



1248654

[0066056H]

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

3100 Port of Benton Blvd • Richland, WA 99354 • (509) 372-7950
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

March 30, 2018

18-NWP-053

By certified mail

Mr. Brian T. Vance, Manager
Office of River Protection
United States Department of Energy
PO Box 450, MSIN: H6-60
Richland, Washington 99352

Mr. Mark Lindholm,
President and Project Manager
Washington River and Protection Solutions, LLC
PO Box 850, MSIN: H3-21
Richland, Washington 99352

Re: Dangerous Waste Compliance Inspection on October 19, 2017 at Walker Tanker
HO-64-4294, RCRA Site ID: WA7890008967, NWP Compliance Index No 17.619

Dear Mr. Vance and Mr. Lindholm:

Thank you for your staff's time during the Walker Tanker HO-64-4294 inspection on October 19, 2017. The Department of Ecology's (Ecology) compliance report of this inspection is enclosed. The report cites no areas of non-compliance and two concerns.

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

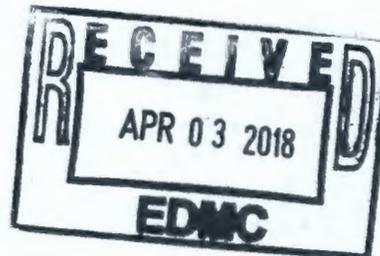
If you have questions or need further information, please contact me at (509) 372-7930 or jackson.davis@ecy.wa.gov.

Sincerely,


Jackson Davis
Dangerous Waste Compliance Inspector
Nuclear Waste Program

mrbr
Enclosure

cc: See page 2



24

Mr. Vance and Mr. Lindholm
March 30, 2018
Page 2 of 2

18-NWP-053
Walker Tanker HO-64-4294 Inspection
RCRA Site ID: WA7890008967
NWP Compliance Index No.: 17.619
Inspection Date: October 19, 2017

cc electronic w/enc:

Dave Bartus, EPA
Jack Boller, EPA
Dave Einan, EPA
Mary Beth Burandt, USDOE-ORP
Lori Huffman, USDOE-ORP
Christopher Kemp, USDOE-ORP
Joe Sondag, USDOE-ORP
Bryan Trimberger, USDOE-ORP
Duane Carter, USDOE-RL
Cliff Clark, USDOE-RL
Tony McKarns, USDOE-RL
Allison Wright, USDOE-RL
Jon Perry, MSA
Holly Bowers, WRPS
Eric Van Mason, WRPS
ERWM Staff, YN
Ken Niles, ODOE

Shawna Berven, WDOH
John Martell, WDOH
Kathy Conaway, Ecology
Suzanne Dahl, Ecology
Jackson Davis, Ecology
Jeff Lyon, Ecology
Jared Mathey, Ecology
John Price, Ecology
Alex Smith, Ecology
Cheryl Whalen, Ecology
Environmental Portal
Hanford Facility Operating Record
MSA Correspondence Control
USDOE-ORP Correspondence Control
USDOE-RL Correspondence Control
WRPS Correspondence Control

cc w/enc:

Susan Leckband, HAB
Administrative Record
NWP Central File
NWP Compliance Index File: 17.619

cc w/o enc:

Matt Johnson, CTUIR
Jack Bell, NPT
Rose Longoria, YN



Washington Department of Ecology
Nuclear Waste Program
Compliance Report

SITE: Walker Tanker HO-64-4294
RCRA Site ID: WA7890008967
Inspection Date: October 19, 2017
Site Contacts: Holly Bowers, Washington River Protection Solutions LLC (WRPS)
Bryan Trimberger, United States Department of Energy – Office of River
Protection (USDOE-ORP)
Eric Van Mason, WRPS Alternate Point of Contact
Phone: (509) 373-0333, Holly Bowers
(509) 376-2674, Bryan Trimberger
Site Location: Hanford Site, 200 West / 200 East Areas
Benton County, WA
At This Site Since: March 22, 1943 **NAICS#: NA**
Current Site Status: Large Quantity Generator

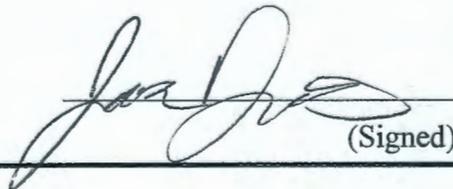
Ecology Lead Contact: Jackson Davis **Phone:** (509) 372-7930 **FAX:** (509) 372-7971

Other Representatives: Jared Mathey (Support Inspector)

Compliance Index #: 17.619

Report Date: March 30, 2018

Report By: Jackson Davis


(Signed)

3/30/18
(Date)

Site Location

The Hanford Site was assigned a single United States Environmental Protection Agency (EPA) identification number, and is considered a single Resource Conservation and Recovery Act (RCRA) of 1976, as amended, facility even though the Hanford Site contains numerous processing areas spread over a large geographic area. The Hanford Site is a tract of land approximately 560 square miles and is located in Benton County, Washington. This site is divided into distinct Dangerous Waste Management Units (DWMUs) which are administratively organized into "unit groups." A unit group may contain only one DWMU or many; currently, there are 35 unit groups at the Hanford Site. Individual DWMUs utilize a small portion of the Hanford Site. Additional descriptive information on the individual DWMUs is contained in unit group permit applications and in Parts III, V, and VI of the Hanford Facility RCRA Permit, Dangerous Waste Portion, WA7890008967, Revision 8C (hereafter referred to as the Permit).

Owner and Operator Information

USDOE is the owner and operator of the Single Shell Tank System (SST). USDOE-ORP contracts Washington River Protection System (WRPS) to co-operate the Single Shell Tank System. WRPS also co-operates the 242-W Sodium Storage Yard. Walker tanker HO-64-4294 at the time of this inspection resides in 242-W Sodium Storage Yard.

Facility Background

According to *Options for Responding to the Assumed Leak from Catch Tank 241-UX-302A*, RPP-RPT-30564, Revision 1, dated September 12, 2006, Tank 241-UX-302A (UX302A) is a direct-buried underground catch tank installed in 1947 to collect drainage from the UX-154 diversion box. Originally constructed from 9/16th inch thick carbon steel plate, UX302A is 39 feet long, nine feet in diameter, and buried 24 feet underground.

