) Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;**
  - (ii) Key parameters for automatic waste feed cut-off systems;**
  - (iii) Communications or alarm systems;**
  - (iv) Response to fires or explosions;**
  - (v) Response to ground-water contamination incidents; and**
  - (vi) Shutdown of operations.**
- (2) Written training plan. The owner or operator must develop a written training plan which must be kept at the facility and which must include the following documents and records:**
  - (a) For each position related to dangerous waste management at the facility, the job title, the job description, and the name of the employee filling each job. The job description must include the requisite skills, education, other qualifications, and duties for each position;**
  - (b) A written description of the type and amount of both introductory and continuing training required for each position; and**
  - (c) Records documenting that facility personnel have received and completed the training required by this section. The department may require, on a case-by-case basis, that training records include employee initials or signature to verify that training was received.**
- (3) Training records. Training records on current personnel must be kept until closure of the facility. Training records on former employees must be kept for at least three years from the date the employee last worked at the facility. Personnel training records may accompany personnel transferred within the same company.**

## **Observations**

PRC-STD-TQ-40236, Revision 2, Change 2, *Central Plateau Risk Management Dangerous Waste Training Plan*, section 2.0 states in part:

Hanford Facility personnel cannot perform a task for which they are not properly trained, except the gain required experience while under the direct supervision of a supervisor or coworker who is properly trained.

In the training records provided, I observed the following individuals were missing course 000019 *Hanford General Employee Training* during calendar year 2019:

- Doremus, William (FWS).
- Older, Deborah (NCO).

In the training records provided, I observed the following individuals were missing course 290200 *Central Plateau Risk Management Orientation and Facility Emergency Hazards Identification Checklist*, during calendar year 2019:

- Cordray, Brian (FWS).
- Doremus, William (FWS).
- Older, Deborah (NCO).

This course is required on an annual basis for the FWS, and NCO employment positions.

## **Action Required**

In calendar year 2020, all of the individuals listed above completed course 290200 *Central Plateau Risk Management Orientation and Facility Emergency Hazards Identification Checklist*. In calendar year 2020, William Doremus, and Deborah Older, completed *Hanford General Employee Training*. This indicates all of these individuals have completed the required training under PRC-STD-TQ-40236, Revision 2, Change 2, *Central Plateau Risk Management Dangerous Waste Training Plan* —**No Further Action Required.**

## **Concern:**

- 1) In the training courses provided, I observed *Hanford General Employee Training* was given the course number 000019 rather than 000001 when taken as an annual refresher. This is not reflected in PRC-STD-TQ-40236, Revision 2, Change 2, *Central Plateau Risk Management Dangerous Waste Training Plan*, which should be updated to include Course 000019 Hanford General Employee Training Refresher as a subset to Course 000001 Hanford General Employee Training.

*To request ADA accommodation including materials in a format for the visually impaired, call Ecology at (509) 372-7950 or visit <https://ecology.wa.gov/accessibility>. People with impaired hearing may call Washington Relay Service at 711. People with speech disability may call TTY at (877) 833-6341.*