Rocky Flats
Environmental Technology Site
4-I56-ENV-OPS-FO.38
REVISION 2
BULK CHEMICAL HANDLING, TRANSFER, AND STORAGE CONSOLIDATED WATER TREATMENT FACILITY

APPROVED BY: Alan M Parker /Alan Parker / 6/18/96

Vice President, Environmental Restoration | Print Name | Date

DOE RFFO/ER Concurrence on file: oYes o NA

Environmental Protection Agency Approval Received: o Yes o NA

Responsible Organization: Environmental Restoration Program Division Effective Date: 6/20/96

CONCURRENCE BY THE FOLLOWING DISCIPLINES IS DOCUMENTED IN THE PROCEDURE HISTORY FILE:

Environmental Operations Management
Quality Assurance
Subject-Matter Expert

USE CATEGORY 3

ORC review not required

The following have been incorporated in this revision:
N/A

Periodic review frequency: 1 year from the effective date

TABLE OF CONTENTS

1. PURPOSE

This procedure provides operating instructions for bulk chemical handling, transfer, and storage for the Consolidated Water Treatment Facility (CWTF) at the Rocky Flats Environmental Technology Site.

2. SCOPE

This procedure applies to all Environmental Operations Management employees and subcontractors.

This procedure addresses truck dock operations for receiving:

- Hydrochloric Acid (HCl)
- Sodium Hydroxide (NaOH)
- Sulfuric Acid (H_2SO_4)
- Main and Protected Area Decontamination Facilities and ER Accelerated Action Waters

3. OVERVIEW

The CWTF is comprised of Building 891 and trailers T-900A and T-900B. The CWTF treats contaminated water from the following sources:

- OU-1 ground water
- OU-2 surface water
- Decontamination water from the Main Decontamination Facility (MDF) and from the Protected Area Decontamination Facility (PADF)
- Other ER water (e.g., purge waters, drum decant waters, waters from ER Accelerated Action projects, etc.)

Building 891 contains an ultraviolet/hydrogen peroxide oxidation system, a granular activated carbon column, a 4-column ion exchange system with units for acid and caustic regeneration of the resins, and a spent regenerant neutralization system. Trailers T-900A and T-900B contain precipitation , microfiltration , and treated effluent neutralization systems. A skid mounted oil-absorbent media drum is also available for oily wastewater pretreatment.

3.1 Hydrochloric Acid

Approximately thirty-five percent (35%) HCl is used for the regeneration of ion exchange resins and the neutralization of regeneration waste. The bulk 35% HCl is stored within Building 891 in Tank T-209. Tank T-209 is a 2,500-gallon, fiberglass storage tank.

3.2 Sodium Hydroxide

Fifty percent (50%) NaOH is used for the regeneration of ion exchange resins, neutralization of regeneration waste, and is added to TK-2 during the chemical precipitation process. The bulk 50% NaOH is stored within Building 891 in Tank T-208. Tank T-208 is a 1,250-gallon, fiberglass storage tank.

3.3 Sulfuric Acid

Ninety-eight percent (98%) H_2SO_4 is used (after dilution in chemical mix tanks) during chemical precipitation pH adjustment in T-900B, during final pH adjustment in T-900A, during final pH adjustment of treated effluent storage tanks, and has been used during chemical cleaning of the microfiltration membranes. The bulk 98% H_2SO_4 is stored outside and west of the T-900B trailer in TK-20 which is located in a segregated acid containment area. Tank TK-20 is a 1,325-gallon, insulated, cross-linked polyethylene storage tank.

3.3 MDF, PADF, and Other ER Waters

Decontamination water from the Main Decontamination Facility (MDF), the Protected Area Decontamination Facility (PADF), and Other Environmental Restoration (ER) waters (e.g., purge water, ER Accelerated Action project waters, etc.) is received by tanker for treatment at the CWTF. The Responsible Manager, using process knowledge and analytical data if available, determines whether a particular water is acceptable for treatment at the CWTF and upon authorization from the Responsible Manager, the tanker truck is transported to the CWTF for off-loading into an Influent Tank. It is possible that water contained in a tanker truck would require pretreatment using the skid-mounted oil-absorbent media drum prior to routing the water to a CWTF Influent Tank (refer to CWTF SOP 4-S72-ENV-OPS-FO.46).

