

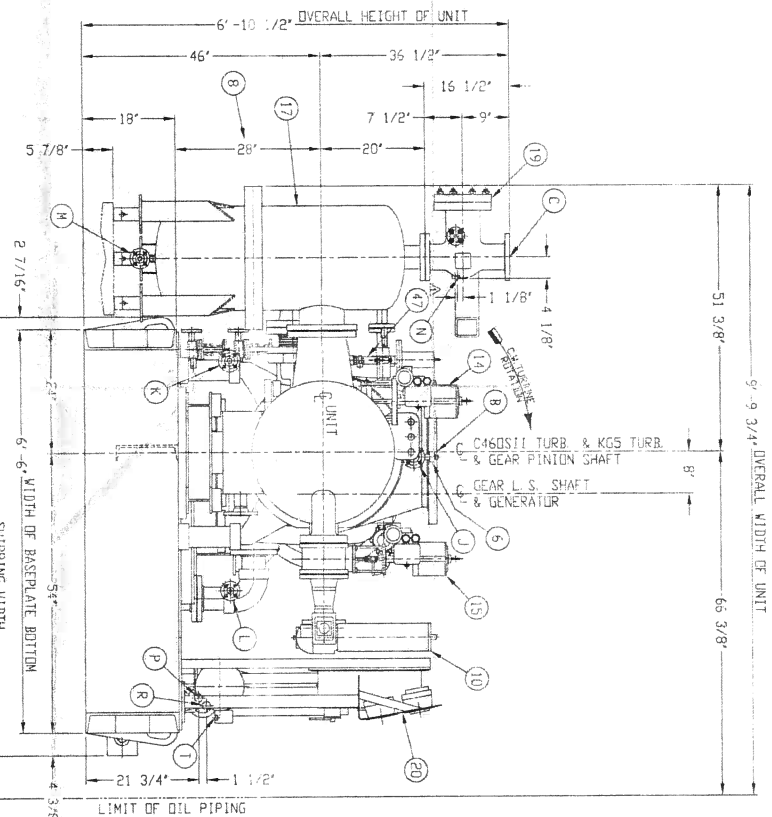


## SPECIAL ADVERTISING SECTION

- [illegible]

(12) GUARDIAN DIST-670-1.

- [illegible]



### ALIGNMENT DATA

- [illegible]

Δ(4) WEIGHT OF UNIT 21725# APPROXIMATE, 3

- (34) PROVIDE NUMBER OF OIL RESERVOIR CLEAN OUT BOOMS REQUIRED
- (35) TIL LEVEL GAUG.
- (36) TIL LEVEL GAUG.
- (37) 14402 ES 1-1/2" DIA. TROU LINDER PLANT OF 8457P. COASTAL TRO 3/4" DIA. COASTAL BELLS NOT FORWARDED. KASUAL THERMOCHLORIT 3/4" BELLS. ANGLES FORWASH BY KASUAL THERMOCHLORIT
- (38) ALL TUBING AND/OR BELLS TO HAVE A TOLERANCE OF 1/2 INCH IN ANY DIRECTION
- (39) AREA CLASSIFICATION IS NONHAZARDOUS
- (40) APPROXIMATE CENTER OF GRAVITY FOR UNIT.

(33) OIL RESERVOIR FILLER CAP.

- (26) LOW SHEET DRINKING AND GARDEN (YEAR TO COMPLETION)
- (27) AVAILABLE DIL. PUMP
- (28) DIL. CIRCLE
- (29) DIL. FILTER
- (30) MATERIAL AT RESIDUAL FIRE EXTINGUISHING IN BOTTOM IS NOT FINISHED AND THEREFORE, MAY NOT BE REPLETITELY FLAM.
- (31) DIL. RESPIRATOR (225 CALIBER APPROXIMATELY USED) INCLUDES 3 MINUTE REPLETION TIME. DIL. TO BE APPROX. 150 DIL. @ 100' F.
- (32) 1" WAT. DIL. RESPIRATOR BOTTLE, PLACED

(25) HIGH SPEED CURPLING AND GUARD (TURBINE)