UX302A likely received some U Plant Uranium Recovery waste spillage from diversion box UX-154 when the Uranium Recovery process was in operation. The historical processes at U plant are mentioned in *Options for Responding to the Assumed Leak from Catch Tank 241-UX-302A* which states the Uranium Recovery process was shut down in 1958. By 2006, the contents of UX302A allegedly consisted mainly of liquid from transfer line flushes, hydro tests, rainwater and snowmelt. Additional drainage came from the diversion box, the encasement for the old cross-site transfer system and U Plant stack. Also present was a uranium rich sludge layer residing at the bottom of the catch tank. The Options Report documented analytical results for the liquid layer:

Constituent	Concentration
Sodium	150 µg/ml
Nitrate	20.1 µg/ml
Nitrite	< 0.658 µg/ml
Fluorine	0.0933 µg/ml
Chlorine	12.2 µg/ml
Sulfate	27.6 µg/ml
Aluminum	< 2.5 µg/ml
Iron	< 2.5 µg/ml
Total Inorganic Carbon	74.5 µg/ml
Total Organic Carbon	< 40 µg/ml
Total Uranium	18.7 µg/ml
Strontium-90	0.0475 µCi/ml
Cesium-137	0.0475 µCi/ml
Plutonium-239/240	5.95×10 ⁻⁶ µCi/ml
Specific Gravity	1.004
pH	8.1

The Options Report was published in 2006 and explained the more recent history of the catch tank in greater detail. In 2001, an integrity assessment concluded Catch Tank UX302A was not leaking. UX302A still received intrusions of 300-400 gallons per year. In September 2003 diversion box UX-154 was weather sealed and catch tank UX302A was pumped. Intrusion continued and by June 2004, UX302A held 17.29 inches of liquid (1823 gallons) as measured by ENRAF. U Plant stack continued to drain into UX302A until it was isolated in April 2005. By February 2006, ENRAF measurements indicated catch tank UX302A had lost 0.68 inches of the 17.29 inches of liquid.

A team was formed to determine the cause of the loss of liquid. The results of the investigation were reported in *Tank 241-UX-302A Leak Assessment Report*, RPP-RPT-29711, Revision 0, dated May 2006. The assessment determined UX302A was probably leaking. Ecology

requested a report detailing options for responding to the leaky UX302A tank and was given *Options for Responding to the Assumed Leak from Catch Tank 241-UX-302A*. Ultimately, the catch tank was pumped to below the assumed height of the leak. In October 2006, Walker tanker HO-64-4294 was used to transport waste from UX302A to SY-102.

The Sodium Storage Yard is a fenced area east of 2727-WA and is used for storing equipment prior to disposition (not to be confused with 2727-W, a nearby Butler-type steel building that houses 34,000 gallons of Hallam Reactor sodium).

Compliance Background

On August 15, 2017, a Hanford Occurrence Report was filed with the USDOE by the WRPS Environmental Management office regarding Tanker Trailer HO-64-4294 located in the 242-W Sodium Storage Yard. This report, numbered EM-RP--WRPS-TANKFARM-2017-0011 (the occurrence report), described the event as such:

On August 10, 2017, while performing routine radiological surveys in an outdoor radioactive material area, a Health Physics Technician discovered 500,000 dpm/100cm¹ beta/gamma total contamination, no alpha, on the drain valve at the rear end of Walker Transport tanker trailer HO-64-4294.

The Walker tanker, according to the occurrence report, was acquired by USDOE in 1998 for the purpose of pumping waste from catch tank UX302A and transporting it to the permitted Hanford Effluent Treatment Facility. The following highlights from the occurrence report are being restated for background:

- Between 2003 and 2008, more radioactive than anticipated material was pumped into the Walker tanker, HO-64-4294.
- Internal contamination of HO-64-4294 could not be removed, and the levels surpassed Department of Transportation (DOT) requirements.
- HO-64-4294 was placed in the Sodium Storage Yard as radioactive waste where it has remained.
- In May 2008, the Tank Operations Contract was awarded to WRPS. CHPRC was the previous contractor.
- WRPS inherited the contaminated equipment (including HO-64-4294) in the Sodium Storage Facility with little to no background information.
- The Walker tanker has undergone routine surveillance as part of the radioactive material area monitoring program.
- Following the discovery of the contamination, the immediate region around the back end of the tanker was posted as a radiological Contamination Area (CA).
- Recovery work began under Radiation Work Permit RWP-127. Due to the high background levels of radiation from the Walker tanker, no direct readings were taken.
- A survey was performed at the rear of the tanker; at the cap and threads of the drain valve and smears were counted in a low background area.
- Operations applied a fixative to the valve section of the tanker and soil cement was applied to the ground below the valve.
- Operations also sealed the contaminated section with plastic.

- The direct cause was determined to be that the equipment failed because it was not used as was intended by the manufacturer.

The following corrective actions were outlined in the occurrence report:

1. Perform administrative protocols to begin permanent dispositioning of the contamination Walker tanker.
 - a. First step is to perform an exhaustive radiological characterization survey of HO-64-4294. Target Completion Date: 11/30/2017.
 - b. Second step is to develop a plan to disposition tanker HO-64-4294. Target Completion Date: 01/31/2018.
2. Based upon the plan to disposition HO-64-4294, evaluate the need for submitting a Baseline Change Request. Target Completion Date: 02/15/2018.
3. Perform an exhaustive radiological characterization survey on the following tankers that have been placed in storage: 68-C-04347; HO-64-4268; HO-64-4275; and HO-64-4278. Target Completion Date: 01/31/2018.
4. Develop a plan to return to service or disposition tankers 68-C-04347, HO-64-4268, HO-64-4275, and HO-64-4278. Target Completion Date: 03/31/2018.
5. Based upon the plan to return to service or disposition tankers 68-C-04347, HO-64-4268, HO-64-4275, and HO-64-4278, evaluate the need for submitting a Baseline Change Request. Target Completion Date: 04/16/2018.

Inspection Summary

On October 17, 2017, I sent an email to WRPS and USDOE-ORP announcing an inspection of Walker tanker HO-64-4294 that would occur on October 19, 2017. The scope of my inspection was to focus on two points:

1. To determine if Walker tanker HO-64-4294 is an "empty" container under WAC 173-303-160 requirements.
2. If not, then to determine if it contains dangerous waste.

The announcement included a document request for records to be made available at the time of inspection.

On October 18, 2017, Eric Van Mason, a WRPS Environmental Regulatory Interface, telephoned to explain they would not be able to locate all of the documents I requested by October 19, 2017. I told Mr. Van Mason they should bring as much as they could locate and we would request further documentation as needed during the inspection.