4. LIMITATIONS AND PRECAUTIONS

- The tanks associated with the bulk chemical storage system are confined spaces. Any entry to the tanks shall be in accordance with Rocky Flats procedures and the CWTF Health and Safety Plan.

- The bulk chemical storage systems contain concentrated acid and base solutions for regeneration of the ion exchange columns. Use and handling of the materials shall be in accordance with the requirements of the CWTF Health and Safety Plan.

5. PREREQUISITES

5.1 Planning and Coordination

Responsible Manager

[1] Ensure that all RFETS personnel involved in the field implementation of this procedure have the appropriate training as detailed in the Training User's Manual (TUM), and that the training is documented.

[2] Ensure that all RFETS personnel involved in the field implementation of this procedure have the appropriate Personnel Protective Equipment as specified in the CWTF Health and Safety Plan.

[3] Ensure that all RFETS personnel involved in the field implementation of this procedure are equipped with radios and are in radio contact with one another during tanker off-loading.

[4] Review process knowledge and analytical results if available to verify the acceptability of MDF, PADF, or Other ER Waters.

Operator/Responsible Manager

[1] Obtain make-up chemicals using the following:

[A] Calculate the volume of HCl , NaOH, or H_2SO_4 remaining in the appropriate tank using appropriate the Bulk Chemical Ordering Calculation Sheet (Appendix 1, 2, or 3 as appropriate), and the liquid level height/gallons conversion tables maintained at the CWTF before ordering makeup HCl , NaOH, or H_2SO_4.

5.1 **Planning and Coordination (continued)**

Operator/Responsible Manager

NOTE 1 ***The level of chemical remaining in a particular tank may be read from the local or remote level read-outs (as applicable), and the level read-out may be verified by manually sticking the appropriate tank.***

[B] Order makeup HCl, NaOH, or H_2SO_4 from the chemical supplier at least two days before the delivery of acid.

[C] Notify chemical supplier that the tanker must stop at the on-site Shipping and Receiving office to be weighed prior to delivery at Building 891.

[D] Notify Security and the Operations Manager two days before the delivery.

[E] Notify either the on-site Weather office or the on-site Emergency Preparedness office of the anticipated delivery 2 days before the delivery - to ensure that weather information will be available on the day of delivery.

[F] Notify the on-site Shipping and Receiving office of the anticipated delivery 2 days before the delivery.

[G] **WHEN** the tanker arrives,
THEN direct the driver to park the truck in the truck dock or spill containment area.

[H] Complete a Bulk Chemical Receiving Checklist, Appendix 4, as appropriate and as steps are completed during the transfer of HCl, NaOH, or H_2SO_4.

[2] Prepare to receive MDF, PADF, or Other ER Waters using the following:

[A] The Responsible Manager should review process knowledge and analytical results if available to verify the acceptability of MDF, PADF, or Other ER Waters.

[B] **WHEN** the tanker arrives,
THEN direct the driver to park the truck in the truck dock or spill containment area.

[C] Complete a MDF, PADF, or Other ER Waters Receiving Checklist, (Appendix 5) as Steps are completed.

6. INSTRUCTIONS

Hydrochloric acid, sulfuric acid, and sodium hydroxide are delivered in bulk to the CWTF by tanker truck. MDF, PADF, and Other ER Waters are also delivered to the CWTF by tanker truck.

6.1 Truck Dock Operation—Receiving Hydrochloric Acid

Responsible Manager/Operator as appropriate

[1] Verify that the tanker wheels are chocked.

[2] Complete the Bulk Chemical Receiving Checklist (Appendix 4) as steps are completed.

[3] Verify, by reviewing the shipment manifest, that the tanker contains approximately 35% HCl (+ or - approximately 1%).

