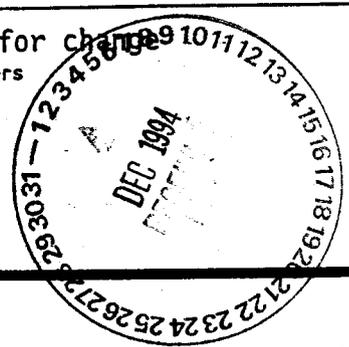
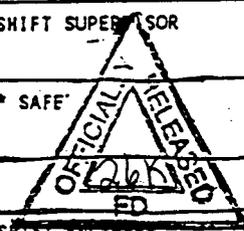


PROCEDURE CHANGE AUTHORIZATION SIGNATURE SHEET PAGE 1 of 1

ETP-94-0135 3/30/94 NA TO-290-130 DAN REBERGER 4/18/94
PCA-NUMBER DATE IMPACT LEVEL PROCEDURE NUMBER PCA INITIATOR RELEASE DATE
Include revision Number (Operating Documents)

Reason for change - The upper pH limit was changed from 13 to 14. The catch tank maximum level was reduced to 1145 gallons.
Page Numbers - 9, 34, 39, 42, 10, 48, 66, 71, 74
ENGINEER: Dan Lehman
SHIFT SUPERVISOR: [Signature]
SHIFT MANAGER: [Signature]
* QUALITY ASSURANCE * SAFE * OTHER SPECIFY
Cancel PCA (must have two signatures)
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Reason for change
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*These blocks are for additional signatures refer to MRP 5.43. J. Steen S5-00\T4-00

TANK FARM PLANT OPERATING PROCEDURE

SYSTEM
204-AR

TRANSFER FROM 204-AR RAIL CAR TO TANK FARM

DOCUMENT ACCEPTANCE REVIEW FORM

Page 2 of 2
12/15/93 11/13

| DOCUMENT | 350 Impact Level | Prepared By P. SCHALLER Name | | | | | | | | | | |
|---|---------------------|--|---------------|--|--------------|------------------|--|------------|--|-------------|--|-----|
| POP TO-290-130 D-0 Type No. Rev./Mod. | | ENGRG. WRITER Title/Organization | | | | | | | | | | |
| TRANSFER 204-AR RAIL CAR TO TANK FARM Title | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> New or Revised Document - Full Review Required <input type="checkbox"/> Modification - Changed Pages ALL | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> Full Review Required <input type="checkbox"/> Review Limited to Change Pages/No Preliminary Review Required <input type="checkbox"/> Administrative Change- } No Review and Approval required <input type="checkbox"/> PCA-Approved Changes Only- } except for the approval authority's. | | <table border="1"> <tr> <th colspan="2">PCAs and DCAs</th> </tr> <tr> <th>INCORPORATED</th> <th>NOT INCORPORATED</th> </tr> <tr> <td></td> <td>1 - Cancel</td> </tr> <tr> <td></td> <td>2 - Release</td> </tr> <tr> <td></td> <td>3 - </td> </tr> </table> | PCAs and DCAs | | INCORPORATED | NOT INCORPORATED | | 1 - Cancel | | 2 - Release | | 3 - |
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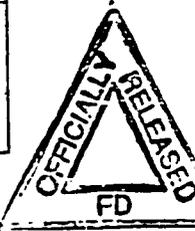
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ADVICE AND SERVICE MEMBER SIGNATURES

| As Is | With Changes Noted | Objections on Continuation or Attached | Signature | Print Name | Title/Org | Date |
|-------------------------------------|-------------------------------------|--|------------------------|-----------------|-----------|----------|
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <i>Jeff P. Durr</i> | Jeff P. Durr | Mgr/WTS | 11-30-93 |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <i>Paul Schaller</i> | PAUL SCHALLER | ENGRG/WTS | 12-09-93 |
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| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <i>P. Greenbaum</i> | P. Greenbaum | Mgr/WTS | 12/9/93 |

ACCEPTANCE REVIEW CHAIRMAN
Jeff M. Turill (Signature) *Jeff M. Turill* (Print Name) 12/9/93 (Date)

APPROVAL AUTHORITY
 All objections resolved
 Unresolved issue exists
C. M. Jones (Signature) *TURILL* (Print Name) 12/9/93 (Date)
Per the con Eng Copy for body N: 8:20 12/9/93



TANK FARM PLANT OPERATING PROCEDURE

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TANK FARM PLANT OPERATING PROCEDURE

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TANK FARM PLANT OPERATING PROCEDURE

1.0 PURPOSE

The purpose of this procedure is to provide instructions for transferring waste from a Rail Car at 204-AR to Tank Farms.

2.0 INFORMATION

2.1 SCOPE

- 2.1.1 This procedure applies to the equipment in the 204-AR Facility.
- 2.1.2 Transfer activities in the Tank Farms are covered by a specific Tank Farm transfer procedure.

2.2 TERMS AND DEFINITIONS

- 2.2.1 dpm/100 cm² - Disintegrations Per Minute per 100 CentiMeter Squared
- 2.2.2 HPT - Health Physics Technician
- 2.2.3 In-line Chemical Addition - Addition of chemical (caustic and nitrite) solutions to the transfer line concurrent with the waste transfer.
- 2.2.4 LDR - Land Disposal Restriction
- 2.2.5 LL - Liquid Level
- 2.2.6 MOV - Motor Operated Valve
- 2.2.7 RSR - Radioactive Shipment Record
- 2.2.8 Sluicer - A special spray nozzle affixed inside railroad tank cars allowing for the total rinsing of the car interior.
- 2.2.9 WF - Weight Factor

TANK FARM PLANT OPERATING PROCEDURE

2.3 RESPONSIBILITIES

- 2.3.1 204-AR Control Room Operator - Responsible for performing panelboard operations within the Control Room.
- 2.3.2 204-AR Operators - Responsible for verifying, positioning manual valving, connecting and disconnecting the Tank Car, directing the train crew, and other operations required outside the Control Room.
- 2.3.3 HPTs - Responsible for performing preparatory 204-AR surveys, surveying the incoming Railroad Tank Cars and setting radiological boundaries, setting up and operating the Portable Air Monitor inside 204-AR when the Tank Car is opened, and performing a release survey of the Tank Car when operations are completed.
- 2.3.4 Cognizant (COG) Engineer - Responsible for verifying waste composition against limits and calculating chemical addition volumes per Data Sheet 1.
- 2.3.5 Supervisor/PIC - Responsible for assisting COG Engineer with verifying waste composition against limits and calculating chemical addition volumes per Data Sheet 1.
- 2.3.6 Train Crew - Responsible for operation of the train, including coupling and uncoupling of rail cars, and operation of the Rail Switch to 204-AR Spur.

2.4 REFERENCES

- 2.4.1 Procedures:
 - 2.4.1.1 TF-OR-EF-204AR, Rev. -0-; 204-AR RAIL CAR WASTE UNLOADING BUILDING ROUNDS
 - 2.4.1.2 TO-100-052, Rev. C-3; SEGREGATE, PACKAGE, AND INVENTORY RADIOACTIVE WASTE
 - 2.4.1.3 TO-250-550, Rev. C-0; TRANSFER FROM 204-AR TO TK-102-AY
 - 2.4.1.4 TO-290-040, Rev. B-0; RESPOND TO ALARMS AT 204-AR
 - 2.4.1.5 TO-290-070, Rev. D-0; PERFORM CHEMICAL MAKEUP IN 204-AR

TANK FARM PLANT OPERATING PROCEDURE

2.4 REFERENCES (Continued)

2.4.2 Drawings:

- 2.4.2.1 H-2-70695, Sheet 2, Rev. 7; Electrical Wiring Diagrams
- 2.4.2.2 H-2-70695, Sheet 7, Rev. 3; Electrical Wiring Diagrams
- 2.4.2.3 H-2-70695, Sheet 8, Rev. 0; Electrical Diagrams and Panel Schedules
- 2.4.2.4 H-2-70703, Sheet 1, Rev. 6; Engineering Flow Diagram
- 2.4.2.5 H-2-70703, Sheet 2, Rev. 3; Engineering Flow Diagram
- 2.4.2.6 H-2-70703, Sheet 3, Rev. 0; Engineering Flow Diagram

2.4.3 Other Documents

- 2.4.3.1 OSD-T-151-00007, OPERATING SPECIFICATIONS FOR 241-AN, AP, AW, AY, AZ TANK FARMS
- 2.4.3.2 OSD-T-151-00008, OPERATING SPECIFICATIONS FOR THE 204-AR WASTE UNLOADING FACILITY
- 2.4.3.3 WHC-CM-2-14, Part IV, Rev. 3; HAZARDOUS MATERIAL PACKAGING AND SHIPPING
- 2.4.3.4 WHC-RE-SAP-013, Rev. 6; SAFETY ANALYSIS REPORT FOR PACKAGING, RAILROAD LIQUID WASTE TANK CARS
- 2.4.3.5 WHC-SD-WM-SAR-040, Rev. 1; 204-AR WASTE UNLOADING FACILITY SAFETY ANALYSIS REPORT
- 2.4.3.6 WHC-SD-WM-TI-357, Rev. 1-J; WASTE STORAGE TANK STATUS AND LEAK DETECTION CRITERIA

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TANK FARM PLANT OPERATING PROCEDURE

2.5 SAFETY

2.5.1 In addition to contamination hazards, operators should be aware of tripping hazards e.g., hoses and pump lines.

Warning - Caution must be exercised when lowering the Tank Car Cupola lid to avoid pinching hazards. Two Operators are required for raising and lowering Tank Car Cupola lid.

Warning - Operation of the Unloading Room doors without direct observation of the doors OR in the wrong order could result in serious injury from being caught under or between the doors.

Warning - To prevent injury, the Tank Car shall be positively secured before boarding.

Caution - IF P5-A/P5-B Flow Controller exceeds 50% of full scale for an initial setting, equipment damage from pipe hammer may occur.

Caution - While adjusting sluicing water stream with PIC-1, do NOT exceed a sluice line pressure of 150 psig.

Caution - To avoid pump cavitation of P1-A/P1-B, do NOT exceed a flow rate of 50% when pump is first being placed in operation.

TANK FARM PLANT OPERATING PROCEDURE

2.6 RADIATION AND CONTAMINATION CONTROL

Warning - Do NOT enter Unloading Room while pumping is in progress due to potentially High dose rates.

2.6.1 Dose rates associated with Tank Cars may increase rapidly during unloading and other process operations. HPT coverage is required when entering areas for which whole body dose rates exceed 100 mrad/hr OR work is to be performed in a posted High Radiation area.

2.6.2 Notify supervision before entering areas where dose rate exceeds 500 mrad/hr. Before entering areas exceeding 1,000 mrad/hr supervision must be onsite to direct operations. Do NOT enter areas exceeding 5,000 mrad/hr.

2.6.3 The following administrative procedures control work performed in this procedure:

2.6.3.1 Radiation Work Requirements and Permits Manual, WHC-CM-4-15, Vol. 2

2.6.3.2 Radiation Protection Manual, WHC-CM-1-6

2.6.3.3 Industrial Safety Manual, WHC-CM-4-3, Vols 1-4

2.6.3.4 Building Emergency Plan, WHC-CM-0263TF

2.6.3.5 Industrial Hygiene Manual, WHC-CM-4-40.

2.7 QUALITY ASSURANCE

2.7.1 The transfer route used in this procedure is a dedicated route; therefore, no Quality Control (QC) verification is required.

TANK FARM PLANT OPERATING PROCEDURE

2.8 GENERAL INFORMATION

None.

2.9 LIMITS AND PRECAUTIONS

2.9.1 WHC-SD-WM-SAR-040

General Recovery Action - If any Specification Limit in this procedure is violated, immediately notify Management of the condition, unless a specific Recovery Action is stated with the limit.

2.9.1.1 OSR 5.3.1.1 FISSILE MATERIAL LIMIT

Requirement - The average plutonium concentration in radioactive waste solutions routed from the 204-AR Facility to waste storage tanks shall be < 0.01 g/gal per tank car load.

2.9.1.2 OSR 5.3.2.1 RADIOACTIVE WASTE SOLUTION COMPOSITION LIMITS FOR DISPOSAL TO WASTE STORAGE TANKS

Requirement - A pH of > 12 is required for radioactive waste solutions passing through the 204-AR Facility.

2.9.1.3 OSR 5.3.2.4 CATCH TANK HIGH LIQUID LEVEL DETECTION AND RESPONSE

Requirement - High liquid level detection capability shall be provided on the 204-AR catch tank. At a present liquid level not to exceed 90% of vessel capacity, interlocks shall be automatically activated, closing valves in the waste solution transfer line from the tank car to the collection tank.

TANK FARM PLANT OPERATING PROCEDURE

2.9 LIMITS AND PRECAUTIONS (Continued)

2.9.2 OPERATING SPECIFICATIONS

2.9.2.1 LIMIT - OSD-T-151-00007.2.1.A Tank Composition at Normal Operating Temperatures (T < 212°F)

| VARIABLE | SPECIFICATION LIMIT |
|---|--|
| For $\text{NO}_3^- \leq 1.0 \text{ M}$: | |
| OH^- | $0.010 \text{ M} \leq \text{OH}^- \leq 5.0 \text{ M}$ |
| NO_2^- | $0.011 \text{ M} \leq \text{NO}_2^- \leq 5.5 \text{ M}$ |
| (For solutions below 167°F, the OH^- limit is 8.0 M) | |
| For $1.0 \text{ M} < \text{NO}_3^- \leq 3.0 \text{ M}$: | |
| OH^- | $0.1 \times \text{NO}_3^- \leq \text{OH}^- < 10 \text{ M}$ |
| $\text{OH}^- + \text{NO}_2^-$ | $\geq 0.4 \times \text{NO}_3^-$ |
| For $\text{NO}_3^- > 3.0 \text{ M}$: | |
| OH^- | $0.3 \text{ M} \leq \text{OH}^- < 10 \text{ M}$ |
| $\text{OH}^- + \text{NO}_2^-$ | $\geq 1.2 \text{ M}$ |
| NO_2^- | $\leq 5.5 \text{ M}$ |

2.9.2.2 LIMIT - OSD-T-151-00008 and OSD-T-151-00012

| REFERENCE | VARIABLE | LIMIT |
|-----------------------|------------------------------------|--|
| OSD-T-151-00008.2.1.1 | pH | $7 < \text{pH} < 14$ |
| OSD-T-151-00008.2.1.2 | Chloride | $< 0.01 \text{ M}$ |
| OSD-T-151-00008.2.3.1 | Fissile Material in Solutions | $< 0.01 \text{ g/gal}$ |
| OSD-T-151-00008.2.2.4 | Organic Material (except lube oil) | No separable phase |
| OSD-T-151-00008.2.4.1 | Catch Tank (TK-1) | ≤ 1145 < 1200 gallons (80% of capacity) |
| OSD-T-151-00012.2.1 | Differential Scan | No exotherms below 335°F |

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TANK FARM PLANT OPERATING PROCEDURE

2.9 LIMITS AND PRECAUTIONS (Continued)

2.9.3 SAFETY ANALYSIS REPORT

2.9.3.1 Section 4.1.2, General Standards for all Packages

Security Seal

Before transport, a security seal will be placed on the cupola, which while intact, shall be evidence that the package has not been opened by unauthorized persons. The seal will be applied in a manner to ensure the container cannot be opened without destroying the integrity of the seal.

