PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

(215) 841-4502

JOHN S. KEMPER
VICE-PRESIDENT
ENGINEERING AND RESEARCH

February 13, 1985

Mr. A. Schwencer, Chief
Licensing Branch No. 2
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Docket Nos.: 50-352
50-353

SUBJECT: Limerick Generating Station
TMI Item III.D.1.1 Primary Coolant Outside Containment

REFERENCE: 1) J. S. Kemper to A. Schwencer letter dated September 12, 1984, "TMI Item III.D.1.1 Primary Coolant Outside Containment"
2) J. S. Kemper to A. Schwencer letter dated October 12, 1984, "TMI Item III.D.1.1 Primary Coolant Outside Containment"

FILE: GOVT 1-1 (NRC)

Dear Mr. Schwencer:

Limerick Generating Station has performed sixteen Surveillance Tests which satisfy the Leakage Reduction Program as described in FSAR Section 6.2.8 and in the reference 1 letter. Eight tests run prior to Unit 1 fuel load and their results have been provided in the reference 2 letter. The results of the eight remaining tests are listed in Attachment 1 to this letter and provided as attachments 2 through 9.

Also enclosed per reference 2 are the results from the Control Rod Drive Scram Discharge Volume Contaminated Pipe Inspection, ST-1-047-700-1, (Attachment 10 to this letter). This test was reperformed after fuel load during operational hydrostatic testing when the volume could be pressurized to operating reactor pressure.

The Contaminated Pipe Inspections for the High Pressure Core Injection and Reactor Core Isolation Cooling Systems were run with an initial steam pressure of 200 psi and then repeated with a reactor operating pressure of 920 psi. The inspection of each Post LOCA Recombiner was performed initially and reperformed following maintenance. For these reasons there are two copies of each of the tests.

A047
1/1

No FSAR page changes are required as a result of this submittal and we now consider item 5.a.IV in attachment no. 1 to facility operating license NPF-27 to be closed.

Very truly yours,

J. W. Gallagher
for
J. S. Kemper

RJS/cb/01288501
Attachments
Copy to: See Attached Service List

ATTACHMENT 1

Leakage Reduction Program
Surveillance Tests (After Fuel Load)

1.	ST-1-030-700-1	Post Accident Sampling System Liquid Sample Contaminated Piping Inspection
2.	ST-1-030-701-1	Post Accident Sampling System Atmospheric Sample Loops Contaminated Piping Inspection
3.	ST-1-049-701-1	Reactor Core Isolation Cooling Pump Contaminated Piping Inspection
4.	ST-1-049-702-1	Reactor Core Isolation Cooling Turbine Contaminated Piping Inspection
5.	ST-1-055-701-1	High Pressure Core Injection Pump Contaminated Piping Inspection
6.	ST-1-055-702-1	High Pressure Core Injection Turbine Contaminated Piping Inspection
7.	ST-1-058-701-1	A Post Accident LOCA Recombiner Contaminated Piping Inspection
8.	ST-1-058-702-1	B Post Accident LOCA Reconbiner Contaminated Piping Inspection

RJS/cw/0129ATTACH. 1

cc: Judge Helen F. Hoyt
Judge Jerry Harbour
Judge Richard F. Cole
Troy B. Conner, Jr., Esq.
Ann P. Hodgdon, Esq.
Mr. Frank R. Romano
Mr. Robert L. Anthony
Ms. Phyllis Zitzer
Charles W. Elliot, Esq.
Zori G. Ferkin, Esq.
Mr. Thomas Gerusky
Director, Penna. Emergency Management Agency
Angus R. Love, Esq.
David Wersan, Esq.
Robert J. Sugarman, Esq.
Martha W. Bush, Esq.
Spence W. Perry, Esq.
Jay M. Gutierrez, Esq.
Atomic Safety & Licensing Appeal Board
Atomic Safety & Licensing Board Panel
Docket & Service Section
Mr. James Wiggins
Mr. Timothy R. S. Campbell

ATTACHMENT 2

3850016380

9/28/84
EFFECTIVE DATE

LIMERICK GENERATING STATION
PORC APPROVAL FORM

IPC # 728

R T Moore 9.26.84

A-4, Form 1
Revision 1
Page 1 of 1

G M Leitch 9/10/84 CRE

DOCUMENT (TITLE, OR PROC # & REV.): ST-1-030-700-1 ; REV. 0.

2. REASON FOR SUBMITTAL: INCLUDE ATTACHMENT "B", DELETE "RT" AND USE "EP" PROCEDURE.

- ☐ NEW PROCEDURE
- ☐ PROCEDURE REVISION
- ☐ ENTIRE PROC. REVIEWED & SUGGESTED CHANGES INDICATED (PERIODIC REVIEW A-2)
- ☐ PORTIONS OF PROC. REVIEWED & SUGGESTED CHANGES INDICATED
- ☒ TEMPORARY CHANGE TO APPR'D PROC A-3 REVIEW REQUIRED BY 12/10/84
- ☒ REVIEW OF TEMP CHANGE ONLY
- ☐ REVIEW OF TEMP CHANGE AND PERMANENT PROC. REVISION

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
UPT				
SST SUPT				
NG-TECH				
OPS.				
NG-MAINT				
R HP				
R CHEM				
ERF ENG	LAH	11/26/84		
&C ENG				
DMN SUPV				

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
REAC ENG				
SFT SUPT	WM	11/27/84		
REG ENG				
OUT MGR				

4. COMMENTS/CORRECTIVE ACTION:

☐ Approved with comments/changes on attached document

OMMENTS/CORRECTIVE ACTION AKEN & CHECKED/DATE	SUPT. APPROVAL/DATE	PORC MEETING #: DATE:
DMIN OR PREPARER	/	

TIONS TO ADMIN. STAFF:
- ISSUE THE ATTACHED DOCUMENT
- FILE THE ATTACHED DOCUMENT IN FILE _____
- FILE THIS FORM PER ADMIN. PROC. _____
- OTHER: _____

TRANSMIT A COPY OF THIS FORM AND DOCUMENT TO NRB FOR:
- ☐ APPROVAL
- ☐ REVIEW
- ☐ INFO

(P)

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

ST-1-030-700-1 POST ACCIDENT SAMPLING SYSTEM LIQUID SAMPLE LOOPS CONTAMINATED PIPING INSPECTION

Test Freq.: 18 months -OR- Initiating Events: 1. Reason INITIAL RUN
2. MRF No. _____

Tech. Spec.: 6.8.4.a
FSAR 6.2.8.1.g
FSAR 6.2.8.3

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By: (Sign/Date) Michael P. Gallagher 11/29/84

Performed By: (Sign/Date) _____ _____

Informed Test Complete: (ACO or CO) (Sign/Date) Ronald W. Monaco 11-29-84
(Time) 13:31

Reviewed By: (SSVN or STA) (Sign/Date) Greg F. Collins 11-29-84

B. One or More Asterisked(*) Steps Test Results UNSATISFACTORY.

Performed By: (Sign/Date) _____ _____

Informed of Test Results: (CO or ACO) (Sign/Date) _____ _____
(Time) _____

Shift Supervision: (Sign/Date) _____ _____

Corrective Action: MRF No.: _____

Initiated By: (Sign/Date) _____ _____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified: (Name) _____

Date/Time Notified: (Date/Time) _____ _____

Notified By: (Sign) _____

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) Michael P. Gallagher 11/29/84

1.0 PJRPOSE

To inspect and measure any leakage of Post Accident Sampling System's liquid sample loop components that are directly asssociated with system piping that could carry contaminated fluid after a serious accident or transient.

2.0 REFERENCES

2.1 8031-M-30; Post Accident Sampling P & ID.

2.2 8031-M-42; Nuclear Boiler Vessel Instrumentation P & ID.

2.3 NUREG-0737

2.4 RT-5-000-502-0 Post Accident Sampling Station Operability Test

2.5 8031-M-51; Sheets 1 & 2, Residual Heat Removal

2.6 8031-M-52, Core Spray

2.7 8031-M-61, Liquid Radwaste Collection

2.8 8031-M-23, Sheet 3, Process Sampling

3.0 TEST EQUIPMENT

3.1 Graduated Cylinder(s)

3.2 One-Liter Bottle(s)

3.3 Assorted Funnels

3.4 Stopwatch

3.5 Inspection mirror with handle

3.6 Tygon tubing, plastic bags, duct tape and rags as needed.

4.0 PRECAUTIONS & LIMITATIONS

4.1 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section of the Data Sheet.

4.2 Signoff steps marked "SO" in the left-hand margin of the body of the procedure require a signoff on the Data Sheet or Procedure Cover Sheet.

4.3 Data Sheet steps marked (*) are specific Tech. Spec. requirements which will fail the test if not completed satisfactorily.

4.4 Leakage rates of greater than 5 drops per min (= .25 cc/min) shall be quantified. Use ".25 cc/min" on the Data Sheet Attachment A for components with leakage rates of 5 drops per min or less.

4.5 If any component is found to be exhibiting excessive leakage, notify SSVN immediately.

5.0 PREREQUISITES

5.1 Request RWP if required.

5.2 Inspector is familiar with the system location and layout.

5.3 Obtain a copy of the previous inspection's results from ST Coordinator.

5.4 HAVE CHEMISTRY GROUP ESTABLISH FLOW OF APPROXIMATLY ONE GPM FROM JET PUMP SAMPLE LINE THROUGH LIQUID RETURN LINE. ~~The system should be in operation for RT-5-000-502-0.~~

5.5 ~~Coordinate with the responsible person(s) running RT-5-000-502-0 to allow the applicable sections of the test to be extended for this inspection.~~

LAH 11/26/84

5.5 REACTOR IS AT OPERATING PRESSURE.

WM 10/27/84

5.6 RHR LOOPS A AND B ARE PRESSURIZED, AND RHR SAMPLE ISOLATION VALVES HV-51-1FC79A AND B, HV-51-1FC80A AND B, AND 51-1121A AND B ARE OPEN. VALVES HV-51-199A AND B ARE CLOSED.

6.0 PROCEDURE

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS AND DATA SHEETS ARE CORRECTLY AND COMPLETELY FILLED IN.

6.1 Preparation

SO 6.1.1 Verify all prerequisites are satisfied.

6.1.2 Record appropriate information for each piece of measurement and test equipment used with a PECo number on the Data Sheet.

6.2 Shift Permission to Test

SO 6.2.1 Obtain Shift Supervision's permission to start test.

SO 6.2.2 Obtain Control Room Operator's permission to start test.

6.3 Post Accident Sampling Station System Contaminated Piping Inspection.

ACTUAL LEAKAGE RATE MEASUREMENT METHODS WILL BE LEFT TO THE DISCRETION OF THE INSPECTOR. THE ONLY GUIDELINES BEING THAT ALL DATA WILL BE MEASURED QUANITY OF FLUID OVER TIME USING A STOPWATCH. DROPS PER MINUTE CAN BE USED AS A MEASUREMENT WHERE 20 DROPS = 1cc. ALL RECORDED DATA SHALL BE IN CUBIC CENTIMETERS PER MIN. (cc/min).

6.3.1 Begin inspection of each Post Accident Sampling System loop ~~while it is in operation~~. Pay particular attention to system components identified as having exhibited measurable leakage in the previous inspection.

LAH 11/22/84
WM 11/27/84

6.3.2 For all in-line components within the boundaries of Attachment B which exhibit leakage, record on the Data Sheet Attachment A the leakage rate and a description of the location of the leak.

6.3.3 Verify that Attachment A is complete.

6.3.4 From the leakage rate data on Attachment A, calculate the total system leakage rate and document the results on the Data Sheet section 6.3.

6.4 Test Results Evaluation

SO 6.4.1 Compare the leakage limit in 8.1 to the total system leakage rate. If the limit is exceeded, prepare a MRF to reduce the system leakage rate so that it is within the limit.

6.4.2 If any component's leakage rate has increased significantly since the last inspection, prepare a MRF to repair the component. Note this in the Additional Action/Test Comments section.

6.4.3 If any component's leakage is a major portion of the overall system leakage limit, prepare a MRF for its repair. Note this in the Additional Action/Test Comments section.

7.0 RETURN TO NORMAL

SO 7.1 Inform ~~performers of RT-5-000-502-0~~ CHEMISTRY GROUP that Contaminated Pipe Inspection is complete, AND JET PUMP SAMPLE FLOW MAY BE STOPPED.

LAH 11/26/84 WMS 11/27/84

7.2 Inform SSVN and ACO test is complete.

8.0 ACCEPTANCE CRITERIA

8.1 The Post Accident Sampling System shall not exhibit a leak rate of greater than (later).

AT TEST COMPLETION, ENSURE COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.

POST ACCIDENT SAMPLING SYSTEM CONTAMINATED PIPING INSPECTION
DATA SHEET (1 of 3)8 WRL 11/27/84 LAB 11/26/84

ACTION REQUIRED | INITIALS

6.0 PROCEDURE

6.1 Preparation

6.1.1 All prerequisites satisfied mf8

6.1.2 Test Equipment mf8

INSTRUMENT	MFR./MODEL	SER. NO.	CAL. DUE DATE
STOPwatch	VICTOR wyler	53-0103	4-4-85

6.2 Shift Permission to Test

6.2.1 SSVN permission obtained mf8

6.2.2 ACO permission to test Lum
ACO

11-28-84/0400
Date Time

6.3 Post Accident Sampling Station System Containment Piping Inspection.

6.3.3 Attachment A is complete mf8

6.3.4 System Fluid Leakage Rate

0 cc/min

0 GAL/MIN

GAL/MIN - - (1cc/min = .000264 gal/min)

POST ACCIDENT SAMPLING SYSTEM CONTAMINATED PIPING INSPECTION

DATA SHEET (2 of ~~3~~ 8) CAH 11/26/84 WM 11/27/84

ACTION REQUIRED | INITIALS

6.4 Test Results Evaluation

6.4.1 The Total Post Accident Sampling Station Piping leakage Rate is within Acceptable Limit. mPB (*)

7.0 Return to Normal

7.1 SSVN and CO/ACO informed of test completion mPB

IF ANY ENTRY IS MADE IN THIS SECTION, SIGN COVER SHEET IN APPROPRIATE SPACE.

ADDITIONAL ACTION/TEST COMMENTS

HV-30-154 leaking at < .25 cc/min. This was not part of this test, but this valve is located in the liquid sampling cabinet and leakage was through the sampling needle on the bottom of the cabinet. Chemistry was informed and will MRF.

3850016380

POST ACCIDENT SAMPLING STATION SYSTEM PIPING INSPECTION

DATA SHEET (3 of 8)

ATTACHMENT A

11/27/84 L44 WMM 11/27/84

Inspector: M. P. Gallagher

System Mode JET PUMP SAMPLE AT 1000PSIG / A & B RHR PRESSURIZED with Condensate TRANSFER Date 11/29/84

Component Number	Component Description	Comp. Mode (on/off) (open/shut)	Leak Rate	Corrective Action Date	Remarks
NONE					

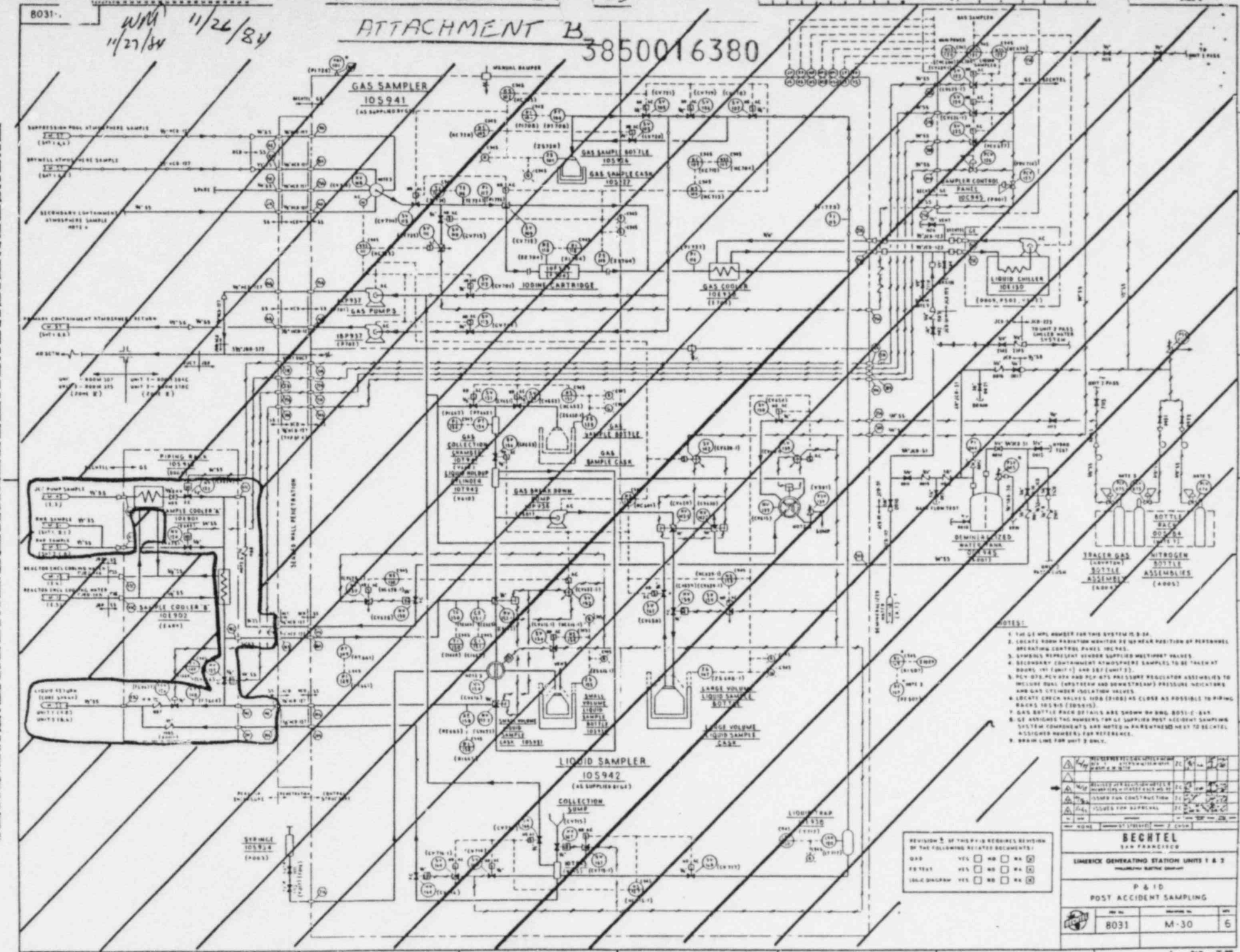
DATA SHEET (4 of 8)

ATTACHMENT B

3850016380

8031

WMY 11/27/84 11/26/84



NOTES:

1. THE GE MPL NUMBER FOR THIS SYSTEM IS B-34.
2. LOCATE ROOM RADIATION MONITOR RE 109 NEAR POSITION OF PERSONNEL OPERATING CONTROL PANEL 105945.
3. SYMBOLS REPRESENT VENDOR SUPPLIED MULTIPORT VALVES.
4. SECONDARY CONTAINMENT ATMOSPHERE SAMPLES TO BE TAKEN AT ROOMS 101 (UNIT 1) AND 107 (UNIT 2).
5. PCV-075, PCV-076 AND PCV-077 PRESSURE REGULATOR ASSEMBLIES TO INCLUDE DUAL (UPSTREAM AND DOWNSTREAM) PRESSURE INDICATORS AND GAS CYLINDER ISOLATION VALVES.
6. LOCATE CHECK VALVES 1(2)SS-Z108(A) AS CLOSE AS POSSIBLE TO PIPING RACKS 105915 (105916).
7. GAS BOTTLE RACK DETAILS ARE SHOWN ON BNG. 8031-E-849.
8. GE ASSIGNED TAG NUMBERS FOR GE SUPPLIED POST ACCIDENT SAMPLING SYSTEM COMPONENTS ARE NOTED IN PARENTHESIS NEXT TO BECHTEL ASSIGNED NUMBERS FOR REFERENCE.
9. DRAIN LINE FOR UNIT 2 ONLY.

REVISION 5 OF THIS P&ID REQUIRES REVISION OF THE FOLLOWING RELATED DOCUMENTS:

QAD	YES ☐	NO ☐	NA ☒
FD TEXT	YES ☐	NO ☐	NA ☒
LOGIC DIAGRAM	YES ☐	NO ☐	NA ☒

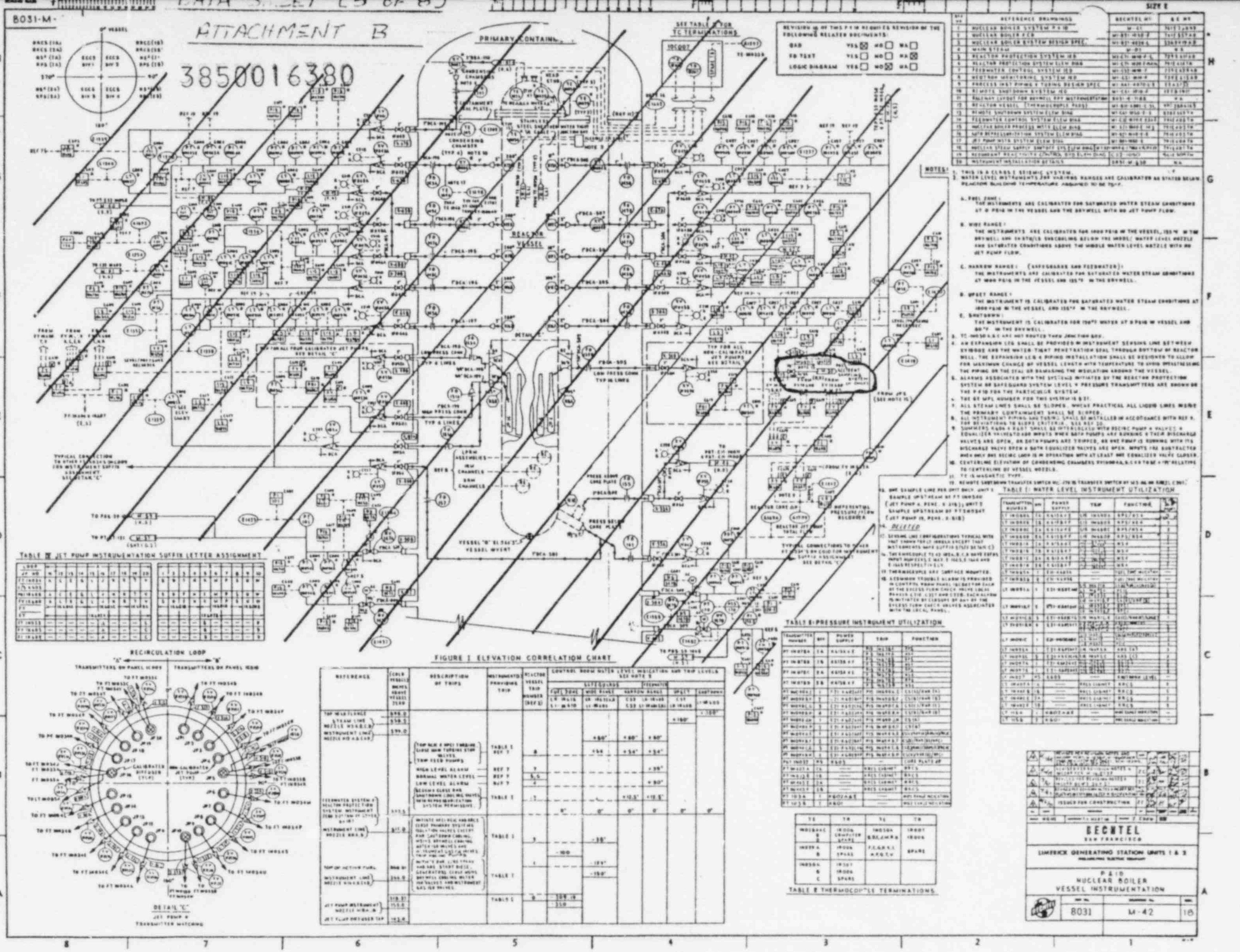
REV. NO.	DESCRIPTION	BY	CHK'D	APP'D	DATE
5	REVISED AS NOTED	FC			
4	ISSUED FOR CONSTRUCTION	FC			
3	ISSUED FOR APPROVAL	FC			

BECHTEL
SAN FRANCISCO

LIMERICK GENERATING STATION UNITS 1 & 2

P & ID
POST ACCIDENT SAMPLING

DRAWING NO.	REVISION NO.	SHT.
8031	M-30	6


8031-M-
ATTACHMENT B
3850016380
PRIMARY CONTAINMENT
REACTOR VESSEL
TABLE IV JET PUMP INSTRUMENTATION SUFFIX LETTER ASSIGNMENT
RECIRCULATION LOOP
DETAIL "C"
JET PUMP & TRANSMITTER MATCHING
FIGURE I ELEVATION CORRELATION CHART
TABLE II PRESSURE INSTRUMENT UTILIZATION
TABLE II THERMOCOUPLE TERMINATIONS
TABLE I: WATER LEVEL INSTRUMENT UTILIZATION
NOTES:
BECHTEL
SAN FRANCISCO
LIMERICK GENERATING STATION UNITS 1 & 2
P&ID
NUCLEAR BOILER
VESSEL INSTRUMENTATION
8031
M-42
18
LAG 11/24/84
WMT 11/27/84

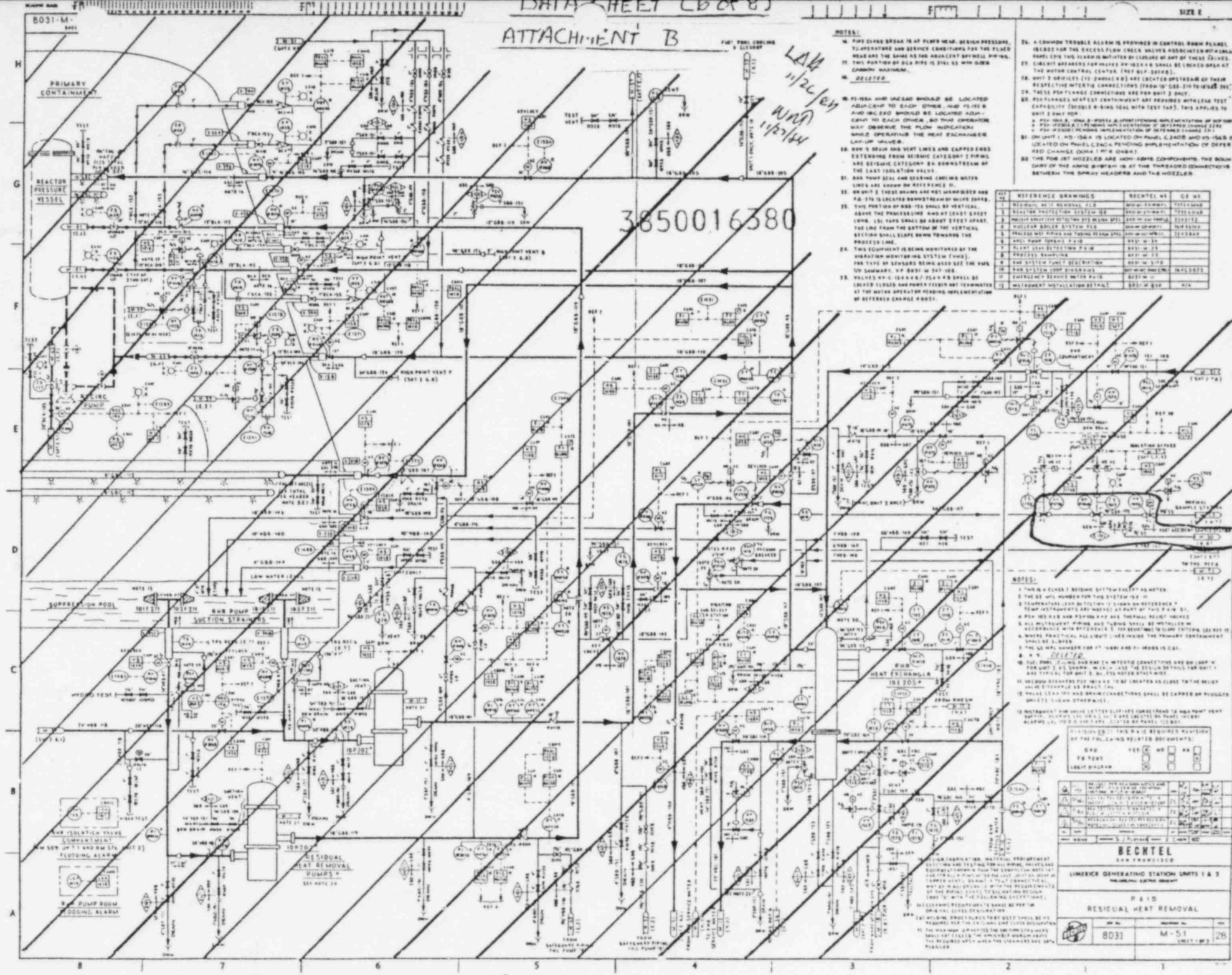
DATA SHEET CB & 8

ATTACHMENT B

LAH 11/26/84

WMG 11/27/84

3850016380



8031-M-

NOTES:

16. PIPE CLASS BREAK IS AT PUMP NOZZ. DESIGN PRESSURE, TEMPERATURE AND SERVICE CONDITIONS FOR THE PUMP NOZZLE ARE THE SAME AS THE ADJACENT PIPING. PIPING CODE.
17. THIS PORTION OF DCA PIPE IS STAINLESS STEEL WITH CARBON MAXIMUM.
18. DELETED
19. PS-155A AND 155AD SHOULD BE LOCATED ADJACENT TO EACH OTHER, AND PS-155B AND 155BD SHOULD BE LOCATED ADJACENT TO EACH OTHER, AND THIS ORIENTATION MAY OBSERVE THE FLOW INDICATION WHILE OPERATING THE HEAT EXCHANGER LAY-UP VALVES.
20. RHR 'S' SEALS AND VENT LINES AND CAPPED ENDS EXTENDING FROM SEISMIC CATEGORY I PIPING ARE SEISMIC CATEGORY I/A DOWNSTREAM OF THE LAST ISOLATION VALVE.
21. RHR PUMP SEAL AND BEARING COOLING WATER LINES ARE SHOWN ON REFERENCE 11.
22. ON UNIT 2 THESE DRAWS ARE NOT APPLICABLE AND PS 155 IS LOCATED DOWNSTREAM OF VALVE 2RHS-
23. THIS PORTION OF RHR-155 SHALL BE VERTICAL ABOVE THE PROCESS LINE AND AT LEAST 5 FEET LONG. LSL TAPS SHALL BE ABOUT 5 FEET APART. THE LINE FROM THE BOTTOM OF THE VERTICAL SECTION SHALL SLOPE DOWN TOWARDS THE PROCESS LINE.
24. THIS EQUIPMENT IS BEING MONITORED BY THE VIBRATION MONITORING SYSTEM (VMS). FOR TYPE OF SENSORS BEING USED SEE THE VMS I/O SUMMARY, V-F 8031-M-347-1008.
25. VALVES MV-E 12-F 6 A & B / F 6 A & B SHALL BE LOCKED CLOSED AND POWER FUSES NOT TERMINATED AT THE MOTOR OPERATOR PENDING IMPLEMENTATION OF REFERENCE CHANGE #3877.
26. A COMMON TROUBLE ALARM IS PROVIDED IN CONTROL ROOM PER LRI-8003 FOR THE EXCESS FLOW CHECK VALVES ASSOCIATED WITH LOCAL PANEL C212. THIS ALARM IS INITIATED BY CLOSURE OF ANY OF THESE VALVES.
27. CIRCUIT BREAKERS FOR VALVES MV-1524-A SHALL BE LOCKED OPEN AT THE MOTOR CONTROL CENTER. (REF SLP 3004B).
28. UNIT 2 VALVES (TO 2RHS*A/B) ARE LOCATED UPSTREAM OF THEIR RESPECTIVE INTERTIE CONNECTIONS (FROM 10" CSS-2/3 TO 10"RHS-2/3).
29. THESE PSV FLANGE CONNECTIONS ARE FOR UNIT 2 ONLY.
30. PSV FLANGES HEATED CONTAINMENT ARE PROVIDED WITH LEAK TEST CAPABILITY (DOUBLE O-RING SEAL WITH TEST TAP). THIS APPLIES TO UNIT 2 ONLY FOR:
   a. PSV-1504-A, 1504-B, 2-PS154-A (PENDING IMPLEMENTATION OF DCP 3884)
   b. PSV-1508-A, 1508-B, 2-PS155-A (PENDING IMPLEMENTATION OF REFERENCE CHANGE 3294)
   c. PSV-1509-A, 1509-B (PENDING IMPLEMENTATION OF REFERENCE CHANGE 3291)
31. ON UNIT 1, MS-1564 IS LOCATED ON PANEL C240B AND MS-1568 IS LOCATED ON PANEL C240A PENDING IMPLEMENTATION OF DEFERRED CHANGE DCP# (PER CHANGE).
32. THE FOR JET NOZZLES ARE NON-ASME COMPONENTS. THE BOUNDARY OF THE ASME SYSTEM IS AT THE THREADED CONNECTION BETWEEN THE SPRAY HEADERS AND THE NOZZLES.

SHT NO	REFERENCE DRAWINGS	BECHTEL NO	GE NO
1	RESIDUAL HEAT REMOVAL P&ID	M-51	729E136AD
2	REACTOR PROTECTION SYSTEM ISO	M-51	729E136AB
3	PRIMARY CONTAINMENT DETECTION SYS MEANS SPEC	M-51	729E136AC
4	NUCLEAR BOILER SYSTEM P&ID	M-51	729E136AE
5	PRIMARY CONTAINMENT P&ID	M-51	729E136AF
6	LEAK DETECTION SYSTEM SPEC	M-51	729E136AG
7	PLANT LEAK DETECTION P&ID	M-51	729E136AH
8	PROCESS RADIATION	M-51	729E136AJ
9	RHR SYSTEM FUNCTIONAL DESCRIPTION	M-51	729E136AK
10	RHR SYSTEM LOGIC DIAGRAMS	M-51	729E136AL
11	EMERGENCY SERVICE WATER P&ID	M-51	729E136AM
12	INSTRUMENT INSTALLATION DETAILS	M-51	729E136AP

NOTES:

1. THIS IS A CLASS 1 SEISMIC SYSTEM EXCEPT AS NOTED.
2. THE GE MFL NUMBER FOR THIS SYSTEM IS 11.
3. TEMPERATURE LOOP DETECTION (1) SHOWN ON REFERENCE 7. TEMPERATURE ELEMENTS ARE INSTALLED AS PART OF THIS P & ID.
4. PSV 155 A & B AND PSV 156 A & B ARE THERMAL RELIEF VALVES.
5. ALL INSTRUMENT PIPING AND TUBING SHALL BE INSTALLED IN ACCORDANCE WITH REFERENCE 5. FOR DESCRIPTIONS OF SLOPE PATTERN, SEE KEY 15.
6. WHERE PRACTICAL FULL CIRCUIT LINES INSIDE THE PRIMARY CONTAINMENT SHALL BE SLOPED.
7. THE GE MFL NUMBER FOR FT 1686 AND FT 1686B IS C41.
8. N/A
9. DELETED
10. FOR RHR-1 AND RHR-2A INTERTIE CONNECTIONS ARE AS USED IN FOR UNIT 2 AS SHOWN. WHEN USE THE SYSTEM DETAILS FOR UNIT 1 ARE TYPICAL FOR UNIT 3. SEE NOTED EXCEPTIONS.
11. VACUUM BREAKERS PSV 1504 ARE TO BE LOCATED AS CLOSE TO THE RELIEF VALVE AS PRACTICAL AS SHALL BE.
12. VALVE LEAK OFF AND DRAIN CONNECTIONS SHALL BE CAPPED OR PLUGGED UNLESS SHOWN OTHERWISE.
13. INSTRUMENT AND VALVE LETTER SUFFIXES CORRESPOND TO HIGH POINT VENT SUFFIX. ALARMS (A) ON PANEL C-2 ARE LOCATED ON PANEL C-601. ALARMS (B) ON PANEL C-1 ARE LOCATED ON PANEL C-602.

DIVISION 1/2: THIS P & ID REQUIRES REVISION OF THE FOLLOWING RELATED DOCUMENTS:

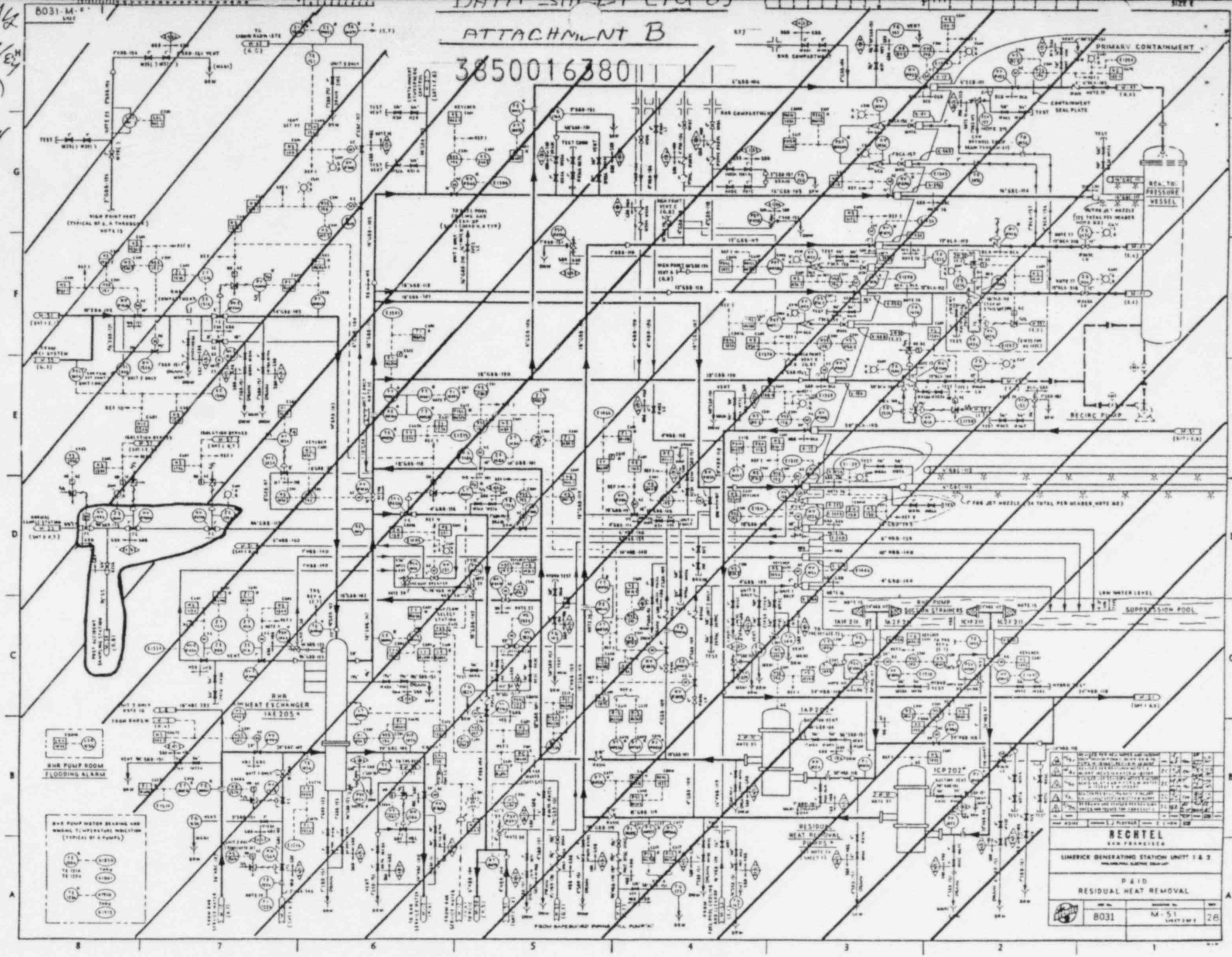
	YES	NO	NA
SAR			
FQ TEXT			
LOGIC DIAGRAM			

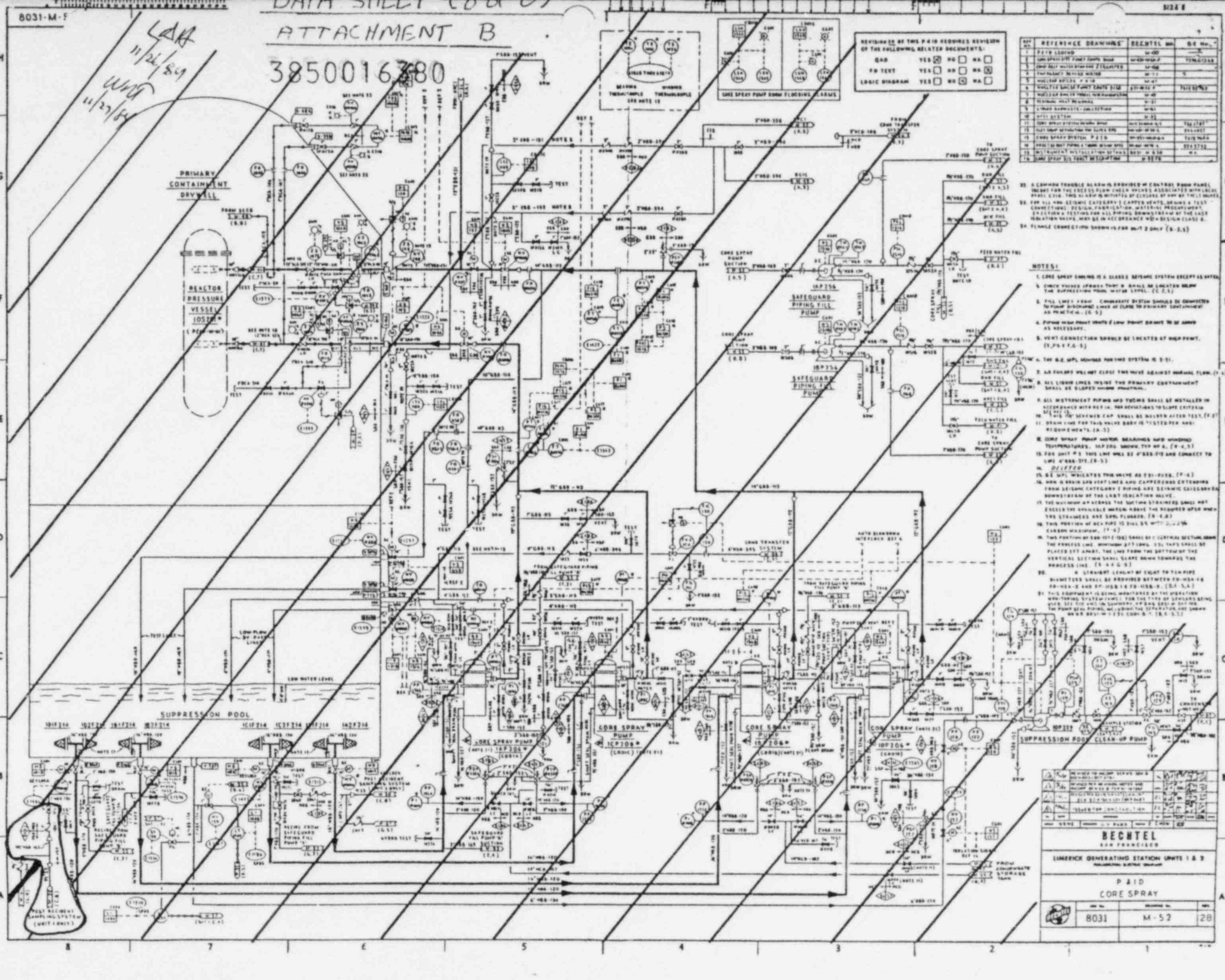
BECHTEL
SAN FRANCISCO

LIMERICK GENERATING STATION UNITS 1 & 2

P & ID
RESIDUAL HEAT REMOVAL

JOB NO.	DRAWING NO.	REV
8031	M-51	28


ATTACHMENT B
3850016380
8031-M-
PRIMARY CONTAINMENT
CONTAINMENT SEAL PLATE
RECIRC PUMP
SUPPRESSION POOL
RHR HEAT EXCHANGER
RHR PUMP ROOM FLOODING ALARM
RESIDUAL HEAT REMOVAL PUMPS
RECHTEL
SAN FRANCISCO
LIMERICK GENERATING STATION UNIT 1 & 2
P & I D
RESIDUAL HEAT REMOVAL
8031
M-51
28


8031-M-5
ATTACHMENT B
3850016380
PRIMARY CONTAINMENT DRYWELL
REACTOR PRESSURE VESSEL
SUPPRESSION POOL
CORE SPRAY PUMP
SAFEGUARD PIPING FILL PUMP
SUPPRESSION POOL CLEAN-UP PUMP
NOTES:
BECHTEL
SAN FRANCISCO
LIMERICK GENERATING STATION UNITS 1 & 2
P & ID
CORE SPRAY
8031
M-52
28

ATTACHMENT 3 3850016380 RHMoore 8-28-8

8-28-84
EFFECTIVE DATE

LIMERICK GENERATING STATION
PORC APPROVAL FORM
FOR INITIAL PERFORMANCE OF
SURVEILLANCE REQUIREMENTS

A-223, Form 2
Revision 0
Page 1 of 1
JAM 8/21/84

RETENTION: LIFE OF PLANT

1. DOCUMENT (TITLE & REV.): ST-1-030-701-1 Rev. 0

ATT

2. INITIAL & DATE APPROVAL STATUS:

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
SUPT		12/20/84		
ASST SUPT		12/20/84		
ALT ENG-TECH		12/20/84		
ENG-OPS				
ENG-MAINT				
ENG-HP&C				
ENG-ADMIN				
PS QAE				
EP&R I&C		12/20/84		

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
PERF ENG	LAH	12/20/84		

P-F 10

3. COMMENTS/CORRECTIVE ACTION:

The above Surveillance Test was determined to be fully/partially/not satisfied. Satisfied requirements listed below are considered "IN SURVEILLANCE" as of 9/20/84 / ~~the date indicated.~~
mo/day/year

Satisfied Surveillance Requirements	"IN SURVEILLANCE" Date (if Different For Different Requirements)
6.8.4.a	9/20/84
FSAR 6.2.8.1.g	
FSAR 6.2.8.1.h	
FSAR 6.2.8.3	

COMMENTS/CORRECTIVE ACTION TAKEN & CHECKED

ADMIN OR PREPARER DATE

SUPT. APPROVAL/DATE 12/20/84

PORC MEETING #:
DATE:

DIRECTIONS TO ADMIN. STAFF:
{ } ISSUE THE ATTACHED DOCUMENT
{ } FILE THE ATTACHED DOCUMENT IN FILE
{ } FILE THIS FORM PER ADMIN. PROC.
{ } OTHER:

TRANSMIT A COPY OF THIS FORM AND DOCUMENT TO O&SR FOR:
{ } APPROVAL
{ } REVIEW
{ } INFO

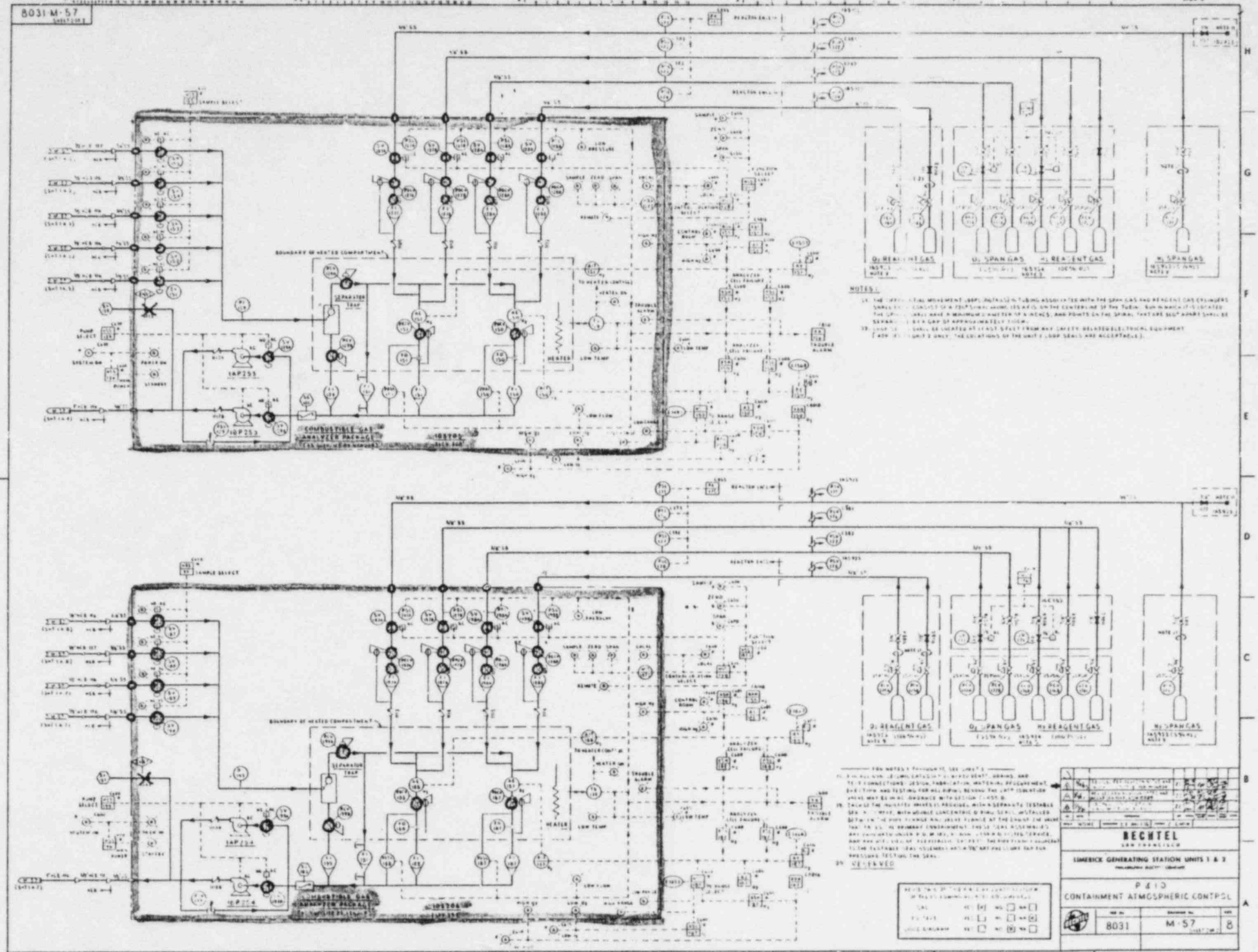
THE PURPOSE OF THIS A-223 PROCEDURE IS TO DETERMINE THE LEAKAGE RATE OF THE CONTAINMENT ATMOSPHERIC CONTROL COMBUSTIBLE GAS ANALYZER PACKAGES 105205 AND 105206.

LEAKAGE TESTING OF THE CAC AND OTHER SYSTEMS IS REQUIRED BY TECH. SPEC. 6.8.4.a AND FSAR 6.2.8.1 GUIDELINES.

SURVEILLANCE TEST ST-1-030-701-1 IS USED TO MEET THE LEAKAGE TEST REQUIREMENTS AND USES AN "IN-FLOW" TEST ON THE GAS ANALYZER SKIDS. MAINTENANCE REQUEST FORMS 8403870 AND 8404396 MEET THE SAME REQUIREMENTS USING A "PRESSURE DECAY" TEST ON 105205 AND 105206 RESPECTIVELY. COMPARE STEPS 9.4.1.8 TO 9.4.1.16 OF ST-1-030-701-1 TO STEPS 3.1 TO 3.3 OF THE VENDOR PNEUMATIC LEAK TEST PROCEDURE UTILIZED BY THE MRF's.

SECTION 5 OF MRF 8403870 AND 8404396 DOCUMENT VERIFICATION OF SATISFACTORY TEST RESULTS.

O - OPEN/DISCONNECTED X - CLOSED MRF LEAK TEST LINE-UP 3850016380



PROCEDURES AND PROGRAMS (Continued)

6.8.4 The following programs shall be established, implemented, and maintained:

a. Primary Coolant Sources Outside Containment

A program to reduce leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to as low as practical levels. The systems include the core spray, high pressure coolant injection, reactor core isolation cooling, residual heat removal, post-accident sampling system, safeguard piping fill system, control rod drive scram discharge system, and containment air monitor systems. The program shall include the following:

1. Preventive maintenance and periodic visual inspection requirements, and
2. Integrated leak test requirements for each system at refueling cycle intervals or less.

b. In-Plant Radiation Monitoring

A program which will ensure the capability to accurately determine the airborne iodine concentration in vital areas under accident conditions. This program shall include the following:

1. Training of personnel,
2. Procedures for monitoring, and
3. Provisions for maintenance of sampling and analysis equipment.

c. Post-accident Sampling*

A program which will ensure the capability to obtain and analyze reactor coolant, radioactive iodines and particulates in plant gaseous effluents, and containment atmosphere samples under accident conditions. The program shall include the following:

1. Training of personnel,
2. Procedures for sampling and analysis, and
3. Provisions for maintenance of sampling and analysis equipment.

*Not required until prior to exceeding 5% of RATED THERMAL POWER.

6.2.7.2 Potentially Contaminated Systems

The following systems whose piping penetrates primary containment may contain highly radioactive fluids after an accident. Other systems have been excluded from this list for the reasons discussed in Section 6.2.8.2.

a. Residual Heat Removal System (Figure 5.4-13)

b. Core Spray System (Figure 6.3-9)

c. High Pressure Coolant Injection System (Figure 6.3-7)

d. Reactor Core Isolation Cooling System (Figure 5.4-8)

e. Control Rod Drive Hydraulic System (Scram discharge volume, Figures 4.6-5 and 4.6-6).

f. Safeguard Piping Fill System (Figure 6.3-9)

g. Post-Accident Sampling System (Figure 11.5-2)

h. Containment Atmospheric Control System (Figure 9.4-5)

6.2.8 LEAKAGE REDUCTION PROGRAM

To ensure that leakage from systems that may be expected to handle highly radioactive fluids during or after an accident is maintained as low as practical, a leakage reduction program will be established. System isolation provisions have been reviewed in conjunction with this effort and are discussed in Section 6.2.7.

6.2.8.1 Systems to Be Leak Tested

The following systems will be leak tested at 18-month intervals. The test conditions will simulate the expected operating conditions during an accident or transient:

a) Residual Heat Removal System

b) Core Spray System

c) High Pressure Coolant Injection System

d) Reactor Core Isolation Cooling System

e) Control Rod Drive Scram Discharge System

f) Safegaurd Piping Fill System

g) Post-Accident Sampling System (including portions of the Process Sampling System)

h) Containment Atmospheric Control System (recombiner and sample loops only)

6.2.8.2 Systems Excluded From The Program

The following systems are excluded from the leakage reduction program for the reasons given below:

a) Reactor Recirculation System - The interfaces between the recirculation system and the systems outside containment (other than RHR) are isolated by containment isolation valves.

b) Reactor Water Cleanup System (RWCU) - The RWCU system is isolated from the recirculation system by containment isolation valves.

c) Main Steam System - The main steam system is isolated by containment isolation valves and provided with a leakage control system.

d) Feedwater System - The feedwater system is isolated by containment isolation valves.

e) Process Sampling System - Sample lines from potentially contaminated sources inside the containment are isolated by containment isolation valves. Potentially contaminated sample lines from the RHR system, associated with post-accident sampling, will be leak tested with the post-accident sample system.

f) Suppression Pool Cleanup System - The suppression pool cleanup system is isolated by containment isolation valves.

g) Reactor Enclosure RERS and SGTS Systems - The reactor enclosure HVAC supply and exhaust valves will isolate the reactor enclosure upon receipt of high radiation isolation signal. The reactor enclosure recirculation and standby gas treatment systems (RERS and SGTS) will then filter and exhaust air from the reactor enclosure and maintain a subatmospheric pressure. Because the source of radioactivity in these systems is airborne contamination resulting from previous leakage from the containment or contaminated systems, a leakage reduction program for the low pressure RERS/SGTS ducting would not significantly reduce the airborne radioactivity concentrations in the secondary containment. The recirculation and SGTS filters will be tested as described in Sections 6.5.1.3.4 and 6.5.1.1.4.

h) Containment Radiation Sampling System - The containment radiation sampling system, used to provide an indication

of primary leakage during normal operation, is isolated by containment isolation valves.

6.2.8.3 Leak Testing Method

System leak test conditions will simulate the expected operating conditions during an accident. Each component in the system will be inspected for leakage. Water leakage will be collected and measured. Steam leakage will be estimated and converted to an equivalent water leak rate. Gas systems will be bubble leak-tested with a zero leakage acceptance criteria or leakage will be quantified by means of a pressure decay or helium leak test.

Leakage rate goals will be established for each system based on baseline data from the first tests. Components whose leakage contributes significantly to the total leak rate or increases substantially between tests will be repaired to maintain total leakage as low as practical.

6.2.9 REFERENCES

6.2-1 I.E. Idel'chik, Handbook of Hydraulic Resistance..., AEC-TR-6630, pages 2, 105, 416 (1966)

6.2-2 Flow of Fluids, Crane Technical Paper No. 410, Crane Co., Chicago (1969).

6.2-3 F.J. Moody, "Maximum Two-Phase Vessel Blowdown from Pipes," Topical Report APED-4827, General Electric Company, 1965.

6.2-4 A.J. James, "The General Electric Pressure Suppression Containment Analytical Model," April 1971, (NEDO-10320).

6.2-5 A.J. James, "The General Electric Pressure Suppression Containment Analytical Model," Supplement 1, May 1971 (NEDO-10320).

6.2-6 Takashi Tagami, "Interim Report on Safety Assessment and Facilities Establishment (SAFE) Project", February 28, 1966, Hitachi Ltd., Tokyo, Japan.

6.2-7 Donald J. Wilhelm, Condensation of Metal Vapors: Mercury and the Kinetic Theory of Condensation, ANL - 6948, October 1964.

6.2-8 Philadelphia Electric Co. Limerick Generating Station Design Assessment Report (March 1982).

6.2-9 "Thermal Hydrogen Recombiner System for Water-Cooled Reactors," AI-75-2, Rev. 2 (P), Rockwell International (July 1975).

9.4.1.3	Install temporary jumpers between terminals 27, 29, 30, 31 and 32 on terminal board 3 in the Hydrogen and Oxygen Analyzer Panel 10S206	_____
9.4.1.4	Lift lead 38 from terminal 36 on TBR-3 in Panel 10S205	_____
9.4.1.5	Lift lead 38 from terminal 36 on TBR-3 in Panel 10S206	_____
9.4.1.6	Install test box to test connection downstream of valve 57-1062 (501-15R-295) and to connection SX-57-159 on panel 10S205.	_____
9.4.1.7	At Panel 10C600, place power on to 10S205 by placing HSS-57-126 to the "ANALYZE" position	_____
9.4.1.8	Verify SV-57-151, SV-57-153, SV-57-154, and SV-57-155 are open.	_____
9.4.1.9	At Panel 10C600, place power on to 10S206 by placing HSS-57-196 to the "ANALYZE" position	_____
9.4.1.10	Verify SV-57-187, SV-57-188, SV-57-189 and SV-57-194 are open.	_____
9.4.1.11	At Panel 10C945, place power on by placing HSS-30-120 to position "A" or "B"	_____
9.4.1.12	Place HSS-30-121 to the Gas position at Panel 10C945	_____

9.4.1.13	Place HSS-30-111 to the Drywell position on 10C945	_____
9.4.1.14	Place HS-30-109 to the CIRC. gas position on Panel 10C945	_____
9.4.1.15	Begin flow in test per section 7.1 at test pressure of 44 psig, and determine system leak rate.	_____
9.4.1.16	Verify system leak rate is less than (later).	_____
9.4.1.17	The leak rate is above (later). Proceed to the next step. If not, proceed to Step 9.4.1.19 and mark Step 9.4.1.19 N/A	_____
9.4.1.18	Using a bottle of snoop or equivalent, walk the system down and inspect components for air leakage inside the solid boundary of Attach[illegible] Document all components exhibiting leakage on Attachment A.	_____
9.4.1.19	Isolate the test box and vent the volume. Close and cap valve 57-1062 and 57-1047	_____
9.4.1.20	Place HSS-30-120 on Panel 10C945 to the "OFF" position	_____
9.4.1.21	Reattach the thermal overload for pump 1BP937 at Panel 10C945	_____

PNEUMATIC LEAK TEST PROCEDURE

3.0 PROCEDURE

2 | 3.1 Slowly, in 10 psig increments, apply pressure to the system until the 90 psig pressure is attained. Allow one minute for the pressure to stabilize between these pressure increments.

3.2 Beginning with the test connection bulkhead fittings, apply a bubble forming leak detector solution such as SNOOP manufactured by Nupro. Verify the leak integrity of all fittings that were broken or made to set-up this test.

3.3 Isolate the pressure source from the system for a period of 10 minutes. No decrease in pressure should be observed on a pressure gauge with 1 psig increments during the 10 minute test duration.

3.4 If a noticable pressure decrease is observed, then the systematic application of the leak test solution must be initiated on a fitting by fitting basis.

3.5 Any fitting found to be leaking should be tightened until the system is capable of holding the 90 psig test pressure with no visible pressure decrease within a 10 minute period.

2 | 3.6 Slowly, in 10 psig increments, decrease the pressure applied to the system. Allow one minute for pressure stabilization between each incremental decrease in pressure. Decrease the system pressure until a 0 psig pressure is attained.

3.7 Uncap the pressure gauge tubing and reconnect this tubing to the systems integral pressure gauge. Repeat the pressurization process used in paragraph 3.1 above with the exception of a 60 psig input pressure rather than the previous 90 psig.

3.8 Repeat the system isolation and 10 minute drop test described in paragraph 3.3 above at the 60 psig pressure.

ORIGINAL

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LIMERICK GENERATING STATION
MAINTENANCE REQUEST FORM

UNIT 1

MRF# 8403870

---SECTION 5---

CAUSE OF FAILURE/DEFECTS FOUND:

TYPE OF FAILURE: |__| |__|

FAILURE CATEGORY: |__| |__|

CORRECTIVE ACTION/WORK PERFORMED/HISTORY DATA:

PERFORMED PNEUMATIC TEST # 1M-73C-32 PER NCR # 10291 AND VENDOR REQUIREMENTS. RESULT WERE ACCEPTABLE AND VERIFIED BY Q.C. PER ATTACHED TEST PACKAGE

D.S. [signature] x 4716

CAUSE OF FAILURE: |__| |__| |__|

CORRECTIVE ACTION: |__| |__| |__|

EQUIP TROUBLE TAG REMOVED? |__|

ADDITIONAL SHEETS? |__|

FOREMANS COMMENTS: [signature]

GROUP	NOS MEN	TTL MAN HRS	TTL MAN REM
LEAD GP	2	32.	.
SUB GP 1		.	.
SUB GP 2		.	.
SUB GP 3		.	.
SUB GP 4		.	.
SUB GP 5		.	.

TEST EQUIP/ TOOL ID USED:	DATE USED
1.	/ /
2.	/ /
3.	/ /
4.	/ /
5.	/ /

WORK COMPLETE SIGN-OFFS:

	CRAFT	(DATE)	QC
SUB GP 1	[signature]	12/4/84	[signature]
SUB GP 2		/ /	
SUB GP 3		/ /	
SUB GP 4		/ /	
SUB GP 5		/ /	

LEAD GROUP, WORK COMPLETE/AREA CLEAN: John Franklin (DATE) 12/4/84 QC SIGN-OFF FOR LEAD GP: [signature]

---SECTION 6---

|✓| OPERATION VERIFICATION FORM ATTACHED

SHIFT SUPERVISION ACCEPTANCE: [signature] (DATE) 12/7/84 (TIME) 0902

NEW MRF INITIATED? |__|

---SECTION 7---

REVIEWED BY: ________ __/__/__ (DATE)

FOLLOW-UP: |__| |__|

3850016380

LIMERICK GENERATING STATION
MAINTENANCE REQUEST FORM

UNIT 1

MRF# 8404396

---SECTION 5---

CAUSE OF FAILURE/DEFECTS FOUND:

TYPE OF FAILURE: |__| |__|

FAILURE CATEGORY: |__| |__|

CORRECTIVE ACTION/WORK PERFORMED/HISTORY DATA:

PERFORM PNEUMATIC TEST
LW7-73C-31

CAUSE OF FAILURE: |__| |__| |__|

CORRECTIVE ACTION: |__| |__| |__|

EQUIP TROUBLE TAG REMOVED? |__|

ADDITIONAL SHEETS? |__|

FOREMANS COMMENTS:

J F King

GROUP	NOS MEN	TTL MAN HRS	TTL MAN REM	TEST EQUIP/ TOOL ID USED:	DATE USED
LEAD GP		.	.		
SUB GP 1	2	60 .	.	1.	/ /
SUB GP 2		.	.	2.	/ /
SUB GP 3		.	.	3.	/ /
SUB GP 4		.	.	4.	/ /
SUB GP 5		.	.	5.	/ /

WORK COMPLETE SIGN-OFFS:

	CRAFT	(DATE)	QC
SUB GP 1	Neal F. Heller	12/11/84	Neal F. Heller
SUB GP 2		/ /	
SUB GP 3		/ /	
SUB GP 4		/ /	
SUB GP 5		/ /	

LEAD GROUP, WORK COMPLETE/AREA CLEAN: Charles F. Romberger 16:15 (DATE) 12/11/84

QC SIGN-OFF FOR LEAD GP: Neal F. Heller

---SECTION 6---

N/A OPERATION VERIFICATION FORM ATTACHED [signature] 12/13/84

SHIFT SUPERVISION ACCEPTANCE: Gregg F. Collins (DATE) 12/15/84 (TIME) 1046

NEW MRF INITIATED? |__|

---SECTION 7---

REVIEWED BY: ________ __/__/__ (DATE)

FOLLOW-UP: |__| |__|

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

ST-1-057-701-1 P.A.S.S & C.A.C SAMPLE LOOPS CONTAMINATED PIPING INSPECTION

Test Frequency: 18 months -OR- Initiating Events: 1. Reason _____
Tech Spec.: 6.8.4a 2. MRF No. _____
FSAR 6.2.8.1.g
FSAR 6.2.8.1.h
FSAR 6.2.8.3

Test Results:

Section A. All Asterisked (*) Steps Completed SATISFACTORILY

Performed By: (Sign/Date) _____ _____

Performed By: (Sign/Date) _____ _____

Informed Test Complete:(ACO or CO) (Sign/Date) _____ _____
(Time) _____

Reviewed By: (SSVN or STA) (Sign/Date) _____ _____

Section B. One or More Asterisked (*) Steps Test Results UNSATISFACTORILY

Performed By: (Sign/Date) _____ _____

Informed of Test Results: (CO or ACO)(Sign/Date) _____ _____
(Time) _____

Shift Supervision (Sign/Date) _____ _____

Corrective Action: MRF No.: _____ _____

Initiated By: Sign/Date) _____ _____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified: (Name) _____

Date/Time Notified: (Date/Time) _____ _____

Notified By: (Sign) _____

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) _____ _____

1.0 PURPOSE

The purpose of this test is to determine the leakage rate of the Post Accident Sample System and Containment Atmospheric Control sample loops and to inspect associated components if the leakage is above the specified limit.

2.0 REFERENCES

2.1 Generic LLRT Procedure ST-1-LLR-001-1

2.2 8031-M-30; Post Accident Sampling

2.3 8031-M-57, Containment Atmospheric Control, Sheets 1 and 2

2.4 NUREG-0737

2.5 8031-M-235-8-12

2.6 8031-M-235-26-11 and 10

3.0 TEST EQUIPMENT

3.1 Per Generic Procedure ST-1-LLR-001-1

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Per Generic Procedure ST-1-LLR-001-1 and Item I of Specific Procedure Section 9.0

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5.0 PREREQUISITES

5.1 Plant conditions are such that testing will not interfere with planned operations. Backup system availability has been established per Section 9.1. Request permission of Shift Supervision and ACO/CO to begin this test.

_____/_____
Initials Date

_____/_____
ACO/CO Date

5.2 RWP obtained if required. _____

5.3 Obtain chemistry personnel assistance to operate the P.A.S.S. panel.

5.4 Safety permit issued if required per Section 9.5 or as determined by Results Engineer or alternate. Yes ____ No ____

If Yes: Permit No. _____

6.0 GENERAL LEAK TEST PROCEDURE

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS AND DATA SHEETS ARE CORRECTLY AND COMPLETELY FILLED IN.

INITIALS

6.1 Read Specific Procedure. Follow procedure for system draining and venting (Section 9.2) and valve lineup (Section 9.3). _____

6.2 With the box set up for a "FLOW IN TEST" and connected to the penetration test tap, perform leak test per ST-1-LLR-002-1. Record leakage on the Test Data Sheet attached to this procedure. _____

6.3 Perform leak test per Section 9.4 ____/____

7.0 PROCEDURE

7.1 Flow in Test (Test Volume Filled with Air)

7.1.1 Verify that the test volume is drained of water.

THE FOLLOWING STEPS ARE THE INITIAL SET UP OF VOLUMETRICS LEAK RATE MONITOR (LRM). SEE FIGURE 1.

7.1.2 Prior to performing leakage test or integrity check, set the LRM controls as follows:

CONTROL	PRESSURE REGULATOR (V-1)	RANGE SELECTOR (V-2)	TEST VALVE (V-3)	TEST LEVEL VALVE (V-4)
POSITION	FULL DECREASE (CCW)	CHARGE	DECAY	TEST

7.1.3 Connect the LRM to a 110 volt, 60 Hz electrical power source. Press the power switch; allow a ten (10) minute warm-up period before proceeding with Section 7.1.5.

DUE TO THE NATURE OF THE THERMAL MASS FLOW TRANSDUCERS USED IN THE LRM, THE FLOW RATE INDICATOR MAY DISPLAY A READOUT OF -006 TO +006 AT A NO LEAK CONDITION. THIS IS A NORMAL INDICATION, AND DOES NOT AFFECT CALIBRATION OF THE LRM.

7.1.4 Apply clean, dry facility test gas supply pressure to INLET port and pressurize from 85 to 150 PSIG. (Use nitrogen on electrical penetrations)

7.1.5 Upon completion of warm-up period, adjust ZERO control as necessary to obtain a readout of $\pm$ 0.00 on the PRESSURE indicator. Be sure the TEST port is open to atmosphere.

7.1.6 Connect TEST port to the test volume.

7.1.7 Zeroing of the desired flow range(s) on the display must be completed before any flow measurements from that range are taken. The LRM MUST be isolated from the test volume by setting the ball valves as in Section 7.1.2. Adjust zero on all flow ranges, selecting each individually with the RANGE switch.

THERE MUST BE A CONSTANT SUPPLY PRESSURE OF 85-150 PSI CONNECTED TO THE INLET OF THE LRM FOR ZEROING OF THE FLOW DISPLAY.

THE FOLLOWING STEPS ARE THE LEAK TEST OPERATING SEQUENCE OF LRM.

7.1.8 Set the TEST LEVEL ball (V-4) valve to the CLOSED position. Set the TEST ball valve (V-3) to the FLOW position. Adjust the PRESSURE REGULATOR (V-1) to the test pressure of 44 psig as displayed on the PRESSURE indicator. Set the RANGE SELECTOR switch and RANGE SELECTOR valve (V-2) to LOW RANGE and observe FL for any possible internal LRM leakage. Return the TEST LEVEL valve (V-4) to the TEST position. Return RANGE SELECTOR valve (V-2) to CHARGE position. The test volume should now be charging.

THE PRESSURE INDICATOR WILL SHOW A DROP IN PRESSURE UNTIL THE TEST VOLUME IS COMPLETELY CHARGED.

7.1.9 If the pressure within the test volume will not reach the desired test level (due to an excessive leakage rate), increase the REGULATOR control setting as necessary to obtain the desired test level pressure.

7.1.10 After the test volume is fully charged, set ball valves as follows:

BALL VALVE	RANGE SELECTOR (V-2)	TEST VALVE (V-3)	TEST LEVEL VALVE (V-4)
POSITION	HIGH	FLOW	TEST

ALLOW A TEN (10) MINUTE (MINIMUM) TEMPERATURE STABILIZATION PERIOD.

7.1.11 Upon completion of temperature stabilization period, place the RANGE switch in the HIGH position and observe the FLOW RATE indicator for the leakage flow rate.

7.1.12 If the indicated leakage rate value is sufficiently low, set the RANGE switch to MID and the RANGE valve to MID for greater accuracy. If low range is desired, set RANGE switch to LOW and the RANGE valve (V-2) to LOW.

7.1.13 Verify the position of the following valves on LLRT Data Sheet.

Range Selector Switch
Range Selector Valve (V-2)
Test Valve (V-3)
Test Level Valve (V-4)

7.1.14 If leakage is evident but is below the calibrated range of the LRM, either assign a test leakage rate at the minimum calibrated range (20 sccm) or impose a known flow to raise total indicated flow rate to within the calibrated range of the LRM. This is done by closing the test connection valves and opening a vent valve between the test connection valves and valve V-4 on the LRM. Throttle the vent valve to attain a flow rate (Lo), within the calibrated range of the LRM. After flow has stabilized, open the test connection valves and observe the total flow rate.

WHEN IMPOSED FLOW IS USED, THE MEASURED LEAKAGE (Lm) IS THE DIFFERENCE BETWEEN THE TOTAL FLOW AND THE IMPOSED KNOWN FLOW (Lo).

7.1.15 Read and record on Test Data Sheet the indicated flow and pressure at a minimum of 5-minute intervals for 15 minutes after stabilization. A minimum of 4 readings should be taken.

8.0 RETURN TO NORMAL

8.1 When test is completed, consult Health Physicist or alternate concerning venting the test volume.

9.0 SPECIFIC PROCEDURE

9.1 Backup System Availability and Requirements:

9.1.1 The Post Accident Sampling System will be out of service for the duration of this test.

9.1.2 Both H2/O2 analyzers 10S205 and 10S206 will be out of service for the duration of this test.

9.2 System Draining and/or Venting:

SYSTEM IS A NON-PRESSURIZED AIR-FILLED SYSTEM AND NEED NOT BE DRAINED.

9.3 Valve Lineup:

	INITIALS
9.3.1 Complete the applicable section of the Leak Rate Tag Accountability Log, position valves and switches, and hang LLRT tags.	_____

9.4 Procedure:

PERFORM LEAK RATE USING THE FOLLOWING PREFERRED METHOD(S). ALTERNATE METHODS AS DESCRIBED IN GENERIC PROCEDURE ST-1-LLR-001-1 MAY BE USED WHEN NEEDED AND SHALL BE ATTACHED TO AND FORM A PART OF THIS PROCEDURE ONLY WHEN USED.