[4] Ensure that the tanker is properly connected to the HYDROCHLORIC ACID influent flange.

The HYDROCHLORIC ACID influent flange is gray in color and is located in the truck dock along the outside, north wall of Building 891. The tanker truck driver uses hoses provided with the tanker truck to make the connections.

[5] Open HVA-209, Hydrochloric Acid Inlet - Truck Dock.

HVA-209 is on the HYDROCHLORIC ACID influent line inside of Building 891 along the north wall.

[6] Continuously monitor the level of Tank T-209 using either the Allen Bradley screen or the local readout as HCl is being transferred into Tank T-209.

NOTE 1 ***The delivery driver is responsible for pumping the HCl from the tanker truck to the facility piping.***

NOTE 2 ***Per industry standards, tanker truck air lines are equipped with a check valve, a pressure reducing valve set at about 28 psig, and a safety relief valve set at not over 30 psig.***

6.1 Truck Dock Operation—Receiving Hydrochloric Acid (continued)

Per industry standard unloading procedures, the delivery driver should apply air pressure slowly until a steady stream of HCl is flowing from the tanker truck into the facility piping. Normally 20 to 25 psig should be adequate for transferring hydrochloric acid from a tanker truck

THE AIR PRESSURE IN THE TANKER TRUCK SHOULD NOT EXCEED 28 PSIG AND MUST NOT EXCEED 30 PSIG.

NOTE 3 *Visual and audible alarms activate when high level, 4 ft 5 in. and high-high level, 4 ft 11 in. are reached in Tank T-209.*

NOTE 4 *The Responsible Manager can authorize filling T-209 to the high-high level.*

[7] **IF** the high level alarm is reached,
THEN notify the driver to stop the transfer of the chemical.

[8] Discontinue filling Tank T-209 before the high level, 4 ft 5 in., is reached.

[9] **AFTER** the delivery truck driver has blown-down the transfer hoses,
THEN:

[A] Close HVA-209 (Operator).

[B] Disconnect the transfer hoses (Tanker truck driver).

[C] Install end caps on all hose connections (Operator).

[D] Record the level Tank T-209 in the Daily Log and on the Bulk Chemical Receiving Checklist.

[E] Complete the Bulk Chemical Receiving Checklist. (Appendix 4).

[F] Inspect truck dock for evidence of leaks and spills.

[10] **IF** a spill has occurred,
THEN notify the Responsible Manager and follow the response steps in accordance with Standing Order 24, Site Wide Spill Response.

[11] Call extension -2911 for life threatening emergencies.

6.2 Truck Dock Operation—Receiving Sodium Hydroxide

Responsible Manager/Operator as appropriate

[1] Verify that the tanker wheels are chocked.

[2] Verify, by reviewing the shipment manifest, that the tanker contains 50% NaOH.

[3] Complete the Bulk Chemical Receiving Checklist (Appendix 4) as Steps are completed.

[4] Ensure that the tanker is properly connected to the CAUSTIC influent camlock.

The CAUSTIC influent camlock is located at the truck dock on the outside, north wall of Building 891.

[5] Open HVA-208, Caustic Inlet - Truck Dock.

The caustic influent or isolation valve is on the CAUSTIC influent line on the inside of Building 891 along the north wall.

[6] Continuously monitor the level of Tank T-208 using either the Allen Bradley screen or the local readout as NaOH is being transferred into Tank T-208.

NOTE 1 ***The delivery driver is responsible for pumping the sodium hydroxide from the tanker truck to the facility piping.***

NOTE 2 ***Per industry standards, tanker truck air lines are equipped with a check valve, a pressure reducing valve set at about 28 psig, and a safety relief valve set at not over 30 psig.***

Per industry standard unloading procedures, the delivery driver should apply air pressure slowly until a steady stream of sodium hydroxide is flowing from the tanker truck into the facility piping. Normally 20 to 25 psig should be adequate for transferring sodium hydroxide from a tanker truck.

THE AIR PRESSURE IN THE TANKER TRUCK SHOULD NOT EXCEED 28 PSIG AND MUST NOT EXCEED 30 PSIG.