- (19) EXTRACTION NON-RETURN VALVE STOPPED TO PREVENT FLOW OF LIQUID FROM THE EXTRACTION COLUMN TO THE TAPCHANGING VALVE. INTERLOCKED TAPCHANGING VALVE TURNED ON AT 100% TURBOCHARGER.
- (20) GASED WITH THE FOLLOWING 4-1/2" GAGES MOUNTED ON THE EXTRACTION COLUMN: EXHAUST PRESSURE INDICATING GAUGE, EXHAUST TEMPERATURE INDICATING GAUGE, EXTRACTION PRESSURE INDICATING GAUGE, EXTRACTION TEMPERATURE INDICATING GAUGE, TAPCHANGER INDICATOR.
- (21) NATURAL FLEXIONING GAUGE.
- (22) AIR FLOW INDICATOR.
- (23) AIR FLOW BURNER MAIN DIL. FLOW.
- (24) HEAD SPEED COOLING AND GASES TURNING TO TURBINE.

(18) EXPANSION POINTS.

- (13) WIDEMAND BRIDGE CONNECTOR
- (14) WATER PNEUMATIC ACTUATOR FOR GDS TUBING
- (15) WATER PNEUMATIC ACTUATOR FOR CHASSIS TUBING
- (16) AIR FILTER FOR PNEUMATIC SYSTEMS
- (17) L. P. METERING VALVE/VALVE SHIPPED SEPARATELY FOR NON-FLAMMABLE GASES AND LIQUIDS. VALVE IS USED TO REGULATE PIPING FURNISHED AND FIT BY KROHNS UBERMANN/PT

### (11) ALLOCATION FOR TURBINE ELECTRICAL

- (5) THE DIMENSIONS SHALL BE AS SPECIFIED IN THE MANUFACTURER'S DATA SHEET, BUT SHALL BE ACCEPTED FOR THE PURPOSES OF THIS SPECIFICATION.
- (6) SPRING LAMINATE VALVE IN KITS JOINING TO WORK OF OTHERS SHALL BE PROVIDED WITH THE FOLLOWING DATA SET AT 5 TIG:
  - (A) VALUUM BRACKET ELECTRIC OPERATED LEAVE OPEN TO MANUFACTURER
  - (B) THIS DIMENSION INCLUDES 1/2" OF SHIMS PLANNED BY MARSAP THERMOCHAMBER
  - (C) 1-INCH MINIMUM HEIGHT
- (10) FLOODSAFE VALVE SHIPPED SEPARATELY FOR KNOCKING IN THE FIELD BY THE MANUFACTURER AND BEING PLANNED BY MARSAP THERMOCHAMBER

