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Applicable Field Changes \_\_\_\_\_  
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SOP 63-9

11,000-GALLON TANK 63D-18 SLURRY/SOLUTION TRANSFERS

Rev. 0

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System Quality Level N

System Safety Class N

The estimated accumulated dose for the work described  
in this document is less than 100 mrem.

WEST VALLEY NUCLEAR SERVICES CO., INC.

March 1988

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RECORD OF REVISION

PROCEDURE

If there are changes to the procedure, the revision number increases by one. These changes are indicated in the left margin of the body by an arrow at the beginning of the paragraph that contains a change. If the paragraph section contains a partial revision and/or addition, the revised section is enclosed with arrows (>> ... <<).

Example:

> The arrow in the margin indicates a change. >>These arrows indicate that this section has been revised and/or added.<<

Procedure No. SOP 63-9, Rev. 0

Date: March 1985

Rev. No.	Description of Changes	No. of
0	Initial Document	

RECORD OF REVISION (CONTINUATION SHEET)

Rev. No.	Description of Changes	No. of Page
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LIST OF EFFECTIVE PAGES

<u>Page</u>	<u>Revision</u>	<u>Date</u>
All	0	March 1988

TABLE OF CONTENTS

<u>STEP NO.</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
1.0	SCOPE .....	1
2.0	ABBREVIATIONS.....	1
3.0	RESPONSIBILITIES.....	1
4.0	TOOLS, EQUIPMENT, COMPONENTS, AND REFERENCES.....	2
	4.1 Tools, Equipment, and Components.....	2
	4.2 References.....	3
5.0	GENERAL.....	3
	5.1 63-D-18: 11,000-Gallon Tank.....	3
6.0	PROCEDURE.....	4
	6.1 Slurry Transfer from the 11,000-Gallon Tank 63-D-18 .... to the Melter Feed Hole Tank 63-V-11	4
	6.2 Slurry Transfers from the 11,000-Gallon Tank 63-D-18 ... to the East or West Cold Chemical Feed Makeup Tanks 65-D-01 or 65-D-02	10
7.0	FIGURES.....	16

SOP 63-9  
11,000-GALLON TANK 63-D-18 SLURRY/SOLUTION TRANSFER

1.0 SCOPE

This procedure applies to nonradioactive slurry and solution transfers made by Vitrification Operations from the 11,000-gallon Tank 63D-18 to various tanks in the Vitrification Facility. This procedure is for interim use until the permanent installation is completed.

2.0 ABBREVIATIONS

- 2.1 MFHT - Melter Feed Hold Tank
- 2.2 TCCFMUB - Temporary Cold Chemical Feed Makeup Building
- 2.3 11K - 11,000 Gallons
- 2.4 CTS - Component Test Stand

3.0 RESPONSIBILITIES

- 3.1 The Vitrification Test Group Manager is responsible for directing the overall operation of the Vitrification System.
- 3.2 Vitrification Test Engineering is responsible for the technical operation of the Vitrification System.
- 3.3 The Vitrification Operations Shift Supervisor is responsible for assignment of properly trained operators at the Vitrification Facility and for day-to-day direction of those operators.

- 3.4 The Vitrification Operator is responsible for operation of the plant according to approved operating procedures, run plans, sample schedules, and the operating procedures in this SOP. When a situation is not covered by a procedure, he/she is responsible for notifying the Vitrification Operations Shift Supervisor.
- 3.5 Quality Assurance will perform surveillance of the ongoing work as deemed appropriate.

#### 4.0 TOOLS, EQUIPMENT, COMPONENTS, AND REFERENCES

##### 4.1 Tools, Equipment, and Components

- 4.1.1 Melter Feed Hold Tank 63-V-11.
- 4.1.2 West Cold Chemical Feed Makeup Tank 65-D-02.
- 4.1.3 East Cold Chemical Feed Makeup Tank 65-D-01.
- 4.1.4 11,000-Gallon Tank 63-D-18.
- 4.1.5 Demineralized Water.
- 4.1.6 Double Diaphragm Air Operated Pump T65-G-01 for East and West Cold Chemical Feed Makeup Tanks.
- 4.1.7 Double Diaphragm Air Operated Pump T65-G-02 for 11K tank, MFHT, and 6K tank.
- 4.1.8 Double Diaphragm Air Operated Pump with 1-inch discharge for MFHT Condensate Collection Tank.