9.4.1 Perform a flow in test on the P.A.S.S and C.A.C atmosphere sample loops.

	INITIALS
9.4.1.1 Remove thermal overload from contactor for pump 1BP937 at Panel 10C945	_____
9.4.1.2 Install temporary jumpers between terminals 27, 28, 29, 30, 3 and 32 on terminal board 3 in the Hydrogen and Oxygen Analyzer Panel 10S205	_____

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9.4.1.3	Install temporary jumpers between terminals 27, 29, 30, 31 and 32 on terminal board 3 in the Hydrogen and Oxygen Analyzer Panel 10S206	_____
9.4.1.4	Lift lead 38 from terminal 36 on TBR-3 in Panel 10S205	_____
9.4.1.5	Lift lead 38 from terminal 36 on TBR-3 in Panel 10S206	_____
9.4.1.6	Install test box to test connection downstream of valve 57-1062 (501-15R-295) and to connection SX-57-159 on panel 10S205.	_____
9.4.1.7	At Panel 10C600, place power on to 10S205 by placing HSS-57-126 to the "ANALYZE" position	_____
9.4.1.8	Verify SV-57-151, SV-57-152, SV-57-153, SV-57-154, and SV-57-155 are open.	_____
9.4.1.9	At Panel 10C600, place power on to 10S206 by placing HSS-57-196 to the "ANALYZE" position	_____
9.4.1.10	Verify SV-57-187, SV-57-188, SV-57-189 and SV-57-194 are open.	_____
9.4.1.11	At Panel 10C945, place power on by placing HSS-30-120 to position "A" or "B"	_____
9.4.1.12	Place HSS-30-121 to the Gas position at Panel 10C945	_____

9.4.1.13	Place HSS-30-111 to the Drywell position on 10C945	_____
9.4.1.14	Place HS-30-109 to the CIRC. gas position on Panel 10C945	_____
9.4.1.15	Begin flow in test per section 7.1 at test pressure of 44 psig and determine system leak rate	_____
9.4.1.16	Verify system leak rate is less than (later)	_____
9.4.1.17	The leak rate is above (later). Proceed to the next step. If not, proceed to Step 9.4.1.19 and mark Step 9.4.1.19 N/A	_____
9.4.1.18	Using a bottle of snoop or equivalent, walk the system down and inspect components for air leakage inside the solid boundary of Attachment B. Document all components exhibiting leakage on Attachment A.	_____
9.4.1.19	Isolate the test box and vent the volume. Close and cap valve 57-1062 and 57-1047	_____
9.4.1.20	Place HSS-30-120 on Panel 10C945 to the "OFF" position	_____
9.4.1.21	Reattach the thermal overload for pump 1BP937 at Panel 10C945	_____

9.4.1.22	Place HSS-30-170 on Panel 10C945 to the ON position and verify pump 1BP937 starts	_____
9.4.1.23	Place HSS-30-120 on Panel 10C945 to the "OFF" position.	_____
9.4.1.24	Place HSS-57-126 on Panel 10C600 to the "OFF" position	_____
9.4.1.25	Place HSS-57-196 on Panel 10C600 to the "OFF" position	_____
9.4.1.26	Reconnect lead lifted in step 9.4.1.4	_____
9.4.1.27	Reconnect lead lifted in step 9.4.1.5	_____
9.4.1.28	Remove temporary jumpers between terminals 27, 29, 30, 31 and 32 on TRB-3 in Panel 10S206	_____
9.4.1.29	Remove temporary jumpers between terminals 27, 28, 29, 30, 31 and 32 on TRB-3 in Panel 10S205	_____
9.4.1.30	Place HSS-57-126 to the "ANALYZE" position and then using pump selector HSS-57-129 verify that pumps 1AP253 and 1BP253 operate correctly. This verifies lead lifted in step 9.4.1.4 restored	_____
9.4.1.31	Verify only one sample inlet valve to panel 10S205 is open	_____
9.4.1.32	Return HSS-57-126 to the "OFF" position	_____

9.4.1.33 Place HSS-57-196 to the "ANALYZE" position and then using pump selector HSS-57-199 verify that pumps 1AP254 and 1BP254 operate correctly. This verifies lead lifted in step 9.4.1.5 restored _____

9.4.1.34 Verify only one sample inlet valve to panel 10S206 is open _____

9.4.1.35 Return HSS-57-196 to the "OFF" position _____

9.5 Block Required

None

9.6 Restoration:

9.6.1 At the conclusion of the test, isolate and vent the test box and the test volume separately. Disconnect test box from the test volume, close test connection valves and remove hoses. _____

CAUTION

CONTACT HEALTH PHYSICS PRIOR TO DRAINING OR VENTING ANY POTENTIALLY CONTAMINATED SYSTEMS.

9.6.2 Restore valve line up at test completion per Tag Accountability Log to "AS FOUND" position, recording final position in the "AS LEFT" column, or as directed by Shift Supervision. Have second verification performed by a qualified individual designated by the results Engineer or his alternate. If any valve is restored to a position other than the "AS FOUND" position, note it accordingly in the Additional Action/Test Comments section. _____

9.6.3 Complete IVOR. _____

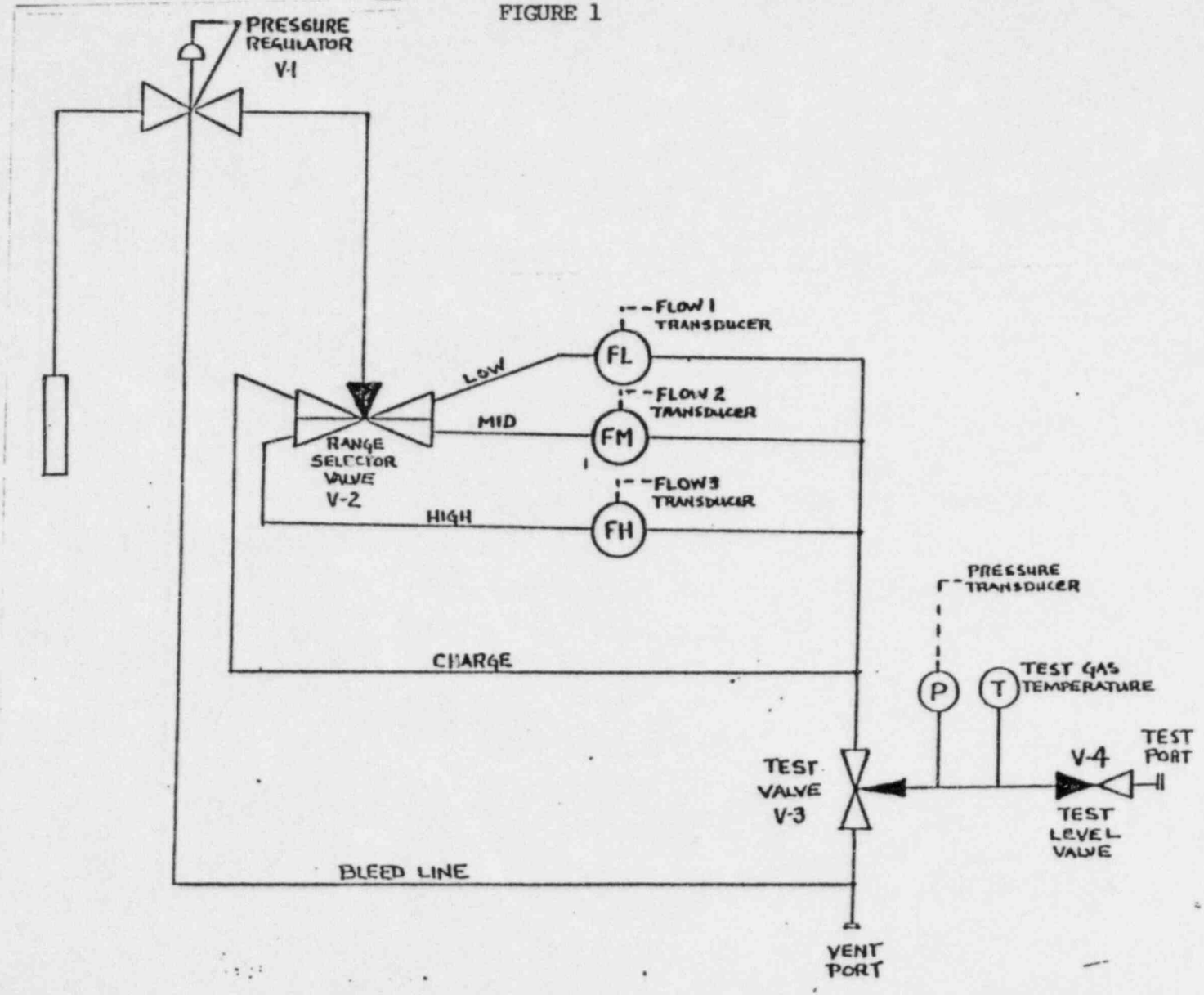
9.6.4 Return system to normal per Section 8.0 or as directed by Shift Supervision. _____

9.7 Inform Shift Supervision of results of test (Note above asterisked step) and fill out the data sheets. Have operator review accountability log. _____

AT TEST COMPLETION, ENSURE THAT COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.

VOLUMETRICS LEAK RATE MONITOR (LRM)

FIGURE 1



TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C P&ID M-57, SH. 1

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
57-1084		CLOSED	27001				
57-1086		CLOSED	27002				
57-1050		CLOSED	27003				
57-1089		CLOSED	27004				
57-1062 (Test)		UNCAPPED OPEN	27005		CLOSED/ CAPPED		
SV-57-133		OPEN	27006				
SV-57-150		OPEN	27007				
SV-57-143		OPEN	27008				
SV-57-159		OPEN	27009				

TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C P&ID M-57, SH. 1

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
SV-57-195		OPEN	27010				
SV-57-145		OPEN	27011				
57-1047		CLOSED/ CAPPED	27012		CLOSED/ CAPPED		
57-1043		CLOSED/ CAPPED	27013		CLOSED/ CAPPED		
57-1044		CLOSED/ CAPPED	27014		CLOSED/ CAPPED		
SV-57-185		OPEN	27015				
57-1083		CLOSED	27016				
57-1088		CLOSED	27017				
57-1061		CLOSED	27018				

TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C P&ID M-57, SH. 1

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
SV-57-134		OPEN	27019				
SV-57-132		OPEN	27020				
SV-57-142		OPEN	27021				
SV-57-144		OPEN	27022				
SV-57-146B		OPEN	27023				
57-1071		CLOSED	27024				
SV-57-183		OPEN	27025				
SV-57-191		OPEN	27026				
SV-57-184		OPEN	27027				

TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C P&ID M-57, SH. 1

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
SV-57-186		OPEN	27028				
SV-57-147A		OPEN	27029				
SV-57-181		OPEN	27030				
57-1087		CLOSED	27031				
SV-57-141		OPEN	27032				
SV-57-190		OPEN	27033				
57-1091		OPEN	27034				
SE-57-101		CLOSED	27035				
SE-57-102		CLOSED	27036				

TAG ACCOUNTABILITY LOG

P&ID M-57

PENETRATION NO.: P.A.S.S & C.A.C

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
57-1051		CLOSED/ CAPPED	27037		CLOSED/ CAPPED		
57-1045		CLOSED/ CAPPED	27038		CLOSED/ CAPPED		
57-1046		CLOSED/ CAPPED	27039		CLOSED/ CAPPED		
57-1070		CLOSED/ CAPPED	27040		CLOSED/ CLOSED		
57-1027		CLOSED/ CAPPED	27041		CLOSED/ CAPPED		

TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C P&ID M-57, SH. 2

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
SV-57-187		AS REQUIRED	27042				
SV-57-188		AS REQUIRED	27043				
SV-57-189		AS REQUIRED	27044				
SV-57-1°4		AS REQUIRED	27045				
57-1063		CLOSED	27046				
57-1013		OPEN	27047				
SV-57-151		AS REQUIRED	27048				
SV-57-152		AS REQUIRED	27049				
SV-57-154		AS REQUIRED	27050				

TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C P&ID M-57, SH. 2

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
SV-57-153		AS REQUIRED	27051				
SV-57-155		AS REQUIRED	27052				
SV-57-199A		CLOSED	27053				
SV-57-199B		CLOSED	27054				
SV-57-129A		CLOSED	27055				
SV-57-129B		CLOSED	27056				

TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C

P&ID M-30, M-57

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
HSS-30-120		AS REQUIRED	27057				
HSS-30-111		AS REQUIRED	27058				
HSS-30-109		AS REQUIRED	27059				
HSS-30-121		AS REQUIRED	27422				
HSS-57-129		AS REQUIRED	27060				
HSS-57-126		AS REQUIRED	27061				
HSS-57-199		AS REQUIRED	27062				
HSS-57-196		AS REQUIRED	27063				

LEAKAGE RATE TEST DATA SHEET

PENETRATION NO. P.A.S.S & C.A.C

COMPONENTS UNDER TEST Atmospheric Sample Loops

TEST BOUNDARIES See Attachment B (P&ID's)

TESTED BY _____ DATE _____

TIME	PRESSURE (psig)	FLOW (scc/min)

AVERAGE FLOW=_____scc/min

LLRT Test Box No.

Cal. Due Date

VOLUMETRICS LRM VALVE/SWITCH POSITIONS

RANGE SEL (V-2)	TEST VALVE(V-3)	TEST LVL VALVE(V-4)	RANGE SEL SWITCH

ACCEPTANCE CRITERIA: Later

TEST TAP VALVES: 57-1061

TESTED PER PROCEDURE ST-1-057-701-1

LEAKAGE RATE = scc/min

ADDITIONAL ACTION/TEST COMMENTS

Additional Action:

Additional Action required if other portions of test did not function properly or other discrepancies were noted during test.

1. MRF Submitted___ (MRF - Number)_____ _____

2. Other Action___(Signature - Time/Date)_____ _____

TEST COMMENTS

If ANY entry is made on this page, sign bottom of cover sheet.

P.A.S.S & C.A.C SAMPLE LOOPS
CONTAMINATED PIPING INSPECTION

DATA SHEET

ATTACHMENT A

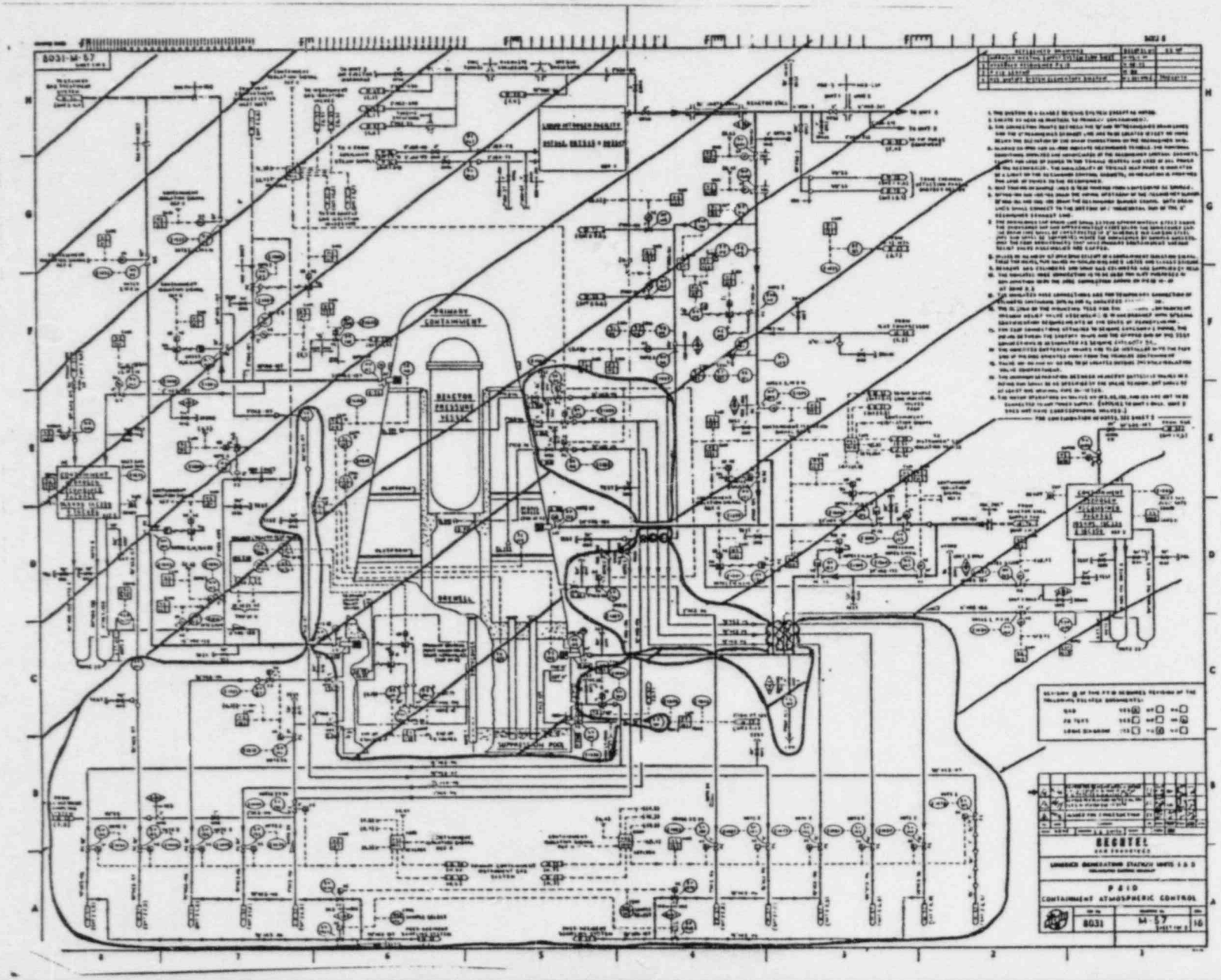
Inspector: _____

System Mode: _____ Date: _____

Component Number	Component Description	Comp. Mode (on/off) (open/shut)	Leak Rate	Corrective Action Date	Remarks

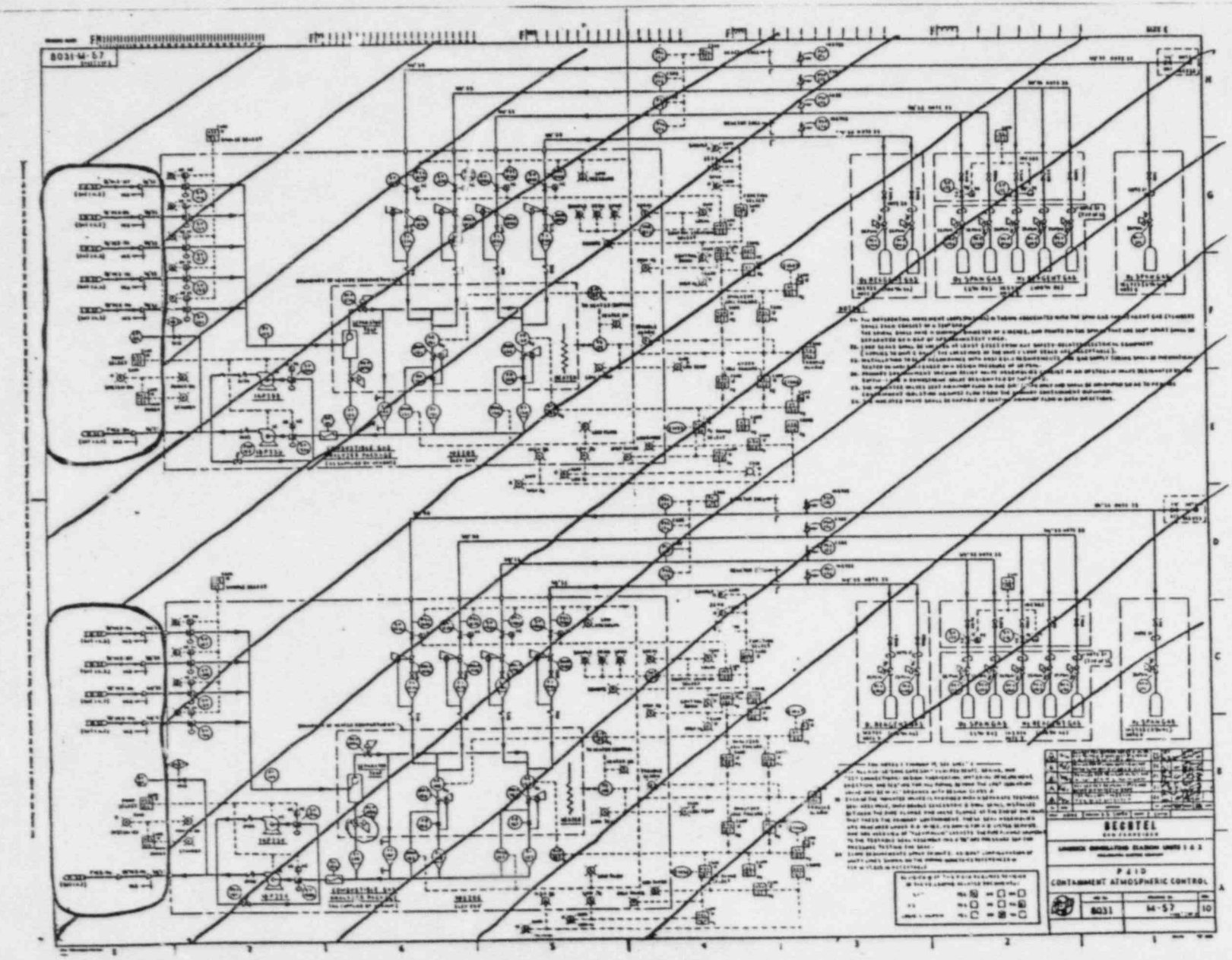
ATTACHMENT B

(Page 1 of 3)



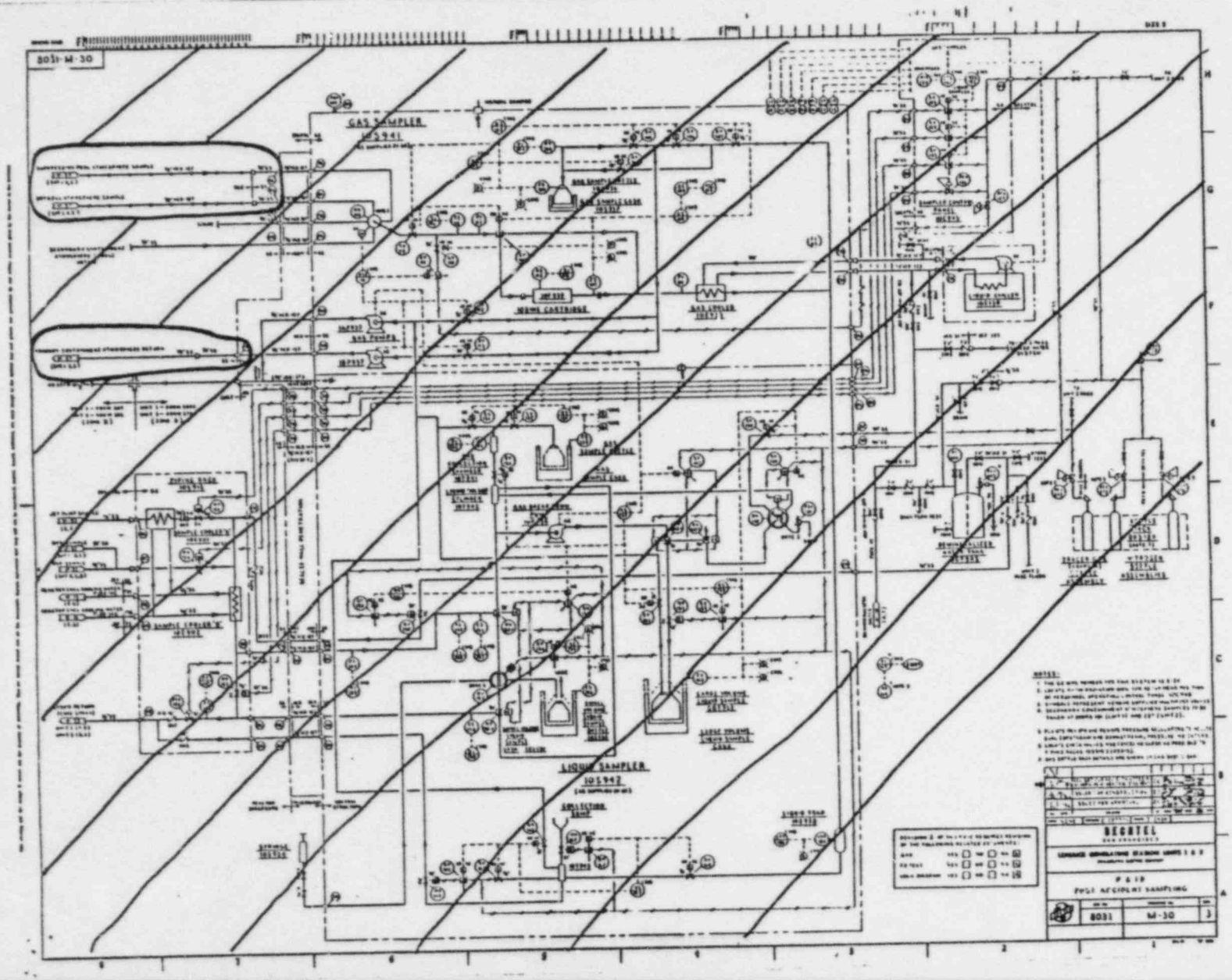
ATTACHMENT B

(Page 2 of 3)



ATTACHMENT B

(Page 3 of 3)



P.A.S.S & C.A.C SAMPLE LOOPS CONTAMINATED

PIPING INSPECTION

DATA SHEET (1 of 1)

"IVOR"

(INDEPENDENT VERIFICATION OF RESTORATION)

The following identified steps in the procedure require an independent verification of completion.

Step No.	Action	INITIALS
9.4.1.21	Thermal Overload REATTACHED	_____
9.4.1.26	Lead RECONNECTED	_____
9.4.1.27	Lead RECONNECTED	_____
9.4.1.28	Temporary Jumpers REMOVED	_____
9.4.1.29	Temporary Jumpers REMOVED	_____

INIT CRIT 11/21 3

Issued: 111684 (Date) 1700 (Time)

LIMERICK GENERATING STATION
MAINTENANCE REQUEST FORM

UNIT 1

3850016380 MRF# 8404396

SECTION 1

Equip No. 10-S206
Equip Name SUPRESSION POOL OXYGEN/HYDROG R PKG.
Lctn: 15 -253
Problem:
NCR-10291 CATALYST BEDS FOR HYDROGEN OXYGEN ANALYZERS 10-S206 WERE INSTALLED WITHOUT QC INSPECTION S/U 73C; PSCL-73C-85; WP#73C-0010; 4-8 HR SHIFTS

System# 057
Ser#
System Name: CNTMT ATMOS CONTROL

NPROS? NO
Fail Det:
Fail Mode:
Reqd for S/U? Y
TS LCO Item? Y
Assoc. Equip Inop? N
Immed. Attn? N

Status at Failure:
Effect on System:
Effect on Plant:
Equip Trbl Tg# NONE
Equip Status: O

Identified by: M. ALDEN 2472 — Group: CONSTR-P — (Date) 110884 — (Time) 1100
Verified by: V. CWIETNIEWICZ — (Date) 111384 — (Time) 1400

SECTION 2

Task Type: PSCL
Q-List Item? Y
Class 1E? NO
Task Freq:
Envir Qual? N
Last Done:
Proc Reqd? YES
Mod#
Outage Type: NONE
Pri: 3

Required Plant Restraints: NO SPECIAL CONDITIONS

Comments:

Timing: COMPLETE IN 72 HOURS

Resp Dept: CONSTR

Account Number: 091101-034

Staff Approval: VINCENT J. CWIETNIEWICZ (Date) 111684 (Time) 1645

SECTION 3

Planned Corrective Action:
TO PERFORM PNUEMATIC TEST PER NCR 10291; DISPOSITION PROCEDURE ATTACHED.

RWP# NONE
CSE Permit Reqd? N
LD Permit Reqd? N
Ignition Control Permit Reqd? N
Local Permit Reqd? Y

Standard Blocking Seq# NONE
Lead Group: CONSTR-P
Sub Grp 1: CONSTR-P
Sub Grp 2:
Sub Grp 3:
Sub Grp 4:
Sub Grp 5:

Parts List Attached? N
Procedure List: ATTACHED TO NCR-10291 PG.4 & 5

Permits to be Ready by: (Date) (Time)

QC Approval: MARK F. ALDEN (Date) 111684 (Time) 1645

Planning Approval: MARK F. ALDEN (Date) 111684 (Time) 1645

SECTION 4

CSE Permit#
LD Permit#
Igni. Control Permit#
Local Permit# 1-57-0057
Local Permit#
Local Permit#

Comments:

QSVN Approval: Greg F. Edley (Date) 11-21-84 (Time) 2104

Eq/Work Area Identified by: Gamble of Operating

To: Behn of Maint/Lab/Const on (Date) 11-23-84 (Time) 0845

3850016380

LIMERICK GENERATING STATION
MAINTENANCE REQUEST FORM

UNIT 1

MRF# 8404396

----------SECTION 5----------

CAUSE OF FAILURE/DEFECTS FOUND:

TYPE OF FAILURE: |__| |__|

FAILURE CATEGORY: |__| |__|

CORRECTIVE ACTION/WORK PERFORMED/HISTORY DATA:
PERFORM PNEUMATIC TEST
LN7-23C-3

CAUSE OF FAILURE: |__| |__| |__|

CORRECTIVE ACTION: |__| |__| |__|

EQUIP TROUBLE TAG REMOVED? |__|

ADDITIONAL SHEETS? |__|

FOREMANS COMMENTS:
JTK

GROUP	NOS MEN	TTL MAN HRS	TTL MAN REM	TEST EQUIP/ TOOL ID USED:	DATE USED
LEAD GP	|___|	|____.__|	|____.__|		
SUB GP 1	|2|	|60.__|	|____.__|	1.__	__/__/__
SUB GP 2	|___|	|____.__|	|____.__|	2.__	__/__/__
SUB GP 3	|___|	|____.__|	|____.__|	3.__	__/__/__
SUB GP 4	|___|	|____.__|	|____.__|	4.__	__/__/__
SUB GP 5	|___|	|____.__|	|____.__|	5.__	__/__/__

WORK COMPLETE SIGN-OFFS:

	CRAFT	(DATE)	QC
SUB GP 1	Walt F. Miller	12/11/84	Walt F. Miller
SUB GP 2		__/__/__	
SUB GP 3		__/__/__	
SUB GP 4		__/__/__	
SUB GP 5		__/__/__	

LEAD GROUP, WORK COMPLETE/AREA CLEAN: Charles J. Romberger 16:15 (DATE) 12/11/84

QC SIGN-OFF FOR LEAD GP: Walt F. Miller

----------SECTION 6----------

NA OPERATION VERIFICATION FORM ATTACHED

John C. Moore 12/13/84

SHIFT SUPERVISION ACCEPTANCE: Greg L. Collins (DATE) 12/15/84 (TIME) 1046

NEW MRF INITIATED? |__|

----------SECTION 7----------

REVIEWED BY: _____ __/__/__ (DATE)

FOLLOW-UP: |__| |__|

3850016380

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
OPERATION VERIFICATION FORM UNIT 1

EQUIPMENT NO. 10-S206

ATTACHMENT TO MRF# 8404396

OPERATION VERIFICATION METHOD:
NONE

TEST TO BE PERFORMED BY: OPER ACCOUNT NUMBER: 091101-335

APPROVED BY:	GROUP:	(DATE)	(TIME)
@ SSVN DIRECTION/MS-SHFCK	STA	121484	1735
SSVN APPROVAL: @ SSVN DIRECTION/MS-SHFCK		121484	1735

(OVF METHOD COMPARED TO WORK DONE AND APPROVED OR APPROVED WITH CHANGES)

OPERATION VERIFICATION TESTS AND RESULTS SUMMARY:

NONE

GROUP:	NOS MEN	TTL MAN HRS	TTL MAN REM	TEST EQUIP/ TOOL ID USED:	DATE USED:
STA	0	0.0	___.__	1.	___/___/___
		___.__	___.__	2.	___/___/___
		___.__	___.__	3.	___/___/___
		___.__	___.__	4.	___/___/___
		___.__	___.__	5.	___/___/___
		___.__	___.__		

TEST PERFORMED BY: N/A GROUP: STA (DATE) 12/14/84 (TIME) 18:25

RESULTS: [✓] SATISFACTORY
[ ] UNSATISFACTORY (NEW MRF INITIATED)

TEST REVIEWED/FORM VERIFIED BY: _____ GROUP: OPER (DATE) 12/14/84

DOUBLE VERIFICATION: [ ] PERFORMED
[✓] NOT APPLICABLE

[ ] ADDITIONAL SHEETS ATTACHED
(WRITE MRF# ON ADDED SHEETS)

Bob Cole - 3018

4948 TOM PRATT 4718

BECHTEL MAINTENANCE AND MODIFICATION PROCEDURES

LIMERICK GENERATING STATION 3850016380

Sht. 1 of 1	PSCL Work Package Cover Sheet	1. PSCL: 73C-85
9. System Name: Containment Atmos. Control		2. MRF: # or N/A: 840439
10. Reason/Reference for Work: PSCL. # 73C-85		3. WP: # or N/A: 73C-0010
		4. FCCF: # or N/A: 402-50
		5. Room No. 402 Area/El. 15-253
11. Work Description: Preform Pneumatic test 1M-73C-31		6. Modification Yes __ No X If Yes Mod #
12. Post Work Testing Yes __ No X If Yes, description		7. Cat. I Dwg. Yes __ No X If Yes, List in Block 26
13. Dura. (8 hr. shifts) 4 Shifts 11-2-84	14. Supt.	8. X Q-Listed __ ASME __ BOP N/A
15. Originator: Lou Averill 4716	Date: 11-2-84	Time:

16. REQUEST FOR ACCESS APPROVAL Yes __ No ✓

17. Special instructions for access	18. Tag Number Key Number Equipment Number Start Date

19. CDE Approval [signature] Date 11/29/84 Time 1100

20. Work Completed [signature] Date 12-9-84 Time 6:07

21. Construction/Post Work Testing Complete N/A Date Time

22. QC Complete [signature] Date 12/11/84 Time 10:30 A.M.

23. QC Post Work Testing Complete N/A Date Time

24. OP Verif.(MRF Only) Acceptable __ Unacceptable __ Initiate New MRF

25. CDE Auth. Cap (Access Req Only) [signature] Date 12/12/84 Time 0900

LTR 12-11-84 16:15

26. Continuation of Items 7, 10, 11, 12, 17.

Exhibit 1
Revision 11

25

LIMERICK GENERATING STATION 3850016380

UNITS I & II

JOB 8031

To: J. WALTERS / J. MCVEIGH Date: 11-26-84

From: A M MARTINEZ Start-up System No. 73C

Subject: PRESSURE TEST NO. IM-73C-31

Piping has been inspected where shown by color code on the attached marked-up print of the latest revision of drawing M-57 N.2 available, and all drains, vents instrument connections (including the second valve on double valved connections) and the branch piping out to the indicated boundaries are installed. Items installed per FCR's and DCN's, and not yet shown on the drawing, have also been marked on the above print. Piping and instrument lines that will be filled and/or pressurized during testing which exceed the area to be tested are shown uniquely color coded as required and have been walked down to ensure the piping is adequately supported and isolated.

Hangers and supports are installed to provide support for hydro-testing. Spring hangers have travel stops positioned per the appropriate hanger specification. This includes hangers and supports for piping to be filled but not actually under test.

Please complete your required pre-test inspection of the piping shown on the attached drawing, including verifcation that all welding, post weld heat treatment and non-destructive examination is complete (except pressure test) including that required for all hanger, support and seismic restraint attachments welded to pipe and/or pressure retaining components, except that on piping which is to be filled and/or pressurized but not documented. Also verify that ASME nameplates or stand-off attachments have been inspected for injurious surface defects and, where found, repaired, non-destructively examined and accepted.

Valve packings have been installed, including those in piping to be filled which will not actually be under test.

Flushing as required prior to testing has been accomplished and piping, including that to be filled but not actually under test, meets the required cleanliness criteria.

Welds have not been covered with insulation.

Where piping is embedded in structural concrete, the concrete has reached design strength.

Wall and floor penetration seals have been welded to pipe where required.

The required completion date for the test is 11 26 84 .

Signed: A M Martinez
(Pressure Test Engineer)

Signed: [illegible]
(LMSCE or Designee)

LIMERICK GENERATING STATION

UNITS I and II

JOB 8031

Pre-Test Meeting
Reference: 8031-JR-M-1

Date 11 26 84

Start-Up System 73C

Test No. 1M-73C-31

P&ID(s) M-57 SH.2

The undersigned have met and reviewed Piping Test No. 1M-73C-31 and are in agreement that subject test is in accordance with Specification P323 A and applicable code ANSI.

The Pneumatic or Hydrostatic Test Procedure and Report and the Valve and Component Check List were reviewed with the marked-up P&ID's for the subject test in conjunction with the manner in which the test will be implemented and monitored. A review was also made to assure the concrete was checked for design strength where piping is embedded in structural concrete.

Deviations to Specification P323. are as follows:

1. CONSIP INC. TEST PROCEDURE., NCE # 10291

Deviations Approved By: (specify approval document)

2. NCR-10291

Authorized to proceed with test:

LMSCE or His Designee [signature]

PTE [signature] 11/26/84

PFQCE or His Designee R. Weigand 11-28-84

PECo Representative J. Watten — In Attendance [ ] / Attendance Waived [X]

Authorized Inspector N/A G.M.M. 11/26/84

LIMERICK GENERATING STATION

UNITS I & II

JOB 8031

Pneumatic or Hydrostatic Test Procedure and Report

27 Reference: 8031-JR-M-1 Date 9-13-84

ASME III, XI, Q, R, S, BOP Q

PART I - TEST PROCEDURE (To be filled out in ink)

1. Specification : P-323 Design Press : See Vendor Procedure
2. Applicable Code: ANSI B.31.1 Nuclear Class: —
3. Start-Up No. : 733C Test No. 1M-733C-31
4. Service : CONT. ATMOS CONTROL
5. Boundaries : See EXHIBIT II
6. Type Test : Hydrostatic ☐; Pneumatic ☒; Other ☐ _____
7. Test Medium : AIR/NITROGEN (specify whether water, air, etc.)
8. Water analysis and temperature requirements: N/A
   _____ ° Min _____ ° Max
9. Air Requirements CLEAN filtered air
10. Lay-up with inert fluid is ☐, is not ☐, N/A ☒ required after test.
    Lay-up shall be with N/A (specify lay-up medium) at _____ PSIG
    Piping is ☒, is not ☐ to be ~~drained~~ Depressurized after test N/A ☐.
    For Lay-up information, see marked-up P&ID's N/A
11. Install Safety Tags on all check points.
    For check point location, fill locations, boundaries and any special test set-up see marked-up P&ID's M-57 SHT 2

    Instrument tubing from root valve to instrument valve is ☐, is not ☐ included N/A ☒.

27 12. Required test pressure ~~(1.5, 1.25, 1.2 or 1.1 X Design as applicable)~~ is 90/6 PSIG. See Vendor Procedure

13. Elevation difference (EL) between test gauge and high point is N/A feet or N/A PSIG.
14. Required gauge pressure (lines 12 & 13) is 90/60 PSIG for 10 minutes (Note: No inspection shall take place until specified time has elasped).

Pneumatic or Hydrostatic Test Procedure and Report

Test No. 1M-73C-31

15. Elevation difference (△El) between high point and low point of permanent piping is N/A feet. Total static head N/A PSIG.

16. A) Test tolerance minus Line 15 is 5A/3.6 PSIG.
B) Minimum test pressure at gauges is 90/60 PSIG (Line 14).
C) Maximum test pressure at gauges is 95.4/63.6 PSIG (Line 14 plus line 16A)

17. Relief valve is [X], is not [ ] required.
Set relief valve to relieve at 95/64 PSIG prior to subjecting any part of the system to pressure.

18. Pressure regulator is [X], is not [ ] required N/A [ ].
Pressure regulator is to maintain pressure at 90/60 PSIG.

19. Test gauges shall have a range from:

0 to 142.5/94.5 minimum (1 1/2 times maximum test pressure per applicable code.)
0 to 380/252 maximum (4 times maximum test pressure per applicable code.)

20. The system is to be pressurized to required pressure in stages as follows:

Initial Test Pressure 10/10 PSIG		4th Test Pressure 40/40 PSIG	7th - 70/
2nd Test Pressure 20/20 PSIG		5th Test Pressure 50/50 PSIG	8th - 80/
3rd Test Pressure 30/30 PSIG		6th Test Pressure 60/60 PSIG	9th - 90/

21. Examination of piping is to be performed at *90/60 PSIG (Line 12 x .75 + Line 13) after required test pressure of 90/60 PSIG is held for a minimum of ten minutes.

22. Comments FOLLOW ATTACHED VENDOR PROCEDURE FOR TESTING. 90# TEST W/ INSTRUMENTS ISOLATED, THEN 60# TEST W/ INSTRUMENT CONNECTED.

Prepared By D. S. Good

Date 11-29-84

*NOTE: When hydrostatically testing Nuclear Class I Piping or pneumatically testing ASME Piping, examination of piping shall be performed at design pressure plus Line 13.

PART II - TEST REPORT (To Be Filled Out In Ink) Test No. IM-73C-91

1. Verify that screwed instrument conn's,as applicable, are disconnected.

   YES [X] NO [ ] N/A [ ]

2. Verify all safety tags are installed and valves are positioned: YES [X] NO [ ]

3. Notify QC Representative JOE JOHNSON (Name) YES [X] NO [ ] N/A [ ]

4. Verify test gauges installed:
   Bechtel gauge No. P-63 Mfrg. USG Range 0-160 Cal. valid to 3-10-85
   Bechtel gauge No. P-64 Mfrg. USG Range 0-160 Cal. valid to 3-10-85

5. Verify test medium used NITROGEN (specify)

6. Verify test medium temperature N/A °F (specify) Thermometer No. —
   Cal. Due Date —

7. Verify relief valve setting popped at: 95 PSI / N/A PSIG

8. Verify pressure regulator setting DM 90 95 / 60 PSIG (pneumatic test only)

9. Verify water analysis: Clarified water [ ], Demineralized water [ ], Other [X],
   specify other _____
   Batch No. _____
   Actual _____ PPM TSP

10. Verify temporary piping is flushed YES [X] DM NO [ ]

11. Notify client representative YES [X] NO [ ] FRED ECKHERT (Name)

12. Notify Authorized Code Inspector YES [ ] NO [X] N/A (Name)

13. Verify gauge reading at 0 pressure
    Bechtel gauge No. P-63, 6 PSIG
    Bechtel gauge No. P-64, 0 PSIG

14. Verify proper filling, venting and pressurizing:

Initial test pressure	90/ PSIG	4th test pressure	N/A PSIG
2nd test pressure	N/A PSIG	5th test pressure	N/A PSIG
3rd test pressure	N/A PSIG	6th test pressure	N/A PSIG

15. Test was [ ], was not [X] terminated to repair weld joint(s) after reaching 90/60 PSIG. Leaking joint(s) was weld no.(s)_____ on dwg._____ date_____.

16. Record the gauge reading at the required test pressure prior to reducing pressure for examination. (ASME piping systems only) N/A [X]
    Bechtel gauge No. N/A PSIG N/A
    Bechtel gauge No. N/A PSIG N/A

17. Required test pressure was held for 10/10 minutes prior to examination (All piping systems)

18. Record the gauge reading during examination of system. (All piping systems)
    Bechtel Gauge No. P-63, 90/60 PSIG
    Bechtel Gauge No. P-64, 91/61 PSIG

Pneumatic or Hydrostatic Test Procedure and Report

Test No. IM-73C-31

19. Remarks: Describe leaks observed on mechanical joints and ANSI B31.1 weld joints, which require repair: N/A

20. Date(s) and time of pressure test (start and finish) 12-10-84
Date
Start 11:00 Am. Finish 5:00 Pm.

21. Test accepted by visual examination:
Bechtel Field Engineer [signature] Date 12-10-84
Bechtel QC Engineer R. [signature] for ERS Date 12/10/84
Client Const. or Startup Rep. N/A Date —
Authorized Code Inspector N/A Date —

22. Items noted in Item 19 have been repaired.

N/A
Bechtel Field Engineer Date

N/A
Bechtel QC Engineer Date

PART III - DRAINING AND RESTORATION (To be filled out in ink)

1A. Verify ~~draining~~ DEPRESSURIZATION is required (see Part I, Item 10) YES [X] NO [ ] N/A [ ]

1B. Draining waived N/A
Asst. Project Startup Eng./Designee

2. Verify water with TSP is drained to holding pond YES [ ] NO [ ] N/A [X]

3. Verify vents opened and system ~~drained~~ DEPRESSURIZED YES [X] NO [ ] N/A [ ]

4. Verify system is completely drained except for small pipe low points where no practical method for draining exists. YES [ ] NO [ ] N/A [X]

5. Verify safety tags removed and restoration items noted on Exhibit IV restored YES [X] NO [ ]

6. Accepted:
Bechtel Field Engineer [signature] Date 12-10-84
Bechtel QC Engineer R. [signature] Date 12/10/84

3850016380

IM-73C-31

1. Verify drawing available to describe lay-up YES ☐ NO ☐

2. Verify safety tags installed _____ YES ☐ NO ☐

3. Verify system filled with proper fluid _____ (specify)

4. Lay-up accepted:

Bechtel Field Engineer _____ Date _____

Bechtel QC Engineer _____ Date _____

N/A ☒ PART V - INITIAL SERVICE LEAK TEST (To be filled out in ink)

1. Repairs to tested piping.

a. Verify repairs noted in Part II, Item 19 have had an in-service leak check and were found [illegible]

Bechtel Field Engineer _____ Date _____
See Test Number _____ (In Service Package)

2. Initial Service Leak Testing In-Lieu of Hydrotest

a. Verify drawings are available to describe piping to be so tested.

YES ☐ NO ☐

b. Verify piping is brought up to design pressure or maximum obtainable system operating pressure of (See Exhibit X) PSIG.

c. Verify all joints are [illegible] YES ☐ NO ☐
(If NO, complete 2.d)

d. Remarks: Describe leaks observed on mechanical joints and welds which require repair for completion of this test _____

_____

_____

_____

e. Verify repairs noted in 2d have been repaired and re-leak checked

YES ☐ NO ☐

f. In-Service leak test accepted:

Bechtel Field Engineer _____ Date _____

Bechtel QC Engineer _____ Date _____

Client Constr. or Startup Rep. _____ Date _____

LIMERICK GENERATING STATION

UNITS I & II

3850016380

JOB 8031

8031-JR-M-1
EXHIBIT IV
Rev. 5

22

Start-up No. 736
Test No. 1M-736-31
Date 9/20/94
Page 1 of 4

VALVE AND COMPONENT CHECK LIST

Specification No. P-323 Responsible Engineer TOM PLATT

P&ID REV.	DWG. NO.	REV.	SM.PIPE A/B DATE	VALVE, COMPONENT SPOOL NO. ETC.	INSTR NUMBER	POSITION
REV 11 M-57 SHT 2	RACK 105206			See P+ID		
	3/8" TUBING			DISCONNECT AT PANEL UPSTREAM OF	SV-197	FILL POINT
				SV-197		OPEN
				DISCONNECT AT PANEL UPSTREAM OF	SV-198	FILL POINT
				SV-198		OPEN
				DISCONNECT AT PANEL UPSTREAM OF	SV-189	FILL POINT
				SV-189		OPEN
				DISCONNECT AT PANEL UPSTREAM OF	SV-194	FILL POINT
				SV-194		OPEN
					PI-199	HOOKUP AT GO PLUG AT 90 #
				SEPARATOR TRAP		FLOW THRU.
				PCV-199A		OPEN
					AE-188	FLOW THRU
				PDCV-188		OPEN
				FO-188		FLOW THRU.
					PDSL-188	HOOKUP AT GO PLUG AT 90 *
					FI-188	FLOW THUR.
					AE-187	FLOW THRU
				PDCV-187		OPEN
				FO-187		FLOW THRU.
					PDSL-187	HOOKUP AT GO PLUG AT 90 #

*Lines filled/pressurized but NOT documented under this test.

Restoration Items

LIMERICK GENERATING STATION

UNITS I & II 3850016380

JOB 8031

VALVE AND COMPONENT CHECK LIST

8031-JR-M-1
EXHIBIT IV
Rev. 5

22

Start-up No. 73BC
Test No. 1M-73C-31
Date 9/20/84
Page 2 of 4

Specification No. P-323 Responsible Engineer TOM PRATT

P&ID REV.	DWG. NO.	REV.	SM.PIPE A/B DATE	VALVE, COMPONENT SPOOL NO. ETC.	INSTR NUMBER	POSITION
Rev. 11 M-57SH 2	RACK 105206				1	
					FI-187	FLOW THRU
					FI-180	FLOW THRU
				REMOVE CAP		FILL POINT
					FI-199	
				PCV-199B		OPEN
				SC-102		INSTALLED
				SV-199B		OPEN
				1BP-254		FLOW THRU
				SV-199A		OPEN
				1AP-254		FLOW THRU
				1118B		INSTALLED
				1118A		INSTALLED
				PSV-199		INSTALLED
				1063		SHUT
				DISCONNECT 3/8" TUBING AT PANEL & DOWNSTREAM OF VLV.	1118B	FILL POINT.
				DISCONNECT TUBING A PANEL UPSTREAM OF VLV. SV-197A		FILL POINT #
				SV-197A		OPEN
					PSL-197A	HOOKUP AT 60 PLUG AT 90 #
				PDCV-197A		OPEN
				1079		OPEN

*Lines filled/pressurized but NOT documented under this test.

Restoration Items

LIMERICK GENERATING STATION

UNITS I & II 3850016380

8031-JR-M-1
EXHIBIT IV
Rev. 5

22

JOB 8031

VALVE AND COMPONENT CHECK LIST

Start-up No. 73
Test No. M-73C-31
Date 9/20/94
Page 3 of 4

Specification No. P-323 Responsible Engineer TOM PRATT

P&ID REV.	DWG. NO.	REV.	SM.PIPE A/B DATE	VALVE, COMPONENT SPOOL NO. ETC.	INSTR NUMBER	POSITION
REV. 11 M-57 SH. 2	RACK 105206				FI-197A	
				1113		INSTALLED
				DISCONNECT TUBING UPSTREAM OF VLV. SV-197B		FILL POINT #
				SV-197A		OPEN
					PSL-197B	HOOK UP AT 60 PLUG AT 90
				PDCV-197B		OPEN
				1080		OPEN
					FI-197B	
				1114		INSTALLED
				DISCONNECT TUBING UP STREAM OF VLV. SV-198A		FILL POINT #
				SA		OPEN
					PSL-198A	HOOK UP AT 60 PLUG AT 90 #
				PDCV-198A		OPEN
				1081		OPEN
					FI-198A	
				1115		INSTALLED
				DISCONNECT TUBING UPSTREAM OF VLV. SV-198B		FILL POINT #
				SV-198B		OPEN
					PSL-198B	HOOK UP AT 60 PLUG AT 90 #
				PDCV-198B		OPEN
				1082		OPEN

*Lines filled/pressurized but NOT documented under this test.

Restoration Items

LIMERICK GENERATING STATION

UNITS I & II 3850016380

8031-JR-M-1
EXHIBIT IV
Rev. 5

22

JOB 8031

VALVE AND COMPONENT CHECK LIST

Start-up No. 73
Test No. IM-73C-31
Date 9/20/84
Page 4 of 4

Specification No. P-323 Responsible Engineer TOM PRATT

P&ID REV.	DWG. NO.	REV.	SM.PIPE A/B DATE	VALVE, COMPONENT SPOOL NO. ETC.	INSTR NUMBER	POSITION
REV. 11 M-57Sh 2	RACK 105206				FT-198B	
				1116		INSTALLED
					A-199	

*Lines filled/pressurized but NOT documented under this test.

Restoration Items

LIMERICK GENERATING STATION

UNITS 1 & 2

JOB 8031

To : J. WALTERS / J. McVEIGH Date: 11.26.84

From : P. MARTINEZ
(PTE)

Subject: Notification of Pressure Test

Please be informed that piping test No. IM-73B-31, start-up system No. 73B for which the pre-test meeting was held on 11.26.84 will be pressurized and ready for witnessing on 11.26.84 at approximately 4 (a.m., (p.m.))

Please indicate below whether you wish to witness this test or not and return this notification for attachment to the test record package.

YES, witnessing by (PECo) (Authorized Code Inspector) is required.

(NO), witnessing by ((PECo)) (Authorized Code Inspector) is not required and is waived.

Signed P/A P.M. 11/26/84
(Authorized Inspector)

Signed J. Walters
(PECo LQCE or his Designee)

Comsip, inc.
instrument and control systems
HEADQUARTERS • 3030 Red Hat Lane, Whittier, CA 90601 (213) 692-9021 Telex: 67-4782

K-III/K-IV

PNEUMATIC LEAK TEST PROCEDURE

1.0 SCOPE

This procedure is designed to completely verify the leak integrity of the tubing/components within the Model K-III/K-IV System. This is accomplished by pressurizing all system entries, exits and internals. This test should be done prior to initial start-up and before system calibration.

2.0 PREPARATION

2.1 Connect a regulatable pressure source capable of a 90 psig pressure to the sample entry, sample exit and reagent and calibration gas bulkhead fitting entries. These fittings are located at the top of the panel. Connect this same 90 psig pressure source to the lower test tee located adjacent to the analyzer bypass flowmeter (rear of panel).

2.2 Disconnect the tubing running to the system integral pressure gauge at the gauge and cap the tubing.

2.3 Completely open, the system flow indicating controllers (reagent and calibration, located on the panel front and the analyzer bypass, located at the rear of the panel).

2.4 Open the reagent and calibration solenoid valves by disconnecting the existing hot and neutral wires running to the solenoid valves terminal strip. Connect an external source of power to these solenoid valves, which will energize and open the valves.

2

CUSTOMLINE DIVISION
1418 E. Linden Ave., P.O. Box 152
Linden, NJ 07036

GULF DIVISION & DELPHI INSTRUMENTS, INC
8601 Jameel Road, Houston, TX 77040
P.O. Box [illegible]

DELPHI SYSTEMS DIVISION
3030 Red Hat Lane

PNEUMATIC LEAK TEST PROCEDURE

3.0 PROCEDURE

2 | 3.1 Slowly, in 10 psig increments, apply pressure to the system until the 90 psig pressure is attained. Allow one minute for the pressure to stabilize between these pressure increments.

3.2 Beginning with the test connection bulkhead fittings, apply a bubble forming leak detector solution such as SNOOP manufactured by Nupro. Verify the leak integrity of all fittings that were broken or made to set-up this test.

3.3 Isolate the pressure source from the system for a period of 10 minutes. No decrease in pressure should be observed on a pressure gauge with 1 psig increments during the 10 minute test duration.

3.4 If a noticable pressure decrease is observed, then the systematic application of the leak test solution must be initiated on a fitting by fitting basis.

3.5 Any fitting found to be leaking should be tightened until the system is capable of holding the 90 psig test pressure with no visible pressure decrease within a 10 minute period.

2 | 3.6 Slowly, in 10 psig increments, decrease the pressure applied to the system. Allow one minute for pressure stabilization between each incremental decrease in pressure. Decrease the system pressure until a 0 psig pressure is attained.

3.7 Uncap the pressure gauge tubing and reconnect this tubing to the systems integral pressure gauge. Repeat the pressurization process used in paragraph 3.1 above with the exception of a 60 psig input pressure rather than the previous 90 psig.

3.8 Repeat the system isolation and 10 minute drop test described in paragraph 3.3 above at the 60 psig pressure.

PNEUMATIC LEAK TEST PROCEDURE

3.5 The system leak integrity has now been verified. Slowly, in 10 psig increments, decrease the pressure being applied to the system. Allow one
2 minute for pressure stabilization between incremented pressure drops until the pressure is released from the system.

4.0 ACCEPTANCE

After no detectable leakage as defined above is observed, the system is considered acceptable. For pneumatic leak tests done at the Comsip, Inc. facilities, the attached Test Report shall be completed and signed off.

ISSUED: 112184 0900 (DATE) (TIME)

LIMERICK GENERATING STATION . UNIT 1
MAINTENANCE REQUEST FORM

MRF# 8403870

EQUIP---------3850016380 SECTION 1-- INIT CRIT ----------

NO. 10-S205
EQUIP CONTAINMENT ATMOS.
NAME CONTROL HYDROGEN
OXYGEN ANALYZERS
LCTN: ~~15~~ -283
PROBLEM: 12-295 MTH

SYSTEM# 057
SER#
SYSTEM NAME:
CNTMT ATMOS CONTROL

NPRDS? NO
FAIL DET:
FAIL MODE:

STATUS AT FAILURE:
EFFECT ON SYSTEM:
EFFECT ON PLANT:

N.C.R. 10291 CATALYST BEDS FOR HYDROGEN & OXYGEN ANALYZERS-10S205 INSTALLED WITHOUT Q.C. INSPECTION S/U 73C PSCL#73C-85 W.P. 73C-006. DURATION 4-8 HOUR SHIFTS.

REQD FOR S/U? Y
TS LCO ITEM? N
EQUIP TRBL TG# NONE
EQUIP STATUS: O
ASSOC. EQUIP INOP? N
IMMED. ATTN? Y

IDENTIFIED BY:	GROUP:	(DATE)	(TIME)
MARK ALDEN	CONSTR-P	102984	1500
VERIFIED BY: W. CWIETNIEWICZ		110684	0930

----------SECTION 2----------

TASK TYPE: PSCL TASK FREQ: LAST DONE: MOD#
Q-LIST ITEM? Y CLASS 1E? NO ENVIR QUAL? N PROC REQD? YES OUTAGE TYPE: NONE PRI: 3
REQUIRED PLANT RESTRAINTS: NO SPECIAL CONDITIONS
COMMENTS:

TIMING: COMPLETE IN 72 HOURS RESP DEPT: CONSTR

ACCOUNT NUMBER:	STAFF APPROVAL:	(DATE)	(TIME)
091101-304	VINCENT J. CWIETNIEWICZ	110784	1435

----------SECTION 3----------

PLANNED CORRECTIVE ACTION:
TO PERFORM PNEUMATIC TEST PER NCR 10291.DISPOSITION AND VENDOR PROCEDURE (ATTACHED)

DWP# NONE
CSE PERMIT REQD? N
LD PERMIT REQD? N
IGNITION CONTPOL PERMIT REQD? N
LOCAL PERMIT REQD? Y

STANDARD BLOCKING SIDE: NONE

LEAD GROUP: CONSTR-P
SUB GRP 1: CONSTR-P
SUB GRP 2:
SUB GRP 3:
SUB GRP 4:
SUB GRP 5:

PARTS LIST ATTACHED? N
PROCEDURE LIST:
ATTACHED TO NCR-10291
PGS 4 & 5

PERMITS TO BE READY BY: (DATE) (TIME)

		(DATE)	(TIME)
QC APPROVAL:	MARK F. ALDEN	112084	1400
PLANNING APPROVAL:	MARK F. ALDEN	110784	1315

----------SECTION 4----------

CSE PERMIT#
LD PERMIT#
IGNI. CONTROL PERMIT#
LOCAL PERMIT# 1-57-0058
LOCAL PERMIT#
LOCAL PERMIT#

COMMENTS:

SSVN APPROVAL: Bruce L. Collins

	(DATE)	(TIME)
	11-21-84	2105

EQ/WORK AREA IDENTIFIED BY: Gamble OF OPERATING

TO: Behr OF MAINT/LAB/CONST ON (DATE) 11-23-84 (TIME) 1000

ORIGINAL

3850016380

LIMERICK GENERATING STATION
MAINTENANCE REQUEST FORM

UNIT 1

MRF# 8403870

----------SECTION 5----------

CAUSE OF FAILURE/DEFECTS FOUND:

TYPE OF FAILURE: |__| |__|

FAILURE CATEGORY: |__| |__|

CORRECTIVE ACTION/WORK PERFORMED/HISTORY DATA:

PERFORMED PNEUMATIC TEST # 1M-73C-32 PER NCR # 10291 AND VENDOR REQUIREMENTS. RESULT WERE ACCEPTABLE AND VERIFIED BY Q.C. PER ATTACHED TEST PACKAGE
D A Good x 4716

CAUSE OF FAILURE: |__| |__| |__|

CORRECTIVE ACTION: |__| |__| |__|

EQUIP TROUBLE TAG REMOVED? |__|

ADDITIONAL SHEETS? |__|

FOREMANS COMMENTS: JJK

GROUP	NOS MEN	TTL MAN HRS	TTL MAN REM	TEST EQUIP/ TOOL ID USED:	DATE USED
LEAD GP	2	32.__	___.__	1.__ ____	__/__/__
SUB GP 1	___	___.__	___.__	2.__ ____	__/__/__
SUB GP 2	___	___.__	___.__	3.__ ____	__/__/__
SUB GP 3	___	___.__	___.__	4.__ ____	__/__/__
SUB GP 4	___	___.__	___.__	5.__ ____	__/__/__
SUB GP 5	___	___.__	___.__		

WORK COMPLETE SIGN-OFFS:

	CRAFT	(DATE)	QC
SUB GP 1	[signature]	12/4/84	[signature]
SUB GP 2		__/__/__	
SUB GP 3		__/__/__	
SUB GP 4		__/__/__	
SUB GP 5		__/__/__	

LEAD GROUP, WORK COMPLETE/AREA CLEAN: John Franklin (DATE) 12/4/84 QC SIGN-OFF FOR LEAD GP: [signature]

----------SECTION 6----------

| X | OPERATION VERIFICATION FORM ATTACHED

SHIFT SUPERVISION ACCEPTANCE: [signature] (DATE) 12/21/84 (TIME) 0902 NEW MRF INITIATED? |__|

----------SECTION 7----------

REVIEWED BY: _____ __/__/__ (DATE) FOLLOW-UP: |__| |__|

3850016380

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
OPERATION VERIFICATION FORM

UNIT 1

EQUIPMENT NO. 10-S205

ATTACHMENT TO MRF# 8403870

OPERATION VERIFICATION METHOD:
NONE

TEST TO BE PERFORMED BY: OPER ACCOUNT NUMBER: 091101-304

APPROVED BY:	GROUP:	(DATE)	(TIME)
JOHN P. MCDEVITT	STA	120684	2021
SSVN APPROVAL: Gregory F. Collins	OPS	12/7/84	0900

(OVF METHOD COMPARED TO WORK DONE AND APPROVED OR APPROVED WITH CHANGES)

OPERATION VERIFICATION TESTS AND RESULTS SUMMARY:

N/A

GROUP:	NOS MEN	TTL MAN HRS	TTL MAN REM

TEST EQUIP/ TOOL ID USED: DATE USED:

1. ___/___/___
2. ___/___/___
3. ___/___/___
4. ___/___/___
5. ___/___/___

TEST PERFORMED BY: _____ GROUP: _____ (DATE) 12/07/84 (TIME) _____

RESULTS: [✓] SATISFACTORY [ ] UNSATISFACTORY (NEW MRF INITIATED)

TEST REVIEWED/FORM VERIFIED BY: _____ GROUP: _____ (DATE) ___/___/___

DOUBLE VERIFICATION: [✓] PERFORMED [ ] NOT APPLICABLE

[ ] ADDITIONAL SHEETS ATTACHED
(WRITE MRF# ON ADDED SHEETS)

BECHTEL MAINTENANCE AND MODIFICATION PROCEDURES

LIMERICK GENERATING STATION 3850016380

Sht. 1 of 1	PSCL Work Package Cover Sheet	1. PSCL: 73C-85
9. System Name CONTAINMENT ATMOS. CONTROL		2. MRF: # or N/A 8403870
10. Reason/Reference for Work PSCL #73C-85		3. WP: # or N/A 73C-006 4. FCCF: # or N/A 599M-8 5. Room No. N/A Area/El. 15/253
11. Work Description PERFORM PNEUMATIC TEST 73C-1M-~~3~~ & 32		6. Modification Yes __ No X If Yes Mod #
12. Post Work Testing Yes __ No X If Yes, description		7. Cat. I Dwg. Yes __ No X If Yes, List in Block 26
13. Dura. (8 hr. shifts) 4 shifts 10/26/84	14. Supt.	8. X Q-Listed __ BOP __ ASME
15. Originator MIKE LOW (5147) / Lou Averill	Date 10-26-84	Time 1600 hr.

16. REQUEST FOR ACCESS APPROVAL	Yes __	No X
17. Special instructions for access - -		18. Tag Number Key Number Equipment Number Start Date

19. CDE Approval	Date 10/29/84	Time 1500
20. Work Completed	Date 12-3-84	Time 9:17
21. Construction Post Work Testing Complete N/A	Date	Time
22. QC Complete	Date 12/3/84	Time 9:45
23. QC Post Work Testing Complete N/A	Date	Time
24. OP Verif. (MRF Only) Acceptable __	Unacceptable __	Initiate New MRF
25. CDE Aupv. Clo. (Access Req Only)	Date 12/4/84	Time 0930

26. Continuation of items 7, 10, 11, 12, 17:

Unit 12 Elev. 295'-6" Work T/O Cancelled 599M-S TCCT # 599M

Room ~~599M~~ 594 Pkg. # 1-778-5 Originator BMPLATT Ext: 44

Work Reference PERFORM PNEUMATIC TEST ON 10S205, 10S206

114-73C-31

3850016380

Estimated Start date 9/17/84 ECD 9/19/84

Check below, if applicable:

☐ Damage to other commodities resulting from Work Reference above has been resolved, if applicable

☒ Cleanliness Verification (cleanup, remove scaffolds, etc.)

Were any of the following programs affected?

	yes	no		Program Acceptability
Civil	☐	☑	Penetration Seals	
	☐	☑	Grating & Handrail removal	
	☐	☑	Painting/Special Coating	
	☐	☑	Door/Gasket Damage	
	☐	☑	Grouting or Concrete Damage	
Elect	☐	☑	Raceway Covers	

Work Completed D. S. [illegible] x4716
Sign Date DO NOT DETACH

Special Programs

	yes	no		Program Acceptability
Civil	☐	☐	Safety Impact-MADD	
	☐	☐	ALARA	
	☐	☐	Fire Protection Verification Program	
ECT.	☐	☐	Seperation	
	☐	☐	Thermal Interferences	

IC Shift Supervisor

LIMERICK GENERATING STATION

3850016380

UNITS I & II

JOB 8031

To: J. WALTERS/J. McVeigh Date: 11-26-84

From: A.M. Martinez Start-up System No. 73C

Subject: PRESSURE TEST NO. LM-73C-32

Piping has been inspected where shown by color code on the attached marked-up print of the latest revision of drawing M-573 SHT 2 available, and all drains, vents instrument connections (including the second valve on double valved connections) and the branch piping out to the indicated boundaries are installed. Items installed per FCR's and DCN's, and not yet shown on the drawing, have also been marked on the above print. Piping and instrument lines that will be filled and/or pressurized during testing which exceed the area to be tested are shown uniquely color coded as required and have been walked down to ensure the piping is adequately supported and isolated.

Hangers and supports are installed to provide support for hydro-testing. Spring hangers have travel stops positioned per the appropriate hanger specification. This includes hangers and supports for piping to be filled but not actually under test.

Please complete your required pre-test inspection of the piping shown on the attached drawing, including verifcation that all welding, post weld heat treatment and non-destructive examination is complete (except pressure test) including that required for all hanger, support and seismic restraint attachments welded to pipe and/or pressure retaining components, except that on piping which is to be filled and/or pressurized but not documented. Also verify that ASME nameplates or stand-off attachments have been inspected for injurious surface defects and, where found, repaired, non-destructively examined and accepted.

Valve packings have been installed, including those in piping to be filled which will not actually be under test.

Flushing as required prior to testing has been accomplished and piping, including that to be filled but not actually under test, meets the required cleanliness criteria.

Welds have not been covered with insulation.

Where piping is embedded in structural concrete, the concrete has reached design strength.

Wall and floor penetration seals have been welded to pipe where required.

The required completion date for the test is 11-26-84.

Signed: A.M. Martinez
(Pressure Test Engineer)

Signed: _____
(LMSCE or Designee)

LIMERICK GENERATING STATION

UNITS I and II

JOB 8031

Pre-Test Meeting
Reference: 8031-JR-M-1 Date 11.26.84

Start-Up System 73C

Test No. 1M-73C-32

P&ID(s) M-57 SHT 2 Rev # 11

The undersigned have met and reviewed Piping Test No. 1M-73C-32 and are in agreement that subject test is in accordance with Specification P-323 and applicable code ANSI B 31.1.

The Pneumatic or Hydrostatic Test Procedure and Report and the Valve and Component Check List were reviewed with the marked-up P&ID's for the subject test in conjunction with the manner in which the test will be implemented and monitored. A review was also made to assure the concrete was checked for design strength where piping is embedded in structural concrete.

Deviations to Specification P-323 are as follows:

1. NONE / Pneumatic Test per NCR 10291

Deviations Approved By: (specify approval document)

2.

Authorized to proceed with test:

LMSCE or His Designee

PTE 11/26/84

PFQCE or His Designee R. Armitage

PECo Representative J.W. Walter In Attendance ☐
Attendance Waived ☒

Authorized Inspector N/A

LIMERICK GENERATING STATION 3850016380

UNITS I & II

JOB 8031

Pneumatic or Hydrostatic Test Procedure and Report

27 Reference: 8031-JR-M-1 Date 4/20/84

ASME III, XI, Q, R, S, BOP Q

PART I - TEST PROCEDURE (To be filled out in ink)

1. Specification : P-323 C-33 Δ 4 Design Press : SEE VENDOR PROCEDURE

2. Applicable Code: ANSI B-31.1 Nuclear Class: —

3. Start-Up No. : 73C Test No. 1M-73C-32

4. Service : CONT. ATMOS CONTAIN

5. Boundaries : SEE EXHIBIT 3 & MARKED UP P&ID

6. Type Test : Hydrostatic ☐; Pneumatic ☒ RD; Other ☐

7. Test Medium : NITROGEN - (specify whether water, air, etc.)

8. Water analysis and temperature requirements: N/A RD

° Min ° Max

9. Air Requirements CLEAN DRY AIR

10. Lay-up with inert fluid is ☐, is not ☐, N/A ☒ RD required after test. Lay-up shall be with _____ (specify lay-up medium) at _____ PSIG.

Piping is ☐, is not ☐ to be drained after test N/A ☐.
For Lay-up information, see marked-up P&ID's _____

11. Install Safety Tags on all check points.
For check point location, fill locations, boundaries and any special test set-up see marked-up P&ID's M-57 SH2

Instrument tubing from root valve to instrument valve is ☐, is not ☐ included N/A ☒ RD

27 12. Required test pressure (~~1.5, 1.25, 1.2 or 1.1~~ RD SEE PROCEDURE X Design as applicable)is ____ PSIG.

13. Elevation difference (EL) between test gauge and high point is N/A RD feet or _____ PSIG.

14. Required gauge pressure (lines 12 & 13) is 90/60 PSIG for 10 minutes (Note: No inspection shall take place until specified time has elasped).

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Pneumatic or Hydrostatic Test Procedure and Report

Test No. IM-73C-32A

15. Elevation difference (△El) between high point and low point of permanent piping is N/A feet. Total static head N/A PSIG.

16. A) Test tolerance minus Line 15 is ±5.4 PSIG.
B) Minimum test pressure at gauges is 90/85 PSIG (Line 14).
C) Maximum test pressure at gauges is 95.4 PSIG (Line 14 plus line 16A).

17. Relief valve is [ ], is not [ ] required.
Set relief valve to relieve at 95 PSIG prior to subjecting any part of the system to pressure.

18. Pressure regulator is [X], is not [ ] required N/A [ ].
Pressure regulator is to maintain pressure at 90 PSIG.

19. Test gauges shall have a range from:

0 to 142.5 minimum (1 1/2 times maximum test pressure per applicable code.)
0 to 380 maximum (4 times maximum test pressure per applicable code.)

20. The system is to be pressurized to required pressure in stages as follows:

Initial Test Pressure	10 PSIG	4th Test Pressure	40 PSIG
2nd Test Pressure	20 PSIG	5th Test Pressure	50 PSIG
3rd Test Pressure	30 PSIG	6th Test Pressure	60 PSIG
			70, 80, 90

21. Examination of piping is to be performed at *90 PSIG (Line 12 x .75 + Line 13) after required test pressure of 90 PSIG is held for a minimum of ten minutes.

* 22. Comments FOLLOW ATTACHED VENDOR PROCEDURE

1. PRESURIZE TO 90 PSIG WITH INSTRUMENTS DISCONNECTED.

2 SEE NEXT EXHIBIT III PG. 2

Prepared By TOM PRATT

Date 9/20/84

*NOTE: When hydrostatically testing Nuclear Class I Piping or pneumatically testing ASME Piping, examination of piping shall be performed at design pressure plus Line 13.

Pneumatic or Hydrostatic Test Procedure and Report

3850016380

PART II - TEST REPORT (To Be Filled Out In Ink) Test No. 1111 T3C-32A

1. Verify that screwed instrument conn's, as applicable, are disconnected.

   YES [X] NO [ ] N/A [ ]

2. Verify all safety tags are installed and valves are positioned: YES [X] NO [ ]

3. Notify QC Representative DAN ARNOLD (Name) YES [X] NO [ ] N/A [ ]

4. Verify test gauges installed:
   Bechtel gauge No. P-41 Mfrg. USG Range 0-160 Cal. valid to 3-16-85
   Bechtel gauge No. P-42 Mfrg. USG Range 0-160 Cal. valid to 3-16-85

5. Verify test medium used NITROGEN (specify)

6. Verify test medium temperature N/A °F (specify) Thermometer No. —
   Cal. Due Date —

7. Verify relief valve setting popped at: 95 PSIG

8. Verify pressure regulator setting 90 PSIG (pneumatic test only)

9. Verify water analysis: Clarified water [ ], Demineralized water [ ], Other [ ], specify other N/A
   Batch No. —
   Actual — PPM TSP

10. Verify temporary piping is flushed YES [X] NO [ ]

11. Notify client representative YES [ ] NO [X] — Name

12. Notify Authorized Code Inspector YES [ ] NO [X] — Name

13. Verify gauge reading at 0 pressure
    Bechtel gauge No. P-41, 0 PSIG
    Bechtel gauge No. P-42, 0 PSIG

14. Verify proper filling, venting and pressurizing:
    Initial test pressure 10 PSIG — 4th test pressure 40 PSIG (7th - 70 PSIG)
    2nd test pressure 20 PSIG — 5th test pressure 50 PSIG (8th - 80 PSIG)
    3rd test pressure 30 PSIG — 6th test pressure 60 PSIG (9th - 90 PSIG)

15. Test was [ ], was not [X] terminated to repair weld joint(s) after reaching — PSIG. Leaking joint(s) was weld no.(s) — on dwg. — date —.

16. Record the gauge reading at the required test pressure prior to reducing pressure for examination. (ASME piping systems only) N/A [ ]
    Bechtel gauge No. P-41 PSIG 90
    Bechtel gauge No. P-42 PSIG 90

17. Required test pressure was held for — minutes prior to examination (All piping systems)

18. Record the gauge reading during examination of system. (All piping systems)
    Bechtel Gauge No. P-41, 90 PSIG
    Bechtel Gauge No. P-42, 90 PSIG

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Pneumatic or Hydrostatic Test Procedure and Report

Test No. IM-77C-32B

15. Elevation difference (△El) between high point and low point of permanent piping is 0 feet. Total static head 0 PSIG.

16. A) Test tolerance minus Line 15 is ±3.6 PSIG.
B) Minimum test pressure at gauges is 60 PSIG (Line 14 minus line 16A).
C) Maximum test pressure at gauges is 63.6 PSIG (Line 14 plus line 16A).

17. Relief valve is [X], is not [ ] required.
Set relief valve to relieve at 64 PSIG prior to subjecting any part of the system to pressure.

18. Pressure regulator is [X], is not [ ] required N/A [ ].
Pressure regulator is to maintain pressure at 60 PSIG.

19. Test gauges shall have a range from:

0 to 94.5 minimum (1.1/2 times maximum test pressure per applicable code.)

0 to 252 maximum (4 times maximum test pressure per applicable code.)

20. The system is to be pressurized to required pressure in stages as follows:

Initial Test Pressure	10 PSIG	4th Test Pressure	40 PSIG
2nd Test Pressure	20 PSIG	5th Test Pressure	50 PSIG
3rd Test Pressure	30 PSIG	6th Test Pressure	60 PSIG

21. Examination of piping is to be performed at * 60 PSIG (Line 12 x .75 + Line 13) after required test pressure of 60 PSIG is held for a minimum of ten minutes.

*22. Comments FOLLOW ATTACHED VENDOR PROCEDURE.

2. PRESSURIZE TO 60 PSIG WITH INSTRUMENTS CONNECTED.

Prepared By TOM PLATT

Date 9/20/84

*NOTE: When hydrostatically testing Nuclear Class I Piping or pneumatically testing ASME Piping, examination of piping shall be performed at design pressure plus Line 13.