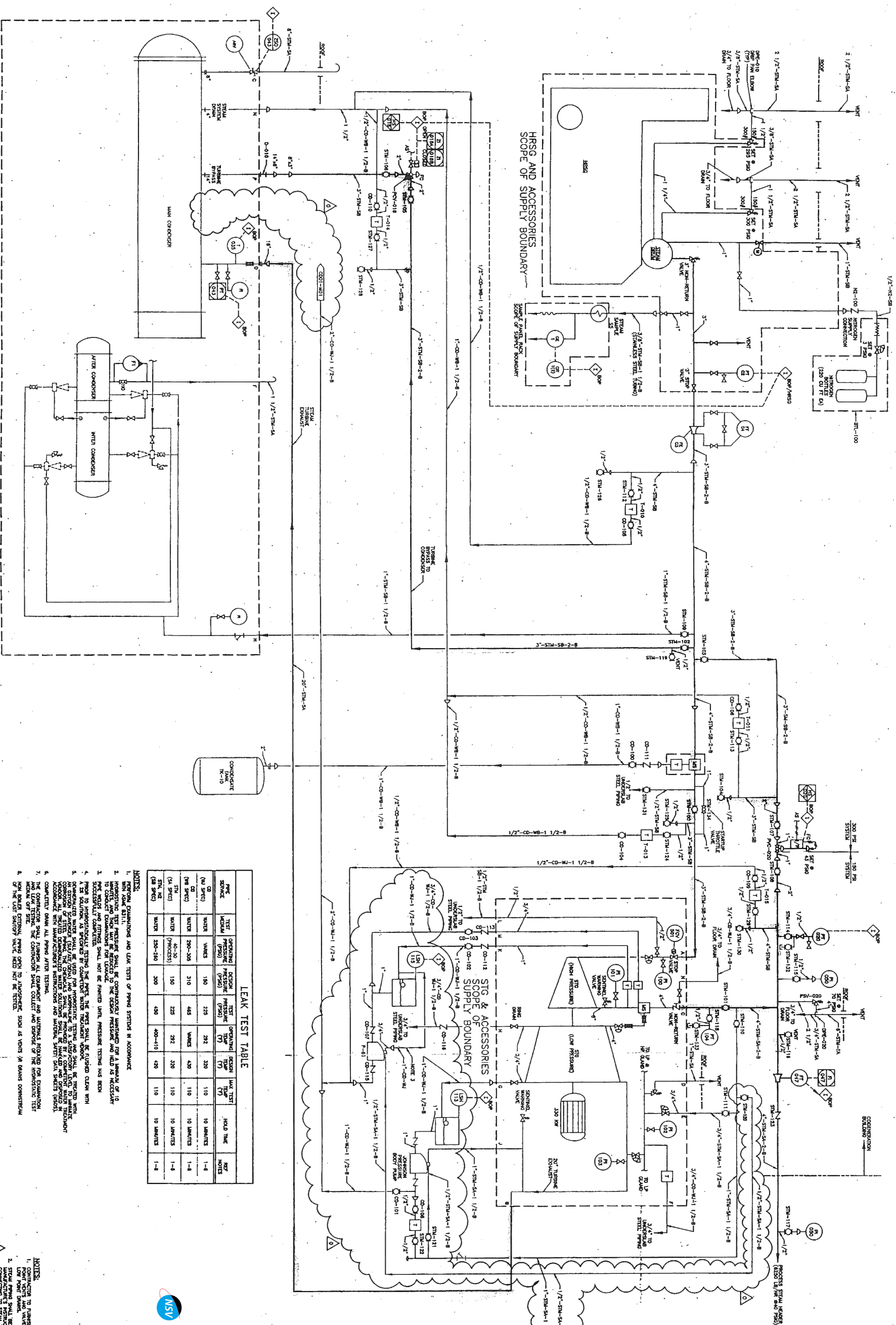
RAFTER THAN FROM THIS DRAWING.

- SPECIAL NOTES**
- (1) THIS UNIT IS NOT DESIGNED FOR REVERSE ROTATION.
  - (2) A DEPENDABLE ATMOSPHERIC HELPER WAVE MUST BE INSTALLED IN THE EXHAUST STACK LINE SEVEN FEET ABOVE THE FIRST STACK OF THE UNIT.
  - (3) THE TUBING AND BRITEN EQUIPMENT SHOULD BE MOUNTED ON A RIGID AND SUBSTANTIAL FOUNDATION.
  - (4) DUE TO THE ACCUMULATION OF NON-FUNCTIONING PARTICLES, THE DRY BURN BEATS SHOULD BE LIFTED FROM THE MACHINE.

[illegible]







LEAK TEST TABLE									
TYPE SERVICE	TEST MEDIA	OPERATING PRESSURE (PSI)	DESIGN PRESSURE (PSI)	TEST PRESSURE (PSI)	OPERATING TIME (HRS)	DESIGN TIME (HRS)	LEAK TEST TIME (HRS)	HOLD TIME	NOTES
(N) (C) (S)	WATER	WAKES	150	225	292	350	110	10 MINUTS	1-4
(N) (C)	WATER	200-300	310	445	WAKES	430	110	10 MINUTS	1-4
(N) (C) (S)	WATER	40-50 (PROCESS)	150	225	292	350	110	10 MINUTS	1-4
(N) (C) (S)	WATER	250-310	500	450	400-410	420	110	10 MINUTS	1-4