6.2 Truck Dock Operation—Receiving Sodium Hydroxide (continued)

NOTE 3 *Visual and audible alarms activate when high level, 4 ft 5 in. and high-high level, 4 ft 11 in. are reached in Tank T-208.*

NOTE 4 *The Responsible Manager can authorize filling T-208 to the high-high level.*

[7] **IF** the high level alarm is reached,
THEN notify the driver to stop the transfer of the chemical.

[8] Discontinue filling Tank T-208 before the high level, 4 ft 5 in., is reached.

[9] **AFTER** the delivery truck driver has blown-down the transfer hoses,
THEN:

[A] Close HVA-208 (Operator).

[B] Disconnect the transfer hoses (Tanker truck driver).

[C] Install end caps on all hose connections (Operator).

[D] Record the level of Tank T-208 in the Daily Log and on the Bulk Chemical Receiving Checklist.

[E] Complete Bulk Chemical Receiving Checklist (Appendix 4).

[F] Inspect truck dock for evidence of leaks and spills.

[10] **IF** a spill has occurred,
THEN notify the Responsible Manager and follow the response steps in accordance with Standing Order 24, Site Wide Spill Response.

[11] Call extension -2911 for life threatening emergencies.

6.3 Truck Dock Operation—Receiving Sulfuric Acid

Responsible Manager/Operator as appropriate

[1] Verify that the tanker wheels are chocked.

[2] Complete the Bulk Chemical Receiving Checklist (Appendix 4) as steps are completed.

[3] Verify, by reviewing the shipment manifest, that the tanker contains 98% Sulfuric Acid.

[4] Ensure that the tanker is properly connected to the SULFURIC ACID influent flange.

The SULFURIC ACID influent flange is red in color and is located in the truck dock along the outside, north wall of Building 891. The tanker truck driver uses hoses provided with the tanker truck to make the connections.

[5] Open MV-9001, Sulfuric Acid Inlet - Truck Dock.

MV-9001 is located on the SULFURIC ACID influent line inside of Building 891 along the north wall.

[6] Ensure that MV-9003, Sulfuric Acid Inlet to TK-20, is OPEN.

[7] Ensure that MV-9004, Sulfuric Acid Outlet from TK-20, is CLOSED.

[8] Continuously monitor the level of TK-20 using the local readout as sulfuric acid is being transferred into TK-20.

NOTE 1 ***The delivery driver is responsible for pumping the sulfuric acid from the tanker truck to the facility piping.***

NOTE 2 ***Per industry standards, tanker truck air lines are equipped with a check valve, a pressure reducing valve set at about 28 psig, and a safety relief valve set at not over 30 psig.***

Per industry standard unloading procedures, the delivery driver should apply air pressure slowly until a steady stream of sulfuric acid is flowing from the tanker truck into the facility piping. Normally 20 to 25 psig should be adequate for transferring sulfuric acid from a tanker truck.

THE AIR PRESSURE IN THE TANKER TRUCK SHOULD NOT EXCEED 28 PSIG AND MUST NOT EXCEED 30 PSIG.

6.3 Truck Dock Operation—Receiving Sulfuric Acid (continued)

NOTE 3 *Visual and audible alarms activate when high level, 62 inches is reached in TK-20.*

NOTE 4 *The Responsible Manager can authorize filling TK-20 past the high level setting of 62 inches for TK-20.*

[9] **IF** the high level alarm is reached,
THEN notify the driver to stop the transfer of the chemical.

[10] Discontinue filling TK-20 before the high level of 62 inches is reached.

[11] **AFTER** the delivery truck driver has blown-down the transfer hoses,
THEN:

[A] Close MV-9001 (Operator).

[B] Disconnect the transfer hoses (Tanker truck driver).

[C] Install end caps on all hose connections (Operator).

[D] Record the final level in TK-20 in the Daily Log and on the Bulk Chemical Receiving Checklist.

[E] Complete the Bulk Chemical Receiving Checklist.