Positive Closure

Disconnect fittings and valves are installed on the access lines that mate with the piping in the loading facilities. Pressure caps are installed on these lines during transport to provide positive closure. All other ports are capped or sealed with blank flanges.

TANK FARM PLANT OPERATING PROCEDURE

2.9 LIMITS AND PRECAUTIONS (Continued)

2.9.3.2 Section 4.1.6, Radiological Controls

Outside Surfaces

The amount of nonfixed radioactivity measured on any single wiping material when averaged over the surface wiped shall not exceed 220 dpm/100 cm² alpha and 2200 dpm/100 cm² beta-gamma.

The removable (nonfixed) radioactive contamination at any time on the outside surface of the tank car, during transport, shall not exceed ten times the levels of 220 dpm/100 cm² alpha and 2200 dpm/100 cm² beta-gamma nonfixed.

Interior of Cupola

The amount of nonfixed radioactivity measure on any single wiping material, when averaged over the surface wiped, will not exceed the following limits:

At Departure - 2200 dpm/100 cm² alpha and 22,000 dpm/100 cm² beta-gamma except that ALARA considerations may allow a larger beta gamma level. This level must be consistent with the allowed contamination levels at arrival.

At Arrival - 2200 dpm/100 cm² alpha and 22,000 dpm/100 cm² beta-gamma.

If these limits for arrival are exceeded, the tank car shall not be returned to service until the accessible portions of the inside of the cupola has no removable (nonfixed) surface contamination in excess of 2200 dpm/100 cm² alpha and 22,000 dpm/100 cm² beta-gamma.

2.9.3.3 Section 4.3.2, Inspection

Loaded cars stored outdoors shall be visually inspected for leaks and abnormal conditions at least once per day.

TANK FARM PLANT OPERATING PROCEDURE

2.9 LIMITS AND PRECAUTIONS (Continued)

2.9.3.4 Section 4.3.3, Loading/Unloading

Tank Car loading and unloading must be scheduled to minimize outdoor storage of loaded tank cars.

The tank car maximum fill limit must be no more than 19,000 gallons or exceed the 204,000 pound load limit.

The waste tank car should be sluiced and flushed with the hydraulic sluice after each unloading operation to reduce residual contamination, consistent with as low as reasonable achievable principles.

2.9.3.5 Section 4.3.4, Transportation

The shipper shall provide an accurate description of the radiological conditions of the shipment to the receiving facility, as follows:

Telephone conversation before shipment.

The Radioactive Shipment Record delivered by the train crew.

3.0 RECORDS

3.1 The completed Working Copy of this procedure will be kept as a permanent record.

| | | |
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TANK FARM PLANT OPERATING PROCEDURE

4.0 PREREQUISITES

4.1 The following supplies will be needed to perform this procedure:

4.1.1 Security Seal

4.1.2 Diaper Paper

4.1.3 Plastic sheeting

4.1.4 Plastic bags

4.1.5 Absorbent pads OR Rags

4.1.6 Drip Pan

4.1.7 Duct Tape

4.1.8 Knives

4.1.9 Canvas Gloves

4.1.10 Keys for the 204-AR Railroad Spur Switch lock, AND the 204-AR Control Room plastic Switch Cover Box lock

4.1.11 RSR (complete except for HPT & Train Crew's signatures) IF a Tank Car is being released from 204-AR

4.1.12 Rubber hose

TANK FARM PLANT OPERATING PROCEDURE

4.0 PREREQUISITES (Continued)

✓
COMPLETE

4.2 The following procedures will be needed to perform this procedure:

4.2.1 TF-OR-EF204AR, 204AR RAIL CAR WASTE UNLOADING BUILDING ROUNDS

4.2.2 TO-250-550, TRANSFER FROM 204-AR TO TK-102-AY or other specific Tank Farm transfer procedure.

4.2.3 TO-290-040, RESPOND TO ALARMS AT 204-AR

4.3 The following conditions are required before the steps of this procedure may commence:

4.3.1 The working copy of this procedure has been checked against the Tank Farm Procedure Index or the Goldenrod copy of the Procedure and verified to be a copy of the latest version of the procedure.

NOTE - Prerequisites 4.3.2 through 4.3.7 may be performed concurrently or in any sequence.

- DATA SHEET 1 may be completed at this time.

4.3.2 Waste Shipper has provided LDR notification.

4.3.3 Transfer Control Checklist per the specific Tank Farm transfer procedure has been initiated.

4.3.4 The chemical volumes specified on Data Sheet 1 are available. IF sufficient chemical volumes are NOT available, PERFORM chemical make-up per TO-290-070.

4.3.5 Supervision has been notified by telephone that a Rail Tank Car containing liquid radioactive waste will be shipped to 204-AR.

4.3.6 Supervision has WRAMed the Train Crew member who will enter the 204-AR Unloading Room.

4.3.7 A pre-job safety meeting has been conducted.

Section 4.0 Performed by: _____ / _____
Supervisor/PIC Date

TANK FARM PLANT OPERATING PROCEDURE

5.0 PROCEDURE

✓
COMPLETE

5.1 PREPARE TO RECEIVE RAIL CAR

NOTE - The actions of Steps 5.1.1 through 5.1.4 may be completed in any sequence or concurrently.

5.1.1 VERIFY proper operation of 204-AR Ventilation System AND Catch Tank per TF-OR-EF204. []

5.1.2 ENSURE the following valve positions:

| <u>VALVE #</u> | <u>DESCRIPTION</u> | <u>POSITION</u> | |
|----------------|---|-----------------|-----|
| 38 | PI-A Intake Isolation | OPEN | [] |
| 37 | PI-B Intake Isolation | OPEN | [] |
| 40 | PI-A Pressure Sensor Isolation | OPEN | [] |
| 39 | PI-B Pressure Sensor Isolation | OPEN | [] |
| 41 | PI-A/PI-B Seal Water Isolation | OPEN | [] |
| 30 | Raw Water Back Flow Preventer in Unloading Room | OPEN | [] |
| 32 | Raw Water Back Flow Preventer in Unloading Room | OPEN | [] |
| 94 | Chemical Pumps Discharge Header Isolation | OPEN | [] |
| 99 | Chemical Pumps Isolation | OPEN | [] |
| 95 | PI-CA-1 Isolation | CLOSE | [] |
| 96 | Chemical Pumps to PI-A/PI-B Isolation | CLOSE | [] |
| 97 | Chemical Pumps to PI-A/PI-B Isolation | CLOSE | [] |
| 98 | PI-CA-2 Isolation | CLOSE | [] |

TANK FARM PLANT OPERATING PROCEDURE

5.1 PREPARE TO RECEIVE RAIL CAR (Continued)

✓
COMPLETE

5.1.3 ENSURE that dosimetry equipment is in place for the Train Crew member who will enter 204-AR.

5.1.4 REQUEST HPT to survey rail surface and flange groove for removable contamination AND check air samplers and 204-AR Unloading Room CAM for proper operation.

NO airborne contamination AND rail surfaces and flange grooves within limits.

HPT Signature: _____ / _____ Date

Section 5.1 Performed by: _____ / _____
Operator Date

Section 5.1 Performed by: _____ / _____
Operator Date

TANK FARM PLANT OPERATING PROCEDURE

5.2 RECEIVE RAILROAD TANK CAR AT 204-AR

✓
COMPLETE

NOTE - The PIC is responsible for directing actions of the Operators. Steps 5.2.1, 5.2.2, and 5.2.3 may be performed concurrently.

5.2.1 PREPARE to bring the train into 204-AR, as follows:

5.2.1.1 REMOVE the Operations Lock from the 204-AR Switch.

5.2.1.2 OBTAIN the RSR from the Train Crew AND REVIEW the RSR for completeness.

NOTE - The Shift Manager shall be notified if Rail Tank Car Volume exceeds 19,000 gallons.

5.2.1.3 RECORD the Shipper's Waste Volume as stated on the RSR.

Volume _____ gallons

5.2.1.4 IF the RSR is complete, SIGN the RSR in the Receiver's Signature Block.

5.2.1.5 DIRECT a member of the Train Crew to dress for entry to the Unloading Room.

5.2.1.6 ENSURE that the Tank Car Platform Handrail, located on the Manifold side of the Tank Car, is LOWERED.

TANK FARM PLANT OPERATING PROCEDURE

5.2 RECEIVE RAILROAD TANK CAR AT 204-AR (Continued)

✓
COMPLETE

NOTE - Tank Car survey (Step 5.2.10) may be performed at this time.

5.2.2 PREPARE to open the Unloading Room Doors, as follows:

NOTE - IF the outside wind speed is greater than 30 mph, the Shift Manager shall be notified.

5.2.2.1 IF wind is blowing, VERIFY with the Battelle Meteorologist (373-2716) that the outside wind speed is less than 30 mph.

5.2.2.2 UNLOCK AND

OPEN the plastic switch cover box on the Annunciator Panel Cabinet in the 204-AR Control Room.

5.2.2.3 SET the MASTER POWER SWITCH (SS-RD-1A) OUTER DOOR on the Annunciator Panel Cabinet to ON.

5.2.2.4 SET the MASTER POWER SWITCH (SS-DD-1A) INNER DOOR on the Annunciator Panel Cabinet to ON.

5.2.2.5 NOTIFY CASS that the 204-AR Outer (Roll-up) Door will be opened and that they will receive an Alarm.

5.2.3 DIRECT an Operator to perform the following:

5.2.3.1 ASSIST the Train Crew member in dressing AND in entering the Unloading Room to spot the Tank Car.

5.2.3.2 ENSURE that the Unloading Room Balcony Ramp is RAISED AND SECURED.

5.2.3.3 ENSURE that the Unloading Room Balcony gate is CLOSED AND SECURED.

TANK FARM PLANT OPERATING PROCEDURE

5.2 RECEIVE RAILROAD TANK CAR AT 204-AR (Continued)

✓
COMPLETE

WARNING

Operation of the Unloading Room doors without direct observation of the doors OR in the wrong order could result in serious injury from being caught under or between the doors.

5.2.4 WHEN the train is on the spur, OPEN the Unloading Room Doors, as follows:

5.2.4.1 CLEAR personnel from the area around the Inner Doors.

5.2.4.2 OPEN the Inner Door.

5.2.4.3 OPEN the Outer Door.

(CONTINUED ON NEXT PAGE)

TANK FARM PLANT OPERATING PROCEDURE

5.2 RECEIVE RAILROAD TANK CAR AT 204-AR (Continued)

✓
COMPLETE

NOTE - The Tank Car should be spotted, as follows:

- The brake-end of the Tank Car facing the doors.
- The center of the Outer axle of the Tank Car aligned with the black line on the Unloading Room Floor.
- The Hand Brake SET.

WARNING

Operation of the Unloading Room doors without direct observation of the doors OR in the wrong order could result in serious injury from being caught under or between the doors.

5.2.5 AFTER the Tank Car is in place AND the Train has backed away from 204-AR, CLOSE the Unloading Room Doors, as follows:

- 5.2.5.1 ENSURE visually that personnel are clear of the area around the Inner Doors.
- 5.2.5.2 CLOSE the Outer Door.
- 5.2.5.3 CLOSE the Inner Door.

NOTE - Steps 5.2.7, 5.2.8 through 5.2.9 may be performed concurrently with Step 5.2.6.

- 5.2.6 ASSIST the Train Crew member in undressing, obtaining an HPT survey, and exiting the facility.
- 5.2.7 SET the MASTER POWER SWITCH (SS-RD-1A) OUTER DOOR on the Annunciator Panel Cabinet to OFF.
- 5.2.8 SET the MASTER POWER SWITCH (SS-DD-1A) INNER DOOR on the Annunciator Panel Cabinet to OFF.

TANK FARM PLANT OPERATING PROCEDURE

5.2 RECEIVE RAILROAD TANK CAR AT 204-AR (Continued)

✓
COMPLETE

5.2.9 CLOSE AND

LOCK the plastic switch cover box on the Annunciator Panel Cabinet in the 204-AR Control Room. []

NOTE - HPT shall record results of survey on Data Sheet 3.

5.2.10 DIRECT HPT to survey the Tank Car for dose rate AND removable contamination at check points on DATA SHEET 3 AND set High Radiation Boundaries and postings as required. []

NOTE - The Shift Manager shall be notified if initial survey exceeds contamination limits.

LIMIT - SD-RE-SAP-013, SAFETY ANALYSIS REPORT FOR PACKAGING, RAILROAD LIQUID WASTE TANK CARS

4.1.6 (1) (b): Contamination Control Requirements: Removable radioactivity:

Outside Surfaces of Tank Car: (at arrival)

α : < 2200 dpm/100 cm²

B : < 22,000 dpm/100 cm²

5.2.11 ENSURE removable contamination is within limits before proceeding. []

Tank Car Wheels Removable Contamination:

α : _____ dpm/100 cm²

B : _____ dpm/100 cm²

_____/_____
HPT Signature: / Date

TANK FARM PLANT OPERATING PROCEDURE

5.2 RECEIVE RAILROAD TANK CAR AT 204-AR (Continued)

✓
COMPLETE

5.2.12 AFTER the 204-AR Spur Switch has been repositioned, LOCK the Switch with an Operations lock. []

Section 5.2 Performed by: _____ / _____
Operator Date

Section 5.2 Performed by: _____ / _____
Operator Date

Section 5.2 Performed by: _____ / _____
Operator Date

TANK FARM PLANT OPERATING PROCEDURE

5.3 CONNECT RAILROAD TANK CAR INSIDE 204-AR

✓
COMPLETE

5.3.1 LOWER AND
SECURE the Balcony Ramp.

[]

5.3.2 OPEN AND
SECURE the Balcony Gate.

[]

WARNING

To prevent injury, the Tank Car shall be positively secured before boarding.