4.1.9 2-inch Chemical Transfer Hose and associated stainless steel hose fittings.

4.1.10 Utility and Instrument Air.

#### 4.2 References

4.2.1 WVDP-011, Industrial Hygiene and Safety Manual.

### 5.0 GENERAL

#### 5.1 63-D-18: 11,000-Gallon Tank

Tank 63-D-18 is a 304L stainless steel 11,000-gallon vessel measuring 11 feet 6 inches in diameter and 14 feet in height. The tank is elevated by 8 eight inch pipe support legs. The is used to store feed for cold testing of the slurry fed ceramic melter. The tank is equipped with a 15 HP agitator and both the tank, piping, and hose are freeze protected with type A glass fiber insulation. In addition the tank is equipped with steam panel coils.

5.2 Review and comply with appropriate sections of the vitrification operations monthly IWP for solution/slurry transfers.

5.3 OPERATORS SHOULD PERFORM FREQUENT CHECKS ON SYSTEMS THAT ARE TURNED ON OR SHUTDOWN TO ASSURE THAT THE SYSTEM DOES WHAT IS EXPECTED, I.E., WATER FLOWS, PRESSURE RISES, LEVEL INDICATORS, ETC. IF THE REQUIRED ACTION THAT IS SUPPOSED TO HAPPEN DOES NOT HAPPEN, (1) STOP - DO NOT ATTEMPT TO PERFORM THE NEXT STEP, (2) SECURE SYSTEM IN A SAFE MODE, AND (3) NOTIFY SHIFT SUPERVISOR IMMEDIATELY.



## 6.0 PROCEDURE

Any deviations from pump and/or hose type, size, and materials of construction shall be approved by the shift supervisor.

ALL STEPS IN THIS PROCEDURE WHICH REQUIRE AN INSPECTION, THE RECORDING OF DATA, OR A SIGN-OFF WILL BE DENOTED BY A [+] IN THE LEFT HAND MARGIN. THE INSPECTION RESULTS, DATA, OR SIGN-OFF WILL BE RECORDED IN THE CTS OPERATING LOG BOOK, VITRIFICATION TANK LEVEL LOG, AND/OR SAMPLE LOG.

### 6.1 Slurry Transfer From The 11,000-Gallon Tank 63-D-18 To the Melter Feed Hold Tank 63-V-11

- [+] 6.1.1 Verify the transfer with the shift supervisor.
- 6.1.2 Obtain the Melter Feed Hold Tank (MFHT) 63-V-11 level.
- a. If the MFHT agitator is on, tag per Standing Instruction 005, and turn it off.
  - b. Remove MFHT port "C" cover.
  - c. Insert the wooden stick marked in inches into the MFHT.
  - d. Remove the stick and replace the MFHT port "C" cover.  
Note the inches on the stick.
  - e. Untag per Standing Instruction 005. Turn on the MFHT agitator, if there is sufficient solution/slurry. Or if approved by the VOS, leave the agitator off.
  - f. Using the MFHT calibration chart convert inches to gallons.

6.1.3 Obtain the 11,000-gallon tank (11K) level by:

- a. Turn off the 11K agitator and tag per Standing Instruction 005 if it is on. Open safety disconnect on top of the tank.
- b. Open the port cover.
- c. Insert the wooden stick marked in inches into the 11K tank.
- d. Remove the stick and replace the cover. Note the inches on the stick.
- e. Untag per Standing Instruction 005 and close safety disconnect on top of tank, turn on the 11K agitator if it contains sufficient solution/slurry.
- f. Using the 11K calibration chart convert the inches to gallons.

6.1.4 Check with the shift supervisor or cognizant engineer to see if samples of either tank contents are required before the transfer. If required, take the sample and label.