PART II - TEST REPORT (To Be Filled Out In Ink) Test No. LM-73C-326

1. Verify that screwed instrument conn's, as applicable, are disconnected.

YES [X] NO [ ] N/A [ ]

3850016380

2. Verify all safety tags are installed and valves are positioned: YES [X] NO [ ]

3. Notify QC Representative DAN ARNOLD (Name) YES [X] NO [ ] N/A [ ]

4. Verify test gauges installed:
Bechtel gauge No. P-41 Mfrg. USG Range 0-160 Cal. valid to 3-16-85
Bechtel gauge No. P-42 Mfrg. USG Range 0-160 Cal. valid to 3-16-85

5. Verify test medium used NITROGEN (specify)

6. Verify test medium temperature N/A °F (specify) Thermometer No. ____
Cal. Due Date ____

7. Verify relief valve setting popped at: 61 PSIG

8. Verify pressure regulator setting 60 PSIG (pneumatic test only)

9. Verify water analysis: Clarified water [ ], Demineralized water [ ], Other [ ], specify other N/A
Batch No. ____
Actual ____ PPM TSP

10. Verify temporary piping is flushed YES [X] NO [ ]

11. Notify client representative YES [ ] NO [X] N/A (Name)

12. Notify Authorized Code Inspector YES [ ] NO [X] N/A (Name)

13. Verify gauge reading at 0 pressure
Bechtel gauge No. P-41, 0 PSIG
Bechtel gauge No. P-42, 0 PSIG

14. Verify proper filling, venting and pressurizing:

Initial test pressure	10 PSIG	4th test pressure	40 PSIG
2nd test pressure	20 PSIG	5th test pressure	50 PSIG
3rd test pressure	30 PSIG	6th test pressure	60 PSIG

15. Test was [ ], was not [X] terminated to repair weld joint(s) after reaching 60 PSIG. Leaking joint(s) was weld no.(s) ____ on dwg. ____
date ____.

16. Record the gauge reading at the required test pressure prior to reducing pressure for examination. (ASME piping systems only) N/A [X]
Bechtel gauge No. ~~P-41~~ DNT PSIG ____
Bechtel gauge No. ~~P-42~~ DNT PSIG ____

17. Required test pressure was held for 10 minutes prior to examination (All piping systems)

18. Record the gauge reading during examination of system. (All piping systems)
Bechtel Gauge No. P-41, 60 PSIG
Bechtel Gauge No. P-42, 60 PSIG

Pneumatic or Hydrostatic Test Procedure and Report

Test No. HH-PC-32

19. Remarks: Describe leaks observed on mechanical joints and ANSI B31.1 weld joints, which require repair: N/A

20. Date(s) and time of pressure test (start and finish) 11-30-84 Date

Start: 8:00 Finish 2:00

21. Test accepted by visual examination:
Bechtel Field Engineer D. H. Wood Date 11-30-84
Bechtel QC Engineer R. Armstrong Date 11/30/84
Client Const. or Startup Rep. N/A Date —
Authorized Code Inspector N/A Date —

22. Items noted in Item 19 have been repaired.

Bechtel Field Engineer — Date

Bechtel QC Engineer — Date

PART III - DRAINING AND RESTORATION (To be filled out in ink)

1A. Verify draining is required (see Part I, Item 10) YES ☐ NO ☐ N/A ☒
1B. Draining waived
Asst. Project Startup Eng./Designee

2. Verify water with TSP is drained to holding pond YES ☐ NO ☐ N/A ☒

3. Verify vents opened and system ~~drained~~ DEPRESSURIZED YES ☒ NO ☐ N/A ☐

4. Verify system is completely drained except for small pipe low points where no practical method for draining exists. YES ☐ NO ☐ N/A ☒

5. Verify safety tags removed and restoration items noted on Exhibit IV restored YES ☒ NO ☐

6. Accepted:
Bechtel Field Engineer D. H. Wood Date 11-30-84
Bechtel QC Engineer R. Armstrong Date 11/30/84

N/A ☐ PART IV - LAY-UP (To be filled out in ink) Test No. [illegible]

1. Verify drawing available to describe lay-up YES ☐ NO ☐

2. Verify safety tags installed _____ YES ☐ NO ☐

3. Verify system filled with proper fluid _____ (specify)

4. Lay-up accepted:

   Bechtel Field Engineer _____ Date _____

   Bechtel QC Engineer _____ Date _____

N/A ☒ PART V - INITIAL SERVICE LEAK TEST (To be filled out in ink)

1. Repairs to tested piping.

   a. Verify repairs noted in Part II, Item 19 have had an in-service leak check and were found to be acceptable.

      [illegible] _____ Date _____

      See Test Number _____ (In Service Package)

2. Initial Service Leak Testing In-Lieu of Hydrotest

   a. Verify drawings are available to describe piping to be so tested.

      YES ☐ NO ☐

   b. Verify piping is brought up to design pressure or maximum obtainable system operating pressure of (See Exhibit X) PSIG.

   c. Verify all joints are leak-tight YES ☐ NO ☐
      (If NO, complete 2.d)

   d. Remarks: Describe leaks observed on mechanical joints and welds which require repair for completion of this test _____

      _____

      _____

      _____

   e. Verify repairs noted in 2d have been repaired and re-leak checked

      YES ☐ NO ☐

   f. In-Service leak test accepted:

      Bechtel Field Engineer _____ Date _____

      Bechtel QC Engineer _____ Date _____

      Client Constr. or Startup Rep. _____ Date _____

GENERATING STATION

UNITS I & II

JOB 8031

8031-JR-M-1
EXHIBIT IV
Rev. 5

22

3850016380

90# TEST

VALVE AND COMPONENT CHECK LIST

Start-up No. 73C
Test No. IM-73C-32A
Date 9/20/84
Page 1 of

Specification No. P-323 Responsible Engineer TOM PLAIT

P&ID REV.	DWG. NO.	REV.	SM.PIPE A/B DATE	VALVE, COMPONENT SPOOL NO. ETC.	INSTR NUMBER	POSITION
M-57512	RACK # 105305					
				DISCONNECT TUBING UPSTREAM OF VLV. SV-165		FILL POINT #
				SV-165		OPEN
				DISCONNECT TUBING UPSTREAM OF VLV. SV-		
				SV-164		OPEN
				DISCONNECT TUBING UPSTREAM OF VLV. SV-163		FILL POINT #
				SV-163		OPEN
				DISCONNECT TUBING UPSTREAM OF VLV. SV-162		FILL POINT #
				SV-162		OPEN
				DISCONNECT TUBING UPSTREAM OF VLV. SV-161		FILL POINT #
				SV-161		OPEN
					PI-129	ADJUST FOR 60 PLUG FOR 90 #
				SEPARATOR TRAP		FLOW THRU.
				PCV-129A		OPEN
				PCV-129B		OPEN
					FI-129	INSTALLED
					FI-130	INSTALLED
				REMOVE CAP LOWER		FILL POINT #
				AE-151		INSTALLED
				PDEX-151		OPEN
				FO-151		INSTALLED
					FI-151	INSTALLED

*Lines filled/pressurized but NOT documented under this test.

Restoration Items

LIMERICK GENERATING STATION

UNITS I & II 3850016380

JOB 8031

8031-JR-M-1
EXHIBIT IV
Rev. 5

22

Start-up No. 73C
Test No. IM-73C-32A
Date 9/10/84
Page 2 of

VALVE AND COMPONENT CHECK LIST

Specification No. P-323 Responsible Engineer TOM PRATT

P&ID REV.	DWG. NO.	REV.	SM.PIPE A/B DATE	VALVE, COMPONENT SPOOL NO. ETC.	INSTR NUMBER	POSITION
M-57S4.1	RACK# 105205					
					PDSL-151	HOOK UP FOR GO PLUG FOR 90 #
				AE-150		INSTALLED
				PDCV-150		OPEN
				FO-150		INSTALLED
					FI-150	INSTALLED
					PDSL-150	HOOK UP FOR GO PLUG FOR 90 #
				SC-101		INSTALLED
				SV-129B		OPEN
				1BP-253		INSTALLED
				1117		INSTALLED
				SV-HGA		OPEN
				1AP-253		INSTALLED
				1117A		INSTALLED
				PSV-129		INSTALLED
				DISCONNECT TUBING DOWNSTREAM OF VLV. 1117B		FILL POINT #
				1013		SHUT
				DISCONNECT TUBING UPSTREAM OF VLV. SV-127A		FILL POINT #
				SV-127A		OPEN
					PSL-127A	HOOK UP FOR GO PLUG FOR 90 #
				PDCV-127A		OPEN

*Lines filled/pressurized but NOT documented under this test.

Restoration Items

EXHIBIT IV
Rev. 5

22

UNITS I & II

3850016380

JOB 8031

Start-up No. 77C
Test No. 1M-77C-32
Date 9/20/84
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VALVE AND COMPONENT CHECK LIST

Specification No. P-523 Responsible Engineer TOM PRATT

P&ID REV.	DWG. NO.	REV.	SM.PIPE A/B DATE	VALVE, COMPONENT SPOOL NO. ETC.	INSTR NUMBER	POSITION
M-57 SH 4	RACK # 105205					
				1075		OPEN
					FI-127A	INSTALLED
				1109		INSTALLED
				DISCONNECT TUBING UPSTREAM OF VLV.		FILL POINT
				SV-127B		OPEN
					PSL-127B	HOOK UP FOR 60 PLUG FOR 90
				PDCV-127B		OPEN
				1076		OPEN
					FI-127B	INSTALLED
				1110		INSTALLED
				DISCONNECT TUBING UPSTREAM OF VLV. SV-128A		FILL POINT #
				SV-128A		OPEN
					PSL-128A	HOOK UP FOR 60 PLUG FOR 90 #
				PDCV-123A		OPEN
				1077		OPEN
					FI-128A	INSTALLED
				1111		INSTALLED
				DISCONNECT TUBING UPSTREAM OF VLV. SV-128B		FILL POINT #
				SV-128B		OPEN
					PSL-128B	HOOK UP FOR 60 PLUG FOR 90 #

*Lines filled/pressurized but NOT documented under this test.

Restoration Items

EXHIBIT IV
Rev. 5

22

UNITS I & II

3850016380

JOB 8031

Start-up No. 73C
Test No. JM-73C-32
Date 9/24/84
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VALVE AND COMPONENT CHECK LIST

Specification No. P-323 Responsible Engineer TOM PRATT

P&ID REV.	DWG. NO.	REV.	SM.PIPE A/B DATE	VALVE, COMPONENT SPOOL NO. ETC.	INSTR NUMBER	POSITION
M-573A4	RACK #105205			PDCV-128B		OPEN
				1078		OPEN
					FT-128B	INSTALLED
				1112		INSTALLED

*Lines filled/pressurized but NOT documented under this test.

Restoration Items

Comsip, inc.
instrument and control systems
HEADQUARTERS • 3030 Red Hat Lane, Whittier, CA 90601 (213) 692-9021 Telex: 67-4748

K-III/K-IV

PNEUMATIC LEAK TEST PROCEDURE

1.0 SCOPE

This procedure is designed to completely verify the leak integrity of the tubing/components within the Model K-III/K-IV System. This is accomplished by pressurizing all system entries, exits and internals. This test should be done prior to initial start-up and before system calibration.

2.0 PREPARATION

2.1 Connect a regulatable pressure source capable of a 90 psig pressure to the sample entry, sample exit and reagent and calibration gas bulkhead fitting entries. These fittings are located at the top of the panel. Connect this same 90 psig pressure source to the lower test tee located adjacent to the analyzer bypass [illegible] panel).

2.2 Disconnect the tubing running to the system integral pressure gauge at the gauge and cap the tubing.

2.3 Completely open, the system flow indicating controllers (reagent and calibration, located on the panel front and the analyzer bypass, located at the rear of the panel).

2.4 Open the reagent and calibration solenoid valves by disconnecting the existing hot and neutral wires running to the solenoid valves terminal strip. Connect an external source of power to these solenoid valves, which will energize and open the valves.

2

sheet 3 of 6

PNEUMATIC LEAK TEST PROCEDURE

3.0 PROCEDURE

2 | 3.1 Slowly, in 10 psig increments, apply pressure to the system until the 90 psig pressure is attained. Allow one minute for the pressure to stabilize between these pressure increments.

3.2 Beginning with the test connection bulkhead fittings, apply a bubble forming leak detector solution such as SNOOP manufactured by Nupro. Verify the leak integrity of all fittings that were broken or made to set-up this test.

3.3 Isolate the pressure source from the system for a period of 10 minutes. No decrease in pressure should be observed on a pressure gauge with 1 psig increments during the 10 minute test duration.

3.4 If a noticable pressure decrease is observed, then the systematic application of the leak test solution must be initiated on a fitting by fitting basis.

3.5 Any fitting found to be leaking should be tightened until the system is capable of holding the 90 psig test pressure with no visible pressure decrease within a 10 minute period.

2 | 3.6 Slowly, in 10 psig increments, decrease the pressure applied to the system. Allow one minute for pressure stabilization between each incremental decrease in pressure. Decrease the system pressure until a 0 psig pressure is attained.

3.7 Uncap the pressure gauge tubing and reconnect this tubing to the systems integral pressure gauge. Repeat the pressurization process used in paragraph 3.1 above with the exception of a 60 psig input pressure rather than the previous 90 psig.

3.8 Repeat the system isolation and 10 minute drop test described in paragraph 3.3 above at the 60 psig pressure.

PNEUMATIC LEAK TEST PROCEDURE

3.9 The system leak integrity has now been verified. Slowly, in 10 psig increments, decrease the pressure being applied to the system. Allow one
2 minute for pressure stabilization between incremented pressure drops until the pressure is released from the system.

4.0 ACCEPTANCE

After no detectable leakage as defined above is observed, the system is considered acceptable. For pneumatic leak tests done at the Comsip, Inc. facilities, the attached Test Report shall be completed and signed off.

K-III/K-IV PNEUMATIC LEAK TEST REPORT

COMSIP, INC. JOB NUMBER _____

SYSTEM IDENTIFICATION NUMBER _____

TEST DATE _____

CALIBRATION:

TEST GAUGE (PSIG)	CALIBRATION GAUGE (PSIG)
0	
50	
100	
200	
500	

TEST RESULTS:

LINE NUMBER	DESIGN PRESSURE	TEST PRESSURE : 1.5 X D.P.	ALLOWABLE LEAKAGE

This System has been tested and found to be free from leaks at the above conditions.

TEST INSPECTOR _____ DATE _____

Q.A. MANAGER/REP. _____ DATE _____

3850016380

PECO PHA

CD INC COID
MESSAGE NUMBER 21719 SEPTEMBER 7, 1984 WHITTIER, CALIFORNIA

TO: PHILADELPHIA ELECTRIC COMPANY
     PHILADELPHIA, PENNSYLVANIA

     ATTN: MR. ANDERS

REF: LIMERICK NUCLEAR GENERATING STATION
      POST-LOCA CONTAINMENT HYDROGEN MONITORING SYSTEM
      PURCHASE ORDER 8031-M-035-AC
      COMSIP, INC. SALES ORDER 80224

SUBJ: MODIFIED CATALYST BED CHANGE OUT.

DEAR MR. ANDERS:

PER OUR AUGUST 31, 1984 TELECON COMSIP, INC. HEREBY CERTIFIES THAT THE ANALYZER CELL CATALYST BEDS WERE CHANGED OUT WITH THE NEW MODIFIED CATALYST BED ASSEMBLIES. THE CATALYST BED CHANGE OUTS OCCURRED DURING THE COMSIP, INC. FIELD SERVICE VISIT TO THE LIMERICK SITE ON OCTOBER 25TH THROUGH THE 28TH, 1983 BY OUR MR. KEN ROHRIG. SUBSEQUENT TO THIS SITE VISIT MR. ROHRIG RETURNED A COUPLE OF ANALYZER CELLS FOR REPAIR. PRIOR TO THE RETURN OF THESE REPAIRED CELLS TO THE LIMERICK SITE THE CATALYST BEDS WERE CHANGED OUT AT THE COMSIP, INC. FACILITY.

IF YOU HAVE ANY QUESTIONS REGARDING THE ABOVE CERTIFICATION, PLEASE DO NOT HESITATE TO CONTACT ME AT ANY TIME.

REGARDS,

SID LOMEYER, JR.
PRODUCT MANAGER
COMSIP, INC.
TELEX 674766 CD INC COID

PECO PHA

CD INC COID
.....

NCR 10771
Sheet 7 of 41

9/28/84
EFFECTIVE DATE

LIMERICK GENERATING STATION
PORC APPROVAL FORM

9.26.84 Revision 1
Page 1 of 1
9/26/84 CRE

TPC # 1096

1. DOCUMENT (TITLE, OR PROC # & REV.): ST-1-030-701-1 Rev 0

2. REASON FOR SUBMITTAL: 3850016380
ATTACHMENT 3 (CONT'D)

- ☐ NEW PROCEDURE
- ☐ PROCEDURE REVISION
  - ☐ ENTIRE PROC. REVIEWED & SUGGESTED CHANGES INDICATED (PERIODIC REVIEW A-2)
  - ☐ PORTIONS OF PROC. REVIEWED & SUGGESTED CHANGES INDICATED
- ☒ TEMPORARY CHANGE TO APPR'D PROC A-3 REVIEW REQUIRED BY _____
  - ☒ REVIEW OF TEMP CHANGE ONLY
  - ☐ REVIEW OF TEMP CHANGE AND PERMANENT PROC. REVISION

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
SUPT				
ASST SUPT				
ENG-TECH				
ENG-OPS				
ENG-MAINT				
SR HP				
SR CHEM				
PERF ENG	yc	12/20/84		
I&C ENG				
ADMN SUPV				

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
REAC ENG				
SFT SUPT	CPG	12/20/84		
REG ENG				
OUT MGR				

3. COMMENTS/CORRECTIVE ACTION:

☐ Approved with comments/changes on attached document

COMMENTS/CORRECTIVE ACTION TAKEN & CHECKED/DATE	SUPT. APPROVAL/DATE	PORC MEETING
_____ _____ ADMIN OR PREPARER	_____/_____	#: _____ DATE: _____

DIRECTIONS TO ADMIN. STAFF:
- ☐ ISSUE THE ATTACHED DOCUMENT
- ☐ FILE THE ATTACHED DOCUMENT IN FILE _____
- ☐ FILE THIS FORM PER ADMIN. PROC. _____
- ☐ OTHER: _____

TRANSMIT A COPY OF THIS FORM AND DOCUMENT TO NRB FOR:
- ☐ APPROVAL
- ☐ REVIEW
- ☐ INFO

9/28/84
EFFECTIVE DATE

LIMERICK GENERATING STATION
PORC APPROVAL FORM
TPC # 1090

9-26-84 GM Faust 9/27/84 CRE

Revision 1
Page 1 of 1

1. DOCUMENT (TITLE, OR PROC # & REV.): ST-1-030-701-1 Rev 0

2. REASON FOR SUBMITTAL: 3850016380

- ☐ NEW PROCEDURE
- ☐ PROCEDURE REVISION
  - ☐ ENTIRE PROC. REVIEWED & SUGGESTED CHANGES INDICATED (PERIODIC REVIEW A-2)
  - ☐ PORTIONS OF PROC. REVIEWED & SUGGESTED CHANGES INDICATED
- ☒ TEMPORARY CHANGE TO APPR'D PROC A-3 REVIEW REQUIRED BY 1/2/85
  - ☒ REVIEW OF TEMP CHANGE ONLY
  - ☐ REVIEW OF TEMP CHANGE AND PERMANENT PROC. REVISION

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
SUPT				
ASST SUPT				
ENG-TECH				
ENG-OPS				
ENG-MAINT				
SR HP				
SR CHEM				
PERF ENG	LAH per tele con	12/19/84		
I&C ENG				
ADMN SUPV				

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
REAC ENG				
SFT SUPT	EDC	12/19/84		
REG ENG				
OUT MGR				

3. COMMENTS/CORRECTIVE ACTION:

☐ Approved with comments/changes on attached document

COMMENTS/CORRECTIVE ACTION TAKEN & CHECKED/DATE	SUPT. APPROVAL/DATE	PORC MEETING
ADMIN OR PREPARER	/	#: DATE:

DIRECTIONS TO ADMIN. STAFF:
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- ☐ FILE THE ATTACHED DOCUMENT IN FILE _____
- ☐ FILE THIS FORM PER ADMIN. PROC. _____
- ☐ OTHER: _____

TRANSMIT A COPY OF THIS FORM AND DOCUMENT TO NRB FOR:
- ☐ APPROVAL
- ☐ REVIEW
- ☐ INFO

28/84
CTIVE DATE

LIMERICK GENERATING STATION
PORC APPROVAL FORM

TPC # 1071

R.F. Moore 9.26.84

A-4, Form 1
Revision 1
Page 1 of 1

G.M. Leitch 9/10/84 CRE

OCUMENT (TITLE, OR PROC # & REV.): ST-1-030-701-1

3850016380

REASON FOR SUBMITTAL:

☐ NEW PROCEDURE

☐ PROCEDURE REVISION

☐ ENTIRE PROC. REVIEWED & SUGGESTED CHANGES INDICATED (PERIODIC REVIEW A-2)

☐ PORTIONS OF PROC. REVIEWED & SUGGESTED CHANGES INDICATED

☒ TEMPORARY CHANGE TO APPR'D PROC A-3 REVIEW REQUIRED BY _____

☒ REVIEW OF TEMP CHANGE ONLY

☐ REVIEW OF TEMP CHANGE AND PERMANENT PROC. REVISION

PORC VIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
PT				
ST SUPT				
G-TECH				
G-(s				
G-MAINT				
HP				
CHEM				
ERF ENG	LAH	12/19/84		
C ENG				
OMN SUPV				

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
REAC ENG				
SFT SUPT	CPG	12/19/84		
REG ENG				
OUT MGR				

. COMMENTS/CORRECTIVE ACTION:

☐ Approved with comments/changes on attached document

COMMENTS/CORRECTIVE ACTION TAKEN & CHECKED/DATE	SUPT. APPROVAL/DATE	PORC MEETING
_____ _____	_____/_____	#: _____ DATE: _____

ADMIN OR PREPARER

DIRECTIONS TO ADMIN. STAFF:
☐ ISSUE THE ATTACHED DOCUMENT
☐ FILE THE ATTACHED DOCUMENT IN FILE _____
☐ FILE THIS FORM PER ADMIN. PROC. _____
☐ OTHER: _____

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☐ APPROVAL
☐ REVIEW
☐ INFO

3850016380 LAH 12/19/84 030 CPG 12/19/84

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

LAH 12/19/84

030

T-1-057-701-1 P.A.S.S & C.A.C SAMPLE LOOPS CONTAMINATED PIPING INSPECTION

Test Frequency: 18 months -OR- Initiating Events: 1. Reason
Tech Spec.: 6.8.4a 2. MRF No.
FSAR 6.2.8.1.g
FSAR 6.2.8.1.h
FSAR 6.2.8.3

10 P.P

Test Results:

Section A. All Asterisked (*) Steps Completed SATISFACTORILY

Performed By: (Sign/Date) 12/21/84

Performed By: (Sign/Date)

Informed Test Complete: (ACO or CO) (Sign/Date) 12-21-84
(Time) 0101

Reviewed By: (SSVN or STA) (Sign/Date) 12-21-84

Section B. One or More Asterisked (*) Steps Test Results UNSATISFACTORILY

Performed By: (Sign/Date)

Informed of Test Results: (CO or ACO) (Sign/Date)
(Time)

Shift Supervision (Sign/Date)

Corrective Action: MRF No.:

Initiated By: Sign/Date)

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified: (Name)

Date/Time Notified: (Date/Time)

Notified By: (Sign)

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) M.C. Ballaghan 12/20/84

APPENDIX 5

TEST RESULTS EVAULATION FORM

ST # ST-1-030-701-1

DATE ST PERFORMED 12/20/84

EVALUATION OF TEST RESULTS:

Boundary 1 leakage was determined to be limited to the Post Accident Sampling Station Gas Sampler 10594 by the following:

① all CAC lines in Boundary 1 were walked down and "SNOOPED" verifying no leakage

② check valve 57-1088 was verified not to be leaking by closing 57-1086 and verifying all other valves in the possible leakage flowpath were closed; then checking that no change in leakrate was observed

(CONTINUED)

ATTACH ADDITIONAL SHEETS IF NECESSARY

Evaluation By: M. P. Gallagher

Date: 12/20/84

Approved By: L A Hopkins

Date: 12/21/84

③ verifying 0 psig at PI-57-129 which indicates that there was no leakage into the CAC sampler

Boundary 1 leakage will be investigated ~~further~~ further prior to exceeding 5% power, when the Post Accident Sampling Station is required to be operable.

Boundary 3 leakage was determined to be through a leaking check valve 57-1068A by:

① verifying no leakage using "snoop" during a walkdown and

② observing a "chattering" sound of check valve 57-1068B

check valve 57-1068A will be inspected and repaired. However, the leakage for contaminated piping inspection of this boundary should be considered < 100 cc/min since no external leakage was observed.

1.0 PURPOSE

The purpose of this test is to determine the leakage rate of the Post Accident Sample System and Containment Atmospheric Control sample loops and to inspect asscciated components if the leakage is above the specified limit.

2.0 REFERENCES

2.1 Generic LLRT Procedure ST-1-LLR-001-1

2.2 8031-M-30; Post Accident Sampling

2.3 8031-M-57, Containment Atmospheric Control, Sheets 1 and 2

2.4 NUREG-0737

2.5 8031-M-235-8-12

2.6 8031-M-235-26-11 and 10

3.0 TEST EQUIPMENT

3.1 Per Generic Procedure ST-1-LLR-001-1

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Per Generic Procedure ST-1-LLR-001-1 and Item I of Specific Procedure Section 9.0

5.0 PREREQUISITES

5.1 Plant conditions are such that testing will not interfere with planned operations. Backup system availability has been established per Section 9.1. Request permission of Shift Supervision and ACO/CO to begin this test.

CFK / 12/19/84
Initials / Date

SG / 12-19-84
ACO/CO / Date

5.2 RWP obtained if required. CFK

5.3 Obtain chemistry personnel assistance to operate the P.A.S.S. panel.

LAB 12/19/84

~~5.4~~ 5.3 Safety permit issued if required per Section 9.5 or as determined by Results Engineer or alternate.

CPG 12/19/84

Yes ___ No X

If Yes: Permit No. _____

6.0 GENERAL LEAK TEST PROCEDURE

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS AND DATA SHEETS ARE CORRECTLY AND COMPLETELY FILLED IN.

INITIALS

6.1 Read Specific Procedure. Follow procedure for system draining and venting (Section 9.2) and valve lineup (Section 9.3). CFK

6.2 With the box set up for a "FLOW IN TEST" and connected to the penetration test tap, perform leak test per ST-1-LLR-002-1. Record leakage on the Test Data Sheet attached to this procedure. CFK

6.3 Perform leak test per Section 9.4 CFK 12/20/84

3850016380

7.0 PROCEDURE

7.1 Flow in Test (Test Volume Filled with Air)

7.1.1 Verify that the test volume is drained of water.

THE FOLLOWING STEPS ARE THE INITIAL SET UP OF VOLUMETRICS LEAK RATE MONITOR (LRM). SEE FIGURE 1.

7.1.2 Prior to performing leakage test or integrity check, set the LRM controls as follows:

CONTROL	PRESSURE REGULATOR (V-1)	RANGE SELECTOR (V-2)	TEST VALVE (V-3)	TEST LEVEL VALVE (V-4)
POSITION	FULL DECREASE (CCW)	CHARGE	DECAY	TEST

7.1.3 Connect the LRM to a 110 volt, 60 Hz electrical power source. Press the power switch; allow a ten (10) minute warm-up period before proceeding with Section 7.1.5.

DUE TO THE NATURE OF THE THERMAL MASS FLOW TRANSDUCERS USED IN THE LRM, THE FLOW RATE INDICATOR MAY DISPLAY A READOUT OF -006 TO +006 AT A NO LEAK CONDITION. THIS IS A NORMAL INDICATION, AND DOES NOT AFFECT CALIBRATION OF THE LRM.

7.1.4 Apply clean, dry facility test gas supply pressure to INLET port and pressurize from 85 to 150 PSIG. (Use nitrogen on electrical penetrations)

7.1.5 Upon completion of warm-up period, adjust ZERO control as necessary to obtain a readout of $\pm$ 0.00 on the PRESSURE indicator. Be sure the TEST port is open to atmosphere.

7.1.6 Connect TEST port to the test volume.

7.1.7 Zeroing of the desired flow range(s) on the display must be completed before any flow measurements from that range are taken. The LRM MUST be isolated from the test volume by setting the ball valves as in Section 7.1.2. Adjust zero on all flow ranges, selecting each individually with the RANGE switch.

THERE MUST BE A CONSTANT SUPPLY PRESSURE OF 85-150 PSI CONNECTED TO THE INLET OF THE LRM FOR ZEROING OF THE FLOW DISPLAY.

THE FOLLOWING STEPS ARE THE LEAK TEST OPERATING SEQUENCE OF LRM.

7.1.8 Set the TEST LEVEL ball (V-4) valve to the CLOSED position. Set the TEST ball valve (V-3) to the FLOW position. Adjust the PRESSURE REGULATOR (V-1) to the test pressure of 44 psig as displayed on the PRESSURE indicator. Set the RANGE SELECTOR switch and RANGE SELECTOR valve (V-2) to LOW RANGE and observe FL for any possible internal LRM leakage. Return the TEST LEVEL valve (V-4) to the TEST position. Return RANGE SELECTOR valve (V-2) to CHARGE position. The test volume should now be charging.

THE PRESSURE INDICATOR WILL SHOW A DROP IN PRESSURE UNTIL THE TEST VOLUME IS COMPLETELY CHARGED.

7.1.9 If the pressure within the test volume will not reach the desired test level (due to an excessive leakage rate), increase the REGULATOR control setting as necessary to obtain the desired test level pressure.

7.1.10 After the test volume is fully charged, set ball valves as follows:

BALL VALVE	RANGE SELECTOR (V-2)	TEST VALVE (V-3)	TEST LEVEL VALVE (V-4)
POSITION	HIGH	FLOW	TEST

ALLOW A TEN (10) MINUTE (MINIMUM) TEMPERATURE STABILIZATION PERIOD.

7.1.11 Upon completion of temperature stabilization period, place the RANGE switch in the HIGH position and observe the FLOW RATE indicator for the leakage flow rate.

7.1.12 If the indicated leakage rate value is sufficiently low, set the RANGE switch to MID and the RANGE valve to MID for greater accuracy. If low range is desired, set RANGE switch to LOW and the RANGE valve (V-2) to LOW.

7.1.13 Verify the position of the following valves on LLRT Data Sheet.

Range Selector Switch
Range Selector Valve (V-2)
Test Valve (V-3)
Test Level Valve (V-4)

7.1.14 If leakage is evident but is below the calibrated range of the LRM, either assign a test leakage rate at the minimum calibrated range (20 sccm) or impose a known flow to raise total indicated flow rate to within the calibrated range of the LRM. This is done by closing the test connection valves and opening a vent valve between the test connection valves and valve V-4 on the LRM. Throttle the vent valve to attain a flow rate (Lo) within the calibrated range of the LRM. After flow has stabilized, open the test connection valves and observe the total flow rate.

WHEN IMPOSED FLOW IS USED, THE MEASURED LEAKAGE (Lm) IS THE DIFFERENCE BETWEEN THE TOTAL FLOW AND THE IMPOSED KNOWN FLOW (Lo).

7.1.15 Read and record on Test Data Sheet the indicated flow and pressure at a minimum of 5-minute intervals for 15 minutes after stabilization. A minimum of 4 readings should be taken.

8.0 RETURN TO NORMAL

8.1 When test is completed, consult Health Physicist or alternate concerning venting the test volume.

9.0 SPECIFIC PROCEDURE

9.1 Backup System Availability and Requirements:

9.1.1 The Post Accident Sampling System will be out of service for the duration of this test.

9.1.2 Both H2/O2 analyzers 10S205 and 10S206 will be out of service for the duration of this test.

9.2 System Draining and/or Venting:

SYSTEM IS A NON-PRESSURIZED AIR-FILLED SYSTEM AND NEED NOT BE DRAINED.

9.3 Valve Lineup: INITIALS

9.3.1 Complete the applicable section of the Leak Rate Tag Accountability Log, position valves and switches, and hang LLRT tags. CFK

SECTIONS 9.4.1 through 9.4.6 may be done in any order.

9.4 Procedure:

CAPS

PERFORM LEAK RATE USING THE FOLLOWING PREFERRED METHOD(S). ALTERNATE METHODS AS DESCRIBED IN GENERIC PROCEDURE ST-1-LLR-001-1 MAY BE USED WHEN NEEDED AND SHALL BE ATTACHED TO AND FORM A PART OF THIS PROCEDURE ONLY WHEN USED.

9.4.1 Perform a flow in test on the ~~P.A.S.S and C.A.C atmosphere~~ boundary 1 sample loops. LAA 12/19/84 CPC 12/19/84

INITIALS

9.4.1.1 ~~Remove thermal overload from contactor for pump 1BP937 at Panel 10C945~~ 08/217 08/217 CFK

STET

~~9.4.1.2 Install temporary jumpers between terminals 27, 28, 29, 30, 31 and 32 on terminal board 3 in the Hydrogen and Oxygen~~ Analyzer Panel 10S205 15/283

Approve changes for pg 3850016380 WRL/RSE:hfz
LAH 12/19/84

CPG 12/19/84

~~9.4.1.3 Install temporary jumpers between terminals 27, 29, 30, 31 and 32 on terminal board 3 in the Hydrogen and Oxygen Analyzer Panel 10S206~~ 15/253

LAH 12/19/84 All Tests Comp EDC 12/19/84

9.4.1.2.1 Close or verify closed 57-1083, 57-1088 and 57-1085. CFK

~~9.4.1.4 Lift lead 38 from terminal 36 on TBR-3 in Panel 10S205~~

~~9.4.1.5 Lift lead 38 from terminal 36 on TBR-3 in Panel 10S206~~

9.4.1.3 Open or verify open SE-57-102. CFK

9.4.1.4 open or verify open 57-1084 CFK

~~9.4.1.6~~ 2 Install test box to test connection downstream of valve 57-106~~7~~1 (501-15R-295) ~~and to connection SX-57-159 on panel 10S205.~~ CFK

9.4.1.5 At panel 10C946 open valve SV-57-146B using HSS-57-146. CFK

~~9.4.1.7~~ 7 At Panel 10C600, place ~~power on to 10S205 by placing~~ HSS-57-12~~85~~ ~~to~~ in the "~~ANALYZE~~" position "DRYWELL EXHAUST SAMPLE" or verify CFK

9.4.1.6 At panel 10C946 open valve SV-57-147B using HSS-57-147 CFK

~~9.4.1.8~~ ~~Verify SV-57-151, SV-57-152, SV-57-153, SV-57-154, and SV-57-155 are open.~~

~~9.4.1.8~~ 8 At Panel 10C600, place ~~power on to 10S206 by placing~~ HSS-57-19~~85~~ ~~to~~ in the "~~ANALYZE~~" position "DRYWELL ATM SAMPLE-2" or verify CFK

~~9.4.1.10 Verify SV-57-187, SV-57-188, SV-57-189 and SV-57-194 are open.~~

~~9.4.1.11~~ 9 At Panel 10C945, place power on by placing HSS-30-120 to position "A" or "B" CFK

~~9.4.1.12~~ 10 Place HSS-30-121 to the Gas position at Panel 10C945 CFK

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CPG 12/14/84 LAH 12/19/84

3850016380

9.4.1.~~13~~ 11 Place HSS-30-111 to the Drywell position on 10C945 — CFK

9.4.1.~~14~~ 12 Place HS-30-109 to the CIRC. gas position on Panel 10C945 — CFK

9.4.1.~~15~~ 13 Begin flow in test per section 7.1 at test pressure of 44 psig and determine system leak rate — mpb

9.4.1.~~16~~ 14 Verify system leak rate is less than (later) — N.A NOTE 1

9.4.1.~~17~~ 15 The leak rate is above (later). Proceed to the next step. If not, proceed to Step ~~9.4.1.19~~ 9.4.1.17 and mark Step 9.4.1.~~19~~ 16 N/A — mpb

9.4.1.~~18~~ 16 Using a bottle of snoop or equivalent, walk the system down and inspect components for air leakage inside the solid boundary of Attachment B. Document all components exhibiting leakage on Attachment A-1. — mpb

9.4.1.~~19~~ 17 Isolate the test box and vent the volume. Close and cap valve 57-106~~8~~1 and ~~57-1047~~ ~~SV-57~~ ~~57-1013~~ — mpb

9.4.1.18 PLACE HSS-30-111 TO THE ~~DRYWELL~~ 'SPARE' POSITION ON PANEL 10C945 mpb

9.4.1.~~20~~ 19 Place HSS-30-120 on Panel 10C945 to the "OFF" position — mpb

LAH 12/19/84 per telecon EDC 12/19/84

9.4.1.~~21~~ 20 Reattach the thermal overload for pump 1BP937 at Panel 10C945 — WRL

9.4.1.25 Open ~~SV~~ 57-1085 57-1085 and 57-1088 mpb

9.4.1.21 At panel 10C946 close valve SV-57-146B using HSS-57-146 — mpb

9.4.1.22 At panel 10C946 close valve SV-57-147B using HSS-57-147 — mpb

9.4.1.23 Close 57-1084 if sections 9.4.2 or 9.4.3 are to be performed next. mpb — mpb

9.4.1.24 Close SS-57-102 if section 9.4.6 is to be performed next. — N/A

Approve changes for pg
CPG 12/19/84 LAB 12/19/84

9.4.1.~~22~~ 25 Place HSS-30-170 on Panel 10C945 to the ON position and verify pump 1BP937 starts — NRL

9.4.1.~~23~~ 26 Place HSS-30-120 on Panel 10C945 to the "OFF" position. — NRL

END OF 1

~~9.4.1.24 Place HSS-57-126 on Panel 10C600 to the "OFF" position~~

~~9.4.1.25 Place HSS-57-196 on Panel 10C600 to the "OFF" position~~

~~9.4.1.26 Reconnect lead lifted in step 9.4.1.4~~

~~9.4.1.27 Reconnect lead lifted in step 9.4.1.5~~

~~9.4.1.28 Remove temporary jumpers between terminals 27, 29, 30, 31 and 32 on TRB-3 in Panel 10S206~~

~~9.4.1.29 Remove temporary jumpers between terminals 27, 28, 29, 30, 31 and 32 on TRB-3 in Panel 10S205~~

9.4.1.30 Place HSS-57-126 to the "ANALYZE" position and then using pump selector HSS-57-129 verify that pumps 1AP253 and 1BP253 operate correctly. This verifies lead lifted in step 9.4.1.4 restored

9.4.1.31 Verify only one sample inlet valve to panel 10S205 is open

9.4.1.32 Return HSS-57-126 to the "OFF" position

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Approve addition of 9.4.2 thru 9.4.2.5

LAB 12/19/84 CPG 12/19/84

9.4.2 Perform a flow in test on the boundary 2 sample loop.

Initials

9.4.2.1 Install test box to test connection downstream of valve 57.1062 (501-R15-295). mpB

9.4.2.2 At panel 10C600 place or verify HSS-57-125 ~~in~~ the "DRYWELL EXHAUST SAMPLE" position mpB

9.4.2.3 At panel 10C600 place or verify HSS-57-195 in the "SUPP POOL ATM SAMPLE 2" position mpB

9.4.2.4 Open or verify open 57-1089 mpB

9.4.2.5 Open or verify open SE-57-102 mpB

9.4.2.5.1 Close 57-1084 mpB

LAH 12/19/84 Per tele con EOC 12/19/84

Approve changes for pg
CTG 12/19/84
LDH 12/19/84

~~9.4.1.13~~ 9.4.1.16 ~~Place HSS-30-111 to the Drywell position on 10C945~~ /

~~9.4.1.14~~ 9.4.1.17 ~~Place HS-30-109 to the CIRC. gas position on Panel 10C945~~ /

~~9.4.1.15~~ 9.4.2.6 Begin flow in test per section 7.1 at test pressure of 44 psig and determine system leak rate — mpb

~~9.4.1.16~~ 9.4.2.7 Verify system leak rate is less than (later) — N/A

~~9.4.1.17~~ 9.4.2.8 The leak rate is above (later). Proceed to the next step. If not, proceed to Step 9.4.2.6 ~~9.4.1.18~~ and mark Step ~~9.4.1.19~~ 9.4.2.9 N/A — N/A

~~9.4.1.18~~ 9.4.2.9 Using a bottle of snoop or equivalent, walk the system down and inspect components for air leakage inside the solid boundary of Attachment B. Document all components exhibiting leakage on Attachment A-2. — N/A

~~9.4.1.19~~ 9.4.2.10 Isolate the test box and vent the volume. Close and cap valve ~~57-1062~~ 57-1062 ~~and 57-1047~~ ~~SV-57~~ ~~57-1013~~ — ~~mpb~~ mpb

9.4.1.20 ~~Place HSS-30-120 on Panel 10C945 to the "OFF" position~~ /

LAH 12/19/84 Per tele con EOC 12/19/84

9.4.1.21 ~~Reattach the thermal overload for pump 1BP937 at Panel 10C945~~ /

9.4.2.11 Close 57-1089 if section 9.4.3 is not going to be performed next — N/A

9.4.2.13 Open 57-1084 mpb

9.4.2.12 Close SE57-102 if section 9.4.6 is going to be performed nat — N/A

Approve addition of 9.4.3 thru 9.4.3.5

LAH 12/19/84

CPG 12/19/84

9.4.3 Perform a flow in test on the boundary 3 sample loop.

Initials

9.4.3.1 Install test box to test connection downstream of value 57-1047 RDM

9.4.3.2 At panel 10C600 place or verify HSS-57-125 in the "Drywell EXHAUST SAMPLE" position. RDM

9.4.3.3 At panel 10C600 place or verify HSS-57-195 in the "SUPP POOL ATM SAMPLE 2" position. RDM

9.4.3.4 Open or verify open 57-1089 WRL

9.4.3.5 Open or verify open SE-57-102 WRL

9.4.3.5.1 Close 57-1086 WRL

LAH 12/19/84 Per telecon EDC 12/19/84

Approve changes for pg 9 LDB 12/19/84

~~9.4.1.13~~ ~~Place HSS 30-111 to the Drywell position on 10C945~~ CPO 12/19/84

~~9.4.1.14~~ 7 ~~Place HS 30-109 to the CIRC. gas position on Panel 10C945~~

~~9.4.1.15~~ 9.4.3.6 Begin flow in test per section 7.1 at test pressure of 44 psig and determine system leak rate WRL

~~9.4.1.16~~ 9.4.3.7 Verify system leak rate is less than (later) NA

~~9.4.1.17~~ 9.4.3.8 The leak rate is above (later). Proceed to the next step. If not, proceed to Step 9.4.3.10 ~~9.4.1.19~~ and mark Step ~~9.4.1.19~~ 9.4.3.9 N/A WRL

~~9.4.1.18~~ 9.4.3.9 Using a bottle of snoop or equivalent, walk the system down and inspect components for air leakage inside the solid boundary of Attachment B. Document all components exhibiting leakage on Attachment A-3. WRL

~~9.4.1.19~~ 9.4.3.10 Isolate the test box and vent the volume. Close and cap valve 57-1047. ~~57-1061 and 57-1047~~ ~~SV-57-~~ ~~57-1073~~ WRL

~~9.4.1.20 Place HSS-30-120 on Panel 10C945 to the "OFF" position~~

LDB 12/19/84 per telecon EOC 12/19/84

~~9.4.1.21 Reattach the thermal overload for pump 1BP937 at Panel 10C945~~

9.4.3.11 Close 57-1089, if section 9.4.2 is not going to be performed next NA

9.4.3.13 open 57-1086 WRL

9.4.3.12 Close SE-57-102, if section 9.4.6 is going to be performed next. NA

Approve addition of 9.4.4 thru 9.4.4.7

LAH 12/19/84 CPG 12/19/84

9.4.4 Perform a flow in test on the boundary 4 sample loop.

Initials

9.4.4.1 Install a test box to test [redacted] connection downstream of valve 57-1070. RDM

9.4.4.2 At panel 10C946 open valve SV-57-146A using HSS-57-146 RDM

9.4.4.3 At panel 10C946 open valve SV-57-147A using HSS-57-147 RDM

9.4.4.4 At panel 10C600 place or verify HSS-57-125 in the "DRYWELL EXHAUST SAMPLE" position. RDM

9.4.4.5 At panel 10C600 place or verify HSS-57-195 in the "DRYWELL ATM SAMPLE-2" position RDM

9.4.4.6 Open or verify open 57-1084. CFK

9.4.4.7 Open or verify open SE-57-102. RDM

LAH 12/19/84 per telecon

9.4.4.7.1 Close 57-1089 and 57-1087 RDM

EDC 12/19/84

Approve changes for pg
L&B 12/19/84 CPG 12/19/84

3850016380

~~9.4.1.13~~ 6 ~~Place HSS-30-111 to the Drywell position on 10C945~~ /

~~9.4.1.14~~ 7 ~~Place HS-30-109 to the CIRC. gas position on Panel 10C945~~ /

~~9.4.1.15~~ 9.4.4.8 Begin flow in test per section 7.1 at test pressure of 44 psig and determine system leak rate CFK

~~9.4.1.16~~ 9.4.4.9 Verify system leak rate is less than (later) NA

~~9.4.1.17~~ 9.4.4.10 The leak rate is above (later). Proceed to the next step. If not, proceed to Step 9.4.4.12 ~~9.4.1.19~~ and mark Step ~~9.4.1.19~~ 9.4.4.11 N/A CFK

~~9.4.1.18~~ 9.4.4.11 Using a bottle of snoop or equivalent, walk the system down and inspect components for air leakage inside the solid boundary of Attachment B. Document all components exhibiting leakage on Attachment A-4. CFK

LOU 12/19/84 Per telecon EOC 12/19/84

~~9.4.1.19~~ 9.4.4.12 Isolate the test box and vent the volume. Close and cap valve ~~57-1068~~ 57-1070 and ~~57-1047~~ ~~SV-57~~ ~~57-1013~~ CFK

~~9.4.1.20~~ ~~Place HSS-30-120 on Panel 10C945 to the "OFF" position~~ /

9.4.4.17. Open 57-1089 and 57-1087 CFK

~~9.4.1.21~~ ~~Reattach the thermal overload for pump 1BP937 at Panel 10C945~~ /

9.4.4.13 At panel 10C945, close valve SV-57-146A using HSS-57-146 CFK

9.4.4.14 At panel 10C945, close valve SV-57-147A using HSS-57-147. CFK

9.4.4.15 Close 57-1084 if sections 9.4.2 or 9.4.3 are to be performed next NA

9.4.4.16 Close SE-57-102 if section 9.4.6 is to be performed next NA

Approve addition of 9.4.5 thru 9.4.5.5
LOH 12/19/84 CPC 12/19/84

9.4.5 Perform a flow in test on the boundary 5 sample loop.

Initials

9.4.5.1 Install a test box to test connection downstream of valve 57-1043. CFK

9.4.5.2 At panel 10C600 place or verify HSS-57-125 in the "DRYWELL EXHAUST SAMPLE" position. CFK

9.4.5.3 At panel 10C600 place or verify HSS-57-195 in the "DRYWELL ATM SAMPLE 2" position CFK

~~9.4.5.4~~

9.4.5.4 Open or verify open 57-1084 CFK

9.4.5.5 Open or verify open SE-57-102 CFK

9.4.5.5.1 Close SE-57-101 CFK

LOH 12/19/84
Per telecon EDC 12/19/84

Approve changes for pg
LAH 12/19/84 CPC 12/19/84

3850016380

~~9.4.1.13~~ 6 ~~Place HSS-30-111 to the Drywell position on 10C945~~ —/—

~~9.4.1.14~~ 7 ~~Place HS-30-109 to the CIRC. gas position on Panel 10C945~~ —/—

~~9.4.1.15~~ 9.4.5.6 Begin flow in test per section 7.1 at test pressure of 44 psig and determine system leak rate CFK

~~9.4.1.16~~ 9.4.5.7 Verify system leak rate is less than (later) NA

~~9.4.1.17~~ 9.4.5.8 The leak rate is above (later). Proceed to the next step. If not, proceed to Step 9.4.5.10 ~~9.4.1.19~~ and mark Step ~~9.4.1.19~~ 9.4.5.9 N/A CFK

~~9.4.1.18~~ 9.4.5.9 Using a bottle of snoop or equivalent, walk the system down and inspect components for air leakage inside the solid boundary of Attachment B. Document all components exhibiting leakage on Attachment A-5. CFK

~~9.4.1.19~~ 9.4.5.10 Isolate the test box and vent the volume. Close and cap valve 57-1043. ~~57-1068 and 57-1047 Sv-57 57-1013~~ CFK

~~9.4.1.20 Place HSS-30-120 on Panel 10C945 to the "OFF" position~~ —/—

LAH 12/19/84 Per telecon EDC 12/19/84

~~9.4.1.21 Reattach the thermal overload for pump 1BP937 at Panel 10C945~~ —/—

9.4.5.11 Close 57-1084 if sections 9.4.2 or 9.4.3 are to be performed next. NA

9.4.5.12 Close SE-57-102 if section 9.4.6 is to be performed next. CFK

2 5.13 open SE-101 CFK

Approve addition of steps 9.4.6 thru 9.4.6.5

LDH 12/19/84 GPG 12/19/84

9.4.6 Perform a flow in test on the boundary 6 sample loop.

Initials

9.4.6.1 Install a test box to test connection downstream of valve 57-1044. CFK

9.4.6.2 At panel 10C600 place or verify HSS-57-125 in the "SUPP POOL ATM SAMPLE-1" position CFK

9.4.6.3 At panel 10C600 place or verify HSS-57-195 in the "DRYWELL ATM SAMPLE-2" position CFK

~~9.4.6.4~~

9.4.6.4 Open or verify open 57-1084 CFK

9.4.6.5 Open or verify open 57-1087 CFK

9.4.6.5.1 Close SE-57-102 CFK

LDH 12/19/84 per telecon GPG 12/19/84

Approve changes for pg LAH 12/19/84 GPG 12/19/84

3850016380

~~9.4.1.13~~ 6 ~~Place HSS-30-111 to the Drywell position on 10C945~~ —

~~9.4.1.14~~ 7 ~~Place HS-30-109 to the CIRC. gas position on Panel 10C945~~ —

~~9.4.1.15~~ 9.4.6.6 Begin flow in test per section 7.1 at test pressure of 44 psig and determine system leak rate — CFK

~~9.4.1.16~~ 9.4.6.7 Verify system leak rate is less than (later) — NA

~~9.4.1.17~~ 9.4.6.8 The leak rate is above (later). Proceed to the next step. If not, proceed to Step 9.4.6.10 ~~9.4.1.19~~ and mark Step ~~9.4.1.19~~ 9.4.6.9 N/A — NA

~~9.4.1.18~~ 9.4.6.9 Using a bottle of snoop or equivalent, walk the system down and inspect components for air leakage inside the solid boundary of Attachment B. Document all components exhibiting leakage on Attachment A-6. — CFK

~~9.4.1.19~~ 9.4.6.10 Isolate the test box and vent the volume. Close and cap valve ~~57-1068 and 57-1047 57-1013~~ 57-1044 — CFK

~~9.4.1.20 Place HSS-30-120 on Panel 10C945 to the "OFF" position~~ —

~~9.4.1.21 Reattach the thermal overload for pump 1BP937 at Panel 10C945~~ —

LAH 12/19/84 per telecon EDC 12/19/84

9.4.6.11 Open SE-57-102 — CFK

9.4.1.33 Place HSS-57-196 to the "ANALYZE" position and then using pump selector HSS-57-199 verify that pumps 1AP254 and 1BP254 operate correctly. This verifies lead lifted in step 9.4.1.5 restored _____

LAB 12/19/84 CPG 12/19/84

9.4.1.34 Verify only one sample inlet valve to panel 10S206 is open _____

9.4.1.35 Return HSS-57-196 to the "OFF" position _____

9.5 Block Required

None

9.6 Restoration:

9.6.1 At the conclusion of the test, isolate and vent the test box and the test volume separately. Disconnect test box from the test volume, close test connection valves and remove hoses. CFK

CAUTION

CONTACT HEALTH PHYSICS PRIOR TO DRAINING OR VENTING ANY POTENTIALLY CONTAMINATED SYSTEMS.

9.6.2 Restore valve line up at test completion per Tag Accountability Log to "AS FOUND" position, recording final position in the "AS LEFT" column, or as directed by Shift Supervision. Have second verification performed by a qualified individual designated by the results Engineer or his alternate. If any valve is restored to a position other than the "AS FOUND" position, note it accordingly in the Additional Action/Test Comments section. CFK

CFK

9.6.3 Complete IVOR.

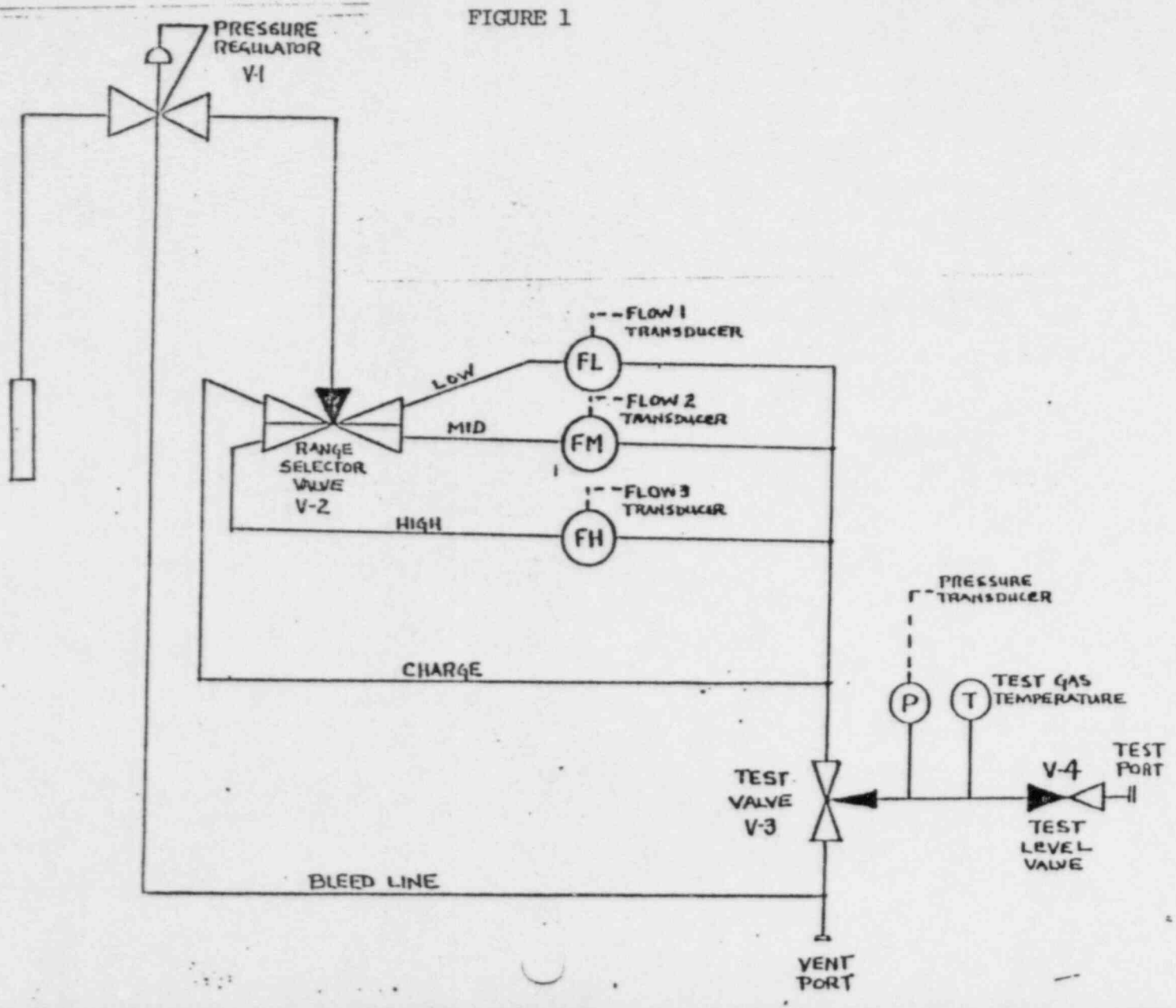
9.6.4 Return system to normal per Section 8.0 or as directed by Shift Supervision. CFK

9.7 Inform Shift Supervision of results of test (Note above asterisked step) and fill out the data sheets. Have operator review accountability log. CFK

AT TEST COMPLETION, ENSURE THAT COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.

VOLUMETRICS LEAK RATE MONITOR (LRM)

FIGURE 1



TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C P&ID M-57, SH. 1

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
57-1084	~~Clos~~ Open	~~CLOSED~~ AS REQUIRED	27001	CFK	open	CFK	KSK
57-1086	OPEN	AS ~~CLOSED~~ REQUIRED	27002	CFK	Open	CFK	KSK
57-1050	Closed/Capped	CLOSED	27003	CFK	Closed/Capped	CFK	KSK
57-1089	Open	AS ~~CLOSED~~ REQUIRED	27004	CFK	Open	CFK	KSK
57-1062 (Test)	Closed/ Capped	~~UNCAPPED~~ AS ~~OPEN~~ REQUIRED	27005	CFK	CLOSED/ CAPPED	CFK	KSK
SV-57-133	Open	OPEN	27006	CFK	Open	CFK	KSK
SV-57-150	Open	OPEN	27007	CFK	Closed	CFK	GDC note 2
SV-57-143	Open	OPEN	27008	CFK	Open	CFK	GDC
SV-57-159	Open	OPEN	27009	CFK	Open	CFK	GDC

CPC 12/6/84

CPC 12/9/84

TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C P&ID M-57, SH. 1

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
SV-57-195	Open	OPEN	27010	CFK	Open	CFK	
SV-57-145	Open	OPEN	27011	CFK	Open	CFK	
57-1047	CAPPED CLOSED	~~CLOSED/ CAPPED~~ AS REQUIRED	27012	CFK	CLOSED/ CAPPED	CFK	KSK
57-1043	Closed/ Capped	~~CLOSED/ CAPPED~~ AS REQIRED	27013	CFK	CLOSED/ CAPPED	CFK	KSK
57-1044	Closed/ Capped	~~CLOSED/ CAPPED~~ AS REQUIRED	27014	CFK	CLOSED/ CAPPED	CFK	KSK
SV-57-185	Open	OPEN	27015	CFK	Open	CFK	
57-1083	Open	AS ~~CLOSED~~ REQUIRED	27016	CFK	open	CFK	KSK
57-1088	Open	AS ~~CLOSED~~ REQUIRED	27017	CFK	Open	CFK	KSK
57-1061	Capped/ Closed	AS REQUIRED ~~CLOSED/ Capped~~	27018	CFK	closed/capped	CFK	KSK

CFK 12/19/84

L&H 12/19/84

L&H 12/19/84

TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C P&ID M-57, SH. 1

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
SV-57-134	Open	OPEN	27019	CFK	Closed	CFK	note 2
SV-57-132	Open	OPEN	27020	CFK	Closed	CFK	
SV-57-142	Open	OPEN	27021	CFK	Open	CFK	
SV-57-144	Open	OPEN	27022	CFK	Open	CFK	
SV-57-146B	Closed	OPEN	27023	CFK	Closed	CFK	KSK
57-1071	Closed/ capped	CLOSED/ capped	27024	CFK	Closed/ Capped	CFK	KSK
SV-57-183	Open	OPEN	27025	CFK	Open	CFK	
SV-57-191	Open	OPEN	27026	CFK	Open	CFK	
SV-57-184	Open	OPEN	27027	CFK	Open	CFK	

CAK 12/9/84

TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C P&ID M-57, SH. 1

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
SV-57-186	Open	OPEN	27028	CFK	Open	CFK	GD
SV-57-147A	Closed	OPEN	27029	CFK	Closed	CFK	KSK
SV-57-181	Open	OPEN	27030	CFK	Closed	CFK	GD
57-1087	Open	~~CLOSED~~ AS REQUIRED	27031	CFK	Open	CFK	KSK
SV-57-141	Open	OPEN	27032	CFK	Open	CFK	GD
SV-57-190	Open	OPEN	27033	CFK	Open	CFK	GD
57-1091	Open	OPEN	27034	CFK	Open	CFK	KSK
SE-57-101	~~Open~~ Closed	~~CLOSED~~ AS REQUIRED	27035	CFK	Open	CFK	KSK
SE-57-102	Closed ~~Open~~	~~CLOSED~~ AS REQUIRED	27036	CFK	Open	CFK	KSK

CPG 12/19/87

LAH 12/9/87

LAH 12/19/87

note 2

TAG ACCOUNTABILITY LOG

P&ID M-57

PENETRATION NO.: P.A.S.S & C.A.C

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
57-1051	Closed/ Capped	CLOSED/ CAPPED	27037	CFK	CLOSED/ CAPPED	CFK	KSK
57-1045	Closed/ Capped	CLOSED/ CAPPED	27038	CFK	CLOSED/ CAPPED	CFK	KSK
57-1046	Closed/ Capped	CLOSED/ CAPPED	27039	CFK	CLOSED/ CAPPED	CFK	KSK
57-1070	Closed/ Capped	~~CLOSED/~~ AS ~~CAPPED~~ REQUIRED	27040	CFK	CLOSED/ CLOSED	Closed/ CFK capped	KSK
57-1027	Closed/ Capped	CLOSED/ CAPPED	27041	CFK	CLOSED/ CAPPED	CFK	KSK
57-1085	Open	AS REQUIRED	27423	CFK	~~CLOSED/~~ OPEN ~~CAPPED~~	CFK	KSK

CPG 12/19/84

LAH 12/19/84

LAH 12/19/84

TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C P&ID M-57, SH. 2

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY
SV-57-187	Closed	AS REQUIRED	27042	CFK	Closed	CFK	KSK
SV-57-188	Closed	AS REQUIRED	27043	CFK	Closed	CFK	KSK
SV-57-189	Closed	AS REQUIRED	27044	CFK	Closed	CFK	KSK
SV-57-194	Open	AS REQUIRED	27045	CFK	Open	CFK	KSK
57-1063	Closed	CLOSED	27046	CFK	Closed	CFK	KSK
57-1013	Closed	OPEN	27047	CFK	Closed	CFK	KSK
SV-57-151	Closed	AS REQUIRED	27048	CFK	Closed	CFK	KSK
SV-57-152	Closed	AS REQUIRED	27049	CFK	Closed	CFK	KSK
SV-57-154	Closed	AS REQUIRED	27050	CFK	Closed	CFK	KSK

3850016380

ST-1-~~057~~030-701-1, Rev. 0
Page ~~28~~30 of ~~28~~57
WRL/RSE:hfz

TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C P&ID M-57, SH. 2

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY	
SV-57-153[3]	Open	AS REQUIRED	27051	CFK	Closed	CFK	KSK	note 2
SV-57-155	Closed	AS REQUIRED	27052	CFK	Closed	CFK	KSK	
SV-57-199A	~~Off~~ Closed	~~AS REQ. CLOSED~~	27053	CFK	~~Pump A~~ Open	CFK	[illegible]	note 2
SV-57-199B	~~Off~~ Closed	~~AS REQ. CLOSED~~	27054	CFK	~~Pump A~~ Closed	CFK	[illegible]	
SV-57-129A	Closed	~~AS REQ. CLOSED~~	27055	CFK	~~Open~~ Closed	CFK	[illegible]	
SV-57-129B	Closed	~~AS REQ: CLOSED~~	27056	CFK	Closed	CFK	[illegible]	

WJC 12/20/84

CFG 12/20/84

TAG ACCOUNTABILITY LOG

PENETRATION NO.: P.A.S.S & C.A.C P&ID M-30, M-57

VALVE NO./DESCRIPTION	"AS FOUND" POSITION	COMPONENT TAGGED CONDITION	TAG NO.	POSITIONED AND HUNG BY	"AS LEFT" POSITION	COMPONENT RESTORED/ TAG RMVD BY	VERIFIED BY	
HSS-30-120	Off	AS REQUIRED	27057	CFK	OFF	CFK	KSK	
HSS-30-111	4 (spare)	AS REQUIRED	27058	CFK	4 (Spare)	CFK	KSK	
HSS-30-109	Yes	AS REQUIRED	27059	CFK	Yes	CFK	KSK	
HSS-30-121	Off	AS REQUIRED	27422	CFK	Off	CFK	KSK	
HSS-57-129	Pump A	AS REQUIRED	27060	CFK	Pump A	CFK	JMA	
HSS-57-126	Standby	AS REQUIRED	27061	CFK	Stby	CFK	JMA	
HSS-57-199	Pump A	AS REQUIRED	27062	CFK	Pump A	CFK	JMA	
HSS-57-196	Standby	AS REQUIRED	27063	CFK	Analyzer	CFK	JMA	note 2

LEAKAGE RATE TEST DATA SHEET

PENETRATION NO. P.A.S.S & C.A.C

COMPONENTS UNDER TEST Atmospheric Sample Loops Boundary 1

TEST BOUNDARIES See Attachment B (P&ID's)

TESTED BY RW DATE 12-20-84

LD/A 12/19/84
CPG 12/19/84

TIME	PRESSURE (psig)	FLOW (scc/min)
0	46.0	2.06 SLM
5	46.0	2.09 SLM
10	46.0	2.04 SLM
15	46.0	2.05 SLM

AVERAGE FLOW= 2.06 SLM ~~scc/min~~

LLRT Test Box No. 21-1107

Cal. Due Date 1-10-85

VOLUMETRICS LRM VALVE/SWITCH POSITIONS

RANGE SEL (V-2)	TEST VALVE(V-3)	TEST LVL VALVE(V-4)	RANGE SEL SWITCH
High	Flow	Test	High

ACCEPTANCE CRITERIA: Later

TEST TAP VALVES: 57-1061

TESTED PER PROCEDURE ST-1-057-701-1

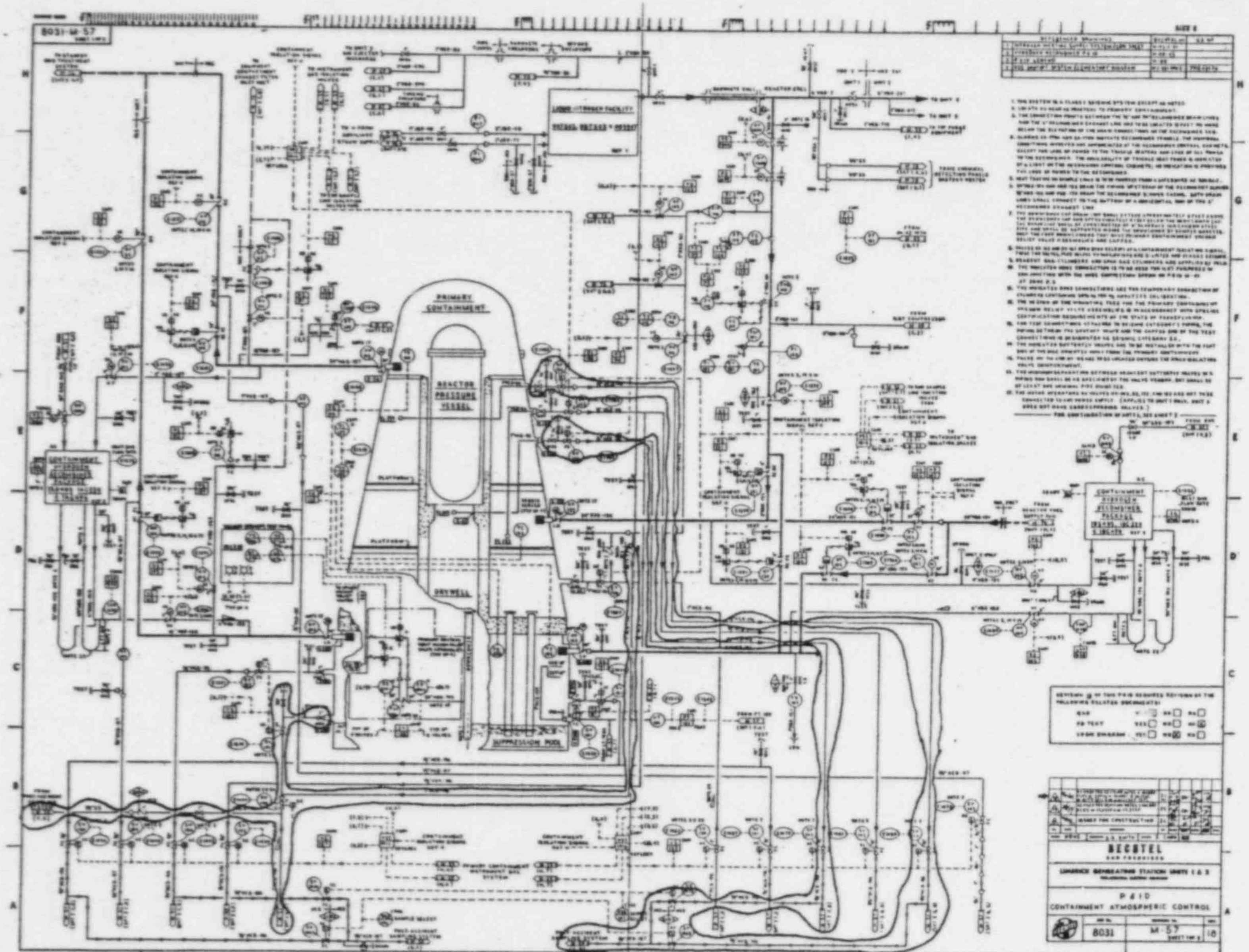
LEAKAGE RATE = 7.5 scc/min

Approve pg

CPC 12/19/84 LAH 12/19/84

BOUNDARY 1

ATTACHMENT B



Approve pg - 12/19/84 LDS 12/19/84 3850016380 030

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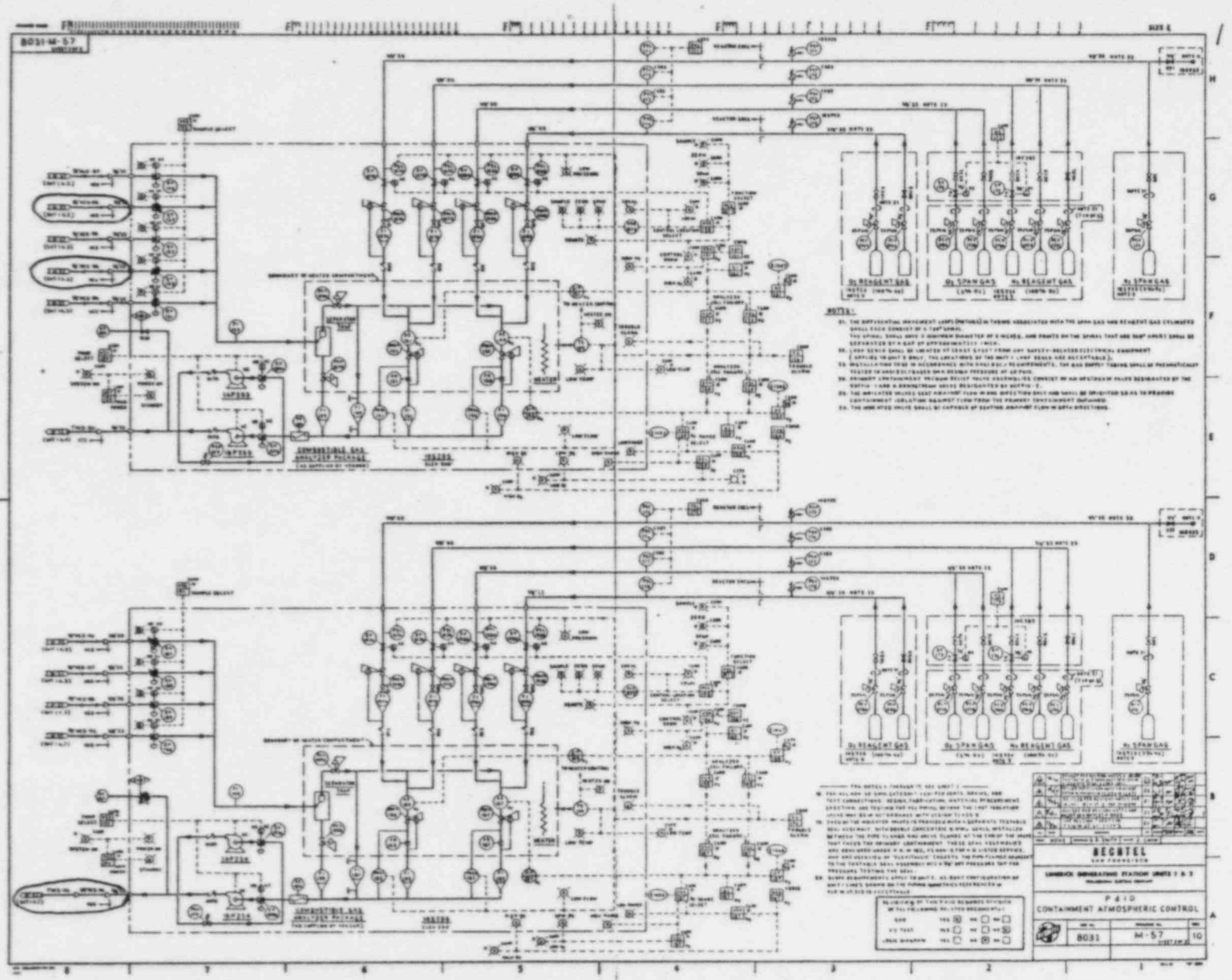
WRL/RSE:hfz

Boundary 1

ATTACHMENT B



Approve pg LAA 12/19/84 3850016380 030

12/19/84

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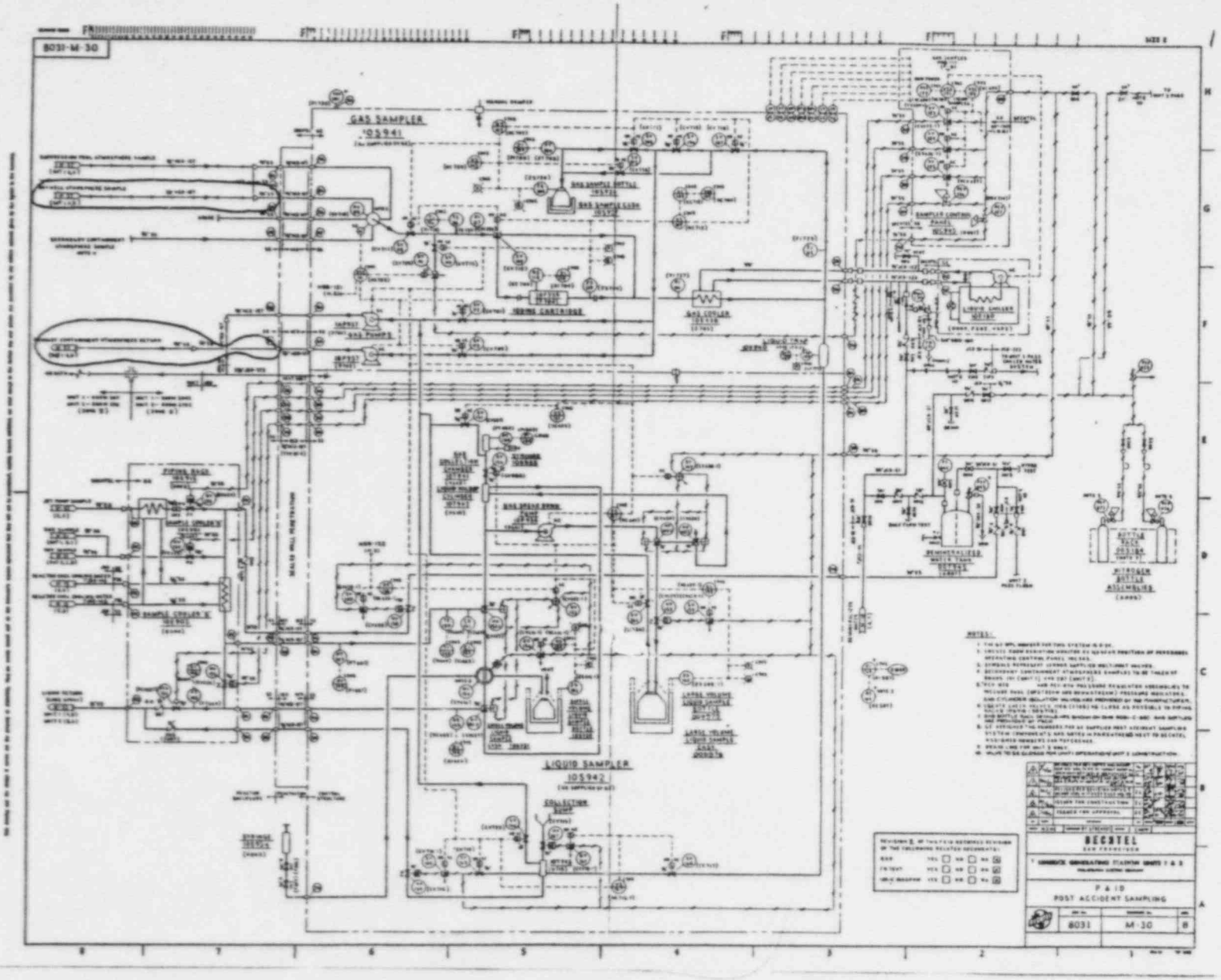
WRL/RSE:hfz

