Applicable Field Changes _____

SOP 63-7

TEMPORARY COLD CHEMICAL FEED MAKEUP BUILDING SOLUTION/SLURRY TRANSFERS

Rev. 0

Approved _____ Operations Manager

Date 3/3/88

Approved _____ Cognizant Engineering Manager

Date 3-2-88

Approved _____ Radiation and Safety Manager

Date 3/3/88

Approved _____ Quality Assurance

Date 3-7-88

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

Prepared by: _____

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LED0424:ENG-364

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 or 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 63-7, Rev. 0 Date: March 1988

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

RECORD OF REVISION (CONTINUATION SHEET)

Rev. No.	Description of Changes	No. of Page

LIST OF EFFECTIVE PAGES

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TEMPORARY COLD CHEMICAL FEED MAKEUP BUILDING
SOLUTION/SLURRY TRANSFERS

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SOP 63-7

TEMPORARY COLD CHEMICAL FEED MAKEUP BUILDING SOLUTION/SLURRY TRANSFERS

Rev. 0

1.0 SCOPE

This procedure applies to non-radioactive slurry and solution transfers made by Vitrification Operations in the Temporary Cold Chemical Feed Makeup Building from the East and West Cold Chemical Feed Makeup Tanks 65-D-01 and 65-D-02 to various tanks in the Vitrification Facility. This procedure is for interim use until permanent installations are completed.

2.0 ABBREVIATIONS

2.1 Abbreviations

2.1.1 MFHT - Melter Feed Hold Tank

2.1.2 TCCFMUB - Temporary Cold Chemical Feed Makeup Building

2.1.3 11K - 11,000 Gallons

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

4.1.9 Utility and Instrument Air

4.2 References

4.2.1 WVDP-011, Industrial Hygiene and Safety Manual

5.0 GENERAL

5.1 Temporary Cold Chemical Feed Makeup Tanks 65-D-01 and 65-D-02

Tanks 65-D-01 and 65-D-02 are 1,000-gallon vessels constructed of premium grade vinylester resin for the inside surface and interior layer, and outside layer. Each tank is 6 feet in diameter and 5 feet 10 inches in height and is elevated by 4 pipe support legs above a spill basin. Tanks 65-D-01 and 65-D-01 are basically used for Cold Chemical Feed Make-Up, and as an interim storage for various solutions, such as boil down condensate, slurry feed, and off gas scrub solution. Each tank is equipped with a 3.5 HP agitator and the tanks are enclosed by a temporary metal service building which is insulated and contains two overhead heaters. The spill basin is equipped with a sump and sump liquid level switch and alarm. Solutions and slurry are transferred from these tanks to the Melter Feed Hold Tank 63V-011, 11,000-gallon Tank 63D-18, and each other. See Figures 1, 2, and 3 for flow and valve locations.

5.2 Review and comply with the 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 THE SHIFT SUPERVISOR IMMEDIATELY.

6.0 PROCEDURE.

Any deviations from pump and/or hose type, size and/or 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 OPERATIONS LOG BOOK, VITRIFICATION TANK LEVEL LOGS, AND/OR SAMPLE LOG.

6.1 Slurry/Solutions Transfer From The West Temporary Cold Chemical Feed Makeup Tank 65-D-02 To The East Temporary Cold Chemical Feed Makeup Tank 65-D-01

[+] 6.1.1 Verify the transfer with the shift supervisor and/or work order.

6.1.2 Turn the east tank agitator off, if its on.

6.1.3 Obtain the east Tank 65-D-01 level by shining a light inside the tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the outside of the tank that corresponds to the level.

6.1.4. Turn the east tank agitator on if it contains a minimum of 600 gallons.

6.1.5 Turn the west tank agitator off if it is on.

6.1.6 Obtain the west Tank 65-D-02 level by shining a light inside the tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the outside of the tank that corresponds to the level.

6.1.7 Turn the west tank agitator on if it contains a minimum of (~600 gallons).

[+] 6.1.8 Verify the east tank has the void capacity to hold the amount of solution/slurry to be transferred. Compare the levels obtained in steps 6.1.3 and 6.1.6 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 = .9 (Total Capacity) - Present Volume.

6.1.9 Trace the transfer lines and verify all connections are secured and all KAMLOK fittings are secured with wire wrap ties.

6.1.10 Check with the shift supervisor or cognizant engineer to see if samples are required before the transfer. If so, take samples, label the sample bottle as indicated in the work order or latest test plan, and record in Sample Log.

6.1.11 Check that the following valves are closed. (See Figure 4)

T65-HV-108	65UA-HV-031	65DW-HV-024
T65-HV-107	65UA-HV-002	65DW-HV-025
T65-HV-109	65UA-HV-003	6DW-H-014
T65-HV-110	65UA-HV-004	65DW-GT-020
T65-HV-113	65UA-HV-005	65DW-GT-021
T65-BV-123	65UA-GT-001	65DW-GT-022
T65-BV-124	65DW-HV-023	

6.1.12 Open utility air supply valves 6VA-GT-001 and 65UA-HV-002 to blow the condensate out of the water trap.

6.1.13 Open the drain petcock on the water trap

6.1.14 After the condensate has been drained from the water trap, close the petcock.

6.1.15 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.

6.1.16 Open the west tank drain valve T65-HV-109.

6.1.17 Open pump discharge valve T65-HV-111.

6.1.18 Open the east tank top valve T65-HV-107.

6.1.19 Open air oiler discharge valve 65UA-HV-004.

6.1.20 Open utility air supply valve 65UA-HV-005 to the pump T65-G-02 and regulate air pressure with valve 65UA-HV-002 until smooth pumping action is achieved.

6.1.21 Monitor transfer lines and connections for leaks periodically during the transfer, check to make sure oiler is working properly.

6.1.22 Check that the east tank is receiving the transfer solution by visual check through the top of the east tank.

NOTE: If and when the west tank goes below agitation level, shut off the agitator. When the level in east tank reaches agitation level, turn on the agitator.

6.1.23 Once the level of the east or west tank has reached the limit designated by the work order or test plan, close east tank bottom drain valve T65-HV-110. If the tank is empty, leave the drain valve open and proceed to step 6.1.28. If it is not empty, prepare to flush the transfer line by opening demineralized water supply valves 6DW-H-014, 65DW-GT-015, and 65DW-GT-022, 65DW-HV-024, and 65DW-HV-025.

6.1.24 Note the reading on the badger meter.

6.1.25 Open demineralized water valve 65DW-HV-017.

6.1.26 Flush the transfer line with the amount of demineralized water specified on the work order or test plan by using badger meter readings.

6.1.27 Once the transfer line has been flushed, close demineralized water valve 65DW-GT-017 and proceed to step 6.1.30.

6.1.28 If the west tank is empty, flush the inside of the tank by opening demineralized water valve 6DW-GT-018, 65DW-GT-017, 6DW-H-014 and using the hose with the spray nozzle.

6.1.29 Once the inside of the west tank has been rinsed, close demineralized water valve 65DW-GT-018, 65DW-GT-017, and 6DW-H-014.

6.1.30 Close the west tank bottom valve T65-HV-109.

NOTE: Allow the pump to run for ~45 seconds after the demineralized water is no longer visible in the east tank to clear the lines of as much demineralized water as possible.

6.1.31 Close utility air supply valve 65UA-HV-002.

6.1.32 Close the east tank top valve T65-HV-107.

6.1.33 Close demineralized water valves 65DW-GT-022, 65DW-GT-015, and 6DW-H-014, 65DW-HV-024, and 65DW-HV-025.

6.1.34 Close utility air supply valves 65UA-HV-004, 65UA-HV-005, 65UA-HV-002, and 6UA-GT-001.

6.1.35 Close pump discharge valve T65-HV-111.

6.1.36 Turn off the east tank agitator if it is on.

[*] 6.1.37 Obtain the east tank 65-D-01 level by shining a light inside the tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the side of the tank that corresponds to the level. Record the level in the Vitrification Tank Level Log Book, and in the CTS Operations Log Book.

6.1.38 Turn on the east tank agitator if it contains a minimum of 600 gallons.

6.1.39 Turn off the west tank agitator if it is on.

[*] 6.1.40 Obtain the west Tank 65-D-02 level by shining a light inside the tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the outside of the tank that corresponds to the level. Record the level in the Vitrification Tank Level Log Book, and in the CTS Operations Log Book.

6.1.41 Turn on the west tank agitator if it contains a minimum of 600 gallons.

[+] 6.1.42 Notify the VOS that the transfer is complete.

6.2 Slurry/Solutions Transfer From the East Temporary Cold Chemical Feed Makeup Tank 65-D-01 To The West Temporary Cold Chemical Feed Makeup Tank 65-D-02

[+] 6.2.1 Verify the transfer with the shift supervisor and/or work order.

6.2.2 Turn off the east tank agitator if it is on.

6.2.3 Obtain the east Tank 65-D-01 level by shining a light inside the tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the outside of the tank that corresponds to the level.

6.2.4 Turn on the east tank agitator if it contains a minimum of 600 gallons.

6.2.5 Turn off the west tank agitator if it is on.

6.2.6 Obtain the west Tank 65-D-02 level by shining a flash light at the side of the tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the side of the tank that corresponds to the level.

6.2.7 Turn on the west tank agitator if it contains a minimum of 600 gallons.

[*] 6.2.8 Verify the west tank has the void capacity to hold the amount of solution/slurry to be transferred. Compare the levels obtained in steps 6.2.3 and 6.2.6 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 = .9 (Total Capacity) - Present Volume.

6.2.9 Trace all the transfer lines and verify all connections are secured and all KAMLOK fittings are secured with wire wrap ties.

6.2.10 Check with the shift supervisor or cognizant engineer to see if samples are required before the transfer. If so, take samples, label the the sample bottle as indicated in the work order or latest test plan, and record in Sample Log.