[+] 6.1.5 Verify the MFHT has the void capacity to hold amount of solution/slurry to be transferred. Compare the levels obtained in steps 6.1.2 and 6.1.3 with the levels last recorded in the Vitrification Tank Level Log Book. If there is a large discrepancy between the levels, contact the shift supervisor.

Void Capacity = .90 (Total Capacity) - Present Volume

- 6.1.6 Obtain a 2-inch chemical transfer hose sufficient in length to reach from the discharge side of pump T65-G-01 to the MFHT.
- 6.1.7 Connect the 2-inch chemical transfer hose to pump T65-G-01 discharge side at valve T65-HV-103.
- 6.1.8 Connect the other end of the 2-inch chemical transfer hose to the HANFORD connector that has the KAMLOK fitting for solution transfers, attached on the MFHT or open port "C" and insert hose.
- 6.1.9 Walk the transfer line and verify all the connections are secure and all the KAMLOK fittings are tie wrapped.
- 6.1.10 Check that the following valves are closed. (See Figure 1)
  - T65-HV-103      T65-GL-001      T65-HV-002
  - T65-HV-106      T65-HV-102      T65DW-GT-007
  - T65-GT-002      T65-HV-105      T65DW-H-001
  - T65-HV-100      T65-GT-001      65UA-HV-001
  - T65-HV-104      T65-HV-101
- 6.1.11 Open 11K bottom drain valve T65-HV-100.
- 6.1.12 Open pump outlet valves T65-HV-102 and T65-HV-103.
- 6.1.13 Open utility supply valves 6UA-GT-038 and T65-GT-002.
- 6.1.14 Open the petcock on the water trap and drain any condensate.
- 6.1.15 Close the petcock on the water trap.

- 6.1.16 Check the utility air oiler for sufficient oil level. If oil is low, add kill frost oil to bowl. Oil should feed approximately one drop per minute.
- 6.1.17 Open utility air supply valve T65-GT-001 fully.
- 6.1.18 Throttle the utility air valve T65-GT-002 to regulate and achieve a smooth pumping action.
- 6.1.19 Check that the MFHT 63-V-11 is receiving the slurry transfer by visual check through port "C" (Agitator may need to be turned off before the check is done.)
- 6.1.20 Walk the transfer line periodically and check for leaks. If any leaks are detected, shut down the pump and notify the shift supervisor.
- 6.1.21 Once the level of the 11K or MFHT has reached the limit designated by the work order or test plan, close valve T65-HV-100 and T65-GT-002.
- 6.1.22 Prepare a line flush by connecting a water hose to the demineralized water line just after the badger meter located in the 11K pump station.
- 6.1.23 Connect the other end of the water hose to the 11K flush line at valve T65DW-GT-007.
- 6.1.24 Note the demineralized water badger meter reading.

- 6.1.25 Open the demineralized water supply valve below the demineralized water badger meter. Open valve T65DW-GT-007 and T65DW-H-001 under the 11K tank, then open valve T65-GT-002 and throttle for smooth pumping.
- 6.1.26 Flush the transfer line with the amount of demineralized water specified on the work order or test plan. Close valve to the demin water supply and disconnect the hose by the badger meter.
- 6.1.27 Approximately 95 seconds after the demineralized water supply has been stopped, close the 11,000-gallon tank flush valves 65DW-H-001 and 65DW-GT-007.
- 6.1.28 Close utility air supply valve T65-GT-002 this shuts the pump off. Then close valve T65-GT-001.
- 6.1.29 Close pump discharge valves T65-HV-102 and T65-HV-103.
- 6.1.30 Obtain the Melter Feed Hold Tank (MFHT) 63-V-11 level.
  - a. If the MFHT agitator is on, tag per Standing Instruction 005 and turn it off.
  - b. Remove MFHT port "C" cover.
  - c. Insert the wooden stick marked in inches into the MFHT.
  - d. Remove the stick and replace the MFHT port "C" cover. Note the inches on the stick.
  - e. Untag per Standing Instruction 005 and turn on the MFHT agitator, if there is sufficient solution/slurry.

f. Using the MFHT calibration chart convert inches to gallons.