5.3.3 INSTALL a Safety Chain from the Balcony Gate to the Rail Tank Car railing.

[]

5.3.4 DIRECT HPT to survey the Tank Car for dose rate AND removable contamination at check points on DATA SHEET 3 AND set High Radiation Boundaries and postings as required.

[]

(CONTINUED ON NEXT PAGE)

TANK FARM PLANT OPERATING PROCEDURE

5.3 CONNECT RAILROAD TANK CAR INSIDE 204-AR (Continued)

✓
COMPLETE

NOTE - The Shift Manager shall be notified if initial survey exceeds contamination limits.

LIMIT - SD-RE-SAP-013, SAFETY ANALYSIS REPORT FOR PACKAGING, RAILROAD LIQUID WASTE TANK CARS

4.1.6 (1) (b): Contamination Control Requirements: Removable radioactivity:

Outside Surfaces of Tank Car: (at arrival)

α : < 2200 dpm/100 cm²

B : < 22,000 dpm/100 cm²

5.3.5 ENSURE removable contamination is within limits before proceeding.

Tank Car Cupola Removable Contamination:

α : _____ dpm/100 cm²

B : _____ dpm/100 cm²

_____/_____
HPT Signature: / Date

NOTE - The Shift Manager shall be notified if the Security Seal on the Rail Tank Car Cupola is broken.

5.3.6 CHECK that the Security Seal on the Tank Car Cupola is NOT broken. []

TANK FARM PLANT OPERATING PROCEDURE

5.3 CONNECT RAILROAD TANK CAR INSIDE 204-AR (Continued)

✓
COMPLETE

5.3.7 RELIEVE pressure or vacuum in the Tank Car Cupola, as follows:

5.3.7.1 REMOVE the 1-inch red rubber Cupola Vent hose from the Manifold.

5.3.7.2 CONNECT the Cupola Vent hose to the Cupola Vent quick-disconnect fitting. See Figure 1.

5.3.7.3 AFTER 30 seconds, DISCONNECT the Cupola Vent hose.

5.3.7.4 RECONNECT the Cupola Vent Hose to the Manifold.

5.3.8 DIRECT the HPT to start the portable Air Monitor.

WARNING

Caution must be exercised when lowering the Tank Car Cupola lid to avoid pinching hazards. Two Operators are required for raising and lowering the Tank Car Cupola lid.

5.3.9 AFTER the portable air monitor is running, OPEN the Tank Car Cupola lid, as follows:

5.3.9.1 REMOVE the Security Seal.

5.3.9.2 LOOSEN the L-handles.

5.3.9.3 POSITION one Operator on each side of the Cupola lid.

5.3.9.4 RAISE the Cupola lid SLOWLY until the lid rests against its support

AND

ENSURE that the Cupola lid latch has dropped into position to prevent the lid from dropping forward.

TANK FARM PLANT OPERATING PROCEDURE

5.3 CONNECT RAILROAD TANK CAR INSIDE 204-AR (Continued)

✓
COMPLETE

5.3.10 ENSURE that the Pressure Relief valve inside the Tank Car Cupola is free of obstructions. See Figure 1.

5.3.11 PERFORM a visual inspection inside the Tank Car Cupola (See Figure 1):

NOTE - The Shift Manager shall be informed of any visible damage or missing pressure caps.

5.3.11.1 Rupture Disk

5.3.11.2 Flanges

5.3.11.3 Piping

5.3.11.4 Valves

5.3.11.5 Quick Disconnect Fittings

5.3.11.6 Pressure caps installed on ALL fittings.

5.3.12 DIRECT HPT to survey the interior of the Tank Car Cupola AND the hoses and handles for removable contamination AND dose rate.

TANK FARM PLANT OPERATING PROCEDURE

5.3 CONNECT RAILROAD TANK CAR INSIDE 204-AR (Continued)

✓
COMPLETE

NOTE - The Shift Manager shall be notified if initial survey exceeds contamination limits.

LIMIT - SD-RE-SAP-013, SAFETY ANALYSIS REPORT FOR PACKAGING, RAILROAD LIQUID WASTE TANK CARS

4.1.6 (1) (b): Contamination Control Requirements: Removable radioactivity:

Interior of Cupola (at arrival):

α : < 2,200 dpm/100 cm²

β : < 220,000 dpm/100 cm²

(HP) 5.3.13 ENSURE removable contamination is within limits before proceeding. []

Cupola Removable Contamination, α : _____ dpm/100 cm²

Cupola Removable Contamination, β : _____ dpm/100 cm²

HPT Signature: _____ Date: _____

TANK FARM PLANT OPERATING PROCEDURE

5.3 CONNECT RAILROAD TANK CAR INSIDE 204-AR (Continued)

✓
COMPLETE

NOTE - On Railroad Tank Car 10H-18581 ONLY, the 4-inch Pump-out valve is a reversed Ball valve. When the valve handle is in line with the piping, the valve is CLOSED. When the valve handle is perpendicular to the piping, the valve is OPEN.

5.3.14 ENSURE that the following Tank Car Cupola Manual valves are CLOSED. See Figure 1:

VALVE

- | | |
|--|-----|
| 3-inch Sluicer | [] |
| 4-inch Pump-out | [] |
| 3-inch Vent | [] |
| 1/2-inch Weight Factor | [] |
| 3/4-inch Ball | [] |
| 1 1/2-inch Gate (if equipped) | [] |
| 5.3.15 SECURE a large plastic sheet around the quick-disconnect. See Figure 2. | [] |
| 5.3.16 PACK Absorbent pads OR rags around the following connections inside the Tank Car Cupola (See Figure 2): | |
| 3-inch Sluicer | [] |
| 4-inch Pump-out | [] |
| 3-inch vent quick-disconnect | [] |
| 5.3.17 INSTALL a drip apron of diaper paper between the Tank Car and the Manifold. | [] |

TANK FARM PLANT OPERATING PROCEDURE

5.3 CONNECT RAILROAD TANK CAR INSIDE 204-AR (Continued)

✓
COMPLETE

5.3.18 CONNECT hoses to the Tank Car, as follows:

NOTE - The pressure caps on the Tank Car quick-disconnect fittings may have gross amounts of surface contamination.

- 5.3.18.1 REMOVE the 3-inch Vent pressure cap from the Tank Car quick-disconnect fitting.
- 5.3.18.2 PLACE the pressure cap on a clean rag on the Drain Manifold.
- 5.3.18.3 PLACE the Drip Pan filled with Absorbent pads OR rags beneath the Drain Manifold to absorb drips from the hoses.
- 5.3.18.4 DISCONNECT the 3-inch Vent hose from the Drain Manifold.
- 5.3.18.5 CONNECT the 3-inch Vent hose to the 3-inch Vent quick-disconnect fitting inside the Tank Car Cupola.
- 5.3.18.6 SNAP the 3-inch pressure cap from the Tank Car 3-inch Vent to the Drain Manifold.
- 5.3.18.7 REMOVE the 4-inch Pump-out pressure cap from the Tank Car quick-disconnect fitting.
- 5.3.18.8 PLACE the 4-inch Pumpout pressure cap on a clean rag on the Drain Manifold.
- 5.3.18.9 DISCONNECT the 4-inch Pump-out from the Drain Manifold.
- 5.3.18.10 CONNECT the 4-inch Pump-out to the 4-inch Pump-out quick-disconnect fitting inside the Tank Car Cupola.
- 5.3.18.11 SNAP the 4-inch pressure cap from the Tank Car 4-inch Pump-out to the Drain Manifold.
- 5.3.18.12 REMOVE the 3-inch Sluicer pressure cap from the Tank Car quick-disconnect fitting.

TANK FARM PLANT OPERATING PROCEDURE

5.3 CONNECT RAILROAD TANK CAR INSIDE 204-AR (Continued)

✓
COMPLETE

- 5.3.18.13 PLACE the 3-inch Sluicer pressure cap on a clean rag on the Drain Manifold.
- 5.3.18.14 DISCONNECT the 3-inch Sluicer hose from the Drain Manifold.
- 5.3.18.15 CONNECT the 3-inch Sluicer hose to the 3-inch Sluicer quick-disconnect fitting inside the Tank Car Cupola.
- 5.3.18.16 SNAP the 3-inch pressure cap from the Tank Car 3-inch Sluicer to the Drain Manifold.
- 5.3.18.17 REMOVE the 1/2-inch Weight Factor pressure cap from the Tank Car.
- 5.3.18.18 DISCONNECT the 1/2-inch Weight Factor hose from the Drain Manifold.
- NOTE - The Drip Pan is not required when connecting the 1/2-inch Weight Factor hose.
- 5.3.18.19 CONNECT the 1/2-inch Weight Factor to the 1/2-inch Weight Factor quick-disconnect fitting inside the Tank Car Cupola.
- 5.3.18.20 SNAP the 1/2-inch pressure cap from the Tank Car 1/2-inch Weight Factor to the Drain Manifold.
- 5.3.18.21 SECURE plastic sheeting or tubing around the Tank Car Flex hoses.
- 5.3.19 OPEN SLOWLY the 3-inch Vent valve in the Tank Car Cupola.
- 5.3.20 OPEN Weight Factor Valve #48, located on the Unloading Room balcony by the viewing window.
- 5.3.21 OPEN the 1/2-inch Weight Factor valve inside the Tank Car Cupola.
- 5.3.22 ENSURE that air-line Rotameter FI-WF-1, located on the Unloading Room Balcony near Weight Factor valve 48, reads 1.5 scfm.

TANK FARM PLANT OPERATING PROCEDURE

5.3 CONNECT RAILROAD TANK CAR INSIDE 204-AR (Continued)

✓
COMPLETE

5.3.23 ENSURE that air-line Rotameter FI-WF-2, located on the Unloading Room Balcony near Weight Factor valve 48, reads 1.5 scfm. []

5.3.24 MONITOR the WEIGHT FACTOR (WFR-RRC) RR TANK CAR recorder, located on the 204-AR Control Panel. []

5.3.25 AFTER the WFR-RRC recorder has stabilized, RECORD Tank Car volume in Step 5.3.26 AND ON Data Sheet 2. []

NOTE - The Shift Manager shall be notified if there is a discrepancy of greater than 500 gallons between the Shipper's RSR Waste Volume and WFR-RRC Tank Car Volume

OR

Tank Car Volume exceeds 19,000 gallons.

5.3.26 COMPARE the Tank Car volume recorded on Data Sheet 2 with the Shipper's Waste Volume as recorded in Step 5.2.1.3. []

Volume from WFR-RRC: _____ gallons

Volume from Step 5.2.1.3: _____ gallons

5.3.27 IF the Tank Car will NOT be processed within 24 hours, CLOSE the 1/2-inch Weight Factor Valve. []

5.3.28 NOTIFY the Shift Manager that the Railroad Tank Car is connected in 204-AR and is ready for processing. []

5.3.29 FORWARD the completed RSR to the Operations Supervisor. []

Section 5.3 Performed by: _____ / _____
Operator Date

TANK FARM PLANT OPERATING PROCEDURE

5.4 PREPARE TO TRANSFER

✓
COMPLETE

5.4.1 ENSURE the Transfer Control Sheet has been completed. []

NOTE - Steps 5.4.2 through 5.4.11 may be performed in any sequence or concurrently.

5.4.2 ENSURE that all two-way MOVs on the graphic panelboard are set to CLOSE:

| MOV | CHECK | MOV | CHECK | MOV | CHECK |
|-----|-------|------|-------|-----|-------|
| 2 | | 1 | | 7 | |
| 12 | | 4 | | 18 | |
| 22 | | 3 | | 2I | |
| 8 | | 5 | | A-1 | |
| 20 | | DS-2 | | B-1 | |
| 11 | | DS-4 | | C-1 | |
| 13 | | 6 | | D-1 | |

5.4.3 ENSURE that all three-way MOVs on the graphic panelboard are set to the YELLOW light position: []

| MOV | CHECK | MOV | CHECK |
|-----|-------|-----|-------|
| 14 | | 17 | |
| 15 | | 19 | |
| 16 | | E-1 | |

5.4.4 ENSURE MOVs on the Auxiliary Panel are positioned, as follows:

MOV POSITION

9 CLOSED []

10 CLOSED []

5.4.5 ENSURE that SS-LD-29 (LEAK DETN INTERLOCK BYPASS) on Auxiliary panelboard is set to AUTO. []

TANK FARM PLANT OPERATING PROCEDURE

5.4 PREPARE TO TRANSFER (Continued)

✓
COMPLETE

5.4.6 ENSURE that the following Rail Car manual valves are OPEN:

VALVE

3-inch Vent [_____]

4-inch Pump-out [_____]

3-Inch Sluicer [_____]

1/2-Inch Weight Factor [_____]

5.4.7 OPEN Raw Water Isolation Valve 50, located in northwest corner of the Mechanical Equipment Room. [_____]

5.4.8 PLACE Pump P1-A Breaker Arm (center panel of MCC) to ON. [_____]

5.4.9 PLACE Pump P1-B Breaker Arm (center panel of MCC) to ON. [_____]

5.4.10 IF Pump P5-A is to be used for chemical addition, POSITION valves, as follows:

| <u>VALVE #</u> | <u>DESCRIPTION</u> | <u>POSITION</u> | |
|----------------|--------------------|-----------------|---------|
| 93 | P5-A Suction | OPEN | [_____] |
| 91 | P5-A Discharge | OPEN | [_____] |
| 90 | P5-B Suction | CLOSE | [_____] |
| 92 | P5-B Discharge | CLOSE | [_____] |

TANK FARM PLANT OPERATING PROCEDURE

5.4 PREPARE TO TRANSFER (Continued)

✓
COMPLETE

5.4.11 IF Pump P5-B is to be used for chemical addition, POSITION valves, as follows:

| <u>VALVE #</u> | <u>DESCRIPTION</u> | <u>POSITION</u> | |
|----------------|--------------------|-----------------|-----|
| 93 | P5-A Suction | CLOSE | [] |
| 91 | P5-A Discharge | CLOSE | [] |
| 90 | P5-B Suction | OPEN | [] |
| 92 | P5-B Discharge | OPEN | [] |

Section 5.4 Performed by: _____ / _____
Operator Date

TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER

✓
COMPLETE

5.5.1 RESET raw water totalizer FIQ-RW2 to zero. []

5.5.2 RECORD the following readings on DATA SHEET 2:

- Initial Nitrite TK-2 LL (LI-B-1) []
- Initial Caustic TK-3 LL (LI-A-1) []

NOTE - MOV 16 switch operates both MOV 16 and MOV 17.