6.2.11 Check that the following valves are closed. (See Figure 5)

T65-HV-107	65UA-HV-002	65DW-GT-017
T65-HV-109	65UA-HV-003	65DW-GT-018
T65-HV-110	65UA-HV-004	65DW-GT-020
T65-HV-111	65UA-HV-005	65DW-GT-021
T65-HV-112	65US-GT-031	65DW-GT-022
T65-HV-113	6DW-H-014	65DW-HV-023
T65-BV-123	65DW-GT-015	65DW-HV-024
T65-BV-124	65DW-GT-016	65DW-HV-025

6.2.12 Open utility air supply valves 6VA-GT-001 and 65UA-HV-002 to blow the condensate out of the water trap.

6.2.13 Open the drain petcock on the water trap.

6.2.14 After the condensate has been drained from the water trap, close the petcock.

6.2.15 Check the utility air oiler for sufficient oil level. If oil is low, add kill frost oil to bowl. Oil should feed one drop per minute.

6.2.16 Open the east tank drain valve T65-HV-110.

6.2.17 Open pump discharge valve T65-HV-111.

6.2.18 Open the west tank top valve T65-HV-108.

6.2.19 Open air oiler discharge valve 65VA-HV-004.

6.2.20 Open utility air supply valve 65UA-HV-005 to the pump T65-G-02 and regulate air pressure with valve 65UA-HV-002 until smooth pumping action is achieved.

6.2.21 Monitor transfer lines and connections for leaks periodically during the transfer, check to make sure oiler is working properly.

6.2.22 Check that the west tank is receiving the transfer solution by visual check through the top of the west tank, if the level in the east tank goes below 600 gallons level shut off the agitator. If the level in the west tank reaches agitation level, turn on the agitator.

6.2.23 Once the level of the east or west tank has reached the limit designated by the work order or test plan, close the east tank bottom drain valve T65-HV-110. If the tank is empty, leave the drain valve open and proceed to step 6.2.28

If it is not empty, prepare to flush the transfer line by opening demineralized water supply valves 6DW-H-014, 65DW-HV-015, and 65DW-GT-022, 65DW-HV-024, 65DW-HV-025.

6.2.24 Note the reading on the badger meter.

6.2.25 Open demineralized water valve 65DW-HV-017.

6.2.26 Flush the transfer line with the amount of demineralized water specified on the work order or test plan. By using Badger meter readings.

6.2.27 Once the transfer line has been flushed, close demineralized water valve 65DW-GT-017 and proceed to step 6.2.30.

6.2.28 If the east tank is empty, flush the inside of the tank by opening demineralized water valve 65DW-GT-018, 65DW-GT-017, and 6DW-H-014 and using the hose with the spray nozzle.

6.2.29 Once the inside of the east tank has been rinsed, close demineralized water valve 65DW-HV-018, 6DW-H-014, and 65DW-GT-017.

6.2.30 Close the east tank bottom valve T65-HV-110.

NOTE: Allow the pump to run for ~45 seconds after the demineralized water is no longer visible in the east tank to clear the lines of as much demineralized water as possible.

6.2.31 Once the transfer line has been flushed, close utility air supply valve 65UA-HV-002.

6.2.32 Close the west tank top valve T65-HV-108.

6.2.33 Close demineralized water valves 65DW-GT-022, 65DW-GT-01
65DW-HV-024, 6DW-H-014, and 65DW-HV-025.

6.2.34 Close utility air supply valves 65UA-HV-004, 65UA-HV-005

6.2.35 Close pump discharge valve T65-HV-111.

6.2.36 Turn off the east tank agitator if it is on.

[+] 6.2.37 Obtain the east tank 65-D-01 level by shining a light i
the tank (agitator should be off). You will be able to
the level of the slurry or solution. Note the gallon
on the outside of the tank that corresponds to the leve
Record the level in the Vitrification Tank Level Log Bo

6.2.38 Turn on the east tank agitator if it contains at least 600 gallons.

6.2.39 Turn off the west tank agitator if it is on.

[+] 6.2.40 Obtain the west Tank 65-D-02 level by shining a light i
the tank. You will be able to see the level of the sl
or solution. Note the gallon marker on the outside of
tank that corresponds to the level. Record the level i
Vitrification Tank Level Log Book, and in the CTS Oper
Log Book.

6.2.41 Turn on the west tank agitator if it contains at least 600 gallons.

[+] 6.2.42 Notify the shift supervisor that the transfer is compl

6.3 Slurry/Solution Transfers From The East Temporary Cold Chemical Feed Makeup Tank 65-D-01 To The Melter Hold Tank 63-V-11

[+] 6.3.1 Verify the transfer with the shift supervisor.

6.3.2 Turn off the east tank agitator, if its on.

6.3.3 Obtain the east Tank 65-D-01 level by shining a light inside the tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the outside of the tank that corresponds to the level.

6.3.4 Turn on the east tank agitator if it contains at least 600 gallons.

6.3.5 Obtain the Melter Feed Hold Tank (MFHT) 63-V-11 level.

a. Turn off the MFHT agitator and tag per Standing Instruction 005, at the MCC if it is on.

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 it contains sufficient solution/slurry, or if approved by VOS, leave the agitator off for transfer.

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

[+] 6.3.6 Verify the MFHT has the void capacity to hold the amount of slurry/solution to be transferred. Compare the levels obtained in steps 6.3.3 and 6.3.5 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 = .9 (Total Capacity) - Present Volume.

6.3.7 Check with the VOS or cog. engineer to see if samples of either tank contents is required before the transfer. If required, take the samples, label and record in Sample Log.

6.3.8 Remove one of the HANFORD connectors or port C cover from the MFHT to allow the insertion of a 2-inch chemical transfer hose.

6.3.9 Obtain a 2-inch chemical transfer hose of sufficient length to reach from the inside of the MFHT to the "T" connection in the 11K-TCCFMJB transfer line located above and behind instrument racks 1C and 5 in the north aisle 100-foot level.

6.3.10 Check that the ball valve T65-HV-115 is closed so as to isolate the "T" from the transfer line to the 11,000-gallon Tank 63-D-18.

6.3.11 Remove the cap from the "T" connection and connect and tie wrap one end of the 2-inch chemical transfer hose to the "T" connection.

6.3.12 Connect the other end of the 2-inch chemical transfer hose to the Handford connector that has a KAMLOK fitting, on the MFHT and secure.

6.3.13 Connect the east end of the 11K-TCCFMB transfer line to pump T65-G-02 discharge at valve T65-HV-113.

6.3.14 Walk the transfer line verifying all connections are secure and all KAMLOK fittings are tie wrapped.

6.3.15 Check that the following valves are closed: (See Figure 6)

T65-BV-123	65UA-GT-031	65DW-GT-017
T65-BV-124	65UA-HV-002	65DW-GT-018
T65-HV-114	65UA-HV-003	65DW-GT-020
T65-HV-109	65UA-HV-004	65DW-GT-021
T65-HV-110	65UA-HV-005	65DW-GT-022
T65-HV-111	6DW-H-01405	65DW-GT-023
T65-HV-112	65DW-GT-015	65DW-GT-024
T65-HV-113	65DW-GT-016	65DW-HV-025

6.3.16 Connect the red utility air hose to the pump T65-G-02, if it is not connected.

6.3.17 Open the drain petcock on the water trap.

6.3.18 Open utility air supply valves 6VA-GT-001 and 65UA-HV-002 to blow the condensate out of the water trap.

6.3.19 After the condensate has been drained from the water trap, close the petcock.

6.3.20 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.

6.3.21 Open the east tank discharge valve T65-HV-110.

6.3.22 Open pump discharge valves T65-HV-113 and T65-HV-114.

6.3.23 Open utility air supply valves 65UA-HV-004 and 65UA-HV-005. Throttle valve 65UA-HV-002 to obtain a smooth pumping action.

6.3.24 Check that the MFHT is receiving the solution/slurry by visual check through port "C".

6.3.25 Walk the transfer line periodically during the transfer to check for leaks. If there are any leaks, shut down the pump and notify the shift supervisor. Make sure the oiler is working properly.

6.3.26 If the level in the east tank drops below the level of agitation, turn the agitator off.

6.3.27 Once the level of the east tank or MFHT has reached the limit designated by the work order or test plan, shut the east tank drain valve T65-HV-110. If the tank is empty, leave the drain valve open and proceed to step 6.3.32. If the tank is not empty, prepare to flush the transfer line by opening demineralized water supply valves 65DW-HV-014, 65DW-HV-015, 65DW-GT-022, 65DW-HV-024, and 65DW-HV-025

[+] 6.3.28 Note the reading on the badger meter.

6.3.29 Open demineralized water valve 65DW-HV-017.

6.3.30 If the east tank is empty, unless otherwise specified, flush the inside of the tank by opening demineralized water valves 65DW-HV-018, 65DW-GT-017, 6DW-H-014 and using the hose with the spray nozzle. If the tank is not empty, proceed to Step 6.3.32.

6.3.31 Once the inside of the east tank has been rinsed with the specified amount of demineralized water, close demineralized water valve 65DW-HV-018. Proceed to Step 6.3.34

6.3.32 Flush the transfer line with the amount of demineralized water specified on the work order or test plan.

6.3.33 Once the transfer line has been flushed, close demineralized water valve 65DW-GT-017.

NOTE: Allow the pump to run for ~45 seconds after the demineralized water is no longer visible in the east tank to clear the lines of as much demineralized water as possible.

6.3.34 Close the east tank bottom valve T65-HV-110.

6.3.35 Close utility air supply valve 65UA-HV-002.

6.3.36 Close demineralized water valves 65DW-GT-022, 65DW-HV-024, 65DW-HV-025, and 65DW-HV-015.

6.3.37 Close utility air supply valves 65UA-HV-004, 65UA-HV-005, 65UA-HV-002, and 6UA-GT-001.

6.3.38 Close valves T65-HV-113 and T65-HV-114.

6.3.39 Disconnect the 2-inch chemical transfer hose from the MFHT.

6.3.40 Disconnect the 2-inch chemical transfer hose from the "T" connection and replace with a 2-inch cap.

6.3.41 Turn off the east tank agitator if it is on.

6.3.42 Obtain the east Tank 65-D-01 level by shining a light inside the tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the outside of the tank that corresponds to the level.

