DOCKETED	
Docket Number:	87-AFC-01C
Project Title:	COMPLIANCE-Luz Solar Electric Generating System Cogeneration AFC (150 MW) Units III-VII.
TN #:	229493
Document Title:	Cold Layup Plan Addendum - SEGS VI-VII Kramer Junction
Description:	March 2019
Filer:	Patty Paul
Organization:	Nextera Energy Resources
Submitter Role:	Applicant
Submission Date:	8/20/2019 10:42:04 AM
Docketed Date:	8/20/2019

Cold Layup Plan Addendum

SEGS VI-VII Kramer Junction

Boron, California

March 2019

1. Introduction

The Solar Electric Generating Systems (SEGS) VI and VII facilities at Kramer Junction have been in cold layup for several months under a plan submitted to the California Energy Commission in September 2018.

The partnership continues to assess the future of the facility. As part of the assessment of future options for the facility, site personnel have been involved in reviewing the current layup plan to find way to further minimize safety and environmental risks while increasing the reliability of the layup.

1.1. Heat Transfer Fluid

As part of the layup review, the current method of storing the heat transfer fluid (HTF) was evaluated to determine if there were better methods of storage. The condition of the HTF was analyzed and evaluated in consultation with fluid manufacturers and re-processors. Based on the analysis, it was determined that to restore the fluid to near new specifications would cost approximately 80% of the cost of new fluid.

Since the fluid restoration costs are high and considering that the facility must circulate the fluid and burn natural gas to provide freeze protection, removal of the HTF from the facilities was viewed as a way to minimize safety and environmental risks at the facility.

Several companies were approached regarding recycling of the HTF from the facilities. World Oil Corporation in Compton, California replied to us with the best proposal from a logistics and environmental standpoint. They have all of the necessary permits and facilities to handle the HTF in most efficient manner and with the lowest safety and environmental risk of all companies evaluated. They will be able to recycle the HTF into marine diesel fuel and asphalt flux materials.

2. HTF Removal

The facility has developed a procedure and plan to allow for the complete removal of the HTF from the SEGS VI and VII Power Blocks.

The procedure is included as Appendix A. Additionally; the site procedure for Bulk Chemical Transfer that will be used in conjunction with the evacuation procedure is included as Appendix B.

Working in conjunction with World Oil, the facility has developed a schedule that will utilize four trucks per day on a Monday through Friday schedule. This schedule will allow for complete removal within a five-week period.

APPENDIX A

DESCRIPTION:

Following this procedure will provide the maximum safety for the operators and protection of the environment. The evacuation of the Power Block expansion vessel and associated piping will be accomplished by offloading HTF into trucks to be transported off site. Since the HTF in the expansion vessel is elevated, gravity feed can used to fill trucks. The HTF in the system will be moved into the expansion vessel using compressed air in a phased approach in order to completely evacuate the system while minimizing the safety and environmental exposures. The steps below shall be followed in order to accomplish this work safely for the operators and contractors working in the area.

SAFETY CONSIDERATIONS:

1. The tasks listed on this operating instruction require operating critical pieces of plant equipment that are powered by high pressure steam, high pressure hydraulic fluids, compressed air and high voltage electricity. It is imperative that the operators performing these checks fully understand the system operating parameters, the task objectives, the associated procedures and all hazardous conditions that exist and could occur during the performance of these tasks.
2. **Tailboard Meeting:** A detailed tailboard must be held prior to performing these tasks to ensure that all personnel are aware of the tasks being executed.
3. **Communication:** Contact with the Production Leader, Operations Specialist and other affected personnel must be established and maintained during these tasks.
4. **Equipment:** All equipment used needs to have passed a functional test and inspection. Take corrective action immediately when a piece of equipment is observed not performing properly.
5. Always use caution when performing these tasks. Piping and conduit throughout the plant is often at knee level or at eye level in the areas where these checks must be performed. Always wear appropriate Personal Protective Equipment.
6. Focused attention with your eyes on the path of travel is imperative. The best safety practice is to approach an inspection area with your eyes on path of travel, stop to look around, observe, and then return your eyes on path of travel for the next inspection area.

ENVIRONMENTAL CONSIDERATIONS:

Any waste generated shall be managed according to federal, state and local regulations as well as company policy. All waste management activities shall be coordinated through the Plant Environmental Specialist.

The use of all Toxic Release Inventory (TRI) associated with chemicals must be tracked, documented and submitted to the appropriate plant environmental contact.

REFERENCES:

ENV-SEGS-CHEM-0003 Bulk Chemical Transfer Procedure
31-06-F-101 SEGS VI Heat Transfer Fluid Cold Side P & I Diagram
31-06-F-102 SEGS VI Heat Transfer Fluid Hot Side P & I Diagram
31-06-F-132 SEGS VI HTF Heater P & I Diagram
OI-09 Operating Instruction - Evacuation Unit Operation
OI-10 Operating Instruction - HTF System
JSA-039 Job Safety Analysis - Evacuation Unit Operation
JSA-086 Job Safety Analysis - HTF Evacuation

STARTUP REQUIREMENTS – INITIAL EVACUATION:

1. Check the condition of the Portable Air Compressor. Ensure that the air compressor has the proper fittings, good hoses and is in sound condition
   - **Note: Refer to OI-122 for Air Compressor operation**
2. Any time air is introduced into the HTF system a double check valve shall be set up to prevent fluid from escaping in the event of a failed air hose.
3. Call the Control Room Operator to check that the system pressure is less than 30 psi.

EVACUATION ORDER:

The Power Block HTF system shall be evacuated in an orderly phased manner to ensure complete HTF removal.

Phase 1– HTF Steam Train “A”

Phase 2 – HTF Steam Train “B”

Phase 3 – HTF Steam Train Bypass, HTF Pump Piping

Phase 4 – HTF Heater

Phase 5 – Solar Field Cold HTF Headers

Phase 6 – Solar Field Hot HTF Header

Phase 7 – Expansion Vessel (Truck Loading)

PHASE 1 & 2 STEAM TRAIN EVACUATION:

1. Stage the portable air compressor in position near the Steam Train “A” inlet isolation valve. Install the double check valve. Air compressor should be started and brought up to pressure before introducing air into system.
2. Check the condition of the double check valve to ensure correct operation.
3. Ensure expansion vessel pressure is below 30 psi.
4. Secure P-370 HTF pump.
5. Isolate Steam Train “A” inlet HTF MOV366.
6. Install double check valve on drain line immediately downstream of MOV366.

7. Attach air hose from air compressor to double check valve.
8. Verify compressor has reached a pressure greater than 100 psi.
9. Line up air into piping to begin pushing HTF.
10. Monitor expansion vessel pressure and level. If pressure reaches 50 psi, vent vessel through ullage

system. If level reaches 80 inches, secure airline to stop pushing HTF.

11. Continue to push with air until all HTF has been removed from Steam Train as indicated by no increase in expansion vessel level.
12. Attach Evacuation Truck to each HTF low point drain on Preheater, Steam Generator, Super Heater, and Reheater and pull a vacuum on the truck to ensure all residual HTF is removed from each vessel.
13. Isolate HTF outlet isolation valves.