On October 19, 2017 Mr. Mathey and I arrived at WRPS offices in Richland at 3170 George Washington Way at 7:50 am. We were escorted into conference room 212. At 8:00 am, the in-brief meeting began. The following people from USDOE-ORP and WRPS were present for the inspection:

- Holly Bowers, WRPS Environmental Regulatory Interface
- Eric Van Mason, WRPS Environmental Regulatory Interface
- Michael Greene, WRPS Inspection Coordinator

- Gae Neath, USDOE-ORP, Environmental
- Jim Gibbons, WRPS Waste Services Hazardous Material Specialist
- Doug Swenson, WRPS Waste Services Manager
- Glen Triner, WRPS Technical Support Manager

I informed everyone that this inspection was in response to the notification Ecology received for the reported occurrence involving HO-64-4294. I said our focus was to determine the dangerous waste regulatory status with HO-64-4294 and the event. I explained I wanted to learn information not found in the occurrence report regarding the end of the tankers service.

Mr. Triner said they found a little contamination a few months ago as part of routine, ongoing radiological surveys of the container. WRPS determined there must have been a failure in a gasket or weld that allowed a measureable amount of radioactive contaminant to reach the outlet at the rear of the Walker tanker. Mr. Triner explained WRPS did not detect radiation on the ground. He said they sprayed fixative into the valve section of the tanker. He explained daily condensation had caused contaminated fixative to drip into a pan that they had placed under the valve section.

I asked Mr. Triner if they determined what the tanker had last been hauling. Mr. Triner said the trailer was last used in 2006 and 2007 to pump waste from catch tank UX302A into SY-102. I asked if UX302A had contained dangerous waste. Mr. Swenson said it contained rainwater. Mr. Triner said they continued to pump out UX302A after weather events, and that the tank contains F-listed tank waste. I asked if UX302A was designated with the same codes as the single shell tanks. Mr. Triner said that it had. I said one of the critical regulatory questions was whether or not the tanker had held acutely hazardous waste. Mr. Triner said UX302A had not contained acutely hazardous waste.

I asked Mr. Triner to describe how HO-64-4294 arrived at the sodium storage yard. He said catch tank UX302A had a layer of fine particulate matter near the bottom that carried a lot of radioactive contamination. Mr. Triner said snow and rain still intrudes into catch tank UX302A and they pump it out every year or two. He said when they pump from that catch tank, they now use a 5 micron filter to limit the spread of contamination, but back in 2006 they did not yet know to follow that practice. Mr. Triner explained when the Walker tanker was last used it held about 800 gallons of waste pumped out of UX302A, and in that operation the tanker picked up some of the fine particulate, which then settled in the heel of the tanker. He said, when the tanker was drained, they were unable to remove about 150 mrem/hr of contamination. That level of contamination left the tanker too close to the DOT limit to continue using it to haul radioactive waste. Mr. Triner said that although the tanker could not be used, it was too valuable to discard. He said the tanker was staged for later decontamination or use.

I asked what volume the tanker held when full. Mr. Van Mason said 5,000 gallons, and showed a diagram of the tanker on a big screen. I observed the diagram had a Walker Stainless Equipment Co., Inc. logo and was numbered TT-B19656-D. I asked what heel volume remained when it was emptied. Mr. Triner said that "top unload" tankers held a heel of 25 gallons and that this tanker drained from the bottom so it would have retained considerably less residue. Mr. Van Mason pointed to the location of the valve, extending below the rear of the tanker. I asked how much less, as the diagram on screen did not indicate residual volume. Mr. Triner said they would not have used this tanker if it were not capable of being emptied. He said that the engineers on the project would not have allowed it to have been used.

I said we were going to need an estimate for the residual volume. I asked if they found the tanker database records that I had initially requested. Mr. Van Mason said they have not and were uncertain they would be able to locate calculations from that long ago. Mr. Swenson reiterated that this tanker was used for hauling rainwater and that it was rinsed several times after it was emptied. I asked if they located the work package I requested for the final emptying of HO-64-4294. Mr. Van Mason said they did. I said we were ready to review those documents.

On-Site Document Review

Of the nine documents I requested for the inspection, the only one produced was the work package for the final emptying of the Walker tanker. Mr. Van Mason showed us *UX-302A Dispose Waste to SY-102 Via Walker Tanker*, CLO-WO-06-001443 on the computer screen. Mr. Triner and Mr. Swenson pointed out steps existed to ensure the tanker was elevated and sloped to the rear and pressurized to aid in draining. I observed a large number of pen and ink changes had been made to the original plan. It appeared emergency repairs were made to the tanker while it remained connected to SY-102, from November of 2006 until March of 2007. I copied some of the operator's notes on the back few pages and said I would need to request this document for further review.

I asked Ms. Neath if she could expedite the process by reviewing and releasing this document to me today. Ms. Neath reviewed the document and released it to me.

I thanked everyone for their time and attention. I said that despite not gathering all the documents I requested, the knowledge presented by the people in the room and the shared work package helped address many of my concerns and that rather than pursuing the original document request, we would only need:

1. Engineering documents describing how much waste remained in the tanker heel
2. Designation records for the waste in UX302A

Mr. Triner said they would reach out to the tanker manufacturer to calculate the heel volume and should hear something back soon. I said that would be acceptable, but that calculations or measurements from the time of this tanker's operation would be preferred. I said I would submit a document request clarifying my needs after I reviewed the work package in detail. We ended our inspection 9:00 a.m. and left their offices.

Document Review

Work Instructions

I evaluated the work instructions to see if they indicated the Walker tanker had been made "empty" to WAC standards.

WAC 173-303-160(3)(a) states:

Any residues remaining in containers or inner liners that are "empty" as described in subsection (2) of this section will not be subject to the requirements of this chapter.

Note: What it takes to make a container "empty" according to WAC 173-303-160(2) depends on the size of the container and the nature of the waste. If HO-64-4294 was drained of waste so that no more than one inch, or 0.3% of the container volume remained, then the container is "empty," except there are three categories of waste which require additional steps:

1. acutely hazardous waste
2. toxic extremely hazardous waste
3. pesticides bearing a danger or warning label

I observed *Work Instructions: UX-302A Dispose Waste to SY-102 Via Walker Tanker* (CLO-WO-06-001443) was organized into 13 pages of instruction, four datasheets, a checklist, and a four page, handwritten "RPP Work Record." The work instructions were broken into steps and organized into sections. The package included the following sections:

1. Scope
2. Limitations/Precautions
3. Prerequisites
4. Specific Work Instructions
5. Post Work Activity Testing
6. Restoration Actions

After that, there were four datasheets and an engineering checklist:

- Datasheet 1 – SY 102 Water Usage
- Checklist 1 – Engineering Controls
- Datasheet 2 – Low Level Waste Addition information Record Sheet (blank)
- Datasheet 3 – 241-SY-102 Temperature Monitoring
- Datasheet 4 – 241-SY-102 Tank Pressures

The "Scope" of this work procedure document was to:

- Perform the disposal of UX302A low level liquid waste from Walker tanker to SY-102 utilizing an air compressor, pressure gauges, and air regulating devices.
- Tanker will be triple rinsed and re-drained when waste disposal is complete.