6.3.43 Turn on the east tank agitator if it contains at least 600 gallons.

6.3.44 Obtain the Melter Feed Hold Tank (MFHT) 63-V-11 level.

a. Turn off the MFHT agitator and tag per Standing Instruction 005 if it is on.

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 it contains sufficient solution/slurry.

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

[+] 6.3.45 Record the MFHT level in the Vitrification Tank Level Log Book and in the CTS Operations Log Book.

[+] 6.3.46 Record the east tank level in the Vitrification Tank Level Log Book, and in the CTS Operations Log Book.

6.3.47 Replace the HANFORD connector or port "C" cover on the MFHT.

6.3.48 If the levels in either the MFHT or the east tank are adequate to run the agitator, check that the agitator is on.

6.3.49 Notify the VOS that the transfer is complete.

6.4 Slurry/Solution Transfer From The West Cold Chemical Feed Makeup Tank 65-D-02 To The Makeup Feed Hold Tank 63-V-11

[+] 6.4.1 Verify the transfer with the shift supervisor.

6.4.2 Turn off the west tank agitator if it is on.

6.4.3 Obtain the west Tank 65-D-01 level by shining a light inside tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the outside of the tank that corresponds to the level.

6.4.4 Turn on the west tank agitator if it contains at least 600 gallons.

6.4.5 Obtain the Melter Feed Hold Tank (MFHT) 63-V-11 level.

a. Turn off the MFHT agitator and tag per Standing Instruction 005, at the MCC if its on.

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 it contains sufficient solution/slurry. (if approved by the VOS, leave the agitator off.

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

[-] 6.4.6 Verify the MFHT has the void capacity to hold amount of solution/slurry to be transferred. Compare the levels obtained in steps 6.4.3 and 6.4.5 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.

6.4.7 Check with the VOS or cog. engineer to see if samples of either tank contents is required before the transfer. If required, take the samples, label and record in Sample Log.

6.4.8 Remove one of the HANFORD connectors or port C cover from the MFHT to allow the insertion of a 2-inch chemical transfer hose.

6.4.9 Obtain a 2-inch chemical transfer hose of sufficient length to reach from the MFHT to the "T" connection in the 11K-TCCFMUB transfer line located above and behind instrument racks 1C and 5 in the north aisle 100-foot level.

6.4.10 Check that ball valve T65-HV-115 is closed so as to isolate the "T" from the transfer line to the 11,000-gallon Tank 63-D-18.

6.4.11 Remove the cap from the "T" connection and connect and tie wrap one end of the 2-inch chemical transfer hose to the "T" connection.

6.4.12 Connect the other end of the 2-inch chemical transfer line to the Hanford connector that has a KAMLOK fitting, on the MFHT and secure.

6.4.13 Connect the east end of the 11K-TCCFMB transfer line to pump T65-G-02 discharge at valve T65-HV-113.

6.4.14 Walk the transfer line checking all connections are secure and all KAMLOK fittings are tie wrapped.

[+] 6.4.15 Check that the following valves are closed. (See Figure 7)

T65-HV-114	65UA-HV-002	65DW-GT-017
T65-HV-109	65UA-HV-003	65DW-GT-018
T65-HV-110	65UA-HV-004	65DW-GT-020
T65-HV-111	65UA-HV-005	65DW-GT-021
T65-HV-112	6DW-H-014	65DW-GT-022
T65-HV-113	65DW-GT-015	65DW-HV-023
65UA-GT-031	65DW-GT-016	65DW-HV-024
T65-BV-123	T65-BV-124	65DW-HV-025

6.4.16 Connect the red utility air hose to the pump T65-G-02, if it is not connected.

6.4.17 Open utility air supply valves 6VA-GT-001 and 65UA-HV-002 to blow the condensate out of the water trap.

6.4.17 Open the drain petcock on the water trap.

6.4.19 After the condensate has been drained from the water trap, close the petcock.

6.4.20 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.

6.4.21 Open the west tank discharge valve T65-HV-109.

6.4.22 Open pump discharge valves T65-HV-113 and T65-HV-114.

6.4.23 Open utility air supply valves 65UA-HV-004 and 65UA-HV-005. Throttle valve 65UA-HV-002 to obtain a smooth pumping action.

6.4.24 Check that the MFHT is receiving the solution/slurry by visual check through port "C".

6.4.25 Walk the transfer line periodically during the transfer to check for leaks. If there are any leaks, shut down the pump and notify the shift supervisor. Make sure oiler is working properly.

6.4.26 If the level in the west tank drops below 600 gallons, turn off the agitator.

6.4.27 Once the level of the west tank or MFHT has reached the limit designated by the work order or test plan, shut the west tank drain valve T65-HV-109. If the tank is empty, leave the drain valve open and proceed to step 6.4.31. If the tank is not empty, prepare to flush the transfer line by opening demineralized water supply valves: 65DW-HV-014, 65DW-HV-015, 65DW-GT-022, 65DW-HV-024, 65DW-HV-025.

6.4.28 Open demineralized water valve 65DW-HV-017.

6.4.29 If the west tank is empty, unless otherwise specified flush the inside of the tank by opening demineralized water valves 65DW-GT-018, 65DW-GT-017, and 65DW-H-014 and using the hose with the spray nozzle. If the tank is not empty, proceed to Step 6.4.31

6.4.30 Once the inside of the west tank has been rinsed with the specified amount of demineralized water, close demineralized water valve 65DW-GT-018.

6.4.31 Flush the transfer line with the amount of demineralized water specified on the work order or test plan.

6.4.32 Once the transfer line has been flushed, close demineralized water valve 65DW-HV-017.

NOTE: Allow the pump to run for ~45 seconds after the demineralized water is no longer visible in the east tank to clear the lines of as much demineralized water as possible.

6.4.33 Close the west tank bottom valve T65-HV-109.

6.4.34 Once the transfer line has been flushed, close utility air supply valve 65UA-HV-002.

6.4.35 Close demineralized water valves 65DW-GT-022, 65DW-HV-024, 65DW-HV-025, 65DW-HV-014, and 65DW-HV-015.

6.4.36 Close utility air supply valves 65UA-HV-004, 65UA-HV-005, and 6UA-GT-001.

6.4.37 Close valves T65-HV-113 and T65-HV-114.

6.4.38 Remove the 2-inch chemical transfer hose from the MFHT.

6.4.39 Disconnect the 2-inch chemical transfer hose from the "T" connection and replace with a 2-inch cap.

6.4.40 Turn off the west tank agitator if it is on.

6.4.41 Obtain the west Tank 65-D-02 level by shining a light inside the tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the side of the tank that corresponds to the level.

6.4.42 Turn on the west tank agitator, if it contains at least 600 gallons.

6.4.43 Obtain the Melter Feed Hold Tank (MFHT) 63-V-11 level.

a. Turn off the MFHT agitator and tag per Standing Instruction 005, if its on.

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 it contains sufficient solution/slurry.

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

[+] 6.4.44 Record the MFHT level in the Vitrification Tank Level Log Book, and in the CTS Operations Log Book.

[+] 6.4.45 Record the west tank level in the Vitrification Tank Level Log Book, and in the CTS Operations Log Book.

6.4.46 Replace the HANFORD connector or port "C" cover on the MFHT.

6.4.47 If the MFHT level is adequate to run the agitator, verify the MFHT agitator is on.

6.4.48 Notify the shift supervisor that the transfer is complete.

6.5 Slurry/Solution Transfers From The East Temporary Cold Chemical Feed Makeup Tank 65-D-01 To The 11,000-Gallon Tank 63-D-18

[+] 6.5.1 Verify the transfer with the shift supervisor.

6.5.2 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.

6.5.3 Turn off the east tank agitator, if its on.

6.5.4 Obtain the east Tank 65-D-01 level by shining a light inside the tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the outside of the tank that corresponds to that level.

6.5.5 Turn on the east tank agitator if it contains at least 600 gallons.

[+] 6.5.6 Verify the 11K tank has the void capacity to hold the amount of solution/slurry to be transferred. Compare the levels obtained in steps 6.5.2 and 6.5.4 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.

6.5.7 Check with the shift supervisor or cognizant engineer to see if samples of either tank contents is required before the transfer. If required, take the sample, label and record in the Sample Log.

6.5.8 Check that the east Tank 65-D-01 discharge valve T65-HV-110 is closed.

6.5.9 Check that the 11,000-gallon Tank 63-D-18 discharge valve T65-HV-100 is closed.

6.5.10 Check that proper garage line hook-up for transfer out of CCFMUB.

6.5.11 Check that the following valves are closed in the Temporary Cold Chemical Feed Makeup Building. (See Figure 8)

T65-GT-112	T65-BV-123	T65-HV-111
T65-HV-114	65UA-HV-005	T65-HV-113
65DW-HV-014	65DW-GT-015	65DW-GT-018
6DW-GT-016	65DW-GT-017	65DW-GT-022
65DW-HV-023	65DW-HV-024	6UA-GT-031
65UA-HV-002	65UA-HV-003	65UA-HV-004
T65-BV-124		

6.5.12 Connect the red utility air hose to the pump T65-G-02, if it is not connected.

6.5.13 Open utility air supply valves 6VA-GT-001 and 65UA-HV-002 to blow the condensate out of the water trap.

6.5.14 Open the drain petcock on the water trap.

6.5.15 After the condensate has been drained from the water trap, close the petcock.

6.5.16 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.

6.5.17 Connect the 11K-TCCFMUB 2-inch chemical transfer hose to pump T65-G-01 suction side at valve T65-HV-101.

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

T65-GL-001	T65-HV-102	T65-HV-104
T65-HV-002	T65-H-001	T65-HV-106
T65-HV-103	T65-HV-105	
T65-GT-002	T65-GT-001	

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

6.5.20 Check the 11K pump station air oiler level and add kill frost oil if necessary.

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

6.5.22 Open the water trap petcock.

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

6.5.24 Drain any condensate from the water trap.

6.5.25 Close the water trap petcock.

6.5.26 Open suction valve T65-HV-101 for pump T65-G-01.

6.5.27 Check with the operator for the east tank pump, the 11K Tank is ready to receive.

6.5.28 Open pump discharge valves T65-HV-102 and T65-HV-104.

6.5.29 Open utility air supply valve T65-GT-001 and throttle valve T65-GT-002 to get a smooth pumping action. (At 11K pump station).

