Environmental Functional Area

Environmental Support and Programmatic Outreach

LLNL-TR-732747

Operational Plan for Underground Storage Tank 322-R2U2

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for Underground Storage Tank 322-R2U2

Purpose of Operational Plan

This Operational Plan provides the operator of the tank system with guidelines relating to the safe and compliant operation and maintenance of the tank system. The tank system schematic and list of emergency contacts shall be posted near the tank so they are visible to tank personnel. This Operational Plan shall be kept on file by the Facility Supervisor. It should be understood when managing this tank system that it is used to store hazardous waste temporarily for 90 calendar days or less. The rinsewater handled in the tank system is considered hazardous and may exhibit the characteristic of toxicity.

Tank System General Information

The Hazardous Waste Retention Tank System (HWRTS) 322-R2U2 is located in the south-central area of the LLNL Livermore site, southwest of Building 322 (B-322). The 322-R2U2 tank system is used to accumulate an aqueous waste stream. Wastewater may accumulate in the HWRTS for up to 90 days before it is recycled at the B-322 Evaporator Unit.

Tank System Physical Description

The HWRTS 322-R2U2 tank system consists of one 1,000-gallon, single-walled, skirted, fiberglass tank identified as 322-R2U2. The tank is located in an underground, reinforced-concrete, epoxy-coated, secondary containment vault. Piping to the tank system is aboveground single-walled piping that is secondarily contained within the bermed area on the west side of B-322, and the underground vault. Rinsewater is gravity-discharged from plating operations in B-322 into pump liftstation 322-R2O1 that is connected to the aboveground piping system. The aboveground piping drains into 322-R2U2.

322-R2U2 is located underground but was exempted from underground storage tank (UST) regulations by Alameda County Health Care Services in 2002. The exemption is posted in the documentation box near the tank system and is also in Environmental Functional Area (EFA) files.

Purpose of Tank System

The purpose of the 322-R2U2 tank system is to collect rinsewater from the plating facility rinse tanks in the process work area in Building 322 and temporarily store the waste prior to recycling by the cold vaporization distillation units. The Metal Finishing and Plating (MFP) Shop facility is part of the Manufacturing and Materials Engineering Division and is managed by the MFP Shop Supervisor. Hazardous rinsewater contaminated with acids, bases, and metals is normally stored in the tank on a temporary basis. No radioactive or mixed wastes are generated or stored in the tank system. Blaine Beith has line management responsibility for operation and maintenance of the tank system. Responsibility for operation and maintenance of the tank system is delegated to Rudy Robles, the Tank Operator. His backups are Jose Zavala, Tom Stuart and Jacob Parkman, Alternate Tank Operators.

Training of Operators

Operator Training shall consist of EP0001-001 (Hazardous Waste Retention Tank System Operator training) and EP0006-HZ (Hazardous Waste Generation and Certification training). Initial courses and refreshers must be completed as required. A list of qualified Tank Operators is located in Attachment C.

Revision to Plan and Controlled Distribution

Address questions regarding this Operational Plan to the Building 322 Facility Manager, the MFP Facility Supervisor, or the EFA Environmental Analyst, whose contact information is provided in Attachment D.

Revisions to this Operational Plan will be provided as required by the Environmental Functional Area (EFA) to the MFP Facility Supervisor. The Building 322 Facility Manager, MFP Facility Supervisor, Tank Operator, and Alternate Tank Operators shall receive a copy of all revisions of this Operational Plan. In addition, a copy of the plan is placed in the document repository near the tank itself.

Written Operating Instructions and Tank System Schematic

Figure 1, 322-R2U2 Underground Storage Tank System, shows the schematic and operating instructions for the tank system. Included in Figure 1 are tank designation and location, valve numbers, quick disconnect fittings and relative locations. There is also valve lineup and operating instructions for collection of rinsewater as well as valve lineup and operating instructions for transferring waste from a portable container into UST 322-R2U2.