1. PERSON EVALUATIONS AND LEAK TESTS OF PIPED SYSTEMS IN ACCORDANCE.
2. HYDROSTATIC TEST PRESSURE SHALL BE COMPARATIVELY MAINTAINED FOR A MINIMUM OF 10 MINUTES, AND THEREAFTER BE REDUCED TO THE DESIGN PRESSURE, AND FIELD IS NECESSARY TO COLLECT DATA FOR ANALYSIS.
3. PRESSURE SHALL NOT BE MAINTAINED UNTIL PRESSURE TESTING HAS BEEN SUCCESSFULLY COMPLETED.
4. PIPES TO HYDROSTATICALLY TESTING THE PIPES, THE PIPES SHALL BE CLEARED CLEAN WITH WATER.
5. THE PIPES SHALL BE INSPECTED FOR DEFECTS AND REPAIRS SHALL BE MADE BEFORE TESTING.
6. AT OTHER LOCATIONS (SUCH AS THE PIPES) AND HYDROSTATICALLY TO A SUFFICIENT LEVEL TO MAINTAIN PRESSURE FOR THE REQUIRED TIME PERIOD.
7. THE CONTRACTOR SHALL MAINTAIN ALL EQUIPMENT AND MATERIAL REQUIRED FOR HYDROSTATIC TESTING AND LEAK TESTING. THE CONTRACTOR SHALL COLLECT AND REPORT OF THE HYDROSTATIC TEST RESULTS.
8. THE LEAK SURVEYOR SHALL BE TESTED.

**NOTES:**

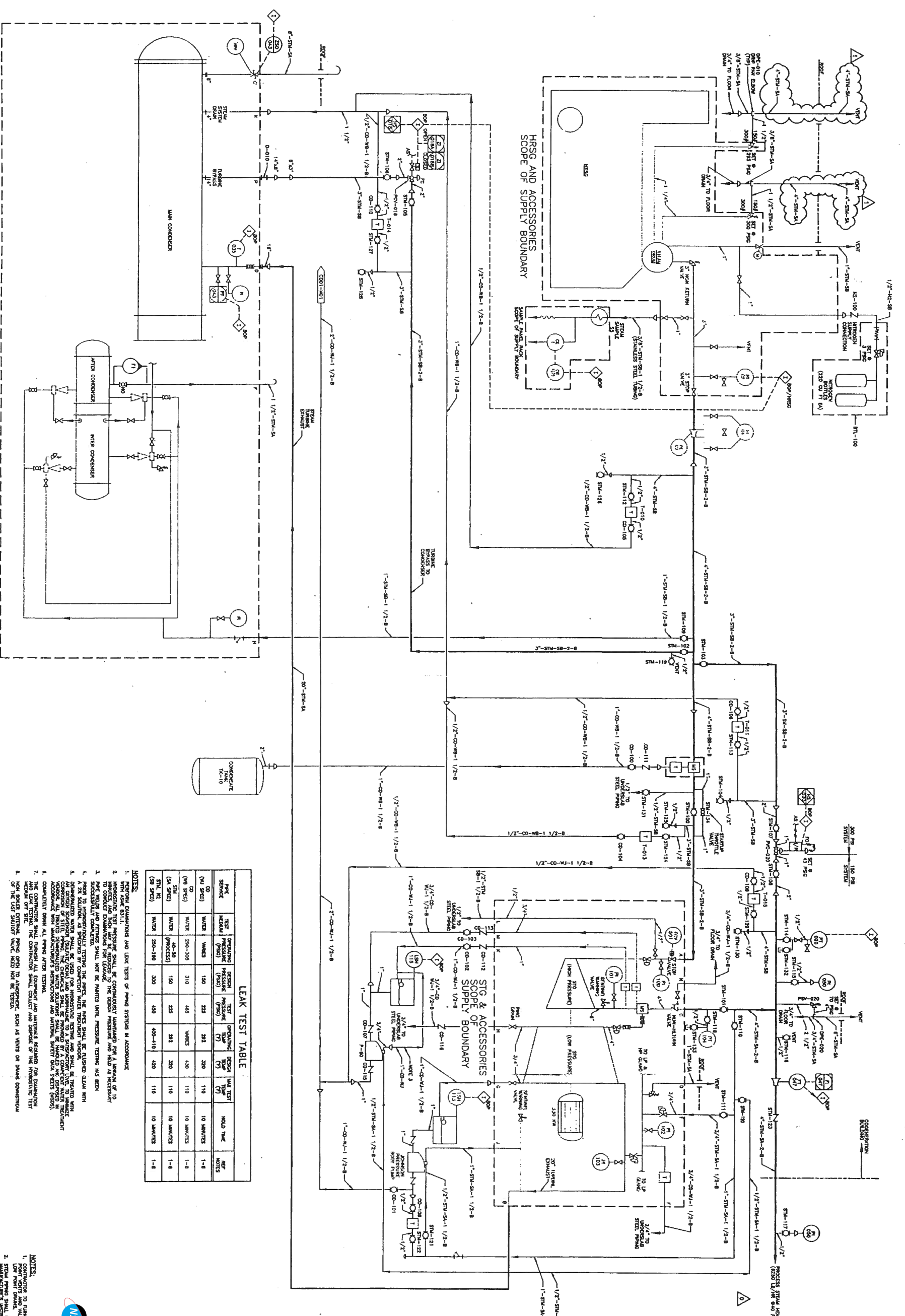
1. CONTRACTOR TO TURNER VALVES AT HIGH POINT VENTS AND VALVES WITH TROOP AT LOW POINT DRAIN.
2. STEAM PIPING SHALL BE BLOW-DOWN TO LANDSCAPE'S INSTRUCTIONS PRIOR TO CONNECTING TO STEAM TURBINE.
3. CONNECT VENT PIPING FROM P-40 INTO LEAK SWITCH SUPPLY LINE AT HIGHER ELEVATION THAN THE STEAM TURBINE CONNECTION. A