6.5.30 Open the east tank discharge valve T65-HV-110.

6.5.31 Prior to starting pump T65-G-02, check with the operator running pump T65-G-01 that the 11K tank is ready to receive.

6.5.32 Open pump discharge valves T65-HV-113 and T65-HV-115.

6.5.33 Open utility air supply valves 65UA-HV-004 and 6UA-GT-001 (at TCCFMUB).

6.5.34 Open utility air supply valve T65-HV-005 and regulate the air pressure using valve 65UA-HV-002 until the pump is running smoothly.

6.5.35 Walk the transfer line and check for leaks. If there are any leaks, stop the pump and notify the shift supervisor.

6.5.36 Check that the 11,000-gallon tank is receiving the slurry/solution from the east tank, by visual check through the top port of 11,000-gallon tank or at MIECN 1 loop 4 or INPUT 1.

6.5.37 Unless otherwise specified once the level of the east tank or 11K Tank has reached the level designated by the assigned W.O. or test plan, either close the east bottom drain valve T65-HV-110. If the tank still contains solution proceed to step 6.5.38. Or leave the bottom drain valve open if the tank is emptied and proceed to step 6.5.41.

6.5.38 Prepare to flush the transfer line by opening D.W. water supply valves 6DW-H-014, 65DW-GT-015 65DW-GT-022, 65DW-GT-024, 65DW-HV-025.

6.5.39 Note badger meter reading, then open D.W. valve 65DW-GT-017 to flush transfer line with specified amount of D.W. metered on the badger meter.

6.5.40 Once the transfer line has been flushed, close D.W. valves 6DW-GT-017, 65DW-GT-015, 65DW-GT-022, 65DW-HV-024, and 65DW-HV-025 and proceed to step 6.5.44.

6.5.41 With the east tank empty of transferred solution prepare to flush inside of east tank by first noting badger meter reading, then open D.W. supply valves 6DW-H-014, 65DW-GT-017, and 6DW-GT-018 with a rinse hose connected to it.

6.5.42 Thoroughly rinse inside of the east tank using the rinse hose and specified amount of D.W. by using the badger meter to monitor volume of water used.

6.5.43 Once the inside of the east tank has been rinsed, close D.W. valves 6DW-H-014, 65DW-GT-017, and 6DW-GT-018. Allow the pump to run approximately 45 seconds after the D.W. water is no longer visible in the east tank to clear lines of as much liquid as possible.

6.5.44 Close the east tank bottom drain valve T65-HV-110.

6.5.45 Close utility air supply valves 65UA-HV-002, 6UA-GT-001, 65UA-HV-004, and 65UA-HV-005 for pump in the garage.

6.5.46 Close utility air supply valves T65-GT-002, T65-GT-001 for pump T65-G-01 in the SVS area.

6.5.47 Close transfer line valves T65-HV-113, T65-HV-115, T65-HV-101, T65-HV-102, and T65-HV-104

6.5.48 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.

6.5.49 Turn off the east tank agitator, if it's on.

6.5.50 Obtain the east Tank 65-D-01 level by shining a light inside the tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the outside of the tank that corresponds to that level.

6.5.51 Turn on the east tank agitator if it contains at least 600 gallons.

[+] 6.5.52 Record the east tank and 11K Tank levels in the Vitrification Tank Level Log Book, and in the CTS Operations Log Book.

[+] 6.5.53 Notify the shift supervisor the transfer is complete.

6.6 Slurry/Solution Transfers From The West Temporary Cold Chemical Feed Makeup Tank 65-D-02 To The 11,000-Gallon Tank 63-D-18

[+] 6.6.1 Verify the transfer with the shift supervisor.

6.6.2 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.

6.6.3 Turn off the west tank agitator if it is on.

6.6.4 Obtain the west Tank 65-D-02 level by shining a light inside of the tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the outside of the tank that corresponds to that level.

6.6.5 Turn on the west tank agitator if it contains at least 600 gallons.

[-] 6.6.6 Verify the 11K tank has the void capacity to hold the amount of solution/slurry to be transferred. Compare the levels obtained in steps 6.6.2 and 6.6.4 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.

6.6.7 Check with the shift supervisor or cognizant engineer to see if samples of either tank contents is required before the transfer. If required, take the sample, label and record in Sample Log.

6.6.8 Check that the west Tank 65-D-01 discharge valve T65-HV-110 is closed.

6.6.9 Check that the 11,000-gallon Tank 63-D-18 discharge valve T65-HV-100 is closed.

6.6.10 Check that proper garage line hook-up for transfer out of CCFMUB.

6.6.11 Check that the following valves are closed in the Temporary Cold Chemical Feed Makeup Building. (See Figure 9)

T65-GT-112	T65-BV-123	T65-HV-111
T65-HV-114	65UA-HV-005	T65-HV-113
65DW-HV-014	65DW-GT-015	65DW-GT-018
6DW-GT-016	65DW-GT-017	65DW-GT-022
65DW-HV-023	65DW-HV-024	6UA-GT-031
65UA-HV-002	65UA-HV-003	65UA-HV-004
T65-BV-124		

6.6.12 Connect the red utility air hose to the pump T65-G-02.

6.6.13 Open utility air supply valves 6VA-GT-001 and 65UA-HV-002 to blow the condensate out of the water trap.

6.6.14 Open the drain petcock on the water trap.

6.6.15 After the condensate has been drained from the water trap, close the petcock.

6.6.16 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.

6.6.17 Connect the 11K-TCCFMUB 2-inch chemical transfer hose to pump T65-G-01 suction side at valve T65-HV-101.

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

T65-HV-100	T65-GL-001	T65-HV-102
T65-HV-002	T65-H-001	T65-HV-104
T65-HV-103	T65-HV-105	T65-HV-106
T65-GT-002	T65-GT-001	

6.6.19 Walk the transfer line and verify all connections are secure and all KAMLOK fittings are tie wrapped.

6.6.20 Check the 11K pump station air oiler level and add oil if necessary.

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

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

6.6.23 Open the water trap petcock.

6.6.24 Drain any condensate from the water trap.

6.6.25 Close the water trap petcock.

6.6.26 Open suction valve T65-HV-101 for pump T65-G-01.

6.6.27 Check that with the operator for the west tank pump, the 11K tank is ready to receive.

6.6.28 Open discharge valves T65-HV-102 and T65-HV-104.

6.6.29 Open utility air supply valve T65-GT-001 and throttle valve T65-GT-002 to get a smooth pumping action.

6.6.30 Open the west tank discharge valve T65-HV-110.

6.6.31 Prior to starting pump T65-G-02, check with the operator running pump T65-G-01 that the 11K tank is ready to receive.

6.6.32 Open pump discharge valves T65-HV-113 and T65-HV-115.

6.6.33 Open utility air supply valves 65UA-HV-004.

6.6.34 Open utility air supply valve T65-HV-005 and regulate the air pressure using valve 65UA-HV-002 until the pump is running smoothly.

6.6.35 Walk the transfer line and check for leaks. If there are any leaks, stop the pump and notify the shift supervisor.

6.6.36 Check that the 11,000-gallon tank is receiving the slurry/solution from the west tank, by visual check through the top port of 11,000-gallon tank or at MIXON 1 loop 4 or INPUT 1.

6.6.37 Unless otherwise specified once the level of the west tank or 11K Tank has reached the level designated by the assigned W.O. or test plan, either close the west bottom drain valve T65-HV-109, if the tank still contains solution proceed to step 6.6.38. Or leave the bottom drain valve open if the tank is emptied and proceed to step 6.6.41.

6.6.38 Prepare to flush the transfer line by opening D.W. water supply valves 6DW-H-014, 65DW-GT-015, 65DW-GT-022, 65DW-GT-024, 65DW-HV-025.

6.6.39 Note badger meter reading, then open D.W. valve 65DW-GT-017 to flush transfer line with specified amount of D.W. metered on the badger meter.

6.6.40 Once the transfer line has been flushed, close D.W. valves 6DW-GT-017, 65DW-GT-015, 65DW-GT-022, 65DW-HV-024, and 65DW-HV-025 and proceed to step 6.6.44

6.6.41 With the west tank empty of transferred solution prepare to flush inside of east tank by first noting badger meter reading, then open D.W. supply valves 6DW-H-014, 65DW-GT-017, and 6DW-GT-018 with a rinse hose connected to it.

6.6.42 Thoroughly rinse inside of the west tank using the rinse hose and specified amount of D.W. by using the badger meter to monitor volume of water used.

6.6.43 Once the inside of the west tank has been rinsed, close D.W. valves 6DW-H-014, 65DW-GT-017, and 6DW-GT-018. Allow the pump to run approximately 45 seconds after the D.W. water is no longer visible in the west tank to clear lines of as much liquid as possible.

6.6.44 Close the west tank bottom drain valve T65-HV-109.

6.6.45 Close utility air supply valves 65UA-HV-002, 65UA-HV-004, and 65UA-HV-005 for pump in the garage.

6.6.46 Close utility air supply valves T65-GT-002, T65-GT-001 for pump T65-G-01 in the SVS area.

6.6.47 Close transfer line valves T65-HV-113, T65-HV-115, T65-HV-101, T65-HV-102, and T65-HV-104

6.6.48 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.

6.6.49 Turn off the west tank agitator if it is on.

6.6.50 Obtain the west Tank 65-D-02 level by shining a light inside the tank. You will be able to see the level of the slurry or solution. Note the gallon marker on the outside of the tank that corresponds to that level.

6.6.51 Turn on the west tank agitator if it contains at least 600 gallons.

[+] 6.6.52 Record the west tank and 11K Tank levels in the Vitrification Tank Level Log Book, and in the CTS Operations Log Book.

[+] 6.6.53 Notify the shift supervisor the transfer is complete.