5.5.3 SET the route from rail car to Tank Farms, as follows:

| MOV | POSITION | PANELBOARD LIGHT | |
|-----|-----------|------------------|-----|
| 2 | OPEN | RED | [] |
| 14 | TO P1-B | YELLOW | [] |
| 15 | TO P1-A | YELLOW | [] |
| 16 | FROM P1-A | YELLOW | [] |
| 17 | FROM P1-B | YELLOW | [] |
| 18 | OPEN | RED | [] |

5.5.4 PROVIDE the 242-A Board Operator or Field Operator with the following:

- Rail Car Volume []
- Catch Tank LL (LI-TK-1) []
- Rail Car LL (WFR-RRC) []

5.5.5 OBTAIN initial receiver tank LL from 242-A Board Operator or Field Operator AND RECORD on DATA SHEET 2. []

5.5.6 WHEN directed by the 242-A Board Operator or Field Operator to begin transfer, ACTIVATE the unloading room warning light. []

TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER (Continued)

✓
COMPLETE

5.5.7 SET FRC-28 (DOV 22 Flow Recorder/Controller), as follows:

5.5.7.1 ENSURE that the AUTO/MAN controller lever is in the MAN position.

CAUTION

To avoid pump cavitation, do NOT exceed a flow rate of 50% when pump is first being placed in operation.

5.5.7.2 TURN the dial to position pointer to 50%.

5.5.8 PRIME pump P1-B, as follows:

5.5.8.1 OPEN MOV 5 UNTIL a sag is seen in the pump-out flex-hose (approx. 70 gals per FIQ-RW2) to prime suction line.

5.5.8.2 WHEN a sag is seen in the pump-out flex-hose, CLOSE MOV 5.

5.5.8.3 OPEN MOV 6.

NOTE - Normal pump running amperage is 25-30 amps.

5.5.9 START Pump P1-B.

5.5.10 RECORD the following in the START column of the RAIL CAR TO TANK FARM TRANSFER DATA SHEET 5:

- Time
- P1-B amperage
- P1-B discharge pressure (PI-26)
- TK-2 Nitrite LL (LI-B-1)
- TK-3 Caustic LL (LI-A-1)

TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER (Continued)

✓
COMPLETE

5.5.11 OPEN MOV A-1.

5.5.12 SET MOV E-1 to P5-A/P5-B (red light).

CAUTION

IF P5-A/P5-B Flow Controller exceeds 50% of full scale for an initial setting, equipment damage from pipe hammer may occur.

5.5.13 SET Pump P5-A/P5-B Flow Controller to less than 50%.

5.5.14 START Pump P5-A/P5-B to begin caustic addition.

5.5.15 NOTIFY the 242-A Board Operator or Field Operator that transfer has been started.

5.5.16 RECORD readings every 1/2 hour in the INTERMEDIATE column of DATA SHEET 5.

5.5.17 ADJUST FRC-28 (DOV 22 Flow Recorder/Controller) as necessary to maintain Pump P1-B amperage and discharge pressure.

5.5.18 ADJUST pump P5-A/P5-B Flow Controller as needed to maintain caustic addition throughout waste transfer.

TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER (Continued)

✓
COMPLETE

NOTE - Conditions which indicate the presence of solids and the need for backflushing are as follows:

- Fluctuating P1-B amperage with Rail Car volume greater than 1000 gallons.
- Fluctuating P1-B discharge pressure (PI-26) with Rail Car volume greater than 1000 gallons.

- Step 5.5.19 may be performed as necessary during remainder of Section 5.5.

5.5.19 IF any of the above conditions exist throughout transfer, BACKFLUSH the Pump-Out line per Section 5.6. []

5.5.20 IF ANY of the following conditions arise

- An increase in Catch Tank LL (LI-TK-1).
- Loss of instrument air, evidenced by loss of weight factor indications.

OR

- IF directed by TO-290-040, RESPOND TO ALARMS AT 204-AR.

SHUT DOWN the transfer, as follows:

5.5.20.1 STOP Pump P1-B.

TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER (Continued)

✓
COMPLETE

5.5.20.2 STOP pump P5-A/P5-B.

5.5.20.3 SET the following MOVs:

| <u>MOV</u> | <u>POSITION</u> |
|------------|-----------------|
| 2 | CLOSE |
| 6 | CLOSE |
| 18 | CLOSE |

5.5.20.4 NOTIFY the Shift Manager.

5.5.21 IF FIQ-RW2 reading is greater than 1000 gallons, COMPLETE "Chemical Addition Adjustment for Backflush Water" section of DATA SHEET 4.

5.5.22 WHEN the required caustic volume has been transferred, STOP caustic addition, as follows:

5.5.22.1 STOP Pump P5-A/P5-B.

5.5.22.2 CLOSE MOV A-1.

5.5.22.3 RECORD final TK-3 LL in Caustic Addition section of DATA SHEET 4.

5.5.22.4 CALCULATE TK-3 volume transferred AND

RECORD in Caustic Addition Section, Block (B), of DATA SHEET 4.

NOTE - Conditions which indicate the Rail Car is empty:

- Fluctuating P1-B amperage.
- Fluctuating P1-B discharge pressure (PI-26) with Rail Car volume less than 1000 gallons.

5.5.23 WHEN the Rail Car is empty, SECURE pumping, as follows:

5.5.23.1 STOP Pump P1-B.

5.5.23.2 CLOSE MOV 6.

TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER (Continued)

✓
COMPLETE

5.5.24 RECORD FIQ-RW2 on DATA SHEET 4 (Prime/Backflush Water).

5.5.25 RESET FIQ-RW2 to zero.

5.5.26 ENSURE PIC-1 Selector Switch is OFF.

5.5.27 PLACE MOV-3 Selector Switch to OPEN.

5.5.28 OPEN MOV-7.

5.5.29 START Pump P1-A.

5.5.30 IF sluice line pressure indicator (digital readout on panelboard) registers pressure, indicative of DOV 23 leakage, PERFORM the following to prevent damage to the Rail Car sluicer:

5.5.30.1 CLOSE MOV-7.

5.5.30.2 STOP Pump P1-A.

5.5.30.3 PLACE MOV-3 Selector Switch to CLOSE.

5.5.30.4 NOTIFY the Shift Manager of DOV 23 failure.

5.5.31 INITIATE sluicing, as follows:

5.5.31.1 TURN PIC-1 INCREASE knob fully counter-clockwise.

5.5.31.2 TURN PIC-1 Selector Switch from OFF to MANUAL.

CAUTION

While adjusting sluicing water stream with PIC-1, do NOT exceed a sluice line pressure of 150 psig.

5.5.31.3 SLOWLY TURN INCREASE Knob clockwise UNTIL sluice line pressure reads 100-145 psig as directed by Supervisor.

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TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER (Continued)

✓
COMPLETE

5.5.32 WHEN FIQ-RW2 indicates 200 gallons, OR as directed by Supervisor,

PRIME Pump P1-B, as follows:

5.5.32.1 OPEN MOV 5 UNTIL a sag is seen in the pump out flex-hose (approx. 70 gals) to prime suction line.

5.5.32.2 WHEN P1-B suction line has been primed, CLOSE MOV 5.

5.5.32.3 OPEN MOV 6.

5.5.33 START Pump P1-B.

NOTE - The maximum capacity of one Chemical Addition Pump (P5-A/P5-B) is approximately 7 gpm.

5.5.34 BEGIN TK-2 nitrite addition, as follows:

5.5.34.1 OPEN MOV B-1.

5.5.34.2 START Pump P5-A/P5-B.

5.5.35 ADJUST FRC-28 to maintain the Rail Car LL.

5.5.36 WHEN the required TK-2 nitrite volume has been transferred, PERFORM the following:

5.5.36.1 STOP Pump P5-A/P5-B.

5.5.36.2 CLOSE MOV B-1.

5.5.36.3 SET MOV E-1 to P-3 (Yellow light).

5.5.36.4 RECORD the final TK-2 LL on DATA SHEET 4.

5.5.36.5 CALCULATE the TK-2 volume transferred on DATA SHEET 4.

5.5.37 WHEN Rail Car has been sluiced with volume specified on DATA SHEET 2, STOP Pump P1-A.

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TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER (Continued)

✓
COMPLETE

5.5.38 CLOSE MOV 3.

5.5.39 CLOSE MOV 7.

5.5.40 CLOSE DOV 23, as follows:

5.5.40.1 SLOWLY TURN PIC-1 knob counterclockwise
UNTIL MANUAL LOADING pressure reads zero.

5.5.40.2 TURN PIC-1 selector switch from MANUAL to
OFF.

NOTE - Conditions which indicate the Rail Car is empty
are as follows:

- Fluctuating P1-B amperage
- Fluctuating P1-B discharge pressure (PI-26).

5.5.41 WHEN FLOW LOW (FAL-28) LIQUID WASTE TO TK FARM
alarm is received,

OR

WHEN Rail Car is empty,

STOP Pump P1-B.

5.5.42 CLOSE MOV 2.

5.5.43 RECORD FIQ-RW2 reading in the "FIQ-RW2
Prime/Backflush/Sluice" block of DATA SHEET 4.

5.5.44 RESET FIQ-RW2 to zero.

5.5.45 RECORD Catch Tank level below:

LI-TK-1 level: _____ gallons

TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER (Continued)

✓
COMPLETE

5.5.46 SELECT the method of flushing the line. (Check one.)

o IF Catch Tank < 650 gallons OR directed by Supervisor, FLUSH using raw water per Step 5.5.48.

o IF Catch Tank > 650 gallons, FLUSH using Catch Tank liquid per Step 5.5.47.

5.5.47 PERFORM line flush using Catch Tank liquid, as follows:

5.5.47.1 RECORD initial catch tank LL on the 204-AR RAIL CAR TO TANK FARM TRANSFER DATA SHEET 4.

5.5.47.2 OPEN MOV 1.

5.5.47.3 SET FRC-28 (DOV 22 Flow Recorder/Controller) setpoint, as follows:

5.5.47.3.1 ENSURE that the AUTO/MAN controller lever is in the MAN position.

CAUTION

To avoid pump cavitation, do NOT exceed a flow rate of 50% when pump is first being placed in operation.

5.5.47.3.2 TURN dial to position pointer to 50%.

5.5.47.4 START Pump P1-B.

5.5.47.5 WHEN catch tank LL reaches 150 gallons, STOP Pump P1-B.

TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER (Continued)

✓
COMPLETE

5.5.47.6 CLOSE MOV 1.

5.5.47.7 RECORD final Catch Tank LL on DATA SHEET 4.

5.5.47.8 CALCULATE AND RECORD Catch Tank flush volume on DATA SHEET 4.

5.5.47.9 MARK N/A Steps 5.5.48.1 through 5.5.48.12.

5.5.48 PERFORM raw water line flush, as follows:

5.5.48.1 SET MOV 14 to P1-A (red light).

5.5.48.2 SET MOV 15 to P1-B (red light).

5.5.48.3 SET FRC-28 (DOV 22 Flow Recorder/Controller) setpoint, as follows:

5.5.48.3.1 ENSURE that AUTO/MAN controller lever is in the MAN position.

CAUTION

To avoid pump cavitation, do NOT exceed a flow rate of 50% when pump is first being placed in operation.

5.5.48.3.2 TURN dial to position pointer to 50%.

NOTE - MOV 3 is interlocked to Pump P1-B and will not open until Pump P1-B is started.

5.5.48.4 SET MOV 3 to OPEN (red light).

5.5.48.5 START Pump P1-B.

5.5.48.6 WHEN line flush volume specified on the 204-AR RAIL CAR TO TANK FARM TRANSFER DATA SHEET 1 has been transferred, as indicated on FIQ-RW2, STOP Pump P1-B.

TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER (Continued)

✓
COMPLETE

5.5.48.7 CLOSE MOV 3.

5.5.48.8 CLOSE MOV 6.

5.5.48.9 SET MOV 14 to STANDBY (yellow).

5.5.48.10 SET MOV 15 to STANDBY (yellow).

5.5.48.11 RECORD FIQ-RW2 reading in the "Line Flush" block on DATA SHEET 4.

5.5.48.12 MARK N/A Steps 5.5.47.1 through 5.5.47.9.

5.5.49 TURN OFF the Unloading Room warning light.

5.5.50 RECORD the following in the FINAL column of DATA SHEET 5 AND

INITIAL FINAL column.