## COGENERATION PLANT

STEAM  
P&ID

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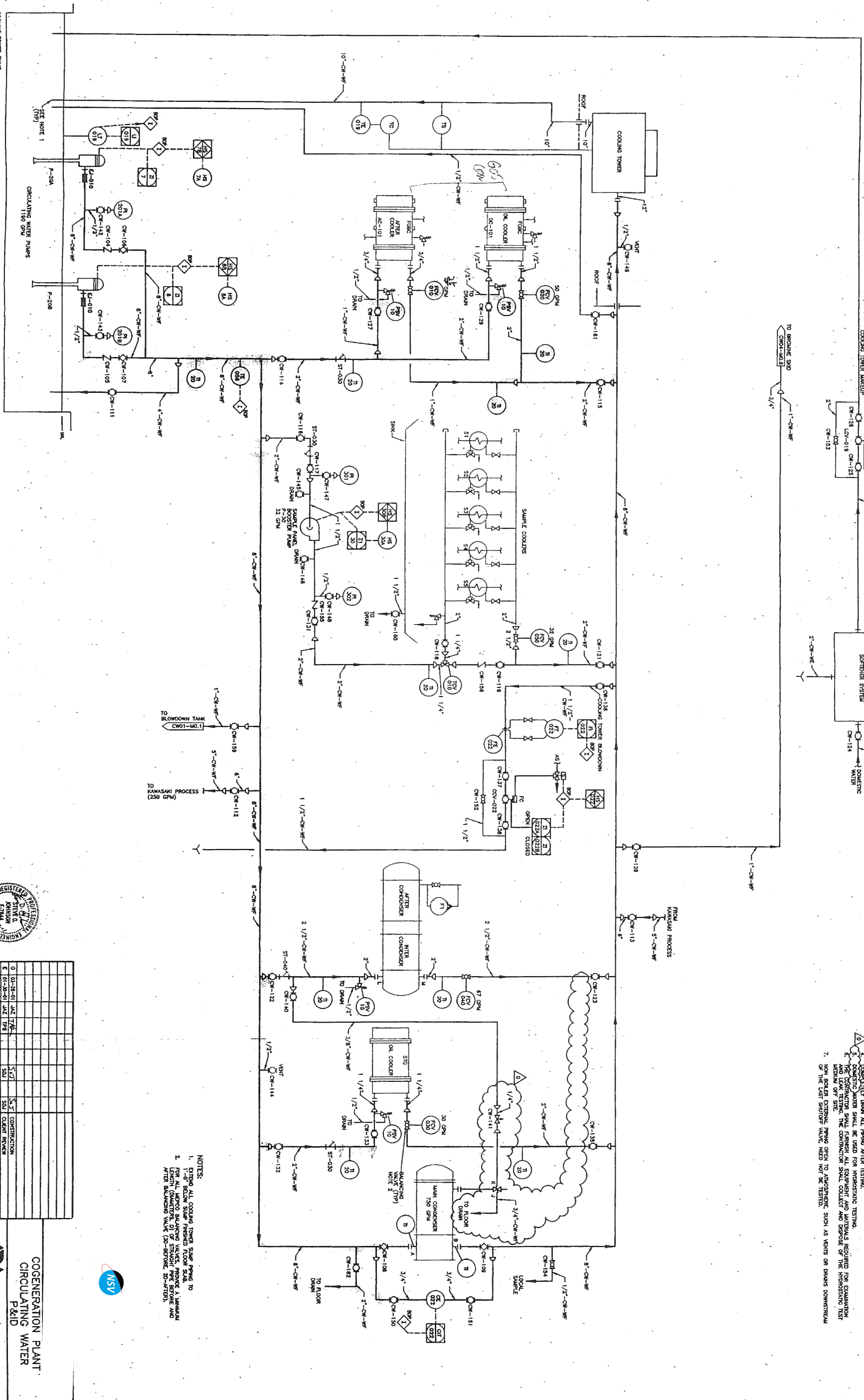
LEAK TEST TABLE									
PIPE SERVICE	TEST MEDIUM	DESIGN PRESSURE (PSI)	TEST PRESSURE (PSI)	TEST TIME (HRS)	LEAK TEST	MOQ TIME	NOTES		
CD	WATER	150	225	200	110	10 MINUTES	1-B		
CD	WATER	200-205	310	465	430	10 MINUTES	1-B		
STW	WATER	40-50	150	225	200	10 MINUTES	1-B		
STW	WATER	200-205	310	465	430	10 MINUTES	1-B		
STW	WATER	40-50	150	225	200	10 MINUTES	1-B		
STW	WATER	200-205	310	465	430	10 MINUTES	1-B		