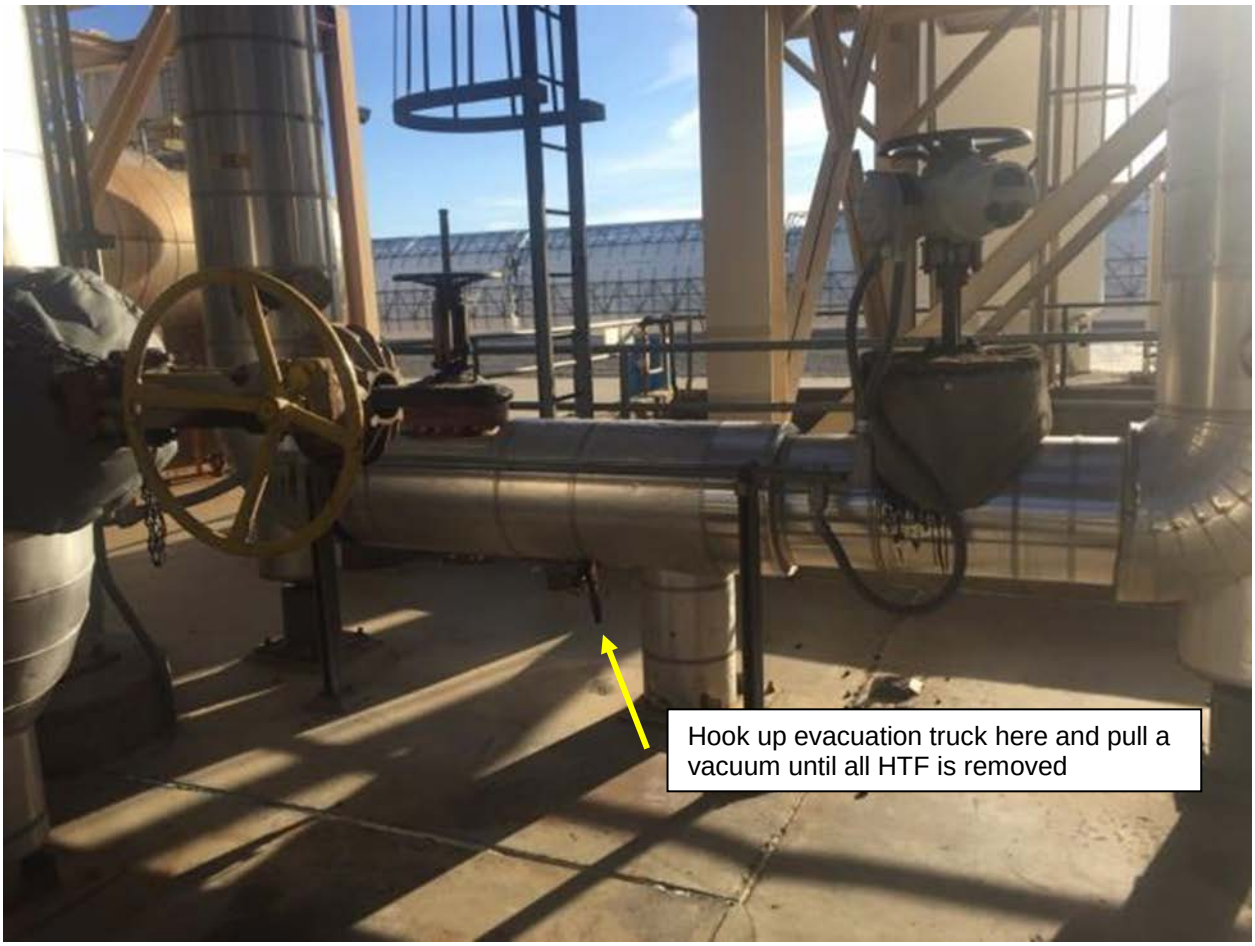
14. Repeat above steps on “B” Steam Train utilizing MOV 365 in place of MOV 366.

PHASE 3 STEAM TRAIN BYPASS & HTF PUMP PIPING:

1. Ensure expansion vessel is below 30 Psi.

2. Secure P-370 HTF pump.
3. Isolate expansion vessel main outlet.

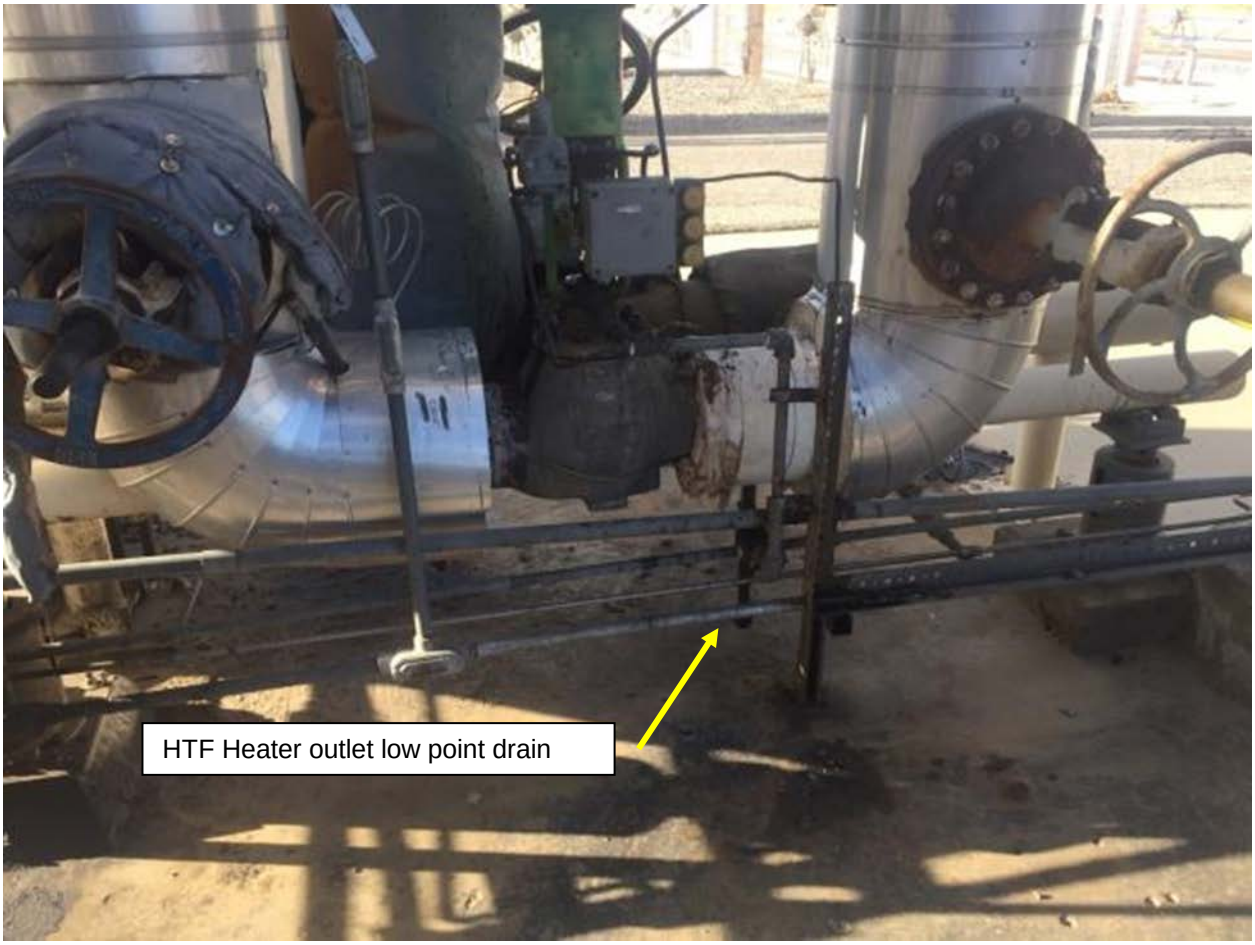
4. Hook up double check valve at low point drain on HTF steam train bypass.
5. Attach air hose from air compressor to double check valve.
6. Verify compressor has reached a pressure greater than 100 psi.
7. Line up air into piping to begin pushing HTF.
8. Monitor expansion vessel pressure and level. If pressure reaches 50 psi, vent vessel through ullage system. If level reaches 80 inches, secure airline to stop pushing HTF.
9. Continue to push with air until all HTF has been removed from the piping as indicated by no increase in expansion vessel level.
10. Hook up evacuation truck to low point drain on HTF steam train bypass line and continue to pull vacuum on header until no level increase on truck.