Pumpout and Sampling — In the event that 322-R2U2 needs to be pumped out, a portable pump can be used. The portable tank or container that receives the waste must be adequately mixed prior to collection of a representative sample.

Freeze Protection — The 322-R2 tank system piping has freeze protection that is activated when the ambient air temperature is 40° F or lower.

Sampling Instructions

The Radioactive and Hazardous Waste Management (RHWM) division provides an RHWM technician to assist in sampling, labeling, and disposal of waste as needed. Since the tank temporarily stores waste that is recycled by cold vaporization distillation unit, sampling is not normally required.

Inspection and Monitoring Instructions

The tank system must be inspected every working day (does not include weekends or holidays). Inspection forms are included in Attachments A and B. Attachment A inspection form (Daily Inspection Log for Hazardous Tank System 322-R2U2) pertains to the tank system itself. The items on this inspection form are based on regulatory requirements to monitor the tank, prevent overfills and leaks, and ensure tank and containment integrity. Attachment B (Daily Inspection Log for B-322 Rinsewater Vaporization Facility) is included in this Operations Plan at the request of the tank operators, since this inspection is also conducted every working day. The items on this inspection log are related to safety and operations of the Rinsewater Vaporization Facility.

Emergency Response and Reporting and Recording

The tank system is managed as a WAA, and a contingency plan is in place that is designed to prepare personnel to minimize hazards to human health and the environment from fires, explosions, or any sudden or non-sudden release of hazardous or mixed waste constituents to the air, ground surface, or water from waste stored in hazardous waste management areas. Appendix E-2 of the Contingency Plan addresses the 322-R2 WAA, and Appendix G addresses the Rinsewater Vaporization Facility.

Incidents such as releases, fires, explosions or other accidents potentially impacting the environment are categorized as either Emergency or Non-emergency. An incident is characterized as a Non-emergency if all of the following criteria are met:

1. The material released is one whose nature and potential hazards are known.
2. The release presents no actual or potential threat to human health or the environment.
3. The release results in no injury or a minor injury requiring simple first aid.

Example: If, upon inspection of a tank system and piping, you notice there is a slow drip from a pipeline elbow that is located within the secondary containment, the program personnel can take action to stop the leak, remove liquid from the damaged portion of the system, and clean up the released waste in the secondary containment basin.

If the incident is a Non-emergency and it is safe to proceed:

1. Stop tank operations (i.e., stop the flow of waste to the tank).
2. Determine the source, type, and amount of leaking material.
3. If it is safe to do so, eliminate the source of the release (e.g., stop leak or close valves).
4. Eliminate or remove ignition sources.
5. Cordon off the spill area to prevent access.
6. Notify the MFP Supervisor (see Attachment D) and ES&H Team Environmental Analyst (see Attachment D).

If it is safe to do so, steps 7 through 11 shall be performed by at least two individuals who have been trained as described in Section 7 of the Contingency Plan.