- NOTES:
1. PERSONNEL QUALIFICATIONS AND LEAK TESTS OF PIPE SYSTEMS IN ACCORDANCE WITH THE CODE SHALL BE COMPLETED PRIOR TO THE START OF THE LEAK TEST.
  2. INSTRUMENTS AND TEST EQUIPMENT SHALL BE CHECKED AND CALIBRATED PRIOR TO THE LEAK TEST.
  3. THE LEAK TEST SHALL BE COMPLETED PRIOR TO THE START OF THE LEAK TEST.
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  9. THE LEAK TEST SHALL BE COMPLETED PRIOR TO THE START OF THE LEAK TEST.
  10. THE LEAK TEST SHALL BE COMPLETED PRIOR TO THE START OF THE LEAK TEST.

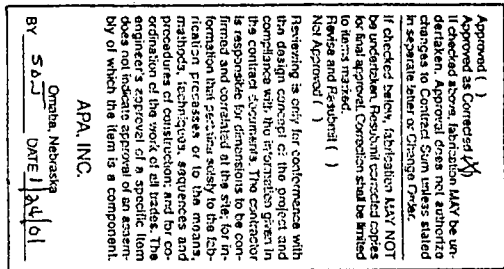
NO.	DATE	BY	CHKD	REV	DESCRIPTION
1	04-04-01	JAL			CHANGED HRSG PSY STACK SIZE
2	04-04-01	JAL			CHANGED HRSG PSY STACK SIZE
3	04-04-01	JAL			CHANGED HRSG PSY STACK SIZE
4	04-04-01	JAL			CHANGED HRSG PSY STACK SIZE
5	04-04-01	JAL			CHANGED HRSG PSY STACK SIZE
6	04-04-01	JAL			CHANGED HRSG PSY STACK SIZE
7	04-04-01	JAL			CHANGED HRSG PSY STACK SIZE
8	04-04-01	JAL			CHANGED HRSG PSY STACK SIZE
9	04-04-01	JAL			CHANGED HRSG PSY STACK SIZE
10	04-04-01	JAL			CHANGED HRSG PSY STACK SIZE