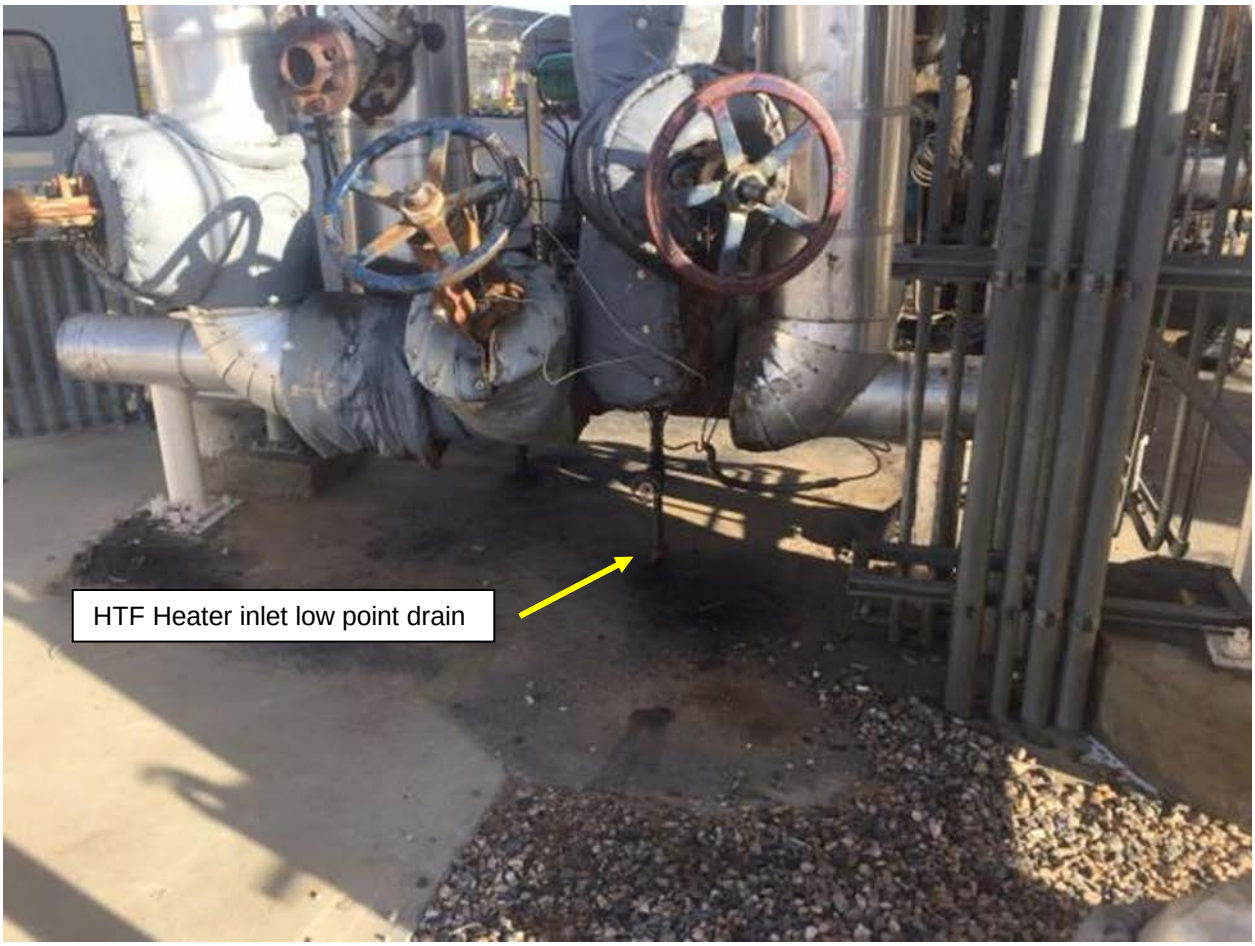
11. Hook up evacuation truck to low point drain on each HTF pump(P-300, P310, P-320 and P-370) pull vacuum until no more fluid is present.

PHASE 4 HTF HEATER:

1. Isolate inlet and outlet block valves to the HTF heater.
2. Hook up evacuation truck at low point on heater outlet and pull vacuum until all HTF is removed.



3. Hook up evacuation truck at low point on heater inlet and pull vacuum until all HTF is removed.



PHASE 5 SOLAR FIELD COLD HTF HEADERS:

1. Hook up at low point with evacuation truck at cold header inlet to the east solar field.

2. Pull vacuum until no more HTF is present.
3. Hook up at low point with evacuation truck at cold header inlet to the west solar field.
4. Pull vacuum until no more HTF is present.

PHASE 6 SOLAR FIELD HOT HTF HEADER:

1. Isolate main inlet valve to expansion vessel from the solar field.

2. Hook up evacuation truck at low point on hot HTF return header from the solar field. Pull vacuum until no more HTF is present.

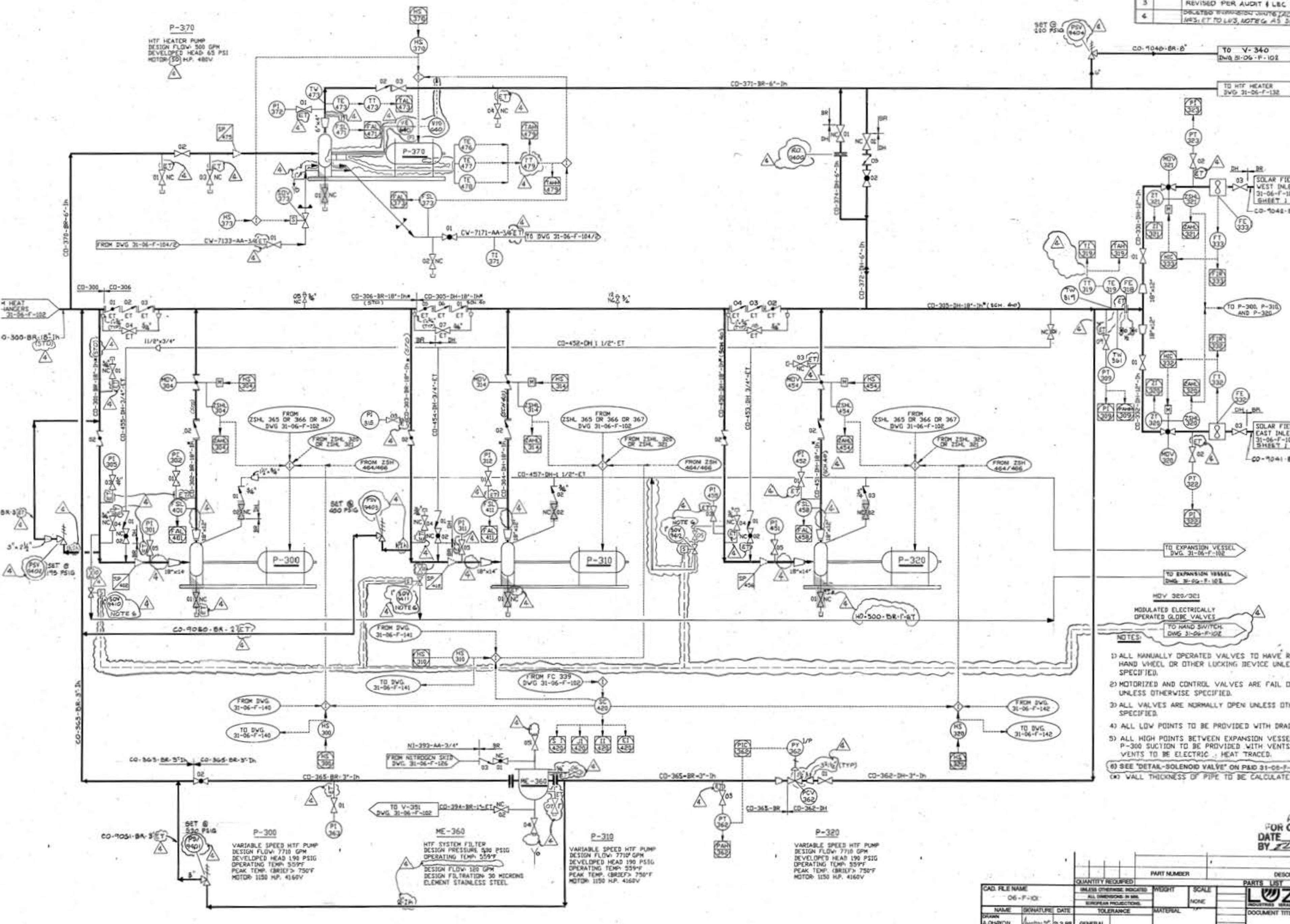
PHASE 7 EXPANSION VESSEL (TRUCK LOADING):

1. Filling of trucks can be accomplished using the drain located at the bottom of the expansion vessel.


Expansion vessel bottom drain line.