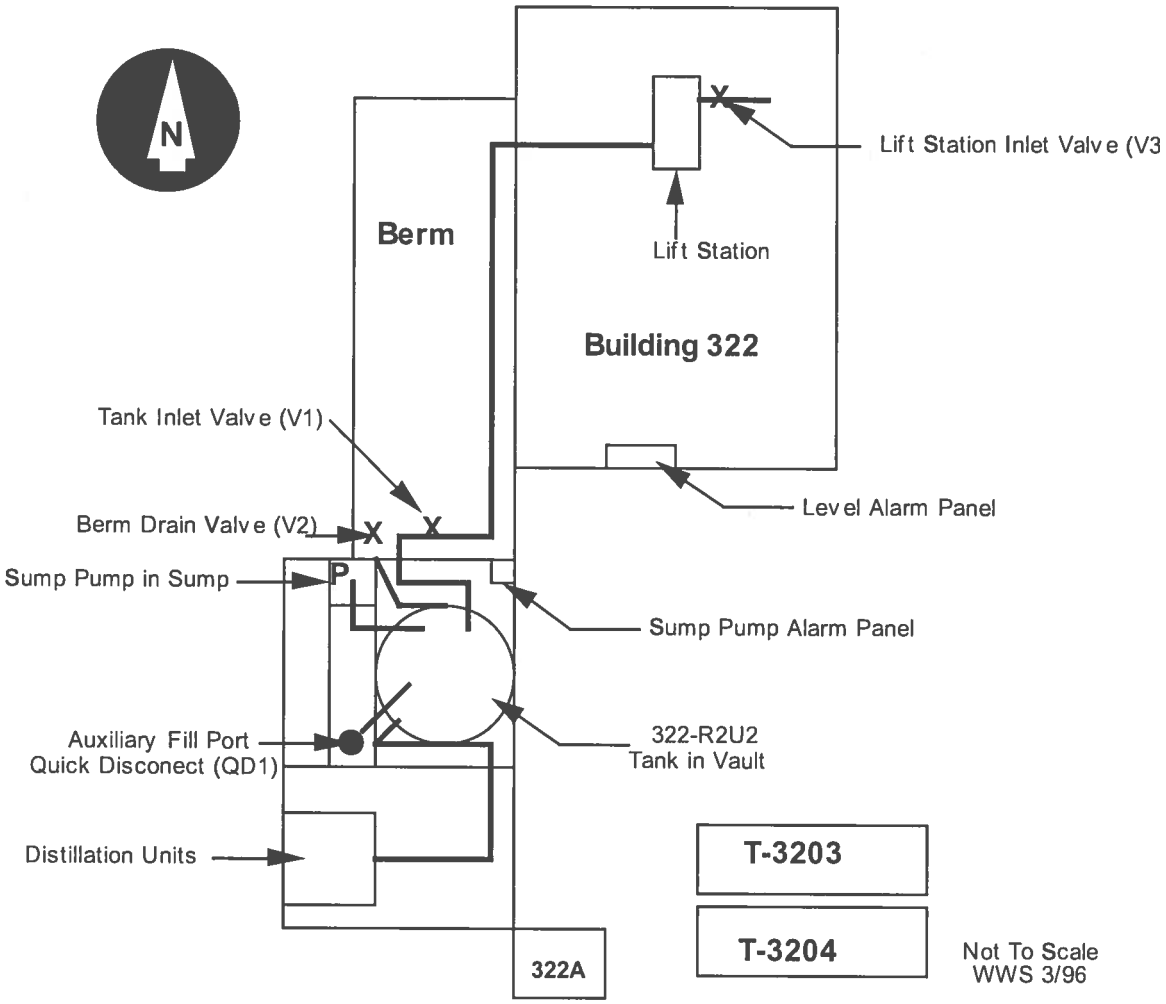
7. Contain the release using appropriate personal protective equipment (see Contingency Plan Attachment A), equipment to contain and absorb spills (see Contingency Plan Attachment B), and waste absorption and neutralization procedures (see Contingency Plan Attachment C). Stop the leak. If the leak cannot be stopped, take appropriate actions to have all contents remaining in the tank pumped out.
8. Clean up the release, including decontamination of the tank and secondary containment, as necessary.
9. Properly dispose of spent cleanup materials such as absorbents and rags; manage them as hazardous waste.
10. Decontaminate response equipment (see Contingency Plan Section 4.3.1), and restock spill response supplies before operations resume.
11. Remove the tank system from service until all necessary repairs are made and the tank system is inspected by the EFA Tank Analyst (see Attachment D), the ES&H Team Environmental Analyst (see Attachment D), and the MFP Supervisor (see Attachment D).

If an incident turns out to be an Emergency then the emergency response steps will be different. Emergencies are defined as unplanned events or abnormal conditions that require time-urgent response from outside the immediate area of the incident. If the incident has caused or has potential to cause serious impact to health, safety or security of personnel, facilities or the environment then it must be categorized as an emergency. An incident is characterized as an Emergency if all of the following criteria are met:

1. The material released is one whose nature and potential hazards are unknown.
2. The unplanned event presents abnormal conditions and actual or potential threat to human health, the environment or property.
3. The released results in injury or illness more serious than one requiring basic first aid.