7.0 FIGURES

7.1 Figure 1 - Temporary Cold Chemical Feed Makeup Building, Flow Diagram

7.2 Figure 2 - Vitrification Facility 11K Pump Station

7.3 Figure 3 - Cold Chemical Feed Makeup Transfer System Flow Diagram

7.4 Figure 4 - Transfer from West Tank 65-D-02 to East Tank 65-D-01 Flow Diagram

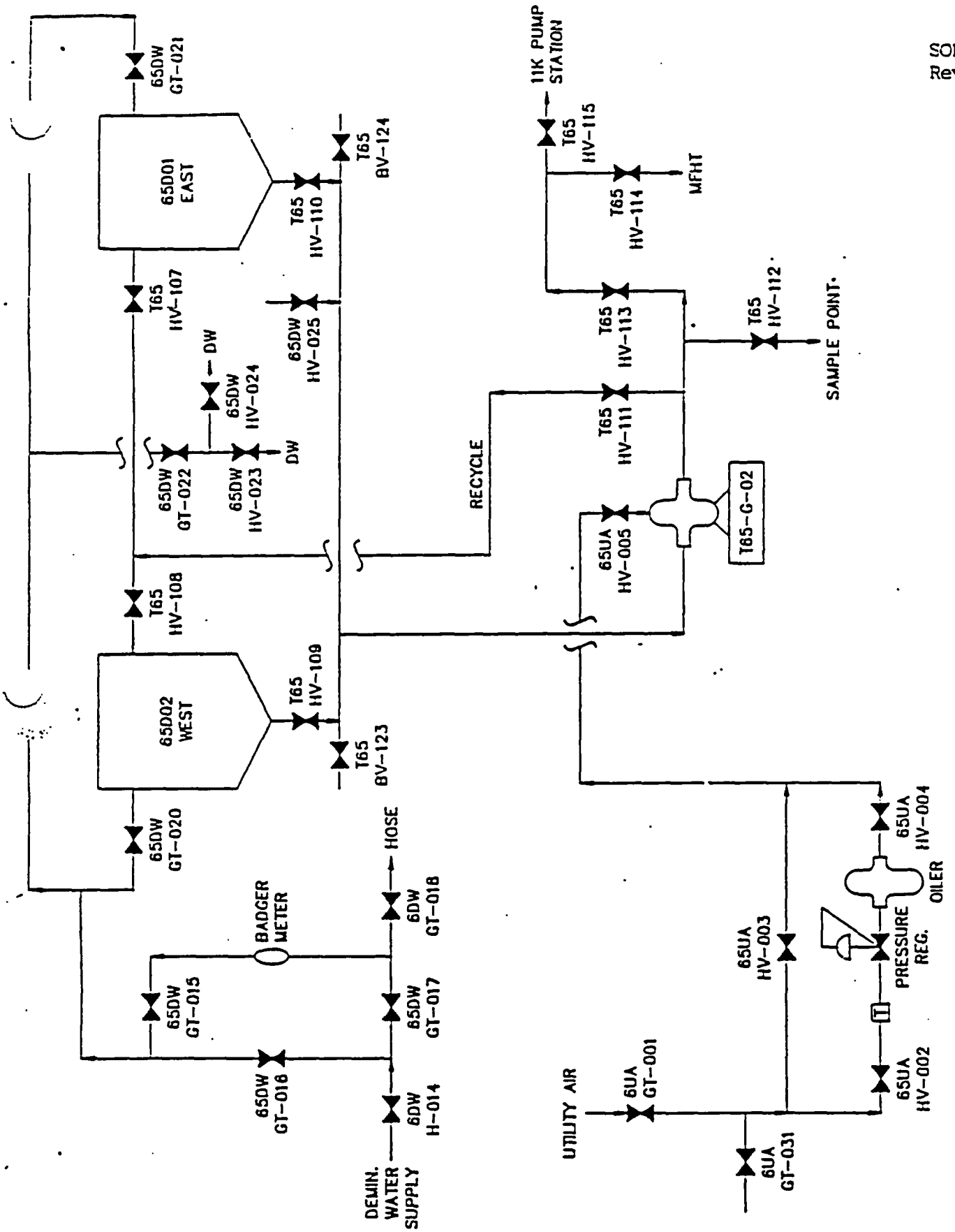
7.5 Figure 5 - Transfer from East Tank 65-D-01 to West Tank 65-D-02 Flow Diagram

7.6 Figure 6 - Transfer from East Tank 65-D-01 to MFHT 63-V-011 Flow Diagram

7.7 Figure 7 - Transfer from West Tank 65-D-02 to MFHT 63-V-011 Flow Diagram

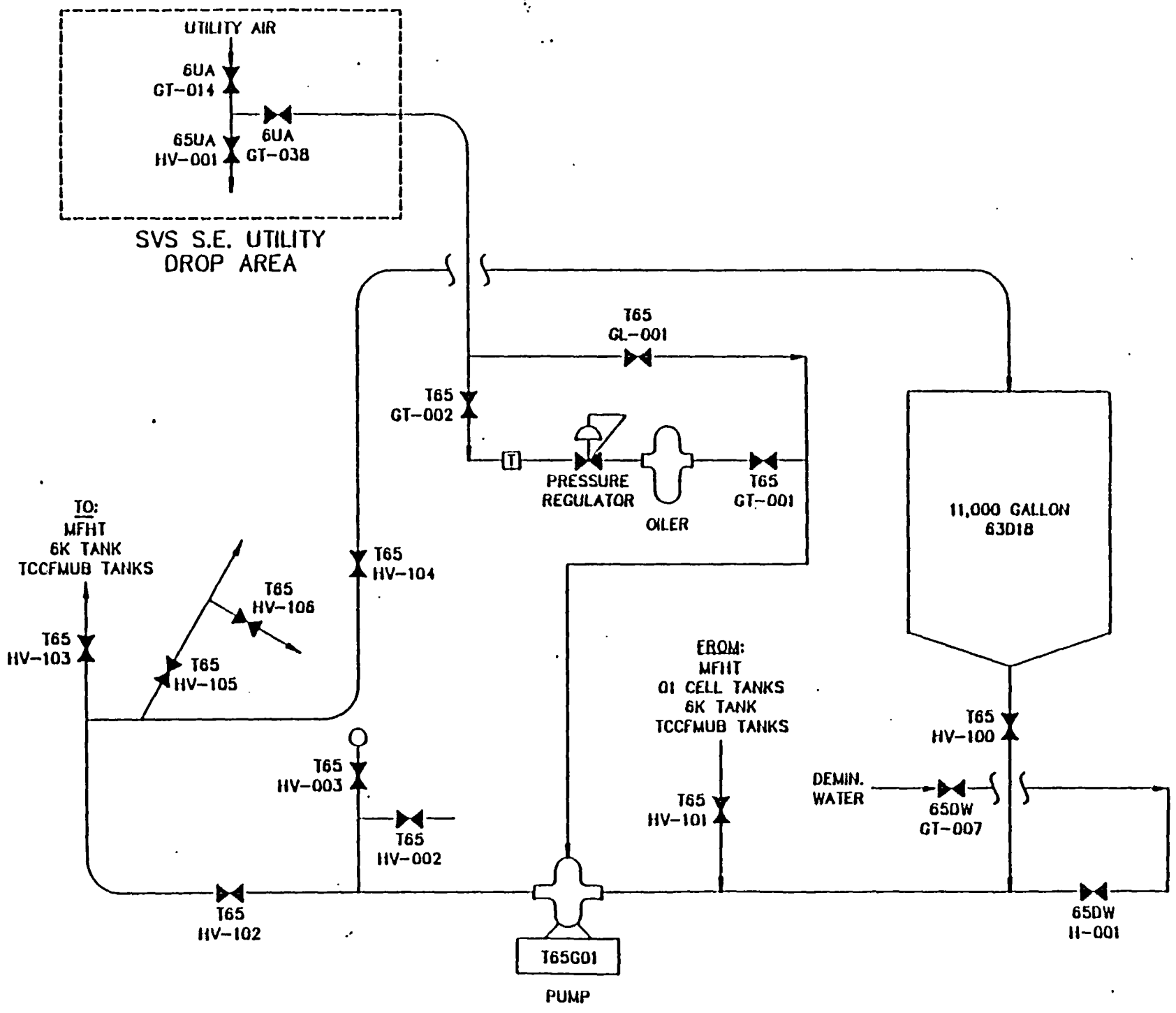
7.8 Figure 8 - Transfer from East Tank 65-D-01 to 11K Tank 63-D-18 Flow Diagram