6.1.31 Obtain the 11,000-gallon tank (11K) level by:

- a. Turn off the 11K agitator and tag per Standing Instruction 005 if it is on.
- b. Open the port cover.
- c. Insert the wooden stick marked in inches into the 11K tank.
- d. Remove the stick and replace the cover. Note the inches on the stick.
- e. Untag per Standing Instruction 005 and turn on the 11K agitator, if it contains sufficient solution/slurry.
- f. Using the 11K calibration chart convert the inches to gallons.

[+] 6.1.32 Record the level of the MFHT and 11,000-gallon tank in the Vitrification Tank Level Log Book, and in the CTS Operations Log Book.

6.1.33 Disconnect, drain, and store discharge transferline to MFHT.

[+] 6.1.34 Notify shift supervisor that the transfer is complete.

6.2 Slurry Transfers From The 11,000-Gallon Tank 63-D-18 To The East or West Cold Chemical Feed Makeup Tanks 65-D-01, or 65-D-02.

- [+] 6.2.1 Verify the transfer with the shift supervisor.
- 6.2.2 Obtain the 11,000-gallon tank (11K) level by:
- a. Turn off the 11K agitator and tag per Standing Instruction 005 if it is on.
  - b. Open the port cover.
  - c. Insert the wooden stick marked in inches into the 11K tank.
  - d. Remove the stick and replace the cover. Note the inches on the stick.
  - e. Untag per Standing Instruction 005 and turn on the 11K agitator, if it contains sufficient solution/slurry.
  - f. Using the 11K calibration chart, convert the inches to gallons.
- 6.2.3 Obtain the east or west tank level by shining a light inside the tank. You will be able to see the level of the slurry or solution. The agitator shall be shut off prior to taking level.
- Note the gallon marker on the outside of the tank that corresponds to that level.

- [+] 6.2.4 Verify the east or west tank has the void capacity to hold the amount of solution/slurry to be transferred. Compare the levels obtained in steps 6.2.2 and 6.2.3 with the levels last recorded in the Vitrification Tank Level Log Book. If there is a large discrepancy between the levels, contact the shift supervisor.

Void Capacity = .90 (Total Capacity) - Present Volume

- 6.2.5 Check with the shift supervisor or cognizant engineer to see if samples of either tank contents are required before the transfer. If required, take the sample and label.
- 6.2.6 Check that the east tank discharge valve T65-HV-110 is closed if transferring to the east tank or verify west tank discharge valve T65-HV-109 is closed if transferring to the west tank.
- 6.2.7 Check that the 11,000-gallon tank 63-D-18 discharge valve T65-HV-100 is closed.
- 6.2.8 Connect the 2-inch chemical transfer hose that goes to the 1,000-gallon tanks to pump T65-G-01 discharge valve T65-HV-105.
- 6.2.9 Check that the 2-inch transfer line which runs from the 11K pump area to the garage is hooked up to the garage top inlet line which T's off to either tank top.
- 6.2.10 Check that the following valves are closed in the Temporary Cold Chemical Feed Makeup Building. (See Figure 2 or 3)



T65-HV-107	T65-HV-108	T65-HV-111
T65-HV-114	T65-HV-112	T65-HV-113
6DW-H-014	65DW-GT-015	65DW-GT-018
6DW-GT-016	65DW-GT-017	65DW-GT-022
65DW-HV-023	65DW-HV-024	65DW-HV-025
65UA-HV-002	65UA-HV-003	65UA-HV-004
65UA-HV-005	65DW-GT-021	65DW-GT-020

6.2.11 Check that the following valves are closed in the 11K pump station.

T65-HV-002	T65-GL-001	T65-HV-102
T65-HV-103	T65-HV-101	T65-HV-104
T65-HV-002	T65-HV-105	T65-HV-106
	T65-GT-001	65DW-H-001
		65DW-GT-007

6.2.12 Walk the transfer line and check that all connections are secure and all KAMLOK fittings are tie wrapped.

6.2.13 Check the 11K pump station air oiler level and add oil kill frost if necessary. Oil should feed approximately one drop per minute.