[F] Inspect truck dock for evidence of leaks and spills.

[12] **IF** a spill has occurred,
THEN notify the Responsible Manager and follow the response steps in accordance with Standing Order 24, Site Wide Spill Response.

[13] Call extension -2911 for life threatening emergencies.

6.4 Truck Dock Operation—Receiving MDF, PADF, and Other ER Waters

Responsible Manager/Operator as appropriate

[1] Complete the MDF, PADF, and Other ER Waters Receiving Checklist (Appendix 5) as Steps are completed.

[2] Verify that the tanker wheels are chocked.

CAUTION

An adequate capacity to receive the water in the tanker truck is required for the chosen Influent Tank to avoid potential spills.

[3] Verify that that the chosen Influent Storage Tank has adequate capacity to receive the water in the tanker truck.

[4] **OPEN** the appropriate manual inlet valve at the chosen Influent Tank:

[A] For T-200, OPEN HVA-200, Influent to T-200
Ensure that HVA-201 and HVA-202 are CLOSED.

[B] For T-201, OPEN HVA-201, Influent to T-201
Ensure that HVA-200 and HVA-202 are CLOSED.

[C] For T-202, OPEN HVA-202, Influent to T-202
Ensure that HVA-200 and HVA-201 are CLOSED.

[5] Connect the pump discharge hose to the pump discharge outlet and to the Building 891 fill port labeled INFLUENT TO TANKS 200, 201 OR 202.

[6] Connect the pump suction hose to the tanker discharge line, and to the pump suction inlet.

[7] Open V-103, Truck Dock Influent.

V-103 is located on the inside of Building 891 along the north wall.

[8] Open the tanker vent valve.

[9] Open the discharge valve on the tanker.

6.4 Truck Dock Operation—Receiving MDF, PADF, and Other ER Waters (continued)

[10] Start the pump, and begin the transfer of water from the truck to the chosen Influent Storage Tank.

[11] Monitor the level of the chosen Influent Storage Tank. The level of T-200 may be monitored from the PLC via the computer in the Building 891 office. The level of T-201 and T-202 may be monitored from the local read-out or from the Allen-Bradley screen in the Building 891 Electrical Room.

[12] **IF** the pump is **NOT** equipped with an automatic shut off,
THEN monitor the pump during transfer.

[13] **IF** the pump begins to cavitate,
THEN immediately shut the pump OFF.

[14] **WHEN** the tanker is empty,
THEN close the following:

- Tanker discharge valve
- Tanker vent valve
- V-103, Truck Dock Influent

[15] Disconnect the pump suction and discharge hoses, and catch any water that drains out of the hoses in a bucket.

[16] Transfer the water collected in the bucket to the chosen Influent Tank via the Building 891 sump.

[17] After transferring the bucket water to the chosen Influent Tank, CLOSE the appropriate manual inlet valve:

[A] For T-200, CLOSE HVA-200, Influent to T-200

[B] For T-201, CLOSE HVA-201, Influent to T-201

[C] For T-202, CLOSE HVA-202, Influent to T-202

[18] Record the transfer activities in the Daily Log and on the MDF, PADF, and Other ER Water Receiving Checklist (Appendix 5).

7. POST-PERFORMANCE ACTIVITY

Responsible Manager

[1] Ensure that the original and one copy of the following quality related records, as appropriate, are transmitted to the ERPD Project File Center (PFC) in accordance with 2-G18-ER-ADM-17.01.

- Bulk Chemical Ordering Calculation Sheet
- Bulk Chemical Receiving Checklist
- MDF, PADF, and Other ER Waters Checklist
- Daily Log

Submission of record copies to the ERPD PFC satisfies Administrative Record requirements as defined in 2-S65-ER-17.02, Administrative Record Document Identification and Transmittal

Management of all records is consistent with 1-77000-RM-001, Records Management Guidance for Records Sources.

There are no non-quality records generated by this procedure.