I observed one of the steps in "Prerequisites" was to ensure the Walker tanker is sloped towards its rear drain connection, as Mr. Swenson and Mr. Triner had said.

In the "Specific Work Instructions," I observed the Health Physics Technician and Field Work Supervisor (FWS) both signed-off on November 21, 2006, stating prep-work had been completed. The FWS wrote in the work record on November 21, 2006:

Laid out All Hoses & connected to tank 102-SY. All zones established, hoses routed properly and all equipment staged to begin waste transfer from tanker to 102-SY. Water tanker is staged. Scaffold has stairs. Expect to commence transfer in early A.M of 11/22.

I observed this note in the work record corresponded to notes and signatures written on page four of the work instructions and that under Step 4.13, there was a horizontal line with the date November 22, 2006 and some initials written below it.

Beginning on the top of page four with Step 4.2.3, the operator started checking off boxes for each step as he went. For the next four pages every step was checked off, except for steps that were to be taken if something had gone wrong. The margin notes and work record indicated this work took place on November 22, 2006.

I observed Step 4.21, "To drain tanker to SY-102" and all its sub-steps were checked off; including sub-step 4.21.4, "Every hour of draining, complete Datasheet 3 and Datasheet 4". I observed step 4.21 was marked off, and there was a time written in the margins of 9:16. This time combined with the date from the notes appears to indicate the discharge started on November 22, 2006 at 9:16 AM. However, I observed instead of having multiple datasheets as the instructions implied there should be, there was only one instance of Datasheet 3 and Datasheet 4, and both were dated January 9, 2007. Notes in the work record indicate that the tank was drained on November 22, so either pages were missing, or this sheet was never completed.

The check mark appears to indicate that a Datasheet 3 and 4 had been completed on November 22, but were not part of the work package. I observed the page numbers on the Datasheets which were included appear to have been changed. I observed that handwritten page numbers skipped from page 16 on Engineering Checklist 1 (dated November 21, 2006) to page 33 on Datasheet 3 (dated January 9, 2007.) I observed on Datasheet 3, page number 33 had been crossed out and a number 17 was written in. Similarly, Datasheet 4 had an original page number 34 crossed out and number 18 written in. Based on the number changes and missing records, sixteen pages appear to have been removed from work package CLO-WO-06-001443. The altered page numbers overlap with the portion of the document that should have contained the datasheets for adding liquid to SY-102, which makes it seem plausible that the tanker was both filled and drained on November 22, 2006, if some pages describing this activity have been removed from the work record.

More review of the work package showed steps continued to be checked off until page seven where the check marks ended with Step 4.24, "**Fill and flush** Walker tanker by doing the following:" The last note in the work record from Wednesday, November 22, 2016, indicated the tanker was drained, then rinsed and drained once that day, and that work was expected to continue after the Thanksgiving holiday weekend:

Pressurized tanker to 5.0 psi and commenced discharge of waste to 102-SY. Transfer line showed no leakage, rad levels on the ~2 mrem/hr, with a 90 mrem/hr hot spot on the bottom of the tanker. Vented. Refilled with water and drained to 102-SY. Timed: Takes about 45 minutes to fill tanker from 4000 gallon tanker 35 minutes to pressurize and 80 minutes to drain. Plan to continue on Monday. 11/22 DPN

Datasheet 1, "SY 102 Water Usage" confirms that the rinse was of adequate volume (it was greater than 10% of total container volume). The first line explained this sheet was to be filled out for "**EACH**" water use activity. I observed there was only one copy of Datasheet 1, which could indicate Walker tanker HO-64-4294 was only rinsed once in total, but there are 16 pages which appear to be missing. Datasheet 1 contained water meter readings. Next to "Beginning Reading" 424 gallons was specified. Next to "Final Reading" 1340 gallons was specified. The datasheet was dated November 22, 2006 at 12:10 PM. Next to "Actual Volume Used" a total volume of 916 gallons was listed. This appeared to be the first rinse documented in the work record.

On Monday, November 27, 2006, work did not continue as planned. The following note appears in the work record:

Added 100 Gallons of water to tanker to agitate hot spot. While cleaning ice and snow from rupture disk top, discovered rupture disk had failed due to frozen/expanded ice. Informed shift mgr. Surveyed and found no contamination. Eng eval in progress. Covered disk area to seal off, and lowered tanker front to move the 100 gallons away from the drain valve assembly. Package needs to be written to replace rupture disk. Notification made. DPN.

Notes in the work record from December 13, 2006 indicate that the rupture disk was replaced under work package CLO-WO-06-002179. A modification "Pen & Ink - 04" was made to allow "QC to verify rupture disk requirements more than one time." I observed a signature in the work record nearby for a "QA." This signature was also dated December 13, 2006. This seems to indicate that the rupture disk was replaced that same day.

According to the work record, work resumed once more on January 9, 2007 (the date from the Datasheets 3 and 4 observed earlier). I observed there was no Datasheet 1 for SY-102 water usage on this date. I observed this note in the work record:

Filled tanker with ~900 gallons and discharged to 102-SY. No effect on Rad levels on tanker underside. Secured operations after draining tanker and transfer hose. WM reading 5170 - 4260 = 920 gallons.

November 21, 2006	Walker Tanker was hooked up to SY-102.
November 22, 2006	Walker Tanker was drained of waste at 9:16 AM. 1st Rinse: Total of 916 gallons was added to rinse tanker and drained.
Thanksgiving weekend	Despite alleged draining, residual water froze and expanded, breaking rupture disk.
November 27, 2006	Another 100 ¹ gallons was added to agitate hot spot. Broken rupture disk was discovered. Tanker was lowered to move 100 gallons away from drain. Work stops for time being.
December 13, 2006	Pen and Ink modifications indicate "QC" is to sign work record when rupture disk is replaced a second time. "QA" signature appears on this date.
January 9, 2007	2nd Rinse: Additional 920 gallons added to 100 gallons presumably still in tanker. Tanker is drained, hot spot remains.
March 19, 2007	Disconnected from SY-102 and water tanker.

¹Work record indicates 100 gallons was added to the Walker tanker, but there is no Datasheet 1 for water use, or Datasheet 3 and 4 for draining to SY-102 on this date. Tanker could not be pressurized if rupture disk is not in place.

Finally, the last note was entered in the work record after the tanker was disconnected on March 19, 2007. It stated the Walker tanker was disconnected from SY-102, "Worked in conjunction with [work package] CLO-WO-07-0167 to reconfigure tanker and break down scaffolding for transport." For a summary of all the modified instructions in work package CLO-WO-06-001443 combined with notes from the RPP Work Record, and dates from the Datasheets, see Table 2.