Boundary 1

ATTACHMENT B



P.A.S.S & C.A.C SAMPLE LOOPS
CONTAMINATED PIPING INSPECTION

DATA SHEET

BOUNDARY 1 LOA 12/19/04
ATTACHMENT A-1 12/19/04

Inspector: M. P. Gallagher

System Mode: N/A Date: 12/20/04

Component Number	Component Description	Comp. Mode (on/off) (open/shut)	Leak Rate	Corrective Action Date	Remarks
105941	PASS Sampler	OPEN	See Note 1		

LEAKAGE RATE TEST DATA SHEET

PENETRATION NO. P.A.S.S & C.A.C

COMPONENTS UNDER TEST Atmospheric Sample Loops Boundary 2

LAL 12/19/84

TEST BOUNDARIES See Attachment B (P&ID's)

CPG 12/19/84

TESTED BY MPB DATE 12/20/84

TIME	PRESSURE (psig)	FLOW (scc/min)
0	46.0	82.9
5	46.0	~~0~~ 81.3
10	46.0	~~0~~ 81.6
15	46.0	~~0~~ 80.2
~~20~~	~~0~~	

AVERAGE FLOW= 81.5 scc/min

LLRT Test Box No. 21-1107 | Cal. Due Date 1-10-85

VOLUMETRICS LRM VALVE/SWITCH POSITIONS

RANGE SEL (V-2)	TEST VALVE(V-3)	TEST LVL VALVE(V-4)	RANGE SEL SWITCH
Low	Flow	Test	Low

ACCEPTANCE CRITERIA: Later CPG 12/19/84

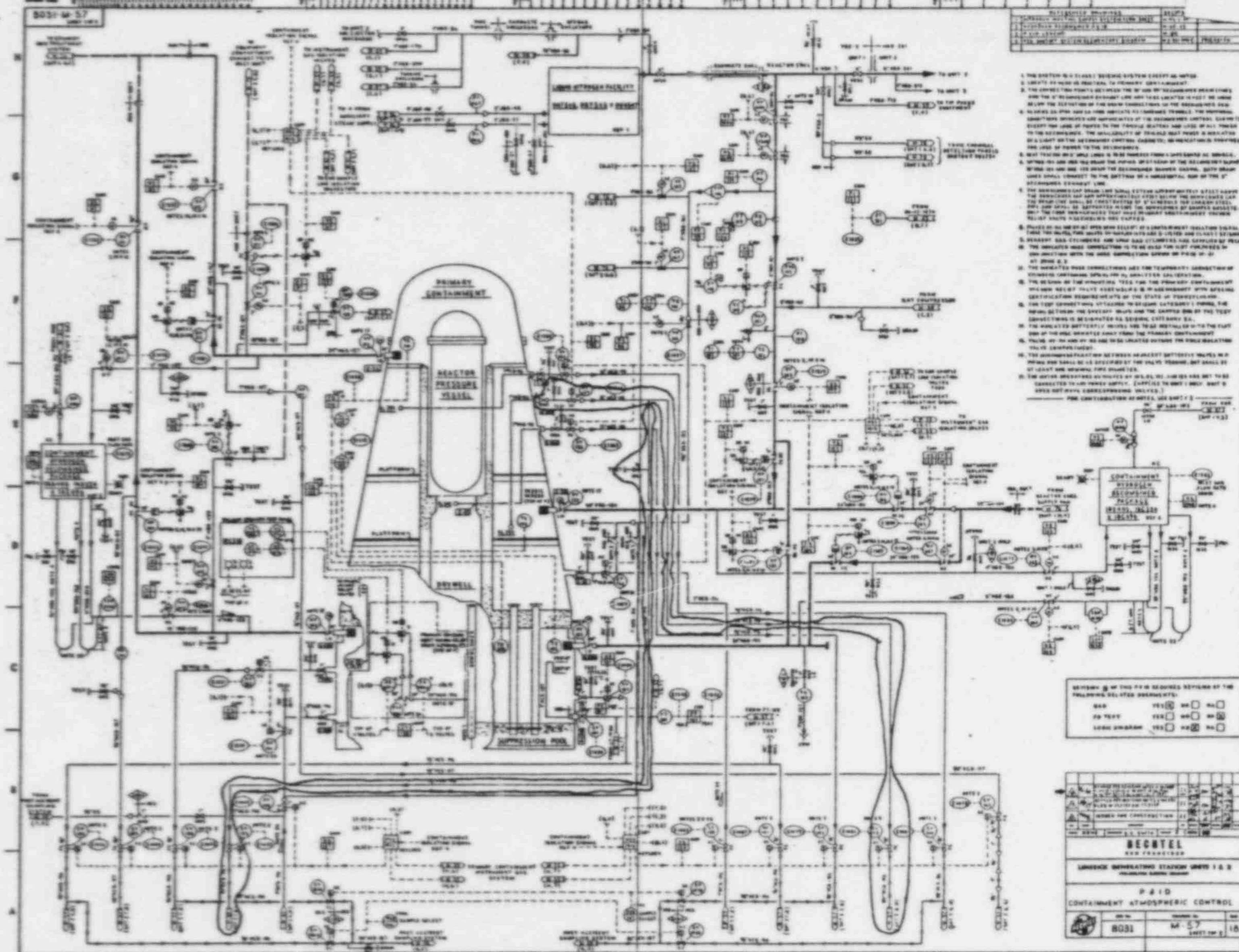
TEST TAP VALVES: 57-~~1061~~ 1062 LAL 12/19/84

TESTED PER PROCEDURE ST-1-057-701-1 | LEAKAGE RATE = 6 scc/min

C.R.C. 12/19/84 Approved by LAB 12/19/84

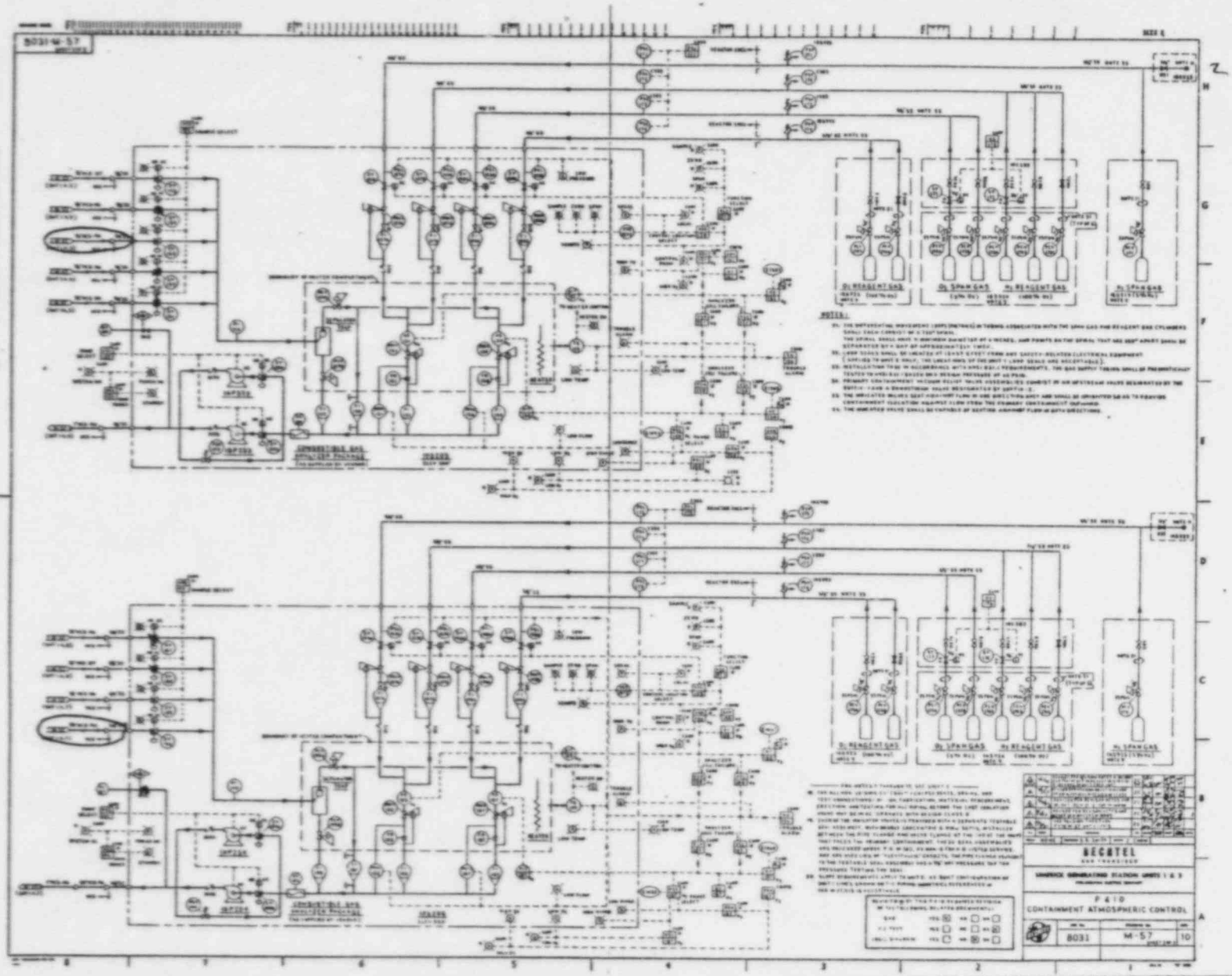
Boundary Z

ATTACHMENT B



Approve pg 12/19/84
Boundary 2

ATTACHMENT B



P.A.S.S & C.A.C SAMPLE LOOPS
CONTAMINATED PIPING INSPECTION

DATA SHEET

Boundary 2

ATTACHMENT A-2

~~AAH~~ 12/A/84

CPC 12/19/84

Inspector: _____

System Mode: _____ Date: _____

Component Number	Component Description	Comp. Mode (on/off) (open/shut)	Leak Rate	Corrective Action Date	Remarks

LEAKAGE RATE TEST DATA SHEET

PENETRATION NO. P.A.S.S & C.A.C

COMPONENTS UNDER TEST Atmospheric Sample Loops Boundary 3

LAY 12/19/84 CPC 12/19/84

TEST BOUNDARIES See Attachment B (P&ID's)

TESTED BY WAYNE LEWIS DATE 12/20/84

TIME	PRESSURE (psig)	FLOW SLM (~~scc/min~~)
	46.0	11.76
	46.0	11.82
	46.0	11.81
	46.0	11.81

AVERAGE FLOW= 11.80 SLM ~~scc/min~~

LLRT Test Box No. 21-1107 Cal. Due Date 1/10/85

VOLUMETRICS LRM VALVE/SWITCH POSITIONS

RANGE SEL (V-2)	TEST VALVE(V-3)	TEST LVL VALVE(V-4)	RANGE SEL SWITCH
HIGH	FLOW	TEST	HIGH

ACCEPTANCE CRITERIA: Later

TEST TAP VALVES: 57-~~1061~~ 1047

TESTED PER PROCEDURE ST-1-057-701-1

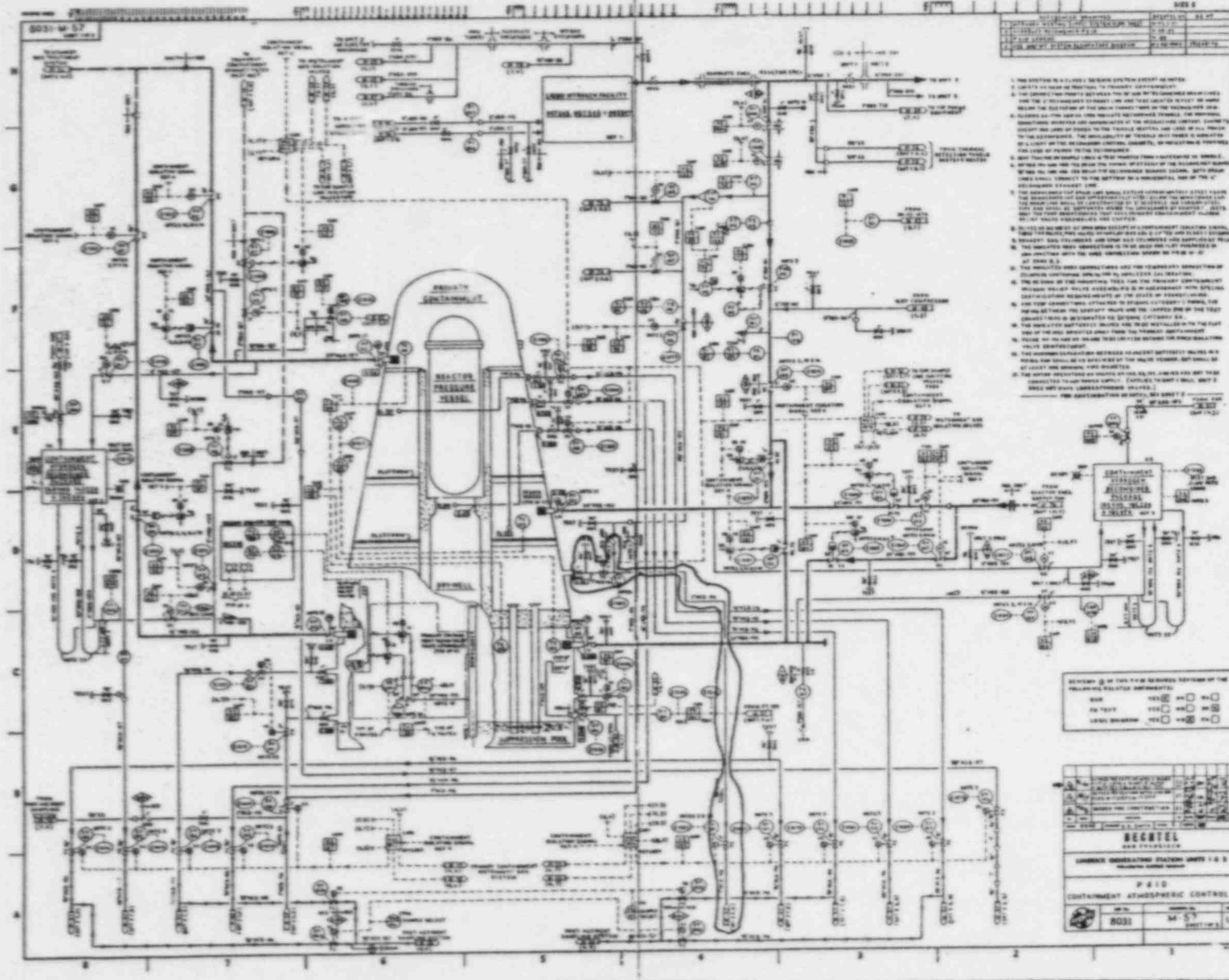
LEAKAGE RATE = 5 scc/min

LAY 12/19/84 CPC 12/19/84

12/19/84 Approved by LAH 12/19/84

BOUNDARY 3

ATTACHMENT B



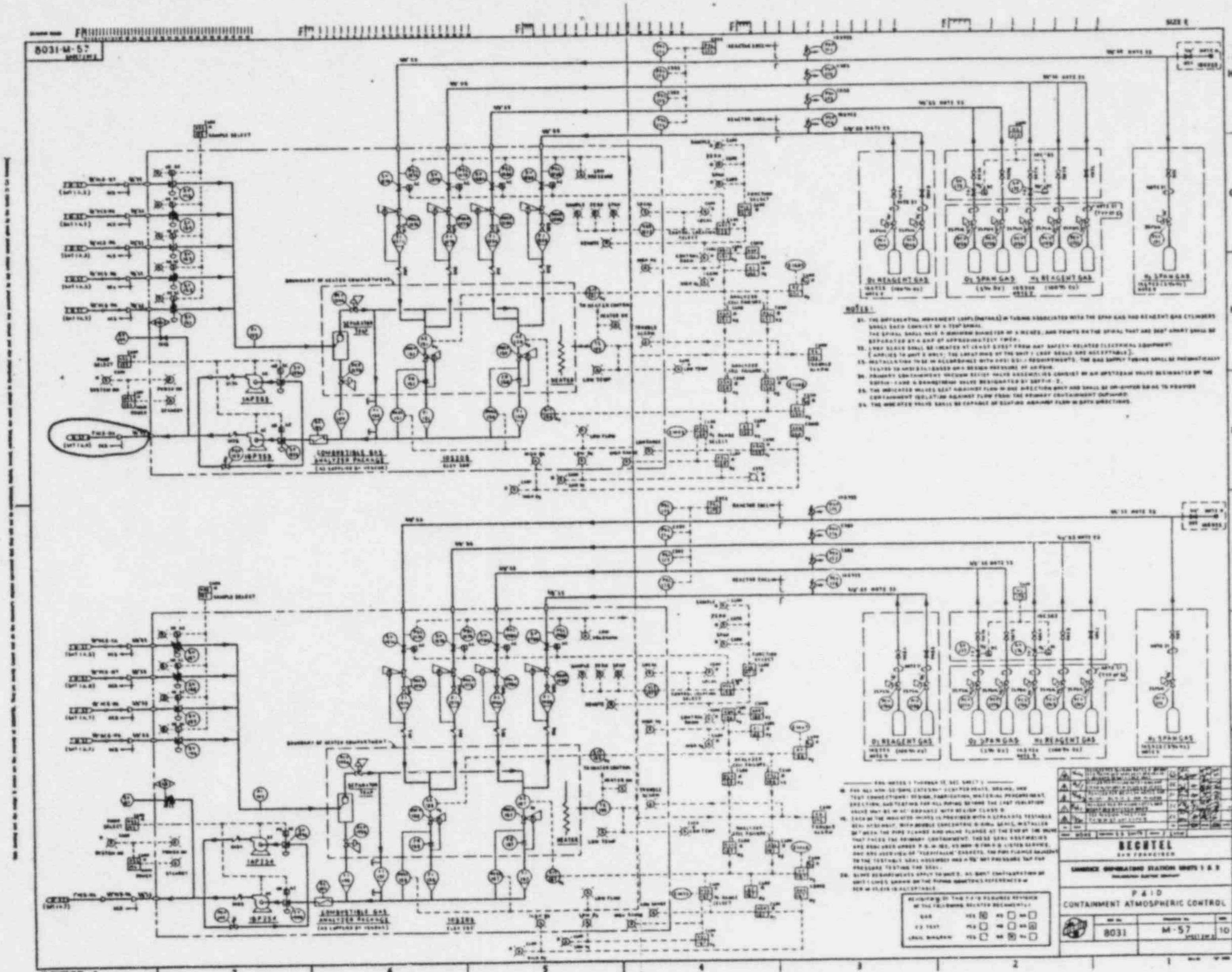
3850016380

ST-1-~~057~~ 030-701-1, Rev. 0
Page ~~26~~ 25 of ~~28~~ 59
WRL/RSE:hfz

Approve pg LAG 12/19/84
CPG 12/19/84

Boundary 3

ATTACHMENT B



P.A.S.S & C.A.C SAMPLE LOOPS
CONTAMINATED PIPING INSPECTION

DATA SHEET

BOUNDARY 3
ATTACHMENT A-3

LOG 12/19/84
C-2
12/19/84

Inspector: WAYNE LEWIS

System Mode: _____ Date: _____

Component Number	Component Description	Comp. Mode (on/off) (open/shut)	Leak Rate	Corrective Action Date	Remarks
	NONE VISIBLE				

NOTE: NEEDED CHECK VALVE 57-1068 LIFTING

LEAKAGE RATE TEST DATA SHEET

PENETRATION NO. P.A.S.S & C.A.C

COMPONENTS UNDER TEST Atmospheric Sample Loops Boundary 4

LAH 12/19/84
CIC 12/19/84

TEST BOUNDARIES See Attachment B (P&ID's)

TESTED BY R. Mandik DATE 12/20/84

TIME	PRESSURE (psig)	FLOW (scc/min)
	46.0	~~0~~ 176.0
	46.0	176.9
	46.0	178.0
	46.0	~~0~~ 182.3

AVERAGE FLOW= 178.3 scc/min

LLRT Test Box No. 21-1107

Cal. Due Date 1/10/85

VOLUMETRICS LRM VALVE/SWITCH POSITIONS

RANGE SEL (V-2)	TEST VALVE(V-3)	TEST LVL VALVE(V-4)	RANGE SEL SWITCH
Low	Flow	Test	Low

ACCEPTANCE CRITERIA: Later

TEST TAP VALVES: 57-~~1061~~ 1070

TESTED PER PROCEDURE ST-1-057-701-1

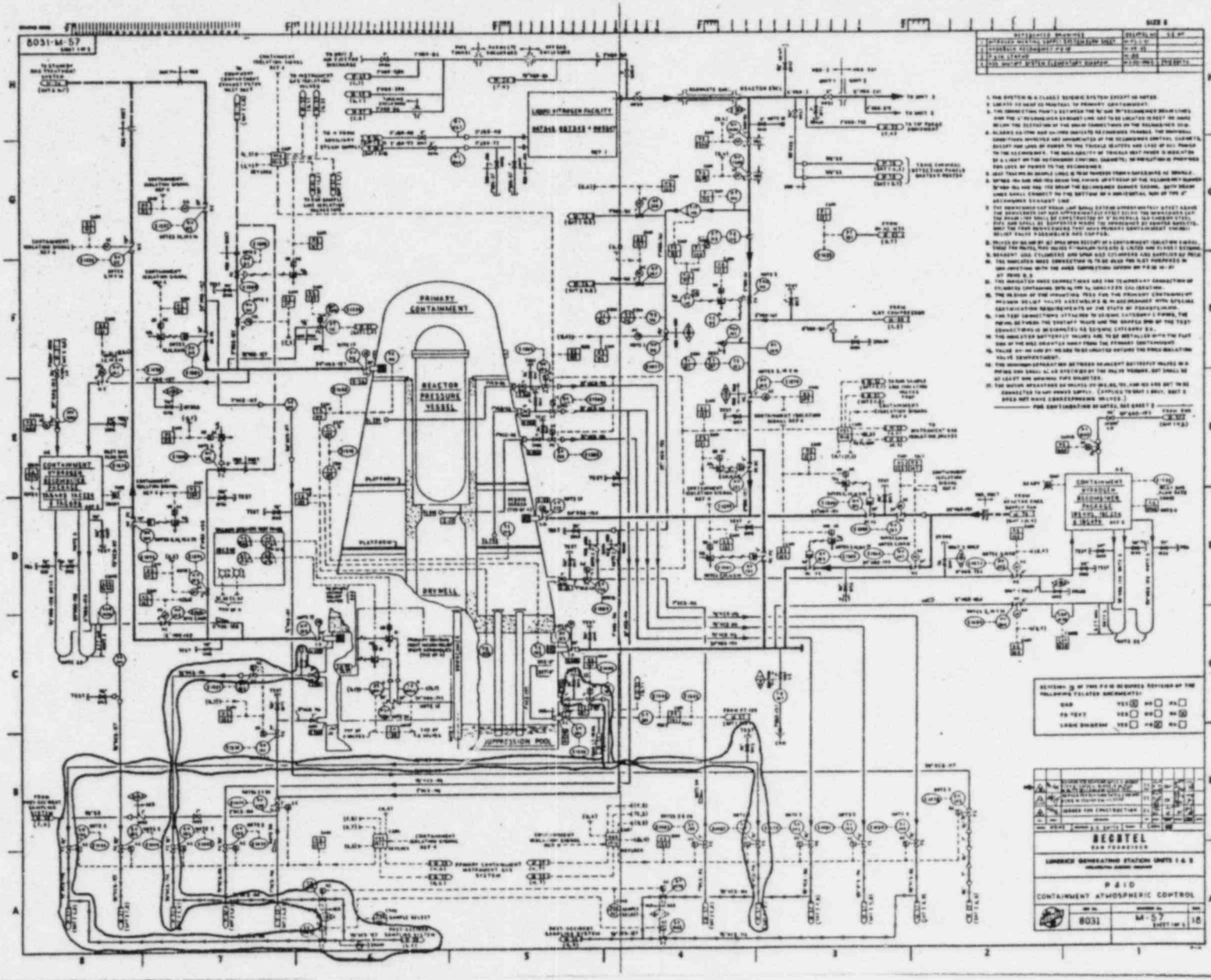
LEAKAGE RATE = 0.2 scc/min

LAH 12/19/84
CIC 12/19/84

Approve pg 12/19/84

Boundary 4

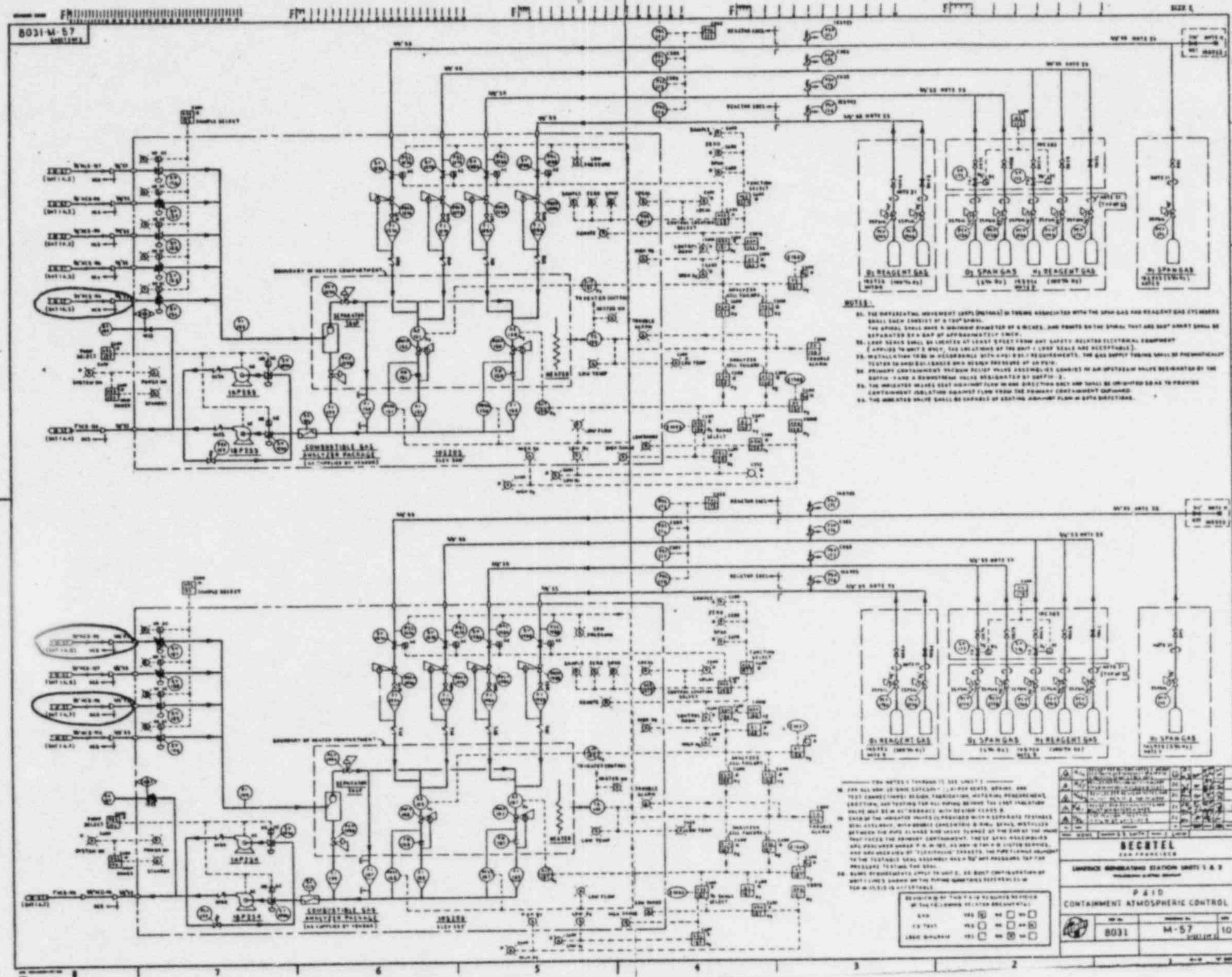
ATTACHMENT B



Approve by LBW 12/19/84

Bunoorv 4

ATTACHMENT B



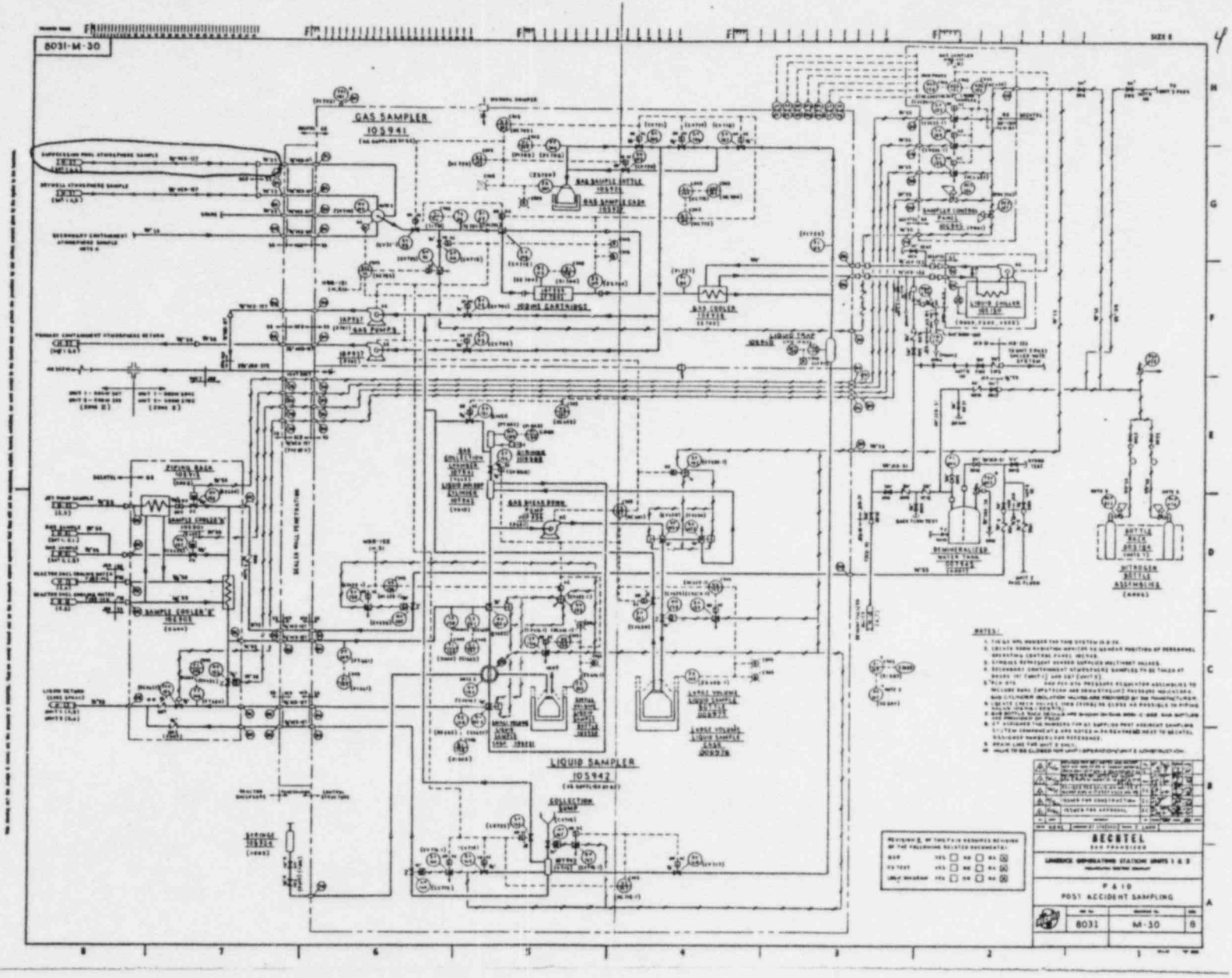
Approve pg LOA 12/19/84

12/19/84

3850016380

Boundary 4

ATTACHMENT B



P.A.S.S & C.A.C SAMPLE LOOPS
CONTAMINATED PIPING INSPECTION

DATA SHEET

Boundary 4
ATTACHMENT A-4

LBH 12/19/84

C-2
12/19/84

Inspector: Gary Hutchison

System Mode: _____ Date: _____

Component Number	Component Description	Comp. Mode (on/off) (open/shut)	Leak Rate	Corrective Action Date	Remarks
	None Visible Leakage				

LEAKAGE RATE TEST DATA SHEET

PENETRATION NO. P.A.S.S & C.A.C

COMPONENTS UNDER TEST Atmospheric Sample Loops Boundary 5

LAB 12/19/84
CPG 12/19/84

TEST BOUNDARIES See Attachment B (P&ID's)

TESTED BY C. Klebe DATE 12/20/84

TIME	PRESSURE (psig)	FLOW (scc/min)
0	46.0	45.8
5	46.0	46.3
10	46.0	46.6
15	46.0	45.9
20	46.0	45.8
25	46.0	46.7

AVERAGE FLOW= 46.2 scc/min

LLRT Test Box No. 21-1107 | Cal. Due Date 1/10/85

VOLUMETRICS LRM VALVE/SWITCH POSITIONS

RANGE SEL (V-2)	TEST VALVE(V-3)	TEST LVL VALVE(V-4)	RANGE SEL SWITCH
Low	Flow	Test	Low

ACCEPTANCE CRITERIA: Later

TEST TAP VALVES: 57-~~2061~~ 1043

TESTED PER PROCEDURE ST-1-057-701-1

LEAKAGE RATE = 2.3 scc/min

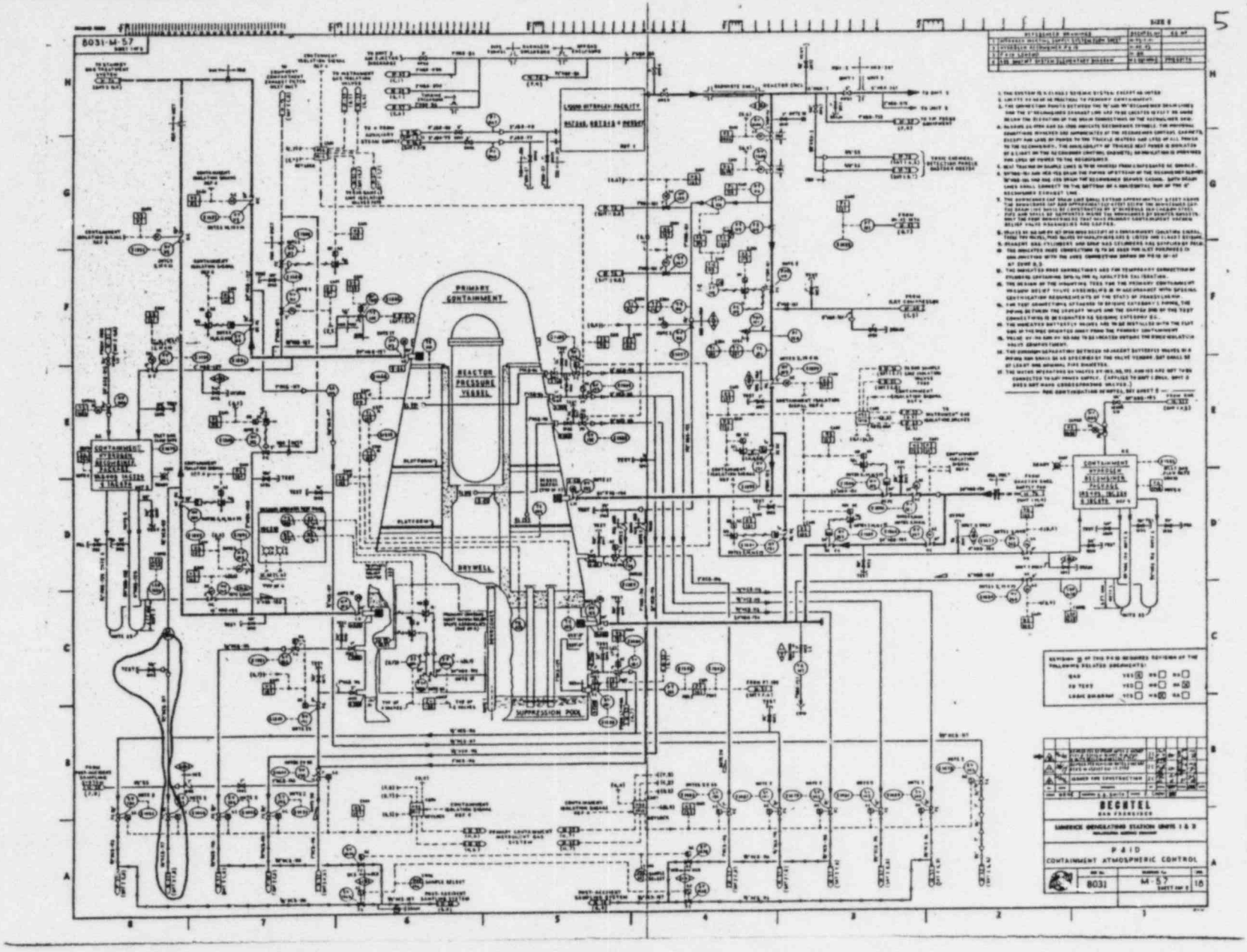
CPG 12/19/84

LAB 12/19/84

12/19/84 Approved by LAB 12/19/84

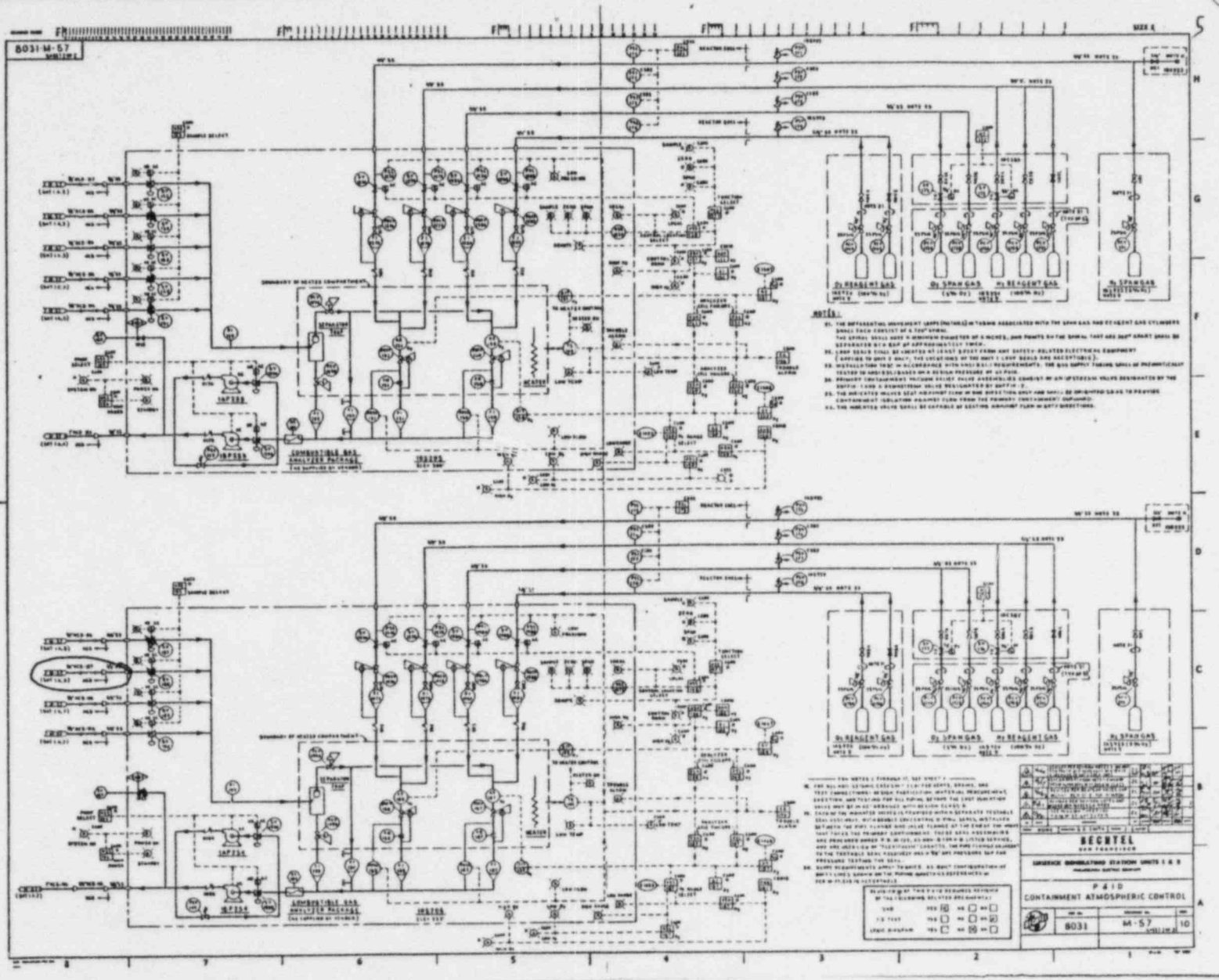
BOUNDARY 5

ATTACHMENT B



Approve pg LAY 12/19/84
Boundary 5

ATTACHMENT B



P.A.S.S & C.A.C SAMPLE LOOPS
CONTAMINATED PIPING INSPECTION

DATA SHEET

Boundary 5
ATTACHMENT A-5 LOA 12/19/84

CPS 12/19/84

Inspector: _____

System Mode: _____ Date: _____

Component Number	Component Description	Comp. Mode (on/off) (open/shut)	Leak Rate	Corrective Action Date	Remarks
	No Visible Leakage				

LEAKAGE RATE TEST DATA SHEET

PENETRATION NO. P.A.S.S & C.A.C

COMPONENTS UNDER TEST Atmospheric Sample Loops Boundary C

TEST BOUNDARIES See Attachment B (P&ID's)

TESTED BY C. Klebe DATE 12/20/84

LAH 12/19/84
CPC 12/19/84

TIME	PRESSURE (psig)	FLOW (scc/min)
0	45.9	95.8
5	45.9	96.3
10	45.9	96.2
15	45.9	95.4
20	45.9	95.7
25	45.9	96.0

AVERAGE FLOW= 95.9 scc/min

LLRT Test Box No. 21-1107. | Cal. Due Date 1/10/85

VOLUMETRICS LRM VALVE/SWITCH POSITIONS

RANGE SEL (V-2)	TEST VALVE(V-3)	TEST LVL VALVE(V-4)	RANGE SEL SWITCH

ACCEPTANCE CRITERIA: Later

TEST TAP VALVES: 57 ~~1061~~ 1044

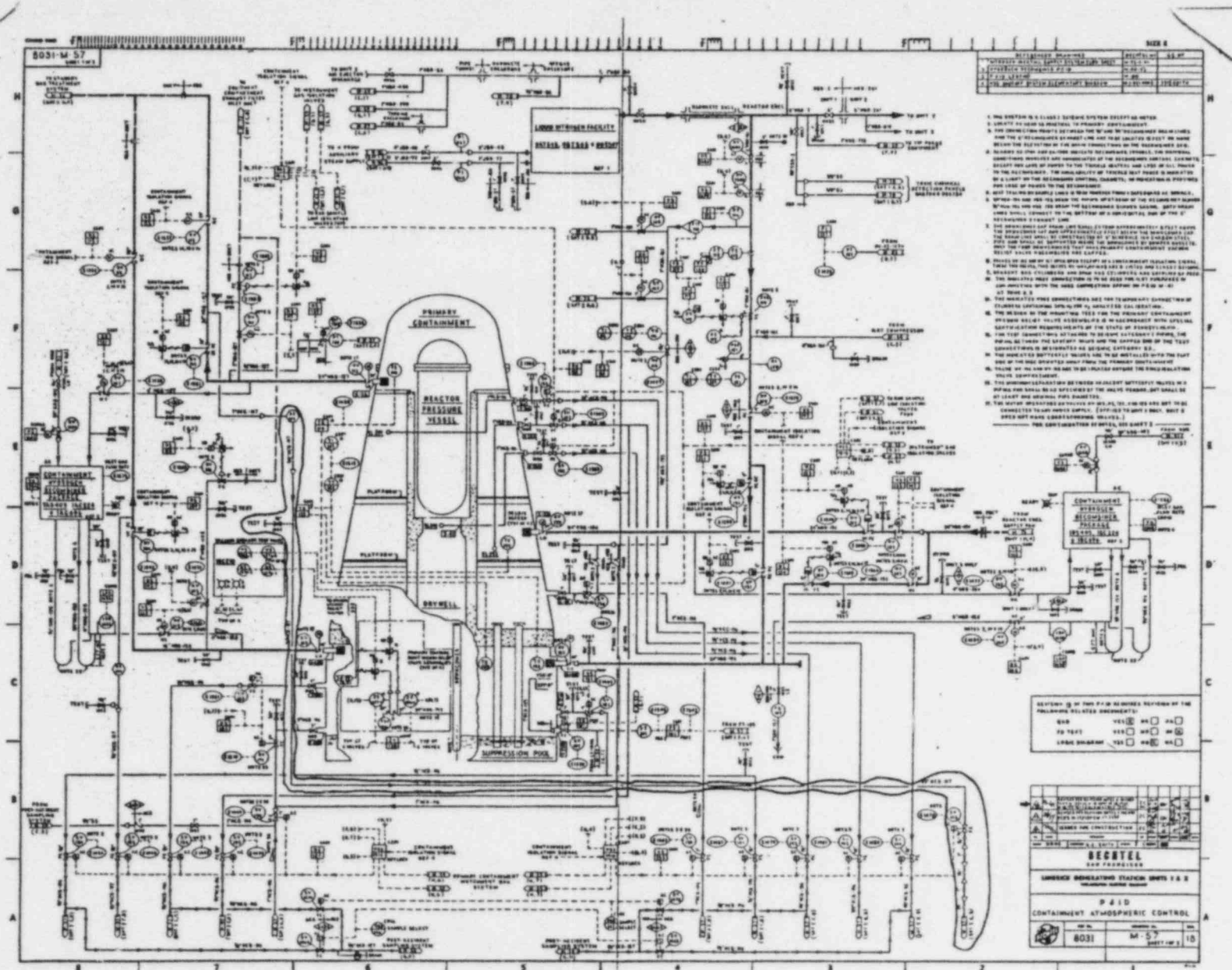
TESTED PER PROCEDURE ST-1-057-701-1

LEAKAGE RATE = 0.5 scc/min

CPC 12/19/84
LAH 12/19/84

Approve pg CAF 12/9/84
12/19/84
Boundary 6

ATTACHMENT B

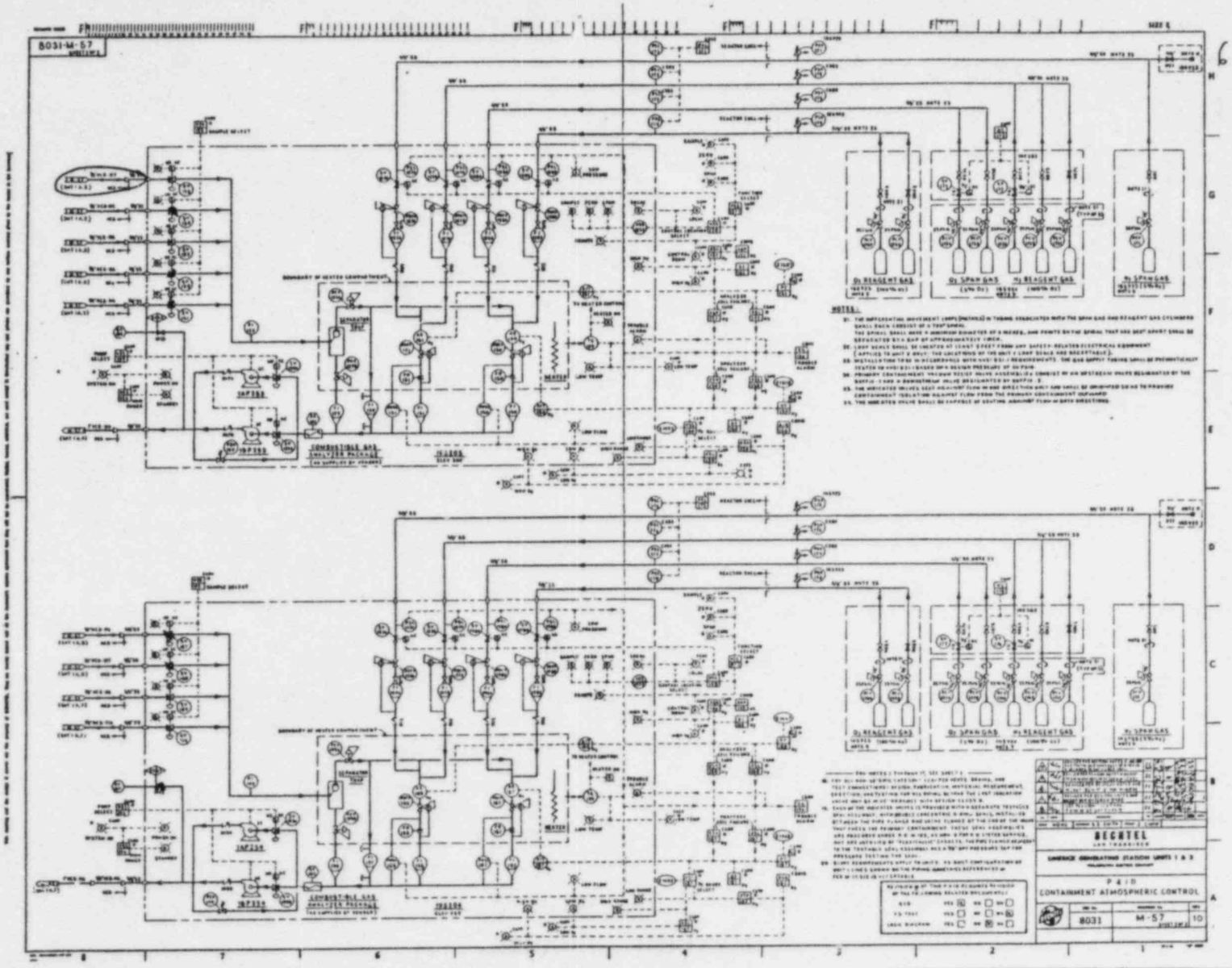


3850016380 030

ST-1-057-701-1, Rev. 0
Page 26 of 28
WRL/RSE:hfz

12/19/04 Approve pg LAH 12/19/04
Boundary 6

ATTACHMENT B



P.A.S.S & C.A.C SAMPLE LOOPS
CONTAMINATED PIPING INSPECTION

DATA SHEET

Boundary C
ATTACHMENT A-C

CAT 12/19/01
CPC 12/19/01

Inspector: G. Hutchison

System Mode: _____ Date: _____

Component Number	Component Description	Comp. Mode (on/off) (open/shut)	Leak Rate	Corrective Action Date	Remarks
	None Visible Leakage				

Delete by LHB 12/19/84
CCR 12/19/84

P.A.S.S & C.A.C SAMPLE LOOPS
CONTAMINATED PIPING INSPECTION

DATA SHEET

ATTACHMENT A

Inspector: _____

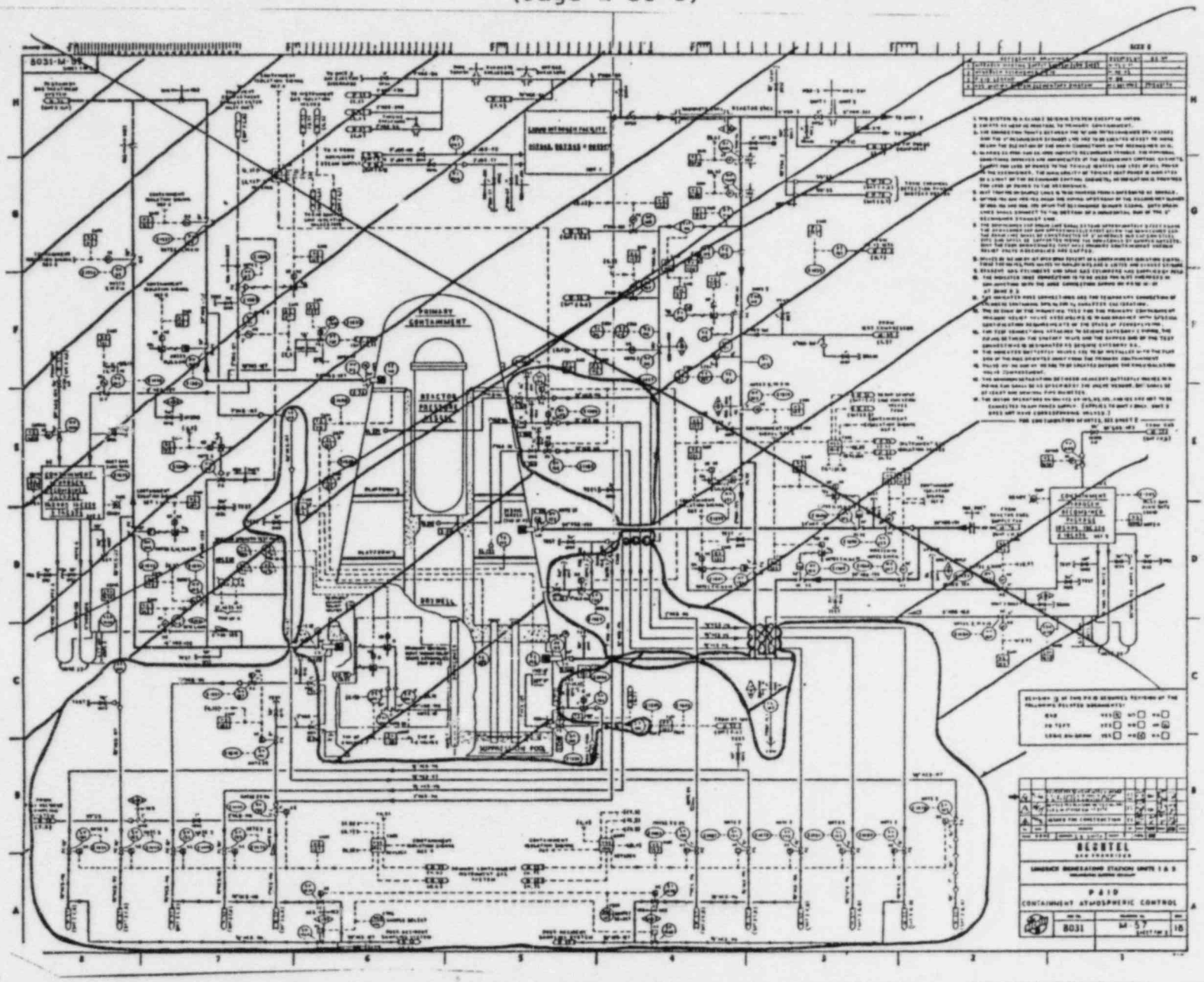
System Mode: _____ Date: _____

Component Number	Component Description	Comp. Mode (on/off) (open/shut)	Leak Rate	Corrective Action Date	Remarks

Delete pg LDN 12/19/84
C&G
12/19/84

ATTACHMENT B

(Page 1 of 3)



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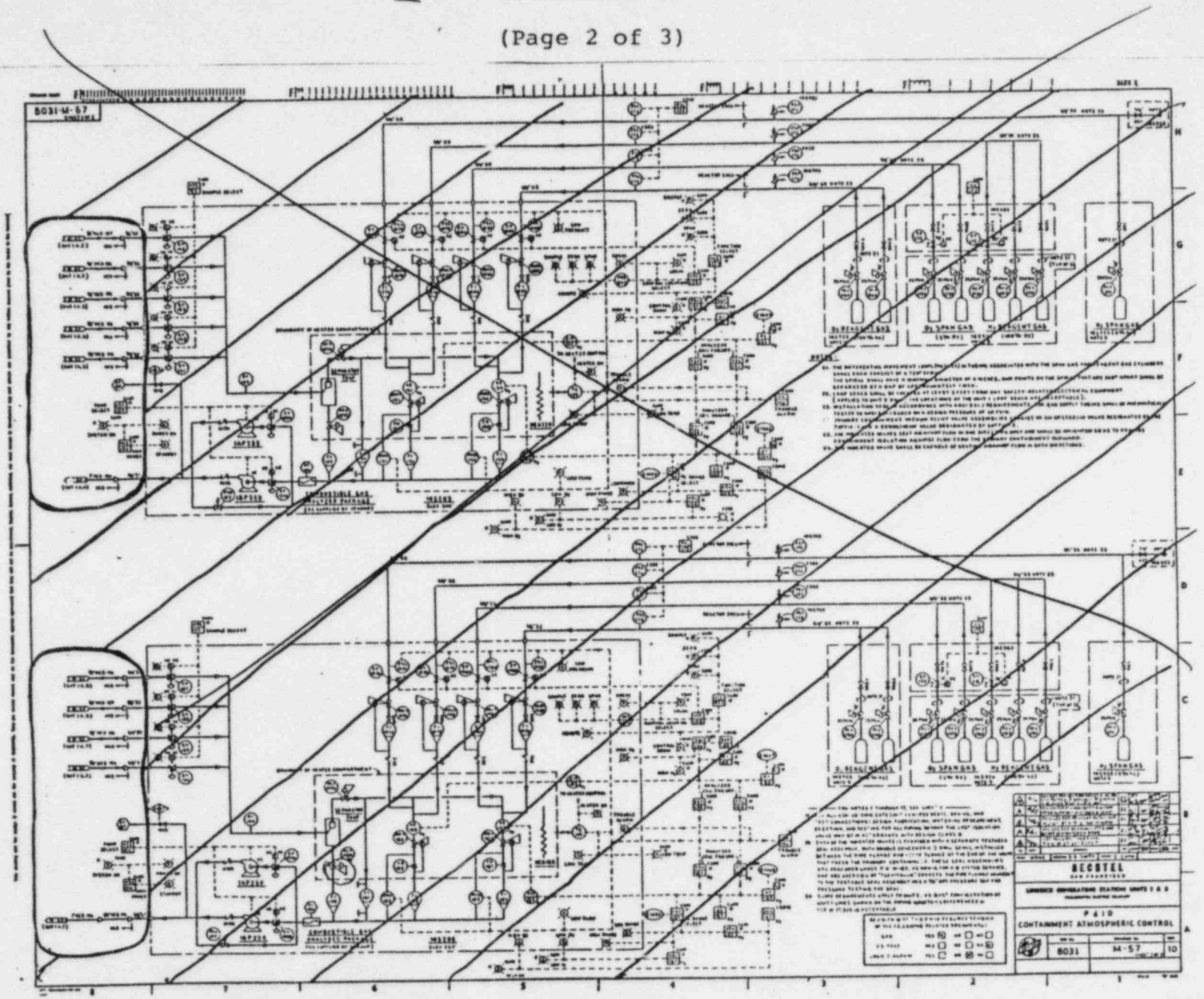
-2/19/95

ATTACHMENT B

(Page 2 of 3)



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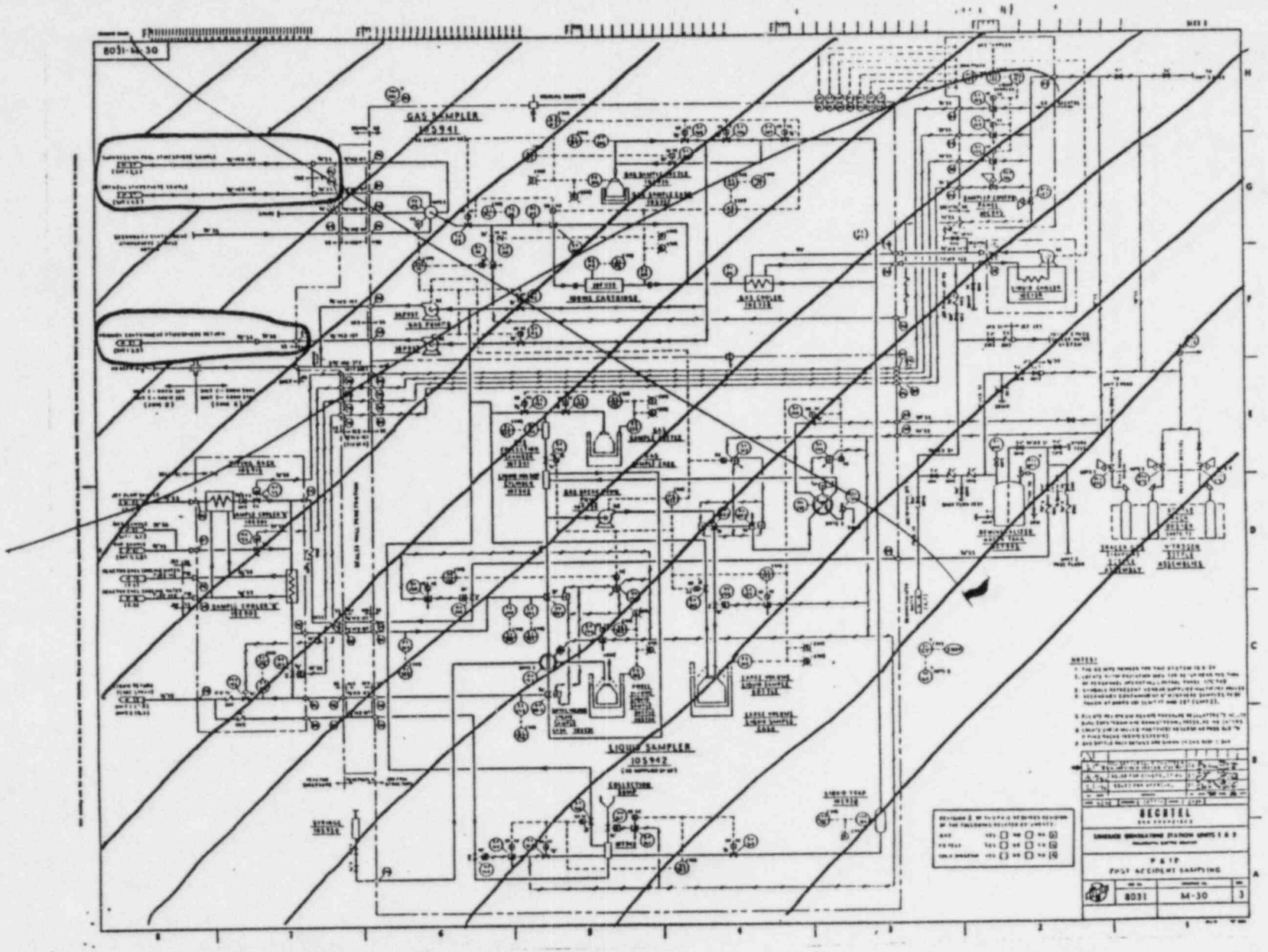
ATTACHMENT B

(Page 3 of 3)



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P.A.S.S & C.A.C SAMPLE LOOPS CONTAMINATED

PIPING INSPECTION

DATA SHEET (1 of 1)

"IVOR"

(INDEPENDENT VERIFICATION OF RESTORATION)

The following identified steps in the procedure require an independent verification of completion.

Step No.	Action	INITIALS
9.4.1.21	Thermal Overload REATTACHED	
~~9.4.1.26~~	~~Lead RECONNECTED~~	
~~9.4.1.27~~	~~Lead RECONNECTED~~	
~~9.4.1.28~~	~~Temporary Jumpers REMOVED~~	
~~9.4.1.29~~	~~Temporary Jumpers REMOVED~~	

LAJ 12/19/84
CJG 12/19/84

3850016380

ADDITIONAL ACTION/TEST COMMENTS

Additional Action:

Additional Action required if other portions of test did not function properly or other discrepancies were noted during test.

1. MRF Submitted___ (MRF - Number)_____ ____
2. Other Action___(Signature - Time/Date)_____ ____

TEST COMMENTS

NOTE 1 - Verified 0 psig at PI-57-129; therefore leak is not in CAC Sampling Panel. TOTAL leakage was ~~1850~~ 2050 cc/min ~~PI-30 for indicated 13psig; therefore showing a leak in the PASS panel.~~ when SV-57-147B & SV-57-146B were closed system leakage indicated 31 cc/min. — BOUNDARY 1

Note 2 - Valves SV-57-150, SV-57-132, SV-57-134, SV-57-181, SV-57-133 were left closed and valve SV-57-199A was left open as requested for I+C testing. HSS-57-18 was left in analyze as requested for I+C testing.

If ANY entry is made on this page, sign bottom of cover sheet.

ATTACHMENT 4A

3850016380

JAM/RSE:jmm
10/15/84

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

ST-1-049-701-1 RCIC PUMP CONTAMINATED PIPING INSPECTION

Test Freq.: 18 Months -OR- Initiating Events: 1. Reason 920 #on 5/a
Tech. Spec.:6.8.4.a
FSAR 6.2.8.1
FSAR 6.2.8.3
2. MRF No. _____

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By: (Sign/Date) Kevin J. Valsh 1/11/85

Performed By: (Sign/Date) _____ _____

Informed Test Complete:(ACO or CO) (Sign/Date) Langley 1-11-85
(Time) 12:10

Reviewed By:(SSVN or STA) (Sign/Date) John Grace 1/11/85

B. One or More Asterisked(*) Steps Test Results UNSATISFACTORY.

Performed By: (Sign/Date) _____ _____

Informed of Test Results: (CO or ACO)(Sign/Date) _____ _____
(Time) _____

Shift Supervision: (Sign/Date) _____ _____

Corrective Action: MRF No.: _____

Initiated By: (Sign/Date) _____ _____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified: (Name) _____

Date/Time Notified: (Date/Time) _____ _____

Notified By: (Sign) _____

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) Kevin J. Valsh 1/11/85

1.0 PURPOSE

To Inspect and measure any leakage of the RCIC Pump and RCIC System components that are directly associated with system piping that could carry contaminated fluids during a serious accident or transient. This inspection shall be implemented while the system is operating in the test mode.

2.0 REFERENCES

2.1 8031-M-49, Reactor Core Isolation Cooling

2.2 8031-M-50, RCIC Pump Turbine

2.3 NUREG-0737

3.0 TEST EQUIPMENT

3.1 Graduated Cylinders(s)

3.2 One-Liter Bottle(s)

3.3 Assorted funnels

3.4 Stopwatch

3.5 Inspection mirror w/handle

4.0 PRECAUTIONS & LIMITATIONS

4.1 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section.

4.2 Leakage rates of greater than 5 drops per min. (.25 cc/Min) shall be quantified. Use "$\leq$ 5 drops/min" on Attachment A for Components with leakage rates of 5 drops per min or less.

4.3 Steps marked (*) are specific Tech. Spec. requirements which will fail the test if not completed satisfactorily.

4.4 If any component exhibits excessive leakage notify SSVN immediately.

5.0 PREREQUISITES

5.1 Request RWP and HP Assistance when required.

5.2 Inspector is familiar with the RCIC system location and layout.

5.3 The RCIC pump must be running, for Surveillance Test ST-6-049-230-1 or per S49.1.D, to inspect it's associated piping and components.

5.4 Obtain copy of previous inspection's Attachment A.

5.5 Coordinate with Operator running the system to allow pump run durations to be extended for the inspection.

6.0 PROCEDURE

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS ARE CORRECTLY AND COMPLETELY FILLED IN.

6.1 Preparation — Initials

6.1.2 Verify all prerequisites are satisfied. JJV

6.1.3 Record appropriate information for each piece of measurement and test equipment used with a PECo number.

INSTRUMENT	MFR./MODEL	SER. NO.	CAL. DUE DATE
STOPWATCH	VICTOR	53-0194	9-13-85

Initials

6.2 Shift Permission to Test

6.2.1 Obtain Shift Supervision's permission to start test. EOC

6.2.2 Obtain Control Room Operator's permission to start test. RW
ACO

1-11-95 / 10:17
Date Time

6.3 RCIC Pump Contaminated Piping Inspection

ACTUAL LEAKAGE RATE MEASUREMENT METHODS WILL BE LEFT TO THE DISCRETION OF THE INSPECTOR. THE ONLY GUIDLINES BEING THAT ALL DATA WILL BE A MEASURED QUANTITY OF FLUID OVER TIME USING A STOPWATCH. DROPS PER MINUTE CAN BE USED AS A MEASUREMENT METHOD WHERE 20 DROPS = 1cc. ALL RECORDED DATA SHALL BE IN CUBIC CENTIMETERS PER MIN. (cc/min).

6.3.1 For all in line components within the boundaries of Attachment B, which exhibit leakage, record on the Data sheet Attachment A the Leakage Rate and a description of the location of the leak. Pay particular attention to system components identified as having exhibited measurable leakage in the previous inspection.

6.3.2 From the leakage rate data on Attachment A, calculate the total system leakage rate and document the results below.

System Leakage Rate

1 cc/min

.000264 gal/min
(1 cc/min = 0.000264 gal/min)

6.4 Test Results Evaluation

6.4.1 Verify the total leakage rate from 6.3.2 is less than the leakage limit in 8.1. If the limit is exceeded prepare a MRF to reduce the system leakage rate so that it is within the limit. * SEE NOTE

6.4.2 If any component's leakage rate has increased significantly since the last inspection prepare a MRF to repair the component.

6.4.3 If any component's leakage is a major portion of the overall system leakage limit prepare a MRF for its repair.

7.0 RETURN TO NORMAL

7.1 Inform SSVN and ACO test is complete.

8.0 ACCEPTANCE CRITERIA

8.1 The RCIC Pump and its associated components shall not exhibit a leakage rate of greater than (later).

AT TEST COMPLETION, ENSURE COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN

DATA SHEET

IF ANY ENTRY IS MADE IN THIS SECTION, SIGN COVER SHEET IN APPROPRIATE SPACE.