6.2.14 Open utility air supply valve 6UA-GT-014.

6.2.15 Open the water trap petcock.

6.2.16 Open utility air supply valves 6UA-GT-038 and T65-GT-002.

6.2.17 Drain any condensate from the water trap.

- 6.2.18 Close the water trap petcock.
- 6.2.19 Open the east tank top inlet valve T65-HV-107, if transferring to the east tank. Or open the west tank top inlet valve T65-HV-108 if transferring to the west tank.
- 6.2.20 Open pump discharge valves T65-HV-102, T65-HV-105, and T65-HV-115.
- 6.2.21 Open the 11K tank discharge valve T65-HV-100.
- 6.2.22 Open utility air supply valve T65-GT-001 and regulate the air pressure using valve T65-GT-002 until the pump is running smoothly.
- 6.2.23 Walk the transfer line and check for leaks. If there are any leaks, stop the pump and notify the shift supervisor.
- 6.2.24 Check that the east or west tank is receiving the slurry/solution, by visual check through the top of the tank, check to see that oiler is working properly.
- 6.2.25 Periodically, monitor the level in the east or west tank and walk the transfer line to check for leaks.
- 6.2.26 When the east, west tank or 11K tank level has reached the limit designated by the work order or test plan, close utility air supply valve T65-GT-002. This shuts down the pump.
- 6.2.27 Close the 11K tank discharge valve T65-HV-100.

- 6.2.28 Connect a water hose to the demineralized water line just after the badger meter located in the 11K pump station.
- 6.2.29 Connect the other end of the water hose to the 11K flush line at valve 65-GT-007.
- 6.2.30 Note the demineralized water badger meter reading.
- 6.2.31 Open the demineralized water supply valve below the demin. water badger meter.
- 6.2.32 Open the 11,000-gallon tank flush valves 65-GT-007 and 65-H-001.
- 6.2.33 Open utility air supply valve T65-GT-002 and regulate until smooth pumping action is achieved.
- 6.2.34 When the line has been flushed with the specified amount of demin. water designated by the work order or test plan, close the demin. water supply valve below the badger meter, then close valve 65-GT-007 and remove the hose from the badger meter.
- 6.2.35 Approximately 1 minute after the demin. water supply has been stopped, close utility air supply valve T65-GT-002. This shuts the pump off. Then close valve T65-GT-001.
- 6.2.36 Close the 11,000-gallon tank flush valve T65-H-001.
- 6.2.37 Close pump discharge valves T65-HV-102 and T65-HV-105.

6.2.38 Close the east tank inlet valve T65-HV-107, or west tank inlet valve T65-HV-108, and transfer line valve T65-HV-115.

6.2.39 Obtain the 11,000-gallon tank (11K) level by:

- a. Turn off the 11K agitator and tag per Standing Instruction 005 if it is on.
- b. Open the port cover.
- c. Insert the wooden stick marked in inches into the 11K tank.
- d. Remove the stick and replace the cover. Note the inches on the stick.
- e. Untag per Standing Instruction 005 and turn on the 11K agitator, if it contains sufficient solution/slurry.
- f. Using the 11K calibration chart convert the inches to gallons.

6.2.40 Obtain the east or west tank level by shining a light inside the tank. You will be able to see the level of the slurry or solution. The agitator shall be shut off prior to taking the level.

Note the gallon marker on the outside of the tank that corresponds to that level.