2. Since the expansion vessel is elevated, HTF can be transfer using a gravity feed method.
3. The ullage vent will need to open to allow the expansion vessel not to pull a vacuum during the truck fill operation.
4. If necessary, nitrogen is available to add additional pressure in the expansion vessel.
5. Utilize ENV-SEGS-CHEM-0003 Bulk Chemical Transfer Procedure for all connection, monitoring, and spill prevention requirements.
6. Trucks shall be located within the Power Block concrete HTF containment area whenever HTF transfers are in progress.
7. Additional spill containments materials are available and will be used as needed during the truck loading operation.

REV.	ECO.NO.	DESCRIPTION	BY	DATE	APPROVED
REVISIONS					
1	ECN.173	GENERAL REVISION ISSUED FOR CONSTRUCTION			
2	ECN. 280 ECN. 230	REMOVE HTF HEATER DETAILED DESIGN REVISION	[illegible]	[illegible]	[illegible]
3		REVISED PER AUDIT & LEC COMMENTS	SAN	7/1/88	[illegible]
4		DELETED [illegible] ADDED INSTR. NOS., ET TO LVS, NOTE 6 AS SHOWN.	RS	[illegible]	[illegible]



MOV 320/321

MODULATED ELECTRICALLY OPERATED GLOBE VALVES

TO HAND SWITCH DWG 31-06-F-102

NOTES:

1) ALL MANUALLY OPERATED VALVES TO HAVE REMOVABLE HAND WHEEL OR OTHER LOCKING DEVICE UNLESS OTHERWISE SPECIFIED.
2) MOTORIZED AND CONTROL VALVES ARE FAIL OPEN UNLESS OTHERWISE SPECIFIED.
3) ALL VALVES ARE NORMALLY OPEN UNLESS OTHERWISE SPECIFIED.
4) ALL LOW POINTS TO BE PROVIDED WITH DRAINS
5) ALL HIGH POINTS BETWEEN EXPANSION VESSEL AND P-300 SUCTION TO BE PROVIDED WITH VENTS. VENTS TO BE ELECTRIC . HEAT TRACED.
6) SEE "DETAIL-SOLENOID VALVE" ON P&ID 31-06-F-102.

(*) WALL THICKNESS OF PIPE TO BE CALCULATED

APPROVED FOR CONSTRUCTION
DATE 7-20-88
BY [signature]

QUANTITY REQUIRED	PART NUMBER	DESCRIPTION	ITEM

PARTS LIST

CAD. FILE NAME 06-F-101

NAME	SIGNATURE	DATE
DRAWN A.OHAYON	[signature]	21.2.88
DESIGNED I.BROWN	[signature]	[illegible]
CHECKED		
ENGINEERING A.MEREL	[signature]	[illegible]
DOCUMENTATION J.GROSSMAN		

UNLESS OTHERWISE INDICATED ALL DIMENSIONS IN MM. EUROPEAN PROJECTIONS.

TOLERANCE: GENERAL TOLERANCE; TOLERANCE BETWEEN HOLES; ANGLES

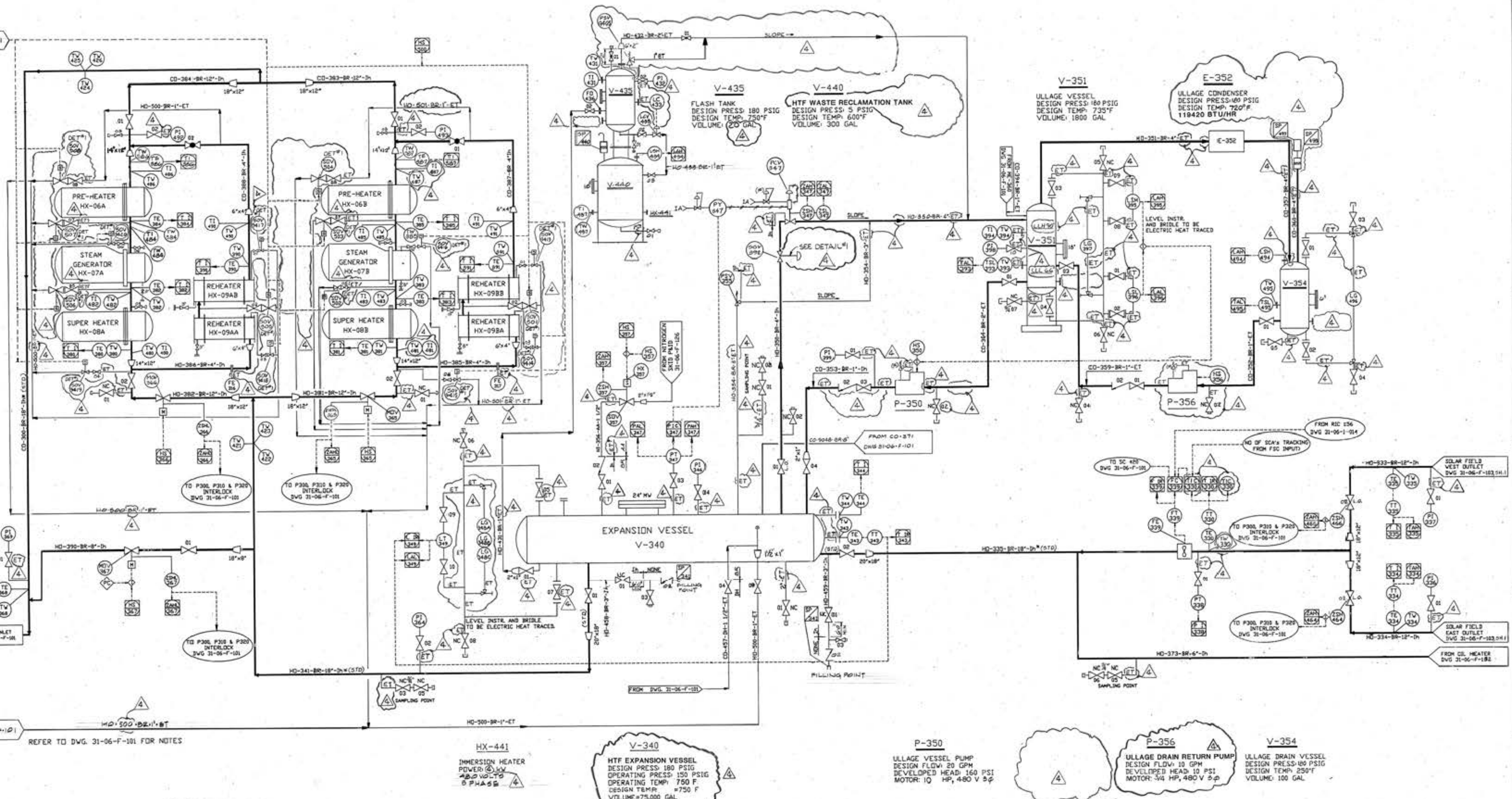
WEIGHT | SCALE NONE | MATERIAL | HEAT TREAT | FINISH ✓ | NEXT ASSY.