ADDITIONAL ACTION/TEST COMMENTS

TOTAL SYSTEM LEAKAGE OF 1 cc/min. THIS IS JUDGED TO BE ACCEPTABLE - JJR

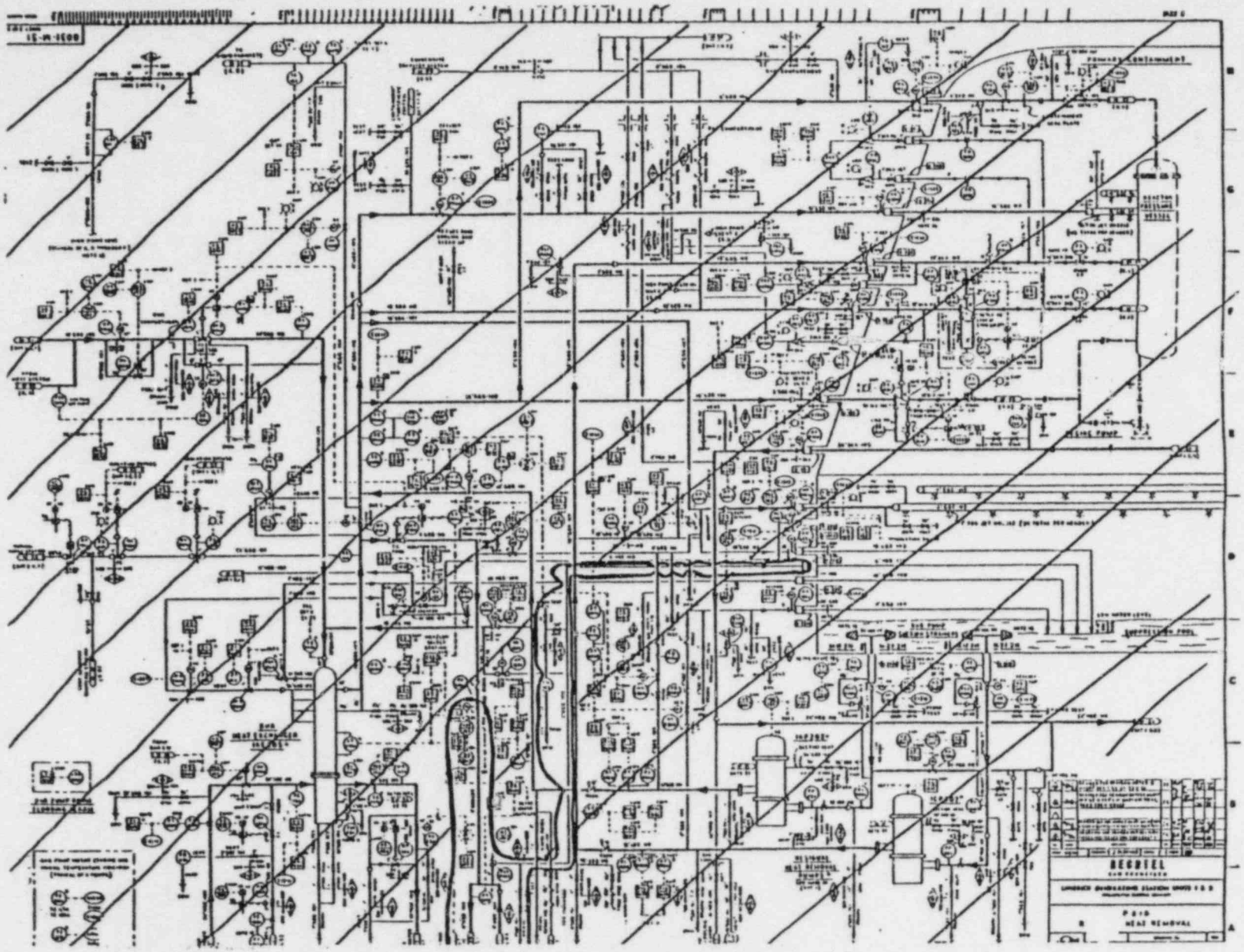
Attachment A

Inspector: KEVIN WALSH

System Mode HIGH PRESSURE TEST CST TO CST Date: 1/11/85

Component No.	Component Description	Comp. Mode (on/Off (open/shut)	Leak Rate	Corrective Action Date	Remarks
~~HV49-1F022~~ HV49-1032	SAFEGUARD PIPING FILL SUPPLY VALVE	OPEN	3 DROPS PER MIN		
HV49-1F022	TEST RETURN TO CST VALVE	THROTTLED	12 DROPS PER MIN		
HV49-1F012	RCIC PUMP DISCHARGE VALVE	OPEN	5 DROPS PER MIN		
TOTAL			20 DROPS/MIN		

ATTACHMENT B



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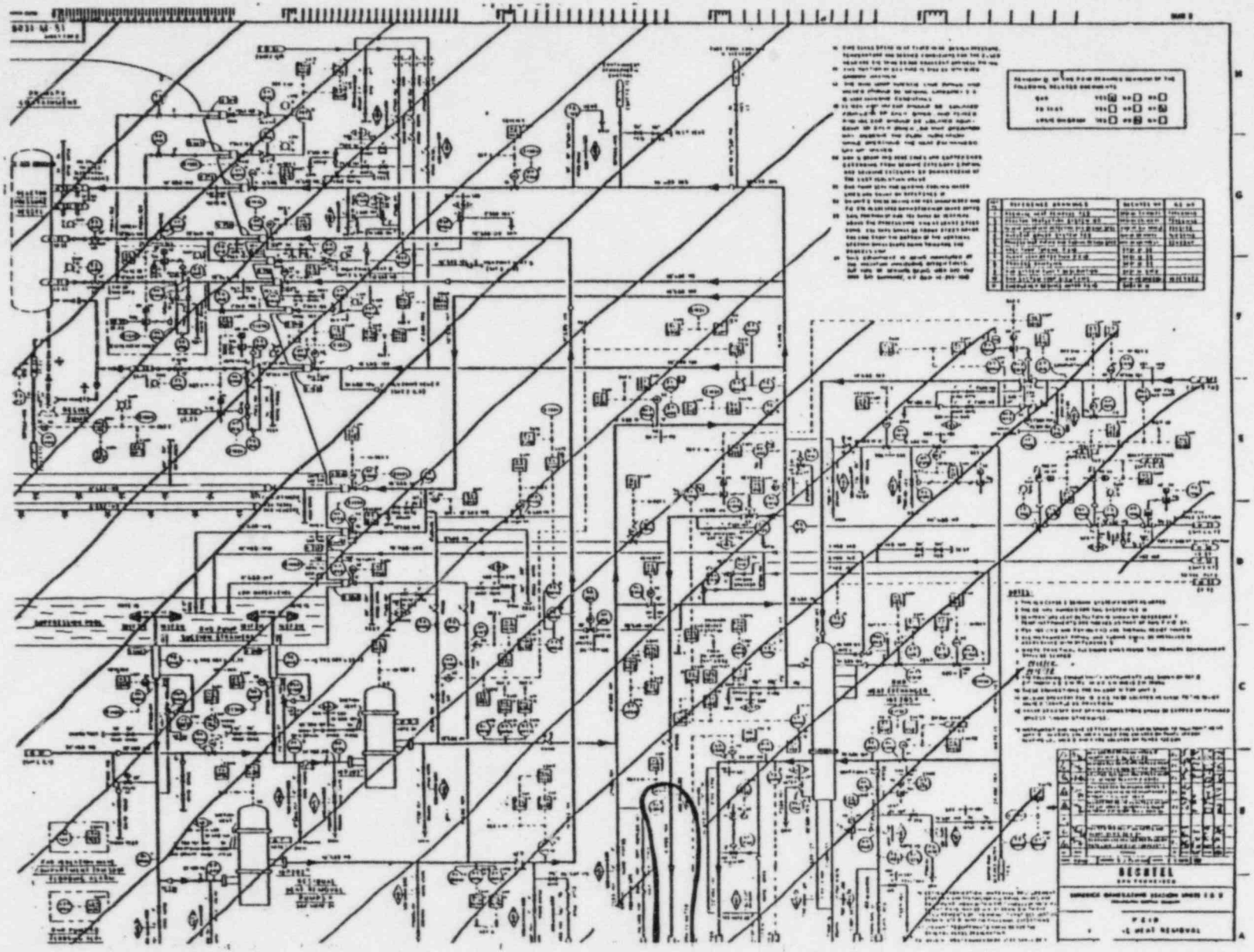
ATTACHMENT B



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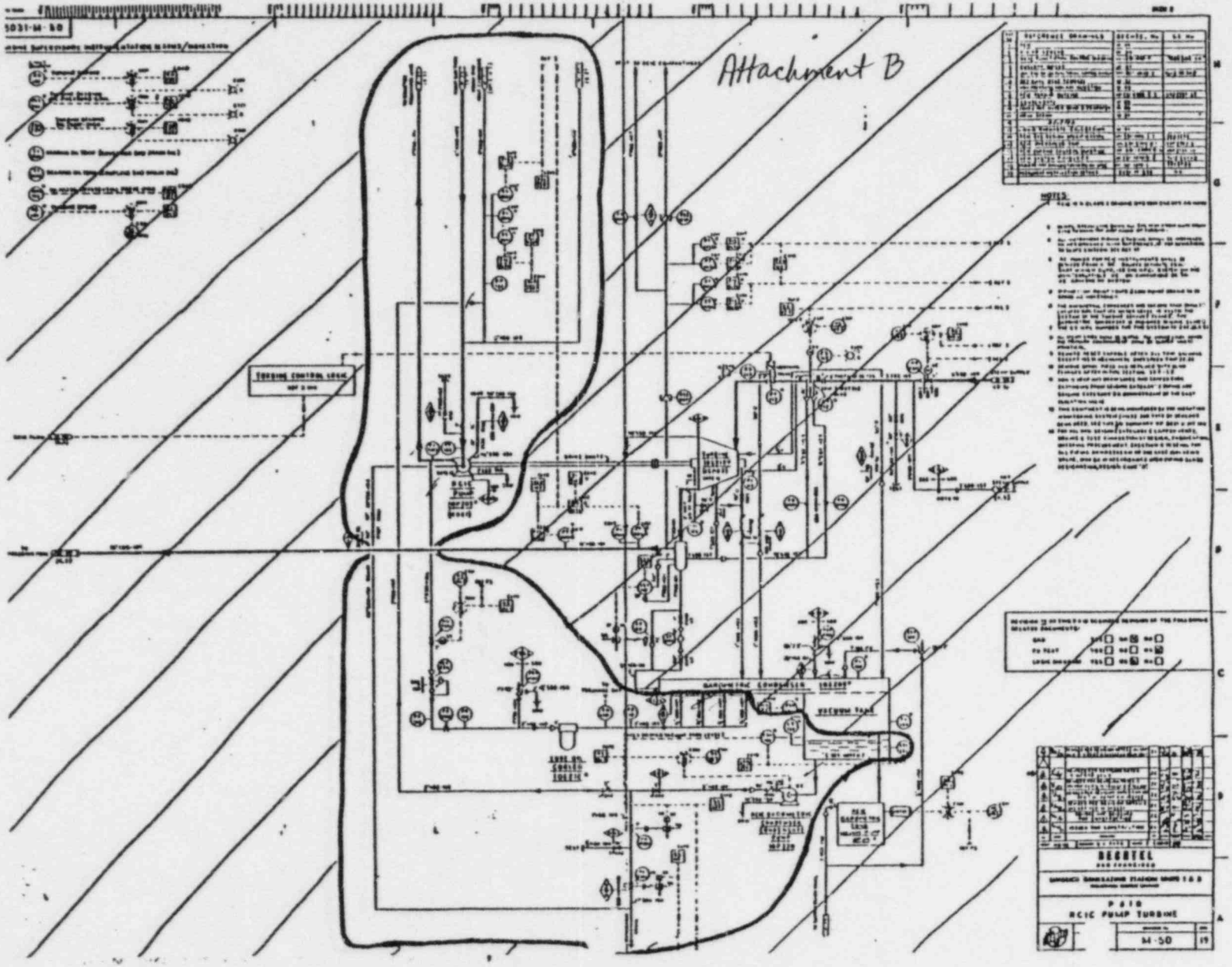

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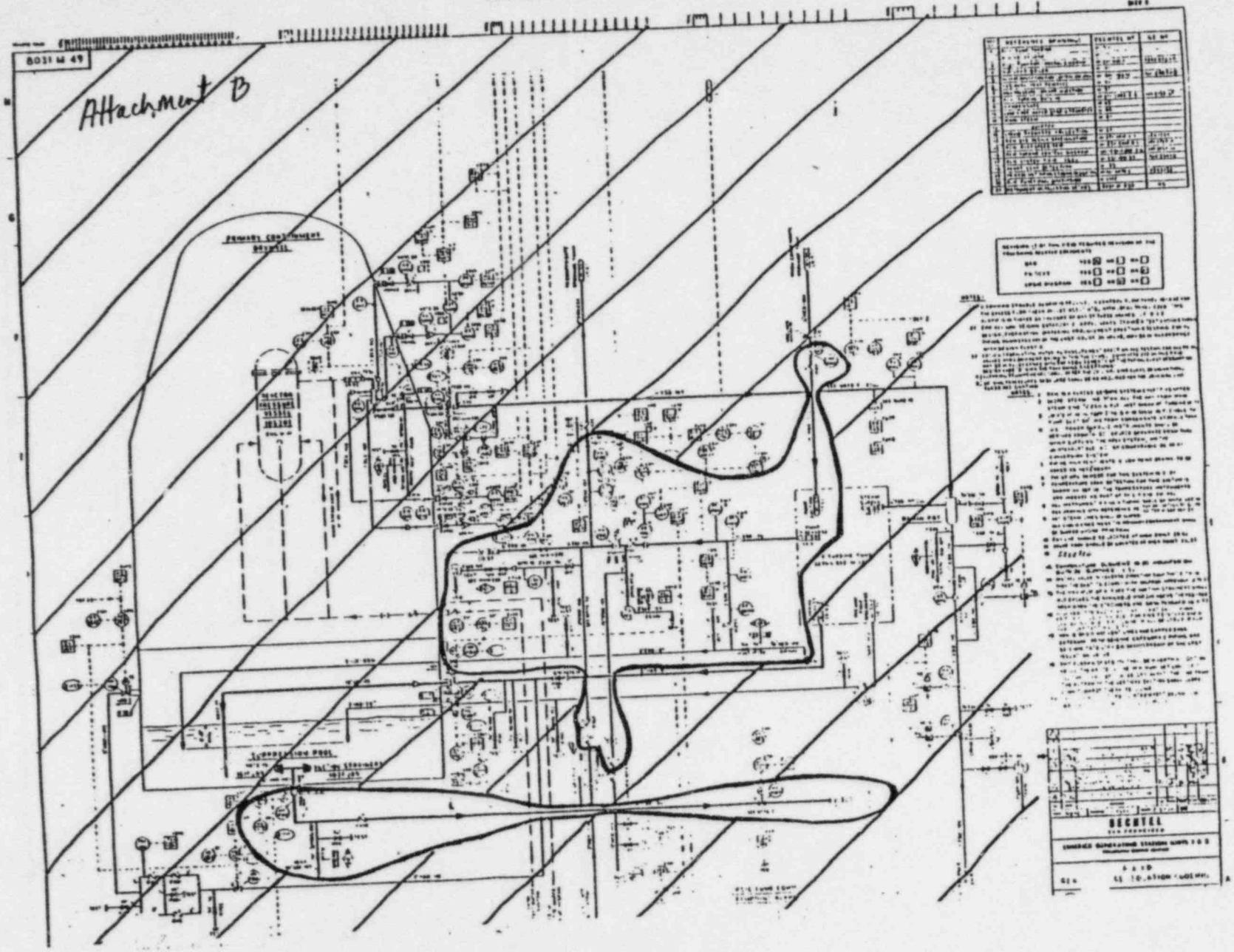

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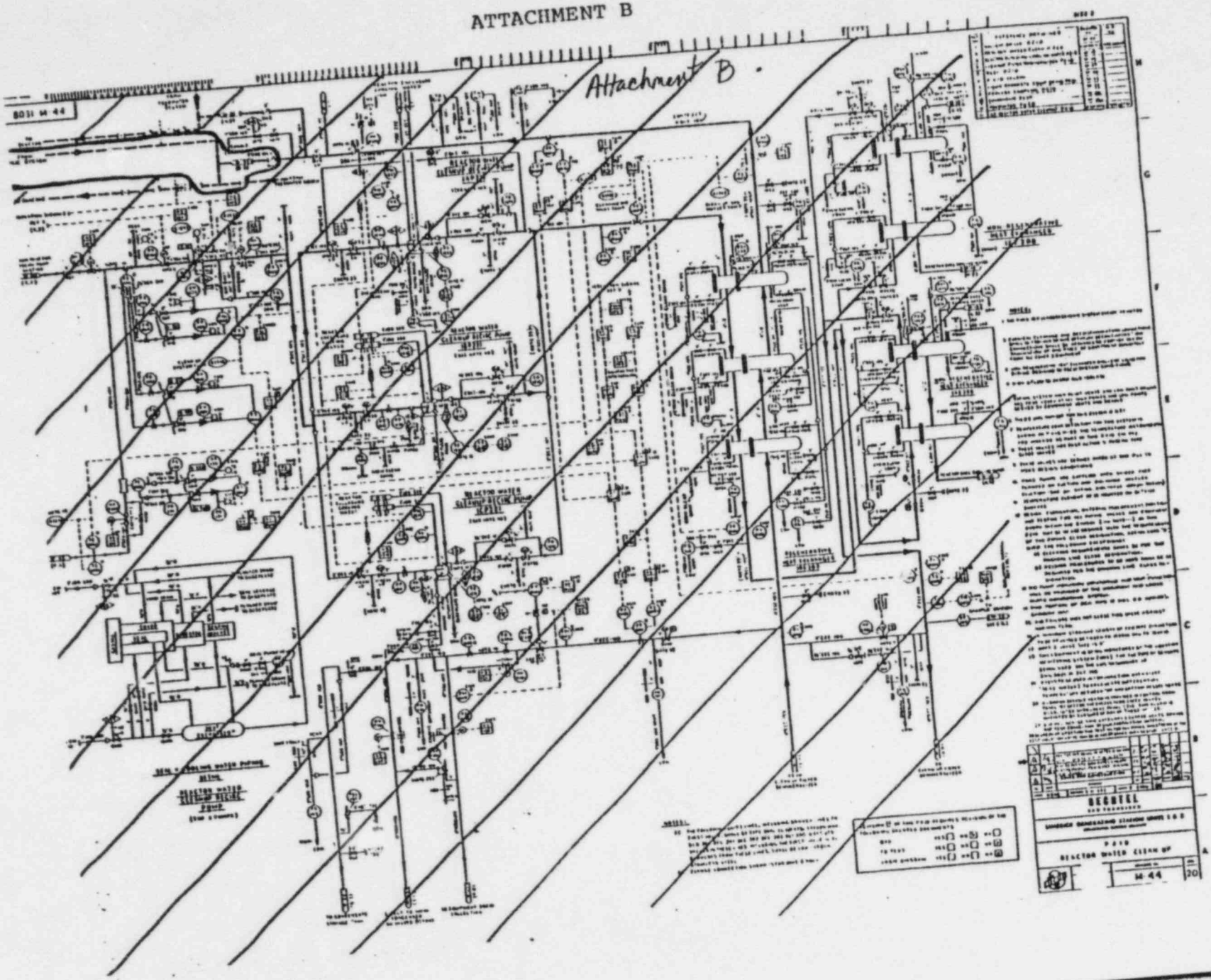

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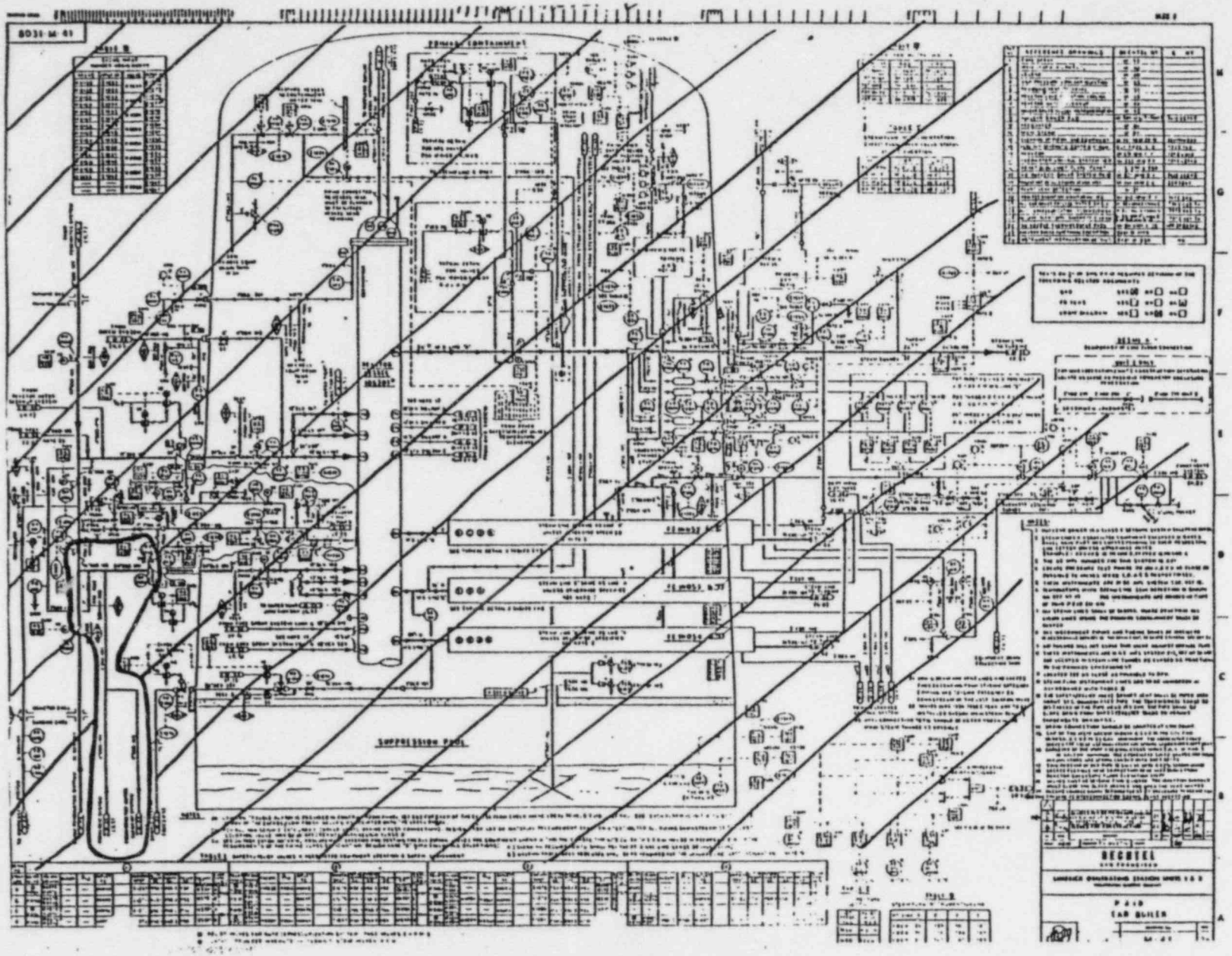
ATTACHMENT B



ATTACHMENT 4B

3850016380

(P) 101

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

ST-1-049-701-1 RCIC PUMP CONTAMINATED PIPING INSPECTION

Test Freq.: 18 Months -OR- Initiating Events: 1. Reason Initial 10 CFR 50 Performance
Tech. Spec.:6.8.4.a
FSAR 6.2.8.1
FSAR 6.2.8.3
2. MRF No. _____

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By: (Sign/Date) [signature] 1/3/85

Performed By: (Sign/Date) _____ _____

Informed Test Complete:(ACO or CO) (Sign/Date) [signature] 1/3/85
(Time) 2145

Reviewed By:(SSVN or STA) (Sign/Date) [signature] 1-3-85

B. One or More Asterisked(*) Steps Test Results UNSATISFACTORY.

Performed By: (Sign/Date) _____ _____

Informed of Test Results: (CO or ACO)(Sign/Date) _____ _____
(Time) _____

Shift Supervision: (Sign/Date) _____ _____

Corrective Action: MRF No.: _____

Initiated By: (Sign/Date) _____ _____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified: (Name) _____

Date/Time Notified: (Date/Time) _____ _____

Notified By: (Sign) _____

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) [signature] 1/3/85

1.0 PURPOSE

To Inspect and measure any leakage of the RCIC Pump and RCIC System components that are directly associated with system piping that could carry contaminated fluids during a serious accident or transient. This inspection shall be implemented while the system is operating in the test mode.

2.0 REFERENCES

2.1 8031-M-49, Reactor Core Isolation Cooling

2.2 8031-M-50, RCIC Pump Turbine

2.3 NUREG-0737

3.0 TEST EQUIPMENT

3.1 Graduated Cylinders(s)

3.2 One-Liter Bottle(s)

3.3 Assorted funnels

3.4 Stopwatch

3.5 Inspection mirror w/handle

4.0 PRECAUTIONS & LIMITATIONS

4.1 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section.

4.2 Leakage rates of greater than 5 drops per min. (.25 cc/Min) shall be quantified. Use "$\leq$ 5 drops/min" on Attachment A for Components with leakage rates of 5 drops per min or less.

4.3 Steps marked (*) are specific Tech. Spec. requirements which will fail the test if not completed satisfactorily.

4.4 If any component exhibits excessive leakage notify SSVN immediately.

5.0 PREREQUISITES

5.1 Request RWP and HP Assistance when required.

5.2 Inspector is familiar with the RCIC system location and layout.

5.3 The RCIC pump must be running, for Surveillance Test ST-6-049-230-1 or per S49.1.D, to inspect it's associated piping and components.

5.4 Obtain copy of previous inspection's Attachment A.

5.5 Coordinate with Operator running the system to allow pump run durations to be extended for the inspection.

6.0 PROCEDURE

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS ARE CORRECTLY AND COMPLETELY FILLED IN.

6.1 Preparation

Initials

6.1.2 Verify all prerequisites are satisfied. JJ SEE NOTE

6.1.3 Record appropriate information for each piece of measurement and test equipment used with a PECo number.

INSTRUMENT	MFR./MODEL	SER. NO.	CAL. DUE DATE
STOPWATCH	WILEY	53-0326	8-16-85

Initials

6.2 Shift Permission to Test

6.2.1 Obtain Shift Supervision's permission to start test. [signature]

6.2.2 Obtain Control Room Operator's permission to start test. [signature]

ACO

1-3-85 / 18:50
Date Time

6.3 RCIC Pump Contaminated Piping Inspection

ACTUAL LEAKAGE RATE MEASUREMENT METHODS WILL BE LEFT TO THE DISCRETION OF THE INSPECTOR. THE ONLY GUIDLINES BEING THAT ALL DATA WILL BE A MEASURED QUANTITY OF FLUID OVER TIME USING A STOPWATCH. DROPS PER MINUTE CAN BE USED AS A MEASUREMENT METHOD WHERE 20 DROPS = 1cc. ALL RECORDED DATA SHALL BE IN CUBIC CENTIMETERS PER MIN. (cc/min).

6.3.1 For all in line components within the boundaries of Attachment B, which exhibit leakage, record on the Data sheet Attachment A the Leakage Rate and a description of the location of the leak. Pay particular attention to system components identified as having exhibited measurable leakage in the previous inspection.

6.3.2 From the leakage rate data on Attachment A, calculate the total system leakage rate and document the results below.

System Leakage Rate

.75 cc/min

N/A gal/min
(1 cc/min = 0.000264 gal/min)

6.4 Test Results Evaluation

6.4.1 Verify the total leakage rate from 6.3.2 is less than the leakage limit in 8.1. If the limit is exceeded prepare a MRF to reduce the system leakage rate so that it is within the limit. * SEE NOTE

6.4.2 If any component's leakage rate has increased significantly since the last inspection prepare a MRF to repair the component.

6.4.3 If any component's leakage is a major portion of the overall system leakage limit prepare a MRF for its repair.

7.0 RETURN TO NORMAL

7.1 Inform SSVN and ACO test is complete.

8.0 ACCEPTANCE CRITERIA

8.1 The RCIC Pump and its associated components shall not exhibit a leakage rate of greater than (later).

AT TEST COMPLETION, ENSURE COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN

DATA SHEET

IF ANY ENTRY IS MADE IN THIS SECTION, SIGN COVER SHEET IN APPROPRIATE SPACE.

ADDITIONAL ACTION/TEST COMMENTS THIS TEST IS TO BE RUN IN CONCURRENCE WITH STP-14.1, CONTRARY TO STEP 5.3.
6.4.1 LESS THAN 1 cc/MIN CONSIDERED NEGLIBLE

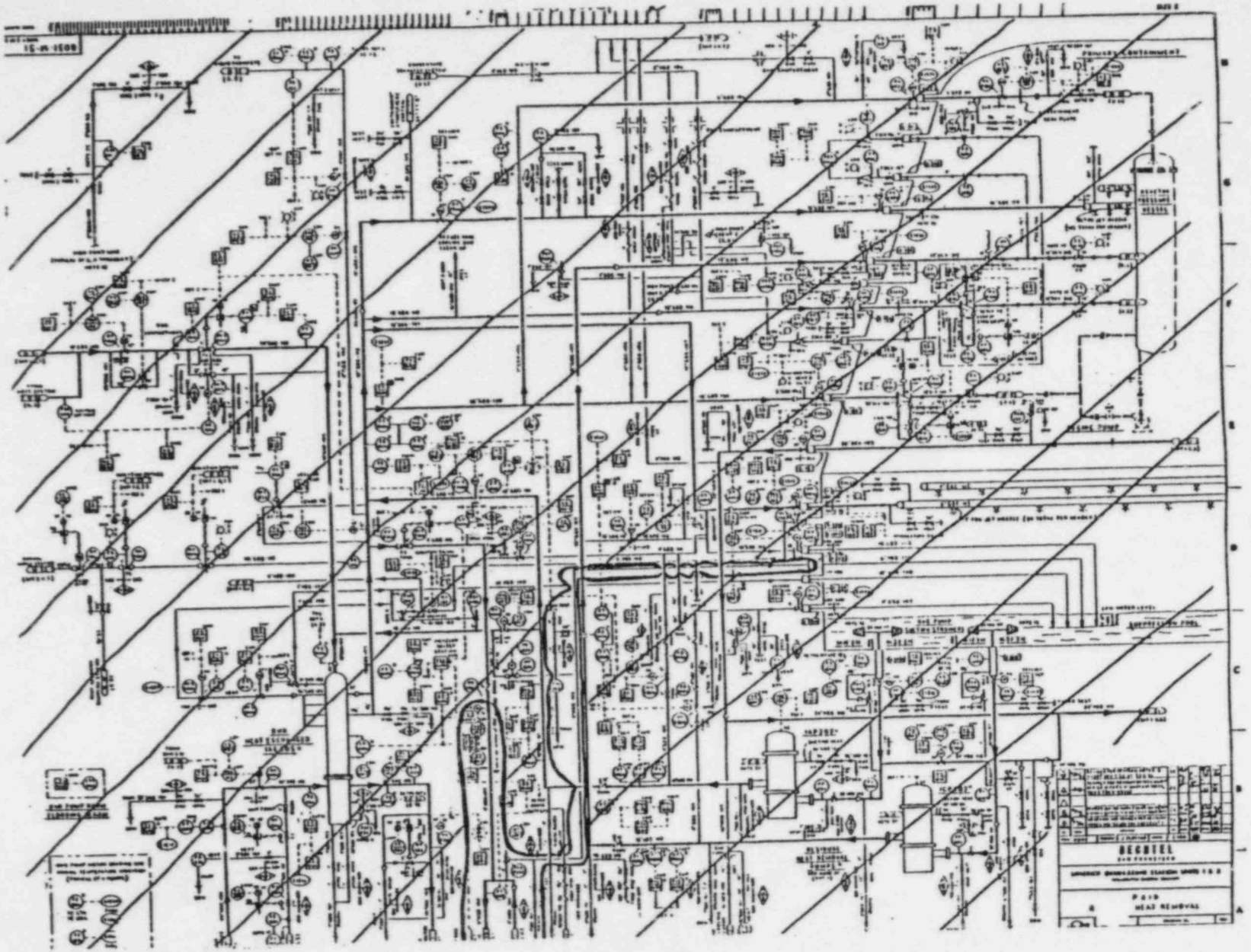
Attachment A

Inspector: KEVIN WALSH

System Mode CST TO CST LOW PRESSURE Date: 1/3/85

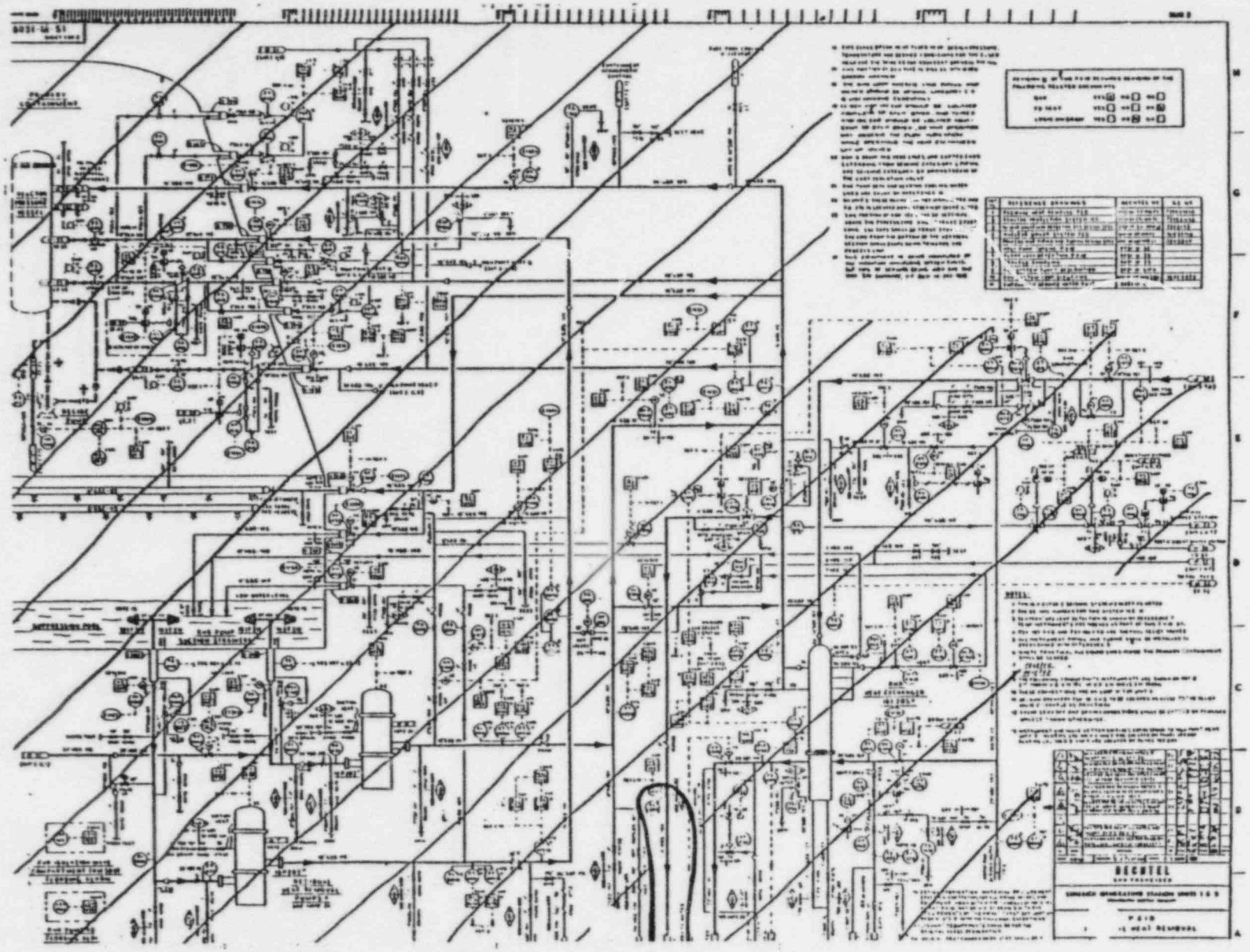
Component No.	Component Description	Comp. Mode (on/Off (open/shut)	Leak Rate	Corrective Action Date	Remarks
49-1031	SAFEGUARD PIPING FILL SUPPLY VALVE	OPEN	3 DROPS PER MIN		
49-1F022	TEST RETURN TO CST VALVE	THROTTLED	10 DROPS PER MIN		

ATTACHMENT B



3850016380 JAM/RSE:jmm

ATTACHMENT B



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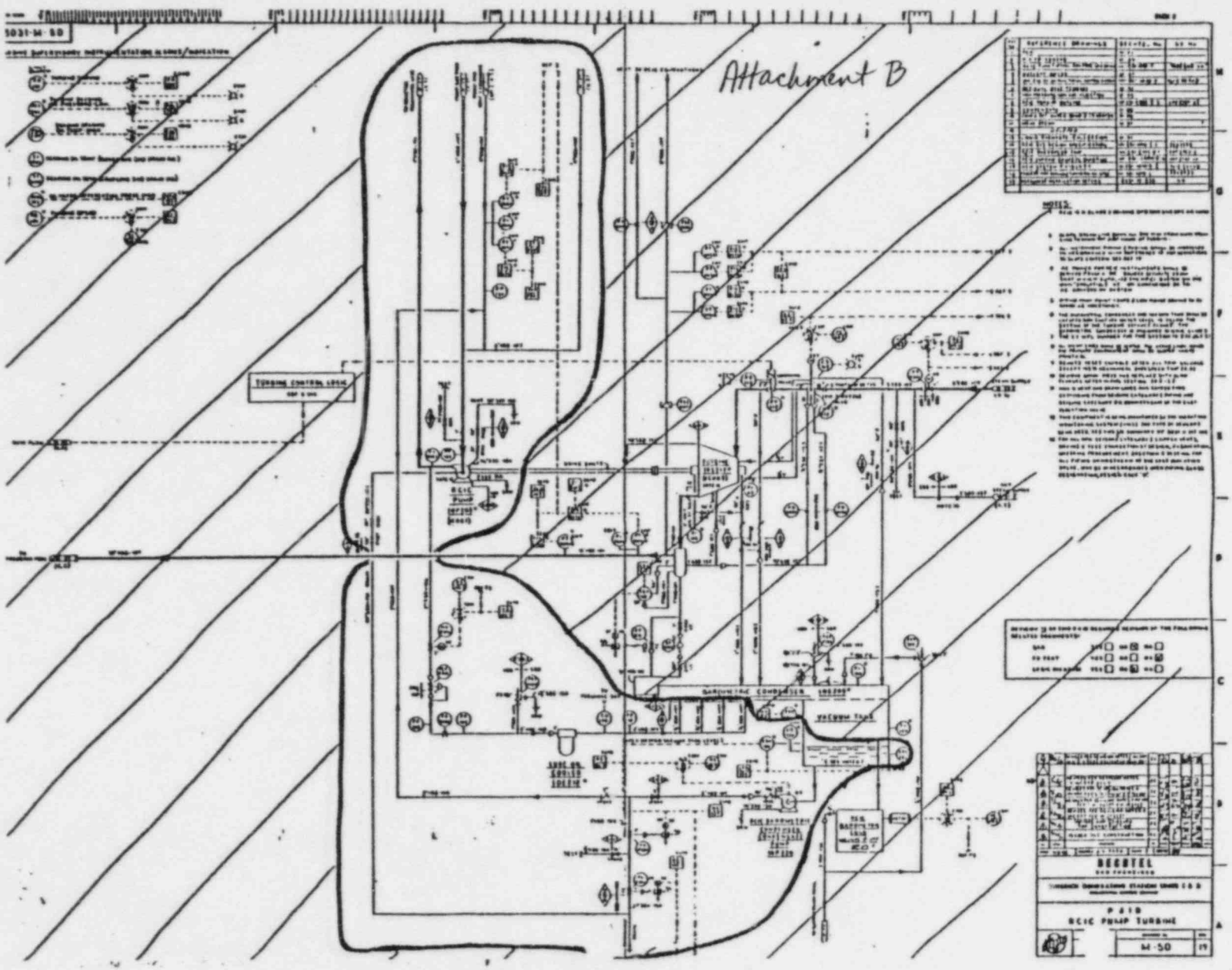
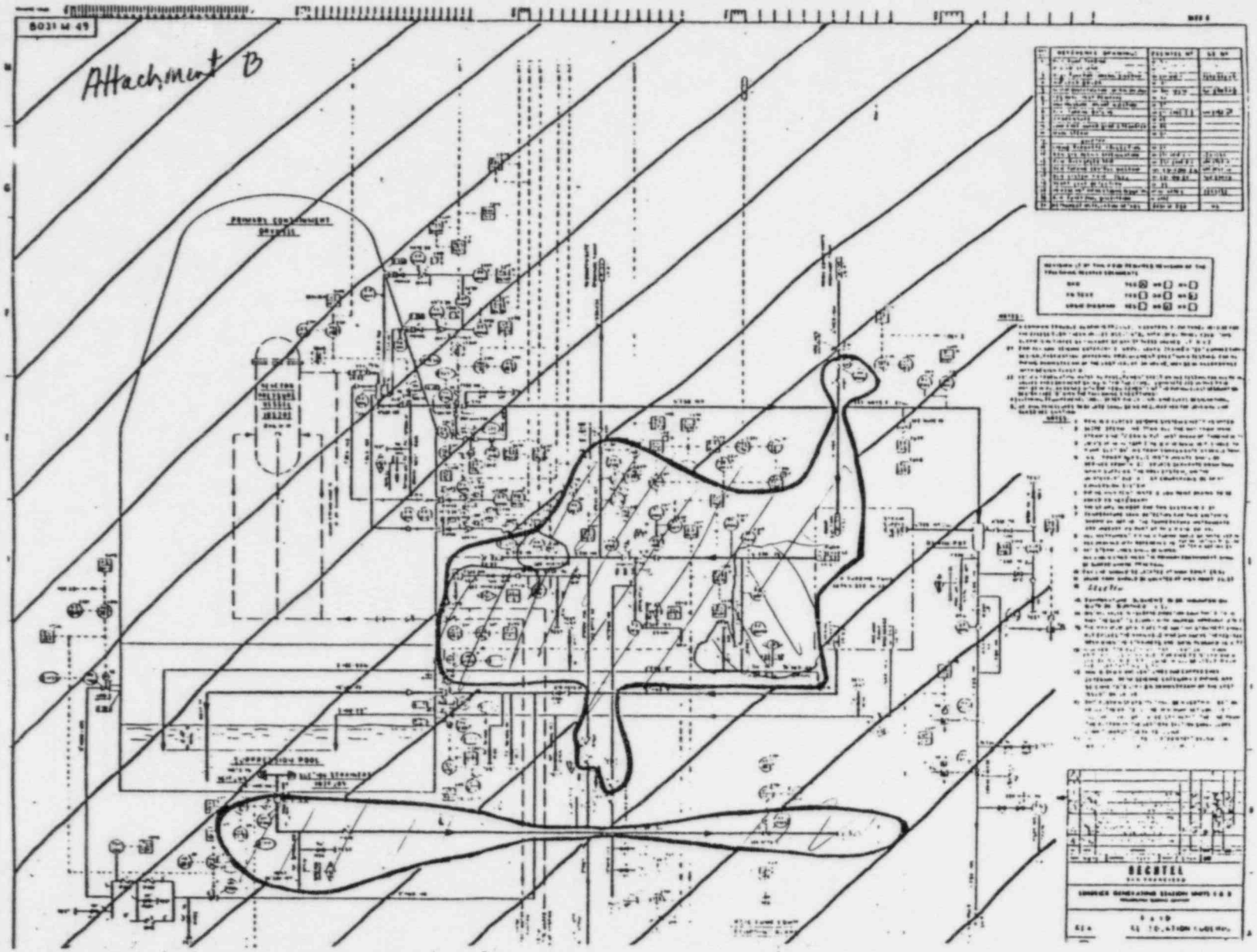
ATTACHMENT B

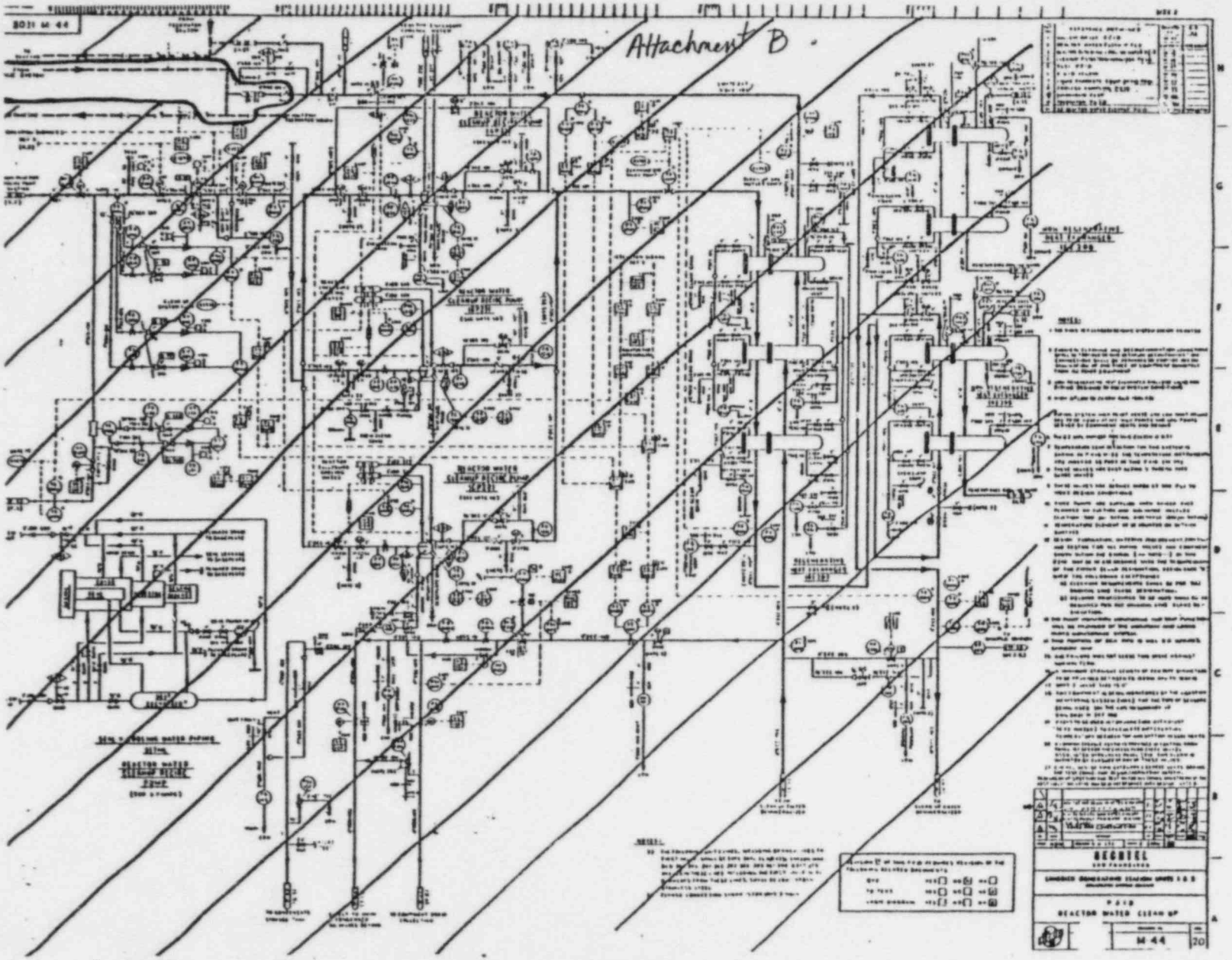


3850016380

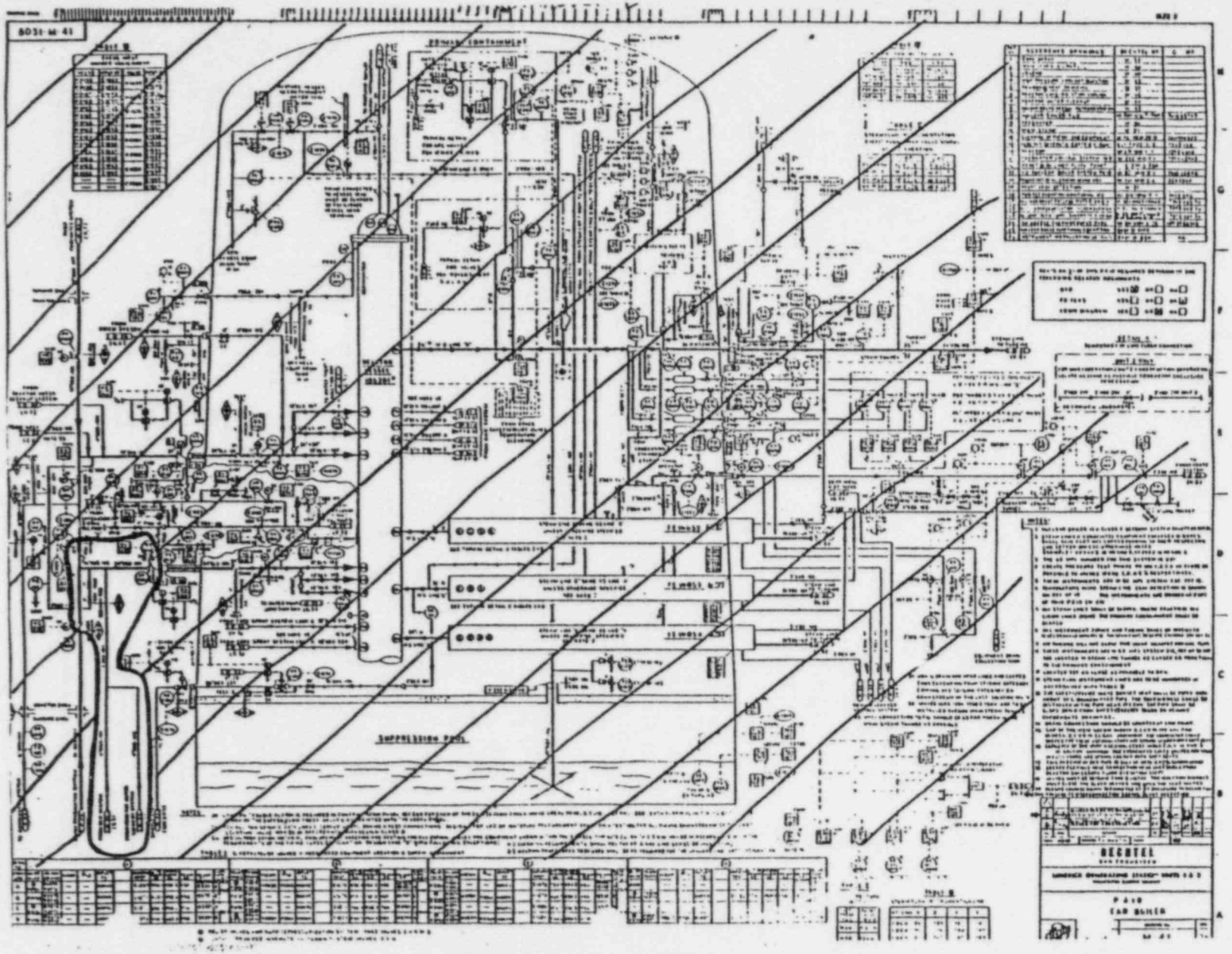
ATTACHMENT B



ATTACHMENT B



ATTACHMENT B



ATTACHMENT 5A

3850016380

ST-1-049-702-1, Rev. 1
Page 1 of 8
JAM/RSE:cjf

G M Leitl 10/14/84

P 10/

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

ST-1-049-702-1 RCIC TURBINE CONTAMINATED PIPING INSPECTION

Test Freq.: 18 Months -OR- Initiating Events: 1. Reason Initial ISI Performance
Tech. Spec.: 6.8.4.a
FSAR 6.2.8.1.d
FSAR 6.2.8.3
2. MRF No. _____

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By: (Sign/Date) [signature] 1-3-85

Performed By: (Sign/Date) _____ _____

Informed Test Complete:(ACO or CO) (Sign/Date) [signature] 1-3-85
(Time) 2236

Reviewed By:(SSVN or STA) (Sign/Date) [signature] 1-3-85

B. One or More Asterisked(*) Steps Test Results UNSATISFACTORY.

Performed By: (Sign/Date) _____ _____

Informed of Test Results: (CO or ACO)(Sign/Date) _____ _____
(Time) _____

Shift Supervision: (Sign/Date) _____ _____

Corrective Action: MRF No.: _____

Initiated By: (Sign/Date) _____ _____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified: (Name) _____

Date/Time Notified: (Date/Time) _____ _____

Notified By: (Sign) _____

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) [signature] 1/3/85

1.0 PURPOSE

To inspect the R.C.I.C Turbine, associated piping and components for steam leakage while the system is being run in the test mode.

2.0 REFERENCES

2.1 8031-M-49, Reactor Core Isolation Cooling

2.2 8031-M-50, RCIC Pump Turbine

3.0 TEST EQUIPMENT

None

4.0 PRECAUTIONS & LIMITATIONS

4.1 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section.

4.2 Steps marked (*) are specific Tech. Spec. requirements which will fail the test if not completed satisfactorily.

4.3 Components to be inspected shall include all valves, capped vents, drains and test connections, seals and case joints, flanged connections and instrument taps on all system piping which carries primary steam or it's condensate.

4.4 If large steam leaks are encountered leave the area immediately and inform SSVN.

5.0 PREREQUISITES

5.1 Request RWP and HP assistance when required.

5.2 Inspector is familiar with the RCIC Turbine System location and layout.

5.3 Obtain a copy of the previous inspection's Attachment A.

5.4 The RCIC turbine must be running for ST-6-049-230-1 or per S49.1 to inspect it's associated piping and components. (This should be done in conjunction with ST-1-049-701-1).

6.0 PROCEDURE

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS ARE CORRECTLY AND COMPLETELY FILLED IN.

| | INITIALS

6.1 Preparation

6.1.1 Verify all prerequisites are satisfied. [signature] SEE NOTE

6.2 Shift Permission to Test

6.2.1 Obtain Shift Supervision's permission to start test. [signature]

6.2.2 Obtain Control Room Operator's permission to start test. [signature] ACO

1-3-85 / 1855
Date Time

6.3 RCIC Turbine Contaminated Piping Inspection

6.3.1 Inspect the RCIC Turbine and it's associated In Line components for steam leakage while the system is at pressure and running.

INITIALS

6.3.2 For all system components, within the boundaries of Attachment C, which exhibit steam leakage, record on Attachment A, an estimate of the length of the steam plume, and adescription of the location of the leak. Pay particular attention to system components whichexhibited leakage in the previous inspection. Large steam leaks should not be quantified. A MRF should be issued for the component's repair, and this test will be considered a failed test.

6.3.3 Using Attachment B convert the steam plume lengths to valves of water volume and record them on Attachment A.

6.3.4 From the volumetric leak rate data on Attachment A, calculate the total steam system leakage rate and document the results below.

RCIC Turbin Leakage Rate
100 cc/min.

.0264 gal/min.

(1cc/min. = 0.000264 gal./min.)

HAVE SHIFT SUPERVISION PERFORM THE TEST RESULTS EVALUATION, SECTION 6.4

6.4 Test Results Evaluation

6.4.1 Verify the total leakage rate from 6.3.2 is less than the leakage limit in 8.1. If the limit is exceeded prepare a MRF to reduce the system leakage rate so that it is within the limit.

GE (*)

INITIALS

6.4.2 If any component's leakage rate has increased significantly since the last inspection prepare a MRF to repair the component.

6.4.3 If any component's leakage is a major portion of the overall system leakage limit prepare a MRF for it's repair.

7.0 RETURN TO NORMAL

7.1 Inform SSVN & ACO test is complete GFC

8.0 ACCEPTANCE CRITERIA

8.1 The RCIC Turbine System shall not exhibit a leakage rate greater than (Later).

AT TEST COMPLETION, ENSURE COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.

IF ANY ENTRY IS MADE IN THIS SECTION, SIGN COVER SHEET IN APPROPRIATE SPACE.

ADDITIONAL ACTION/TEST COMMENTS THIS TEST IS TO BE RUN IN CONCURRENCE WITH STP-14.1, CONTRARY TO STEP 5.4

Attachment A

INSPECTOR: D. L. GOWER

SYSTEM MODE CST → CST LOW PRESSURE DATE: 1-3-85

Component No.	Component Description	Comp. Mode (on/off) (open/closed)	Steam Plume Length	Equivalent Water Leak Rate	Corrective Action Date	Remarks
10P219	RCIC BAROMETRIC CONDENSER VACUUM PUMP	ON	NA	(PACKING LEAK) 100 DROPS/MIN ①		SEE NOTE ① BELOW

① VACUUM PUMP PACKING LEAKAGE TO DRIP TRAY = 88 DROPS/MIN
" " " " TO FLOOR = 12 DROPS/MIN.

3850016380 JAM/RSE:cjf

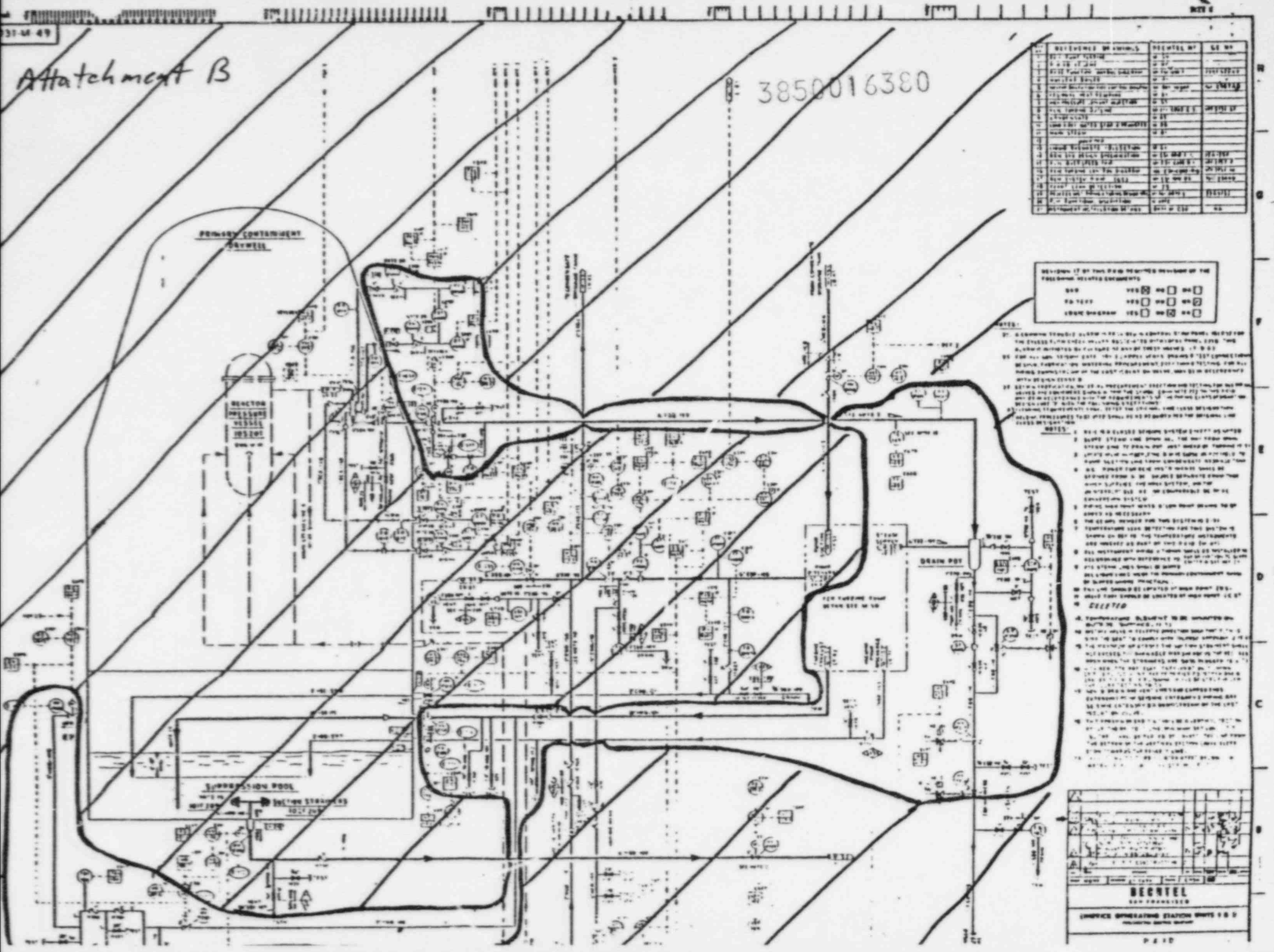
ATTACHMENT B

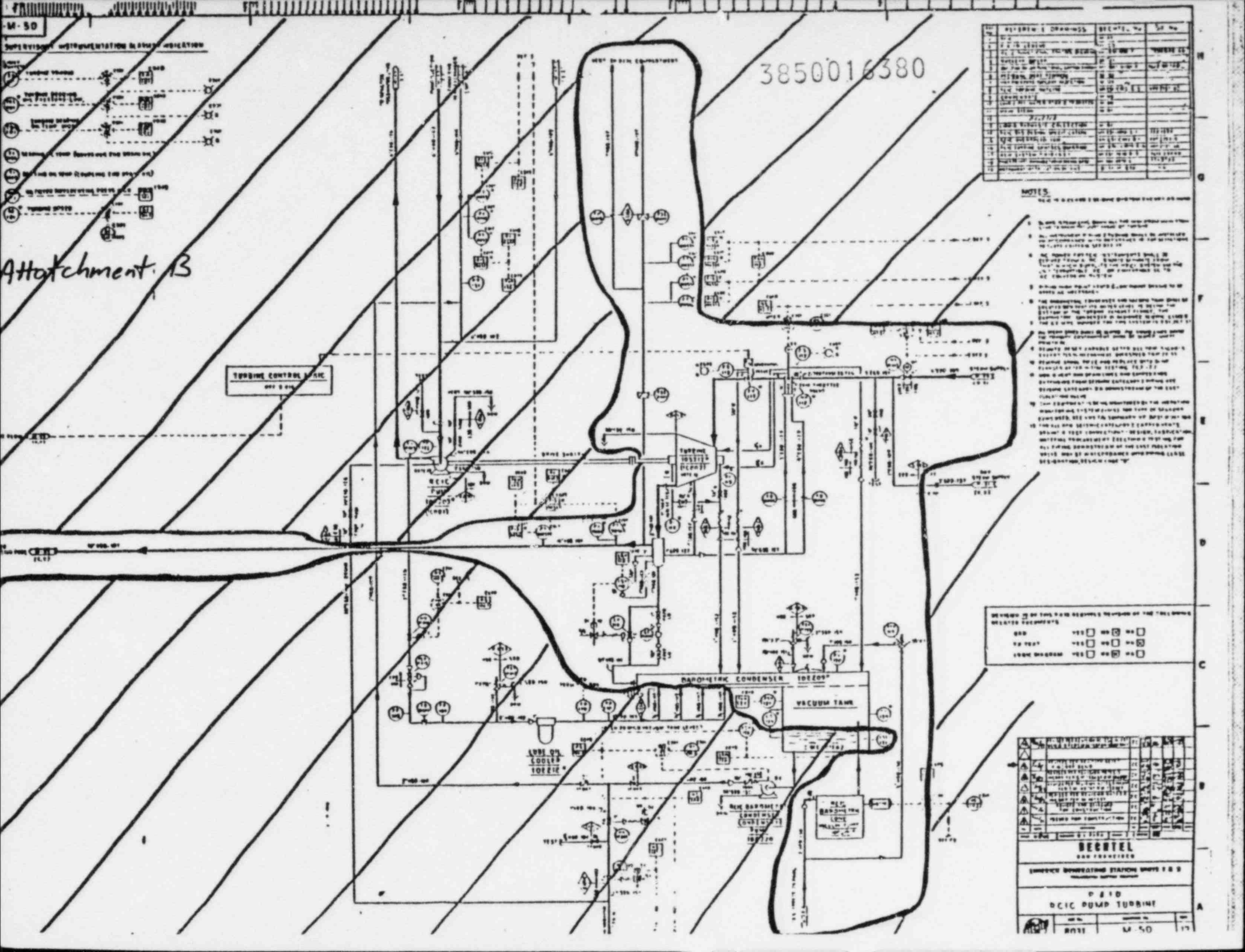
STEAM PLUME LENGTH CONVERSION TABLE

Steam Plume Length (ft)	Water Volume (cc/min)
1.00	76
1.25	87
1.50	98
1.75	114
2.00	136
2.25	152
2.50	174
2.75	205
3.00	235
3.25	273
3.50	311
3.75	356
4.00	409

Attachment B

3850016380




3850016380
Attachment B
TURBINE CONTROL VALVE
BAROMETRIC CONDENSER
VACUUM TANK
NOTES:
BECHTEL
SAN FRANCISCO
P & I D
RCIC PUMP TURBINE
M-50

ATTACHMENT 5B

3850016380

10/14/84

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

ST-1-049-702-1 RCIC TURBINE CONTAMINATED PIPING INSPECTION

Test Freq.: 18 Months -OR- Initiating Events: 1. Reason 920 on 5/4
Tech. Spec.: 6.8.4.a
FSAR 6.2.8.1.d
FSAR 6.2.8.3
2. MRF No. _____

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By: (Sign/Date) [signature] 1/11/85

Performed By: (Sign/Date) _____ _____

Informed Test Complete:(ACO or CO) (Sign/Date) [signature] 1-11-85
(Time) 12:15

Reviewed By:(SSVN or STA) (Sign/Date) [signature] 1/11/85

B. One or More Asterisked(*) Steps Test Results UNSATISFACTORY.

Performed By: (Sign/Date) _____ _____

Informed of Test Results: (CO or ACO)(Sign/Date) _____ _____
(Time) _____

Shift Supervision: (Sign/Date) _____ _____

Corrective Action: MRF No.: _____

Initiated By: (Sign/Date) _____ _____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified: (Name) _____

Date/Time Notified: (Date/Time) _____ _____

Notified By: (Sign) _____

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) [signature] 1/11/85

1.0 PURPOSE

To inspect the R.C.I.C Turbine, associated piping and components for steam leakage while the system is being run in the test mode.

2.0 REFERENCES

2.1 8031-M-49, Reactor Core Isolation Cooling

2.2 8031-M-50, RCIC Pump Turbine

3.0 TEST EQUIPMENT

None

4.0 PRECAUTIONS & LIMITATIONS

4.1 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section.

4.2 Steps marked (*) are specific Tech. Spec. requirements which will fail the test if not completed satisfactorily.

4.3 Components to be inspected shall include all valves, capped vents, drains and test connections, seals and case joints, flanged connections and instrument taps on all system piping which carries primary steam or it's condensate.

4.4 If large steam leaks are encountered leave the area immediately and inform SSVN.

5.0 PREREQUISITES

5.1 Request RWP and HP assistance when required.

5.2 Inspector is familiar with the RCIC Turbine System location and layout.

5.3 Obtair a copy of the previous inspection's Attachment A.

5.4 The RCIC turbine must be running for ST-6-049-230-1 or per S49.1 to inspect it's associated piping and components. (This should be done in conjunction with ST-1-049-701-1).

6.0 PROCEDURE

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS ARE CORRECTLY AND COMPLETELY FILLED IN.

6.1 Preparation — INITIALS

6.1.1 Verify all prerequisites are satisfied. RJR

6.2 Shift Permission to Test

6.2.1 Obtain Shift Supervision's permission to start test. EDC

6.2.2 Obtain Control Room Operator's permission to start test. RW
ACO
1-11-85 / 1211
Date Time

6.3 RCIC Turbine Contaminated Piping Inspection

6.3.1 Inspect the RCIC Turbine and it's associated In Line components for steam leakage while the system is at pressure and running.

INITIALS

6.3.2 For all system components, within the boundaries of Attachment C, which exhibit steam leakage, record on Attachment A, an estimate of the length of the steam plume, and adescription of the location of the leak. Pay particular attention to system components whichexhibited leakage in the previous inspection. Large steam leaks should not be quantified. A MRF should be issued for the component's repair, and this test will be considered a failed test.

6.3.3 Using Attachment B convert the steam plume lengths to valves of water volume and record them on Attachment A.

6.3.4 From the volumetric leak rate data on Attachment A, calculate the total steam system leakage rate and document the results below.

RCIC Turbin Leakage Rate
372 cc/min.
.098 gal/min.

(1cc/min. = 0.000264 gal./min.)

HAVE SHIFT SUPERVISION PERFORM THE TEST RESULTS EVALUATION, SECTION 6.4

6.4 Test Results Evaluation

6.4.1 Verify the total leakage rate from 6.3.2 is less than the leakage limit in 8.1. If the limit is exceeded prepare a MRF to reduce the system leakage rate so that it is within the limit. GPC (*)

INITIALS

6.4.2 If any component's leakage rate has increased significantly since the last inspection prepare a MRF to repair the component. GKC

6.4.3 If any component's leakage is a major portion of the overall system leakage limit prepare a MRF for it's repair. GKC

7.0 RETURN TO NORMAL

7.1 Inform SSVN & ACO test is complete GK

8.0 ACCEPTANCE CRITERIA

8.1 The RCIC Turbine System shall not exhibit a leakage rate greater than (Later).

AT TEST COMPLETION, ENSURE COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.

IF ANY ENTRY IS MADE IN THIS SECTION, SIGN COVER SHEET IN APPROPRIATE SPACE.

ADDITIONAL ACTION/TEST COMMENTS

MRF 8500645 ISSUED ON HV-50-1F045

Attachment A

INSPECTOR: Gary Hutchisan

SYSTEM MODE High press test DATE: 1/11/85
CST to CST

Component No.	Component Description	Comp. Mode (on/off) (open/closed)	Steam Plume Length	Equivalent Water Leak Rate	Corrective Action Date	Remarks
HV-50-1F045	Steam supply to turbine	open	3 ft plume	235 cc/min		
49-1007		open	1/4 ft plume	19 cc/min		
105212	RCIC turbine gland seal (governor side).	on	1 ft plume	76 cc/min		
HV49-1F008	Steam supply	open	1/2 ft plume	38 cc/min slight (undeterminable) leakage @ packing.		
10P219	vacuum pump	on		3cc/min		

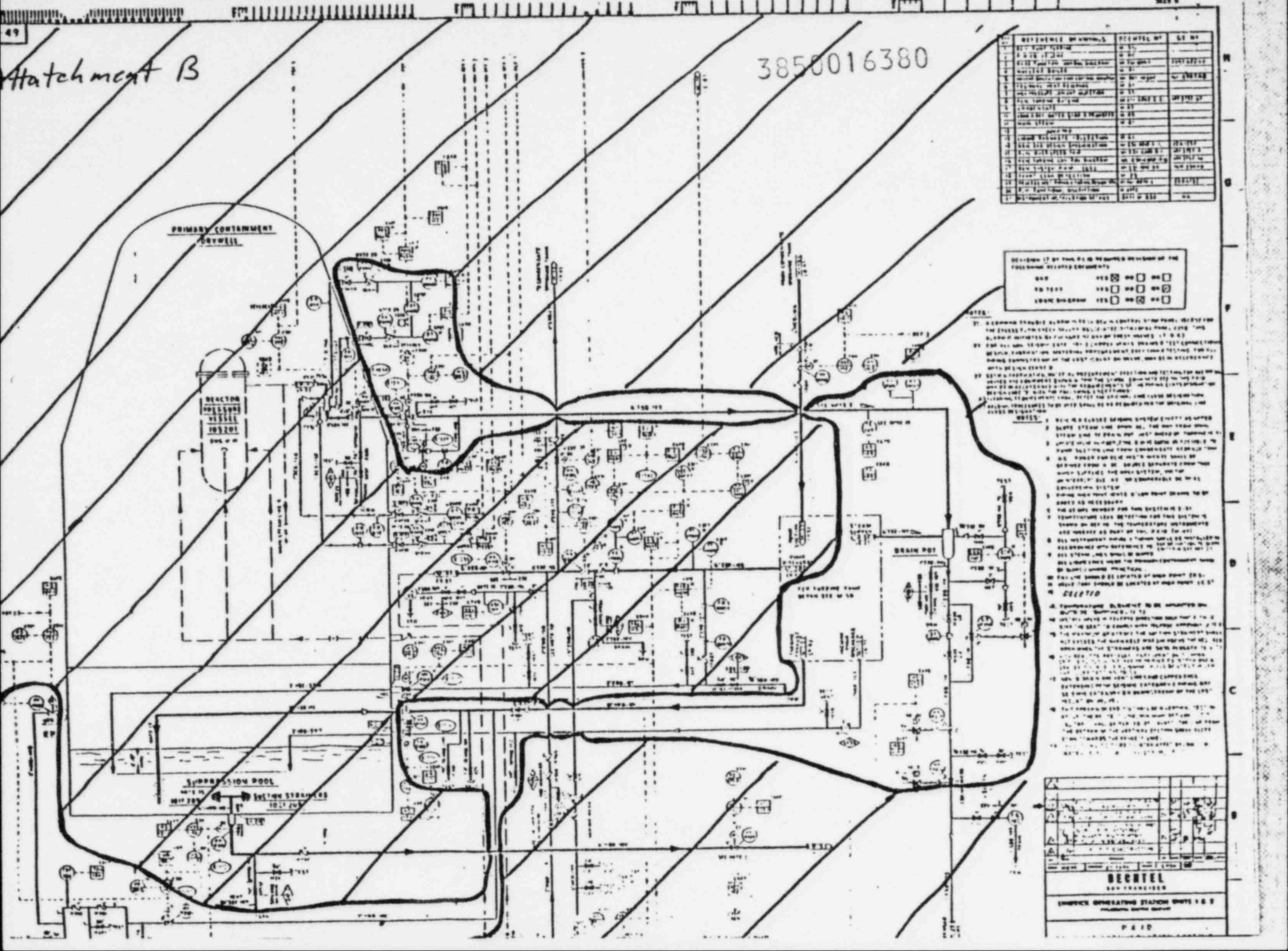
ATTACHMENT B

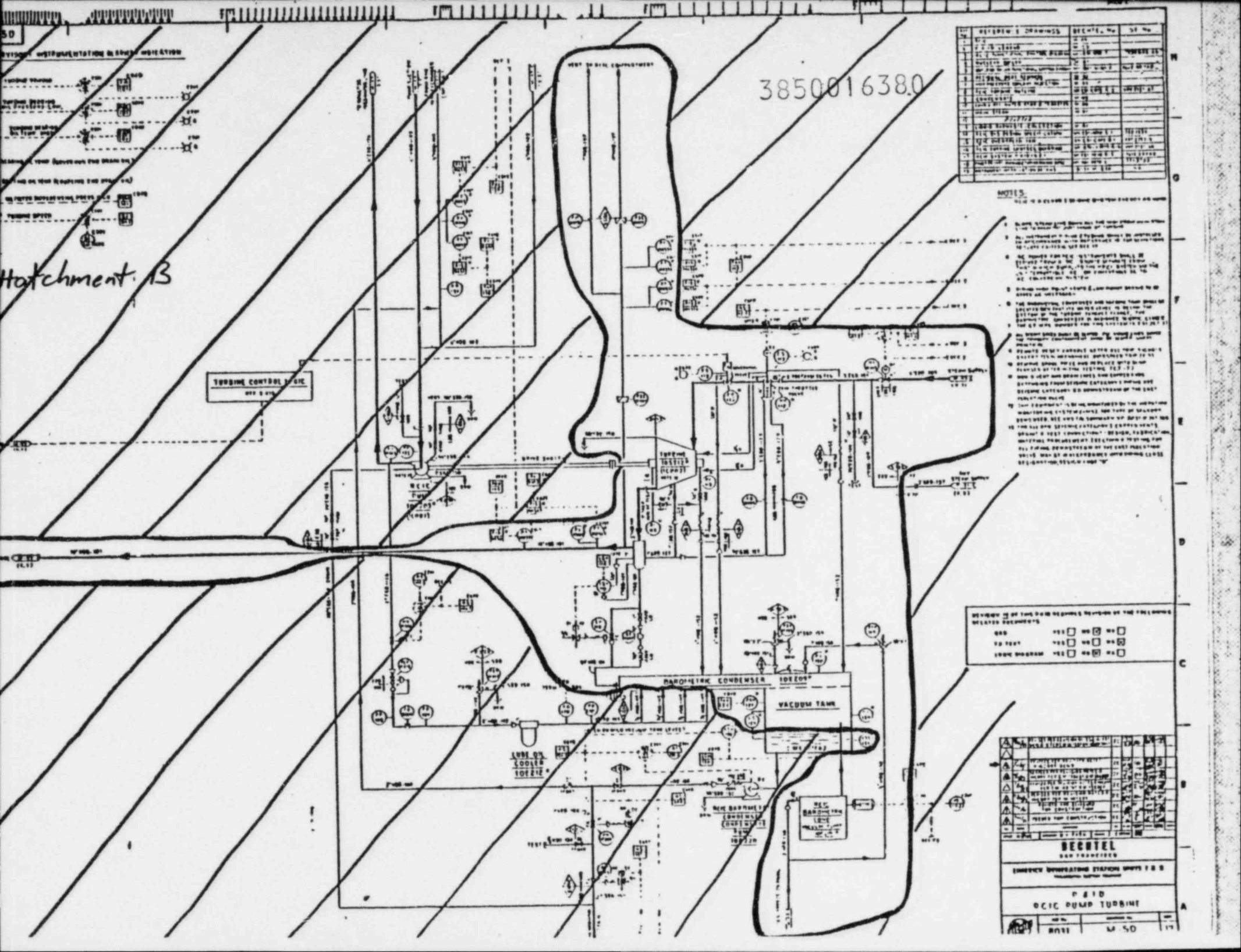
STEAM PLUME LENGTH CONVERSION TABLE

Steam Plume Length (ft)	Water Volume (cc/min)
1.00	76
1.25	87
1.50	98
1.75	114
2.00	136
2.25	152
2.50	174
2.75	205
3.00	235
3.25	273
3.50	311
3.75	356
4.00	409

Attachment B

3850016380




3850016380
Hatchment B
TURBINE CONTROL PANEL
BAROMETRIC CONDENSER
VACUUM TANK
LUBE OIL COOLER
NOTES
BECHTEL
SAN FRANCISCO
P & I D
RCIC PUMP TURBINE

49-702

3850016380

ST-1-049

JAM

Attachment A

INSPECTOR: D. P. GOWER

SYSTEM MODE CST → CST LOW PRESSURE DATE: 1-3-85

Component No.	Component Description	Comp. Mode (on/off) (open/closed)	Steam Plume Length	Equivalent Water Leak Rate	Corrective Action Date	Remarks
10P219	RCIC BAROMETRIC CONDENSER VACUUM PUMP	ON	NA	(PACKING LEAK) 100 DROPS/MIN ①		SEE NOTE ① BELOW

① VACUUM PUMP PACKING LEAKAGE TO DRIP TRAY = 88 DROPS/MIN
" " " TO FLOOR = 12 DROPS/MIN.

INITIALS

6.3.2 For all system components, within the boundaries of Attachment C, which exhibit steam leakage, record on Attachment A, an estimate of the length of the steam plume, and adescription of the location of the leak. Pay particular attention to system components whichexhibited leakage in the previous inspection. Large steam leaks should not be quantified. A MRF should be issued for the component's repair, and this test will be considered a failed test.

6.3.3 Using Attachment B convert the steam plume lengths to valves of water volume and record them on Attachment A.

6.3.4 From the volumetric leak rate data on Attachment A, calculate the total steam system leakage rate and document the results below.

RCIC Turbin Leakage Rate
100 cc/min. ← THIS SHOULD BE 5cc/min (100 DROPS × 1cc/20 DROPS = .5cc
.0264 gal/min.

(1cc/min. = 0.000264 gal./min.)

HAVE SHIFT SUPERVISION PERFORM THE TEST RESULTS EVALUATION, SECTION 6.4

6.4 Test Results Evaluation

6.4.1 Verify the total leakage rate from 6.3.2 is less than the leakage limit in 8.1. If the limit is exceeded prepare a MRF to reduce the system leakage rate so that it is within the limit.