Requested Documents

On October 24, 2017, I submitted a document request to WRPS which asked:

1. Provide any documents from the time of HO-64-4294 operation that estimate heel volume remaining in HO-64-4294 after being emptied on an incline, as it was on 11/22/06.
2. Based on the information furnished above, was HO-64-4294 emptied so that more than 1" of waste, or no more than 0.3 percent by weight of the total capacity remained, when it was initially emptied of waste on 11/22/06?
3. Provide designation records for the waste in catch tank UX-302A.

On November 14, 2017, I received a response from WRPS. It contained two documents and a cover sheet that described:

Item 0 – *Errata for ECY Tanker Truck Inspection 17-619 Doc Request*

Item 1 – *Estimate of Potential Heel in Tanker*

Estimate of Potential Heel in Tanker

In *Errata for ECY Tanker Truck Inspection 17-619 Doc Request*, WRPS stated:

An original engineering estimate from the time the tanker was emptied could not be located. The tanker manufacturer Walker was contacted and based on their input, a new calculation was performed to estimate the remaining heel (this calculation is being provided as "ITEM 1 - Estimate of Potential Heel in Tanker")

The first page of the estimate stated, "By following the Work Instructions it is determined that the only liquid that could remain in the walker tanker would be 0.15 gallons. This volume is based on conservative assumptions and consists of residual liquid that may remain from the rear of the tanker's drain sump to the rear head." This is much lower than the 25 gallon estimate Mr. Triner had cited for other tankers WRPS had in service.

Two assumptions were identified in this document:

- 1) The distance from the downward side of the tanker sump to the tanker head is 10 inches.
- 2) The liquid contained between the downward side of the tanker sump and the tanker head is 0.5 inches.

The first assumption is supported by a diagram (See Figure 1). I did not observe any supporting information for the second assumption. Figure 1 shows a recessed valve, but it also shows the top of the valve rising up several inches. I did not observe the one half inch estimate supported by any calculation or measurement.

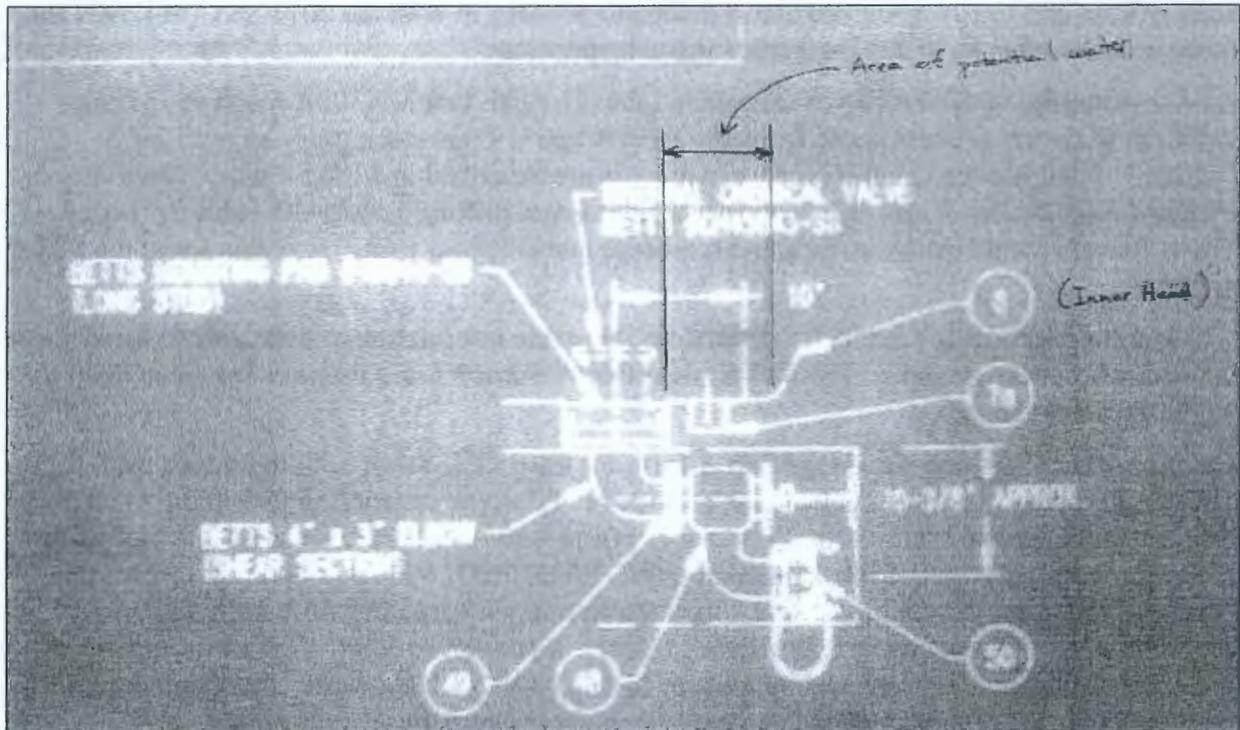


Figure 1 – Diagram of Betts valve from *Estimate of Potential Heel in Tanker*

To calculate the residual volume, it appeared that WRPS used a strapping chart to translate a one half inch liquid level into a tanker volume of 7 gallons. The only calculation performed was:

$$1/48 \times 7 \text{ gallons} = 0.15 \text{ gallons}$$

I observed nothing to support the assumption that residual volume would equal one half inch. I observed the strapping chart indicated its values were “theoretical.”

Was HO-64-4294 Empty?

I requested:

Based on the information furnished above, was HO-64-4294 emptied so that more than 1” of waste, or no more than 0.3 percent by weight of the total capacity remained, when it was initially emptied of waste on November 22, 2006?

WRPS responded:

Yes, the tanker met the WAC 173-303-160(2)(a) definition of empty; see [Estimate of Potential Heel in Tanker].

Designation Records for UX302A

I requested, but did not initially receive designation records for the waste pumped from UX302A. Instead there was a document titled *Errata to Support the Ecology HO-64-4294 Walker Trailer Inspection #17.619*.

I observed the errata explained UX-302A contained “contacted tank waste and so therefore carries the same waste codes (designation or assignment of the waste codes based on process knowledge as documented in [Listed Waste History at Hanford Facility TSD Units, WHC-MR-0517]). Designation information for tank waste in the SSTs and [double shell tank system] has

already been previously discussed and provided to Ecology in both the 2017 SST (#17.593) and [double shell tank] (#17.592) Dangerous waste inspections.”