7.9 Figure 9 - Transfer from West Tank 65-D-02 to 11K Tank 63-D-18 Flow Diagram



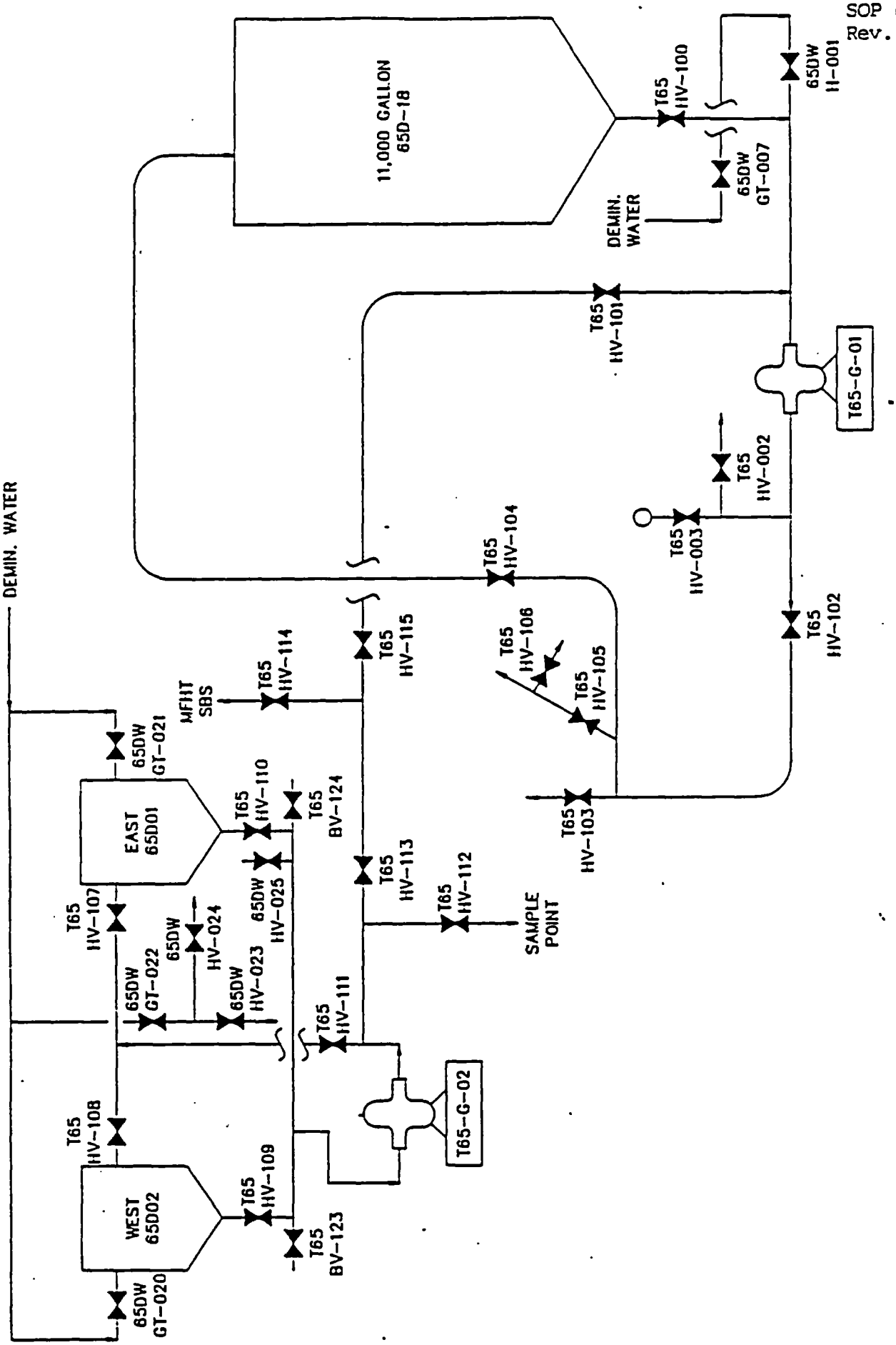
TEMPORARY COLD CHEMICAL FEED MAKE-UP BUILDING FLOW DIAGRAM

FIGURE 1



VITRIFICATION FACILITY 11K PUMP STATION

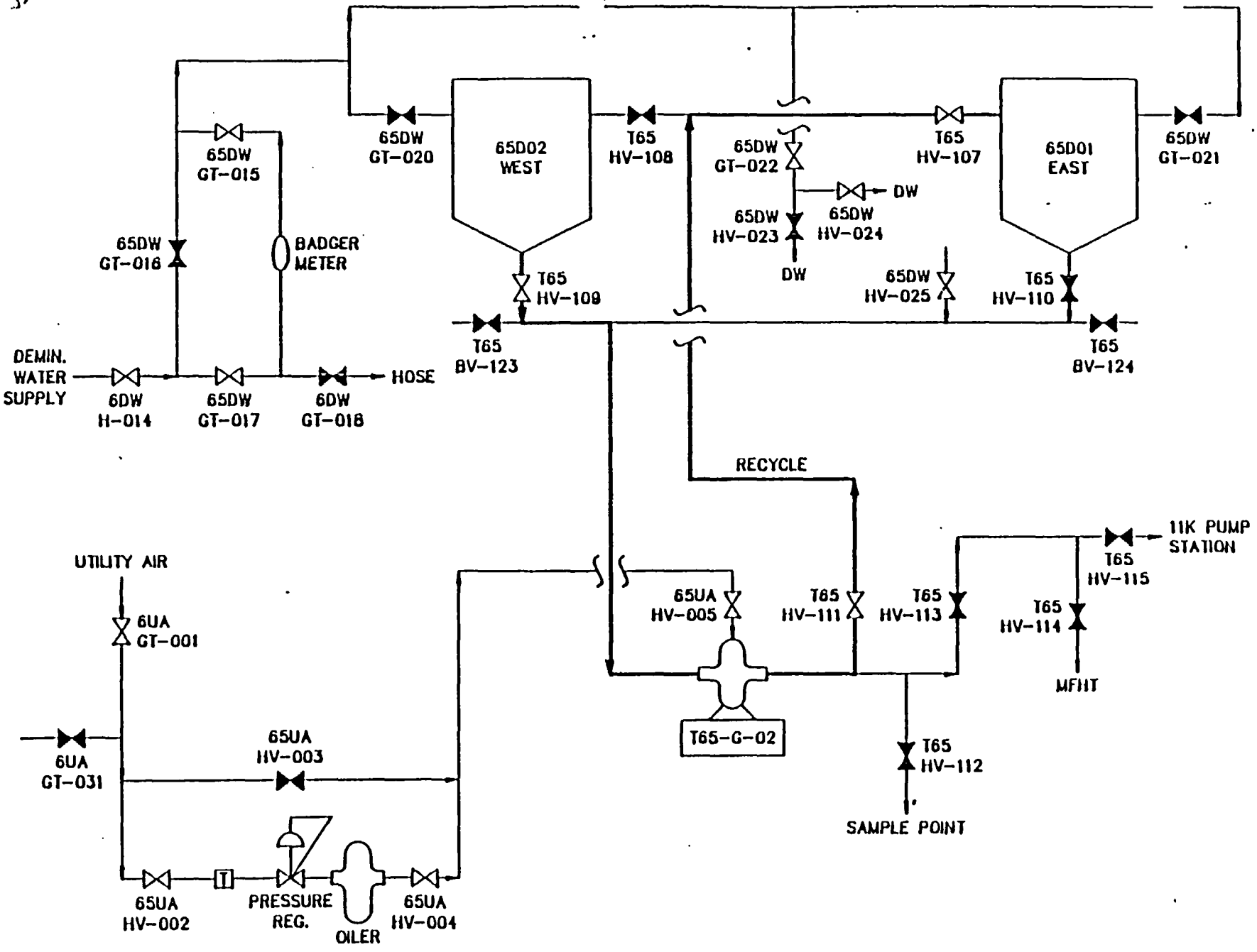
FIGURE 2



COLD CHEMICAL FEED MAKE-UP TRANSFER SYSTEM FLOW DIAGRAM