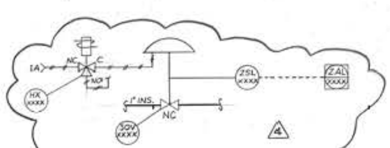
LUZ INDUSTRIES ISRAEL — SCIENCE BASED INDUSTRIES CAMPUS, BUILDING 6, HAR HOTZVIM P.O.BOX 7529 JERUSALEM 91073 TEL.02-801422 FAX.02-801536 TELEX.26221

DOCUMENT TITLE: SEGS VI HEAT TRANSFER FLUID COLD SIDE P & I DIAGRAM

SIZE E | DOCUMENT NO. 31-06-F-101 | REV. 4 | SHEET OF

REV.	ECO.NO.	DESCRIPTION	BY	DATE	APPROVED
1	ECN.169	GENERAL REVISION, ISSUED FOR CONSTRUCTION			
2	ECN.230 ECN.280	DETAILED DESIGN REVIEW, ULLAGE/RECL REVISED FIELD OUTLET SAN'S ADDED			
3		REVISED PER AUDIT & LEC COMMENTS	GA		EDA
4		DELETED HX-359 & HX-436; REV'D LN'S HO-432 & HO-500; ADDED DET#1 & ET TO LNS	RS		EA





SOLENOID VALVE-DETAIL #1 (TYP)

NOTE: EACH SOV WILL BE FITTED WITH A 3-WAY SOLENOID VALVE (HX) AND POSITION SWITCH (ZSL). THE (HX) & (ZSL) WILL CARRY THE SAME TAG NUMBER AS THE SOV. ONLY THE SOV IS SHOWN ON THE P&ID FOR CLARITY.

QUANTITY REQUIRED	PART NUMBER	DESCRIPTION	ITEM

PARTS LIST

CAD. FILE NAME: 06-F-102

UNLESS OTHERWISE INDICATED ALL DIMENSIONS IN MM. EUROPEAN PROJECTIONS.

NAME	SIGNATURE	DATE
DRAWN A.OHAYON		
DESIGNED I.BROWN		
CHECKED A.MEREL		
ENGINEERING A.MEREL		
DOCUMENTATION		

TOLERANCE: GENERAL TOLERANCE / TOLERANCE BETWEEN HOLES / ANGLES

WEIGHT | SCALE | MATERIAL | HEAT TREAT | FINISH ✓ | NEXT ASSY.

LUZ INDUSTRIES ISRAEL — SCIENCE BASED INDUSTRIES CAMPUS BUILDING B. HAR HOTZVIM P.O.BOX 7929 JERUSALEM 91079 TEL:02-801422 FAX:02-801636 TELEX:26331

DOCUMENT TITLE

SEGS VI
HEAT TRANSFER FLUID
HOT SIDE
P&I DIAGRAM

SIZE: E | DOCUMENT NO.: 31-06-F-102 | REV.: 4 | SHEET 1 OF 1

REVISIONS				
LTR	DESCRIPTION	BY	DATE	APPR'D
1	ISSUED FOR CONSTRUCTION		29 FEB 88	
2	REVISED PER AUDIT & LEC COMMENTS	M.A.	5-19-88	
3	REV. PER CDOS, REV. INSTRUMENTS	CA.	11-30-88	

H-375
DESIGN DUTY: 21×10^6 BTU/HR
DESIGN FLUID OUTLET TEMP.: 735°F
DESIGN FLUID FLOW RATE: 500 GPM

B-375
HTF HEATER BLOWER
MOTOR: 20 H.P. 480 V

BURNER MANAGEMENT CONTROL PANEL

FROM DWG. 31-06-F-101

C0-371-BR-6"-Ih

H-375

HO-373-BR-6"-Ih

TO EXPANSION VESSEL DWG 31-06-F-102

REMOTE SP

I/P

ELEC. SPARK IGN.

B-375

FG-377-AQ-2"

FROM DWG. 31-06-F-110

LOCATE 40' MIN. FROM H-375

VENT TO SAFE AREA

(*) MECHANICAL LINK

(**) NOT SUPPLIED BY VENDOR.

APPROVED FOR CONSTRUCTION
DATE 5-24-88
BY Ed Sundstrom

QUANTITY REQUIRED	PART NUMBER	DESCRIPTION

LIST OF MATERIALS

	NAME	SIGNATURE	DATE
DRAWN	V. SORIN		21.2.88
DESIGNED	I. BROWN		29 FEB '88
CHECKED	A. MERBL		29 FEB '88
ENGINEERING DEPT	A.MERBL		29 FEB '88
APPROVED	J. GROSSMAN		29 FEB '88
APPROVED			

UNLESS OTHERWISE INDICATED
ALL DIMENSIONS IN MM.
EUROPEAN PROJECTIONS

MATERIAL

FINISH ✓

HEAT TREAT | WEIGHT

TOLERANCE DIMENSIONS		
FROM	UP TO	±
1	6	0.1
6	30	0.2
30	100	0.3
100	300	0.5
300	1000	0.8
ANGLES		½°

ECO NO. | NEXT ASSEMBLY
ECO's NOT INCORPORATED IN THIS REVISION | APPLICATION

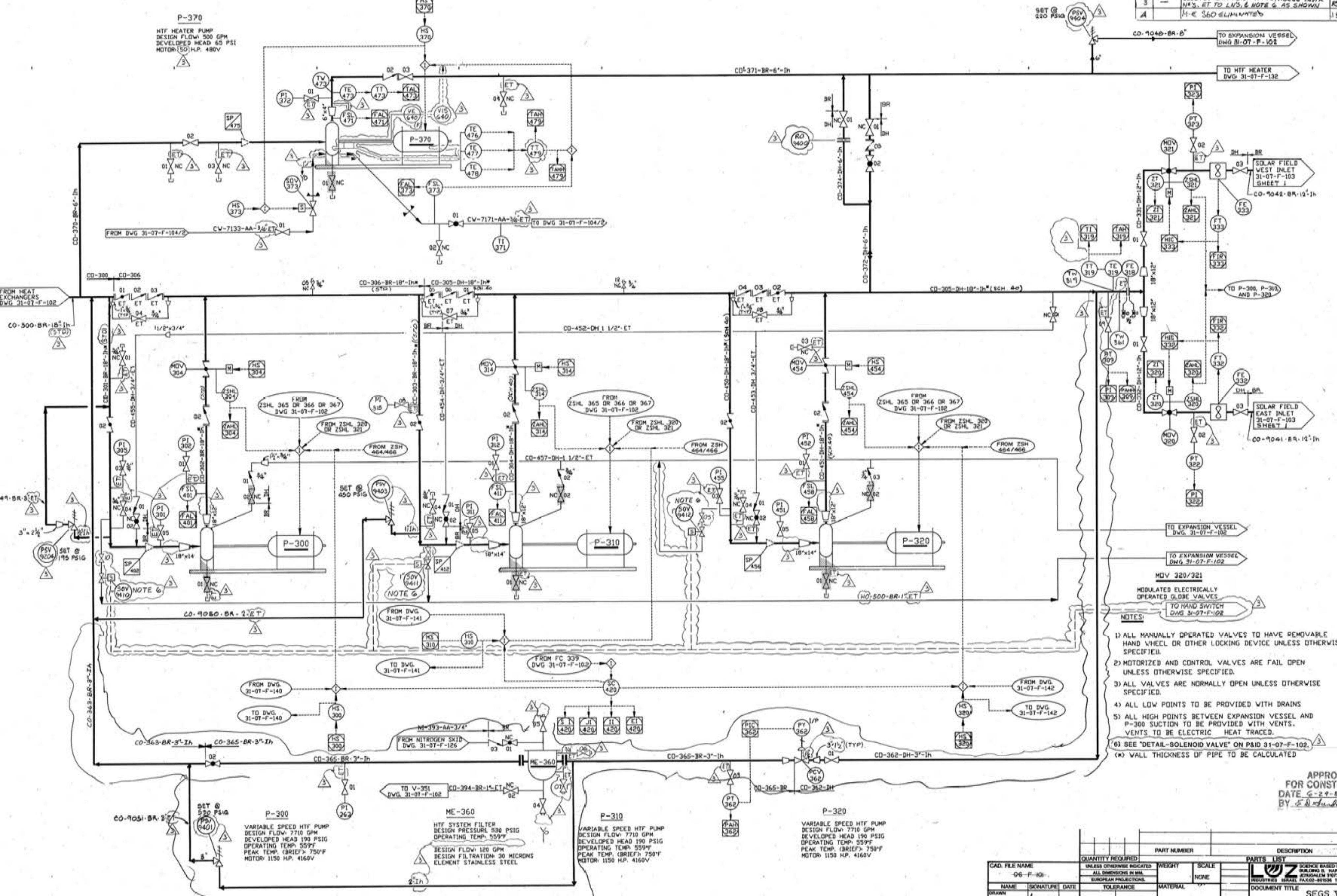
LUZ INDUSTRIES ISRAEL
Science Based Industries Campus, Building B, Har-Hotzvim
P.O.Box 7929 Jerusalem 91070, Israel. — Phone: 02-61062
Telex: 26331 IHPTS, Telefax: 02-624262