LEAK TEST TABLE									
PIPE SERVICE	TEST MEDIA	OPERATING PRESSURE (PSIG)	DESIGN PRESSURE (PSIG)	TEST PRESSURE (PSIG)	OPERATING TEMP (°F)	DESIGN TEMP (°F)	MAX TEST TEMP (°F)	HOLD TIME	REF. NOTES
CW	WATER	50	150	225	70	120	110	10 MINUTES	1-7

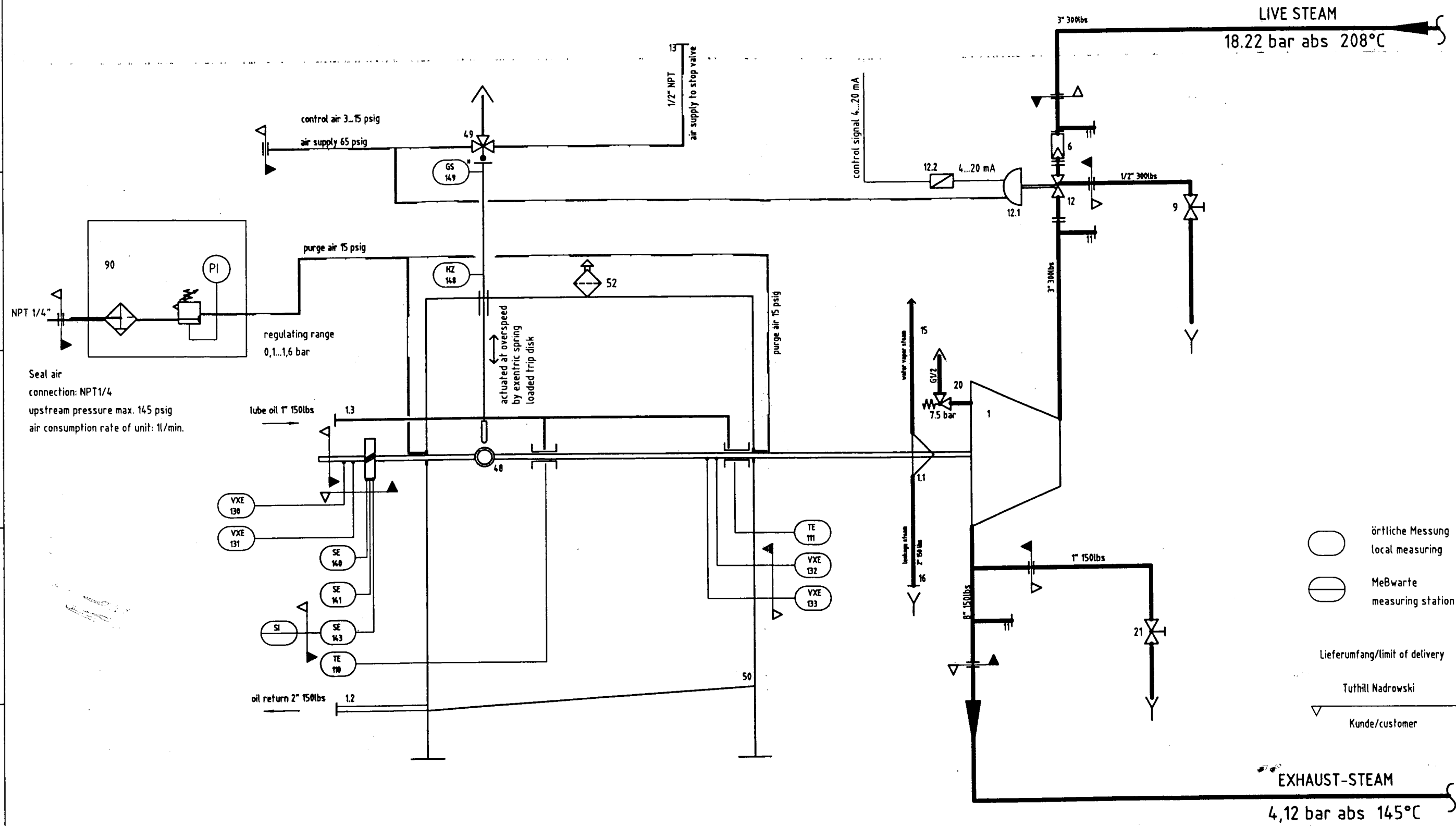
- NOTES:
1. FOR PUMP EXHAUSTION AND LEAK TESTS OF PUMP SYSTEMS IN ACCORDANCE WITH ASME B31.1.
  2. HYDROSTATIC TEST PRESSURE SHALL BE CONTINUOUSLY MAINTAINED FOR A MINIMUM OF 10 MINUTES, AND THEN MAY BE REDUCED TO THE DESIGN PRESSURE AND HELD AS NECESSARY.
  3. PRESSURE AND TEMPERATURE SHALL NOT BE PAUSED UNTIL PRESSURE TESTING HAS BEEN SUCCESSFULLY COMPLETED.
  4. COMPLETELY DRAIN ALL PIPING AFTER TESTING.
  5. DOMESTIC WATER SHALL BE USED FOR HYDROSTATIC TESTING.
  6. THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT AND MATERIALS REQUIRED FOR EXAMINATION AND LEAK TESTING. THE CONTRACTOR SHALL COLLECT AND DISPOSE OF THE HYDROSTATIC TEST MEDIA.
  7. NON-BOLLER EXTERNAL PIPING OPEN TO ATMOSPHERE, SUCH AS VENTS OR DRAINS DOWNSTREAM OF THE LAST SHUTOFF VALVE, NEED NOT BE TESTED.