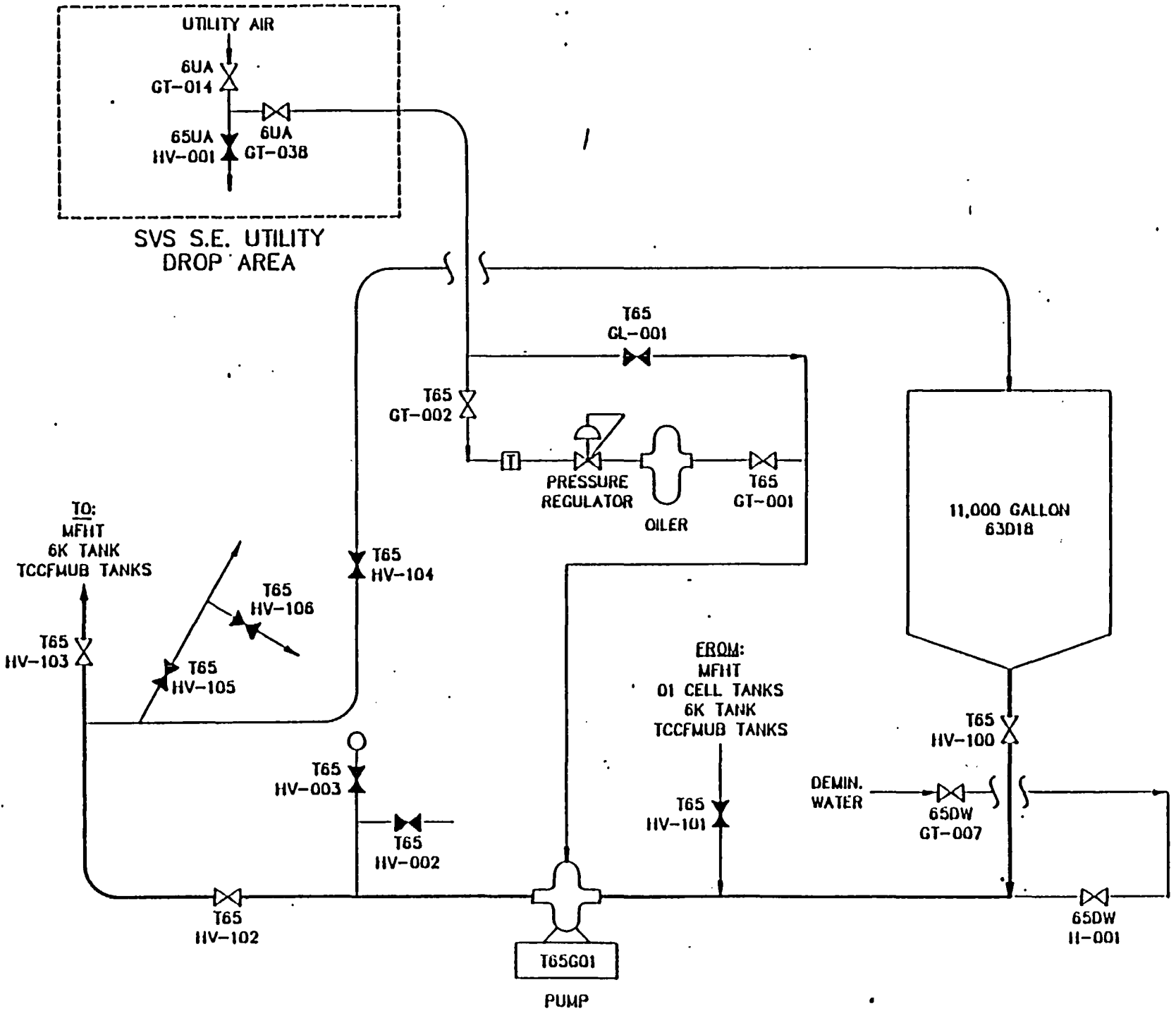
[+] 6.2.41 Record the east or west tank and 11K tank levels in the Vitrification Tank Level Log Book, and in the CTS Operations Log Book.

- 6.2.42 Check that the 11,000-gallon tank agitator is on, if it contains sufficient solution/slurry.
- 6.2.43 Check that the east or west tank agitator is on, if it contains sufficient solution/slurry.
- [+] 6.2.44 Notify the shift supervisor that the transfer is complete.