8. REFERENCES

Consolidated Water Treatment Facility (CWTF) Health and Safety Plan

Standing Order 24, Site Wide Spill Response

1-77000-RM-001, Records Management Guidance for Record Sources

2-G18-ER-ADM-17.01, Records Capture and Transmittal

2-S65-ER-ADM-17.02, Administrative Record Document Identification and Transmittal

Hydrochloric Acid Handbook, Vulcan Chemicals

Sodium Hydroxide Handbook, Vulcan Chemicals

Sulfuric Acid Handbook, KOCH Sulfur Products Company

APPENDIX 1
Page 1 of 1

BULK CHEMICAL ORDERING CALCULATION SHEET
35% HCl: TANK T-209

DATE: _____

HCl: ACID TANK (T-209) LEVEL AND QUANTITY TO BE ORDERED
Volume of HCl Tank (T-209) at the 4'-5" high level = 2050 gallons Liquid Level in tank = _____ feet Gallons of product remaining in tank = _____ gallons (refer to the volume depth table) Working volume of HCl tank (at the 4'-5" high level less 10% = 2050 gallons - 205 gallons) = 1845 gallons Gallons of HCl to order = 1845 gallons - _____ gallons of product remaining in tank Gallons of HCl to order = _____ gallons (which also equals the volume available in the tank) Pounds HCl to Order = Gallons of HCl to order x 8.34 lbs/gallon x Specific Gravity a/ Pounds HCl to Order = _____ gallons x 8.34 lbs/gallon x _____(Specific Gravity) Pounds HCl to Order = _____ pounds

a/ HCl: 22.0 Baume (35.21 %); Specific Gravity = 1.1789 at 15.6 degrees C
22.5 Baume (36.16%); Specific Gravity = 1.1836 at 15.6 degrees C
22.6 Baume (36.35%); Specific Gravity = 1.1846 at 15.6 degrees C

Operator Signature:_____Date _____

Responsible Manager Signature: _____Date_____

APPENDIX 2
Page 1 of 1

BULK CHEMICAL ORDERING CALCULATION SHEET
50% NaOH: TANK T-208

DATE: _____

NaOH: CAUSTIC TANK (T-208) LEVEL AND QUANTITY TO BE ORDERED
Volume of NaOH Tank (T-208) at the 4'-5" high level = 1029 gallons Liquid Level in tank = _____ feet Gallons of product remaining in tank = _____ gallons (refer to the volume versus depth table) Working volume of NaOH tank (at the 4'-5" high level less 10%) = 1029 gallons - 103 gallons = 926 gallons Gallons NaOH to order = 926 gallons - _____ gallons of product remaining in tank Gallons NaOH to order = _____ gallons (which also equals the volume available in the tank) Pounds NaOH to Order = Gallons of NaOH to order x 8.34 lbs/gallon x Specific Gravity a/ Pounds NaOH to Order = _____ gallons x 8.34 lbs/gallon x 1.53 Pounds NaOH to Order = _____ pounds

a/ NaOH: 50% Solution; Specific Gravity = 1.53 at 60 degrees F

Operator Signature:_____Date _____

Responsible Manager Signature: _____Date_____

APPENDIX 3
Page 1 of 1

BULK CHEMICAL ORDERING CALCULATION SHEET
98% H_2SO_4: TANK TK-20

DATE: _____

H_2SO_4: SULFURIC ACID TANK (TK-20) LEVEL AND QUANTITY TO BE ORDERED
Volume of H_2SO_4 Tank (TK-20) at the 62" high level = 1100 gallons
Liquid Level in tank = _____ feet Gallons of product remaining in tank = _____ gallons (refer to the volume versus depth table)
Working volume of H_2SO_4 tank (at the 62" high level less 10%) = 1100 gallons - 110 gallons = 990 gallons Gallons H_2SO_4 to order = 990 gallons - _____ gallons of product remaining in tank Gallons H_2SO_4 to order = _____ gallons (which also equals the volume available in the tank)
Pounds H_2SO_4 to Order = Gallons of H_2SO_4 to order x 8.34 lbs/gallon x Specific Gravity a/ Pounds H_2SO_4 to Order = _____ gallons x 8.34 lbs/gallon x 1.844 Pounds H_2SO_4 to Order = _____ pounds