DOCUMENT TITLE

SEGS VI
HTF HEATER
PIPING & INSTRUMENT DIAGRAM

SIZE D | DOCUMENT NO. 31-06-F-132 | SCALE NONE | SHEET 1 OF 1

REV.	ECO.NO.	DESCRIPTION	BY	DATE	APPROV
A	—	ISSUED FOR APPROVAL	TA	6-29-88	LD
1	—	ISSUED AS APPROVED BY LUZ	LD	6-30-88	
2	—	ADDED LINE CO-500, SPEC BREAK FOR CO-363 & CO-365, REROUTED CO-9049	LD	7-18-88	
3	—	DELETED EXPANSION JOINTS, ADDED INSTR N°'S, ET TO LN'S, & NOTE 6 AS SHOWN	RS	11/17/88	
A		M-E 360 ELIMINATED	JS	11/16/88	



NOTES:

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2) MOTORIZED AND CONTROL VALVES ARE FAIL OPEN UNLESS OTHERWISE SPECIFIED.
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5) ALL HIGH POINTS BETWEEN EXPANSION VESSEL AND P-300 SUCTION TO BE PROVIDED WITH VENTS. VENTS TO BE ELECTRIC HEAT TRACED.
6) SEE "DETAIL-SOLENOID VALVE" ON P&ID 31-07-F-102.
(*) WALL THICKNESS OF PIPE TO BE CALCULATED

APPROVED FOR CONSTRUCTION
DATE 6-29-88
BY [signature]

PARTS LIST: QUANTITY REQUIRED | PART NUMBER | DESCRIPTION | ITEM

CAD. FILE NAME: 06-F-101

NAME	SIGNATURE	DATE
DRAWN A.OHAYON	[signature]	21.2.88
DESIGNED I.BROWN	[signature]	29 Feb '88
CHECKED		
ENGINEERING A.MERBL	[signature]	
DOCUMENTATION J.GROSSMAN		

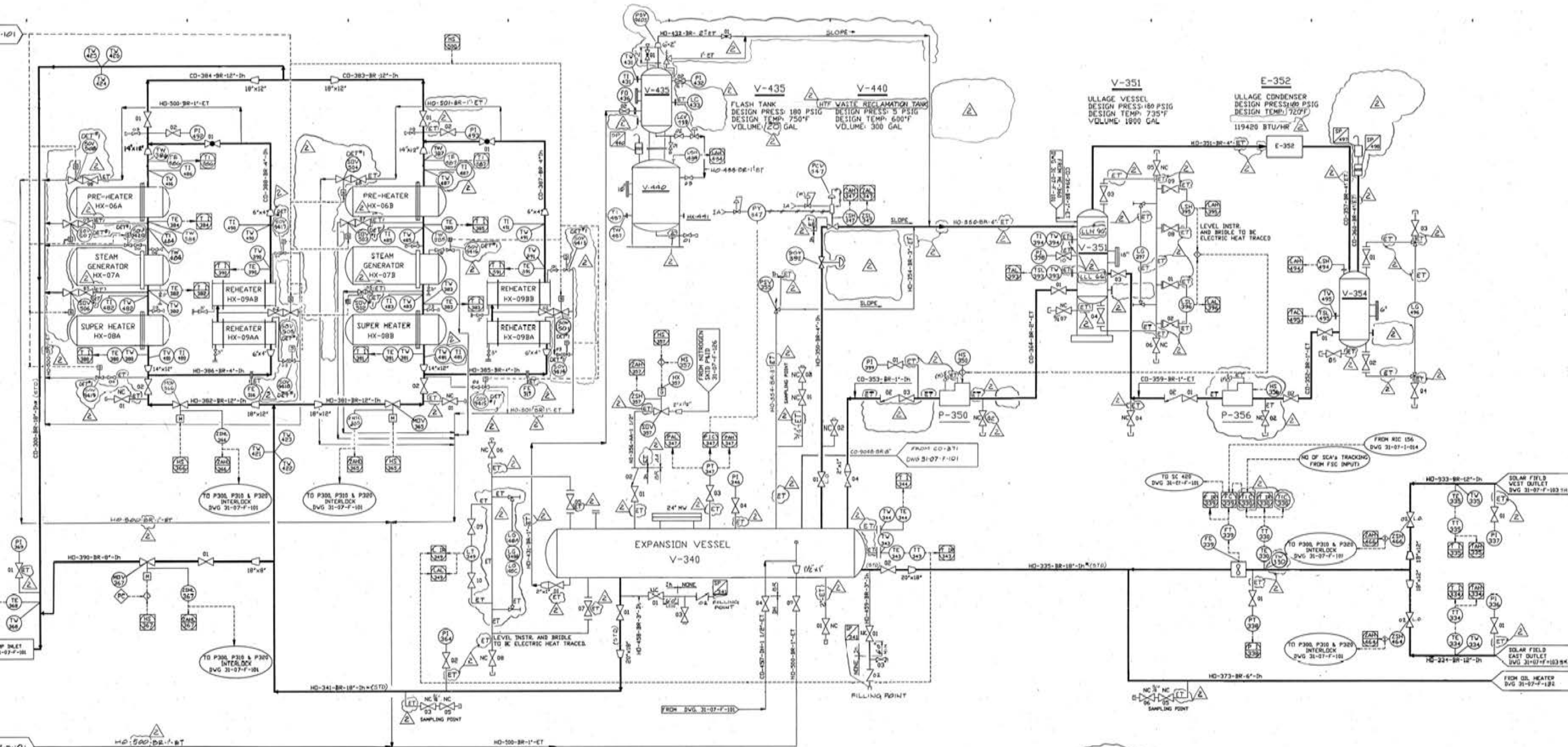
UNLESS OTHERWISE INDICATED ALL DIMENSIONS IN MM. EUROPEAN PROJECTIONS.
TOLERANCE: GENERAL TOLERANCE / TOLERANCE BETWEEN HOLES / ANGLES
WEIGHT | SCALE: NONE | MATERIAL | HEAT TREAT | FINISH ✓ | NEXT ASSY.

LUZ INDUSTRIES ISRAEL — SCIENCE BASED INDUSTRIES CAMPUS BUILDING B, HAR HOTZVIM P.O.BOX 7929 JERUSALEM 91073

DOCUMENT TITLE: SEGS VII HEAT TRANSFER FLUID COLD SIDE P & I DIAGRAM

SIZE: E | DOCUMENT NO. 31-07-F-101 | REV 3 | SHEET OF

REV.	ECO.NO.	DESCRIPTION	BY	DATE	APPROV	
A	—	ISSUED FOR APPROVAL	LD	[illegible]	[illegible]	[illegible]
1	—	ISSUED AS APPROVED BY LUZ	LD	4/29/88	[illegible]	[illegible]
2	—	DELETED HX-359 & HX-436; REVISED LN NO'S HO-432 & HO-500; ADDED DET#1 & ET TO LN'S	RS	[illegible]	[illegible]	[illegible]



REFER TO DWG. 31-07-F-101 FOR NOTES

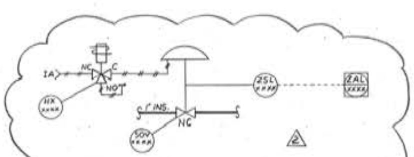
HX-441
IMMERSION HEATER
POWER: 4 kW
480 VOLTS
3 PHASE

V-340
HTF EXPANSION VESSEL
DESIGN PRESS: 180 PSIG
OPERATING PRESS: 150 PSIG
OPERATING TEMP: 750°F
DESIGN TEMP: =750 F
VOLUME=75,000 GAL

P-350
ULLAGE VESSEL PUMP
DESIGN FLOW: 20 GPM
DEVELOPED HEAD: 160 PSI
MOTOR: 10 HP, 480 V 3Ø

P-356
ULLAGE DRAIN RETURN PUMP
DESIGN FLOW: 10 GPM
DEVELOPED HEAD: 10 PSI
MOTOR 1/4 HP, 480 V 3Ø

V-354
ULLAGE DRAIN VESSEL
DESIGN PRESS: 180 PSIG
DESIGN TEMP: 250°F
VOLUME: 100 GAL



SOLENOID VALVE-DETAIL # 1 (TYP)

NOTE: EACH SOV WILL BE FITTED WITH A 3-WAY SOLENOID VALVE (HX) AND POSITION SWITCH (ZSL). THE (HX) & (ZSL) WILL CARRY THE SAME TAG NUMBER AS THE SOV. ONLY THE SOV IS SHOWN ON THE P&ID FOR CLARITY.