When an emergency is discovered, call 911 from a Laboratory phone or 1-925-447-6880 from a cell phone, and evacuate facility personnel from the immediate area. Await the arrival of the Fire Department/Security Organization. ES&H Teams will work hand-in-hand with the Fire Department and Security Organization. If ever in doubt about an incident being a non-emergency or emergency, dial 911 from a Laboratory phone or call 1-925-447-6880 from a cell phone.

Figure 1
322-R2U2 Underground Storage Tank System



Fill Tank from Lift Station

1. Verify that lift station inlet valve (V3) is open. It is located inside Building 322 under floor grating on inlet side of lift station.
2. Verify that tank inlet valve (V1) is open. It is located outside on south inside wall of berm.
3. Verify that power to lift station is on.
4. Verify that tank has sufficient capacity by checking level indicator lights on Level Alarm Panel.
5. Manually drain rinse tank to lift station. Lift station will pump discharged rinsewater to tank.

Fill Tank from Portable Container

1. Verify that tank has sufficient capacity by checking level indicator lights on Level Alarm Panel.
2. Connect discharge hose from portable container to auxiliary fill port (QD1).
3. Gravity drain or pump wastewater from portable container to tank.

Empty Tank

1. Insert discharge hose in tank and connect to a portable container.
2. Pump wastewater from tank to portable container.

Attachment A
Daily Inspection Log for Hazardous Waste Tank System 322-R2U2

Inspector's Name (print) _____ Date (M/D/Y) ___/___/20_____ Time _____

Inspector's Signature _____

Instructions: Unless specific information is required, enter "√" for yes, "x" for no, or "NA" for not applicable. For items marked "x", complete the Comments/Corrective Actions Needed section at the bottom of the page. **Please fill out in ink NOT pencil.**

Inspection Items	322-R2U2	
Overfill/Discharge Control Equipment		
1. 90% level waste-feed cutoff system operational		Press "TEST 322-R2U2 HIGH (90% LEVEL)" button to verify that "90% LEVEL" red warning light illuminates.
2. Automatic bypass system operational	NA	No auto bypass system.
3. Drainage system operational	NA	No drainage system.
4. Recirculating pump(s) operational/no leaks	NA	No recirculating pump(s).
5. Transfer pump(s) operational/no leaks	NA	No transfer pump(s).
6. Liftstation pump operational/no leaks		Verify that the Liftstation pump operates
Monitoring Equipment		
7. Pressure gauge reading	NA	No pressure gauge
8. Temperature gauge reading	NA	No temperature gauge
9. Leak detection equipment operational		Verify that liquid level in sump is normal and "SUMP PUMP RAN" light is off.
10. Alarm system operational (audible and visual)		Press "TEST SUMP PUMP" button to verify that "SUMP PUMP RAN" light illuminates and horn sounds. Press "RESET SUMP PUMP RAN" button after test.
Tank/Piping/Valve Condition		
11. Free of leaks		Verify that there are no leaks or wet areas.
12. Free of visible cracks		Verify that there are no visible cracks.
13. Free of visible corrosion		Verify that there is no visible corrosion.
14. Free of visible stains		Verify that there are no stains.
Vault and Berm Secondary Containment		
15. Free of liquid on vault and berm floor		Verify that there is no liquid on the vault or berm floor.
16. Free of liquid on vault floor under tank		Turn camera on and verify that there is no liquid on the vault floor under the tank. Turn camera off after inspection.
17. Free of visible stains		Verify that there are no visible stains in the vault or berm.
18. Free of visible cracks		Verify that there are no visible cracks in the vault or berm.
19. Berm drainage valve closed to tank		Verify that berm drainage valve is closed.
20. Free of debris		Verify that there is no debris in the sump or on the vault or berm floor.
21. Sump pump operational/no leaks		Verify that the Sump pump operates
Surrounding Area		
22. Free of erosion	NA	Area covered with asphalt and concrete.
23. Free of dead vegetation	NA	Area covered with asphalt and concrete.
General Facility		
None		
Administrative		
24. Operational Plan posted		Verify that Operational Plan is posted.
25. Tank labeled HAZARDOUS WASTE		Verify that tank has a "HAZARDOUS WASTE" label attached.
26. Hazardous Waste label attached/posted		Verify that a filled out Hazardous Waste label is attached/posted.
27. Hazardous waste removed from tank within 90 days of accumulation start date		Verify that date on Hazardous Waste label is less than 90 days old.
28. NO SMOKING signs posted	NA	No ignitable or reactive waste.
Liquid Waste Level		
29. Closed top tank volume in gallons	NA	Visual monitoring method not used.