a/ H_2SO_4: 98%; Specific Gravity = 1.844

Operator Signature:_____Date _____

Responsible Manager Signature: _____Date_____

APPENDIX 4
Page 1 of 2

BULK CHEMICAL RECEIVING CHECKLIST

Form FO.38B
REV. 2
Page 1 of 2

CHEMICAL BEING DELIVERED: HCl (TANK T-209), NaOH (TANK T-208), H_2SO_4 (TK-20)
DATE: _____
TIME: _____

1. Names of Plant Personnel Present During Delivery

Responsible Manager:	
Operator:	Other:
Other:	Other:
Other:	Other:

2. Tanker Truck Arrival (Refer to Note a/)

Is the trailer part of the truck parked in spill containment area?	Yes	No
Are the wheel chocks in place?	Yes	No
Are the Caution-Do Not Enter signs in place?	Yes	No

3. Quantity Being Delivered

Complete page 2 of this checklist	Yes	No
Pounds Ordered = _____ Gallons Ordered = _____ (refer to Bulk Chemical Ordering Calculation Sheet)		
Volume Available in the tank = _____ (refer to Bulk Chemical Ordering Calculation Sheet)		
Gallons being delivered as calculated from Delivery Ticket = _____ (refer to page 2 of this checklist)		
Gallons being delivered as calculated from On-Site Weight Ticket = _____(refer to page 2 of this		
Is the volume available in the tank equal to or greater than the gallons ordered?	Yes	No
Is the tanker Delivery Ticket quantity within 50 gallons of the quantity ordered?	Yes	No
Is the tanker Delivery Ticket quantity within 50 gallons of the On-Site Weight Ticket quantity?	Yes	No

4. Delivery Operation

Are adequate radio communications available and in use?	Yes	No
Is the tank level indicator system functioning properly?	Yes	No
Is the truck's discharge hose connected to the proper tank fill line?	Yes	No
Have the valves to the tanks been checked to ensure that the valves are in the proper position?	Yes	No
Are routine checks being made during the transfer operation?	Yes	No
Bulk Tanker pressure prior to transfer = _____ Bulk Tanker pressure during transfer = _____ _____ _____ _____ Bulk Tanker pressure during line purge = _____ _____ _____ _____		

5. After Delivery

At the end of the delivery, have all materials and valves been returned to the proper positions?	Yes	No
Has the area been inspected for spills and is the area spill-free?	Yes	No
Have the end caps been placed back on the proper line valves?	Yes	No
Tank level after transfer = _____ feet. Quantity of product in tank after transfer _____ gallons		

Operator Signature: _____ Date_____
Responsible Manager Signature: _____ Date_____

a/ If the answer to any question is "NO," discuss the situation with the Responsible Manager. The situation should be clearly understood and resolved before proceeding.

APPENDIX 4
Page 2 of 2

Form FO.38B
REV. 2
Page 2 of 2

CHEMICAL BEING DELIVERED: HCl (TANK T-209), NaOH (TANK T-208), H_2SO_4 (TK-20)
DATE: _____ AMBIENT AIR PRESSURE: _____
TIME: _____ AMBIENT AIR TEMPERATURE: _____

ON-SITE WEIGHT TICKET	
Gross Weight (total tanker weight)_____	pounds (use the on-site weight ticket)
- Tare Weight (weight of empty tanker) _____	pounds (use the tare weight from tanker delivery ticket)
= Net Weight (delivery amount) _____	pounds
HCl (refer to delivery ticket): Baume = _____	Specific Gravity = _____ a/
NaOH (refer to delivery ticket): % = _____	Specific Gravity = _____ b/
H_2SO_4 (refer to delivery ticket): % = _____	Specific Gravity = _____ c/
Gallons being delivered = Net Weight	in pounds / (8.34 pounds/gallon x Specific Gravity)
Gallons being delivered = _____	lbs / (8.34 lbs/gallon x _____)
Gallons being delivered = _____	gallons