GFC (**)

3850016380 ATTACHMENT 67

9/28/84
EFFECTIVE DATE

LIMERICK GENERATING STATION
PORC APPROVAL FORM
TPC #85-028

R.T. Moore 9.26.84
A-4, Form 1
Revision 1
Page 1 of 1
CRE 9/10/84

1. DOCUMENT (TITLE, OR PROC # & REV.): 1-055-701-1 Rev. 1

2. REASON FOR SUBMITTAL: add attachment 'B' pg. 5

☐ NEW PROCEDURE

☐ PROCEDURE REVISION

☐ ENTIRE PROC. REVIEWED & SUGGESTED CHANGES INDICATED (PERIODIC REVIEW A-2)

☐ PORTIONS OF PROC. REVIEWED & SUGGESTED CHANGES INDICATED

☐ TEMPORARY CHANGE TO APPR'D PROC A-3 REVIEW REQUIRED BY _____

☒ REVIEW OF TEMP CHANGE ONLY

☐ REVIEW OF TEMP CHANGE AND PERMANENT PROC. REVISION

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
SUPT				
ASST SUPT				
ENG-TECH				
ENG-OPS				
ENG-MAINT				
SR HP				
SR CHEM		..		
PERF ENG	ufc	1/5/85		
I&C ENG				
ADMN SUPV				

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
REAC ENG				
SFT SUPT	WNT	1/5/85		
REG ENG				
OUT MGR				
TE	JTM	1/5/85		
		-		

3. COMMENTS/CORRECTIVE ACTION:

☐ Approved with comments/changes on attached document

COMMENTS/CORRECTIVE ACTION TAKEN & CHECKED/DATE - -	SUPT. APPROVAL/DATE	PORC MEETING
ADMIN OR PREPARER _____ _____	_____/_____	#: _____ DATE: _____

DIRECTIONS TO ADMIN. STAFF:
☐ ISSUE THE ATTACHED DOCUMENT
☐ FILE THE ATTACHED DOCUMENT IN FILE _____
☐ FILE THIS FORM PER ADMIN. PROC. _____
☐ OTHER: _____

TRANSMIT A COPY OF THIS FORM AND DOCUMENT TO NRB FOR:
☐ APPROVAL
☐ REVIEW
☐ INFO

10/25/84

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

ST-1-055-701-1 HPCI PUMP CONTAMINATED PIPING INSPECTION

Test Freq.: 18 Months -OR- Initiating Events: 1. Reason _____
Tech. Spec.: 6.8.4.a
FSAR 6.2.8.1.c
FSAR 6.2.8.3 2. MRF No. _____

(P)

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By: (Sign/Date) [signature] 1/5/85

Performed By: (Sign/Date) [signature] 1/5/85

Informed Test Complete: (ACO or CO) (Sign/Date) [signature] 1/5/85
(Time) 1120

Reviewed By: (SSVN or STA) (Sign/Date) [signature] 1-5-85

B. One or More Asterisked(*) Steps Test Results UNSATISFACTORY.

Performed By: (Sign/Date) _____ ____

Informed of Test Results: (CO or ACO) (Sign/Date) _____ ____
(Time) ____

Shift Supervision: (Sign/Date) _____ ____

Corrective Action: MRF No.: _____

Initiated By: (Sign/Date) _____ ____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified: (Name) _____

Date/Time Notified: (Date/Time) ____ ____

Notified By: (Sign) _____

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) _____ ____

1.0 PURPOSE

To Inspect and measure any leakage of the HPCI Pump and HPCI System components that are directly associated with system piping that could carry contaminated fluids during a serious accident or transient. This inspection shall be implemented while the system is operating in the test mode.

2.0 REFERENCES

2.1 8031-M-55, High Pressure Coolant Injection

2.2 8031-M-56, HPCI Pump Turbine

2.3 NUREG-0737

3.0 TEST EQUIPMENT

3.1 Graduated Cylinder(s)

3.2 One-Liter Bottle(s)

3.3 Assorted funnels

3.4 Stopwatch

3.5 Inspection mirror w/handle

4.0 PRECAUTIONS & LIMITATIONS

4.1 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section.

4.2 Leakage rates of greater than 5 drops per min. (.25 cc/Min) shall be quantified. Use "$\leq$ 5 drops/min" on Attachment A for Components with leakage rates of 5 drops per min or less.

4.3 Steps marked (*) are specific Tech. Spec. requirements which will fail the test if not completed satisfactorily.

4.4 If any component exhibits excessive leakage notify SSVN immediately.

5.0 PREREQUISITES

5.1 Request RWP and HP Assistance when required.

5.2 Inspector is familiar with the HPCI system location and layout.

5.3 The HPCI pump must be running for surveillance ST-6-055-230-1 or per S55.1.D to inspect its associated piping and components.

5.4 Obtain copy of previous inspection's Attachment A.

5.5 Coordinate with Operator running the system to allow pump run durations to be extended for the inspection.

6.0 PROCEDURE

INITIALS

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS ARE CORRECTLY AND COMPLETELY FILLED IN.

6.1 Preparation

6.1.1 Verify all prerequisites are satisfied. mpB

6.1.2 Record appropriate information for each piece of measurement and test equipment used with a PECo number.

INSTRUMENT	MFR./MODEL	SER. NO.	CAL. DUE DATE
STOPWATCH		53-0194	9-13-85

INITIALS

6.2 Shift Permission to Test

6.2.1 Obtain Shift Supervision's permission to start test.

MPB

6.2.2 Obtain Control Room Operator's permission to start test.

ACO

1-4-85 / 19:18
DATE TIME

6.3 HPCI Pump Contaminated Piping Inspection

ACTUAL LEAKAGE RATE MEASUREMENT METHODS WILL BE LEFT TO THE DISCRETION OF THE INSPECTOR. THE ONLY GUIDELINES BEING THAT ALL DATA WILL BE A MEASURED QUANTITY OF FLUID OVER TIME USING A STOPWATCH. DROPS PER MINUTE CAN BE USED AS A MEASUREMENT METHOD WHERE 20 DROPS = 1cc. ALL RECORDED DATA SHALL BE IN CUBIC CENTIMETERS PER MIN. (cc/min).

6.3.1 For all in line components, within the boundaries of Attachment B, which exhibit leakage, record on Attachment A the Leakage Rate and a description of the location of the leak. Pay particular attention to system components identified as having exhibited measurable leakage in the previous inspection.

6.3.2 From the leakage rate data on Attachment A, calculate the total system leakage rate and document the results below.

SYSTEM LEAKAGE RATE

3.20 cc/min NOTE #1

.0008448 gal/min

(1 cc/min = 0.000264 gal/min)

INITIALS

6.4 Test Results Evaluation

6.4.1 Verify the total leakage rate from 6.3.2 is less than the leakage limit in 8.1. If the limit is exceeded prepare a MRF to reduce the system leakage rate so that it is within the limit BT SEE NOTE (*) #2

6.4.2 If any component's leakage rate has increased significantly since the last inspection prepare a MRF to repair the component.

6.4.3 If any component's leakage is a major portion of the overall system leakage limit prepare a MRF for its repair.

7.0 RETURN TO NORMAL

7.1 Inform SSVN and ACO test is complete. JEK

8.0 ACCEPTANCE CRITERIA

8.1 The HPCI Pump and it's associated components shall not exhibit a leakage rate of greater than (later).

AT TEST COMPLETION, ENSURE COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.

IF ANY ENTRY IS MADE IN THIS SECTION, SIGN COVER SHEET IN APPROPRIATE SPACE.

ADDITIONAL ACTION/TEST COMMENTS (#1) FOR THE PURPOSE OF CALCULATING SYSTEM LEAKAGE RATE, ALL VALVES WITH A LEAKAGE RATE OF ≤ 5 DROPS/MIN ARE ASSUMED TO HAVE A .25 CC/MIN RATE. (#2) THIS TEST IS PART OF THE INITAL TEST PROGRAM WHICH WILL BE USED TO ESTABLISH LEAK RATE CRITERIA IN 8.1.

Attachment A

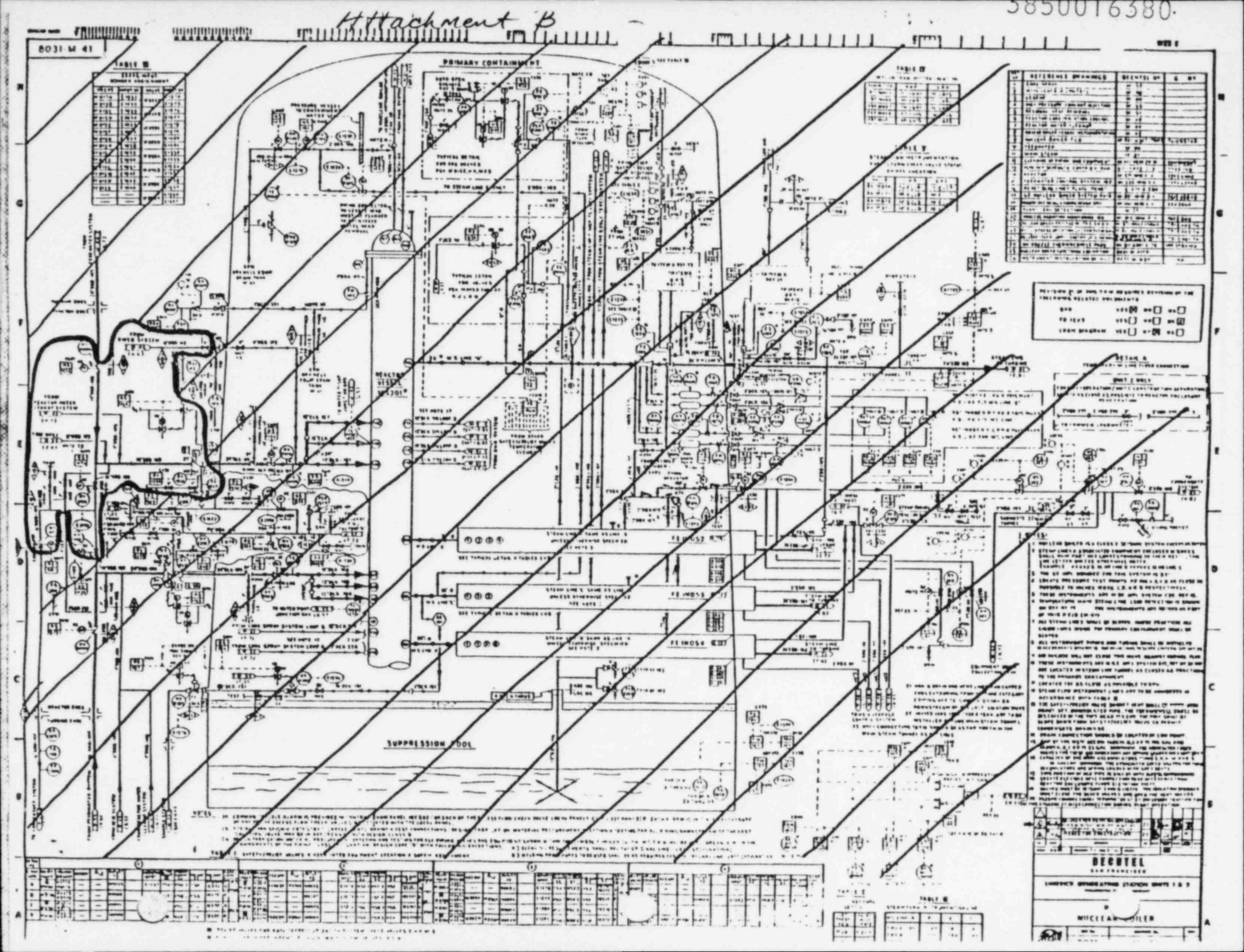
Inspector: Bob Mondik/Marc Lehman

System Mode Running in Test Date: Jan. 5, 1985

Component No.	Component Description	Comp. Mode (on/Off (open/shut)	Leak Rate	Corrective Action Date	Remarks
HV-55-1F008	Test Return to CST Vlv.	Open	1.65 cc/min		
HV-55-1F006	Pump Disch. Vlv.	closed	.3 cc/min		
HV-55-1F041	Pump Suct. from Supp Pool Vlv	closed	≤ 5 Drops/min.		
HV-55-1F004	Pump Suct. from CST Vlv.	Open	≤ 5 Drops/Min.		
55-1F010	Pump Suct. from CST Man. Vlv.	Open	≤ 5 Drops/Min.		
HV-55-1F011	Test Return to CST Vlv.	Open	≤ 5 Drops/Min.		
HV-C-51-154B	HPCI to RHR Vlv.	Closed	≤ 5 Drops/Min.		

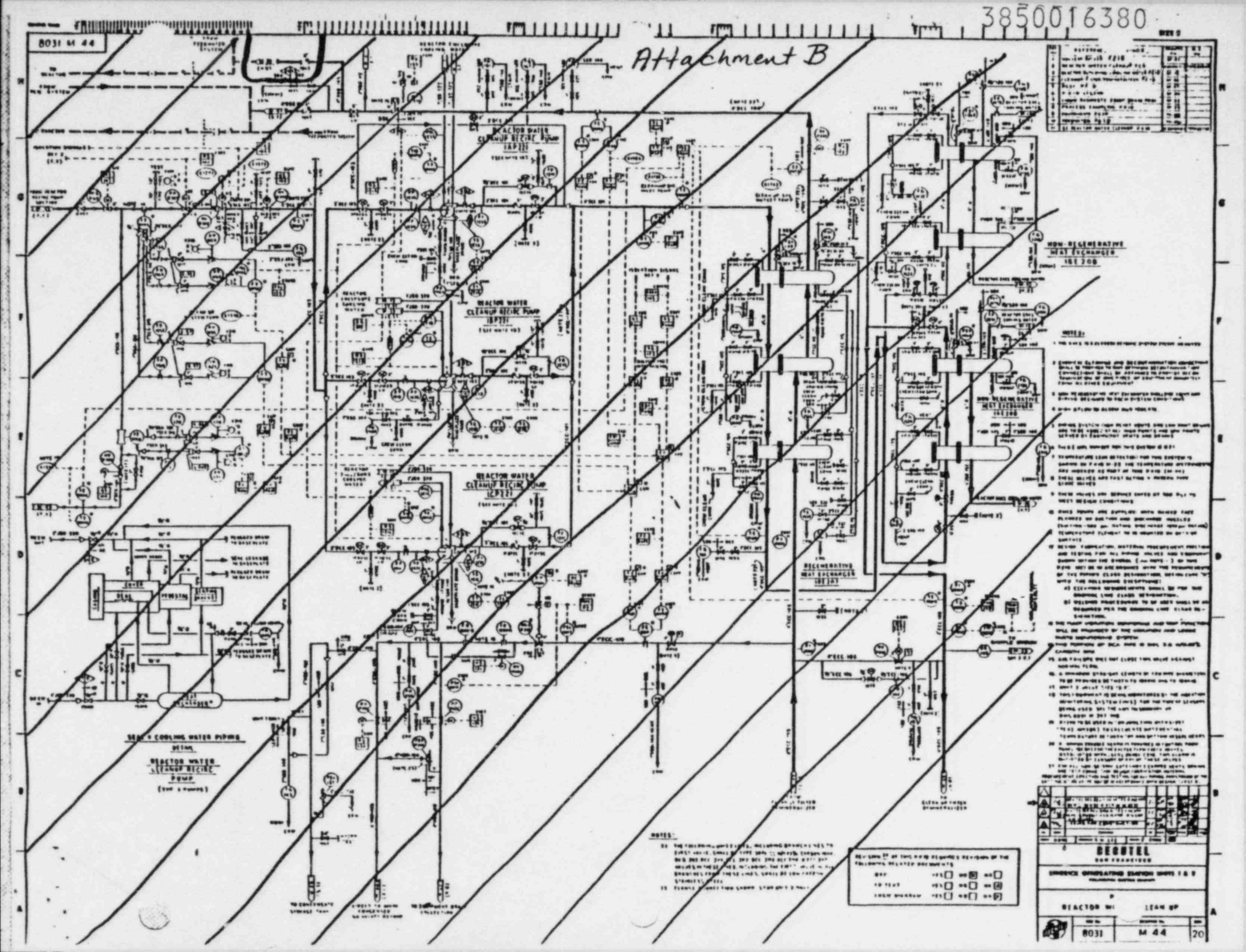
Attachment B

8031 M 41



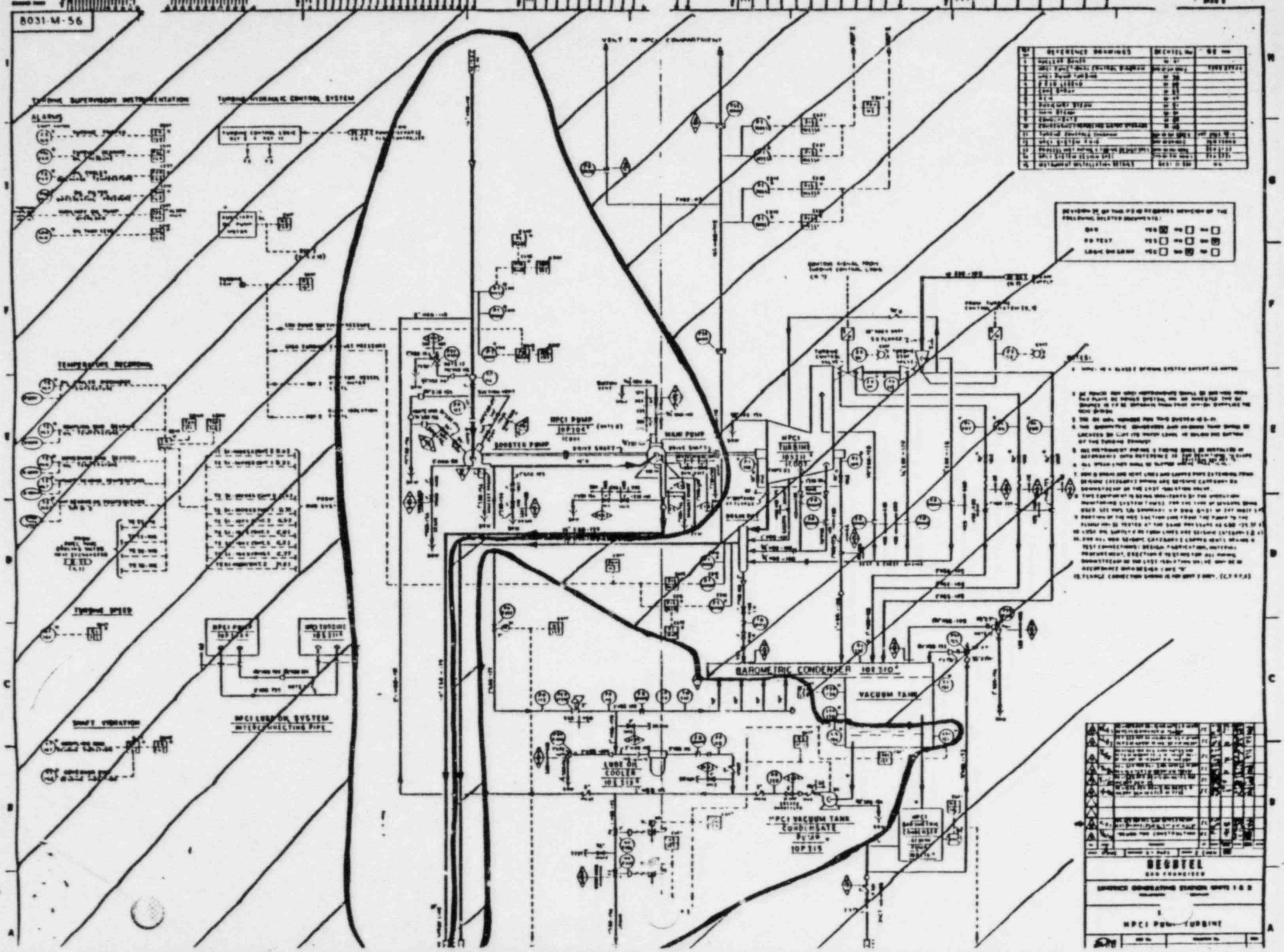
3850016380

Attachment B



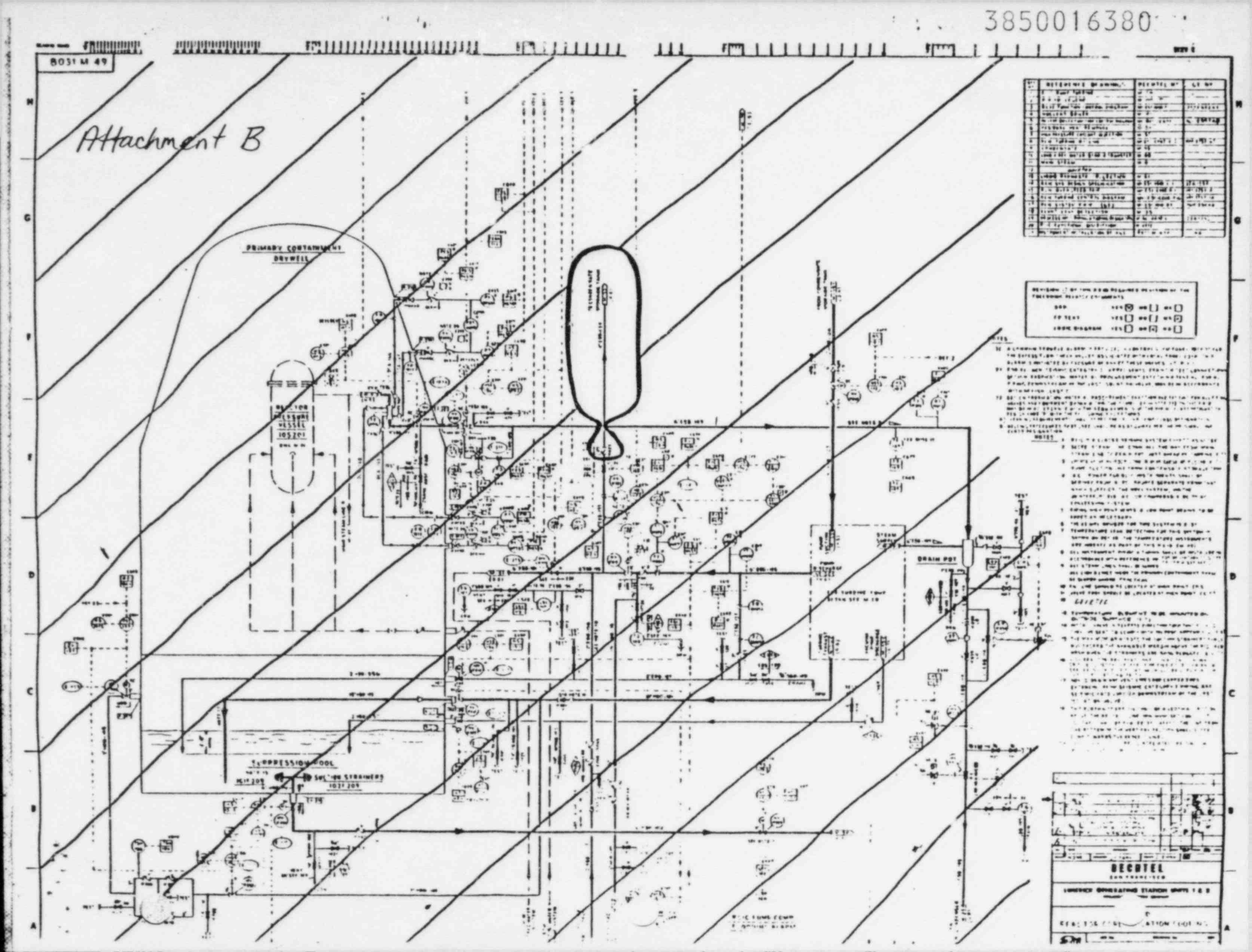
Attachment B

3850016380

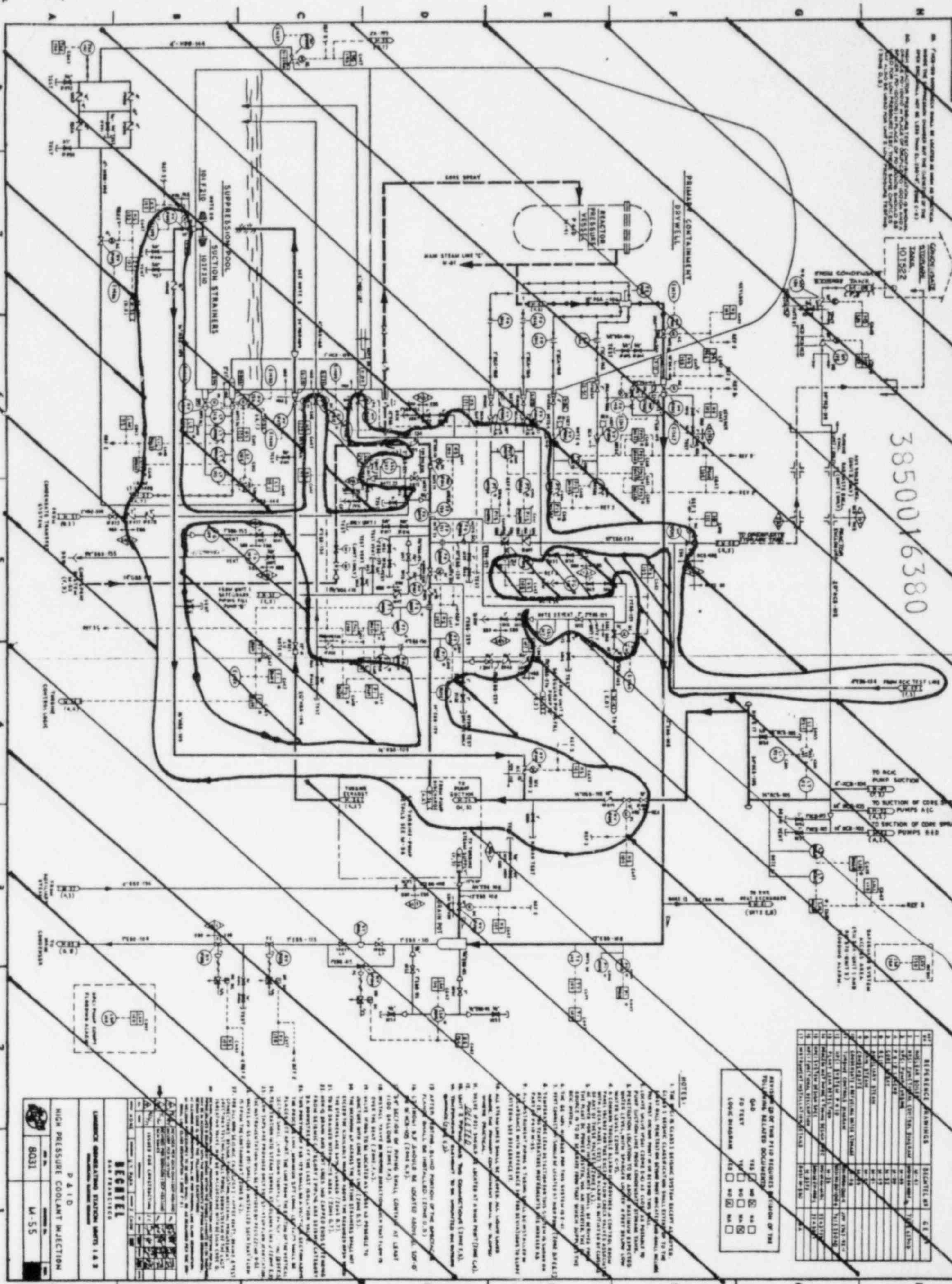


3850016380

Attachment B



Attachment 'B' 1-OSS-701-1 Rev. 1 JC 5/15/85 entire page WMT



3850016380 ATTACHMENT 6B

9/26/84
EFFECTIVE DATE

LIMERICK GENERATING STATION
PORC APPROVAL FORM

TPC# 85-048

R.F. Moore 9.26.84

A-4, Form 1
Revision 1
Page 1 of 1

9/10/84 CRE

1. DOCUMENT (TITLE, OR PROC # & REV.): ST-1-055-201-1

2. REASON FOR SUBMITTAL: TEMPORARY CHANGE

- ☐ NEW PROCEDURE
- ☐ PROCEDURE REVISION
  - ☐ ENTIRE PROC. REVIEWED & SUGGESTED CHANGES INDICATED (PERIODIC REVIEW A-2)
  - ☐ PORTIONS OF PROC. REVIEWED & SUGGESTED CHANGES INDICATED
- ☒ TEMPORARY CHANGE TO APPR'D PROC A-3 REVIEW REQUIRED BY _____
  - ☒ REVIEW OF TEMP CHANGE ONLY
  - ☐ REVIEW OF TEMP CHANGE AND PERMANENT PROC. REVISION

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
SUPT				
ASST SUPT				
ENG-TECH				
ENG-OPS				
ENG-MAINT				
SR HP				
SR CHEM				
PERF ENG	LDH	1/9/85		
I&C ENG				
ADMN SUPV				

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
REAC ENG				
SFT SUPT	CPC	1/9/85		
REG ENG				
OUT MGR				

3. COMMENTS/CORRECTIVE ACTION:

- ☐ Approved with comments/changes on attached document

COMMENTS/CORRECTIVE ACTION TAKEN & CHECKED/DATE	SUPT. APPROVAL/DATE	PORC MEETING
_____ / _____ ADMIN OR PREPARER	_____ / _____	#: _____ DATE: _____

DIRECTIONS TO ADMIN. STAFF:
- ☐ ISSUE THE ATTACHED DOCUMENT
- ☐ FILE THE ATTACHED DOCUMENT IN FILE _____
- ☐ FILE THIS FORM PER ADMIN. PROC. _____
- ☐ OTHER: _____

TRANSMIT A COPY OF THIS FORM AND DOCUMENT TO NRB FOR:
- ☐ APPROVAL
- ☐ REVIEW
- ☐ INFO

10/25/84

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

ST-1-055-701-1 HPCI PUMP CONTAMINATED PIPING INSPECTION

Test Freq.: 18 Months -OR- Initiating Events: 1. Reason 920 tank
Tech. Spec.: 6.8.4.a
FSAR 6.2.8.1.c
FSAR 6.2.8.3
2. MRF No. _____

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By: (Sign/Date) Marc Lehman 1-15-85

Performed By: (Sign/Date) [signature] 1-15-85

Informed Test Complete:(ACO or CO) (Sign/Date) [signature] 1-17-85
(Time) 1330

Reviewed By:(SSVN or STA) (Sign/Date) [signature] 1/17/85

B. One or More Asterisk(*) Steps Test Results UNSATISFACTORY.

Performed By: (Sign/Date) _____ ____

Informed of Test Results: (CO or ACO)(Sign/Date) _____ ____
(Time) ____

Shift Supervision: (Sign/Date) _____ ____

Corrective Action: MRF No.: _____

Initiated By: (Sign/Date) _____ ____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified: (Name) _____

Date/Time Notified: (Date/Time) ____ ____

Notified By: (Sign) _____

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) RB Dickinson 1-17-85

1.0 PURPOSE

To Inspect and measure any leakage of the HPCI Pump and HPCI System components that are directly associated with system piping that could carry contaminated fluids during a serious accident or transient. This inspection shall be implemented while the system is operating in the test mode.

2.0 REFERENCES

2.1 8031-M-55, High Pressure Coolant Injection

2.2 8031-M-56, HPCI Pump Turbine

2.3 NUREG-0737

3.0 TEST EQUIPMENT

3.1 Graduated Cylinder(s)

3.2 One-Liter Bottle(s)

3.3 Assorted funnels

3.4 Stopwatch

3.5 Inspection mirror w/handle

4.0 PRECAUTIONS & LIMITATIONS

4.1 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section.

4.2 Leakage rates of greater than 5 drops per min. (.25 cc/Min) shall be quantified. Use "$\leq$ 5 drops/min" on Attachment A for Components with leakage rates of 5 drops per min or less.

4.3 Steps marked (*) are specific Tech. Spec. requirements which will fail the test if not completed satisfactorily.

4.4 If any component exhibits excessive leakage notify SSVN immediately.

5.0 PREREQUISITES

5.1 Request RWP and HP Assistance when required.

5.2 Inspector is familiar with the HPCI system location and layout.

5.3 The HPCI pump must be running for surveillance ST-6-055-230-1 or per S55.1.D to inspect its associated piping and components.

5.4 Obtain copy of previous inspection's Attachment A.

5.5 Coordinate with Operator running the system to allow pump run durations to be extended for the inspection.

6.0 PROCEDURE

INITIALS

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS ARE CORRECTLY AND COMPLETELY FILLED IN.

6.1 Preparation

6.1.1 Verify all prerequisites are satisfied. RDM

6.1.2 Record appropriate information for each piece of measurement and test equipment used with a PECo number.

INSTRUMENT	MFR./MODEL	SER. NO.	CAL. DUE DATE
~~Stopwatch~~	Micronta ~~53-8106~~ 1/15/05	53-8106	1/26/04

INITIALS

6.2 Shift Permission to Test

6.2.1 Obtain Shift Supervision's permission to start test. RT

6.2.2 Obtain Control Room Operator's permission to start test. J Koelle ACO

1/15/85 DATE 1557 TIME

6.3 HPCI Pump Contaminated Piping Inspection

ACTUAL LEAKAGE RATE MEASUREMENT METHODS WILL BE LEFT TO THE DISCRETION OF THE INSPECTOR. THE ONLY GUIDELINES BEING THAT ALL DATA WILL BE A MEASURED QUANTITY OF FLUID OVER TIME USING A STOPWATCH. DROPS PER MINUTE CAN BE USED AS A MEASUREMENT METHOD WHERE 20 DROPS = 1cc. ALL RECORDED DATA SHALL BE IN CUBIC CENTIMETERS PER MIN. (cc/min).

6.3.1 For all in line components, within the boundaries of Attachment B, which exhibit leakage, record on Attachment A the Leakage Rate and a description of the location of the leak. Pay particular attention to system components identified as having exhibited measurable leakage in the previous inspection.

6.3.2 From the leakage rate data on Attachment A, calculate the total system leakage rate and document the results below.

SYSTEM LEAKAGE RATE

1.2 cc/min cc/min

0.003168 gal/min

(1 cc/min = 0.000264 gal/min)

INITIALS

6.4 Test Results Evaluation

6.4.1 Verify the total leakage rate from 6.3.2 is less than the leakage limit in 8.1. If the limit is exceeded prepare a MRF to reduce the system leakage rate so that it is within the limit mwf (*) see #1

6.4.2 If any component's leakage rate has increased significantly since the last inspection prepare a MRF to repair the component.

6.4.3 If any component's leakage is a major portion of the overall system leakage limit prepare a MRF for its repair.

7.0 RETURN TO NORMAL

7.1 Inform SSVN and ACO test is complete. mwf

8.0 ACCEPTANCE CRITERIA

8.1 The HPCI Pump and it's associated components shall not exhibit a leakage rate of greater than (later).

AT TEST COMPLETION, ENSURE COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.

IF ANY ENTRY IS MADE IN THIS SECTION, SIGN COVER SHEET IN APPROPRIATE SPACE.

ADDITIONAL ACTION/TEST COMMENTS (#1) This test is part of the initial test program which will be used to establish leak rate criteria in 8.1

Attachment A

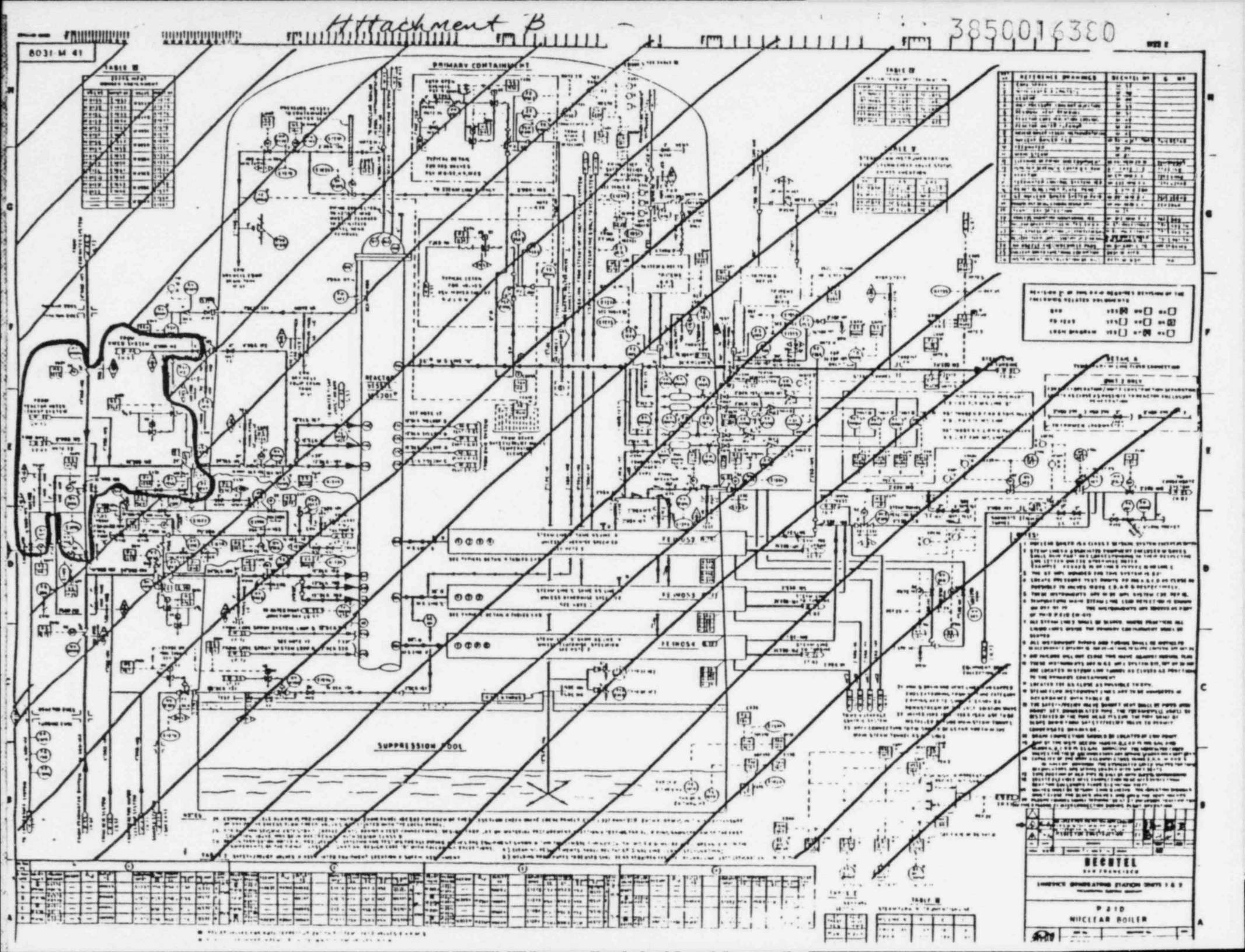
Inspector: M. Shores, C. Klebe, A. Sustaita

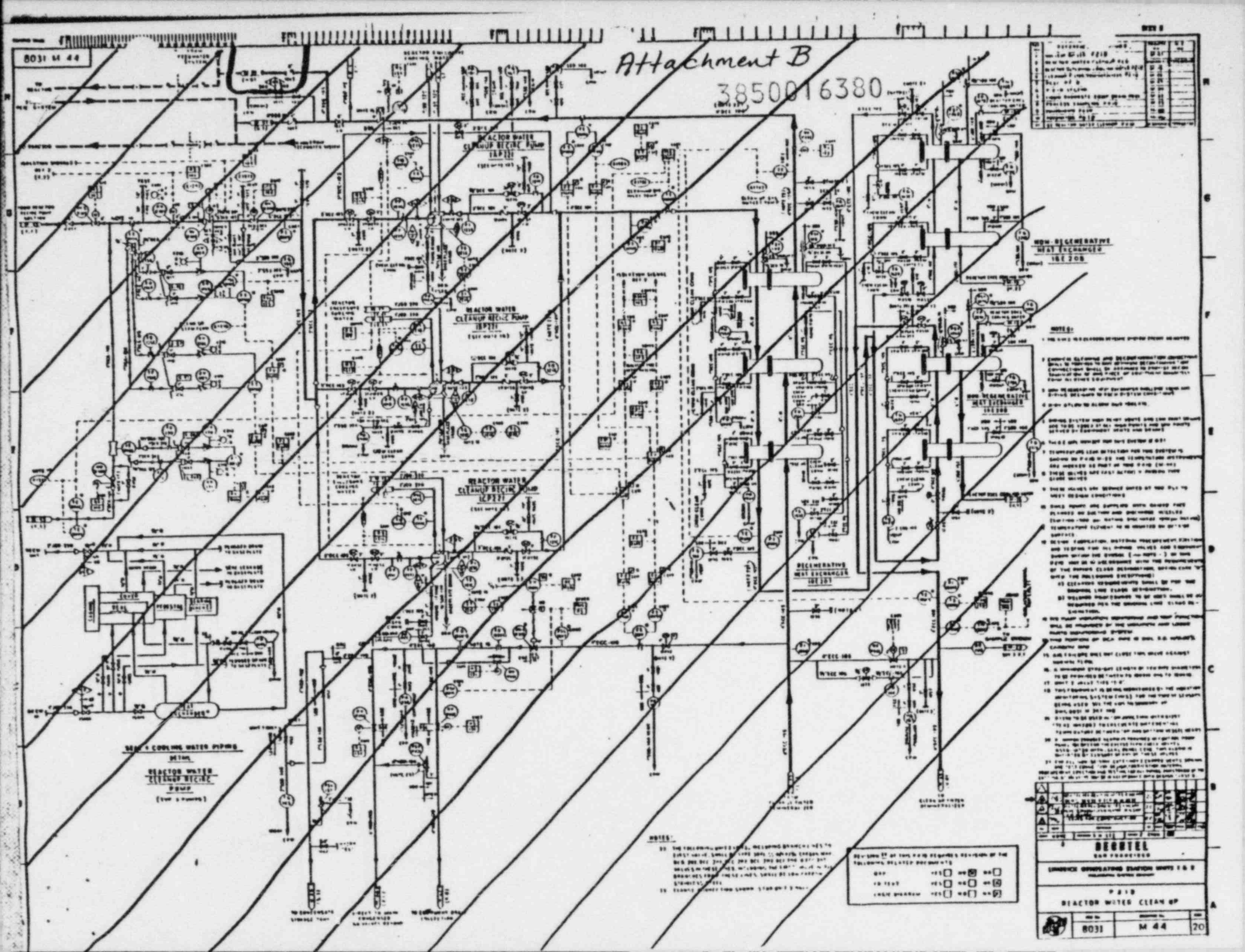
System Mode Running in Test Date: 1-15-85

Component No.	Component Description	Comp. Mode (on/Off (open/shut)	Leak Rate	Corrective Action Date	Remarks
HV-55-1F011			< 5 drops/min		
HV-55-1F001			< 5 drops/min		
HV-55-1F006			14 drops/min		

Attachment B

3850016380

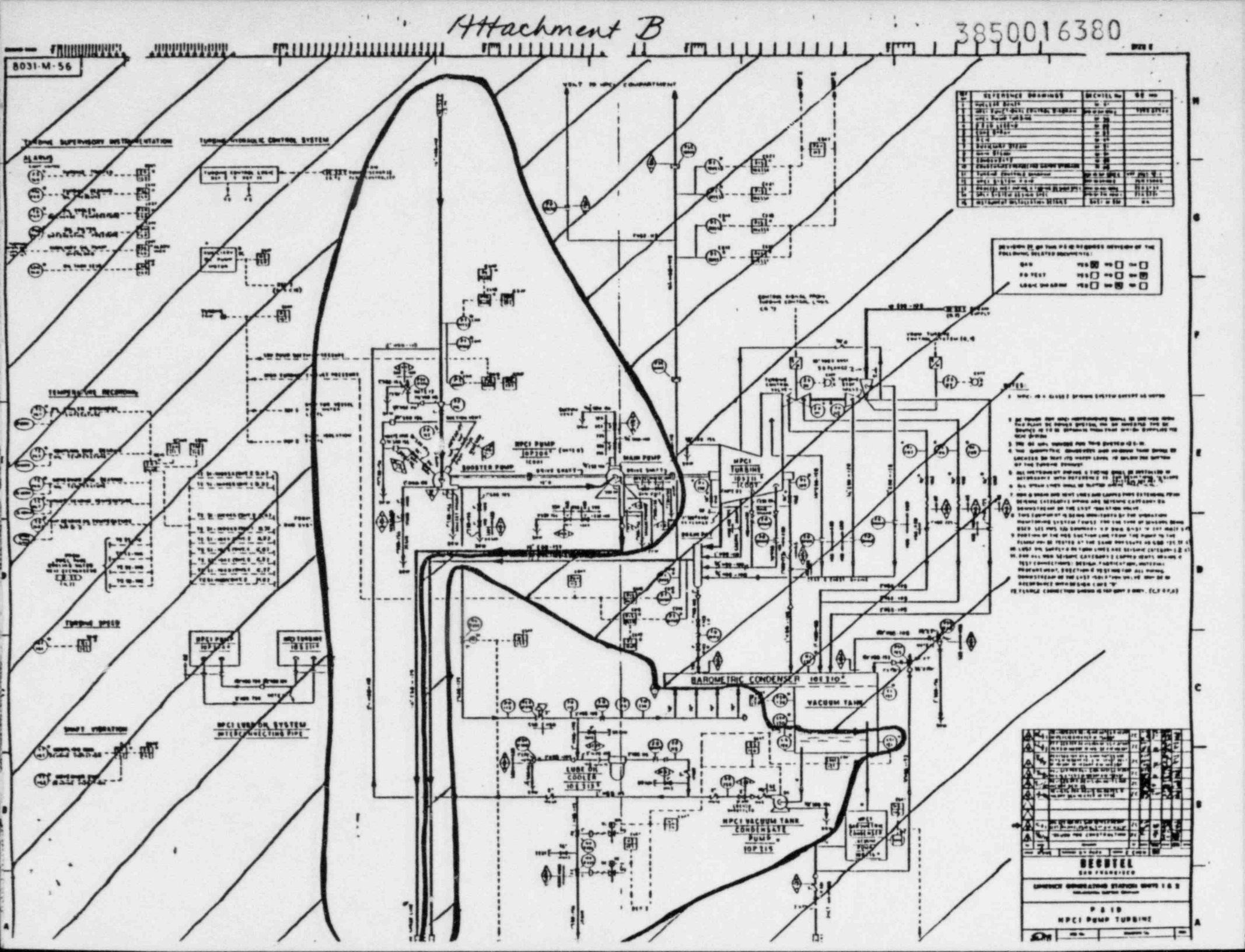


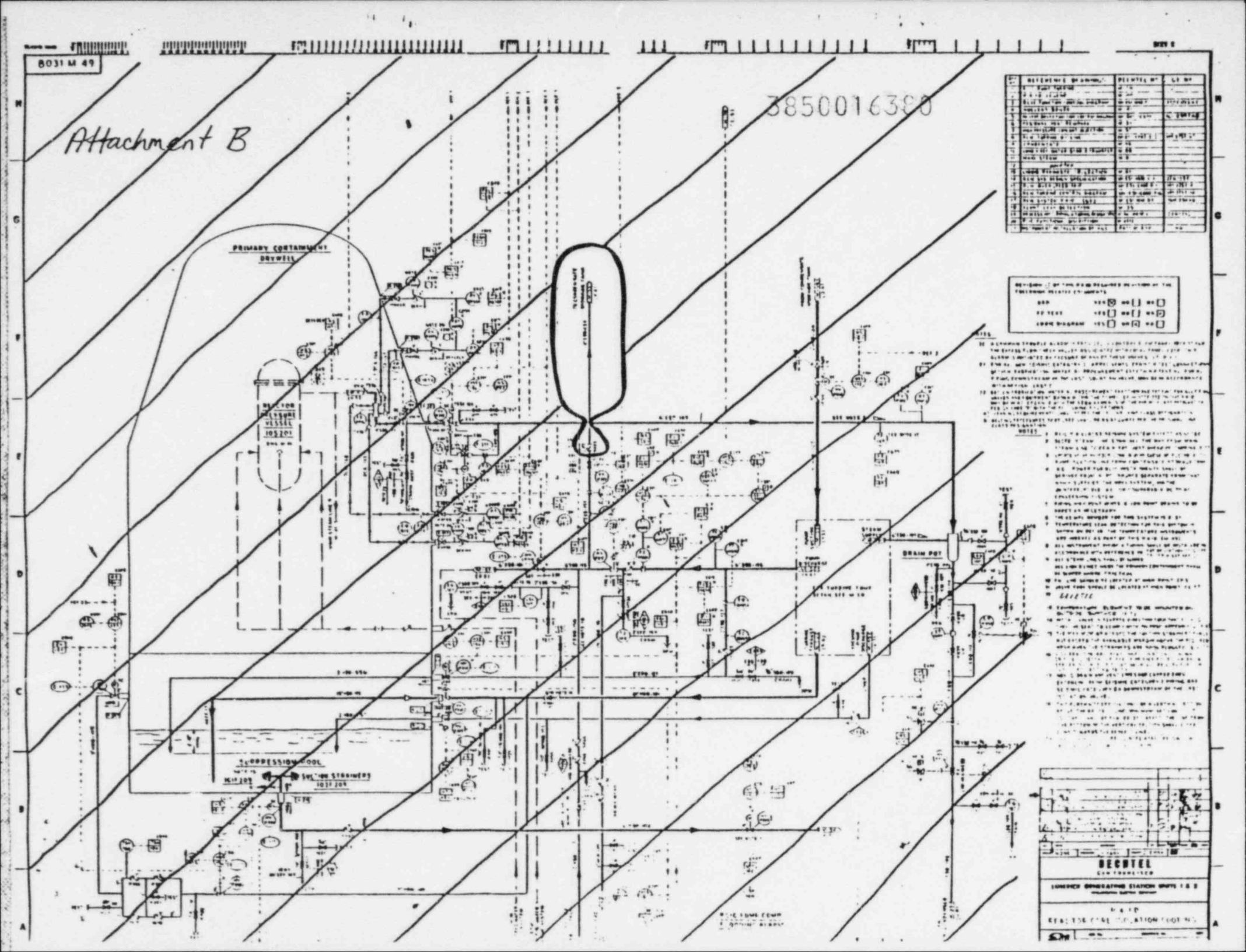

8031 M 44
Attachment B
3850016380
REACTOR WATER CLEANUP RECIRC PUMP 1APP01
REACTOR WATER CLEANUP RECIRC PUMP 1BPP01
REACTOR WATER CLEANUP RECIRC PUMP 1CPP01
NON-REGENERATIVE HEAT EXCHANGER 1BE206
REGENERATIVE HEAT EXCHANGER 1BE201
SERVICE WATER COOLING WATER PIPING
REACTOR WATER CLEANUP RECIRC PUMP
NOTES:
NOTES:
BECHTEL
LIMERICK GENERATING STATION UNITS 1 & 2
P & I D
REACTOR WATER CLEAN UP
8031
M 44
20

Attachment B

3850016380

8031-M-56

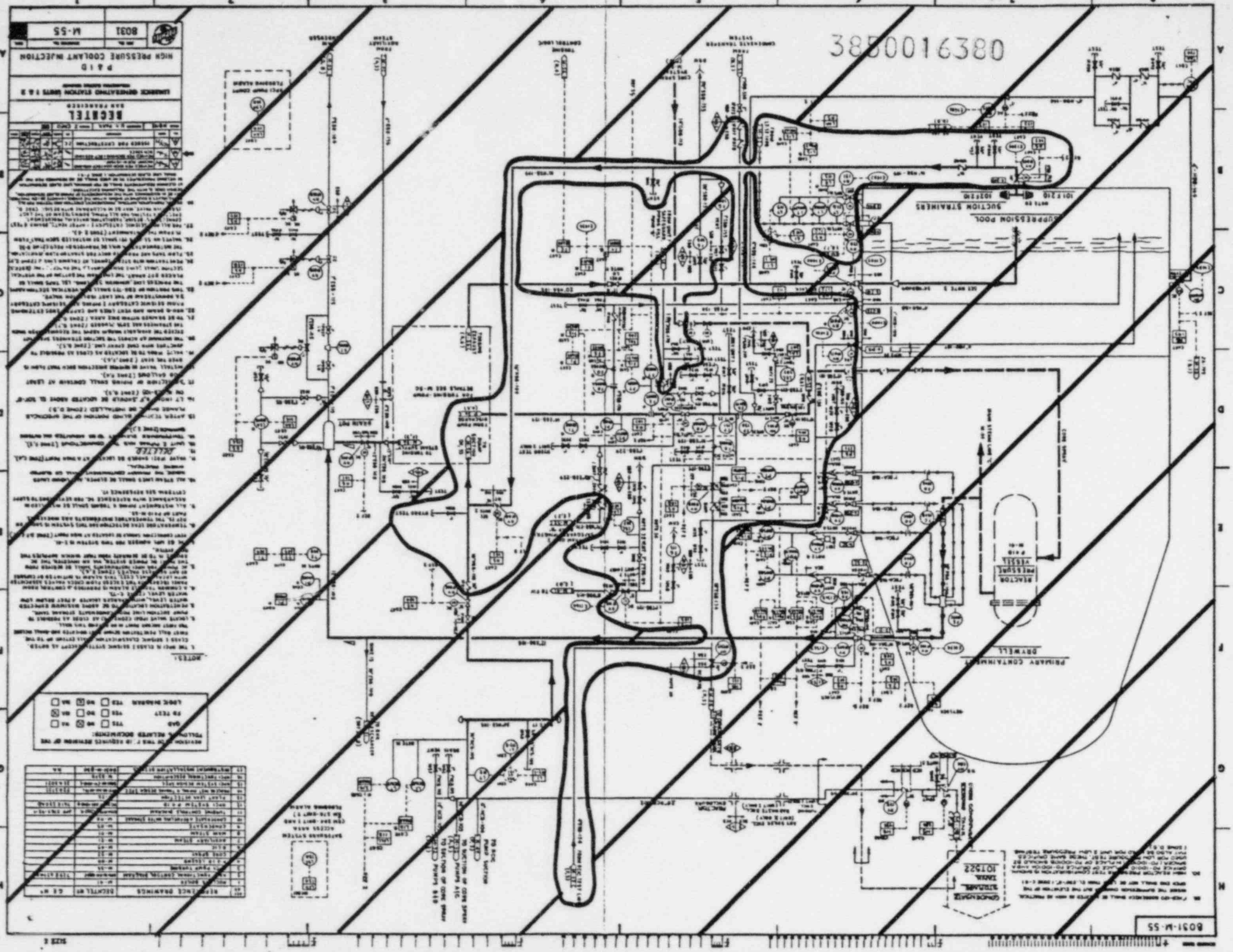



Attachment B
8031 M 49
3850016380
PRIMARY CONTAINMENT
DRYWELL
SUPPRESSION POOL
DRAIN POT
BECHTEL

LAD 1/9/85 CPC 1/9/85

3850016380

ATTACHMENT B ST-1-055-701-1



TDC #85-024 9/20/84 CRE

1. DOCUMENT (TITLE, OR PROC # & REV.): ST-6-055-702-1 Rev. 0

2. REASON FOR SUBMITTAL: attach 4 pages of "Attachment C" 3850016380

ATTACHMENT 7A

☐ NEW PROCEDURE

☐ PROCEDURE REVISION

☐ ENTIRE PROC. REVIEWED & SUGGESTED CHANGES INDICATED (PERIODIC REVIEW A-2)

☐ PORTIONS OF PROC. REVIEWED & SUGGESTED CHANGES INDICATED

☐ TEMPORARY CHANGE TO APPR'D PROC A-3 REVIEW REQUIRED BY ______

☒ REVIEW OF TEMP CHANGE ONLY

☐ REVIEW OF TEMP CHANGE AND PERMANENT PROC. REVISION

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
SUPT				
ASST SUPT				
ENG-TECH				
ENG-OPS				
ENG-MAINT				
SR HP				
SR CHEM				
(telecon J. Monty) PERF ENG	LAH	1/4/84		
I&C ENG				
ADMN SUPV				

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
REAC ENG				
SFT SUPT	J.M.	1-4-85		
REG ENG				
OUT MGR				
RE :	JMM	1/4/84		

3. COMMENTS/CORRECTIVE ACTION:

☐ Approved with comments/changes on attached document

COMMENTS/CORRECTIVE ACTION TAKEN & CHECKED/DATE	SUPT. APPROVAL/DATE	PORC MEETING
______ ______ ADMIN OR PREPARER	______/______	#: ______ DATE: ______

DIRECTIONS TO ADMIN. STAFF:
☐ ISSUE THE ATTACHED DOCUMENT
☐ FILE THE ATTACHED DOCUMENT IN FILE ______
☐ FILE THIS FORM PER ADMIN. PROC. ______
☐ OTHER: ______

TRANSMIT A COPY OF THIS FORM AND DOCUMENT TO NRB FOR:
☐ APPROVAL
☐ REVIEW
☐ INFO

3850016380

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

S M Patel 9/10/84

ST-1-055-702-1 HPCI TURBINE CONTAMINATED PIPING INSPECTION

Test Freq.: 18 Months -OR- Initiating Events: A. Reason 200# on 9/11
Tech. Spec.: 6.8.4.a
FSAR 6.2.8.1.c B. MRF No. _____

1A 85101

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By: (Sign/Date) Brian Tracy 1/5/85

Performed By: (Sign/Date) John Kraus 1/5/85

Informed Test Complete:(ACO or CO) (Sign/Date) D. Robertshaw 1/5/85
(Time) 1120

Reviewed By:(SSVN or STA) (Sign/Date) A Lomb 1-5-85

B. One or More Asterisked(*) Steps Test Results UNSATISFACTORY.

Performed By: (Sign/Date) _____ _____

Informed of Test Results: (CO or ACO)(Sign/Date) _____ _____
(Time) _____

Shift Supervision: (Sign/Date) _____ _____

Corrective Action: MRF No.: _____

Initiated By: (Sign/Date) _____ _____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified: (Name) _____

Date/Time Notified: (Date/Time) _____ _____

Notified By: (Sign) _____

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) _____ _____

1.0 PURPOSE

To inspect the H.P.C.I. Turbine, associated piping and components for steam leakage while the system is being run in the test mode.

2.0 REFERENCES

2.1 8031-M-55, High Pressure Coolant Injection

2.2 8031-M-56, HPCI Pump Turbine

3.0 TEST EQUIPMENT

None

4.0 PRECAUTIONS & LIMITATIONS

4.1 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section of the Data Sheet.

4.2 Signoff steps marked "SO" in the left-hand margin of the body of the procedure require a signoff on the Data Sheet or Procedure Cover Sheet.

4.3 Data Sheet steps marked (*) are specific Tech. Spec. requirements which will fail the test if not completed satisfactorily.

4.4 Components to be inspected shall include all valves, capped vents, drains and test connections, seals and case joints, flanged connections and instrument taps on all system piping which carries primary steam or its condensate.

4.5 If large steam leaks are encountered leave the area immediately and inform SSVN.

5.0 PREREQUISITES

5.1 Request RWP and HP assistance when required.

5.2 Inspector is familiar with the HPCI Turbine System location and layout.

5.3 Obtain a copy of the previous inspection's Data Sheet.

5.4 The HPCI pump must be running for surveillance ST-6-055-230-1 or per S55.1.0 to inspect its associated piping and components. (This should be done in conjunction with ST-1-055-701-1.)

6.0 PROCEDURE

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS AND DATA SHEETS ARE CORRECTLY AND COMPLETELY FILLED IN.

6.1 Preparation

SO 6.1.1 Verify all prerequisites are satisfied.

6.2 Shift Permission to Test

SO 6.2.1 Obtain Shift Supervision's permission to start test.

SO 6.2.2 Obtain Control Room Operator's permission to start test.

6.3 HPCI Turbine Contaminated Piping Inspection.

6.3.1 Inspect the HPCI Turbine and it's associated in Line components for steam leakage while the system is at pressure and running.

6.3.2 For all system components, within the boundaries of Attachment C, which exhibit steam leakage, record on the Data Sheet Attachment A an estimate of the length of the steam plume and a description of the location of the leak. Pay particular attention to system components which exhibited leakage in the previous inspection. Large steam leaks should not be quantified. A MRF should be issued for the component's repair and this test should be considered a failed test.

6.3.3 Using Attachment B convert the steam plume lengths to values of water volume and record them on Attachment A.

6.3.4 From the volumetric leak rate data on Atachment A, calculate the total steam system leakage rate and document the results on the data sheet.

HAVE SHIFT SUPERVISION PERFORM THE TEST RESULTS EVALUATION, SECTION 6.4

6.4 Test Results Evaluation

SO 6.4.1 Compare the leakage limit in 8.1 to the total system leakage rate. If the limit is exceeded prepare a MRF to reduce the system leakage rate so that it is within the limit.

6.4.2 If any component's leakage rate has increased significantly since the last inspection prepare a MRF to repair the component.

6.4.3 If any component's leakage is a major portion of the overall system leakage limit prepare a MRF for its repair.

7.0 RETURN TO NORMAL

SO 7.1 Inform SSVN and ACO test is complete

8.0 ACCEPTANCE CRITERIA

8.1 The HPCI Turbine System shall not exhibit a leakage rate greater than (Later).

AT TEST COMPLETION, ENSURE COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.

H.P.C.I. TURBINE CONTAMINATED PIPING INSPECTION

DATA SHEET (1 of 2)

ACTION REQUIRED — INITIALS

6.0 PROCEDURE

6.1 Preparation

6.1.2 All prerequisites satisfied — mpB

6.1.3 Test Equipment — N/A

INSTRUMENT	MFR./MODEL	SER. NO.	CAL. DUE DATE

6.2 Shift Permission to Test

6.2.1 SSVN permission obtained — mpB

6.2.2 ACO permission to test — ACO

1-4-85 / 19:17
Date Time

6.3 HPCI Turbine Contaminated Piping Inspection.

6.3.4 HPCI Turbine Leakage rate:

136 cc/min SEE NOTE #1
.035904 gal/min
(1 cc/min = .000264 gal/min)

6.4 Test Results Evaluation.

6.4.1 The HPCI Turbine System leakage rate is within acceptable limits. — BT (*) SEE NOTE #2

H.P.C.I. TURBINE CONTAMINATED PIPING INSPECTION

DATA SHEET (2 of 2)

ACTION REQUIRED	INITIALS
7.0 RETURN TO NORMAL	
7.1 SSVN and ACO informed of test completion.	JEK

IF ANY ENTRY IS MADE IN THIS SECTION, SIGN COVER SHEET IN APPROPRIATE SPACE.

ADDITIONAL ACTION/TEST COMMENTS #1 GLAND SEAL LEAKAGE IS PRESENT ONLY WHEN THE VACUUM PUMP IS NOT OPERATING. #2 THIS TEST IS PART OF THE INITAL TEST PROGRAM WHICH WILL BE USED TO ESTABLISH LEAKRATE CRITERIA IN 8.1

HPCI TURBINE CONTAMINATED PIPING INSPECTION

DATA SHEET

Attachment A

INSPECTOR: Bob Mandik / Marc Lehman

SYSTEM MODE Running in Test DATE: Jan. 5, 1985

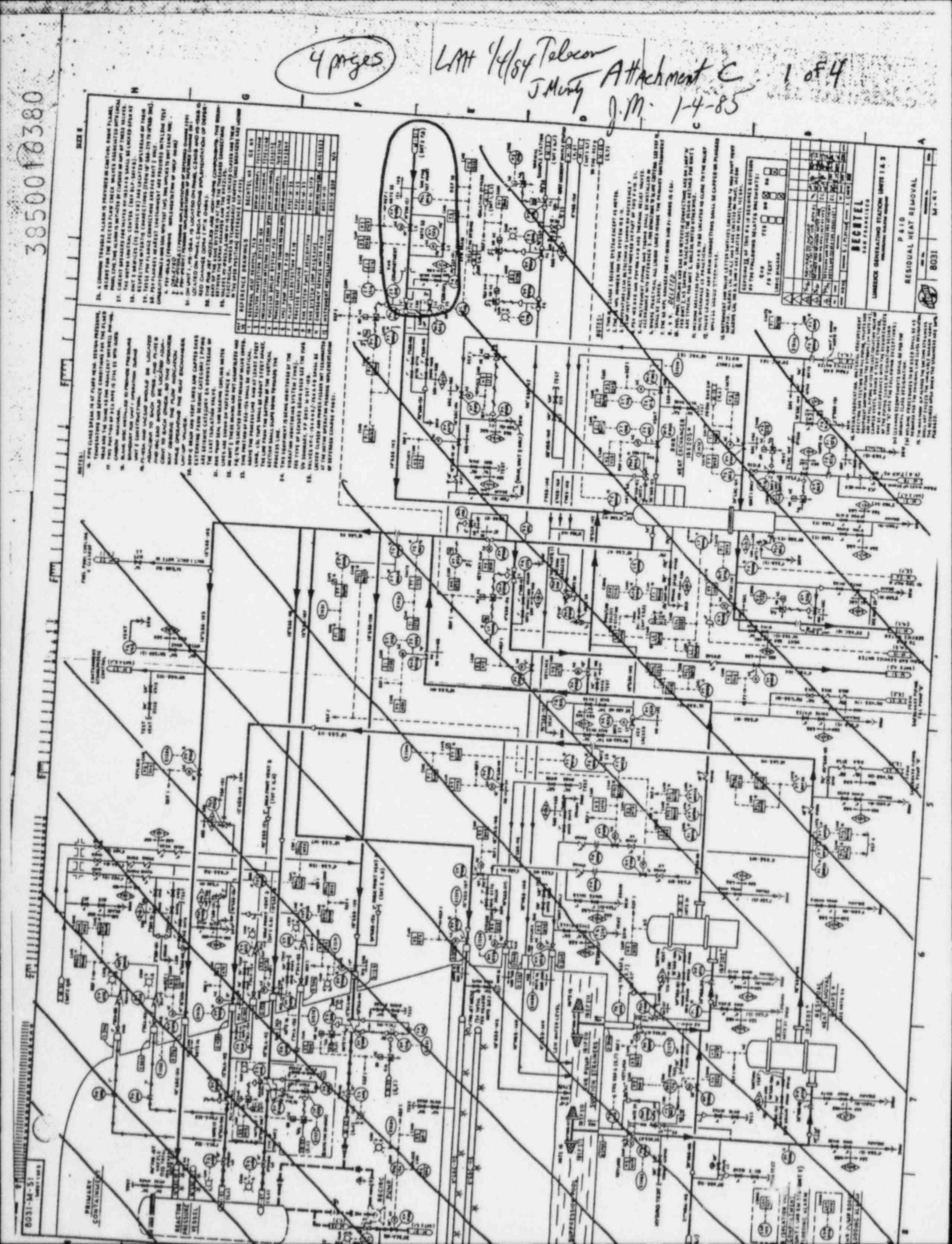
Component No.	Component Description	Comp. Mode (on/off) (open/shut)	Steam Plume Length	Equivalent Water Leak Rate	Corrective Action Date	Remarks
10S211	HPCI Turbine Shaft Gland Seal	ON	2 FT.	136 cc/min		

ATTACHMENT B

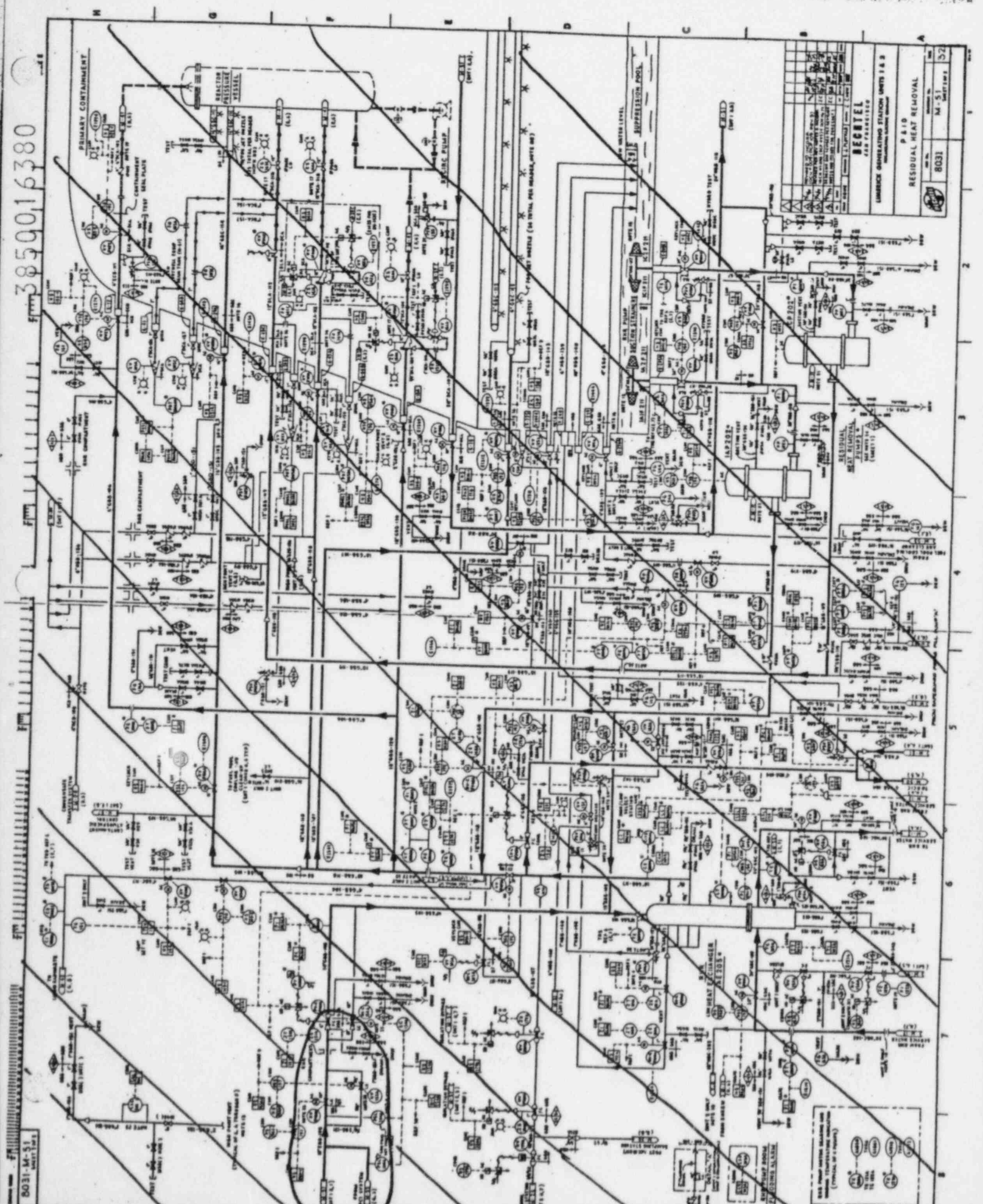
STEAM PLUME LENGTH CONVERSION TABLE

Steam Plume Length (ft)	Water Volume (cc/min)
1.00	76
1.25	87
1.50	98
1.75	114
2.00	136
2.25	152
2.50	174
2.75	205
3.00	235
3.25	273
3.50	311
3.75	356
4.00	409

4 pages LMI 1/4/84 Telecon J Mintz Attachment C 1 of 4 J.M. 1-4-85



Attachment C 2 of 4



8031-M-55

NO.	REFERENCE DRAWINGS	BECHTEL NO.	GE NO.
1	NUCLEAR BOILER	M-47	
2	HPCI FUNCTIONAL CONTROL DIAGRAM	M-00-0001	729E419NS
3	HPCI PUMP TURBINE	M-55	
4	P & I D LEGEND	M-00	
5	CORE SPRAY	M-53	
6	R.C.I.C.	M-63	
7	AUXILIARY STEAM	M-51	
8	MAIN STEAM	M-01	
9	CONDENSATE	M-05	
10	CONDENSATE & STORAGE WATER STORAGE	M-10	
11	TURBINE CONTROL DIAGRAM	729E419NS-0010	APP 3761-10-1
12	HPCI SYSTEM P & ID	729E419NS-0001	761E137NS
13	PLANT LEAK DETECTION	M-13	
14	PROCESS INSTRUMENT & PIPING DESIGN SPEC	8031-M-0001	21A3122
15	HPCI SYSTEM DESIGN SPEC	8031-M-0001	21A3121
16	SPECIFICATIONS DESCRIPTION	M-0126	
17	INSTRUMENT INSTALLATION DETAILS	8031-M-0160	NA

REVISION 12 OF THIS P&ID REQUIRES REVISION OF THE FOLLOWING RELATED DOCUMENTS:

Q-A-D	YES ☐	NO ☒	NA ☐
FD TEST	YES ☐	NO ☐	NA ☒
LOGIC DIAGRAM	YES ☐	NO ☒	NA ☐

NOTES:

1. THE HPCI IS CLASS I SEISMIC SYSTEM EXCEPT AS NOTED. CLASS I SEISMIC CLASSIFICATION SHALL EXTEND UP TO THE FIRST ANCHOR FOR PIPING BEYOND POINT INDICATED AND SHALL INCLUDE THE FIRST ANCHOR POINT IN OR BEYOND THIS SHELL.
2. ISOLATE VALVE HPCI-MO-15 (ZONE D-4) AS CLOSE AS POSSIBLE TO PUMP SUCTION LINE FROM CONDENSATE STORAGE TANK.
3. PENETRATION LOCATION TO BE ABOVE MAXIMUM EXPECTED WATER LEVEL, WITH DRAINED LOCATED A FOOT BELOW LOW WATER LEVEL (ZONE C-7).
4. A COMMON TROUBLE ALARM IS PROVIDED IN CONTROL ROOM PANEL 1(2)C601 FOR THE EXCESS FLOW CHECK VALVES ASSOCIATED WITH LEAKAGE PANEL C251. THIS ALARM IS INITIATED BY CLOSURE OF ANY OF THESE VALVES. (ZONE E-6).
5. ALL POWER FOR HPCI INSTRUMENTS SHALL BE DERIVED FROM THE PLANT DC POWER SYSTEM, VIA AN INVERTER, THE DC SOURCE IS TO BE DERIVED FROM THAT WHICH SUPPLIES THE BASIC SYSTEM.
6. THE 8" HPCI HEADER FOR THIS SYSTEM IS C-10.
7. VENT CONNECTION SHALL BE LOCATED AT HIGH POINT (ZONE D-7 E-7).
8. TEMPERATURE LEAK DETECTION FOR THIS SYSTEM IS SHOWN ON REF 15. THE TEMPERATURE INSTRUMENTS ARE INDICATED AS PART OF P&ID M-55.
9. ALL INSTRUMENT PIPING & TUBING SHALL BE INSTALLED IN ACCORDANCE WITH REFERENCE 16. FOR DEVIATIONS TO SLOPE CRITERIA SEE REFERENCE 17.
10. ALL STEAM LINES SHALL BE SLOPED. ALL LIQUID LINES LEAVING THE PRIMARY CONTAINMENT SHALL BE SLOPED TOWARD PROCESS.
11. VALVE HPCI SHOULD BE LOCATED AT A HIGH POINT (ZONE C-6).
12. DELETED
13. UNIT 2 PIPING HAS TWO CONNECTIONS (ZONE F-1).
14. TEMPERATURE ELEMENT TO BE MOUNTED ON PIPING SURFACE (ZONE E-3).
15. AFTER TESTING, BLIND PORTION OF THE SPECTACLE FLANGE SHALL BE INSTALLED. (ZONE D-5)
16. LT 1(2)HPCI-N.P. SHOULD BE LOCATED ABOVE EL. 207'-0" THE HPCI-HO (ZONE E-1).
17. 24" SECTION OF PIPING SHALL CONTAIN AT LEAST 1100 GALLONS (ZONE F-6).
18. INSTALL VALVE IN HORIZ DIRECTION SUCH THAT FLOW IS OVER THE SEAT (ZONE F-6).
19. VALVE HPCI-76 TO BE LOCATED AS CLOSE AS POSSIBLE TO JUNCTURE WITH CORE SPRAY LINE. (ZONE E-5).
20. THE MAXIMUM ΔP ACROSS THE SUCTION STRAINERS SHALL NOT EXCEED THE AVAILABLE MARGIN ABOVE THE RATED NPSH WHEN THE STRAINERS ARE 50% PLUGGED (ZONE A-7).
21. TO BE SPARGED WITH STEAM AREA (ZONE E-7).
22. 600-16 DRAIN AND VENT LINES AND CAPPED ENDS EXTENDING FROM SEISMIC CATEGORY I PIPING ARE SEISMIC CATEGORY I TO DOWNSTREAM OF THE LAST ISOLATION VALVE.
23. THIS PORTION OF 600-109 BAP-1 IS A VERTICAL SECTION ABOVE THE PIPING LINE, APPROX 3FT LONG. ALL TUBES SHALL BE PLACED 3FT APART. THE LINE FROM THE BOTTOM OF THE VERTICAL SECTION SHALL SLOPE DOWN TOWARDS THE PIPING LINE (ZONE C-3).
24. PENETRATION WITH STEAM TUNNEL AT COLUMN LINE J (ZONE E-2).
25. FLOW TAPS ARE PROVIDED ONLY FOR STARTUP FLOW VERIFICATION. THE INSTRUMENTATION WILL BE PROVIDED BY PERFORMANCE (ZONE F-6).
26. VALVES HV-55-109 & 701 SHALL BE INSTALLED SUCH THAT FLOW IS FROM THE LOW PRESSURE (ZONE B-6).
27. PIPE ALL NON-SEISMIC CATEGORY I (LOWER ENDS), SEISMIC & TEST CONNECTIONS DESIGN, FABRICATION, MATERIAL PROCUREMENT, ERECTION, TESTING AND ALL PIPING, DOWNSTREAM OF THE LAST ISOLATION VALVE, MUST BE IN ACCORDANCE WITH DESIGN CODE B.