DATE	BY	CHKD	APP'D	REVISION
01-28-91	JAE	TPB		1
01-29-91	JAE	TPB		2
01-30-91	JAE	TPB		3
01-31-91	JAE	TPB		4
02-01-91	JAE	TPB		5
02-02-91	JAE	TPB		6
02-03-91	JAE	TPB		7
02-04-91	JAE	TPB		8
02-05-91	JAE	TPB		9
02-06-91	JAE	TPB		10
02-07-91	JAE	TPB		11
02-08-91	JAE	TPB		12
02-09-91	JAE	TPB		13
02-10-91	JAE	TPB		14
02-11-91	JAE	TPB		15
02-12-91	JAE	TPB		16
02-13-91	JAE	TPB		17
02-14-91	JAE	TPB		18
02-15-91	JAE	TPB		19
02-16-91	JAE	TPB		20
02-17-91	JAE	TPB		21
02-18-91	JAE	TPB		22
02-19-91	JAE	TPB		23
02-20-91	JAE	TPB		24
02-21-91	JAE	TPB		25
02-22-91	JAE	TPB		26
02-23-91	JAE	TPB		27
02-24-91	JAE	TPB		28
02-25-91	JAE	TPB		29
02-26-91	JAE	TPB		30
02-27-91	JAE	TPB		31
02-28-91	JAE	TPB		32
02-29-91	JAE	TPB		33
02-30-91	JAE	TPB		34





BOW- S. O. T. -5580 #5580 REF-	EXCEPT AS NOTED ALL DIMENSIONS ARE IN INCHES.  TOLERANCES PER 15101 UNLESS OTHERWISE SPECIFIED	DRAWN      DATE RWD 12 DEC 00  CHECKED      DATE ALT 14 DEC 00  APPROVED      DATE ALT 14 DEC 00	 TUTHILL Energy Systems	PROJECTION 
MATERIAL			STEAM SYSTEM PIPING & INSTRUMENT DWG.	



örtliche Messung  
 local measuring  
 Meßwerte  
 measuring station

Lieferumfang/limit of delivery  
 Tuthill Nadrowski  
 Kunde/customer

				<b>TUTHILL</b> ENERGY SYSTEMS				<b>Tuthill Nadrowski Turbinen GmbH</b>				<b>D-33619 Bielefeld Germany</b>		Maßstab 1:1				Projektion											
														Halbzeug:				Werkstoff:				Position Menge							
																						P&I-Diagramm R&I-Fließbild							