• Time

• Rail Car LL (WFR-RRC)

• Rail Car Volume

• Catch Tank LL (LI-TK-1)

• TK-2 Nitrite LL (LI-B-1)

• TK-3 Caustic LL (LI-A-1)

5.5.51 PERFORM post-transfer valving, as follows:

5.5.51.1 ENSURE MOV 6 CLOSE.

5.5.51.2 CLOSE MOV 18.

5.5.51.3 CLOSE DOV 22 by positioning FRC-28 pointer to 0%.

TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER (Continued)

✓
COMPLETE

5.5.52 IF Supervision has determined that shielding heel is necessary, ADD heel water to Rail Car as follows:

5.5.52.1 RESET FIQ-RW2 to zero.

5.5.52.2 OPEN MOV 5.

5.5.52.3 WHEN 1000 gallons, or as directed by Supervision, have been added per FIQ-RW2, CLOSE MOV 5.

5.5.52.4 RECORD heel water on DATA SHEET 4.

5.5.53 NOTIFY the 242-A Board Operator or Field Operator that the transfer is complete.

5.5.54 CALCULATE AND RECORD total raw water used on DATA SHEET 4.

5.5.55 CALCULATE AND RECORD total chemical/water volume on DATA SHEET 4.

5.5.56 CLOSE Raw Water Isolation valve 50 in the Mechanical Equipment Room.

5.5.57 PLACE Pump P1-A breaker arm (center panel of MCC) to OFF.

5.5.58 PLACE Pump P1-B breaker arm (center panel of MCC) to OFF.

5.5.59 PROVIDE the 242-A Board Operator or Field Operator with the following information:

- Final Rail Car LL
- Final Rail Car volume
- Total water/chemical volume
- Final Catch Tank LL (LI-TK-1)

TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER (Continued)

✓
COMPLETE

5.5.60 ATTACH rubber hose from quick-disconnect at Raw Water Supply valve 56 to quick-disconnect at valve 60. []

5.5.61 RECORD Catch Tank LL (LI-TK-1). []

Catch Tank LL _____ gal

LIMIT - OSD-T-151-00008.2.4.1: Catch Tank (TK-1)
< 1200 gallons 1W5

5.5.62 ENSURE that Catch Tank LL is < 900 gallons. []

5.5.63 ENSURE that valve 60 is CLOSED. []

5.5.64 OPEN backflow preventer isolation valve 54 in the Mechanical Equipment Room. []

5.5.65 OPEN backflow preventer isolation valve 55 in the Mechanical Equipment Room. []

5.5.66 SET flush route to Catch Tank, as follows:

| <u>MOV</u> | <u>POSITION</u> | <u>PANELBOARD LIGHT</u> | |
|------------|-----------------|-------------------------|-----|
| E-1 | TO P5-A/P5-B | RED | [] |
| 2 | OPEN | RED | [] |
| 1 | OPEN | RED | [] |

| | | | |
|--|------------------|-----|-----|
| | E-1 TO P5-A/P5-B | RED | [] |
|--|------------------|-----|-----|

| | | | |
|--|--------|-----|-----|
| | 2 OPEN | RED | [] |
|--|--------|-----|-----|

| | | | |
|--|--------|-----|-----|
| | 1 OPEN | RED | [] |
|--|--------|-----|-----|

5.5.67 OPEN Raw Water Supply valve 56. []

5.5.68 SLOWLY OPEN valve 60 to begin line flush to Catch Tank. []

5.5.69 WHEN Catch Tank LL has risen by 50 gallons, CLOSE valve 60. []

5.5.70 CLOSE valve 56. []

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TANK FARM PLANT OPERATING PROCEDURE

5.5 PERFORM RAIL CAR TO TANK FARM TRANSFER (Continued)

✓
COMPLETE

5.5.71 CLOSE backflow preventer Isolation valve 55. [_____]

5.5.72 CLOSE backflow preventer Isolation valve 54. [_____]

5.5.73 CRACK OPEN valve 60 to relieve hose pressure. [_____]

5.5.74 CLOSE valve 60. [_____]

5.5.75 SET MOV valving, as follows:

| <u>MOV</u> | <u>POSITION</u> | <u>PANELBOARD LIGHT</u> | [_____] |
|------------|-----------------|-------------------------|---------|
| E-1 | TO P-3 | YELLOW | [_____] |
| 2 | CLOSE | GREEN | [_____] |
| 1 | CLOSE | GREEN | [_____] |

5.5.76 AFTER a minimum of one hour has passed, OBTAIN Final receiver tank LL from 242-A Board Operator or Field Operator AND RECORD on DATA SHEET 4. [_____]

5.5.77 CALCULATE AND RECORD volume and inches added to receiver tank on DATA SHEET 4. [_____]

Section 5.5 Performed by: _____ / _____
Operator Date

Section 5.5 Performed by: _____ / _____
Operator Date

Section 5.5 Performed by: _____ / _____
Operator Date

TANK FARM PLANT OPERATING PROCEDURE

5.6 BACKFLUSH OF RAIL CAR PUMP-OUT

✓
COMPLETE

NOTE - This Task is performed as necessary to complete Section 5.5.

- | | | |
|-------|---|--------------------------|
| 5.6.1 | STOP Pump P1-B. | <input type="checkbox"/> |
| 5.6.2 | STOP Pump P5-A/P5-B. | <input type="checkbox"/> |
| 5.6.3 | CLOSE MOV 6. | <input type="checkbox"/> |
| 5.6.4 | OPEN MOV 5 to begin backflush. | <input type="checkbox"/> |
| 5.6.5 | WHEN a sag is seen in the pump-out flex hose (approximately 70 gallons), CLOSE MOV 5. | <input type="checkbox"/> |
| 5.6.6 | OPEN MOV 6. | <input type="checkbox"/> |
| 5.6.7 | RESTART Pump P1-B. | <input type="checkbox"/> |
| 5.6.8 | RESTART P5-A/P5-B. | <input type="checkbox"/> |
| 5.6.9 | GO TO last completed step of Section 5.5. | <input type="checkbox"/> |

Section 5.6 Performed by: _____ / _____
Operator Date

TANK FARM PLANT OPERATING PROCEDURE

5.7 DISCONNECT RAILROAD TANK CAR INSIDE 204-AR

✓
COMPLETE

5.7.1 RELIEVE head pressure in the Pump-out line, as follows:

5.7.1.1 OPEN MOV 1.

5.7.1.2 OPEN MOV 2.

NOTE - On Railroad Tank Car 10H-18581 ONLY, the 4-inch Pump-out valve is a reversed Ball valve. When the valve handle is in line with the piping, the valve is CLOSED. When the valve handle is perpendicular to the piping, the valve is OPEN.

5.7.2 ENSURE that the following Tank Car Cupola Manual valves are OPEN. See Figure 1:

5.7.2.1 4-inch Pump-out.

5.7.2.2 3-inch Sluicer.

5.7.3 ELEVATE the Tank Car hoses as necessary to drain any liquid held up in the hoses.

5.7.4 AFTER the Tank Car hoses have been elevated, SECURE the Rail Car, as follows:

5.7.4.1 CLOSE MOV 1.

5.7.4.2 CLOSE MOV 2.

5.7.4.3 CLOSE Weight Factor valve 48 on the Unloading Room Balcony.

5.7.5 CLOSE the following Tank Car Cupola Manual valves. See Figure 1:

5.7.5.1 4-inch Pump-out.

5.7.5.2 3-inch Sluicer.

5.7.5.3 3-inch Vent.

5.7.5.4 1/2-inch Weight Factor.

TANK FARM PLANT OPERATING PROCEDURE

5.7 DISCONNECT RAILROAD TANK CAR INSIDE 204-AR (Continued)

✓
COMPLETE

5.7.6 REMOVE the plastic sheeting from the hoses in the Tank Car Cupola.

5.7.7 UNFASTEN hoses from the Tank Car, as follows:

5.7.7.1 REMOVE the 3-inch Sluicer pressure cap from the Drain Manifold AND

PLACE the cap on the clean rag on the Drain Manifold.

5.7.7.2 PLACE the Drip Pan filled with Absorbent pads OR rags beneath the disconnected hoses to absorb drips from the hoses.

5.7.7.3 DISCONNECT the 3-inch Sluicer hose from the Tank Car quick-disconnect fitting.

5.7.7.4 CONNECT the 3-inch Sluicer hose to the Drain Manifold.

5.7.7.5 REPLACE the 3-inch pressure cap on the Tank Car 3-inch Sluicer quick-disconnect fitting in the Tank Car Cupola.

5.7.7.6 REMOVE the 4-inch Pump-out pressure cap from the Drain Manifold AND

PLACE the cap on the clean rag on the Drain Manifold.

5.7.7.7 DISCONNECT the 4-inch Pump-out hose from the Tank Car quick-disconnect fitting.

5.7.7.8 CONNECT the 4-inch Pump-out hose to the Drain Manifold.

5.7.7.9 REPLACE the 4-inch Pump-out cap on the Tank Car 4-inch Pump-out quick-disconnect fitting in the Tank Car Cupola.

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TANK FARM PLANT OPERATING PROCEDURE

5.7 DISCONNECT RAILROAD TANK CAR INSIDE 204-AR (Continued)

✓
COMPLETE

5.7.7.10 REMOVE the 3-inch Vent pressure cap from the Drain Manifold AND

PLACE the cap on the clean rag on the Drain Manifold.

5.7.7.11 DISCONNECT the 3-inch Vent hose from the Tank Car quick-disconnect fitting.

5.7.7.12 CONNECT the 3-inch Vent hose to the Drain Manifold.

5.7.7.13 REPLACE the 3-inch Vent cap on the Tank Car 3-inch Vent quick-disconnect fitting in the Tank Car Cupola.

5.7.7.14 REMOVE the 1/2-inch Weight Factor pressure cap from the Drain Manifold AND

PLACE the cap on the clean rag on the Drain Manifold.

5.7.7.15 DISCONNECT the 1/2-inch Weight Factor hose from the Tank Car quick-disconnect fitting.

5.7.7.16 CONNECT the 1/2-inch Weight Factor hose to the Drain Manifold.

5.7.7.17 REPLACE the 1/2-inch Weight Factor cap on the Tank Car 1/2-inch Weight Factor quick-disconnect fitting in the Tank Car Cupola.

5.7.8 REMOVE plastic sheeting, paper, and Absorbent pads or rags from the Tank Car Cupola and Platform.

TANK FARM PLANT OPERATING PROCEDURE

5.7 DISCONNECT RAILROAD TANK CAR INSIDE 204-AR (Continued)

✓
COMPLETE

NOTE - IF there is ANY visible damage inside the Tank Car Cupola, the Shift Manager shall be notified.

5.7.9 PERFORM a visual inspection of the following components inside the Tank Car Cupola. See Figure 1:

5.7.9.1 Rupture Disk on the Vent Valve Manifold.

5.7.9.2 Flanges.

5.7.9.3 Piping.

5.7.9.4 Valves.

5.7.9.5 Quick-disconnect fittings.

5.7.9.6 ALL pressure caps installed.

5.7.10 DIRECT HPT to survey the interior of the Tank Car Cupola AND the hoses and handles for removable contamination.

LIMIT - SD-RE-SAP-013, SAFETY ANALYSIS REPORT FOR PACKAGING, RAILROAD LIQUID WASTE TANK CARS

4.1.6 (1) (b): Contamination Control Requirements: Removable radioactivity:

Interior of Cupola (at departure):

α : < 2,200 dpm/100 cm²

B: < 22,000 dpm/100 cm²

5.7.10.1 ENSURE removable contamination is within limits before proceeding.

Tank Car Cupola Removable Contamination:

α : _____ dpm/100 cm²

B: _____ dpm/100 cm²

_____/_____
HPT Signature: / Date

TANK FARM PLANT OPERATING PROCEDURE

5.7 DISCONNECT RAILROAD TANK CAR INSIDE 204-AR (Continued)

✓
COMPLETE

WARNING

Caution must be exercised when lowering the Tank Car Cupola lid to avoid pinching hazards. Two Operators are required for raising and lowering Tank Car Cupola lid.

5.7.11 CLOSE the Tank Car Cupola lid, as follows:

5.7.11.1 RELEASE the Cupola lid latch.

5.7.11.2 LOWER the Cupola lid SLOWLY, using the Cupola Lid handles as grip points.

NOTE - It is preferable to leave the L-Handles pointing inward.

5.7.11.3 AFTER the Cupola lid is in place, TIGHTEN the L-handles.

5.7.12 ATTACH a Security Seal from the Tank Car Cupola lid to the Cupola.

5.7.13 DIRECT HPT to survey the Tank Car and rails for removable contamination AND dose rates.

TANK FARM PLANT OPERATING PROCEDURE

5.7 DISCONNECT RAILROAD TANK CAR INSIDE 204-AR (Continued)

✓
COMPLETE

LIMIT - SD-RE-SAP-013, SAFETY ANALYSIS REPORT FOR PACKAGING, RAILROAD LIQUID WASTE TANK CARS

4.1.6 (1) (b): Contamination Control Requirements:
Removable radioactivity:

Outside Surfaces of Tank Car: (before transport)

α : < 220 dpm/100 cm²

B : < 2,200 dpm/100 cm²

Tank Car Cupola Removable Contamination:

α : _____ dpm/100 cm²

B : _____ dpm/100 cm²

HPT Signature:

Date

5.7.14 ENSURE removable contamination is within limits before proceeding.

5.7.15 REMOVE Safety Chain from Rail Car railing.

5.7.16 CLOSE AND

SECURE the Unloading Room Balcony Gate.

5.7.17 RAISE AND

SECURE the Unloading Room Balcony Ramp.

5.7.18 NOTIFY the Shift Manager that the Railroad Tank Car at 204-AR is disconnected and ready for dispatching.

Section 5.7 Performed by: _____

Operator

Date

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TANK FARM PLANT OPERATING PROCEDURE

5.8 RELEASE RAILROAD TANK CAR FROM 204-AR

✓
COMPLETE

5.8.1 REQUEST Operations Supervisor to initiate an RSR.

5.8.2 ENSURE Unloading Room Ramp is clear of the Rail Car.

5.8.3 ENSURE Weight Factor Line is clear of the Rail Car.

5.8.4 NOTIFY CASS that the 204-AR outer door will be operated and that they will receive an Alarm.

5.8.5 DIRECT HPT to survey the Rail Car for dose rate at check points on HP Survey Map AND the Tank Car wheels AND the Tank Car Rails for removable contamination.

5.8.6 IF necessary to open the Unloading Room Inner Door, PERFORM the following:

5.8.6.1 SET the MASTER POWER SWITCH (SS-DD-1A) INNER DOOR switch on the Annunciator Panel Cabinet to ON.

WARNING

Operation of the Unloading Room doors without direct observation of the doors could result in serious injury from being caught between the doors.

5.8.6.2 CLEAR personnel from the area around the Inner Doors.

5.8.6.3 OPEN the Inner Door.

TANK FARM PLANT OPERATING PROCEDURE

5.8 RELEASE RAILROAD TANK CAR FROM 204-AR

✓
COMPLETE

LIMIT - SD-RE-SAP-013, SAFETY ANALYSIS REPORT FOR PACKAGING, RAILROAD LIQUID WASTE TANK CARS

4.1.6 (1) (b): Contamination Control Requirements: Removable radioactivity:

Outside Surfaces of Tank Car: (before transport)

α : < 220 dpm/100 cm²

β : < 2,200 dpm/100 cm²

5.8.7 ENSURE removable contamination is within limits before proceeding. []

Removable Contamination

Tank Car Wheels α : _____ dpm/100 cm²

Tank Car Wheels β : _____ dpm/100 cm²

Tank Car Tracks α : _____ dpm/100 cm²

Tank Car Tracks β : _____ dpm/100 cm²

HPT Signature: _____ Date: _____

NOTE - The Rail Tank Car is now ready for transport.

5.8.8 IF the Rail Tank Car will NOT be transported at this time, CLOSE the Unloading Room Inner Doors, as follows:

WARNING

Operation of the Unloading Room doors without direct observation of the doors could result in serious injury from being caught between the doors.