Item	Tank	Date	Comments/Corrective Actions Needed	FWR#	Nature of Correction	Corrected by	Date Corrected

This Daily Inspection Log must be retained for at least 3 years from the date of inspection

Attachment B
Daily Inspection Log for B-322 Rinsewater Vaporization Facility

Inspector's Name (print) _____ Date _____ Time Inspected _____

Instructions: Mark "√" for yes, "X" for no, and "NA" for not applicable. For each "X" entered, write a complete explanation in the comments section. Please line through columns for units not in use.

General Recycling Unit Safety Precautions	Evaporator Unit √ / X / NA
1. Is emergency equipment functional and accessible in the B-322 Vaporization Facility?	
a. Fire Extinguisher	
b. Shower	
c. Eyewash	
d. Spill Kit	
2. Is the work area free of obstacles, clutter, and overhead interferences?	
3. Is the area surrounding the Facility free of spills, erosion, and signs of leakage?	
4. Is the unit free of any signs of corrosion or leaking of fixtures or seams?	
5. Is the discharge control and safety equipment (e.g., waste feed cut-off system, etc.) properly functioning?	
Operation	
6. Does the effluent holding tank have adequate storage capacity?	
7. Is the evaporator alarm panel functioning properly?	
8. Is the chiller water flowing through the condenser?	
9. Is the pH of waste rinsewater in tank 322-R2U2 within the acceptable range of evaporator unit?	
10. Is a "Hazardous Waste" label attached to the evaporator unit?	
Monitoring Data	
11. Influent pH	
12. Temperature in evaporator	

Inspection completed by (signature) _____ Date _____

Item No.	Area	Date	Comments/Corrective Action Needed	SSR No. (If applicable)	Nature of Repairs	Date Completed	Completed By

Supervisor acknowledges that all deficiencies have been corrected _____ Date _____

Attachment C
Qualified Tank Operators

Tank Number 322-R2U2

Building No. 322

Operator Name	Phone No.	Pager No.	Responsibility
Rudy Robles	2-7905 3-1780	3-7777 (02022)	Tank Operator
Jose Zavala	2-7905 3-1780	3-7705 (04784)	Alternate Tank Operator
Tom Stuart	2-7905 3-1780	3-7705 (00681)	Alternate Tank Operator
Jacob Parkman	2-7905	N/A	Alternate Tank Operator

Attachment D
List of Incident and Emergency Contacts

Tank Number 322-R2U2

Building No. 322

Contact	Name	Phone Number	Mobile Number
Program Contact (User) MFP Facility Supervisor	Blaine Beith	3-0109	(No mobile Number)
Building 322 Facility Manager and Point of Contact	Jack Lima	3-9084	925-724-7284
ES&H Team Leader (Team 2)	Tracey Simpson	3-3142	925-525-7111
Hazardous Waste Management Technician	Efren Sifuentes	2-7962	(No mobile number)
ES&H Team Environmental Analyst	Yonas Bekele	2-3462	925-724-9470
EFA Environmental Analyst	Diane Griffin	3-1547	925-961-7720
Fire Department		911	

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