NO.	REVISION	BY	DATE
28	ISSUED FOR CONSTRUCTION		

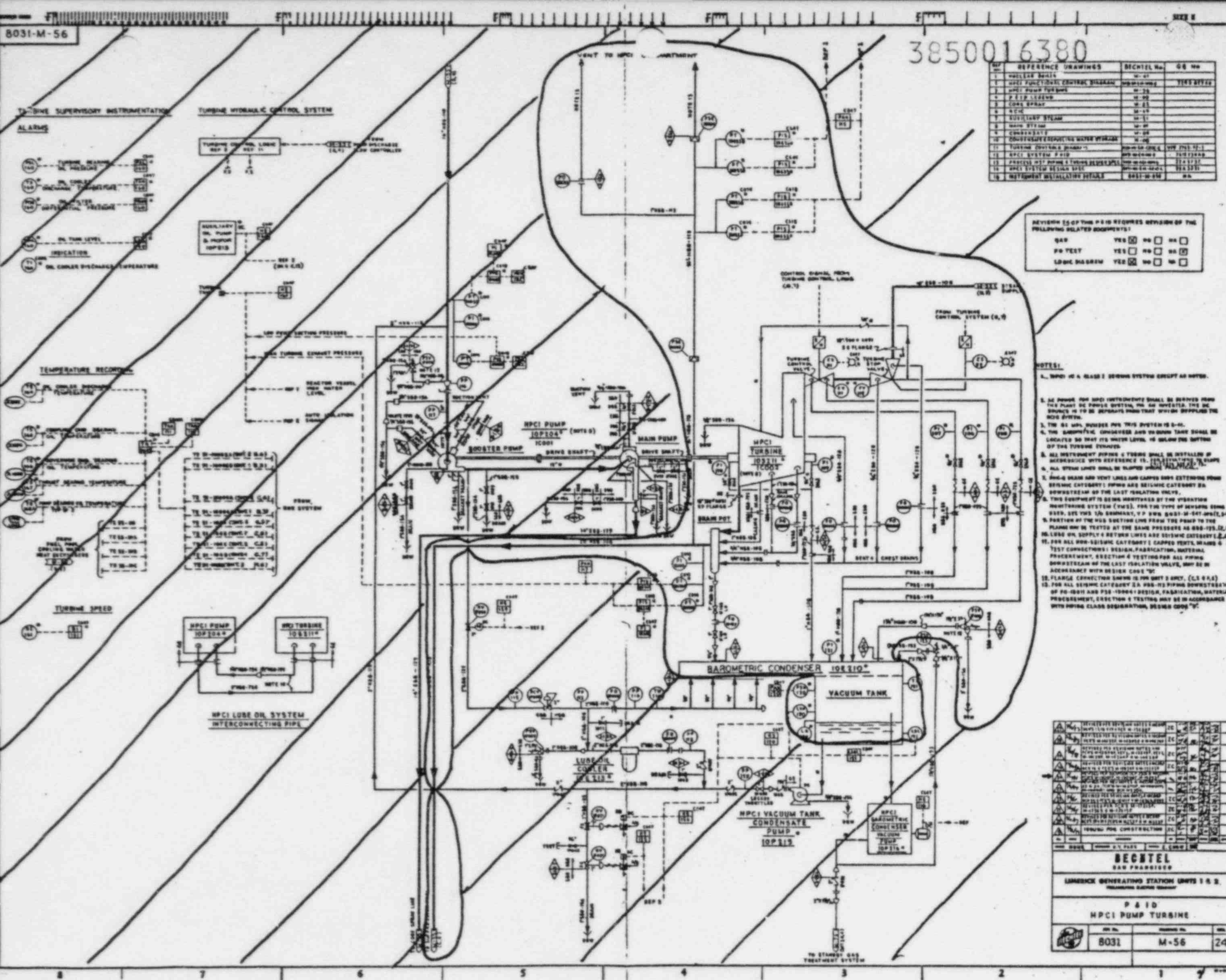
BECHTEL
SAN FRANCISCO

LIMERICK GENERATING STATION UNITS 1 & 2

P & I D
HIGH PRESSURE COOLANT INJECTION

8031	M-55	28

Attachment 2 3 of 4


8031-M-56
3850016380
TURBINE SUPERVISORY INSTRUMENTATION
ALARMS
INDICATION
TURBINE HYDRAULIC CONTROL SYSTEM
TEMPERATURE RECORDING
TURBINE SPEED
HPCI PUMP
10P204
HPCI TURBINE
10S211
HPCI LUBE OIL SYSTEM
INTERCONNECTING PIPE
REFERENCE DRAWINGS
NOTES:
HPCI PUMP
10P204
1C001
MAIN PUMP
BOOSTER PUMP
DRIVE SHAFT
HPCI TURBINE
10S211
1C002
DRAIN POT
BAROMETRIC CONDENSER 10E210
VACUUM TANK
LUBE OIL COOLER
HPCI VACUUM TANK CONDENSATE PUMP
10P219
TO STANDBY GAS TREATMENT SYSTEM
BECHTEL
SAN FRANCISCO
LIMERICK GENERATING STATION UNITS 1 & 2
P & ID
HPCI PUMP TURBINE
8031
M-56
24

3850016380

9/28/84
EFFECTIVE DATE

LIMERICK GENERATING STATION
PORC APPROVAL FORM

TPC#85-047

R.F. Moore 9.26.84

A-4, Form 1
Revision 1
Page 1 of 1

G.M. Leitt 9/10/84 CRE

1. DOCUMENT (TITLE, OR PROC # & REV.): ST-1-055-702-1

2. REASON FOR SUBMITTAL: TEMPORARY CHANGE

ATTACHMENT 7B

☐ NEW PROCEDURE

☐ PROCEDURE REVISION

☐ ENTIRE PROC. REVIEWED & SUGGESTED CHANGES INDICATED (PERIODIC REVIEW A-2)

☐ PORTIONS OF PROC. REVIEWED & SUGGESTED CHANGES INDICATED

☒ TEMPORARY CHANGE TO APPR'D PROC
A-3 REVIEW REQUIRED BY _____

☒ REVIEW OF TEMP CHANGE ONLY

☐ REVIEW OF TEMP CHANGE AND PERMANENT PROC. REVISION

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
SUPT				
ASST SUPT				
ENG-TECH				
NG-OPS				
ENG-MAINT				
SR HP				
SR CHEM				
PERF ENG	LAH	11/9/85		
I&C ENG				
ADMN SUPV				

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
REAC ENG				
SFT SUPT	CPC	11/9/85		
REG ENG				
OUT MGR				

CONTROLLED COPY

VALID ONLY WHEN RED

3. COMMENTS/CORRECTIVE ACTION:

☐ Approved with comments/changes on attached document

COMMENTS/CORRECTIVE ACTION TAKEN & CHECKED/DATE	SUPT. APPROVAL/DATE	PORC MEETING
ADMIN OR PREPARER		#: DATE:

DIRECTIONS TO ADMIN. STAFF:
☐ ISSUE THE ATTACHED DOCUMENT
☐ FILE THE ATTACHED DOCUMENT IN FILE _____
☐ FILE THIS FORM PER ADMIN. PROC. _____
☐ OTHER: _____

TRANSMIT A COPY OF THIS FORM AND DOCUMENT TO NRB FOR:
☐ APPROVAL
☐ REVIEW
☐ INFO

3850016380

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

9/10/84

ST-1-055-702-1 HPCI TURBINE CONTAMINATED PIPING INSPECTION

Test Freq.: 18 Months -OR- Initiating Events: A. Reason 920# or 5/4.
Tech. Spec.: 6.8.4.a
FSAR 6.2.8.1.c B. MRF No. ____

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By: (Sign/Date) 1-15-85

Performed By: (Sign/Date) 1-15-85

Informed Test Complete:(ACO or CO) (Sign/Date) 1-17-85
(Time) 1330

Reviewed By:(SSVN or STA) (Sign/Date) 1/17/85

B. One or More Asterisked(*) Steps Test Results UNSATISFACTORY.

Performed By: (Sign/Date) _____ _____

Informed of Test Results: (CO or ACO)(Sign/Date) _____ _____
(Time) _____

Shift Supervision: (Sign/Date) _____ _____

Corrective Action: MRF No.: _____

Initiated By: (Sign/Date) _____ _____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified: (Name) _____

Date/Time Notified: (Date/Time) _____ _____

Notified By: (Sign) _____

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) 1/17/85

1.0 PURPOSE

To inspect the H.P.C.I. Turbine, associated piping and components for steam leakage while the system is being run in the test mode.

2.0 REFERENCES

2.1 8031-M-55, High Pressure Coolant Injection

2.2 8031-M-56, HPCI Pump Turbine

3.0 TEST EQUIPMENT

None

4.0 PRECAUTIONS & LIMITATIONS

4.1 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section of the Data Sheet.

4.2 Signoff steps marked "SO" in the left-hand margin of the body of the procedure require a signoff on the Data Sheet or Procedure Cover Sheet.

4.3 Data Sheet steps marked (*) are specific Tech. Spec. requirements which will fail the test if not completed satisfactorily.

4.4 Components to be inspected shall include all valves, capped vents, drains and test connections, seals and case joints, flanged connections and instrument taps on all system piping which carries primary steam or its condensate.

4.5 If large steam leaks are encountered leave the area immediately and inform SSVN.

5.0 PREREQUISITES

5.1 Request RWP and HP assistance when required.

5.2 Inspector is familiar with the HPCI Turbine System location and layout.

5.3 Obtain a copy of the previous inspection's Data Sheet.

5.4 The HPCI pump must be running for surveillance ST-6-055-230-1 or per S55.1.0 to inspect its associated piping and components. (This should be done in conjunction with ST-1-055-701-1.)

6.0 PROCEDURE

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS AND DATA SHEETS ARE CORRECTLY AND COMPLETELY FILLED IN.

6.1 Preparation

SO 6.1.1 Verify all prerequisites are satisfied.

6.2 Shift Permission to Test

SO 6.2.1 Obtain Shift Supervision's permission to start test.

SO 6.2.2 Obtain Control Room Operator's permission to start test.

6.3 HPCI Turbine Contaminated Piping Inspection.

6.3.1 Inspect the HPCI Turbine and it's associated in Line components for steam leakage while the system is at pressure and running.

6.3.2 For all system components, within the boundaries of Attachment C, which exhibit steam leakage, record on the Data Sheet Attachment A an estimate of the length of the steam plume and a description of the location of the leak. Pay particular attention to system components which exhibited leakage in the previous inspection. Large steam leaks should not be quantified. A MRF should be issued for the component's repair and this test should be considered a failed test.

6.3.3 Using Attachment B convert the steam plume lengths to values of water volume and record them on Attachment A.

6.3.4 From the volumetric leak rate data on Atachment A, calculate the total steam system leakage rate and document the results on the data sheet.

HAVE SHIFT SUPERVISION PERFORM THE TEST RESULTS EVALUATION, SECTION 6.4

6.4 Test Results Evaluation

SO 6.4.1 Compare the leakage limit in 8.1 to the total system leakage rate. If the limit is exceeded prepare a MRF to reduce the system leakage rate so that it is within the limit.

6.4.2 If any component's leakage rate has increased significantly since the last inspection prepare a MRF to repair the component.

6.4.3 If any component's leakage is a major portion of the overall system leakage limit prepare a MRF for its repair.

7.0 RETURN TO NORMAL

SO 7.1 Inform SSVN and ACO test is complete

8.0 ACCEPTANCE CRITERIA

8.1 The HPCI Turbine System shall not exhibit a leakage rate greater than (Later).

AT TEST COMPLETION, ENSURE COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.

H.P.C.I. TURBINE CONTAMINATED PIPING INSPECTION

DATA SHEET (1 of 2)

ACTION REQUIRED — INITIALS

6.0 PROCEDURE

6.1 Preparation

6.1.2 All prerequisites satisfied — RDM

6.1.3 Test Equipment — N/A

INSTRUMENT	MFR./MODEL	SER. NO.	CAL. DUE DATE

6.2 Shift Permission to Test

6.2.1 SSVN permission obtained — RT

6.2.2 ACO permission to test — J Koelle ACO

11/15/85/ 1530 Date Time

6.3 HPCI Turbine Contaminated Piping Inspection.

6.3.4 HPCI Turbine Leakage rate:

0.00 cc/min
0.00 gal/min
(1 cc/min = .000264 gal/min)

6.4 Test Results Evaluation.

6.4.1 The HPCI Turbine System leakage rate is within acceptable limits. — RDM (*) Acc #1

H.P.C.I. TURBINE CONTAMINATED PIPING INSPECTION

DATA SHEET (2 of 2)

ACTION REQUIRED	INITIALS
7.0 RETURN TO NORMAL	
7.1 SSVN and ACO informed of test completion.	maf

IF ANY ENTRY IS MADE IN THIS SECTION, SIGN COVER SHEET IN APPROPRIATE SPACE.

ADDITIONAL ACTION/TEST COMMENTS (#1) this test is part of the initial test program which will be used to establish leak rate criteria 8.1

3850016380

HPCI TURBINE CONTAMINATED PIPING INSPECTION

DATA SHEET

Attachment A

INSPECTOR: M. Lehman, C. Hebe, D. Sustiata

SYSTEM MODE Running in Test DATE: 1-15-85

Component No.	Component Description	Comp. Mode (on/off) (open/shut)	Steam Plume Length	Equivalent Water Leak Rate	Corrective Action Date	Remarks
		No Leakage				

ATTACHMENT B

STEAM PLUME LENGTH CONVERSION TABLE

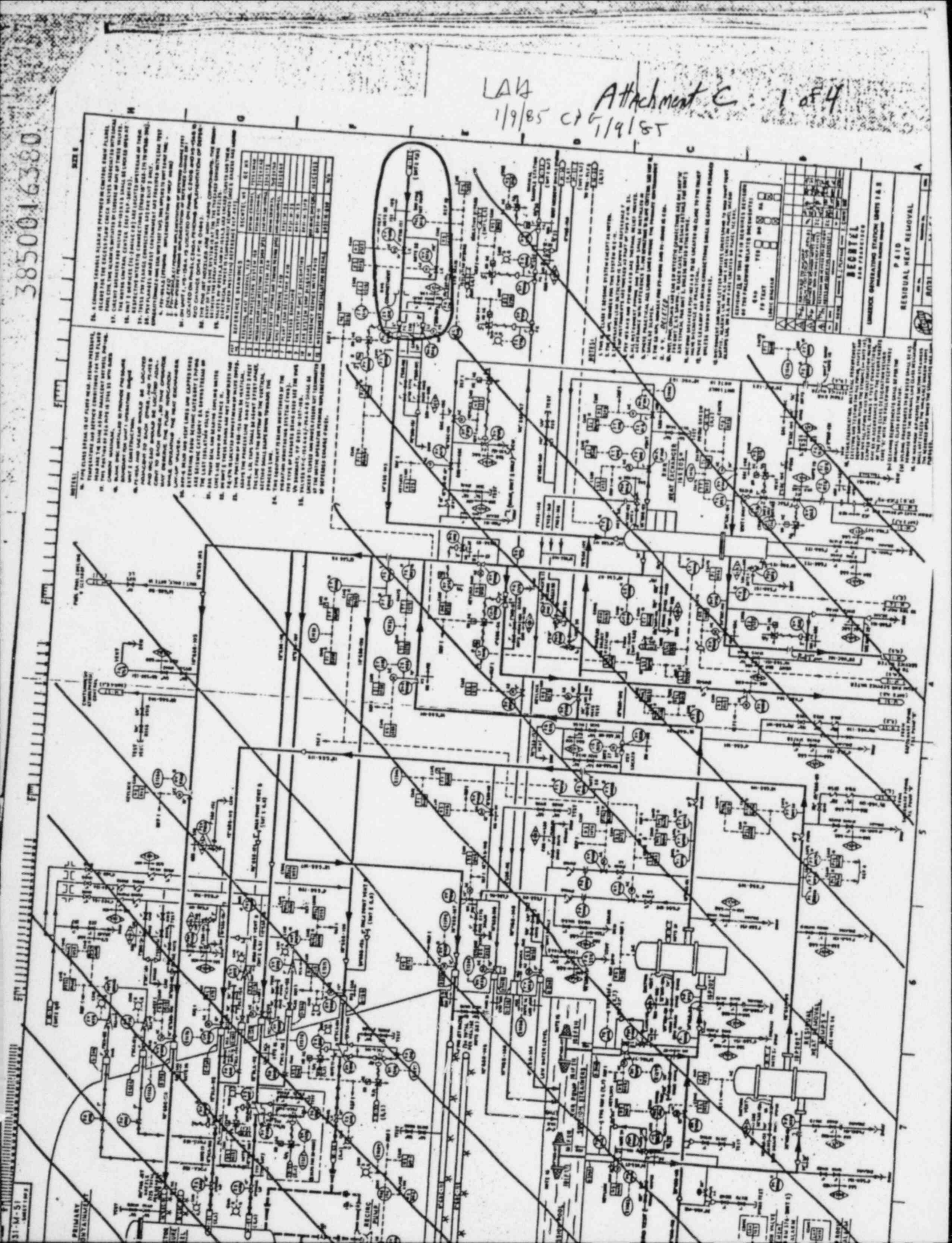
Steam Plume Length (ft)	Water Volume (cc/min)
1.00	76
1.25	87
1.50	98
1.75	114
2.00	136
2.25	152
2.50	174
2.75	205
3.00	235
3.25	273
3.50	311
3.75	356
4.00	409

LAR
1/9/85 CTG

Attachment C - 1 of 4

1/9/85

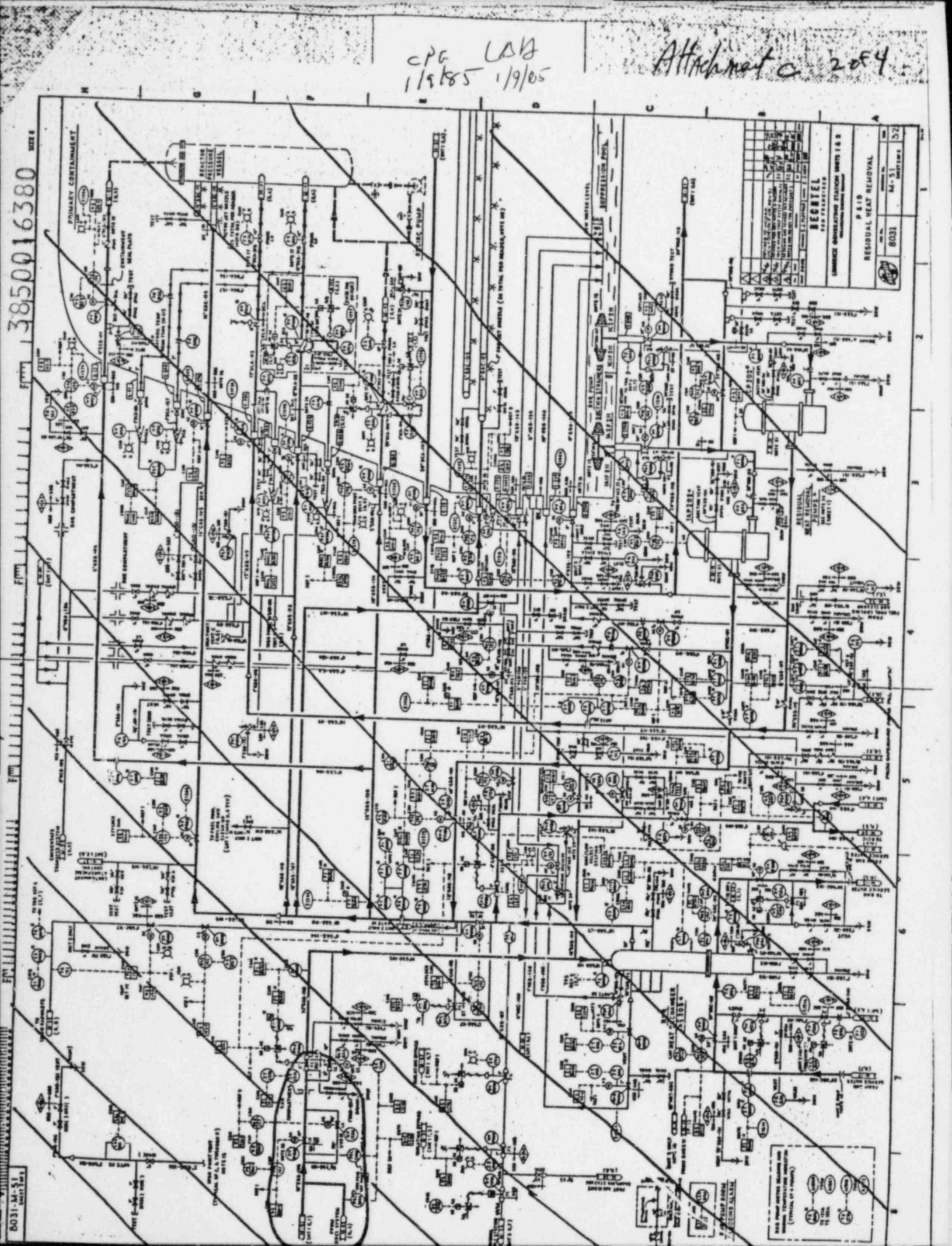
3850016380



CPG LAB
1/9/85 1/9/05

Attachment 2054

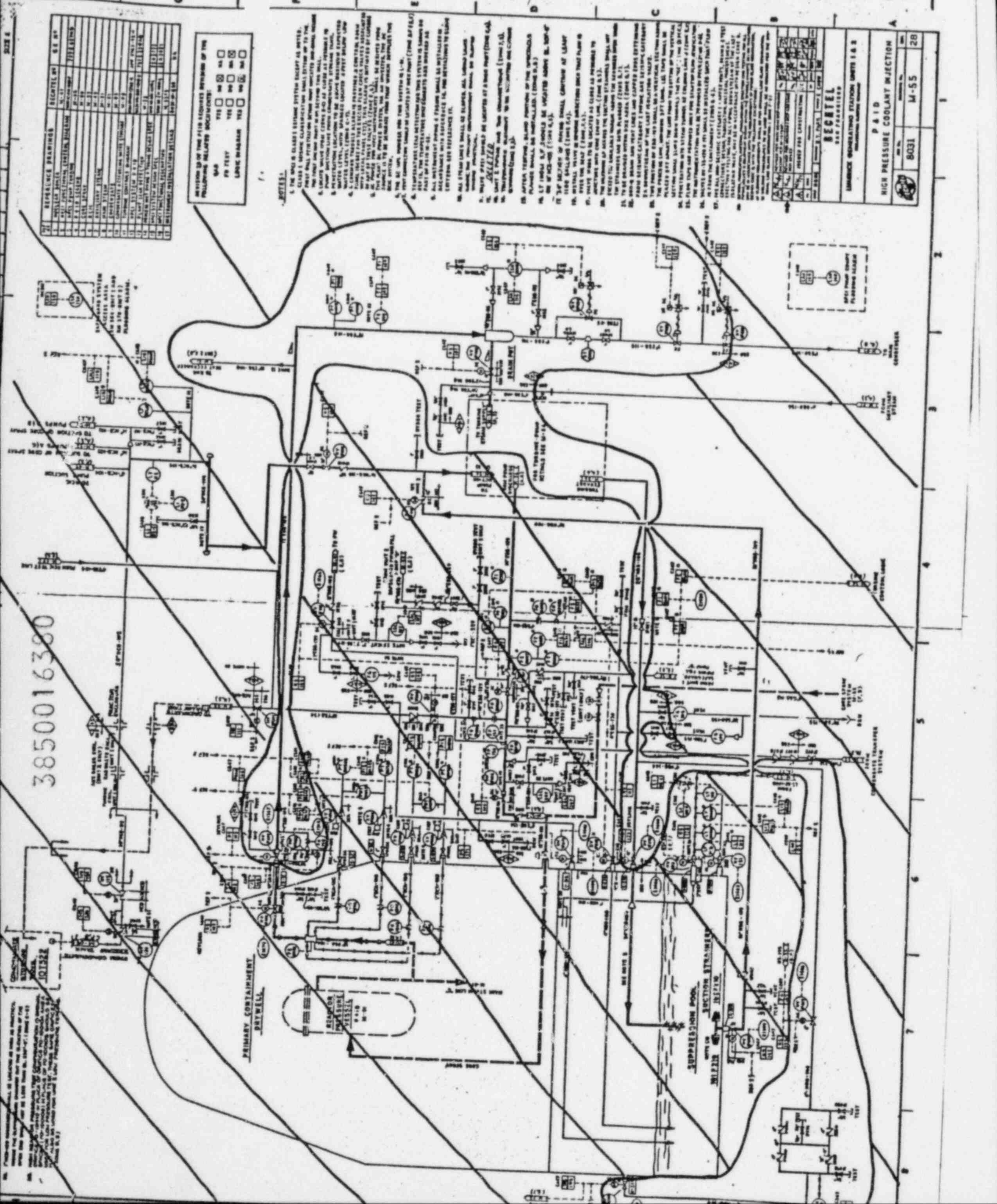
3850016380



8031-M-51

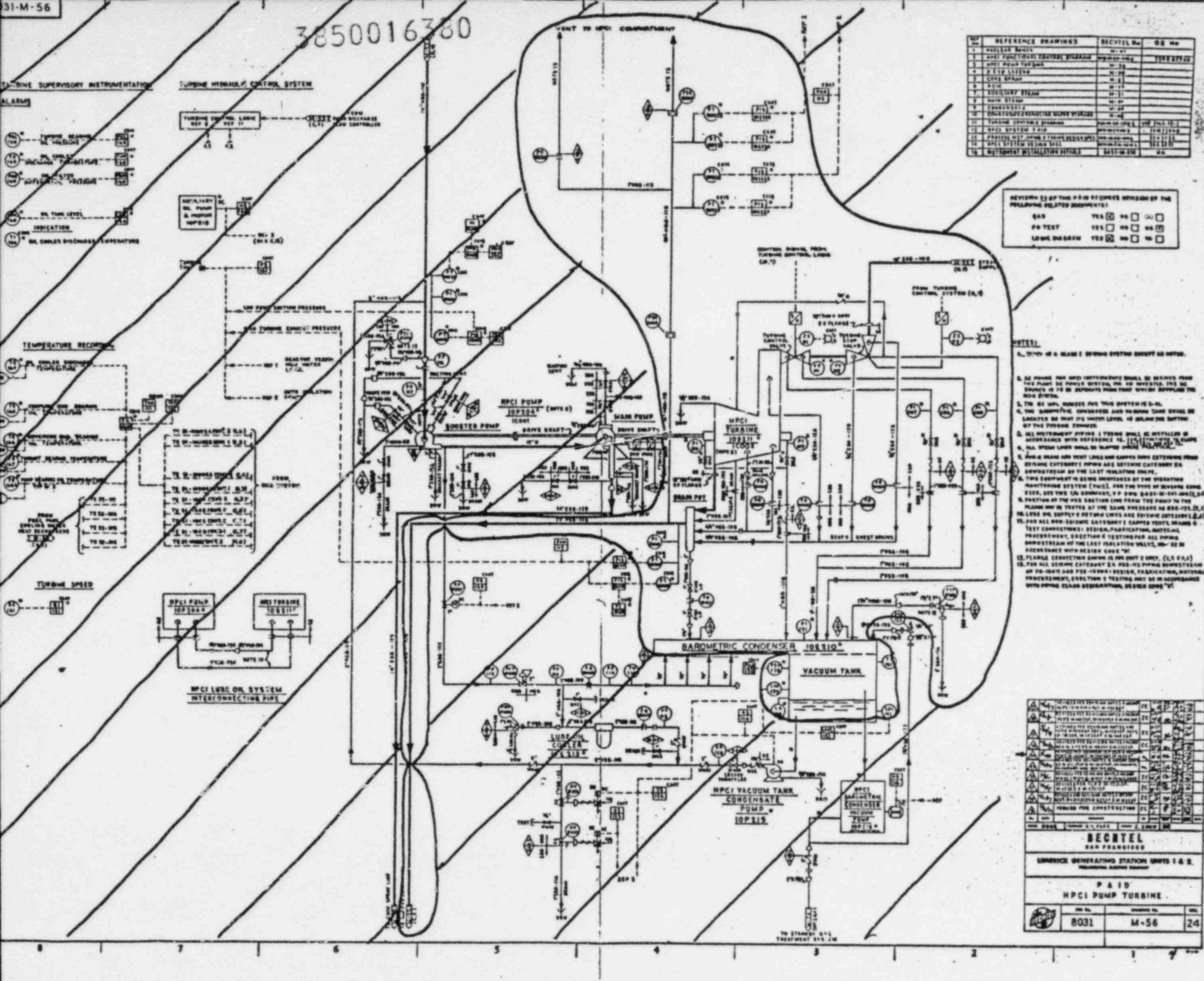
CPG LAH
1/9/85 1/17/85

Attachment C 3 of 4



CPG LAH 1/9/85 1/9/85

Attachment C 4 of 4



ATTACHMENT 8A

3850016380

9/28/84
EFFECTIVE DATE

LIMERICK GENERATING STATION
PORC APPROVAL FORM

TPC# 1104

R.F. Moore 9.26.84

A-4, Form 1
Revision 1
Page 1 of 1

9/10/84 CRE

1. DOCUMENT (TITLE, OR PROC # & REV.): ST-1-058-701-1 REV 0

2. REASON FOR SUBMITTAL: BOUNDARIES OF TEST CHANGED TO REFLECT INTENT OF FSAR PAGES 12,13,14,17

- ☐ NEW PROCEDURE
- ☐ PROCEDURE REVISION
  - ☐ ENTIRE PROC. REVIEWED & SUGGESTED CHANGES INDICATED (PERIODIC REVIEW A-2)
  - ☐ PORTIONS OF PROC. REVIEWED & SUGGESTED CHANGES INDICATED
- ☒ TEMPORARY CHANGE TO APPR'D PROC
  A-3 REVIEW REQUIRED BY _____
  - ☒ REVIEW OF TEMP CHANGE ONLY
  - ☐ REVIEW OF TEMP CHANGE AND PERMANENT PROC. REVISION

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
SUPT				
ASST SUPT				
ENG-TECH				
NG-OPS				
ENG-MAINT				
SR HP				
SR CHEM				
PERF ENG	JC	12/19/84		
I&C ENG				
ADMN SUPV				

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
REAC ENG				
SFT SUPT	CPL	12/20/84		
REG ENG				
OUT MGR				
		—		

3. COMMENTS/CORRECTIVE ACTION:

☐ Approved with comments/changes on attached document

PGS 12, 13, 14 & 17

COMMENTS/CORRECTIVE ACTION TAKEN & CHECKED/DATE - -	SUPT. APPROVAL/DATE	PORC MEETING #: DATE:
ADMIN OR PREPARER _____	_____/_____	

DIRECTIONS TO ADMIN. STAFF:
- ☐ ISSUE THE ATTACHED DOCUMENT
- ☐ FILE THE ATTACHED DOCUMENT IN FILE _____
- ☐ FILE THIS FORM PER ADMIN. PROC. _____
- ☐ OTHER: _____

TRANSMIT A COPY OF THIS FORM AND DOCUMENT TO NRB FOR:
- ☐ APPROVAL
- ☐ REVIEW
- ☐ INFO

3850016380

(P) 10

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

S M Leitch 9/13/84

ST-1-058-701-1 "A" POST LOCA RECOMBINER CONTAMINATED PIPING INSPECTION

Test Freq.: 18 Months -OR- Initiating Events: A. Reason _____
Tech. Spec.: 6.8.4.a B. MRF No. _____
FSAR 6.2.8.1.H
FSAR 6.2.8.3

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By: (Sign/Date) Richard T. Wardlow 12-21-84

Performed By: (Sign/Date) _____ _____

Informed Test Complete:(ACO or CO) (Sign/Date) J Patterson 12-21-84
(Time) 0400

Reviewed By:(SSVN or STA) (Sign/Date) Lloyd Yates 12-21-84

B. One or More Asterisked(*) Steps Test Results UNSATISFACTORY.

Performed By: (Sign/Date) _____ _____

Informed of Test Results: (CO or ACO)(Sign/Date) _____ _____
(Time) _____

Shift Supervision: (Sign/Date) _____ _____

Corrective Action: MRF No.: _____

Initiated By: (Sign/Date) _____ _____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified: (Name) _____

Date/Time Notified: (Date/Time) _____ _____

Notified By: (Sign) _____

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here.

(Sign/Date) _____ _____

1.0 PURPOSE

To verify that the total leakage rate for the A Hydrogen Recombiner Loop is within the acceptable limits specified in Section 8.0. If the system leakage rate is not within the acceptable limits, an inspection shall be performed to identify leaking components for repair.

2.0 REFERENCES

2.1 Generic LLRT Procedure ST-1-LLR-001-1

2.2 8031-M-57, Sheet 1

2.3 NUREG-0737

2.4 8031-M-40-45, Hydrogen Recombiner

3.0 TEST EQUIPMENT

3.1 Per Generic Procedure ST-1-LLR-001-1

3.2 Bottle(s) of SNOOP - or equivalent

3.3 Inspection mirror with handle

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Per Generic Procedure ST-1-LLR-001-1 and Section 9.1 of Specific Procedure Section.

4.2 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section of the Data Sheet.

4.3 Signoff steps marked "SO" in the left-hand margin of the body of the procedure require a signoff on the Data Sheet or Procedure Cover Sheet.

4.4 Data Sheet steps marked (*) are specific Tech. Spec. Requirements which will fail the test if not completed satisfactorily.

5.0 PREREQUISITES

5.1 Plant conditions are such that testing will not interfere with planned operations. Backup system availability has been established per Section 9.1. Request permission of Shift Supervision and ACO/CO to begin this test.

AFR / 12-20-84
Initials / Date

CTH / 12-20-84
ACO/CO / Date

5.2 RWP obtained if required. N/A

5.3 Safety permit issued if required per Section 9.5 or as determined by Results Engineer or alternate. Yes ___ No ✓

If Yes: Permit No. _____

6.0 GENERAL LLRT PROCEDURE

Initials/Date

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS AND DATA SHEETS ARE CORRECTLY AND COMPLETELY FILLED IN.

6.1 Read Specific Procedure. Follow procedure for system draining and venting (Section 9.2) and valve lineup (Section 9.3). MJH / 12/20/84

6.2 With the box set up for a "FLOW IN TEST" and connected to the penetration test tap, perform LLRT per ST-1-LLR-002-1. Record leakage on the Test Data Sheet attached to this procedure. MJH / 12/20/84

6.3 Calculate test pressure as follows. Document calculations and reasoning below:

6.3.1 Determine the maximum back pressure against any isolation boundary being tested (existing at start of test or developing as the result of a water leg existing on the vent path). 0.0 psig

6.3.2 Determine the maximum back pressure against any non-isolation boundary or isolation boundary not being tested. 0.0 psig

IF THE PRESSURE CALCULATED IN SECTION 6.3.2 IS GREATER THAN 44 PSIG, A FLOW OUT TEST OR A WATER COLLECTION TEST MAY BE CONDUCTED TO MEASURE THE INLEAKAGE CONTRIBUTION AND ADDED TO LEAK TEST RESULTS. SECTION 6.3.2 PRESSURE CAN THEN BE REGARDED AS ZERO.

6.3.3 Add 44.0 psi for air or 48.4 psi for water to the pressure determined in section 6.3.1 44.0 psig

6.3.4 Test pressure is the greater of Section 6.3.2 or Section 6.3.3. 44.0 psig (Test Pressure)

Test Pressure Calculations:

6.4 Perform LLRT per Section 9.4.

7.0 PROCEDURE

7.1 Flow in Test (Test Volume Filled with Air)

7.1.1 Verify that the test volume is drained of water.

THE FOLLOWING STEPS ARE THE INITIAL SET UP OF VOLUMETRICS LEAK RATE MONITOR (LRM). SEE FIGURE 1.

7.1.2 Prior to performing leakage test or integrity check, set the LRM controls as follows:

CONTROL	PRESSURE REGULATOR (V-1)	RANGE SELECTOR (V-2)	TEST VALVE (V-3)	TEST LEVEL VALVE (V-4)
POSITION	FULL DECREASE (CCW)	CHARGE	DECAY	TEST

7.1.3 Connect the LRM to a 110 volt, 60 Hz electrical power source. Press the power switch; allow a ten (10) minute warm-up period before proceeding with Section 7.1.5.

DUE TO THE NATURE OF THE THERMAL MASS FLOW TRANSDUCERS USED IN THE LRM, THE FLOW RATE INDICATOR MAY DISPLAY A READOUT OF -006 TO +006 AT A NO LEAK CONDITION. THIS IS A NORMAL INDICATION, AND DOES NOT AFFECT CALIBRATION OF THE LRM.

7.1.4 Apply clean, dry facility test gas supply pressure to INLET port and pressurize from 85 to 150 PSIG. (Use nitrogen on electrical penetrations)

7.1.5 Upon completion of warm-up period, adjust ZERO control as necessary to obtain a readout of ± 0.00 on the PRESSURE indicator. Be sure the TEST port is open to atmosphere.

7.1.6 Connect TEST port to the test volume.

7.1.7 Zeroing of the desired flow range(s) on the display must be completed before any flow measurements from that range are taken. The LRM MUST be isolated from the test volume by setting the ball valves as in Section 7.1.2. Adjust zero on all flow ranges, selecting each individually with the RANGE switch.

THERE MUST BE A CONSTANT SUPPLY PRESSURE OF 85-150 PSI CONNECTED TO THE INLET OF THE LRM FOR ZEROING OF THE FLOW DISPLAY.

THE FOLLOWING STEPS ARE THE LEAK TEST OPERATING SEQUENCE OF LRM.

7.1.8 Set the TEST LEVEL ball (V-4) valve to the CLOSED position. Set the TEST ball valve (V-3) to the FLOW position. Adjust the PRESSURE REGULATOR (V-1) to the desired test pressure level as displayed on the PRESSURE indicator. Set the RANGE SELECTOR switch and RANGE SELECTOR valve (V-2) to LOW RANGE and observe FL for any possible internal LRM leakage. Return the TEST LEVEL valve (V-4) to the TEST position. Return RANGE SELECTOR valve (V-2) to CHARGE position. The test volume should now be charging.

THE PRESSURE INDICATOR WILL SHOW A DROP IN PRESSURE UNTIL THE TEST VOLUME IS COMPLETELY CHARGED.

7.1.9 If the pressure within the test volume will not reach the desired test level (due to an excessive leakage rate), increase the REGULATOR control setting as necessary to obtain the desired test level pressure.

7.1.10 After the test volume is fully charged, set ball valves as follows:

BALL VALVE	RANGE SELECTOR (V-2)	TEST VALVE (V-3)	TEST LEVEL VALVE (V-4)
POSITION	HIGH	FLOW	TEST

ALLOW A TEN (10) MINUTE (MINIMUM) TEMPERATURE STABILIZATION PERIOD.

7.1.11 Upon completion of temperature stabilization period, place the RANGE switch in the HIGH position and observe the FLOW RATE indicator for the leakage flow rate.

7.1.12 If the indicated leakage rate value is sufficiently low, set the RANGE switch to MID and the RANGE valve to MID for greater accuracy. If low range is desired, set RANGE switch to LOW and the RANGE valve (V-2) to LOW.

7.1.13 Verify the position of the following valves on LLRT Data Sheet.

Range Selector Switch
Range Selector Valve (V-2)
Test Valve (V-3)
Test Level Valve (V-4)

7.1.14 If leakage is evident but is below the calibrated range of the LRM, either assign a test leakage rate at the minimum calibrated range (20 sccm) or impose a known flow to raise total indicated flow rate to within the calibrated range of the LRM. This is done by closing the test connection valves and opening a vent valve between the test connection valves and valve V-4 on the LRM. Throttle the vent valve to attain a flow rate (Lo) within the calibrated range of the LRM. After flow has stabilized, record the imposed flow rate on the test data sheet, open the test connection valves and observe the total flow rate.

WHEN IMPOSED FLOW IS USED, THE MEASURED LEAKAGE (Lm) IS THE DIFFERENCE BETWEEN THE TOTAL FLOW AND THE IMPOSED KNOWN FLOW (Lo).

7.1.15 Read and record on Test Data Sheet the indicated flow and pressure at a minimum of 5-minute intervals for 15 minutes after stabilization. A minimum of 4 readings shall be taken.

8.0 RETURN TO NORMAL

8.1 When test is completed, consult Health Physicist or alternate concerning venting the test volume.

8.2 Leave 15 psig of nitrogen in electrical penetrations upon test completion.

9.0 SPECIFIC PROCEDURE

9.1 Backup System Availability and Requirements:

9.1.1 This test may be performed provided Tech. Spec. 3.6.6.1 requirements are met.

9.1.2 'A' HYDROGEN RECOMBINER will be out of service for the duration of this test.

9.2 System Draining and/or Venting:

CAUTION

CONSULT HEALTH PHYSICIST PRIOR TO VENTING OR DRAINING ANY POTENTIALLY CONTAMINATED SYSTEMS.

9.2.1 Align valves per the Tag Accountability Log. — MJH / 12/20/84 Initials Date

9.2.2 Attach a drain hose to the test connections at valves 57-1031 and 57-1032 and route to a suitable drain. — MJH / 12/20/84 Initials Date

9.2.3 Open valves 57-1031 and 57-1032 to drain and vent the test volume. — MJH / 12/20/84 Initials Date

9.2.4 Remove cap from connection downstream of FV-57-110A and monitor for leakage into the test volume from RHR. — MJH / 12/20/84 Initials Date

9.2.5 When RHR isolations valves have been verified leak tight as evidenced by no leakage from the opening created in step 9.2.4, reinstall the cap which was removed in step 9.2.4.

MA / 12/20/84
Initials Date
DMS 12/20/84
Verified By Date

9.3 Valve Lineup:

9.3.1 Complete LLRT Tag Accountability Log to position valves, and hang LLRT tags. Have valve lineup verified.

MA 12/20/84
Initials Date

9.4 Procedure:

PERFORM LLRT USING THE FOLLOWING PREFERRED METHOD(S). ALTERNATE METHODS AS DESCRIBED IN GENERIC PROCEDURE ST-1-LLR-001-1 MAY BE USED WHEN NEEDED AND SHALL BE ATTACHED TO AND FORM A PART OF THIS PROCEDURE ONLY WHEN USED.

9.4.1 Perform a flow in test on the HYDROGEN RECOMBINER and associated piping per Section 7.1 of this procedure. Record results on test data sheet. Test pressure is as determined in Section 6.3.

Test Valve: 57-1006
Vent: Primary Containment

RTW 12-21-84
Initials Date

9.4.2 After system has stabilized record amount of leakage.
2.424 scc/min

RTW 12-21-84
Initials Date

9.4.3 If the system leakage rate is below (later) scc/min then continue to section 9.6 and mark remaining steps in 9.4 NA, if not, go on the next step.

9.4.4 While the system is still pressurized, walk it down using copies of Attachment A, and perform appropriate air leak detection methods (snoop or equivalent). Inspect all

recombiner and associated piping in line components for leakage within the boundaries of Attachment B.

RTW / 12-21-84
Initials Date

9.4.5 Record on Attachment A all components inspected and a description of the size and location of any leakage ("small" or "large").

RTW / 12-21-84
Initials Date

9.4.6 Upon completion of inspection, issue MRF's for repair of components exhibiting excessive leakage. This shall be denoted in the Additional Actions/Test Comments section and brought to the attention of SSVN.

WRZ / 12-21-84
Initials Date

9.4.7 Inspection completed

RTW / 12-21-84
Initials Date

9.5 Blocks Required

None

9.6 Restoration:

9.6.1 At the conclusion of the test, isolate and vent the test box and the test volume separately. Disconnect test box from the test volume, close test connection valves and remove hoses.

RTW / 12-21-84
Initials Date

CAUTION

CONTACT HEALTH PHYSICS PRIOR TO DRAINING OR VENTING ANY POTENTIALLY CONTAMINATED SYSTEMS.

9.6.2 Restore valve line up at test completion per Tag Accountability Log or as directed by Shift Supervision. Have second verification, performed by a qualified individual designated by the Results Engineer or his alternate.

IF ANY VALVE IS RESTORED TO A POSITION OTHER THAN THE "SUGGESTED RESTORED VALVE POSITION" NOTE IT ACCORDINGLY BY LINING THROUGH THE SUGGESTED POSITION AND WRITING IN ITS PLACE THE ACTUAL RESTORED VALVE POSITION.

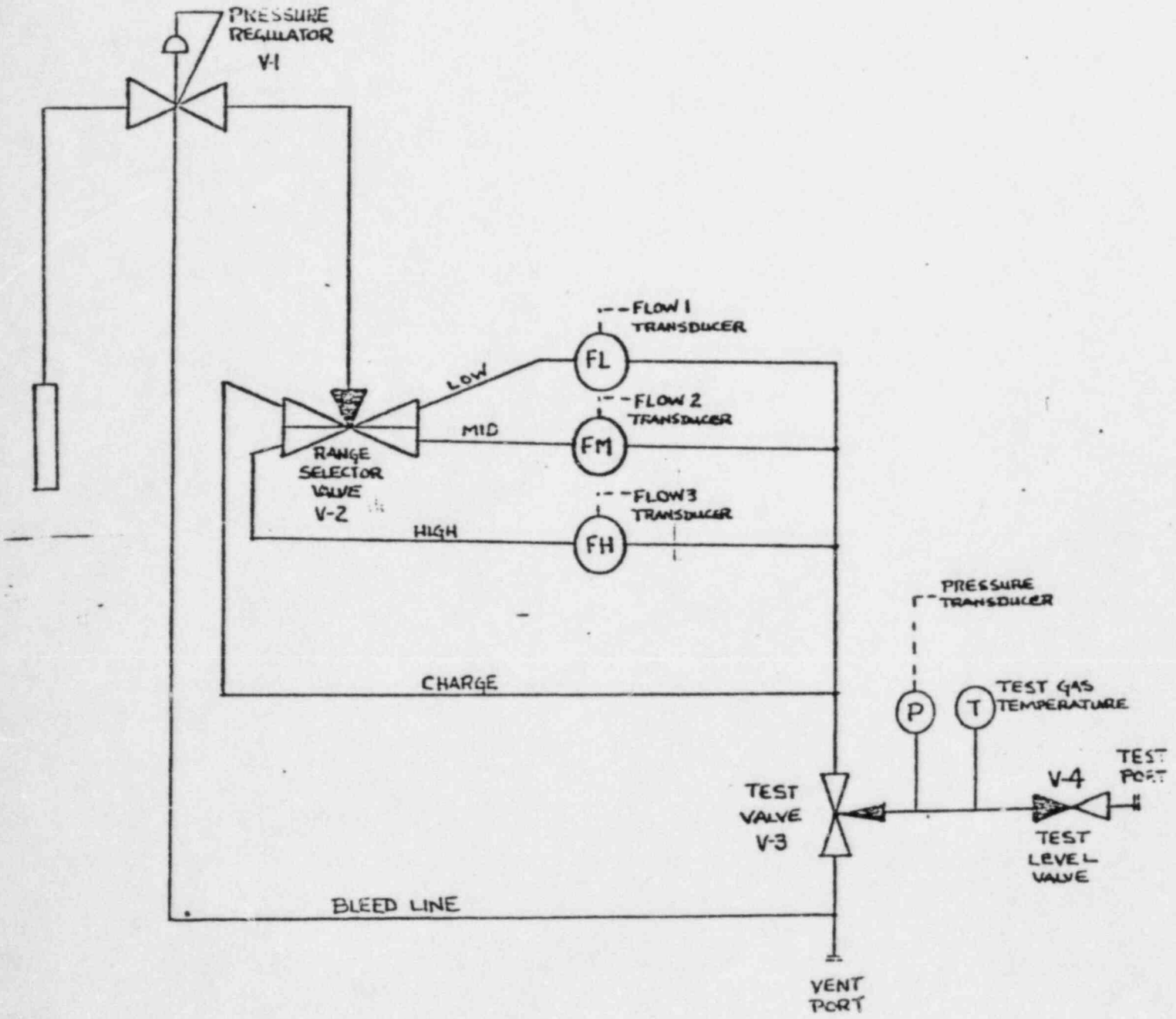
9.6.3 Verify no off-scale leakage. RTW / 12-21-84 (*)
Initials Date

9.6.4 Return system to normal per Section 8.0 or as directed by Shift Supervision. RTW / 12-21-84
Initials Date

9.7 Inform shift supervision of results of test and fill out the test results section. (Note above asterisked step.) Have operator review accountability log.

RTW / 12-21-84
Initials Date

AT COMPLETION ENSURE THAT COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.



Volumetrics Leak Rate Monitor (LRM)
Figure 1

LLRT TAG ACCOUNTABILITY LOG

P&ID M-57

PENETRATION NO. X-26/202

PENETRATION NAME/ VALVE UNDER TEST	VALVE NO./DESCRIPTION	TAGGED VALVE CONDITION	TAG NO.	HUNG BY/ VERIFIED BY	SUGGESTED RESTORED VALVE POSITION	VALVE RESTORED TAG RMVD BY/ VERIFIED BY	TIME/ DATE
HYDROGEN RECOMBINER			-27471			RTW	0740
	HV-57-161	CLOSED ~~OPEN~~	-27470	DMS	CLOSED	RTW / mpb	12-21-84
	HV-57-162	CLOSED ~~OPEN~~	-27472 -27473	DMS	CLOSED	RTW RTW / mpb	0740 12-21-84
	HV-57-168A	CLOSED	-27474 -27475	DMS	CLOSED	RTW / mpb	0740 12-21-84
	57-1030A	OPEN	-27476	DMS	LOCKED OPEN	RTW / mpb	0740 12-21-84
	57-1007	UNCAPPED CLOSED	-27477	DMS	CAPPED CLOSED	RTW / mpb	0740 12-21-84
	57-1031	UNCAPPED CLOSED	-27478	DMS	CAPPED CLOSED	RTW / mpb	0740 12-21-84
	57-1032	UNCAPPED CLOSED	-27479	DMS	CAPPED CLOSED	RTW / mpb	0740 12-21-84
	FV-57-101A	OPEN	-27480 -27481	DMS	OPEN	RTW RTW / mpb	0740 12-21-84
	FV-57-102A	OPEN	-27482 -27483	DMS	OPEN	RTW RTW / mpb	0740 12-21-84
	FV-57-110A	CLOSED	-27484 -27485	DMS	Closed ~~OPEN~~	RTW RTW / mpb	0740 12-21-84
	57-1006 (TEST)	UNCAPPED AS REQ'D	-27486	DMS	CAPPED CLOSED	RTW / mpb	0740 12-21-84

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LLRT TAG ACCOUNTABILITY LOG

P&ID M-57

PENETRATION NO. X-26/202

PENETRATION NAME/ VALVE UNDER TEST	VALVE NO./DESCRIPTION	TAGGED VALVE CONDITION	TAG NO.	HUNG BY/ VERIFIED BY	SUGGESTED RESTORED VALVE POSITION	VALVE RESTORED TAG RMVD BY/ VERIFIED BY	TIME/ DATE
	HS-58-103A	OFF	27318	/	OFF	RTW MPB	0340 12-21-84
	~~HV-57-105~~	~~CLOSED~~		/	~~CLOSED~~		
	~~HV-57-104~~	~~CLOSED~~		/	~~CLOSED~~		
				/	~~LOCKED~~ ~~OPEN~~	/	
	~~HV-57-103~~	~~CLOSED~~		/	~~LOCKED~~ ~~OPEN~~	/	
	~~HV-57-113~~	~~CLOSED~~		/	~~CLOSED~~		
	~~HV-57-114~~	~~CLOSED~~		/	~~CLOSED~~		
	~~HV-57-111~~	~~CLOSED~~		/	~~CLOSED~~		
	~~SV-57-139~~	~~CLOSED~~		/			
				/		/	
				/		/	
				/		/	

JC 12/19/84
CPG 12/20/84

LOCAL LEAKAGE RATE TEST DATA SHEET

PENETRATION NO. HYDROGEN RECOMBINER

VALVE UNDER TEST "A" HYDROGEN RECOMBINER LOOP

TEST BOUNDARIES SEE SKETCH BELOW

TESTED BY RTW DATE 12-21-84

TIME	PRESSURE (psig)	FLOW (scc/min)
0	45.9 psig	2.41 SLM
5	45.9	2.43 SLM
10	45.9	2.41 SLM
15	45.9	2.45 SLM

LLRT Test Box No. 21-1108 | Cal. Due Date 1/12/85

VOLUMETRICS LRM VALVE/SWITCH POSITIONS

RANGE SEL (V-2)	TEST VALVE(V-3)	TEST LVL VALVE(V-4)	RANGE SEL SWITCH
High	Flow	Test	High

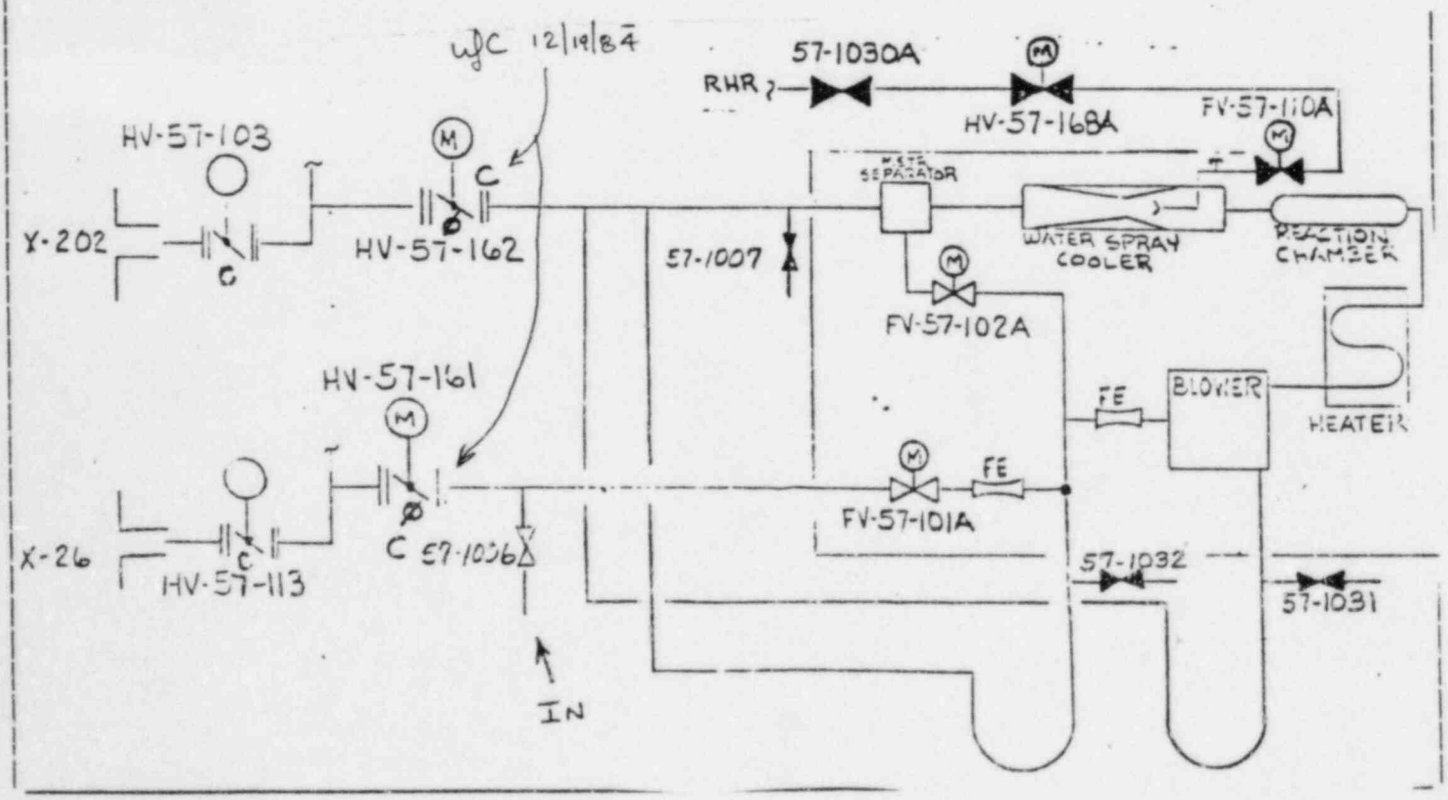
ACCEPTANCE CRITERIA: No Off Scale Reading

IMPOSED FLOW RATE= - sccm
AVERAGE FLOW= 2.425 scc/min (ACTUAL) SLM

TEST TAP VALVES: 57-1006

TESTED PER PROCEDURE ST-1-058-701-1

LEAKAGE RATE = 9.5 scc/min



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ADDITIONAL ACTION/TEST COMMENTS

Additional Action:

Additional Action required if other portions of test did not function properly or other discrepancies were noted during test.

1. MRF Submitted (MRF - Number)_____ _____

2. Other Action (Signature - Time/Date)_____ _____

TEST COMMENTS

If ANY entry is made on this page, sign bottom of cover sheet.

"A" POST LOCA RECOMBINER CONTAMINATED PIPING INSPECTION

DATA SHEET (3 OF 3)

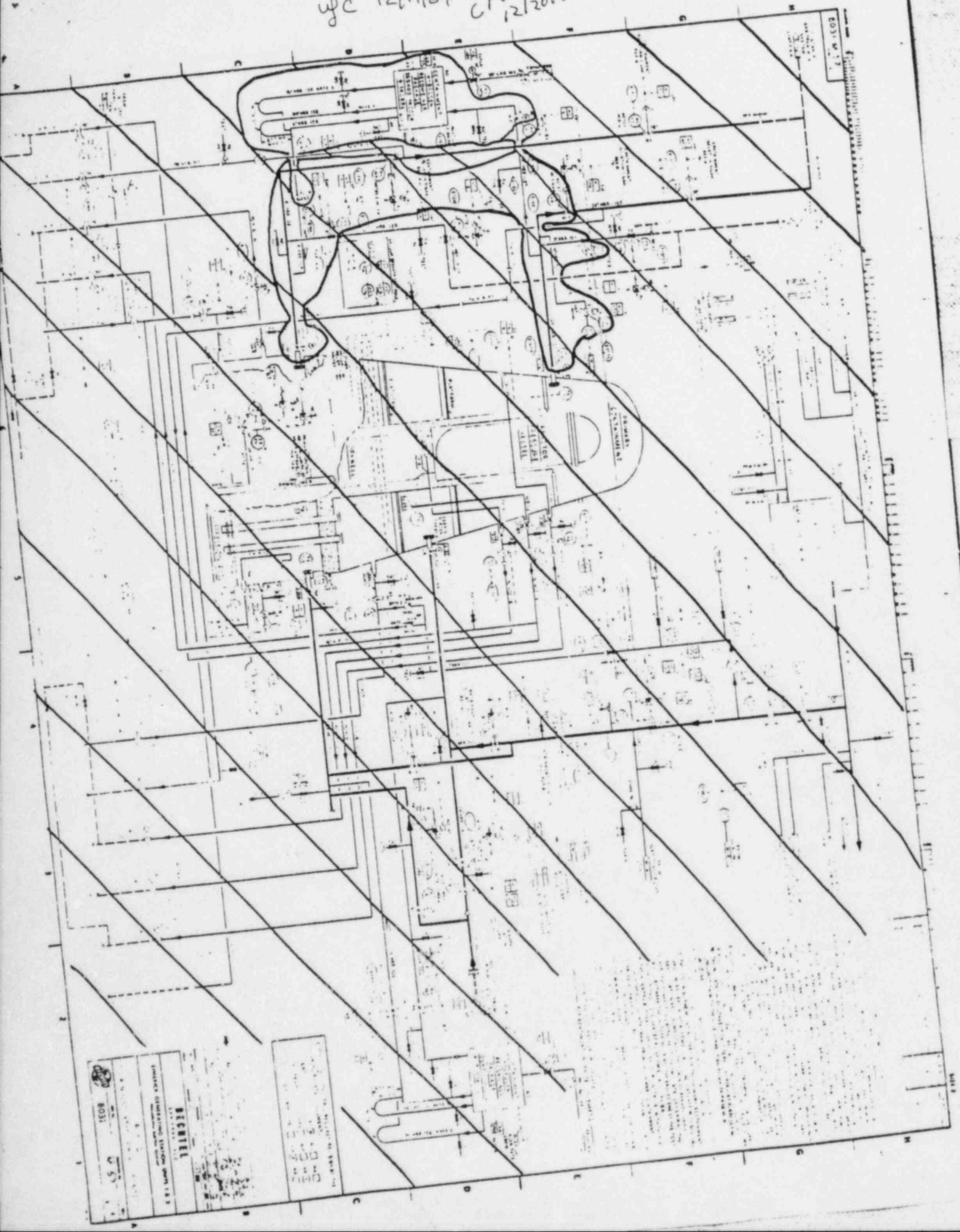
ATTACHMENT A

INSPECTOR: Richard T. Weidner

SYSTEM MODE _____ DATE 12-21-84

COMPONENT NUMBER	COMPONENT DESCRIPTION	COMP. MODE (ON/OFF) (OPEN/SHUT)	LEAK RATE	CORRECTIVE ACTION DATE	REMARKS
57-1006	Test Valve	Open			
HV-57-161	Valve	Closed	0		
FV-57-101A	Valve	open	0		
	Swagelok		0		
	Root Valve from FE	Open			
	Rat Valve from FE	open			
	Pressure Transmitter		0		
57-1032	Valve	closed	0		
	Root Valve from FE	open			
	Root Valve from FE	open			
	Pressure Transmitter		0		
	Pressure Transmitter		8		
FV-57-102A	Valve	Open			
	Swagelok		0		
57-1071	Valve	Closed	0		
57-1007	valve	closed	0		
FV-57-110A	Valve	Closed	neg.		
HV-57-162	Valve	Closed	0		

ypc 12/19/84 CPG 12/20/84



ATTACHMENT 8B

3850016380

9/28/84
EFFECTIVE DATE

LIMERICK GENERATING STATION
PORC APPROVAL FORM

TPC #1213

R.F. Moore 9-26-84
A-4, Form 1
Revision 1
Page 1 of 1
CRE

1. DOCUMENT (TITLE, OR PROC # & REV.): ST-1-058-701-1 Rev 0.

2. REASON FOR SUBMITTAL: TEST BOUNDARIES CHANGED TO REFLECT INTENT OF FSAR

☐ NEW PROCEDURE

☐ PROCEDURE REVISION

☐ ENTIRE PROC. REVIEWED & SUGGESTED CHANGES INDICATED (PERIODIC REVIEW A-2)

☐ PORTIONS OF PROC. REVIEWED & SUGGESTED CHANGES INDICATED

☒ TEMPORARY CHANGE TO APPR'D PROC A-3 REVIEW REQUIRED BY 1/11/85

☒ REVIEW OF TEMP CHANGE ONLY

☐ REVIEW OF TEMP CHANGE AND PERMANENT PROC. REVISION

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
SUPT				
ASST SUPT				
ENG-TECH				
NG-OPS.				
ENG-MAINT				
SR HP				
SR CHEM				
PERF ENG	LAB	12/28/84		
I&C ENG				
ADMN SUPV				

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
REAC ENG				
SFT SUPT	SDC	12/28/84		
REG ENG				
OUT MGR				

3. COMMENTS/CORRECTIVE ACTION:

☐ Approved with comments/changes on attached document

Page 12, 13, 14, 17

COMMENTS/CORRECTIVE ACTION TAKEN & CHECKED/DATE - -	SUPT. APPROVAL/DATE	PORC MEETING #: DATE:
ADMIN OR PREPARER	/	

DIRECTIONS TO ADMIN. STAFF:
☐ ISSUE THE ATTACHED DOCUMENT
☐ FILE THE ATTACHED DOCUMENT IN FILE _____
☐ FILE THIS FORM PER ADMIN. PROC. _____
☐ OTHER: _____

TRANSMIT A COPY OF THIS FORM AND DOCUMENT TO NRB FOR:
☐ APPROVAL
☐ REVIEW
☐ INFO

3850016380

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

ST-1-058-701-1 "A" POST LOCA RECOMBINER CONTAMINATED PIPING INSPECTION

Test Freq.: 18 Months -OR- Initiating Events: A. Reason_____
Tech. Spec.: 6.8.4.a B. MRF No._____
FSAR 6.2.8.1.H
FSAR 6.2.8.3

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By: (Sign/Date) Richard T. Weidner 12-29-84

Performed By: (Sign/Date) _____

Informed Test Complete:(ACO or CO) (Sign/Date) J Patacca 12-29-84
(Time) 2011

Reviewed By:(SSVN or STA) (Sign/Date) Greg F Colley 12-29-84

B. One or More Asterisked(*) Steps Test Results UNSATISFACTORY.

Performed By: (Sign/Date) _____

Informed of Test Results: (CO or ACO)(Sign/Date) _____
(Time)

Shift Supervision: (Sign/Date) _____

Corrective Action: MRF No.: _____

Initiated By: (Sign/Date) _____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified: (Name) _____

Date/Time Notified: (Date/Time) _____

Notified By: (Sign) _____

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here.

(Sign/Date) Richard T. Weidner 12-29-84

1.0 PURPOSE

To verify that the total leakage rate for the A Hydrogen Recombiner Loop is within the acceptable limits specified in Section 8.0. If the system leakage rate is not within the acceptable limits, an inspection shall be performed to identify leaking components for repair.

2.0 REFERENCES

2.1 Generic LLRT Procedure ST-1-LLR-001-1

2.2 8031-M-57, Sheet 1

2.3 NUREG-0737

2.4 8031-M-40-45, Hydrogen Recombiner

3.0 TEST EQUIPMENT

3.1 Per Generic Procedure ST-1-LLR-001-1

3.2 Bottle(s) of SNOOP - or equivalent

3.3 Inspection mirror with handle

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Per Generic Procedure ST-1-LLR-001-1 and Section 9.1 of Specific Procedure Section.

4.2 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section of the Data Sheet.

4.3 Signoff steps marked "SO" in the left-hand margin of the body of the procedure require a signoff on the Data Sheet or Procedure Cover Sheet.

4.4 Data Sheet steps marked (*) are specific Tech. Spec. Requirements which will fail the test if not completed satisfactorily.

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5.0 PREREQUISITES

5.1 Plant conditions are such that testing will not interfere with planned operations. Backup system availability has been established per Section 9.1. Request permission of Shift Supervision and ACO/CO to begin this test.

Per Greg Collins

AHZ / 12/28/87
Initials / Date

RLL / 12/28/87
ACO/CO / Date

5.2 RWP obtained if required. N/A

5.3 Safety permit issued if required per Section 9.5 or as determined by Results Engineer or alternate. Yes ___ No X

If Yes: Permit No. _____

6.0 GENERAL LLRT PROCEDURE

Initials/Date

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS AND DATA SHEETS ARE CORRECTLY AND COMPLETELY FILLED IN.

6.1 Read Specific Procedure. Follow procedure for system draining and venting (Section 9.2) and valve lineup (Section 9.3). RTW / 12-29-87

6.2 With the box set up for a "FLOW IN TEST" and connected to the penetration test tap, perform LLRT per ST-1-LLR-002-1. Record leakage on the Test Data Sheet attached to this procedure. RTW / 12-29-87

6.3 Calculate test pressure as follows. Document calculations and reasoning below:

6.3.1 Determine the maximum back pressure against any isolation boundary being tested (existing at start of test or developing as the result of a water leg existing on the vent path). 0 psig

6.3.2 Determine the maximum back pressure against any non-isolation boundary or isolation boundary not being tested. 0 psig

IF THE PRESSURE CALCULATED IN SECTION 6.3.2 IS GREATER THAN 44 PSIG, A FLOW OUT TEST OR A WATER COLLECTION TEST MAY BE CONDUCTED TO MEASURE THE INLEAKAGE CONTRIBUTION AND ADDED TO LEAK TEST RESULTS. SECTION 6.3.2 PRESSURE CAN THEN BE REGARDED AS ZERO.

6.3.3 Add 44.0 psi for air or 48.4 psi for water to the pressure determined in section 6.3.1 44.0 psig

6.3.4 Test pressure is the greater of Section 6.3.2 or Section 6.3.3. 46.0 psig (Test Pressure)

Test Pressure Calculations:

6.4 Perform LLRT per Section 9.4.

7.0 PROCEDURE

7.1 Flow in Test (Test Volume Filled with Air)

7.1.1 Verify that the test volume is drained of water.

THE FOLLOWING STEPS ARE THE INITIAL SET UP OF VOLUMETRICS LEAK RATE MONITOR (LRM). SEE FIGURE 1.

7.1.2 Prior to performing leakage test or integrity check, set the LRM controls as follows:

CONTROL	PRESSURE REGULATOR (V-1)	RANGE SELECTOR (V-2)	TEST VALVE (V-3)	TEST LEVEL VALVE (V-4)
POSITION	FULL DECREASE (CCW)	CHARGE	DECAY	TEST

7.1.3 Connect the LRM to a 110 volt, 60 Hz electrical power source. Press the power switch; allow a ten (10) minute warm-up period before proceeding with Section 7.1.5.

DUE TO THE NATURE OF THE THERMAL MASS FLOW TRANSDUCERS USED IN THE LRM, THE FLOW RATE INDICATOR MAY DISPLAY A READOUT OF -006 TO +006 AT A NO LEAK CONDITION. THIS IS A NORMAL INDICATION, AND DOES NOT AFFECT CALIBRATION OF THE LRM.

7.1.4 Apply clean, dry facility test gas supply pressure to INLET port and pressurize from 85 to 150 PSIG. (Use nitrogen on electrical penetrations)

7.1.5 Upon completion of warm-up period, adjust ZERO control as necessary to obtain a readout of ± 0.00 on the PRESSURE indicator. Be sure the TEST port is open to atmosphere.

7.1.6 Connect TEST port to the test volume.

7.1.7 Zeroing of the desired flow range(s) on the display must be completed before any flow measurements from that range are taken. The LRM MUST be isolated from the test volume by setting the ball valves as in Section 7.1.2. Adjust zero on all flow ranges, selecting each individually with the RANGE switch.

THERE MUST BE A CONSTANT SUPPLY PRESSURE OF 85-150 PSI CONNECTED TO THE INLET OF THE LRM FOR ZEROING OF THE FLOW DISPLAY.

THE FOLLOWING STEPS ARE THE LEAK TEST OPERATING SEQUENCE OF LRM.

7.1.8 Set the TEST LEVEL ball (V-4) valve to the CLOSED position. Set the TEST ball valve (V-3) to the FLOW position. Adjust the PRESSURE REGULATOR (V-1) to the desired test pressure level as displayed on the PRESSURE indicator. Set the RANGE SELECTOR switch and RANGE SELECTOR valve (V-2) to LOW RANGE and observe FL for any possible internal LRM leakage. Return the TEST LEVEL valve (V-4) to the TEST position. Return RANGE SELECTOR valve (V-2) to CHARGE position. The test volume should now be charging.

THE PRESSURE INDICATOR WILL SHOW A DROP IN PRESSURE UNTIL THE TEST VOLUME IS COMPLETELY CHARGED.

7.1.9 If the pressure within the test volume will not reach the desired test level (due to an excessive leakage rate), increase the REGULATOR control setting as necessary to obtain the desired test level pressure.

7.1.10 After the test volume is fully charged, set ball valves as follows:

BALL VALVE	RANGE SELECTOR (V-2)	TEST VALVE (V-3)	TEST LEVEL VALVE (V-4)
POSITION	HIGH	FLOW	TEST

ALLOW A TEN (10) MINUTE (MINIMUM) TEMPERATURE STABILIZATION PERIOD.

7.1.11 Upon completion of temperature stabilization period, place the RANGE switch in the HIGH position and observe the FLOW RATE indicator for the leakage flow rate.

7.1.12 If the indicated leakage rate value is sufficiently low, set the RANGE switch to MID and the RANGE valve to MID for greater accuracy. If low range is desired, set RANGE switch to LOW and the RANGE valve (V-2) to LOW.

7.1.13 Verify the position of the following valves on LLRT Data Sheet.

Range Selector Switch
Range Selector Valve (V-2)
Test Valve (V-3)
Test Level Valve (V-4)

7.1.14 If leakage is evident but is below the calibrated range of the LRM, either assign a test leakage rate at the minimum calibrated range (20 sccm) or impose a known flow to raise total indicated flow rate to within the calibrated range of the LRM. This is done by closing the test connection valves and opening a vent valve between the test connection valves and valve V-4 on the LRM. Throttle the vent valve to attain a flow rate (Lo) within the calibrated range of the LRM. After flow has stabilized, record the imposed flow rate on the test data sheet, open the test connection valves and observe the total flow rate.

WHEN IMPOSED FLOW IS USED, THE MEASURED LEAKAGE (Lm) IS THE DIFFERENCE BETWEEN THE TOTAL FLOW AND THE IMPOSED KNOWN FLOW (Lo).

7.1.15 Read and record on Test Data Sheet the indicated flow and pressure at a minimum of 5-minute intervals for 15 minutes after stabilization. A minimum of 4 readings shall be taken.

8.0 RETURN TO NORMAL

8.1 When test is completed, consult Health Physicist or alternate concerning venting the test volume.

8.2 Leave 15 psig of nitrogen in electrical penetrations upon test completion.

9.0 SPECIFIC PROCEDURE

9.1 Backup System Availability and Requirements:

9.1.1 This test may be performed provided Tech. Spec. 3.6.6.1 requirements are met.

9.1.2 'A' HYDROGEN RECOMBINER will be out of service for the duration of this test.

9.2 System Draining and/or Venting:

CAUTION

CONSULT HEALTH PHYSICIST PRIOR TO VENTING OR DRAINING ANY POTENTIALLY CONTAMINATED SYSTEMS.

9.2.1 Align valves per the Tag Accountability Log. RTW / 12-29-84 Initials Date

9.2.2 Attach a drain hose to the test connections at valves 57-1031 and 57-1032 and route to a suitable drain. RTW / 12-29-84 Initials Date

9.2.3 Open valves 57-1031 and 57-1032 to drain and vent the test volume. RTW / 12-29-84 Initials Date

9.2.4 Remove cap from connection downstream of FV-57-110A and monitor for leakage into the test volume from RHR. RTW / 12-29-84 Initials Date

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9.2.5 When RHR isolations valves have been verified leak tight as evidenced by no leakage from the opening created in step 9.2.4, reinstall the cap which was removed in step 9.2.4.

RTW / 12-29-84
Initials Date

WJC / 12/29/84
Verified By Date

9.3 Valve Lineup:

9.3.1 Complete LLRT Tag Accountability Log to position valves, and hang LLRT tags. Have valve lineup verified.

RTW / 12-29-84
Initials Date

9.4 Procedure:

PERFORM LLRT USING THE FOLLOWING PREFERRED METHOD(S). ALTERNATE METHODS AS DESCRIBED IN GENERIC PROCEDURE ST-1-LLR-001-1 MAY BE USED WHEN NEEDED AND SHALL BE ATTACHED TO AND FORM A PART OF THIS PROCEDURE ONLY WHEN USED.

9.4.1 Perform a flow in test on the HYDROGEN RECOMBINER and associated piping per Section 7.1 of this procedure. Record results on test data sheet. Test pressure is as determined in Section 6.3.

Test Valve: 57-1006
Vent: Primary Containment

RTW / 12-29-84
Initials Date

9.4.2 After system has stabilized record amount of leakage.
~~223~~ RTW 673 scc/min

RTW / 12-29-84
Initials Date

9.4.3 If the system leakage rate is below (later) scc/min then continue to section 9.6 and mark remaining steps in 9.4 NA, if not, go on the next step.