FIGURE 3

TRANSFER FROM WEST TANK 65-D02 TO EAST TANK 65-D01 FLOW DIAGR



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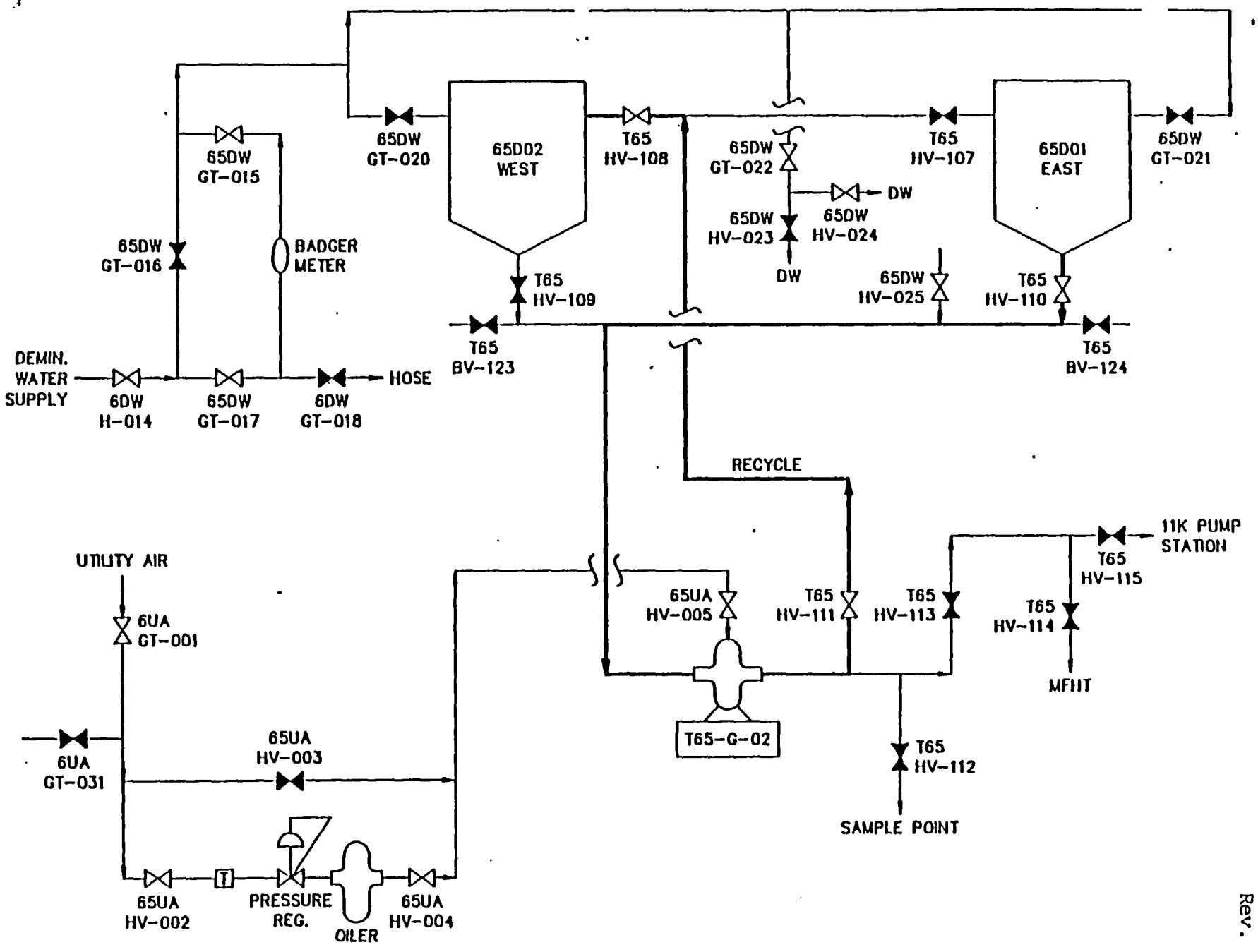
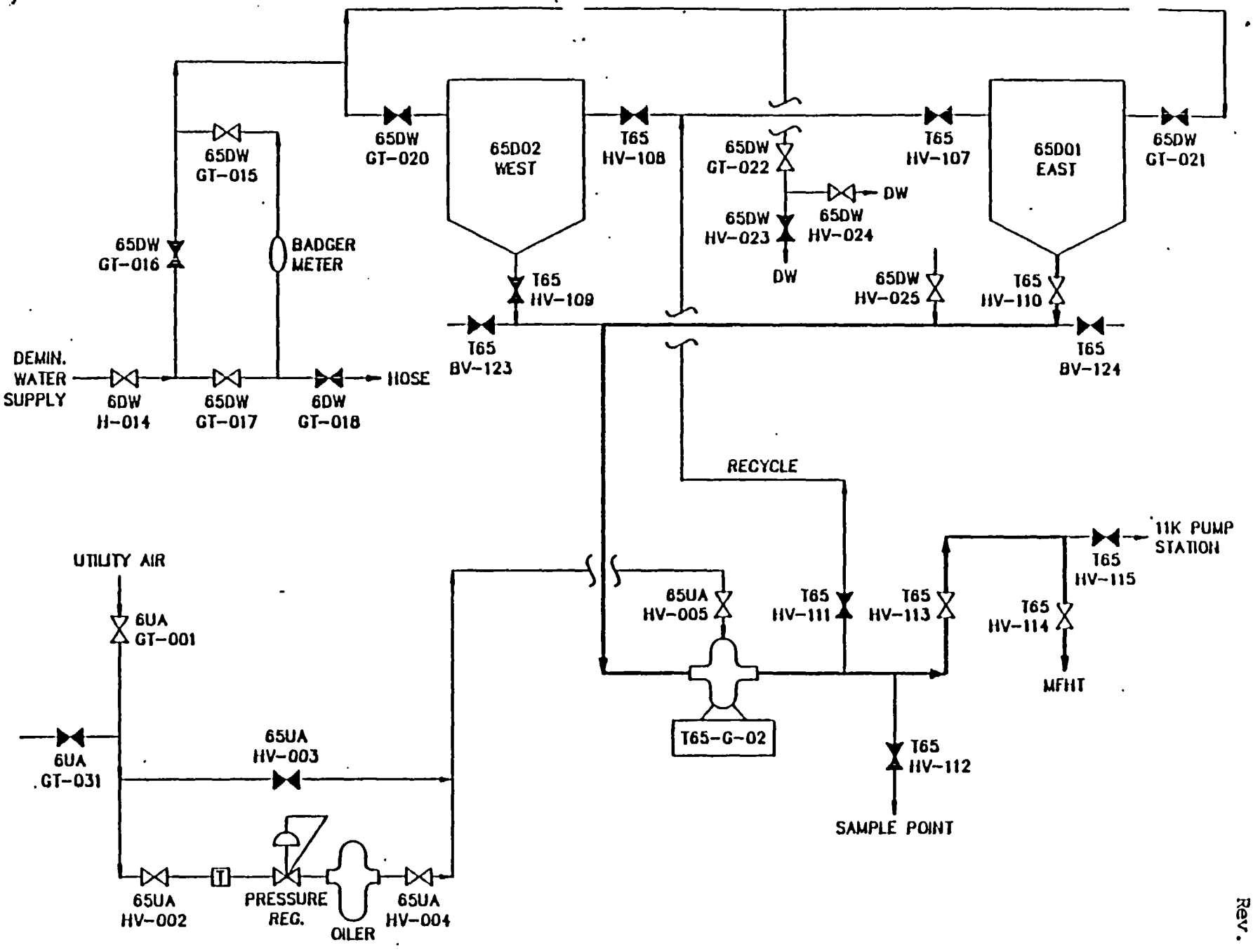
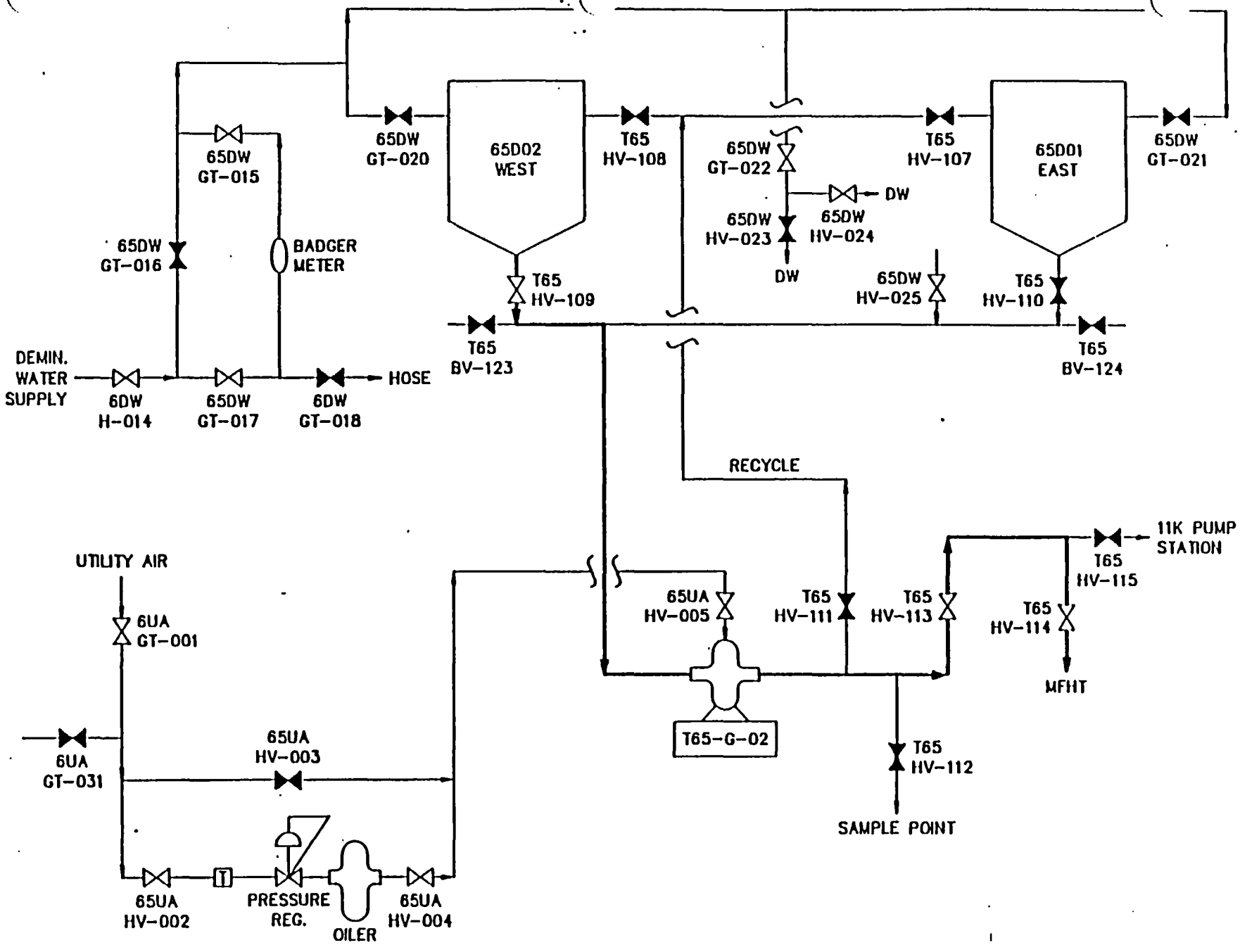
TRANSFER FROM EAST TANK 65-D01 TO WEST TANK 65-D02 FLOW DIAGRA