As was discussed under Facility Background (above), catch tank UX302A received U Plant Uranium Recovery process waste from 1952-1958, and U Plant stack drainage until 2005. Neither U Plant nor the Uranium recovery process are described in *Listed Waste History at Hanford Facility TSD Units*. Reviewing the listed waste history, I observed Table 2, “Listed Waste Management History at Treatment, Storage and Disposal Units” says this about the SST system:

Operating records for the SST System do not provide information to differentiate listed waste codes for different tanks. The SST System Part A Form 3 listed waste codes are applied to all SST System tanks.

Catch tank UX302A appears on the Part A form for the SST System, both the signed draft for revision 9, and on historical applications provided to Ecology. According to Table 1 “Treatment, Storage, and Disposal Units with F, P, K, or U Waste Codes on Part A Form 3,” the listed waste codes for the Single Shell Tank System are F001, F002, F003, F004 and F005. I observed on page four that these designations were “obtained from reviewing the Part A Form 3, Permit Applications.” The document *Listed Waste History at Hanford Facility TSD Units* appears to merely summarize the Part A applications, including only the listed waste codes, and does not represent a record of the knowledge or analysis that supported those applications.

I observed on page one, *Listed Waste History at Hanford Facility TSD Units* states: “This document does not discuss history of wastes that were designated for either the characteristic or criteria in WAC 173-303-090 and -100, respectively. For information on which of these waste codes are associated with TSD units, refer to the most current version of the TSD units’ Part A Form 3.” Designation for characteristic and criteria waste is required in Washington State to determine applicable land disposal restrictions, and is particularly important to determining if a container is “empty” under WAC 173-303-160. *Listed Waste History at Hanford Facility TSD Units* appears to be an incomplete summary of some aspects of permit applications and not knowledge or analysis adequate for the designation of catch tank UX302A.

I reviewed the draft Revision 9, Part A application which lists the following waste codes applicable to the SSTs:

Table 3: Single-Shell Tank System, Part A Form		
DW Code	Description of Dangerous Waste	DW/EHW
Listed Waste Codes		
F001	Spent solvents	DW
F002	Spent solvents	DW
F003	Spent solvents	DW
F004	Spent solvents	DW
F005	Spent solvents	DW
Characteristic Waste Codes		
D001	Ignitable	DW
D002	Corrosive	DW
D003	Reactive	DW
D004	Arsenic	DW
D005	Barium	DW
D006	Cadmium	DW
D007	Chromium	DW
D008	Lead	DW
D009	Mercury	DW
D010	Selenium	DW
D011	Silver	DW
D018	Benzene	DW
D019	Carbon tetrachloride	DW
D022	Chloroform	DW
D028	1,2-Dichloroethane	DW
D029	1,1-Dichloroethylene	DW
D030	2,4-Dinitrotoluene	DW
D033	Hexachlorobutadiene	DW
D034	Hexachloroethane	DW
D035	Methyl ethyl ketone	DW
D036	Nitrobenzene	DW
D038	Pyridine	DW
D039	Tetrachloroethylene	DW
D040	Trichloroethylene	DW
D041	2,4,5-Trichlorophenol	DW
D043	Vinyl chloride	DW
Criteria Waste Codes		
WP01	Persistent extremely hazardous waste	EHW
WP02	Persistent dangerous waste	DW
WT01	<i>Toxic extremely hazardous waste</i>	EHW
WT02	Toxic dangerous waste	DW

I observed two of these waste codes are for extremely hazardous waste, one of which is *toxic extremely hazardous waste* as defined by WAC 173-303-100. I observed in WAC 173-303-160 a container which held toxic extremely hazardous waste is not "empty" until it has been rinsed three times.

On November 16, 2017, I called Ms. Bowers to go over what I had observed in CLO-WO-06-001443. We discussed the designation of Single-Shell Tank waste on the Part A form and events that took place around Thanksgiving Holiday in 2006. I explained that the declared waste codes for the single shell tank system indicated toxic extremely hazardous waste. I explained, because of that waste code, I was interested in determining if the tanker was rinsed three times. I requested she set up a meeting with the field work supervisor with initials DPN who oversaw the emptying of HO-64-4294 so we could discuss his account of events. I also asked that the engineer who produced the residual estimate be present to speak for his work.

On December 12, 2017, Mr. Mathey and I arrived at WRPS offices at 3170 George Washington Way. At 8:00 AM the meeting began and present were the following people from WRPS and USDOE-ORP:

- Holly Bowers, WRPS Environmental Regulatory Interface
- Eric Van Mason, WRPS Environmental Regulatory Interface
- Michael Greene, WRPS Inspection Coordinator
- Joe Sondag, DOE-ORP Environmental Compliance
- Jim Gibbons, WRPS Waste Services Hazardous Material Specialist
- Doug Swenson, WRPS Waste Services Manager
- Glen Triner, WRPS Technical Support Manager

I explained the designation I reviewed specified EHW, so we still needed more information to determine if the container was "empty." I said I had since been told, instead of having an interview with the Field Work Supervisor that oversaw the emptying of Walker Tanker, WRPS had a more specific designation for UX302A based on analysis. Mr. Gibbons was also present to speak for the tanker residuals estimate.

Mr. Gibbons explained the tanker's check valve operated like a plunger on a bathtub drain and that it was recessed to be flush with the bottom of the tank. He showed me a picture of a similar model of valve (see Figure 2). His explanation of the operation of the check valves made the logic of his estimate clearer. He said the one half inch estimated depth below the drain was a guess based on the angle of the liquid in the tank. I thanked Mr. Gibbons for his time and he excused himself a few moments later while we were discussing the designation.