LUZ CONSTRUCTION MANAGEMENT
APPROVED
FOR CONSTRUCTION

CAD. FILE NAME		
-06-F-102-		
NAME	SIGNATURE	DATE
DRAWN A.OHAYON	[signature]	
DESIGNED I.BROWN	[signature]	29th Feb '88
CHECKED A.MERBL	[signature]	29th Feb 1988
ENGINEERING A.MERBL	[signature]	29th Feb 1988
DOCUMENTATION		

QUANTITY REQUIRED | PART NUMBER | DESCRIPTION | PARTS LIST

UNLESS OTHERWISE INDICATED ALL DIMENSIONS IN MM. EUROPEAN PROJECTIONS.
TOLERANCE: GENERAL TOLERANCE / TOLERANCE BETWEEN HOLES / ANGLES
WEIGHT | SCALE | MATERIAL | HEAT TREAT | FINISH ✓ | NEX * ASSY.

LUZ INDUSTRIES ISRAEL — SCIENCE BASED INDUSTRIES CAMPUS BUILDING D, HAR HOTZVIM P.O.BOX 7923 JERUSALEM 91071 TEL.02-801422 FAX.02-801536 TELEX:26331

DOCUMENT TITLE
SEGS VII
HEAT TRANSFER FLUID
HOT SIDE
P&I DIAGRAM

SIZE: E | DOCUMENT NO.: 31-07-F-102 | REV: 2
SHEET 1 OF 1

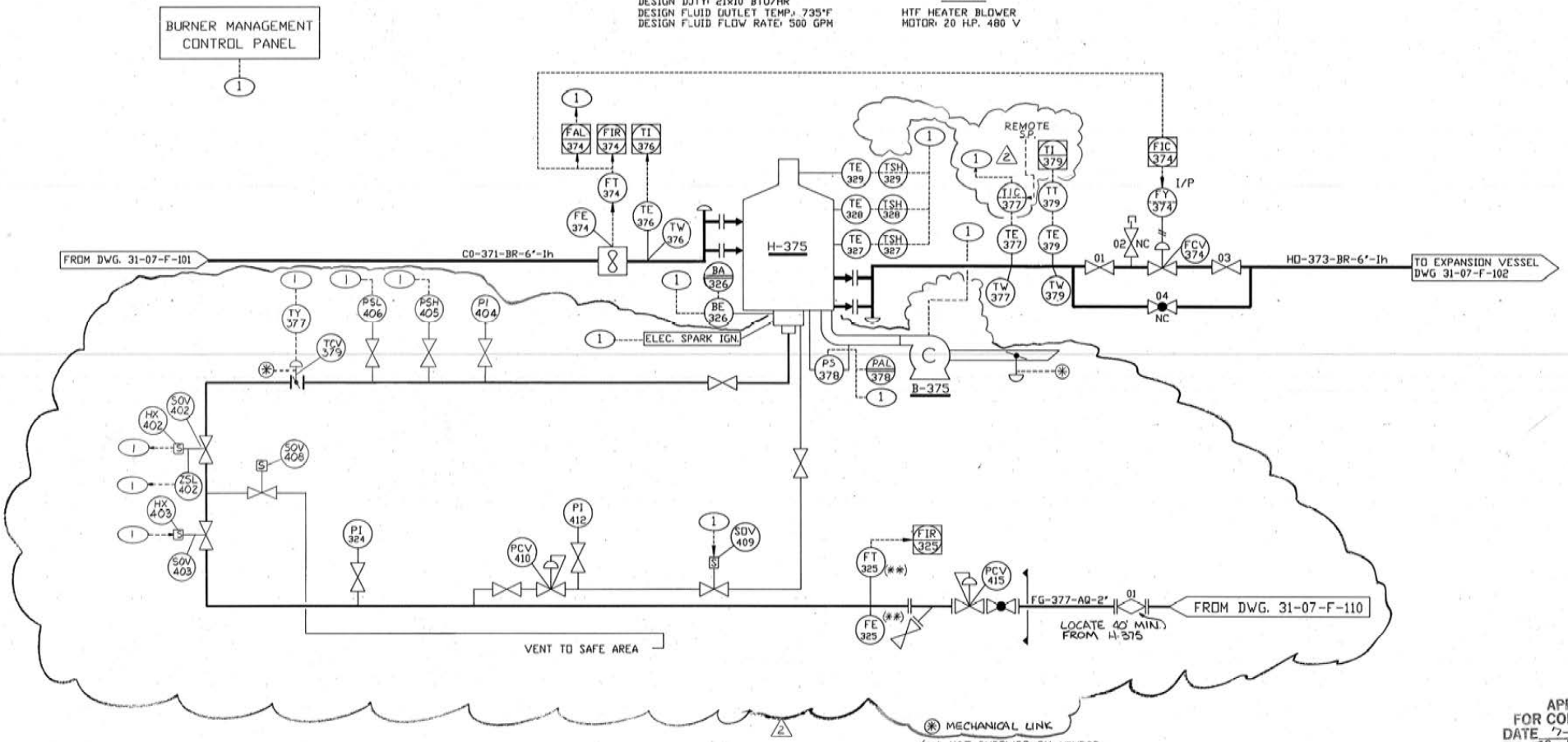
REVISIONS				
LTR	DESCRIPTION	BY	DATE	APP
A	ISSUED FOR APPROVAL	LD	7-7-88	MA
1	ISSUED AS APPROVED BY LUZ	LD	7-15-88	MA
2	REV PER CDOS, REV. INSTRUMENTS	RS	11/30/88	MA

H-375

DESIGN DUTY: 21×10^6 BTU/HR
DESIGN FLUID OUTLET TEMP.: 735°F
DESIGN FLUID FLOW RATE: 500 GPM

B-375

HTF HEATER BLOWER
MOTOR: 20 H.P. 480 V



(*) MECHANICAL LINK
(** NOT SUPPLIED BY VENDOR.

APPROVED FOR CONSTRUCTION
DATE 7-11-88
BY E.D. Sundstrom

QUANTITY REQUIRED	PART NUMBER	DESCRIPTION

LIST OF MATERIALS

	NAME	SIGNATURE	DATE
DRAWN	V. SORIN		21.2.88
DESIGNED	I. BROWN		29 FEB '88
CHECKED	A. MERBL		29 FEB '88
ENGINEERING DEPT	A.MERBL		29 FEB '88
APPROVED	J. GROSSMAN		29 FEB '88
APPROVED			

ECO NO. | NEXT ASSEMBLY
ECOs NOT INCORPORATED IN THIS REVISION | APPLICATION

UNLESS OTHERWISE INDICATED
ALL DIMENSIONS IN MM.
EUROPEAN PROJECTIONS
MATERIAL
FINISH ✓
HEAT TREAT | WEIGHT

TOLERANCE DIMENSIONS		
FROM	UP TO	±
1	6	0.1
6	30	0.2
30	100	0.3
100	300	0.5
300	1000	0.8
ANGLES		½°

LUZ INDUSTRIES ISRAEL
Science Based Industries Campus, Building B, Har-Ho
P.O.Box 7009 Jerusalem 91070, Israel. – Phone: 02-8
Telex: 26301 IHPIS , Telefax: 02-814262

DOCUMENT TITLE

SEGS VII
HTF HEATER
PIPING & INSTRUMENT DIAGRA

SIZE D | DOCUMENT NO. 31-07-F-132 | SCALE NONE | SHEET | OF

APPENDIX B

DESCRIPTION

This procedure is to provide guidance for the bulk transfer of chemicals between tanks and/or trucks. This procedure shall apply to all products and waste materials and shall be used for all bulk transfers.