7.0 FIGURES

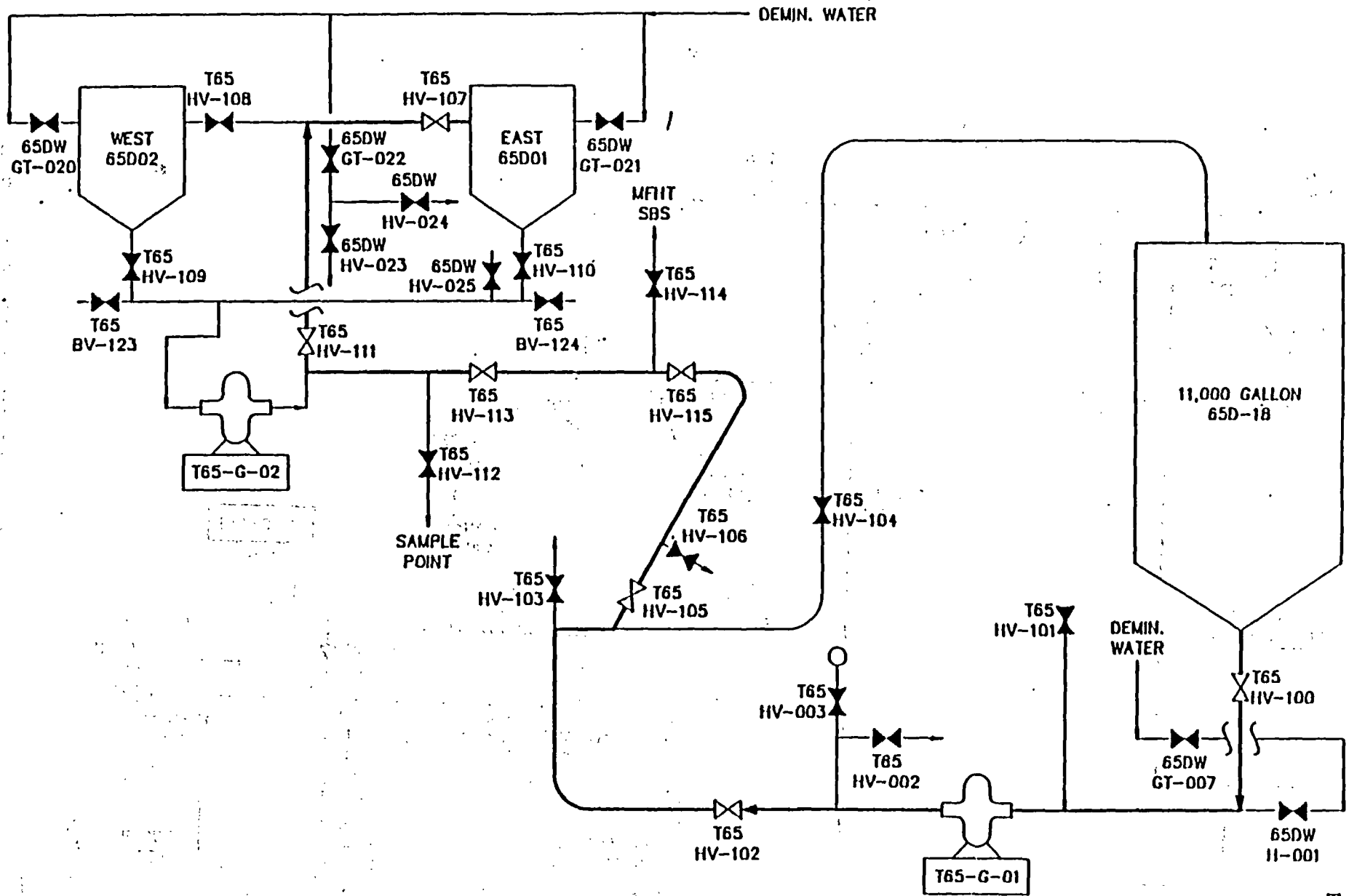
- 7.1 Figure 1 - Transfer from 11K Tank 63-D-18 to MFHT 63-V011
- 7.2 Figure 2 - Transfer from 11K Tank 63-D-18 to East Tank 65-D-07
- 7.3 Figure 3 - Transfer from 11K Tank 63-D-18 to West Tank 65-D-02

TRANSFER FROM 11K TANK 63-018 TO MFHT 63-V011  
 FIGURE 1



TRANSFER FROM 11K TANK 65-D18 TO EAST TANK 65-D01

FIGURE 2



SOP 63-9  
Rev. 0

TRANSFER FROM 11K TANK 63-D18 TO WEST TANK 65-D02  
FIGURE 3