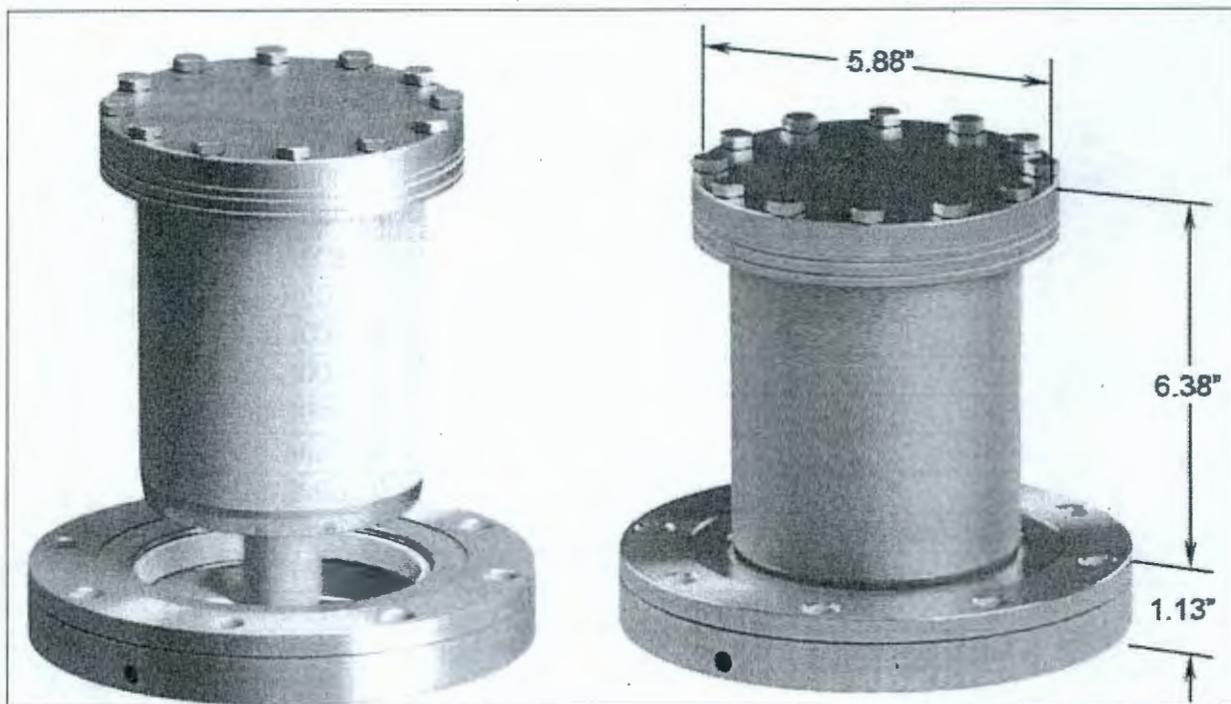


Figure 2 – A Betts internal chemical valve.

I was shown a copy of *UX-302A Catch Tank Liquid Grab Samples*, RPP-RPT-5985, revision 1, sample date October 19, 2016. The sample analysis plan was listed as RPP-PLAN-61150. I asked for a summary. Ms. Bowers pointed to a cover sheet with the title “Waste Designation,” which listed “waste class” as DW. I asked if it designated as WT01. Mr. Swenson said it did not. I asked what was going to be done with Walker tanker HO-64-4294. Mr. Swenson said they were seeking a one-time authorization to go to the Environmental Restoration Disposal Facility. I asked what was going to be done with the other tankers identified in the ORP report. Mr. Swenson said they had the same plan for the other tankers.

Mr. Sondag asked me what my intentions were with this inspection. Mr. Mathey said the inspection was to determine if the Walker tanker container was RCRA empty and if it needed to be included in the permit. I explained I would review the designation record and determine if it supported a dangerous waste (DW) over extremely hazardous waste (EHW) designation. I stated if EHW was present, we would have to look at rinse volume again in greater detail. Mr. Sondag released the designation document. I thanked USDOE and WRPS for having the requested documents available for release. I asked why the document clearance process normally takes three weeks. I was told that USDOE had ceased government to government file transfers with Ecology because Ecology’s strict public disclosure policies prompted USDOE to treat requests from Ecology as though they were requests from the public. I thanked everyone for their time and left the offices.

UX-302A Catch Tank Liquid Grab Samples

RPP-RPT-5985, revision one is a Waste Designation worksheet followed by a SWIR610 report generated from the Solid Waste Identification and Tracking System. I observed this designation was similar to the waste codes from the Permit Part A form except it omitted characteristic and state only waste codes. The Part A listed “Applicable Waste Codes” and “Federal LDR Codes” as F001, F002, F003, F004, and F005, “Tank Contacted (per generator)” was checked as “yes.”

Table 4: UX-302A Catch Tank Liquid Grab Samples			
Chemical Name	Concentration	Weight %	TOX
2-Pentanone, 4-Methyl-	0.017 ppm	1.6700E-06	C
Bis(2-ethylhexyl) Phthalate	0.000 ppm	0.0000E+00	N
Formate	0.010 ppm	9.5000E-07	N
Cresol	0.017 ppm	1.6700E-06	C
Ortho-Phosphate	0.958 ppm	9.5800E-05	N
Nitrate	12.500 ppm	1.2500E-03	N
Nitrite	0.416 ppm	4.1600E-05	N
Sulfate	14.500 ppm	1.4500E-03	N
Chloride	26.500 ppm	2.6500E-03	N
Fluoride	0.185 ppm	1.8500E-05	N
Bromide	0.266 ppm	2.6600E-05	N
Carbon Tetrachloride	0.000 ppm	0.0000E+00	C
2-Chloro-2-Methylbutane	0.170 ppm	1.7000E-05	N
Acetone	0.017 ppm	1.6700E-06	D
1,1,1-Trichloroethane	0.000 ppm	1.0000E-10	D
Aluminum	0.140 ppm	1.4000E-05	A
Iron	0.316 ppm	3.1600E-05	N
Lithium	0.007 ppm	7.0000E-07	N
Magnesium	25.500 ppm	2.5500E-03	N
Manganese	0.036 ppm	3.6000E-06	N
Mercury	0.002 ppm	2.0000E-07	B
Molybdenum	0.015 ppm	1.5000E-06	N
Nickel	0.021 ppm	2.1000E-06	N
Potassium	54.500 ppm	5.4500E-03	N
Samarium	0.058 ppm	5.8000E-06	N
Silicon	3.320 ppm	3.3200E-04	N
Strontium	0.627 ppm	6.2700E-05	N
Thorium	0.130 ppm	1.3000E-05	N
Tin	0.027 ppm	2.7000E-06	N
Barium	0.080 ppm	8.0000E-06	N
Boron	0.110 ppm	1.1000E-05	D
Chromium	0.048 ppm	4.8000E-06	N
Cobalt	0.002 ppm	2.0000E-07	N
Copper	0.015 ppm	1.5000E-06	A
Uranium	11.500 ppm	1.1500E-03	C
Calcium	7.300 ppm	7.3000E-04	N
Dichloromethane	0.017 ppm	1.6700E-06	D
Sulfur	5.270 ppm	5.2700E-04	N
Phosphorus	0.471 ppm	4.7100E-05	A
Methyl Ethyl Ketone	0.017 ppm	1.6700E-06	D
Benzyl Butyl Ester Phthalic Acid	0.016 ppm	1.6000E-06	B

Under the header "Non-Applicable Codes and Reasoning" it listed WT02, WT01 and WP01 as non-applicable with the reasoning "federal codes apply." Codes for toxicity characteristic were listed as not-applicable due to "amount below maximum reporting concentration for toxicity characteristic." Analysis was summarized in the table below. Weight percentages specified on the Waste Designation form have been converted to ppm. Toxicity categories are from the SWIR601 report, which did not specify the source of the toxicology data.