TRANSFER FROM EAST TANK 65-D01 TO MFHT 63-V011 FLOW DIAGRAM





TRANSFER FROM WEST TANK 65-D02 TO MFHT 63-V011 FLOW DIAGRAM

FIGURE 7

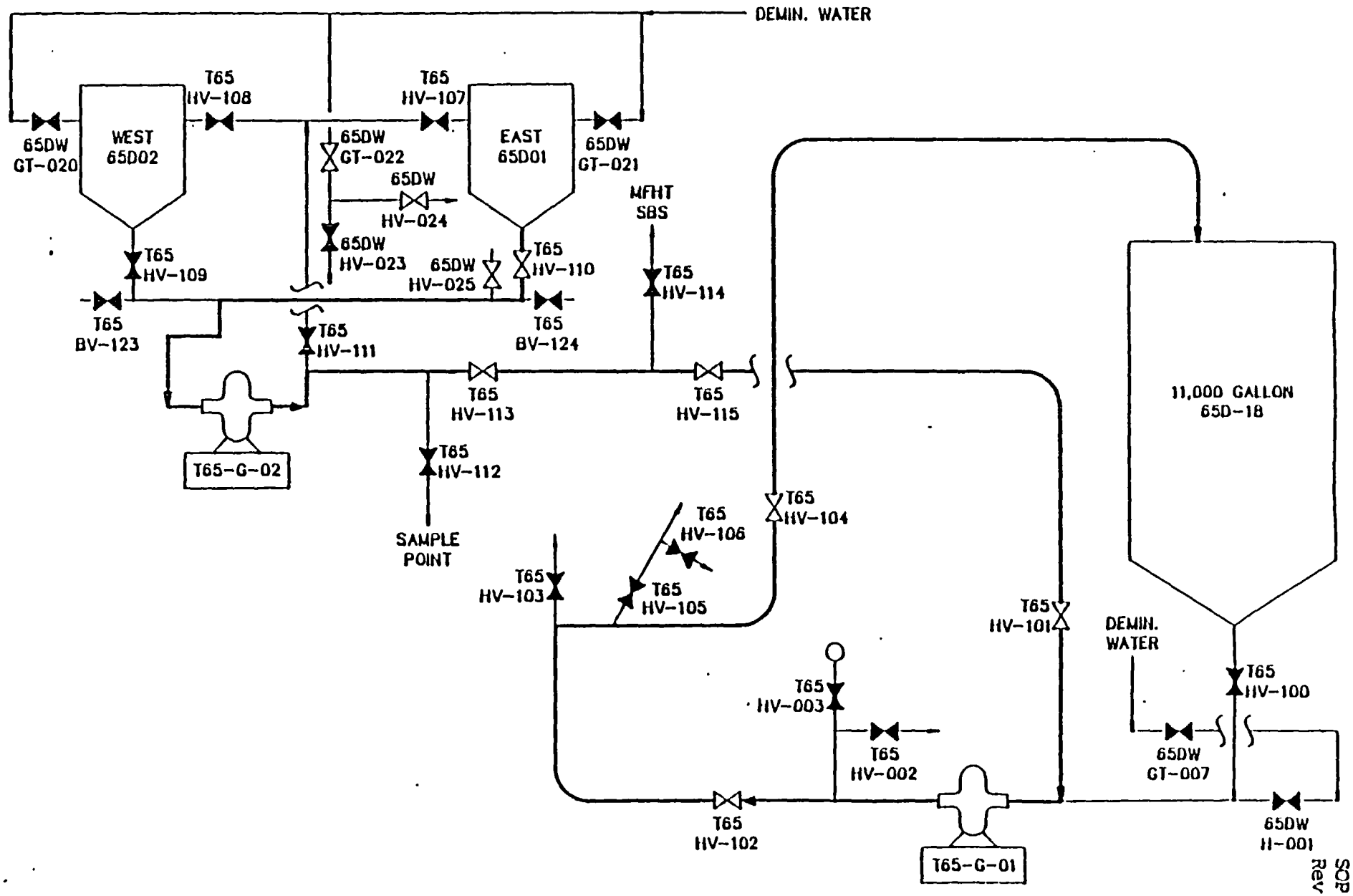
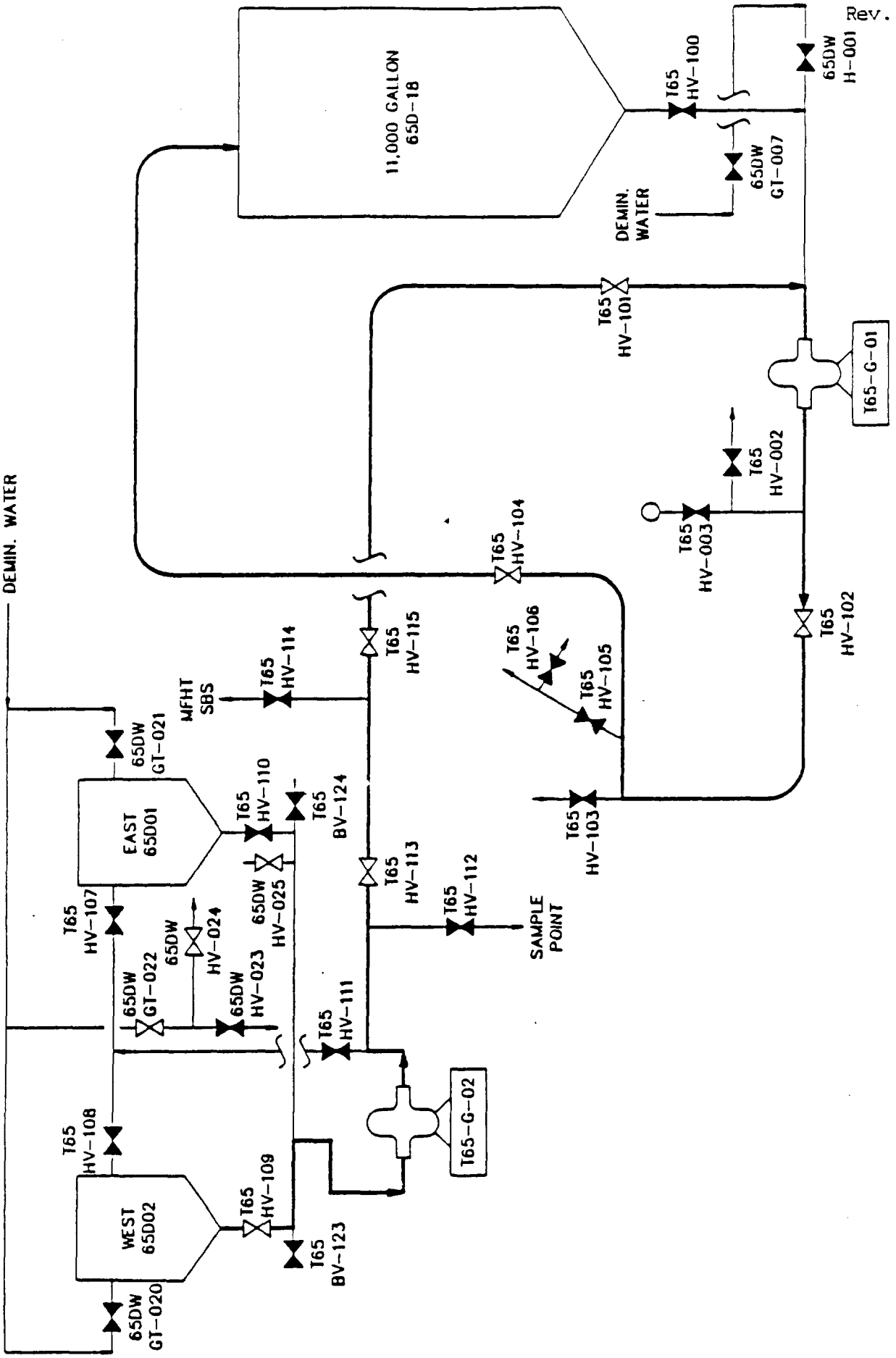


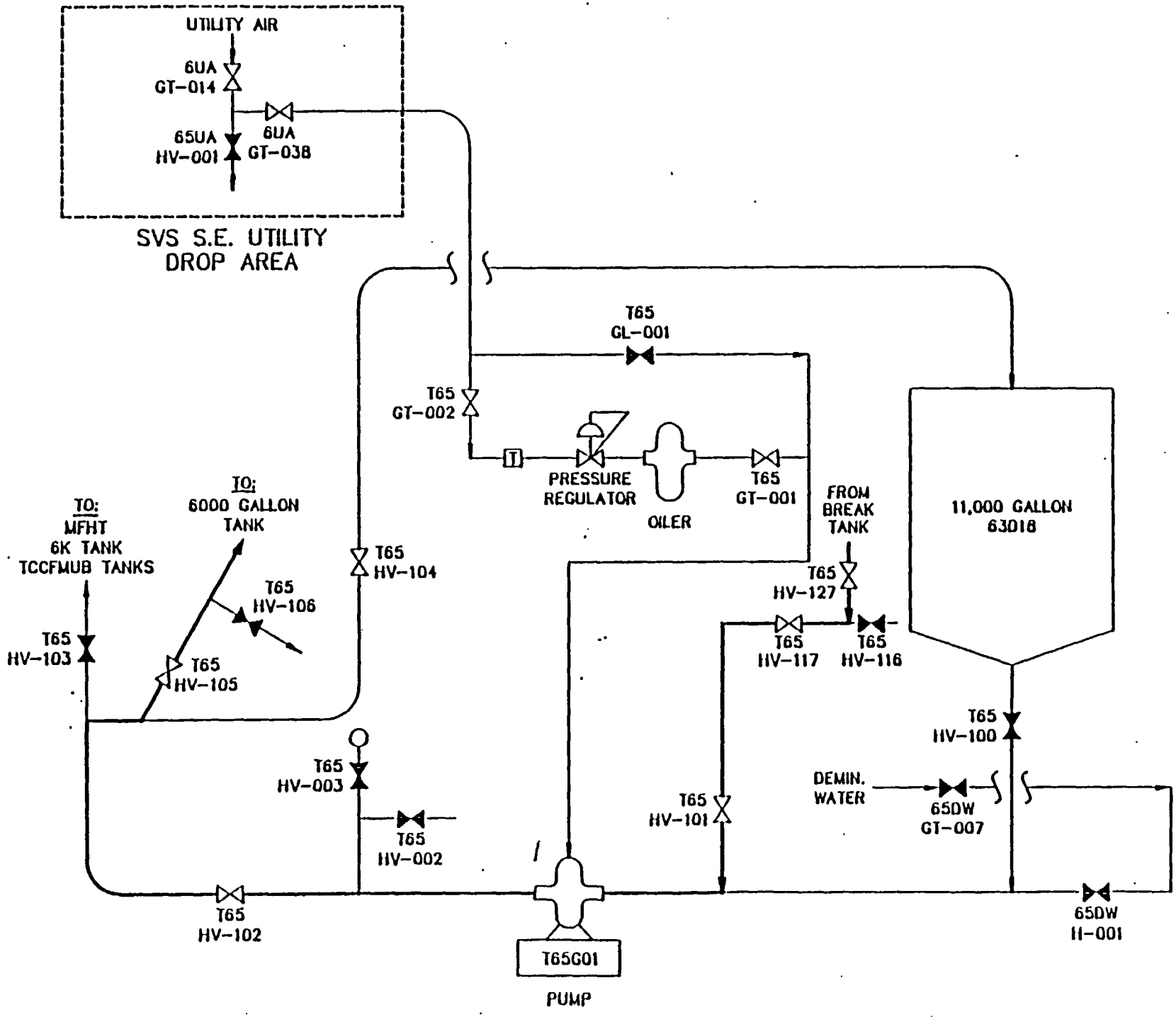
FIGURE 8

TRANSFER FROM EAST TANK 65-D01 TO 11K TANK 63-D18 FLOW DIAGRAM



TRANSFER FROM WEST TANK 65-D02 TO 11K TANK 63-D18 FLOW DIAGRAM

FIGURE 9



TRANSFER FROM BREAK TANK 64-D06 TO 6K TANK FLOW DIAGRAM

FIGURE 10