TYPE

This procedure is a continuous use procedure. This procedure is to be used at all times when a transfer of bulk chemicals occur between tanks and/or trucks.

OBJECTIVE

To ensure that bulk transfers of chemicals are accomplished in a safe and environmentally friendly manner in compliance with all regulations.

SAFETY CONSIDERATIONS:

1. The tasks listed on this procedure may require operating critical pieces of plant equipment that are powered by high pressure, high pressure HTF fluids and high voltage electricity. It is imperative that the operators performing these tasks fully understand the system operating parameters, the task objectives, the associated procedures and all hazardous conditions that exist and could occur during the performance of these tasks.
2. Tailboard Meeting. A detailed tailboard must be held prior to performing these tasks to ensure that all personnel are aware of the task being executed.
3. Communication: Contact with the Production Leader, Production Specialist and other effected persons must be established and maintained during these tasks.
4. Results: Take corrective action immediately upon failure of a piece of equipment that is not performing its function of protecting people and equipment.
5. Use caution when performing assigned tasks. Piping and conduit is at various heights and distributed through out the plant in the areas where these tasks will be performed. Always wear the appropriate Personal Protective Equipment.

GENERAL PROCEDURE

1. Hazards
    a. Possibility of chemical reaction if chemical is transferred into the wrong tank.
    b. Eye contact with chemical.
    c. Skin contact with chemical.
    d. Inhalation of chemical fumes.
    e. Pressurized lines.
    f. Possibility of chemical spill.

2. PPE requirements
    a. Plant required PPE.
    b. PPE recommended by SDS.
3. Receiving material
    a. Perform Risk Assessment.
    b. Verify chemical identity via Bill of Lading.
    c. Verify correct plant and correct tank for delivery.
    d. Verify that the receiving tank has sufficient room to accept the delivery amount.
    e. Never fill a tank more than 90% of the tank capacity.
    f. Review appropriate SDS to familiarize yourself with the product hazards.
    g. Verify that the truck operator has all of the required PPE and that it is in good working condition.
    h. Inspect and don all of the required PPE if you are going to be involved in the actual off-loading process. Additional PPE is not required if you are only monitoring the operation from a safe distance and will only perform an emergency shutdown operation, if needed.
    i. Locate the nearest safety shower and verify operation of shower and eye wash. Show the location to the truck's operator.
    j. Wherever possible locate truck and transfer hose or piping on concrete or in containment areas to minimize environmental impact should a spill occur.
    k. Whenever possible place appropriate absorbent mats or drip pans under all connections.
    l. Direct truck operator to proper tank and fill connection.
    m. Inspect all hoses, pipes, gaskets, and connection fittings for integrity. Do not use any questionable items.
    n. Ensure all female cam-lock fittings have gaskets in place and the gaskets are in good condition. Do not use any questionable items.
    o. Ensure that all cam-lock fitting locking levers are fully engaged and restrained to prevent accidental opening of the fitting.
    p. After all connections have been completed, inspect all connections for proper alignment, tightness, etc.
    q. Prior to starting transfer have the truck operator show you how to secure the product flow in the event of an emergency.
    r. Ensure the truck operator has donned all of the required PPE.
    s. Communicate with the truck operator to ensure everything and everyone is in readiness prior to opening any valves.
    t. Notify Control Room that the transfer is beginning.
    u. Open appropriate valves and begin the transfer operation.
    v. Continuously monitor the transfer operation, checking for leaks at any connections and monitoring tank level.
    w. If a leak occurs, discontinue the transfer operation immediately and notify the Control Room of the issue.

x. If the leak can be safely repaired and cleaned up, perform the necessary repairs and clean up spilled material. Ensure all required PPE is being used during the repair and clean-up.
y. If leak cannot be safely repaired, set up barrier tape around area and notify Control Room of the need for the Emergency Response Team or outside contractor to secure the situation and perform clean-up.
z. Once product transfer is complete, secure tank fill valve and have truck operator evacuate fill line using vacuum equipment on the truck.
aa. Notify Control Room the transfer is completed.
bb. Re-install any pipe caps or blind flanges that were removed for the transfer operation.
cc. Pick up all materials used during the transfer operation and ensure area housekeeping is in order.

4. Shipping materials.
   a. Perform Risk Assessment.
   b. Verify correct plant and correct tank for waste removal.
   c. Review appropriate SDS to familiarize yourself with the waste hazards.
   d. Verify that the truck operator has all of the required PPE and that it is in good working condition.
   e. Locate the nearest safety shower and verify operation of shower and eye wash. Show the location to the truck's operator.
   f. Wherever possible locate truck and transfer hose or piping on concrete or in containment areas to minimize environmental impact should a spill occur.
   g. Whenever possible place appropriate absorbent mats or drip pans under all connections.
   h. Direct truck operator to proper tank and drain connection.
   i. Inspect all hoses, pipes, gaskets, and connection fittings for integrity. Do not use any questionable items.
   j. Ensure all female cam-lock fittings have gaskets in place and the gaskets are in good condition. Do not use any questionable items.
   k. Ensure that all cam-lock fitting locking levers are fully engaged and restrained to prevent accidental opening of the fitting.
   l. After all connections have been completed, inspect all connections for proper alignment, tightness, etc.
   m. Prior to starting transfer have the truck operator show you how to secure the product flow in the event of an emergency.
   n. Ensure the truck operator has donned all of the required PPE.
   o. Inspect and don all of the required PPE if you are going to be involved in the actual off-loading process. Additional PPE is not required if you are only monitoring the operation from a safe distance and will only perform an emergency shutdown operation, if needed.

p. Communicate with the truck operator to ensure everything and everyone is in readiness prior to opening any valves.
q. Notify Control Room that the transfer is beginning.
r. Open appropriate valves and begin the transfer operation.
s. Monitor the transfer operation, checking for leaks at any connections and monitoring tank level.
t. If a leak occurs, discontinue the transfer operation immediately and notify the Control Room of the issue.
u. If the leak can be safely repaired and cleaned up, perform the necessary repairs and clean up spilled material. Ensure all required PPE is being used during the repair and clean-up.
v. If leak cannot be safely repaired, set up barrier tape around area and notify Control Room of the need for the Emergency Response Team or outside contractor to secure the situation and perform clean-up.
w. Once waste transfer is complete, secure tank drain valve and have truck operator evacuate fill line using vacuum equipment on the truck.
x. Notify Control Room the transfer is completed.
y. Re-install any pipe caps or blind flanges that were removed for the transfer operation.
z. Pick up all materials used during the transfer operation and ensure area housekeeping is in order.

5. On-site Material Transfer
   a) When transferring materials between tanks on site follow all steps listed above for shipping and receiving material.
   b) When material transfer is complete and the material transferred is determined by the site Environmental Specialist as appropriate for on-site rinse-out, the tank truck rinse-out will be conducted at the evaporation ponds. Under no circumstances will rinse-out occur at any other location. Consult Site Environmental Specialist if there are any questions.

INTERNAL SITE CONTACT

Glen King, Environmental Specialist – Office Harper Lake: 760-762-3100 x231 Office Kramer: 760-762-5562 x440 cell: 661-202-5837

FLEET TEAM CONTACT

NOTE: Please refer to the PGD ENVIRONMENTAL WEB SITE for the most-current information on Contacts.

REVISION HISTORY

Rev #	Revision Description	Approved By Position/Title	Effective Date
2	Changed MSDS to SDS. Added plant personnel PPE requirements to Receiving and Shipping sections	Sr. Environmental Specialist	6/2/2015