The comments for the report for designation # RPP-RPT-59852 state "final report for catch tank 241-UX-302A grab samples in support [of] tank farm waste compatibility."

I observed the designation did not specify toxic EHW. I observed the equivalent concentrations listed in *UX302A Catch Tank Liquid Grab Samples* worksheet would not merit a WT01 designation. It did not appear that tank waste compatibility testing results met the generator recordkeeping requirements for waste designation records specified in WAC 173-303-210, nor the TSD analysis and record keeping requirements in WAC 173-303-300 and WAC 173-303-380.

Based on the notes in the work record of CLO-WO-06-001443 the walker tanker HO-64-4294 was emptied by normal means and rinsed at least twice. The "WM reading 5170 - 4260 = 920 gallons" comment in the work record indicates there was an approximately 2,800 gallon difference between the final volume reading on the first rinse, and the initial volume reading on the second documented rinse. If that volume were applied as a rinse it would have been adequate to make HO-64-4294 "empty" in accordance with WAC 173-303-160, even for extremely hazardous waste.

Concerns

- 1) During prior dangerous waste inspections (#17.593 and #17.592), WRPS has suggested *Listed Waste History at Hanford Facility TSD Units* is a designation record. For generators designation records are described in WAC 173-303-210, for TSDs records requirements are described in WAC 173-303-380. In either instance a combination of analysis and knowledge sufficient to manage waste in accordance with the requirements of the WAC is required.

The fact that tank waste compatibility testing is necessary indicates the waste codes and process information specified in *Listed Waste History at Hanford Facility TSD Units* is not sufficient information to reliably substitute for analysis of waste. Being insufficient, in part by not addressing characteristic or criteria hazards, *Listed Waste History at Hanford Facility TSD Units* does not represent acceptable knowledge (as defined in WAC 173-303-040) for the designation of dangerous waste. The statement in the *Errata* that waste "carries the same waste codes" is not the same as a waste designation.

- 2) The time and labor involved in the current document clearance process presents a barrier to the flow of information that can delay finalization of inspections and permit modifications. A Government to Government exchange of documents should be resumed between USDOE and Ecology in order to meet requirements of Hanford Dangerous Waste Permit, Condition I.E.9.b.

During the inspection I was told that USDOE had ceased government to government file transfers with Ecology because Ecology's strict public disclosure policies prompted USDOE to treat requests from Ecology as though they were requests from the public. Ecology has an agreement in place with USDOE (December 1, 2010 Ecology letter *RE: National Security Sensitive Materials*) regarding Ecology handling of Official Use Only information, and USDOE could take advantage of this agreement to expedite file transfers to Ecology.

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.

ATTACHMENT A

Work Record from CLO-WO-06-001443

(This page intentionally left blank)

ATTACHMENT A
 Work Record from CLO-WO-06-001443

Date	Turnover, Problem Description, Action Taken
09/12/06	Completed Walkdown/WHA
10/9/06	Incorporated Revision 3 of RWP CO-293.
11/6/06	<p>Pen & Ink – 01; Changes made due to AJRG comments from W.O. CLO-WO-06-001245 (Pumping), & from engineering comments on Walker tanker.</p> <p>Step 3.13 /WARNING prior to 4.2.6/4.24.5; If freezing conditions may exist, hot water will be used for flushing. Walker tanker D.A. has stated maximum temp of hot water to be <125°F.</p> <p>Step 4.2.6; HEPA filter on tanker will no longer be removed for transport, and will be bagged in clear plastic. The steps were modified to remove plastic and inspect filter. This pen & ink does not require modification of the USQ. [Signed by seven people, all dated 11/06/06]</p>
11/21/06	Pen & Ink – 02; Step 2.6 (pg 1), Datasheet 1 (pg 14), checklist 1 (pg. 15). Per System Eng. (Monte Brown) due to recent caustic addition to tank, max level increase for SY-102 is now 416". CAE 11/24/06
11/21/06	Laid out All Hoses & connected to tank 102-SY. All zones established, hoses routed properly and all equipment staged to begin waste transfer from tanker to 102-SY. Water tanker is staged, scaffold has stairs. Expect to commence transfer in early A.M. of 11/22.
11/22/06	Pressurized tanker to 5.0 psi and commenced discharge of waste to 102-SY. Transfer line showed no leakage, rad levels on the ~2 mrem/hr, with a 90 mrem/hr hot spot on the bottom of the tanker. Vented. Refilled with water and drained to 102-SY. Timed: Takes about 45 minutes to fill tanker from 4000 gallon tanker 35 minutes to pressurize and 80 minutes to drain. Plan to continue on Monday. 11/22 DPN
[Thanksgiving Weekend]	
11/27/06	Pen & Ink #3 Add wording to allow tanker front to be raised and lowered using the jacking legs in an attempt to influence a hot spot in the tanker center. Use no more than 100 gallons to prevent liquid impact and motion of the tanker. [multiple signatures]
11/27/06	Added 100 Gallons of water to tanker to agitate hot spot. While cleaning ice and snow from rupture disk top, discovered rupture disk had failed due to frozen/expanded ice. Informed shift mgr. surveyed and found no contamination. Eng eval in progress. Covered disk area to seal off, and lowered tanker front to move the 100 gallons away from the drain valve assembly. Package needs to be written to replace rupture disk. Notification made. DPN. [8 hours worked]
12/4/06	INCORPED REV 4 OF RWP. ENDDATE OF RWP UPDATED.

ATTACHMENT A

Work Record from CLO-WO-06-001443

Date	Turnover, Problem Description, Action Taken
12/13/06	Pen & Ink – 04; Work Steps 3.9 & 3.10. Rupture disk needed replacement for a second time (work pkg CLO-WO-06-002179). Work steps modified to allow QC to verify rupture disk requirements more than one time. [five signatures/initials on that date]
	Pen & Ink 04 is just a repeat of previous steps therefore the change is covered by the previous VSQ review. [engineers name unreadable]
1/9/07	DRI 07-0078, RSR C00-002461 Filled tanker with ~900 gallons and discharged to 102-SY. No effect on Rad levels on tanker underside. Secured operations after draining tanker & transfer hose. WM reading 5170 – 4260 = 920 gallons. DPN
3/19/07	Removed/disconnected hose from SY-102 and Walker Tanker connection points on both ends released. Worked in conjunction with CLO-WO-07-0167 to reconfigure tanker & break down scaffolding for transport. All waste cleaned up at job site. DPN