TANKER DELIVERY TICKET	
Gross Weight (total tanker weight) _____	pounds
- Tare Weight (weight of empty tanker) _____	pounds
= Net Weight (delivery amount) _____	pounds
HCl Delivery: Baume = _____	Specific Gravity = _____ a/
NaOH: % = _____	Specific Gravity = _____ b/
H_2SO_4 Delivery: % = _____	Specific Gravity = _____ c/
Gallons being delivered = Net Weight	in pounds / (8.34 pounds/gallon x Specific Gravity)
Gallons being delivered = _____	lbs / (8.34 lbs/gallon x _____)
Gallons being delivered = _____	gallons

DIFFERENCES BETWEEN THE ON-SITE WEIGHT TICKET AND THE TANKER DELIVERY TICKET	
Gallons as shown in A. _____	gallons
- Gallons as shown in B. _____	gallons
= Difference in Gallons _____	gallons

a/ HCl Delivery: 22.0 Baume (35.21%); Specific Gravity = 1.1789 at 15.6 degrees C
22.5 Baume (36.16%); Specific Gravity = 1.1836 at 15.6 degrees C
22.6 Baume (36.35 %); Specific Gravity = 1.1846 at 15.6 degrees C
b/ NaOH Delivery: 50% Solution; Specific Gravity = 1.53 at 60 degrees F
c/ H_2SO_4 Delivery: 98%; Specific Gravity = 1.844

Operator Signature: _____ Date_____

Responsible Manager Signature:_____ Date_____

APPENDIX 5

Page 1 of 1

MDF, PADF, and OTHER ER WATERS RECEIVING CHECKLIST

Page 1 of 1

WATER BEING DELIVERED FROM WHICH SOURCE: _____

DATE: _____

TIME: _____

1. Names of Plant Personnel Present During Delivery

Responsible Manager:	
Operator:	Other:
Other:	Other:
Other:	Other:

2. Tanker Truck Arrival (Refer to Note a/)

Is the trailer part of the truck parked in spill containment area?	Yes	No
Are the wheel chocks in place?	Yes	No
Are the Caution-Do Not Enter signs in place?	Yes	No

3. Quantity of Water Being Delivered

Estimated Quantity of Water Being Delivered _____ (gallons)

CWTF Influent Tank to be Used (circle one): T-200 T-201 T-202

Influent Tank Level level/gallons prior to transfer _____ inches / _____ gallons

Estimated gallons available in Influent Tank prior to transfer _____ (gallons)

Is the volume available in the tank equal to or greater than the gallons being delivered?	Yes	No

4. Delivery Operation

Are adequate radio communications available?	Yes	No
Is the tank level indicator system functioning properly?	Yes	No
Is the truck's discharge hose connected to the pump suction.	Yes	No
Is the pump discharge connected to the fill port labeled INFLUENT TO TANKS 200, 201 OR 202?	Yes	No
Have valves been checked to ensure that the valves are in the proper position?	Yes	No

For transfer to T-200, OPEN HVA-200, and ensure that HVA-201 and HVA-202 are closed.
For transfer to T-201, OPEN HVA-201, and ensure that HVA-200 and HVA-202 are closed.
For transfer to T-202, OPEN HVA-202, and ensure that HVA-200 and HVA-201 are closed.
Valve V-103 is OPEN.
Tanker truck vent valve is OPEN.
Tanker truck discharge valve is OPEN.

Are routine checks being made during the transfer operation?	Yes	No

5. After Delivery

At the end of the delivery, have all materials and valves been returned to the proper positions?	Yes	No
Has the area been inspected for spills and is the area spill-free?	Yes	No
Have the end caps been replaced?	Yes	No

Tank level after transfer = _____ inches Quantity of water in tank after transfer _____ gallons

Operator Signature: _____ Date _____

Responsible Manager Signature: _____ Date _____

a/ If the answer to any question is "NO", discuss the situation with the Responsible Manager. The situation should be clearly understood and resolved before proceeding.