5.8.8.1 ENSURE visually that personnel are clear of the area around the Inner Doors.

5.8.8.2 CLOSE the Inner Doors.

TANK FARM PLANT OPERATING PROCEDURE

5.8 RELEASE RAILROAD TANK CAR FROM 204-AR (Continued)

✓
COMPLETE

5.8.9 REQUEST the HPT AND the Certified Shipper to complete AND sign the RSR.

5.8.10 DELIVER dosimetry equipment to the Train Crew.

NOTE - The Shift Manager shall be notified if wind speed exceeds 30 mph.

5.8.11 IF the wind is blowing, VERIFY with the Battelle Meteorologist (373-2716) that the outside wind speed is less than 30 mph.

5.8.12 OPEN the Unloading Room doors, as follows:

5.8.12.1 UNLOCK AND

OPEN the plastic switch cover box on the Annunciator Panel Cabinet in the 204-AR Control Room.

5.8.12.2 SET the MASTER POWER SWITCH (SS-RD-1A) OUTER DOOR switch on the Annunciator Panel Cabinet to ON.

5.8.12.3 SET the MASTER POWER SWITCH (SS-DD-1A) INNER DOOR switch on the Annunciator Panel Cabinet to ON.

WARNING

Operation of the Unloading Room doors without direct observation of the doors OR in the wrong order could result in serious injury from being caught under or between the doors.

5.8.12.4 CLEAR personnel from the area around the Inner Doors.

5.8.12.5 OPEN the Inner Door.

5.8.12.6 OPEN the Outer Door.

TANK FARM PLANT OPERATING PROCEDURE

5.8 RELEASE RAILROAD TANK CAR FROM 204-AR (Continued)

✓
COMPLETE

5.8.13 PRESENT RSR to a member of the Train Crew AND
RETAIN the Shipper's copy of the RSR.

5.8.14 IF a member of the Train Crew will enter 204-AR,
OBTAIN a clean set of Anti-C clothing for the
Train Crew member AND

ASSIST the Train Crew member in dressing and
entering the Unloading Room.

WARNING

Operation of the Unloading Room doors without direct
observation of the doors OR in the wrong order could
result in serious injury from being caught under or
between the doors.

5.8.15 AFTER the Tank Car AND the Train have backed
away from 204-AR, CLOSE the Unloading Room
Doors, as follows:

5.8.15.1 ENSURE visually that personnel are clear of
the area around the Inner AND Outer Doors.

5.8.15.2 CLOSE the Outer Door.

5.8.15.3 AFTER the Outer Doors are CLOSED, CLOSE the
Inner Door.

5.8.15.4 IF a member of the Train Crew entered
204-AR, ASSIST the Train Crew member in
undressing, obtaining an HPT survey, and
exiting the facility.

5.8.15.5 AFTER both Doors are CLOSED, SET the MASTER
POWER SWITCH (SS-RD-1A) OUTER DOOR switch
on the Annunciator Panel Cabinet to OFF.

5.8.15.6 SET the the MASTER POWER SWITCH (SS-DD-1A)
INNER DOOR switch on the Annunciator Panel
Cabinet to OFF.

5.8.15.7 CLOSE AND

LOCK the plastic switch cover box on the
Annunciator Panel Cabinet in the 204-AR
Control Room.

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5.8 RELEASE RAILROAD TANK CAR FROM 204-AR (Continued)

✓
COMPLETE

5.8.16 AFTER the 204-AR Switch is repositioned, LOCK the Switch with an Operations Lock. [____]

5.8.17 NOTIFY the Shift Manager that the Railroad Tank Car has left 204-AR. [____]

5.8.18 IF the Rail Tank Car will leave the 200 East area at this time, FORWARD the working copy of this procedure AND the completed RSR to the Operations Supervisor.

Section 5.8 Performed by: _____ / _____
Operator Date

Section 5.8 Performed by: _____ / _____
Operator Date

Section 5.8 Performed by: _____ / _____
Operator Date

Procedure Reviewed by: _____ / _____
Supervisor Date

TANK FARM PLANT OPERATING PROCEDURE

5.9 RECEIVE RAILROAD TANK CAR AT TC-4 SPUR

✓
COMPLETE

5.9.1 OBTAIN a clean set of Anti-C clothing for the Train Crew member who will enter TC-4. []

NOTE - Steps 5.9.2 and 5.9.3 may be performed in any order or concurrently.

5.9.2 AFTER the Train is at TC-4, ENSURE the RSR has been completed AND

SIGN the RSR in the Receiver's Signature Block. []

5.9.3 UNLOCK AND

OPEN TC-4 gate. []

5.9.4 AFTER the Train is within the chained area, ESTABLISH proper radiological conditions, as follows:

5.9.4.1 DIRECT HPT to survey for dose rate outside the fence. []

5.9.4.2 IF the dose rate is greater than 2mr/hr, DIRECT the Train Crew to move the Tank Car farther into the fenced area.

5.9.4.3 ENSURE dose rate outside the TC-4 Spur Fence is less than 2 mR/hr. []

Dose rate at TC-4 Spur fence:

_____ mR/hr

HPT Signature: _____ Date: _____

TANK FARM PLANT OPERATING PROCEDURE

5.9 RECEIVE RAILROAD TANK CAR AT TC-4 SPUR (Continued)

✓
COMPLETE

5.9.5 ASSIST the Train Crew member in undressing, obtaining an HPT survey, and exiting the TC-4 Spur fenced area.

5.9.6 CLOSE AND LOCK TC-4 Gate.

5.9.7 NOTIFY the Shift Manager that Rail Car is secured in TC-4.

5.9.8 FORWARD the completed RSR to the Operations Supervisor.

Section 5.9 Performed by: _____ / _____
Operator Date

Section 5.9 Performed by: _____ / _____
Operator Date

Section 5.9 Performed by: _____ / _____
Operator Date

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TANK FARM PLANT OPERATING PROCEDURE

5.10 RELEASE RAILROAD TANK CAR FROM TC-4 SPUR

✓
COMPLETE

5.10.1 REQUEST Supervisor to initiate an RSR.

5.10.2 IF a Train Crew member will enter TC-4, OBTAIN a clean set of Anti-C clothing.

5.10.3 UNLOCK AND OPEN TC-4 Gate.

LIMIT - SD-RE-SAP-013, SAFETY ANALYSIS REPORT FOR PACKAGING, RAILROAD LIQUID WASTE TANK CARS

4.1.6 (1) (b): Contamination Control Requirements: Removable radioactivity:

Outside Surfaces of Tank Car:

(before transport)

α : < 220 dpm/100 cm²

B: < 2,200 dpm/100 cm²

5.10.4 ENSURE removable contamination is within limits before proceeding.

Removable Contamination

Tank Car Wheels α : _____ dpm/100 cm²

Tank Car Wheels B: _____ dpm/100 cm²

Tank Car Exterior α : _____ dpm/100 cm²

Tank Car Exterior B: _____ dpm/100 cm²

HPT Signature: _____ Date: _____

5.10.5 AFTER the Rail Tank Car has been removed from TC-4, ASSIST the Train Crew member in undressing, obtaining an HPT survey, and exiting the TC-4 fenced area.

5.10.6 CLOSE AND LOCK the TC-4 Gate.

TANK FARM PLANT OPERATING PROCEDURE

5.10 RELEASE RAILROAD TANK CAR FROM TC-4 SPUR

✓
COMPLETE

5.10.7 NOTIFY the Shift Manager that the Tank Car is clear of TC-4.

5.10.8 FORWARD the completed working copy of the procedure AND the RSR to the Operations Supervisor.

Section 5.10 Performed by: _____ / _____
Operator Date

Section 5.10 Performed by: _____ / _____
Operator Date

Procedure Reviewed by: _____ / _____
Supervisor Date

TANK FARM PLANT OPERATING PROCEDURE

DATA SHEET 1 - LIQUID WASTE COMPOSITION

Date _____

| Cog. Engineer (print) | | Sample Report Number: | |
|--|---|------------------------------|-----------------|
| Applicable Dangerous Waste Codes (per WAC 173-303) | | | |
| Rail Car # 10H-185 | | Receiver Tank # TK- _____ | |
| Constituent | Limit | Value | Cog. Eng. Init. |
| NO ₃ ⁻ | See Section 2.9, LIMITS AND PRECAUTIONS | M | |
| NO ₂ ⁻ | | M | |
| OH ⁻ | | M | |
| pH | 7 < pH < 13.14 | | |
| Pu | < 0.01 | g/gal | |
| Pu Total | | grams | |
| Cl ⁻ | < 0.01 | M | |
| Exotherms | None below 335°F | | |
| Organic Material | no separable phase | | |
| Calculated Chemical Addition Volumes: | | | |
| 5.4M NaOH (TK-3) with pH > 12.5 | | gal | |
| 1.8M NaNO ₂ (TK-2) | | gal | |

2A - CTF
74 - 0000035
127, 1994

Limits have been verified AND waste is acceptable for transfer.

Cog. Engineer: _____ Date: ____/____/____

Shift Manager: _____ Date: ____/____/____

TANK FARM PLANT OPERATING PROCEDURE

DATA SHEET 2 - WASTE VOLUME CALCULATION

Date _____

| Projected Total Waste Volume | | Supervisor Initials |
|--|-----|------------------------|
| Initial Rail Car LL | in | |
| Initial Rail Car Volume (A) | gal | |
| 5.4M NaOH (TK-3) transcribed from Data Sheet 1 (B) | gal | |
| 1.8M NaNO ₃ (TK-2) transcribed from Data Sheet 1 (C) | gal | |
| Sluice Volume (1500 gal. standard) (D) | gal | |
| Line Flush (500 gal. standard) (E) | gal | |
| Total Transfer Volume Projected (A)+(B)+(C)+(D)+(E)=(F) | gal | |

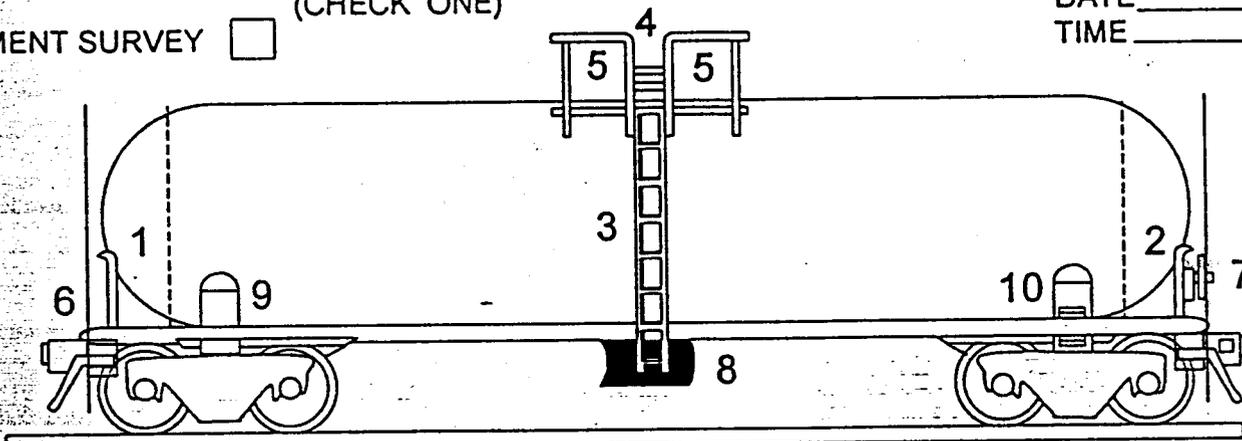
Operations Supv: _____

TANK FARM PLANT OPERATING PROCEDURE

RAILROAD LIQUID WASTE TANKER CHECKLIST

RECEIPT SURVEY (CHECK ONE)
 SHIPMENT SURVEY

TANKER# _____
 DATE _____
 TIME _____



| DOSE RATE in mrem/hr BETA/GAMMA & NEUTRON | | |
|--|----|----|
| LOC # | 1m | C |
| 1 | NA | |
| 2 | NA | |
| *3 | | |
| 4 | NA | |
| 5 | | |
| 6 | | NA |
| 7 | | NA |
| *8 | NA | |
| *9 | | |
| *10 | | |
| | | |
| | | |

| SMEAR SURVEY in dpm/100 cm ² | | |
|---|-------|------|
| | alpha | beta |
| CUPOLA - OUTSIDE | | |
| INSIDE IF APPLICABLE | | |
| PLATFORM (DECK) | | |
| UNDER PLATFORM | | |
| HANDRAILS | | |
| LADDER | | |
| TANKER SIDES | | |
| TANKER ENDS | | |
| BELLY/DRAIN | | |
| WALK PLATFORM | | |
| COUPLING/KNUCKLE | | |
| ASSEMBLY & LEVER | | |
| HAND BRAKE | | |
| WHEEL TRUCK | | |
| ASSEMBLIES | | |
| WHEELS | | |
| | | |
| | | |

m = METER FROM VERTICAL PLANE
 C = CONTACT
 * HIGH DOSE RATE LOCATION

REFERENCE RADIATION SURVEY REPORT # _____

HPT SIGNATURE _____

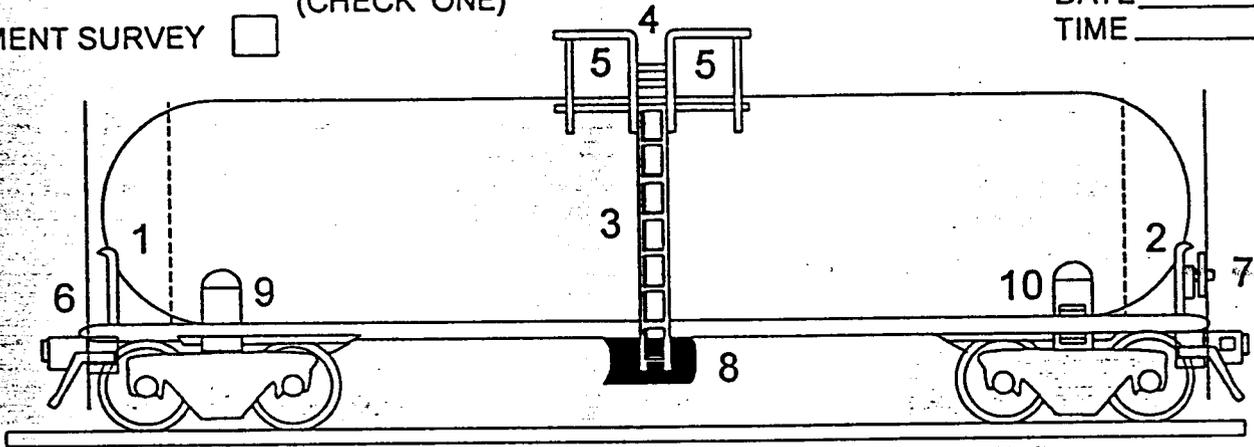
DATA SHEET 3 - RAILROAD LIQUID WASTE TANKER CHECKLIST

TANK FARM PLANT OPERATING PROCEDURE

RAILROAD LIQUID WASTE TANKER CHECKLIST

RECEIPT SURVEY (CHECK ONE)
 SHIPMENT SURVEY

TANKER# _____
 DATE _____
 TIME _____



| DOSE RATE in mrem/hr BETA/GAMMA & NEUTRON | | |
|--|----|----|
| LOC # | 1m | C |
| 1 | NA | |
| 2 | NA | |
| *3 | | |
| 4 | NA | |
| 5 | | |
| 6 | | NA |
| 7 | | NA |
| *8 | NA | |
| *9 | | |
| *10 | | |
| | | |
| | | |

m = METER FROM VERTICAL PLANE
 C = CONTACT
 * HIGH DOSE RATE LOCATION

| SMEAR SURVEY in dpm/100 cm ² | | |
|--|-------|------|
| | alpha | beta |
| CUPOLA - OUTSIDE INSIDE IF APPLICABLE | | |
| PLATFORM (DECK) UNDER PLATFORM | | |
| HANDRAILS | | |
| LADDER | | |
| TANKER SIDES | | |
| TANKER ENDS | | |
| BELLY/DRAIN | | |
| WALK PLATFORM | | |
| COUPLING/KNUCKLE ASSEMBLY & LEVER | | |
| HAND BRAKE | | |
| WHEEL TRUCK ASSEMBLIES | | |
| WHEELS | | |
| | | |
| | | |

REFERENCE RADIATION SURVEY REPORT # _____

HPT SIGNATURE _____

DATA SHEET 3 - RAILROAD LIQUID WASTE TANKER CHECKLIST

TANK FARM PLANT OPERATING PROCEDURE

DATA SHEET 4 - CHEMICAL ADDITION

Date _____

| Nitrite Addition | | | Op. Init. |
|--------------------------|----------------|-----|--------------|
| Initial TK-2 LL (LI-B-1) | (A1) | gal | |
| Final TK-2 LL (LI-B-1) | (A2) | gal | |
| TK-2 Volume Transferred | (A1)-(A2)= (A) | gal | |

| Caustic Addition | | | Op. Init. |
|--------------------------|----------------|-----|--------------|
| Initial TK-3 LL (LI-A-1) | (B1) | gal | |
| Final TK-3 LL (LI-A-1) | (B2) | gal | |
| TK-3 Volume Transferred | (B1)-(B2)= (B) | gal | |

| Raw Water Usage (FIQ-RW2) | | | Op. Init. |
|------------------------------|---------------------|-----|--------------|
| Prime/Backflush | (C1) | gal | |
| Sluice/Prime/Backflush | (C2) | gal | |
| Line Flush | (C3) | gal | |
| Total Raw Water to Tank Farm | (C1)+(C2)+(C3)= (C) | gal | |

| Chemical Addition Adjustment for Backflush Water | | | Op. Init. |
|--|------------------------------------|-----|--------------|
| TK-2 Nitrite from DATA SHEET 1 | (D) | gal | |
| Nitrite Addition Required for Backflush Water | $\frac{(C1)}{1000} \times 6 =$ (E) | gal | |
| Adjusted TK-2 Nitrite Volume | (D)+(E) | gal | |
| TK-3 Caustic from DATA SHEET 1 | (F) | gal | |
| Caustic Addition Required for Backflush Water | $\frac{(C1)}{1000} \times 7 =$ (G) | gal | |
| Adjusted TK-3 Nitrite Volume | (F)+(G) | gal | |

Management Review (Signature/Date) _____

TANK FARM PLANT OPERATING PROCEDURE

DATA SHEET 4 (CONT.)

Date _____

| | | |
|--|---------------------|--------------|
| Line Flush Using Catch Tank Liquid | | Op. Init. |
| Initial TK-1 LL (LI-TK-1) <i>LI-TK-1</i> | <i>115 gal (H1)</i> | gal |
| Final TK-1 LL (LI-TK-1) <i>LI-TK-1</i> | <i>115 gal (H2)</i> | gal |
| Flush Volume | (H1)-(H2)= (H) | gal |

| | | |
|-----------------------------|-----------------|-----|
| Total Chemical/Water Volume | (A)+(B)+(C)+(H) | gal |
|-----------------------------|-----------------|-----|

| | | |
|------------------------------|--|--------------|
| Heel Water | | Op. Init. |
| Heel Water Added to Rail Car | | gal |

| | | |
|-------------------------------|----------|--------------|
| Tank Farm Transfer Data | | Op. Init. |
| Initial Receiver Tank LL | | in |
| Volume Added to Receiver Tank | (L) | gal |
| Inches Added to Receiver Tank | (L)/2750 | in |
| Final Receiver Tank LL | | in |

Management Review (Signature/Date) _____

LA - ERF-
94-00900135
April 7, 1994

TANK FARM PLANT OPERATING PROCEDURE

DATA SHEET 5 - TRANSFER MONITORING

Date _____

NOTE - Readings are to be recorded at 1/2 hour intervals.

| Reading | START | INTERMEDIATE | | | | | | FINISH |
|--------------------------------|-------|--------------|--|--|--|--|--|--------|
| Time | | | | | | | | |
| PI-B Amperage | | | | | | | | |
| PI-26 Pressure (psi) | | | | | | | | |
| Rail Car LL (WFR-RRG) | | | | | | | | |
| Rail Car Volume (gal.) | | | | | | | | |
| Catch Tank LL, LI-TK-1 (gal.) | | | | | | | | |
| TK-2 Nitrite LL, LI-B-1 (gal.) | | | | | | | | |
| TK-3 Caustic LL, LI-A-1 (gal.) | | | | | | | | |
| Operator Init. | | | | | | | | |

Management Review (Signature/Date)

TANK FARM PLANT OPERATING PROCEDURE

**TABLE 1: VOLUME CONVERSION CHART FOR TANK CARS
10H-18579, 10H-18580, & 10H-18582**

| INCHES | GALLONS | INCHES | GALLONS | INCHES | GALLONS |
|--------|------------|--------|---------|--------|---------|
| 0 | 0 to 1190* | 34 | 8210 | 68 | 16160 |
| 1 | 1340 | 35 | 8450 | 69 | 16370 |
| 2 | 1500 | 36 | 8690 | 70 | 16580 |
| 3 | 1660 | 37 | 8930 | 71 | 16780 |
| 4 | 1830 | 38 | 9170 | 72 | 16980 |
| 5 | 2000 | 39 | 9410 | 73 | 17180 |
| 6 | 2170 | 40 | 9660 | 74 | 17370 |
| 7 | 2350 | 41 | 9900 | 75 | 17560 |
| 8 | 2530 | 42 | 10140 | 76 | 17750 |
| 9 | 2720 | 43 | 10380 | 77 | 17930 |
| 10 | 2910 | 44 | 10620 | 78 | 18110 |
| 11 | 3100 | 45 | 10870 | 79 | 18280 |
| 12 | 3300 | 46 | 11110 | 80 | 18450 |
| 13 | 3500 | 47 | 11350 | 81 | 18620 |
| 14 | 3700 | 48 | 11590 | 82 | 18780 |
| 15 | 3910 | 49 | 11830 | 83 | 18940 |
| 16 | 4120 | 50 | 12070 | 84 | 19090 |
| 17 | 4330 | 51 | 12310 | 85 | 19230 |
| 18 | 4540 | 52 | 12550 | 86 | 19370 |
| 19 | 4760 | 53 | 12780 | 87 | 19500 |
| 20 | 4980 | 54 | 13020 | 88 | 19630 |
| 21 | 5200 | 55 | 13250 | 89 | 19740 |
| 22 | 5420 | 56 | 13490 | 90 | 19860 |
| 23 | 5640 | 57 | 13720 | 91 | 19960 |
| 24 | 5870 | 58 | 13950 | 92 | 20050 |
| 25 | 6100 | 59 | 14180 | 93 | 20130 |
| 26 | 6330 | 60 | 14410 | 94 | 20200 |
| 27 | 6560 | 61 | 14640 | 95 | 20250 |
| 28 | 6790 | 62 | 14860 | 96 | 20280 |
| 29 | 7030 | 63 | 15080 | | |
| 30 | 7260 | 64 | 15300 | | |
| 31 | 7500 | 65 | 15520 | | |
| 32 | 7730 | 66 | 15740 | | |
| 33 | 7970 | 67 | 15950 | | |

* The weight factor indicator reads 0 inches when the waste level in the tank is anywhere between 0 and 12 inches. This is because the end of the weight factor dip tube is 12 inches above the bottom of the tank. The tank contains 1190 gallons when the true liquid level is 12 inches, and 0 gallons when the true level is 0 inches. For the material balance method of leak detection it is more conservative to assume 0 gallons remain in the tank than 1190. When the weight factor indicator is reading 0 inches, report that the volume is 0 gallons if sluicing has been performed and the tank was pumped until indicated empty.

It is not necessary to make this assumption for Tank Car 10H-18581 (see Table 2). The reason is that the end of the weight factor dip tube is only slightly higher than the tank bottom in this car. Therefore, the weight factor indication is nearly equal to the true level.

TANK FARM PLANT OPERATING PROCEDURE

TABLE 2: VOLUME CONVERSION CHART FOR TANK CAR 10H-18581

| INCHES | GALLONS | INCHES | GALLONS | INCHES | GALLONS |
|--------|---------|--------|---------|--------|---------|
| 0 | 0 | 34 | 5420 | 68 | 13490 |
| 1 | 30 | 35 | 5640 | 69 | 13720 |
| 2 | 80 | 36 | 5870 | 70 | 13950 |
| 3 | 150 | 37 | 6100 | 71 | 14180 |
| 4 | 230 | 38 | 6330 | 72 | 14410 |
| 5 | 320 | 39 | 6560 | 73 | 14640 |
| 6 | 420 | 40 | 6790 | 74 | 14860 |
| 7 | 530 | 41 | 7030 | 75 | 15080 |
| 8 | 650 | 42 | 7260 | 76 | 15300 |
| 9 | 780 | 43 | 7500 | 77 | 15520 |
| 10 | 910 | 44 | 7730 | 78 | 15740 |
| 11 | 1050 | 45 | 7970 | 79 | 15950 |
| 12 | 1190 | 46 | 8210 | 80 | 16160 |
| 13 | 1340 | 47 | 8450 | 81 | 16370 |
| 14 | 1500 | 48 | 8690 | 82 | 16580 |
| 15 | 1660 | 49 | 8930 | 83 | 16780 |
| 16 | 1830 | 50 | 9170 | 84 | 16980 |
| 17 | 2000 | 51 | 9410 | 85 | 17180 |
| 18 | 2170 | 52 | 9660 | 86 | 17370 |
| 19 | 2350 | 53 | 9900 | 87 | 17560 |
| 20 | 2530 | 54 | 10140 | 88 | 17750 |
| 21 | 2720 | 55 | 10380 | 89 | 17930 |
| 22 | 2910 | 56 | 10620 | 90 | 18110 |
| 23 | 3100 | 57 | 10870 | 91 | 18280 |
| 24 | 3300 | 58 | 11110 | 92 | 18450 |
| 25 | 3500 | 59 | 11350 | 93 | 18620 |
| 26 | 3700 | 60 | 11590 | 94 | 18780 |
| 27 | 3910 | 61 | 11830 | 95 | 18940 |
| 28 | 4120 | 62 | 12070 | 96 | 19090 |
| 29 | 4330 | 63 | 12310 | 97 | 19230 |
| 30 | 4540 | 64 | 12550 | 98 | 19370 |
| 31 | 4760 | 65 | 12780 | 99 | 19500 |
| 32 | 4980 | 66 | 13020 | 100 | 19630 |
| 33 | 5200 | 67 | 13250 | | |

TANK FARM PLANT OPERATING PROCEDURE

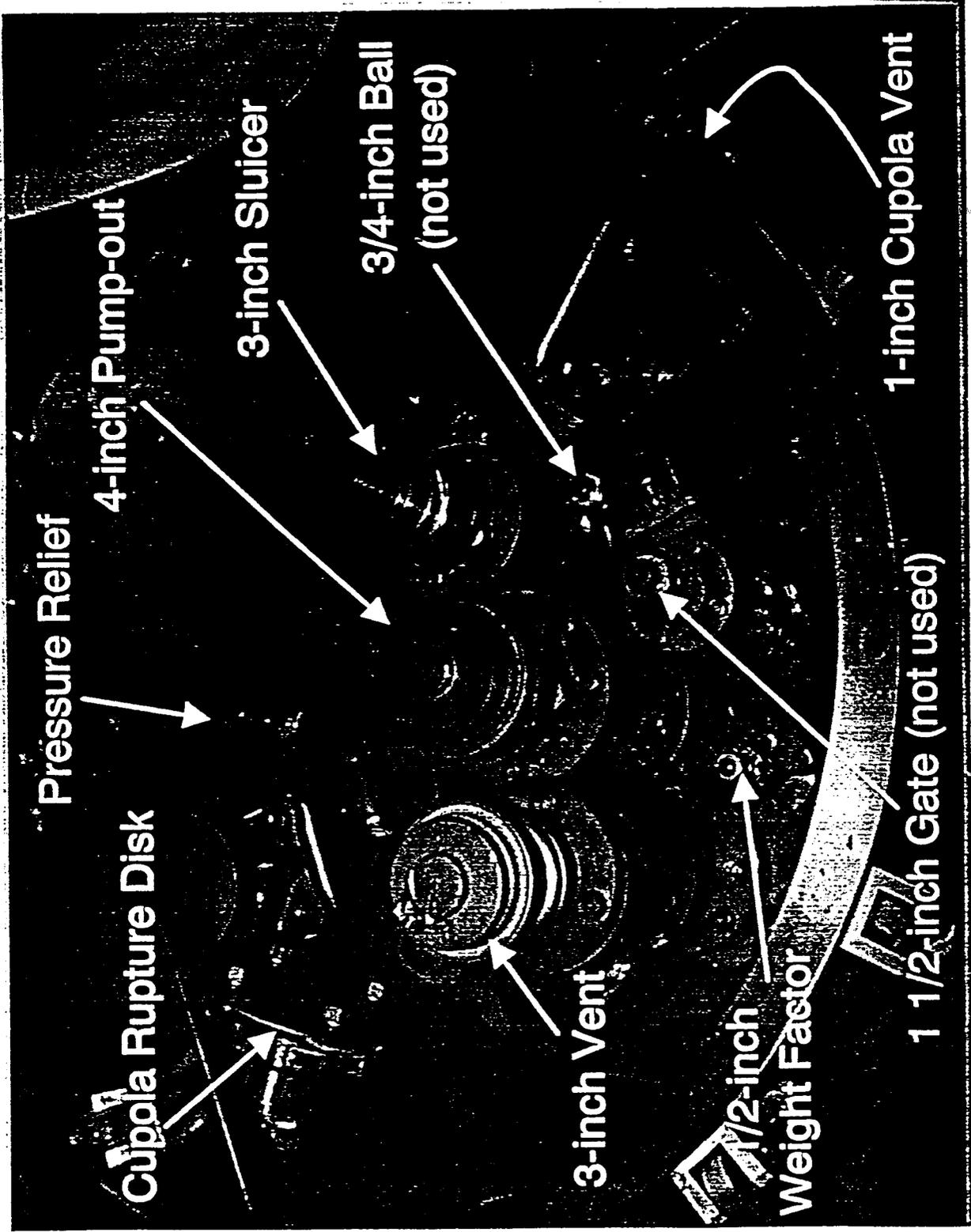


FIGURE 1: TYPICAL TANK CAR CUPOLA VALVING

TANK FARM PLANT OPERATING PROCEDURE

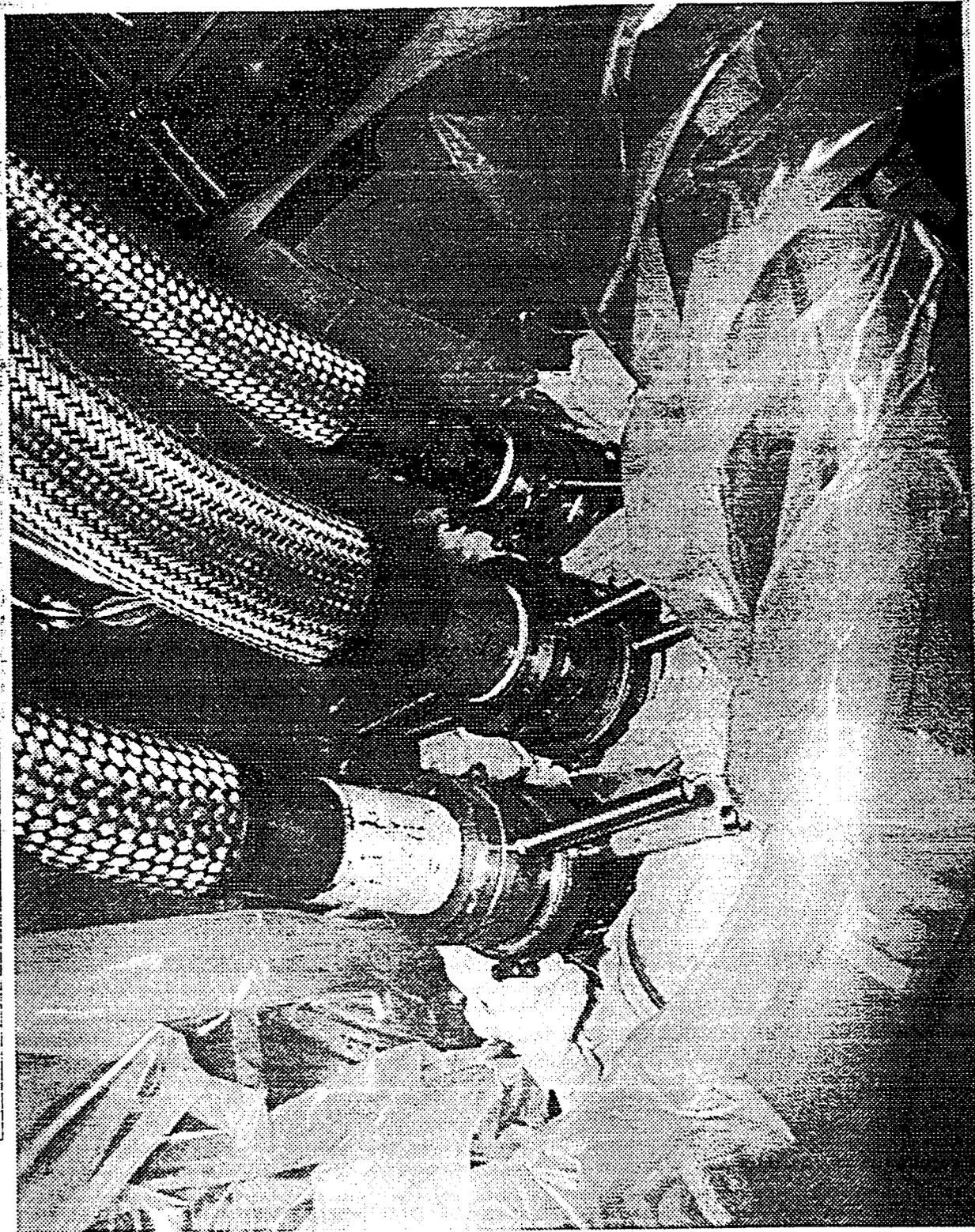


FIGURE 2: PLACEMENT OF PLASTIC, RAGS, AND HOSES IN TANK CAR CUPOLA

TANK FARM PLANT OPERATING PROCEDURE

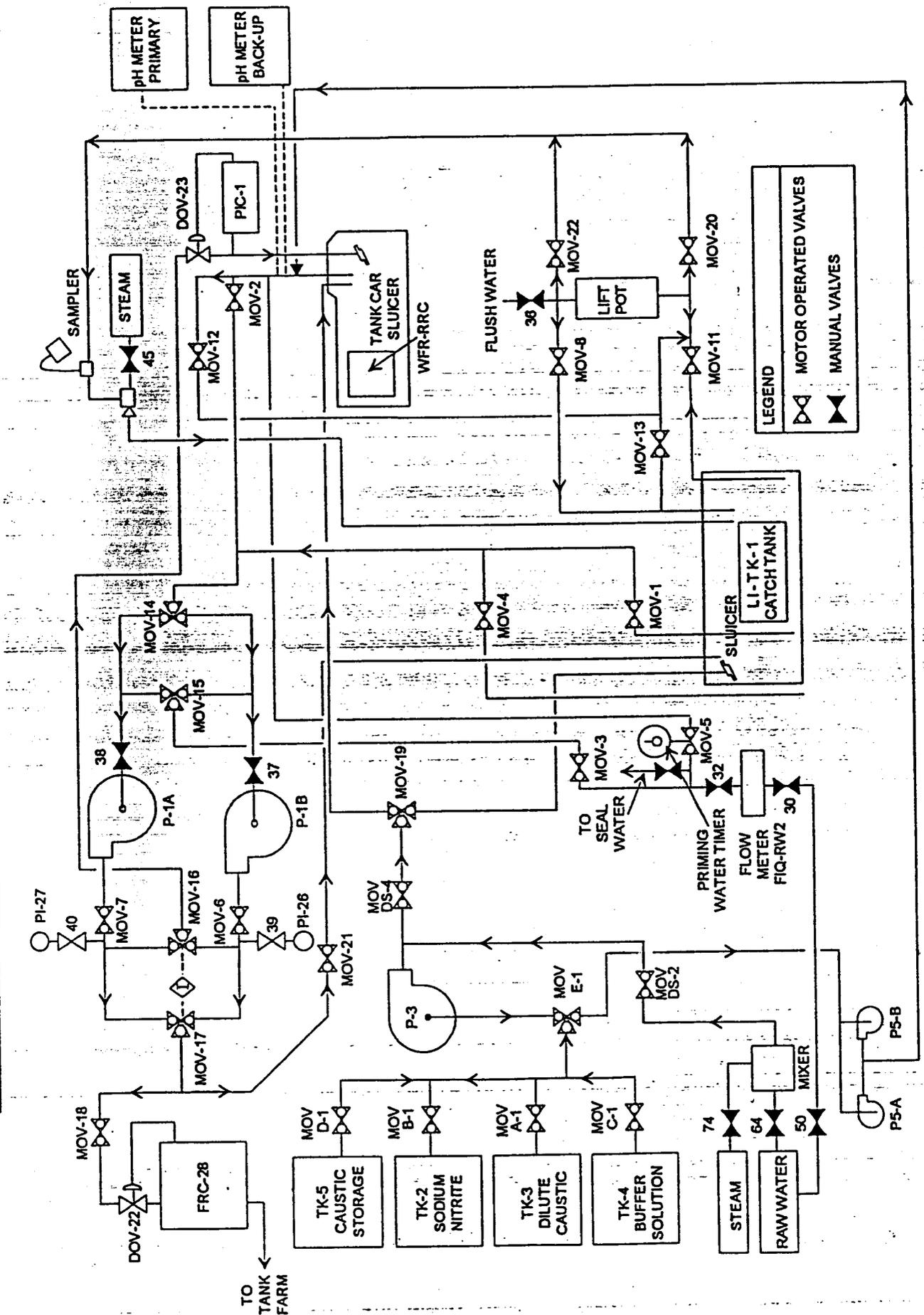


FIGURE 3 - PROCESS TRANSFER SYSTEM

TANK FARM PLAN OPERATING PROCEDURE

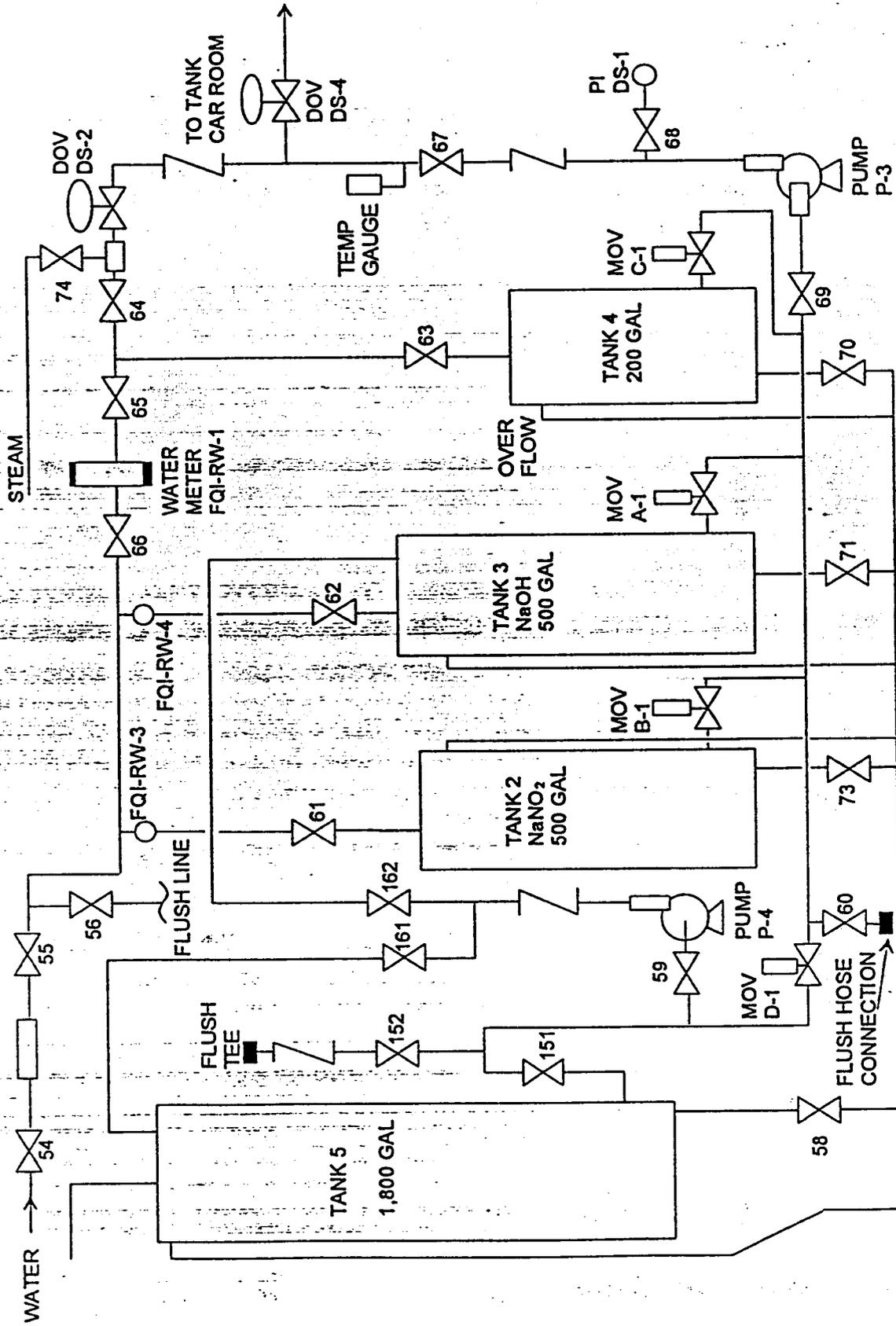


FIGURE 5 - 204-AR CHEMICAL MAKEUP SYSTEM

TANK FARM PLANT OPERATING PROCEDURE

PROCEDURE HISTORY SIGNATURE DATA

| Procedure Signatures for T0-290-130 D-0 | | TYPE OF CHANGE IMPACT LEVEL | | |
|---|------------------|-----------------------------|-----|-----|
| POSITION/ORG | DELEGATE | DATE | REV | 3SQ |
| LNPO/QWRS | Jeff F. Dunn | 11-30-93 | | |
| Cog. Engineer/AWSE | Gary Tardiff | 12-06-93 | | |
| Manager/Shift Engrg. | John Schofield | 12-08-93 | | |
| Prin. Engineer/WTSA | Chris E. Jensen | 12-08-93 | | |
| SSO/WTSS | Gary D. Mickle | 12-08-93 | | |
| Manager/TWRSQE | Don C. Board | 12-08-93 | | |
| Manager/TWRSQE | Paul Greenbaum | 12-09-93 | | |
| Engineering Writer | Paul H. Schaller | 12-09-93 | | |
| Acceptance Review Chairman | W.J. Lehman | 12-09-93 | | |
| Approval Authority | Doug Craig | 12-09-93 | | |

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T0-290-130

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D-0

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