9.4.4 While the system is still pressurized, walk it down using copies of Attachment A, and perform appropriate air leak detection methods (snoop or equivalent). Inspect all

recombiner and associated piping in line components for leakage within the boundaries of Attachment B.

RTW 12-29-84
~~HA~~ /
Initials Date
RTW

9.4.5 Record on Attachment A all components inspected and a description of the size and location of any leakage ("small" or "large").

RTW 12-29-84
~~HA~~ RSE/
Initials Date

9.4.6 Upon completion of inspection, issue MRF's for repair of components exhibiting excessive leakage. This shall be denoted in the Additional Actions/Test Comments section and brought to the attention of SSVN.

RTW 12-29-84
~~HA~~ RSE/
Initials Date

9.4.7 Inspection completed

RTW 12-29-84
~~HA~~ RSE/
Initials Date

9.5 Blocks Required

None

9.6 Restoration:

9.6.1 At the conclusion of the test, isolate and vent the test box and the test volume separately. Disconnect test box from the test volume, close test connection valves and remove hoses.

RTW / 12-29-84
Initials Date

CAUTION

CONTACT HEALTH PHYSICS PRIOR TO DRAINING OR VENTING ANY POTENTIALLY CONTAMINATED SYSTEMS.

9.6.2 Restore valve line up at test completion per Tag Accountability Log or as directed by Shift Supervision. Have second verification, performed by a qualified individual designated by the Results Engineer or his alternate.

IF ANY VALVE IS RESTORED TO A POSITION OTHER THAN THE "SUGGESTED RESTORED VALVE POSITION" NOTE IT ACCORDINGLY BY LINING THROUGH THE SUGGESTED POSITION AND WRITING IN ITS PLACE THE ACTUAL RESTORED VALVE POSITION.

9.6.3 Verify no off-scale leakage. RTW 12-29-84 (*)
Initials Date

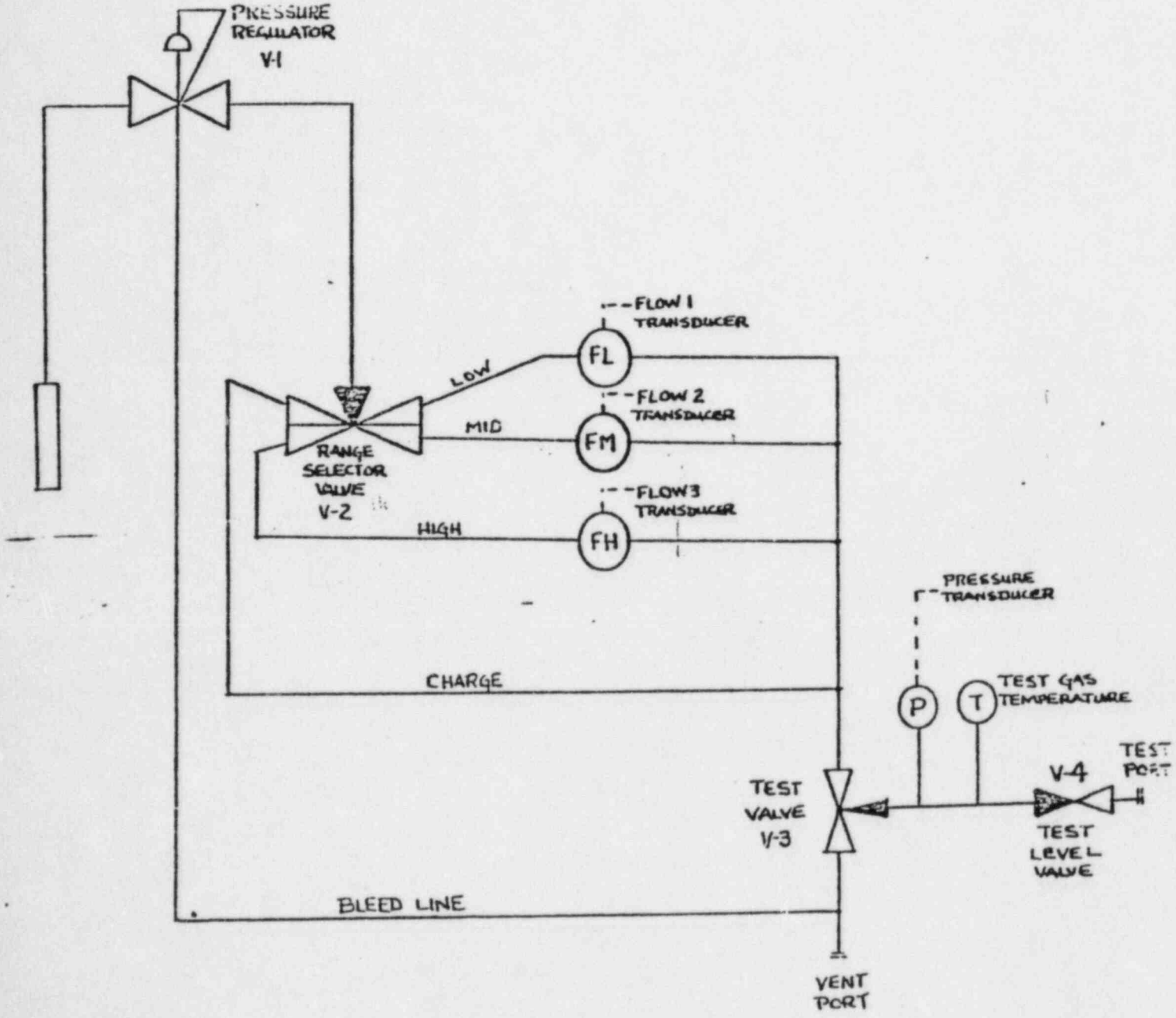
9.6.4 Return system to normal per Section 8.0 or as directed by Shift Supervision. RTW 12-29-84
Initials Date

9.7 Inform shift supervision of results of test and fill out the test results section. (Note above asterisked step.) Have operator review accountability log.

RTW 12-29-84
Initials Date

AT COMPLETION ENSURE THAT COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.

3850016380



Volumetrics Leak Rate Monitor (LRM)
Figure 1

LLRT TAG ACCOUNTABILITY LOG

PENETRATION NO. X-26/202 P&ID M-57

PENETRATION NAME/ VALVE UNDER TEST	VALVE NO./DESCRIPTION LAW 12/28/84 EDC 12/28/84	TAGGED VALVE CONDITION	TAG NO.	HUNG BY/ VERIFIED BY	SUGGESTED RESTORED VALVE POSITION	VALVE RESTORED TAG RMVD BY/ VERIFIED BY	TIME/ DATE
HYDROGEN RECOMBINER	BREAKER 1AC224-01	OPEN ~~CLOSED~~	~~27453~~ 27455	RTW ~~LFC~~ RTW / LFC	CLOSED	~~RTW LFC~~ RTW / LFC	1540 12-29-84
LAW 12/28/84 EDC 12/28/84	HV-57-161	~~OPEN~~	27456	RTW LFC	CLOSED	RTW LFC	
	HV-57-162	CLOSED ~~OPEN~~	27457 ~~27459~~	RTW / LFC RTW LFC	CLOSED	RTW / LFC RTW LFC	1540 12-29-84
	HV-57-168A	CLOSED	27460 ~~27458~~	RTW / LFC RTW LFC	CLOSED	RTW / LFC RTW LFC	1540 12-29-84
LAW 12/28/84 EDC 12/28/84	57-1030A	CLOSED ~~OPEN~~	27461	RTW / LFC	LOCKED OPEN	RTW / LFC	1540 12-29-84
	57-1007	UNCAPPED CLOSED	27462	RTW / LFC	CAPPED CLOSED	RTW / LFC	1540 12-29-84
	57-1031	UNCAPPED CLOSED	27464	RTW / LFC	CAPPED CLOSED	RTW / LFC	1540 12-29-84
	57-1032	UNCAPPED CLOSED	27465	RTW / LFC	CAPPED CLOSED	RTW / LFC	1540 12-29-84
	FV-57-101A	OPEN	~~27481~~ 27466	RTW LFC RTW / LFC	Closed see test Connects ~~OPEN~~	RTW LFC RTW / LFC	1540 12-29-84
	FV-57-102A	OPEN	27483 27467	RTW LFC RTW / LFC	OPEN	RTW LFC RTW / LFC	1540 12-29-84
	FV-57-110A	CLOSED	27484 ~~27468~~	RTW LFC RTW / LFC	Closed ~~OPEN~~	RTW / LFC RTW LFC	1540 12-29-84
	57-1006 (TEST)	UNCAPPED AS REQ'D	27469	RTW / LFC	CAPPED CLOSED	RTW / LFC	1540 12-29-84

LLRT TAG ACCOUNTABILITY LOG

PENETRATION NO. X-26/202 P&ID M-57

PENETRATION NAME/ VALVE UNDER TEST	VALVE NO./DESCRIPTION	TAGGED VALVE CONDITION	TAG NO.	HUNG BY/ VERIFIED BY	SUGGESTED RESTORED VALVE POSITION	VALVE RESTORED TAG RMVD BY/ VERIFIED BY	TIME/ DATE
	HS-58-103A	OFF	27240	RTW / Rfc	OFF	RTW / Rfc	1540 / 12-29-84
	~~HV-57-105~~	~~CLOSED~~		/	~~CLOSED~~		
LAG 12/28/84	~~HV-57-104~~	~~CLOSED~~		/	~~CLOSED~~		
EDC 12/28/84	~~HV-57-103~~	~~CLOSED~~		/	~~LOCKED OPEN~~	/	
	~~HV-57-113~~	~~CLOSED~~		/	~~LOCKED OPEN~~	/	
	~~HV-57-114~~	CLOSED		/	~~CLOSED~~		
	~~HV-57-111~~	~~CLOSED~~		/	~~CLOSED~~		
	~~SV-57-139~~	~~CLOSED~~		/	~~CLOSED~~		
				/		/	
				/		/	
				/		/	

LOCAL LEAKAGE RATE TEST DATA SHEET

PENETRATION NO. HYDROGEN RECOMBINER

VALVE UNDER TEST "A" HYDROGEN RECOMBINER LOOP

TEST BOUNDARIES SEE SKETCH BELOW

TESTED BY RTW DATE 12-29-84

TIME	PRESSURE (psig)	FLOW (scc/min)
0	45.9	695 SCCM
5	45.9	635
10	45.9	673
15	45.9	691

LLRT Test Box No. 26-1106 | Cal. Due Date 1-10-85

VOLUMETRICS LRM VALVE/SWITCH POSITIONS

RANGE SEL (V-2)	TEST VALVE(V-3)	TEST LVL VALVE(V-4)	RANGE SEL SWITCH
Mid	Flow	Test	Mid

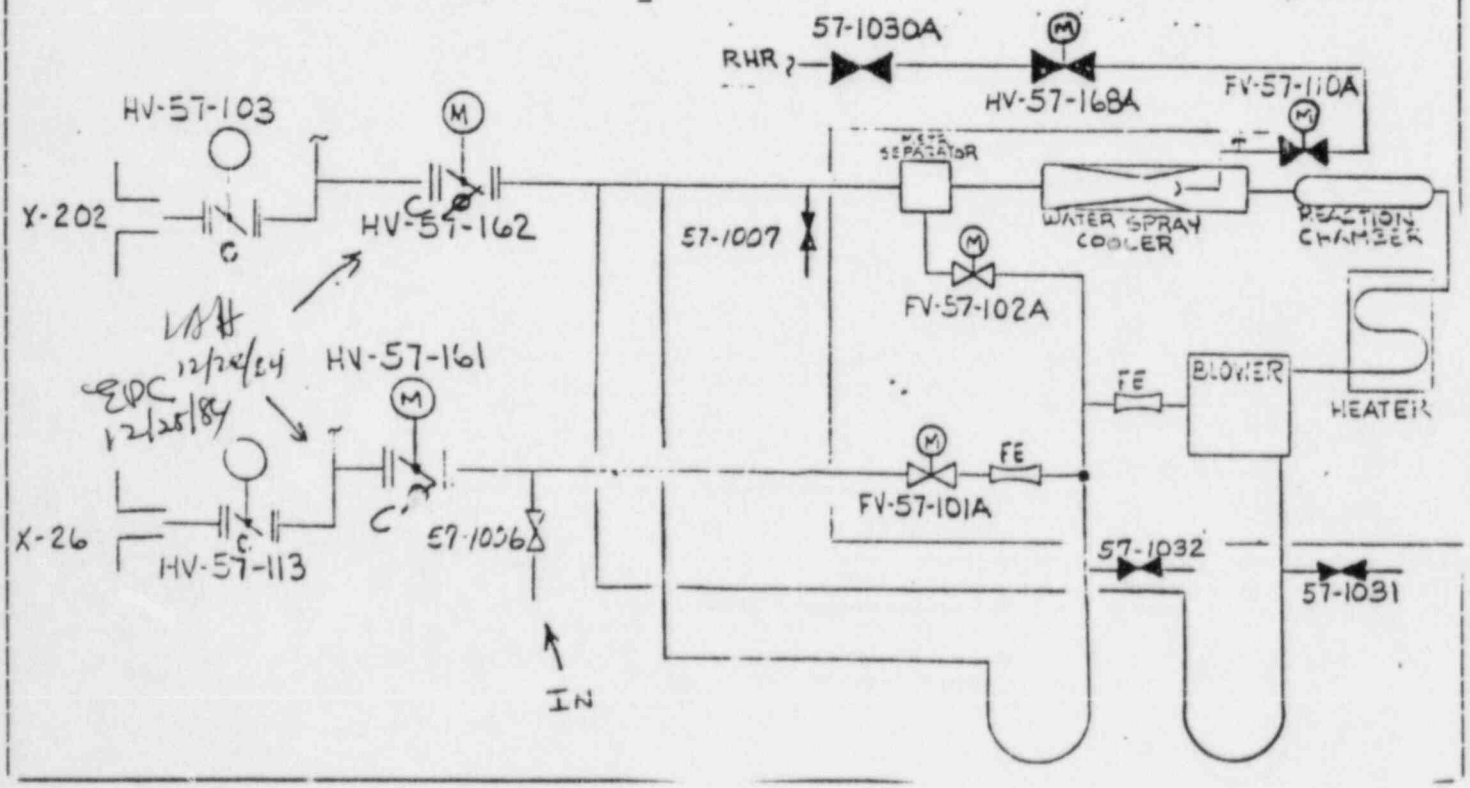
ACCEPTANCE CRITERIA: No Off Scale Reading

IMPOSED FLOW RATE= 0 sccm
AVERAGE FLOW= 673.5 scc/min (ACTUAL)

TEST TAP VALVES: 57-1006

TESTED PER PROCEDURE ST-1-058-701-1

LEAKAGE RATE = 10.2 scc/min with imposed flow



ADDITIONAL ACTION/TEST COMMENTS

Additional Action:

Additional Action required if other portions of test did not function properly or other discrepancies were noted during test.

1. MRF Submitted (MRF - Number)_____ _____
2. Other Action (Signature - Time/Date)_____ _____

TEST COMMENTS

FV-57-101A would close when energized so it was left in this position.
FV-57-110A was ~~found~~ closed and left closed.

If ANY entry is made on this page, sign bottom of cover sheet.

"A" POST LOCA RECOMBINER CONTAMINATED PIPING INSPECTION

DATA SHEET (3 OF 3)

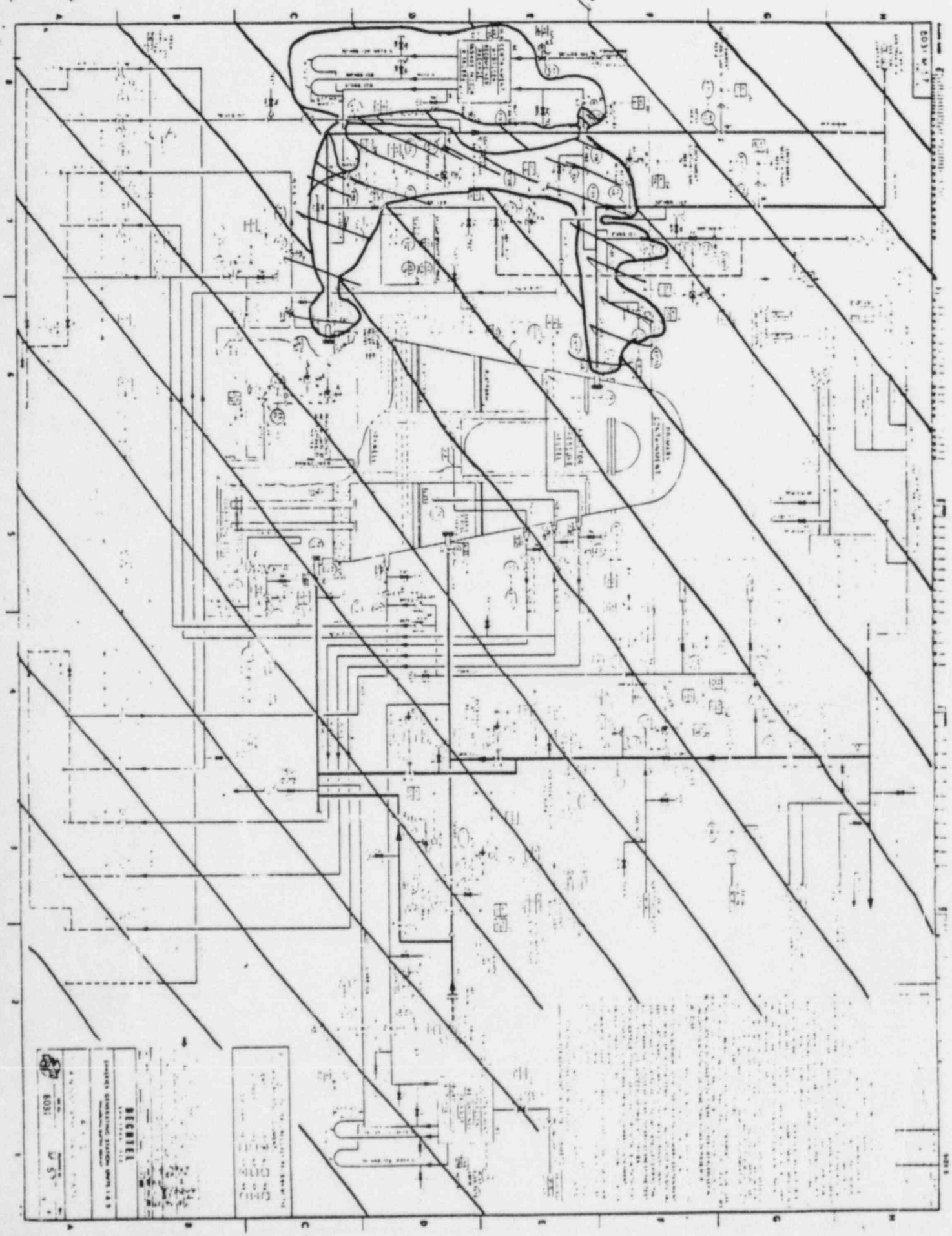
ATTACHMENT A

INSPECTOR: Richard T. Weidner

SYSTEM MODE _____ DATE 12-29-84

COMPONENT NUMBER	COMPONENT DESCRIPTION	COMP. MODE (ON/OFF) (OPEN/SHUT)	LEAK RATE	CORRECTIVE ACTION DATE	REMARKS
HV-57-162	Valve		0		
57-1007	Valve		0		
FV-57-102A	Valve		0		
FV-57-101A	Valve		0		
57-1006	Test Valve Connection		Very Very Small 0		
HV-57-161	Valve		0		
57-1032	Valve		0		
57-1031	Valve		0		
FV-57-110A	Valve		0		
HV-57-168A	Valve		0		
57-1030A	Valve		0		
FT-101A + Root Valves	Flow Transmitter		Very Small ~~from LO S. ATC~~		Leaking from LO S. de root valve
FT-102A + Root Valves			0		
PT-102A			0		

LAH 12/28/84 EDS 12/28/84



3850016380 ATTACHMENT 9A

9/28/84
EFFECTIVE DATE

LIMERICK GENERATING STATION
PORC APPROVAL FORM

TPC# 1141

R.F. Moore 9.26.84

A-4, Form 1
Revision 1
Page 1 of 1

G.M. Hunt 9/10/84 CRE

DOCUMENT (TITLE, OR PROC # & REV.): ST-1-058-702-1

REASON FOR SUBMITTAL: Boundaries of test changed to reflect intent of FSAR

☐ NEW PROCEDURE

☐ PROCEDURE REVISION

☐ ENTIRE PROC. REVIEWED & SUGGESTED CHANGES INDICATED (PERIODIC REVIEW A-2)

☐ PORTIONS OF PROC. REVIEWED & SUGGESTED CHANGES INDICATED

☒ TEMPORARY CHANGE TO APPR'D PROC
A-3 REVIEW REQUIRED BY 1-3-85

☒ REVIEW OF TEMP CHANGE ONLY

☐ REVIEW OF TEMP CHANGE AND PERMANENT PROC. REVISION

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
UPT				
SST SUPT				
NG-TECH				
NG-OPS				
NG-MAINT				
R HP				
R CHEM				
ERF ENG	yfc	12/21/84		
I&C ENG				
ADMN SUPV				

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
REAC ENG				
SFT SUPT	WNB	12/21/84		
REG ENG				
OUT MGR				
		-		

3. COMMENTS/CORRECTIVE ACTION:

☐ Approved with comments/changes on attached document

Pages 12, 13, 14 & 17

COMMENTS/CORRECTIVE ACTION TAKEN & CHECKED/DATE - -	SUPT. APPROVAL/DATE	PORC MEETING #: DATE:
ADMIN OR PREPARER _____ _____	_____/_____	

DIRECTIONS TO ADMIN. STAFF:
- ☐ ISSUE THE ATTACHED DOCUMENT
- ☐ FILE THE ATTACHED DOCUMENT IN FILE _____
- ☐ FILE THIS FORM PER ADMIN. PROC. _____
- ☐ OTHER: _____

TRANSMIT A COPY OF THIS FORM AND DOCUMENT TO NRB FOR:
- ☐ APPROVAL
- ☐ REVIEW
- ☐ INFO

3850016380

9/13/84

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

ST-1-058-702-1 "B" POST LOCA RECOMBINER CONTAMINATED PIPING INSPECTION

Test Freq.: 18 Months -OR- Initiating Events: A. Reason _____
Tech. Spec.: 6.8.4.a B. MRF No. _____
FSAR 6.2.8.1.H
FSAR 6.2.8.3

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By:	(Sign/Date)	[signature]	12/21/84
Performed By:	(Sign/Date)	Scott Wagner	12/21/84
Informed Test Complete:(ACO or CO)	(Sign/Date)	Ron Monaco	12-21-84
	(Time)		1437
Reviewed By:(SSVN or STA)	(Sign/Date)	Glenn A Patton	1930 12/21/84

B. One or More Asterisked(*) Steps Test Results UNSATISFACTORY.

Performed By:	(Sign/Date)	_____	_____
Informed of Test Results: (CO or ACO)	(Sign/Date)	_____	_____
	(Time)		_____
Shift Supervision:	(Sign/Date)	_____	_____
Corrective Action:	MRF No.:	_____	
Initiated By:	(Sign/Date)	_____	_____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified:	(Name)	_____	
Date/Time Notified:	(Date/Time)	_____	_____
Notified By:	(Sign)	_____	

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) [signature] 12/21/84

1.0 PURPOSE

To verify that the total leakage rate for the B Hydrogen Recombiner Loop is within the acceptable limits specified in Section 9.4, while LLR Test is being performed. If the system leakage rate is not within the acceptable limits, an inspection shall be performed to identify leaking components for repair.

2.0 REFERENCES

2.1 Generic LLRT Procedure ST-1-LLR-001-1

2.2 8031-M-57, Sheet 1

2.3 NUREG-0737

2.4 Bechtel Drawing, M-40-45, Hydrogen Recombiner

3.0 TEST EQUIPMENT

3.1 Per Generic Procedure ST-1-LLR-001-1

3.2 Bottle(s) of SNOOP - or equivalent

3.3 Inspection mirror with handle

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Per Generic Procedure ST-1-LLR-001-1 and Section 9.1 of Specific Procedure Section.

4.2 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section of the Data Sheet.

4.3 Signoff steps marked "SO" in the left-hand margin of the body of the procedure require a signoff on the Data Sheet or Procedure Cover Sheet.

4.4 Data Sheet steps marked (*) are specific Tech. Spec. Requirements which will fail the test if not completed satisfactorily.

3850016380

5.0 PREREQUISITES

5.1 Plant conditions are such that testing will not interfere with planned operations. Backup system availability has been established per Section 9.1. Request permission of Shift Supervision and ACO/CO to begin this test.

TVC / 12/21/84
Initials / Date

Rmn / 12-21-84
ACO/CO / Date

5.2 RWP obtained if required. N/A

5.3 Safety permit issued if required per Section 9.5 or as determined by Results Engineer or alternate. Yes ___ No X

If Yes: Permit No. _____

6.0 GENERAL LLRT PROCEDURE

Initials/Date

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS AND DATA SHEETS ARE CORRECTLY AND COMPLETELY FILLED IN.

6.1 Read Specific Procedure. Follow procedure for system draining and venting (Section 9.2) and valve lineup (Section 9.3).

QQH / 12/21/84

6.2 With the box set up for a "FLOW IN TEST" and connected to the penetration test tap, perform LLRT per ST-1-LLR-002-1. Record leakage on the Test Data Sheet attached to this procedure.

QQH / 12/21/84

6.3 Calculate test pressure as follows. Document calculations and reasoning below:

6.3.1 Determine the maximum back pressure against any isolation boundary being tested (existing at start of test or developing as the result of a water leg existing on the vent path).

0.0 QQH 12/21/84
~~0~~ 0.0 psig

6.3.2 Determine the maximum back pressure against any non-isolation boundary or isolation boundary not being tested.

0.0 QQH 12/21/84
~~0~~ 0.0 psig

IF THE PRESSURE CALCULATED IN SECTION 6.3.2 IS GREATER THAN 44 PSIG, A FLOW OUT TEST OR A WATER COLLECTION TEST MAY BE CONDUCTED TO MEASURE THE INLEAKAGE CONTRIBUTION AND ADDED TO LEAK TEST RESULTS. SECTION 6.3.2 PRESSURE CAN THEN BE REGARDED AS ZERO.

6.3.3 Add 44.0 psi for air or 48.4 psi for water to the pressure determined in section 6.3.1 46.0 psig

6.3.4 Test pressure is the greater of Section 6.3.2 or Section 6.3.3. 46.0 psig (Test Pressure)

Test Pressure Calculations:

44.0 + 2.0(LRM accuracy) = 46.0

6.4 Perform LLRT per Section 9.4.

7.0 PROCEDURE

7.1 Flow in Test (Test Volume Filled with Air)

7.1.1 Verify that the test volume is drained of water.

THE FOLLOWING STEPS ARE THE INITIAL SET UP OF VOLUMETRICS LEAK RATE MONITOR (LRM). SEE FIGURE 1.

7.1.2 Prior to performing leakage test or integrity check, set the LRM controls as follows:

CONTROL	PRESSURE REGULATOR (V-1)	RANGE SELECTOR (V-2)	TEST VALVE (V-3)	TEST LEVEL VALVE (V-4)
POSITION	FULL DECREASE (CCW)	CHARGE	DECAY	TEST

7.1.3 Connect the LRM to a 110 volt, 60 Hz electrical power source. Press the power switch; allow a ten (10) minute warm-up period before proceeding with Section 7.1.5.

DUE TO THE NATURE OF THE THERMAL MASS FLOW TRANSDUCERS USED IN THE LRM, THE FLOW RATE INDICATOR MAY DISPLAY A READOUT OF -006 TO +006 AT A NO LEAK CONDITION. THIS IS A NORMAL INDICATION, AND DOES NOT AFFECT CALIBRATION OF THE LRM.

7.1.4 Apply clean, dry facility test gas supply pressure to INLET port and pressurize from 85 to 150 PSIG. (Use nitrogen on electrical penetrations)

7.1.5 Upon completion of warm-up period, adjust ZERO control as necessary to obtain a readout of ± 0.00 on the PRESSURE indicator. Be sure the TEST port is open to atmosphere.

7.1.6 Connect TEST port to the test volume.

7.1.7 Zeroing of the desired flow range(s) on the display must be completed before any flow measurements from that range are taken. The LRM MUST be isolated from the test volume by setting the ball valves as in Section 7.1.2. Adjust zero on all flow ranges, selecting each individually with the RANGE switch.

THERE MUST BE A CONSTANT SUPPLY PRESSURE OF 85-150 PSI CONNECTED TO THE INLET OF THE LRM FOR ZEROING OF THE FLOW DISPLAY.

THE FOLLOWING STEPS ARE THE LEAK TEST OPERATING SEQUENCE OF LRM.

7.1.8 Set the TEST LEVEL ball (V-4) valve to the CLOSED position. Set the TEST ball valve (V-3) to the FLOW position. Adjust the PRESSURE REGULATOR (V-1) to the desired test pressure level as displayed on the PRESSURE indicator. Set the RANGE SELECTOR switch and RANGE SELECTOR valve (V-2) to LOW RANGE and observe FL for any possible internal LRM leakage. Return the TEST LEVEL valve (V-4) to the TEST position. Return RANGE SELECTOR valve (V-2) to CHARGE position. The test volume should now be charging.

THE PRESSURE INDICATOR WILL SHOW A DROP IN PRESSURE UNTIL THE TEST VOLUME IS COMPLETELY CHARGED.

7.1.9 If the pressure within the test volume will not reach the desired test level (due to an excessive leakage rate), increase the REGULATOR control setting as necessary to obtain the desired test level pressure.

7.1.10 After the test volume is fully charged, set ball valves as follows:

BALL VALVE	RANGE SELECTOR (V-2)	TEST VALVE (V-3)	TEST LEVEL VALVE (V-4)
POSITION	HIGH	FLOW	TEST

ALLOW A TEN (10) MINUTE (MINIMUM) TEMPERATURE STABILIZATION PERIOD.

7.1.11 Upon completion of temperature stabilization period, place the RANGE switch in the HIGH position and observe the FLOW RATE indicator for the leakage flow rate.

7.1.12 If the indicated leakage rate value is sufficiently low, set the RANGE switch to MID and the RANGE valve to MID for greater accuracy. If low range is desired, set RANGE switch to LOW and the RANGE valve (V-2) to LOW.

7.1.13 Verify the position of the following valves on LLRT Data Sheet.

Range Selector Switch
Range Selector Valve (V-2)
Test Valve (V-3)
Test Level Valve (V-4)

7.1.14 If leakage is evident but is below the calibrated range of the LRM, either assign a test leakage rate at the minimum calibrated range (20 sccm) or impose a known flow to raise total indicated flow rate to within the calibrated range of the LRM. This is done by closing the test connection valves and opening a vent valve between the test connection valves and valve V-4 on the LRM. Throttle the vent valve to attain a flow rate (Lo) within the calibrated range of the LRM. After flow has stabilized, record the imposed flow rate on the test data sheet, open the test connection valves and observe the total flow rate.

WHEN IMPOSED FLOW IS USED, THE MEASURED LEAKAGE (Lm) IS THE DIFFERENCE BETWEEN THE TOTAL FLOW AND THE IMPOSED KNOWN FLOW (Lo).

7.1.15 Read and record on Test Data Sheet the indicated flow and pressure at a minimum of 5-minute intervals for 15 minutes after stabilization. A minimum of 4 readings shall be taken.

8.0 RETURN TO NORMAL

8.1 When test is completed, consult Health Physicist or alternate concerning venting the test volume.

8.2 Leave 15 psig of nitrogen in electrical penetrations upon test completion.

9.0 SPECIFIC PROCEDURE

9.1 Backup System Availability and Requirements:

9.1.1 This test may be performed provided Tech. Spec. 3.6.6.1 requirements are met.

9.1.2 'B' HYDROGEN RECOMBINER will be out of service for the duration of this test.

9.2 System Draining and/or Venting:

CAUTION

CONSULT HEALTH PHYSICIST PRIOR TO VENTING OR DRAINING ANY POTENTIALLY CONTAMINATED SYSTEMS.

9.2.1 Align valves per the Tag Accountability Log. QQH 12/21/84 Initials Date

9.2.2 Attach a drain hose to the test connections at valves 57-1008, 57-1009, 57-1033, and 57-1034 and route to a suitable drain. QQH 12/21/84 Initials Date

9.2.3 Open valves listed in Step 9.2.2 to drain and vent the test volume. QQH 12/21/84 Initials Date

9.2.4 Remove cap from connection downstream of FV-57-110B and monitor for leakage into the test volume from RHR. QQH 12/21/84 Initials Date

9.2.5 When RHR isolations valves have been verified leak tight as evidenced by no leakage from the opening created in step 9.2.4. reirstall the cap which was removed in step 9.2.4.

QQH / 12/21/84
Initials Date
SCW / 12/21/84
Verified By Date

9.3 Valve Lineup:

9.3.1 Complete LLRT Tag Accountability Log to position valves, and hang LLRT tags. Have valve lineup verified.

QQH / 12/21/84
Initials Date

9.4 Procedure:

PERFORM LLRT USING THE FOLLOWING PREFERRED METHOD(S). ALTERNATE METHODS AS DESCRIBED IN GENERIC PROCEDURE ST-1-LLR-001-1 MAY BE USED WHEN NEEDED AND SHALL BE ATTACHED TO AND FORM A PART OF THIS PROCEDURE ONLY WHEN USED

9.4.1 Perform a flow in test on the HYDROGEN RECOMBINER and associated piping per Section 7.1 of this procedure. Record results on test data sheet. Test pressure is as determined in Section 6.3.

Test Valve: 57-1008
Vent: Primary Containment

QQH / 12/21/84
Initials Date

9.4.2 After system has stabilized record amount of leakage. 180 scc/min

QQH / 12/21/84
Initials Date

9.4.3 If the system leakage rate is below (later) scc/min then continue section 9.6 and mark remaining steps in 9.4 NA. If not, go on the next step

9.4.4 While the system is still pressurized, walk it down using copies of Attachment A, and perform appropriate air leak detection methods (snoop or

equivalent). Inspect all recombiner and associated piping in line components for leakage within the boundaries of Attachment B

Initials 12/21/84 Date

9.4.5 Record on Attachment A all components inspected and a description of the size and location of any leakage ("small" or "large").

Initials 12/21/84 Date

9.4.6 Upon completion of inspection, issue MRF's for repair of components exhibiting excessive leakage. This shall be denoted in the additional actions/test comments section and brought to the attention of SSVN.

Initials 12/21/84 Date

9.4.7 Inspection completed

Initials 12/21/84 Date

9.5 Blocks Required

None

9.6 Restoration:

9.6.1 At the conclusion of the test, isolate and vent the test box and the test volume separately. Disconnect test box from the test volume, close test connection valves and remove hoses.

Initials 12/21/84 Date

CAUTION

CONTACT HEALTH PHYSICS PRIOR TO DRAINING OR VENTING ANY POTENTIALLY CONTAMINATED SYSTEMS.

9.6.2 Restore valve line up at test completion per Tag Accountability Log or as directed by Shift Supervision. Have second verification, performed by a qualified individual designated by the Results Engineer or his alternate.

IF ANY VALVE IS RESTORED TO A POSITION OTHER THAN THE "SUGGESTED RESTORED VALVE POSITION" NOTE IT ACCORDINGLY BY LINING THROUGH THE SUGGESTED POSITION AND WRITING IN ITS PLACE THE ACTUAL RESTORED VALVE POSITION.

9.6.3 Verify no off-scale leakage.

Initials Date(*)

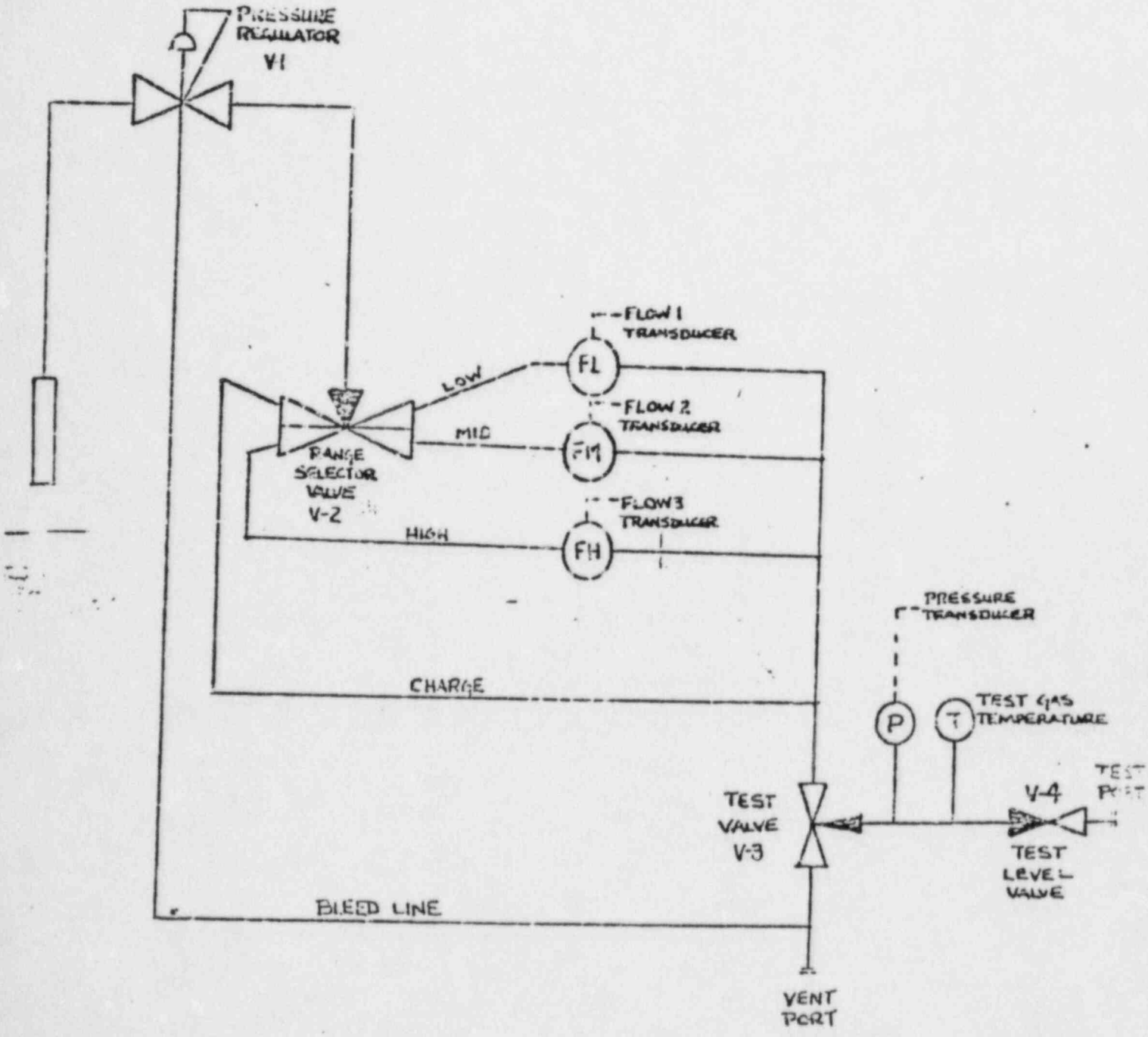
9.6.4 Return system to normal per Section 8.0 or as directed by Shift Supervision.

Initials Date

9.7 Inform shift supervision of results of test and fill out the test results section. (Note above asterisked step.) Have operator review accountability log.

Initials Date

AT COMPLETION ENSURE THAT COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.



Volumetrics Leak Rate Monitor (LRM)
Figure 1

3850016380

LLRT TAG ACCOUNTABILITY LOG

PENETRATION NO. X-25/201A P&ID M-57

PENETRATION NAME/ VALVE UNDER TEST	VALVE NO./DESCRIPTION	TAGGED VALVE CONDITION	TAG NO.	HUNG BY/ VERIFIED BY	SUGGESTED RESTORED VALVE POSITION	VALVE RESTORED TAG RMVD BY/ VERIFIED BY	TIME/ DATE
'B' HYDROGEN RECOMBINER	HV-57-163	CLOSED ~~OPEN~~	27269 27263	[illegible] SCW	CLOSED	[illegible] SCW	GP 12/21/84
HV-57-163	HV-57-164	CLOSED ~~OPEN~~	27270 27264	[illegible] SCW	CLOSED	[illegible] SCW	GP 12/21/84
HV-57-164	HV-57-168B	CLOSED	27271 27267	[illegible] SCW	CLOSED	[illegible] SCW	GP 12/21/84
	57-1030B	CLOSED	27274	[illegible] SCW	LOCKED OPEN	[illegible] SCW	GP 12/21/84
	HS-58-103B	OFF	27272	[illegible] SCW	OFF	[illegible] SCW	GP 12/21/84
				/		/	
	FV-57-110B	CLOSED	27273	[illegible] SCW	OPEN	[illegible] SCW	GP 12/21/84
	FV-57-101B	OPEN	27443	[illegible] SCW	OPEN	[illegible] SCW	GP 12/21/84
	FV-57-102B	OPEN	27442	[illegible] SCW	OPEN	[illegible] SCW	GP 12/21/84
	57-1033	UNCAPPED CLOSED	27441	[illegible] SCW	CAPPED CLOSED	[illegible] SCW	GP 12/21/84
	57-1034	UNCAPPED CLOSED	27440	[illegible] SCW	CAPPED CLOSED	[illegible] SCW	GP 12/21/84

WDC 12/21/84

WNB 12/21/84

ILRT TAG ACCOUNTABILITY LOG

PENETRATION NO. X-25/201A P&ID M-57

PENETRATION NAME/ VALVE UNDER TEST	VALVE NO./DESCRIPTION	TAGGED VALVE CONDITION	TAG NO.	HUNG BY/ VERIFIED BY	SUGGESTED RESTORED VALVE POSITION	VALVE RESTORED TAG RMVD BY/ VERIFIED BY	TIME/ DATE
		UNCAPPED			CAPPED		630P
	57-1008 (TEST)	AS REQ'D	27444	[illegible] /SCW	CLOSED	[illegible] /SCW	12/21/84
		UNCAPPED			CAPPED		6P
	57-1009	CLOSED	27246	[illegible] /SCW	CLOSED	[illegible] /SCW	12/21/84
				/	~~LOCKED~~	/	
	~~HV-57-122~~	~~OPEN~~			~~OPEN~~		
				/	~~LOCKED~~	/	
QNB 12/21/84	~~HV-57-125~~	~~OPEN~~			~~OPEN~~		
				/		/	
	~~HV-57-123~~	~~CLOSED~~			~~CLOSED~~		
MC 12/21/84				/		/	
	~~HV-57-124~~	~~CLOSED~~			~~CLOSED~~		
				/		/	
	~~HV-57-121~~	~~CLOSED~~			~~CLOSED~~		
				/		/	
	~~HV-57-131~~	~~CLOSED~~			~~CLOSED~~		
				/		/	
				/		/	

LOCAL LEAKAGE RATE TEST DATA SHEET

PENETRATION NO. HYDROGEN RECOMBINER

VALVE UNDER TEST "B" HYDROGEN RECOMBINER LOOP

TEST BOUNDARIES SEE SKETCH BELOW

TESTED BY RH DATE 12/21/84

TIME	PRESSURE (psig)	FLOW (scc/min)
0	46.0	180
5	46.0	180
10	46.0	180
15	46.0	180

IMPOSED FLOW RATE= _____ sccm
AVERAGE FLOW= _____ scc/min
(ACTUAL)

LLRT Test Box No. 21-1106 | Cal. Due Date 1/10/85

VOLUMETRICS LRM VALVE/SWITCH POSITIONS

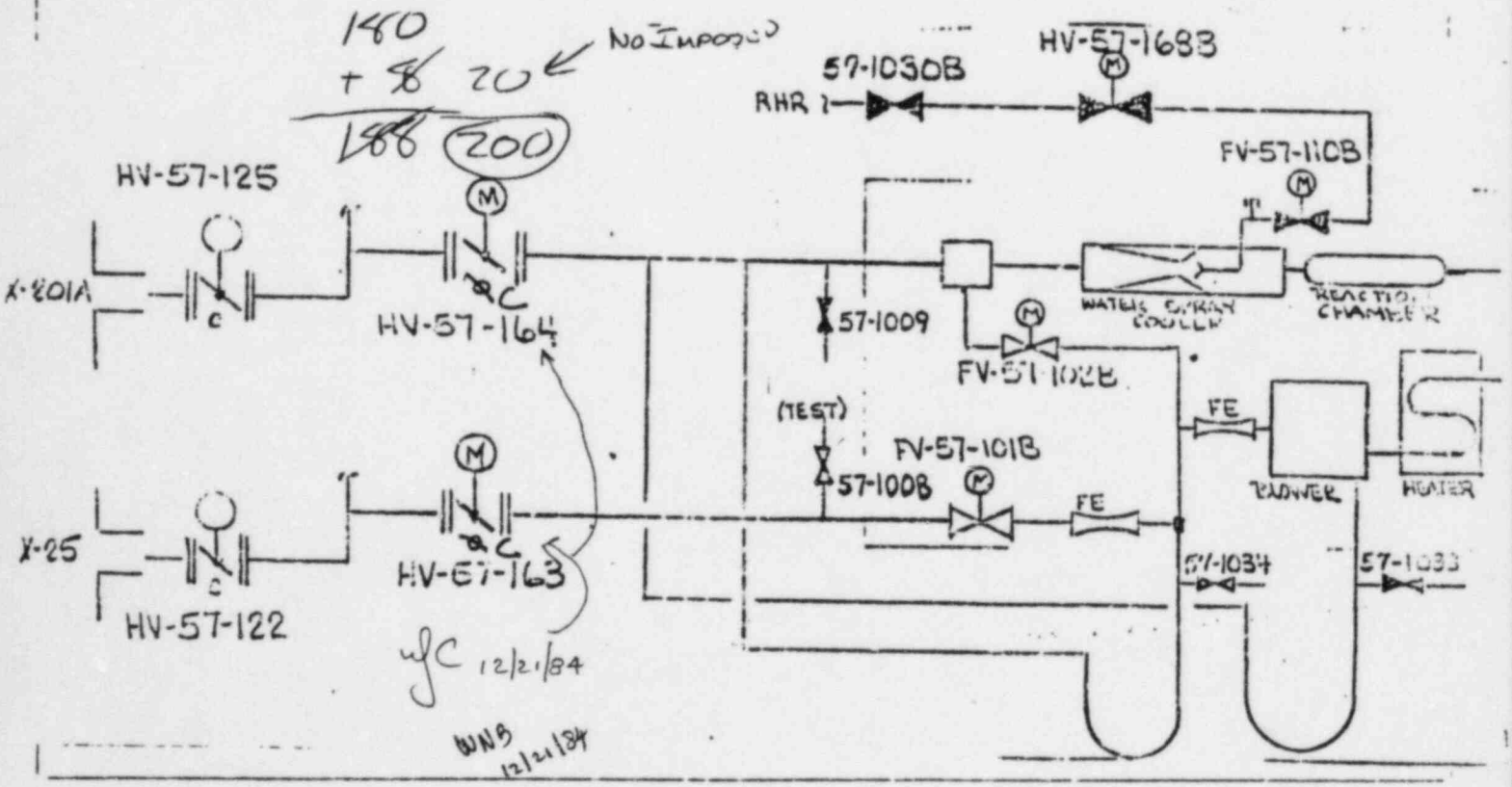
RANGE SEL (V-2)	TEST VALVE(V-3)	TEST LVL VALVE(V-4)	RANGE SEL SWITCH
MID	FLOW	TEST	MID

ACCEPTANCE CRITERIA: No Off Scale Reading

TEST TAP VALVES:

TESTED PER PROCEDURE ST-1-058-702-1

LEAKAGE RATE = 8 scc/min



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ADDITIONAL ACTION/TEST COMMENTS

Additional Action:

Additional Action required if other portions of test did not function properly or other discrepancies were noted during test.

1. MRF Submitted (MRF - Number) _____ _____

2. Other Action (Signature - Time/Date) _____ _____

TEST COMMENTS

Due to temp stabilization in test volume flow readings oscillated starting @ (+) 180 sccm to (-) 180 sccm and decreased linear i.e. (+) 170 to (-) 170 sccm, (+) 60 to (-) 60 sccm. During this time maintenance began adding heat shrink insulation to the wires resulting in unstable temp readings yielding to very unstable flow readings. Due to time concerns for conclusion of ST to coincide with maintenance close out, the worst case (+) 180 sccm was recorded. This test will be conducted in accordance with UCR-004-1 @ the next possible window.

If ANY entry is made on this page, sign bottom of cover sheet.

"B" POST LOCA RECOMBINER CONTAMINATED PIPING INSPECTION

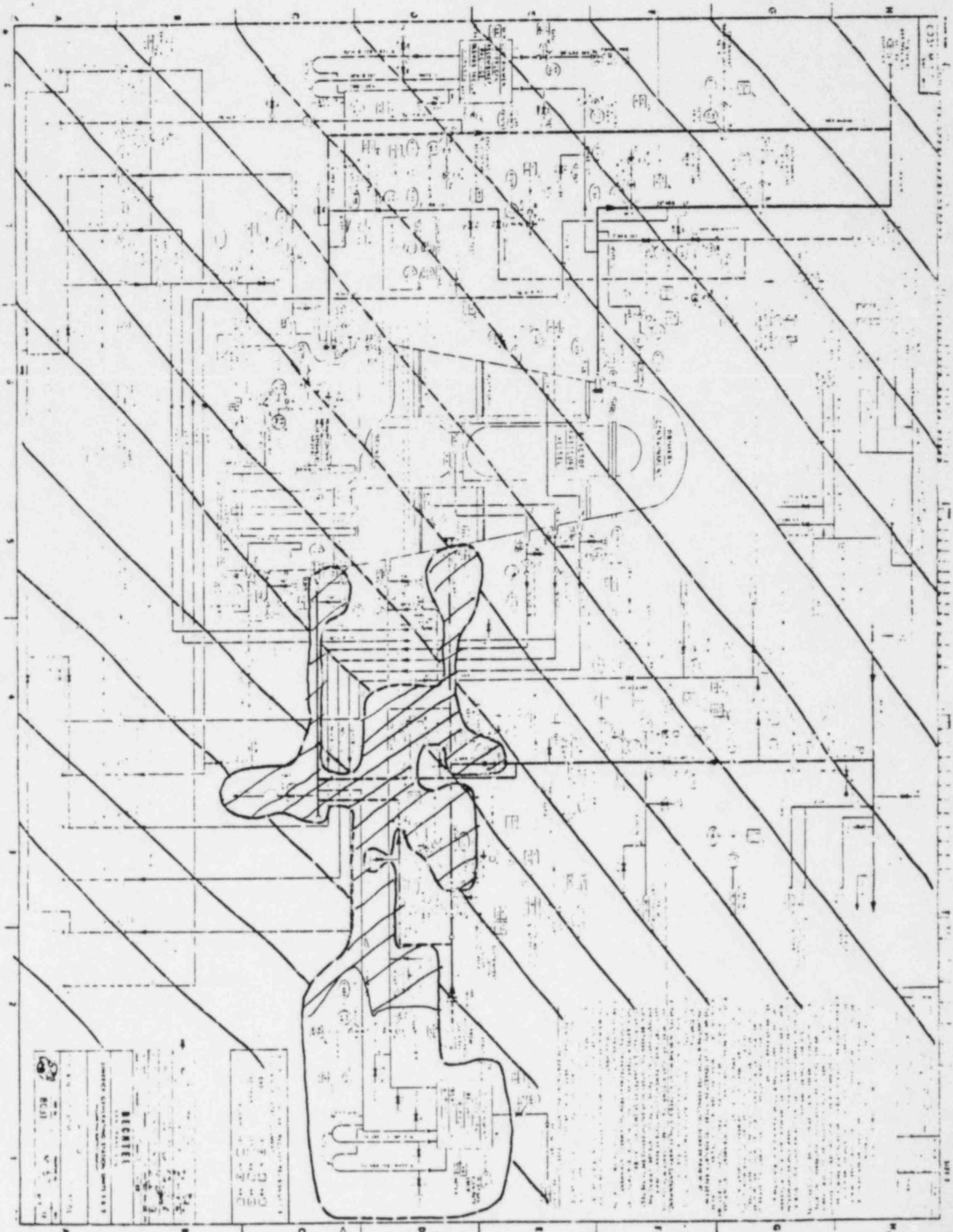
DATA SHEET

ATTACHMENT A

Inspector: Amy Hetchisen

System Mode _____ Date 12/21/84

Component Number	Component Description	Comp. Mode (on/off) (open/shut)	Leak Rate	Corrective Action Date	Remarks
	NO leak rate found on walkdown with Snoop.		ϕ		



wjc 12/21/84

WNB 12/21/84

ATTACHMENT 9B

3850016380

9/28/84
EFFECTIVE DATE

LIMERICK GENERATING STATION
PORC APPROVAL FORM
TPC #1214

R.F. Moore 9.26.84
A-4, Form 1
Revision 1
Page 1 of 1
G.M. Hart 9/10/84 CRE

1. DOCUMENT (TITLE, OR PROC # & REV.): ST-1-058-702-1 Rev 0

2. REASON FOR SUBMITTAL: TEST BOUNDARIES CHANGED TO REFLECT FSAR INTENT

- ☐ NEW PROCEDURE
- ☐ PROCEDURE REVISION
  - ☐ ENTIRE PROC. REVIEWED & SUGGESTED CHANGES INDICATED (PERIODIC REVIEW A-2)
  - ☐ PORTIONS OF PROC. REVIEWED & SUGGESTED CHANGES INDICATED
- ☒ TEMPORARY CHANGE TO APPR'D PROC
  A-3 REVIEW REQUIRED BY 1/11/85
  - ☒ REVIEW OF TEMP CHANGE ONLY
  - ☐ REVIEW OF TEMP CHANGE AND PERMANENT PROC. REVISION

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
SUPT				
ASST SUPT				
ENG-TECH				
ENG-OPS.				
ENG-MAINT				
SR HP				
SR CHEM				
PERF ENG	LAK	12/28/84		
I&C ENG				
ADMN SUPV				

PORC REVIEWER	REV'D&APP'D INITIAL	REV'D&APP'D DATE	REV'D&APP'D WITH COMMENT INITIAL	REV'D&APP'D WITH COMMENT DATE
REAC ENG				
SFT SUPT	GDC	12/28/84		
REG ENG				
OUT MGR				
		-		

3. COMMENTS/CORRECTIVE ACTION:

☐ Approved with comments/changes on attached document

Pages 12, 13, 14, 17

COMMENTS/CORRECTIVE ACTION TAKEN & CHECKED/DATE - -	SUPT. APPROVAL/DATE	PORC MEETING #: DATE:
ADMIN OR PREPARER		

DIRECTIONS TO ADMIN. STAFF:
- ☐ ISSUE THE ATTACHED DOCUMENT
- ☐ FILE THE ATTACHED DOCUMENT IN FILE_____
- ☐ FILE THIS FORM PER ADMIN. PROC._____
- ☐ OTHER:_____

TRANSMIT A COPY OF THIS FORM AND DOCUMENT TO NRB FOR:
- ☐ APPROVAL
- ☐ REVIEW
- ☐ INFO

3850016380
RPA/RSE:sp

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

ST-1-058-702-1 "B" POST LOCA RECOMBINER CONTAMINATED PIPING INSPECTION

Test Freq.: 18 Months -OR- Initiating Events: A. Reason _____
Tech. Spec.: 6.8.4.a B. MRF No. _____
FSAR 6.2.8.1.H
FSAR 6.2.8.3

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By:	(Sign/Date)	Dale Brown	12-29-84
Performed By:	(Sign/Date)	Edward J. Borsola	12/29/84
Informed Test Complete:(ACO or CO)	(Sign/Date) (Time)	R Alger	12-29-84 0640
Reviewed By:(SSVN or STA)	(Sign/Date)	C Gosser	12/29/84

B. One or More Asterisked(*) Steps Test Results UNSATISFACTORY.

Performed By:	(Sign/Date)	_____	_____
Informed of Test Results: (CO or ACO)	(Sign/Date) (Time)	_____	_____ _____
Shift Supervision:	(Sign/Date)	_____	_____
Corrective Action:	MRF No.:	_____	
Initiated By:	(Sign/Date)	_____	_____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified:	(Name)	_____
Date/Time Notified:	(Date/Time)	_____ _____
Notified By:	(Sign)	_____

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) _____ _____

1.0 PURPOSE

To verify that the total leakage rate for the B Hydrogen Recombiner Loop is within the acceptable limits specified in Section 9.4, while LLR Test is being performed. If the system leakage rate is not within the acceptable limits, an inspection shall be performed to identify leaking components for repair.

2.0 REFERENCES

2.1 Generic LLRT Procedure ST-1-LLR-001-1

2.2 8031-M-57, Sheet 1

2.3 NUREG-0737

2.4 Bechtel Drawing, M-40-45, Hydrogen Recombiner

3.0 TEST EQUIPMENT

3.1 Per Generic Procedure ST-1-LLR-001-1

3.2 Bottle(s) of SNOOP - or equivalent

3.3 Inspection mirror with handle

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Per Generic Procedure ST-1-LLR-001-1 and Section 9.1 of Specific Procedure Section.

4.2 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section of the Data Sheet.

4.3 Signoff steps marked "SO" in the left-hand margin of the body of the procedure require a signoff on the Data Sheet or Procedure Cover Sheet.

4.4 Data Sheet steps marked (*) are specific Tech. Spec. Requirements which will fail the test if not completed satisfactorily.

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5.0 PREREQUISITES

5.1 Plant conditions are such that testing will not interfere with planned operations. Backup system availability has been established per Section 9.1. Request permission of Shift Supervision and ACO/CO to begin this test.

Per Greg Collins

Initials / Date 12/27/84

ACO/CO / Date 12/28/84

5.2 RWP obtained if required. N/A

5.3 Safety permit issued if required per Section 9.5 or as determined by Results Engineer or alternate. Yes ___ No ✓

If Yes: Permit No. NA

6.0 GENERAL LLRT PROCEDURE

Initials/Date

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS AND DATA SHEETS ARE CORRECTLY AND COMPLETELY FILLED IN.

6.1 Read Specific Procedure. Follow procedure for system draining and venting (Section 9.2) and valve lineup (Section 9.3). BB / 12-29-84

6.2 With the box set up for a "FLOW IN TEST" and connected to the penetration test tap, perform LLRT per ST-1-LLR-002-1. Record leakage on the Test Data Sheet attached to this procedure. BB / 12-29-84

6.3 Calculate test pressure as follows. Document calculations and reasoning below:

6.3.1 Determine the maximum back pressure against any isolation boundary being tested (existing at start of test or developing as the result of a water leg existing on the vent path). ϕ psig

6.3.2 Determine the maximum back pressure against any non-isolation boundary or isolation boundary not being tested. ϕ psig

IF THE PRESSURE CALCULATED IN SECTION 6.3.2 IS GREATER THAN 44 PSIG, A FLOW OUT TEST OR A WATER COLLECTION TEST MAY BE CONDUCTED TO MEASURE THE INLEAKAGE CONTRIBUTION AND ADDED TO LEAK TEST RESULTS. SECTION 6.3.2 PRESSURE CAN THEN BE REGARDED AS ZERO.

6.3.3 Add 44.0 psi for air or 48.4 psi for water to the pressure determined in section 6.3.1 44.0 psig

6.3.4 Test pressure is the greater of Section 6.3.2 or Section 6.3.3. 44.0 psig (Test Pressure)

Test Pressure Calculations:

6.4 Perform LLRT per Section 9.4.

7.0 PROCEDURE

7.1 Flow in Test (Test Volume Filled with Air)

7.1.1 Verify that the test volume is drained of water.

THE FOLLOWING STEPS ARE THE INITIAL SET UP OF VOLUMETRICS LEAK RATE MONITOR (LRM). SEE FIGURE 1.

7.1.2 Prior to performing leakage test or integrity check, set the LRM controls as follows:

CONTROL	PRESSURE REGULATOR (V-1)	RANGE SELECTOR (V-2)	TEST VALVE (V-3)	TEST LEVEL VALVE (V-4)
POSITION	FULL DECREASE (CCW)	CHARGE	DECAY	TEST

7.1.3 Connect the LRM to a 110 volt, 60 Hz electrical power source. Press the power switch; allow a ten (10) minute warm-up period before proceeding with Section 7.1.5.

DUE TO THE NATURE OF THE THERMAL MASS FLOW TRANSDUCERS USED IN THE LRM, THE FLOW RATE INDICATOR MAY DISPLAY A READOUT OF -006 TO +006 AT A NO LEAK CONDITION. THIS IS A NORMAL INDICATION, AND DOES NOT AFFECT CALIBRATION OF THE LRM.

7.1.4 Apply clean, dry facility test gas supply pressure to INLET port and pressurize from 85 to 150 PSIG. (Use nitrogen on electrical penetrations)

7.1.5 Upon completion of warm-up period, adjust ZERO control as necessary to obtain a readout of ± 0.00 on the PRESSURE indicator. Be sure the TEST port is open to atmosphere.

7.1.6 Connect TEST port to the test volume.

7.1.7 Zeroing of the desired flow range(s) on the display must be completed before any flow measurements from that range are taken. The LRM MUST be isolated from the test volume by setting the ball valves as in Section 7.1.2. Adjust zero on all flow ranges, selecting each individually with the RANGE switch.

THERE MUST BE A CONSTANT SUPPLY PRESSURE OF 85-150 PSI CONNECTED TO THE INLET OF THE LRM FOR ZEROING OF THE FLOW DISPLAY.

THE FOLLOWING STEPS ARE THE LEAK TEST OPERATING SEQUENCE OF LRM.

7.1.8 Set the TEST LEVEL ball (V-4) valve to the CLOSED position. Set the TEST ball valve (V-3) to the FLOW position. Adjust the PRESSURE REGULATOR (V-1) to the desired test pressure level as displayed on the PRESSURE indicator. Set the RANGE SELECTOR switch and RANGE SELECTOR valve (V-2) to LOW RANGE and observe FL for any possible internal LRM leakage. Return the TEST LEVEL valve (V-4) to the TEST position. Return RANGE SELECTOR valve (V-2) to CHARGE position. The test volume should now be charging.

THE PRESSURE INDICATOR WILL SHOW A DROP IN PRESSURE UNTIL THE TEST VOLUME IS COMPLETELY CHARGED.

7.1.9 If the pressure within the test volume will not reach the desired test level (due to an excessive leakage rate), increase the REGULATOR control setting as necessary to obtain the desired test level pressure.

7.1.10 After the test volume is fully charged, set ball valves as follows:

BALL VALVE	RANGE SELECTOR (V-2)	TEST VALVE (V-3)	TEST LEVEL VALVE (V-4)
POSITION	HIGH	FLOW	TEST

ALLOW A TEN (10) MINUTE (MINIMUM) TEMPERATURE STABILIZATION PERIOD.

7.1.11 Upon completion of temperature stabilization period, place the RANGE switch in the HIGH position and observe the FLOW RATE indicator for the leakage flow rate.

7.1.12 If the indicated leakage rate value is sufficiently low, set the RANGE switch to MID and the RANGE valve to MID for greater accuracy. If low range is desired, set RANGE switch to LOW and the RANGE valve (V-2) to LOW.

7.1.13 Verify the position of the following valves on LLRT Data Sheet.

Range Selector Switch
Range Selector Valve (V-2)
Test Valve (V-3)
Test Level Valve (V-4)

7.1.14 If leakage is evident but is below the calibrated range of the LRM, either assign a test leakage rate at the minimum calibrated range (20 sccm) or impose a known flow to raise total indicated flow rate to within the calibrated range of the LRM. This is done by closing the test connection valves and opening a vent valve between the test connection valves and valve V-4 on the LRM. Throttle the vent valve to attain a flow rate (Lo) within the calibrated range of the LRM. After flow has stabilized, record the imposed flow rate on the test data sheet, open the test connection valves and observe the total flow rate.

WHEN IMPOSED FLOW IS USED, THE MEASURED LEAKAGE (Lm) IS THE DIFFERENCE BETWEEN THE TOTAL FLOW AND THE IMPOSED KNOWN FLOW (Lo).

7.1.15 Read and record on Test Data Sheet the indicated flow and pressure at a minimum of 5-minute intervals for 15 minutes after stabilization. A minimum of 4 readings shall be taken.

8.0 RETURN TO NORMAL

8.1 When test is completed, consult Health Physicist or alternate concerning venting the test volume.

8.2 Leave 15 psig of nitrogen in electrical penetrations upon test completion.

9.0 SPECIFIC PROCEDURE

9.1 Backup System Availability and Requirements:

9.1.1 This test may be performed provided Tech. Spec. 3.6.6.1 requirements are met.

9.1.2 'B' HYDROGEN RECOMBINER will be out of service for the duration of this test.

9.2 System Draining and/or Venting:

CAUTION

CONSULT HEALTH PHYSICIST PRIOR TO VENTING OR DRAINING ANY POTENTIALLY CONTAMINATED SYSTEMS.

9.2.1 Align valves per the Tag Accountability Log. — BD / 12-29-84 (Initials Date)

9.2.2 Attach a drain hose to the test connections at valves 57-1008, 57-1009, 57-1033, and 57-1034 and route to a suitable drain. — BD / 12-29-84 (Initials Date)

9.2.3 Open valves listed in Step 9.2.2 to drain and vent the test volume. — BD / 12-29-84 (Initials Date)

9.2.4 Remove cap from connection downstream of FV-57-110B and monitor for leakage into the test volume from RHR. — BD / 12-29-84 (Initials Date)

9.2.5 When RHR isolations valves have been verified leak tight as evidenced by no leakage from the opening created in step 9.2.4, reinstall the cap which was removed in step 9.2.4.

BB / 12-29-84
Initials Date

EJS / 12/29/84
Verified By Date

9.3 Valve Lineup:

9.3.1 Complete LLRT Tag Accountability Log to position valves, and hang LLRT tags. Have valve lineup verified.

BB / 12-29-84
Initials Date

9.4 Procedure:

PERFORM LLRT USING THE FOLLOWING PREFERRED METHOD(S). ALTERNATE METHODS AS DESCRIBED IN GENERIC PROCEDURE ST-1-LLR-001-1 MAY BE USED WHEN NEEDED AND SHALL BE ATTACHED TO AND FORM A PART OF THIS PROCEDURE ONLY WHEN USED.

9.4.1 Perform a flow in test on the HYDROGEN RECOMBINER and associated piping per Section 7.1 of this procedure. Record results on test data sheet. Test pressure is as determined in Section 6.3.

Test Valve: 57-1008
Vent: Primary Containment

BB / 12-29-84
Initials Date

9.4.2 After system has stabilized record amount of leakage.
75.85 scc/min

BB / 12-29-84
Initials Date

9.4.3 If the system leakage rate is below (later) scc/min then continue section 9.6 and mark remaining steps in 9.4 NA. If not, go on the next step

9.4.4 While the system is still pressurized, walk it down using copies of Attachment A, and perform appropriate air leak detection methods (snoop or

equivalent). Inspect all recombiner and associated piping in line components for leakage within the boundaries of Attachment B.

BB
~~NA~~ / 12-29-84
Initials Date

9.4.5 Record on Attachment A all components inspected and a description of the size and location of any leakage ("small" or "large").

BB
~~NA~~ / 12-29-84
Initials Date

9.4.6 Upon completion of inspection, issue MRF's for repair of components exhibiting excessive leakage. This shall be denoted in the additional actions/test comments section and brought to the attention of SSVN.

NA /
Initials Date

9.4.7 Inspection completed

BB
~~NA~~ / 12-29-84
Initials Date

9.5 Blocks Required

None

9.6 Restoration:

9.6.1 At the conclusion of the test, isolate and vent the test box and the test volume separately. Disconnect test box from the test volume, close test connection valves and remove hoses.

BP / 12-29-84
Initials Date

CAUTION

CONTACT HEALTH PHYSICS PRIOR TO DRAINING OR VENTING ANY POTENTIALLY CONTAMINATED SYSTEMS.

9.6.2 Restore valve line up at test completion per Tag Accountability Log or as directed by Shift Supervision. Have second verification, performed by a qualified individual designated by the Results Engineer or his alternate.

IF ANY VALVE IS RESTORED TO A POSITION OTHER THAN THE "SUGGESTED RESTORED VALVE POSITION" NOTE IT ACCORDINGLY BY LINING THROUGH THE SUGGESTED POSITION AND WRITING IN ITS PLACE THE ACTUAL RESTORED VALVE POSITION.

9.6.3 Verify no off-scale leakage. BB / 12-24-84
Initials Date(*)

9.6.4 Return system to normal per Section 8.0 or as directed by Shift Supervision. BB / 12-24-84
Initials Date

9.7 Inform shift supervision of results of test and fill out the test results section. (Note above asterisked step.) Have operator review accountability log. BB / 12-24-84
Initials Date

AT COMPLETION ENSURE THAT COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.

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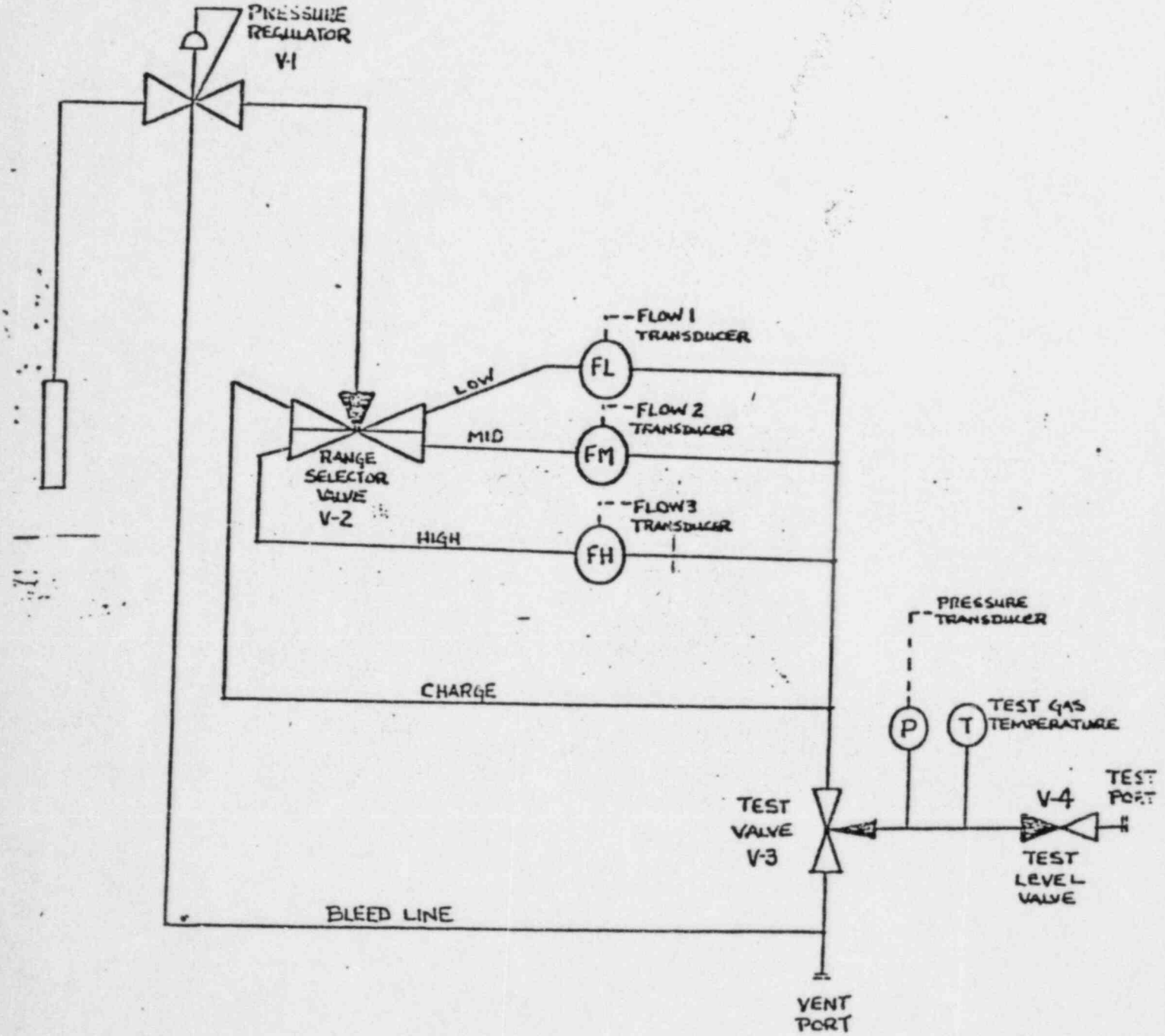


Volumetrics Leak Rate Monitor (LRM)
Figure 1

3850016380

LLRT TAG ACCOUNTABILITY LOG

PENETRATION NO. X-25/201A P&ID M-57

PENETRATION NAME/ VALVE UNDER TEST	VALVE NO./DESCRIPTION ✓ LA# 12/28/84 EDC 12/28/84	TAGGED VALVE CONDITION	TAG NO.	HUNG BY/ VERIFIED BY	SUGGESTED RESTORED VALVE POSITION	VALVE RESTORED TAG RMVD BY/ VERIFIED BY	TIME/ DATE
			27200	BB/EJB			
'B' HYDROGEN RECOMBINER	BREAKER 1BC224-01	OPEN ~~CLOSED~~	27202	BB / EJB	CLOSED	BB / EJB	0615
	HV-57-163	~~OPEN~~	27203	BB EJB	CLOSED	BB EJB	12-29-84
HV-57-163	HV-57-164	CLOSED ~~OPEN~~	27204 27205	BB / EJB BB EJB	CLOSED	BB / EJB BB EJB	0615 12-29-84
HV-57-164	HV-57-168B	CLOSED	27206 27207	BB / EJB BB EJB	CLOSED	BB / EJB BB EJB	0603 12-29-84
	57-1030B	CLOSED	27208	BB EJB	~~LOCKED~~ OPEN	BB / EJB	0603 12-29-84
	HS-58-103B	OFF	27209	BB EJB	OFF	BB / EJB	0614 12-29-84
				/		/	
	FV-57-110B	CLOSED	27210	BB / EJB	OPEN	BB / EJB	0605 12-29-84
	FV-57-101B	OPEN	27211	BB EJB	OPEN	BB / EJB	0601 12-29-84
	FV-57-102B	OPEN	27212	BB EJB	OPEN	BB / EJB	0600 12-29-84
	57-1033	UNCAPPED CLOSED	27213	BB EJB	CAPPED CLOSED	BB / EJB	0606 12-29-84
	57-1034	UNCAPPED CLOSED	27214	BB EJB	CAPPED CLOSED	BB / EJB	0606 12-29-84

3850016380

LLRT TAG ACCOUNTABILITY LOG

PENETRATION NO. X-25/201A P&ID M-57

PENETRATION NAME/ VALVE UNDER TEST	VALVE NO./DESCRIPTION	TAGGED VALVE CONDITION	TAG NO.	HUNG BY/ VERIFIED BY	SUGGESTED RESTORED VALVE POSITION	VALVE RESTORED TAG RMVD BY/ VERIFIED BY	TIME/ DATE
	57-1008 (TEST)	UNCAPPED AS REQ'D	27215	DB / EJB	CAPPED CLOSED	BB / EJB	0601 12-29-84
	57-1009	UNCAPPED CLOSED	27216	DB / EJB	CAPPED CLOSED	BB / EJB	0606 12-29-84
	~~HV-57-122~~	~~OPEN~~		/	~~LOCKED OPEN~~	/	
	~~HV-57-125~~	~~OPEN~~		/	~~LOCKED OPEN~~	/	
	~~HV-57-123~~	~~CLOSED~~		/	~~CLOSED~~	/	
	~~HV-57-124~~	~~CLOSED~~		/	~~CLOSED~~	/	
	~~HV-57-121~~	~~CLOSED~~		/	~~CLOSED~~	/	
	~~HV-57-131~~	~~CLOSED~~		/	~~CLOSED~~	/	
				/		/	
				/		/	

(Margin note beside struck rows: ESK 12/28/84 EDC 12/28/84)

LOCAL LEAKAGE RATE TEST DATA SHEET

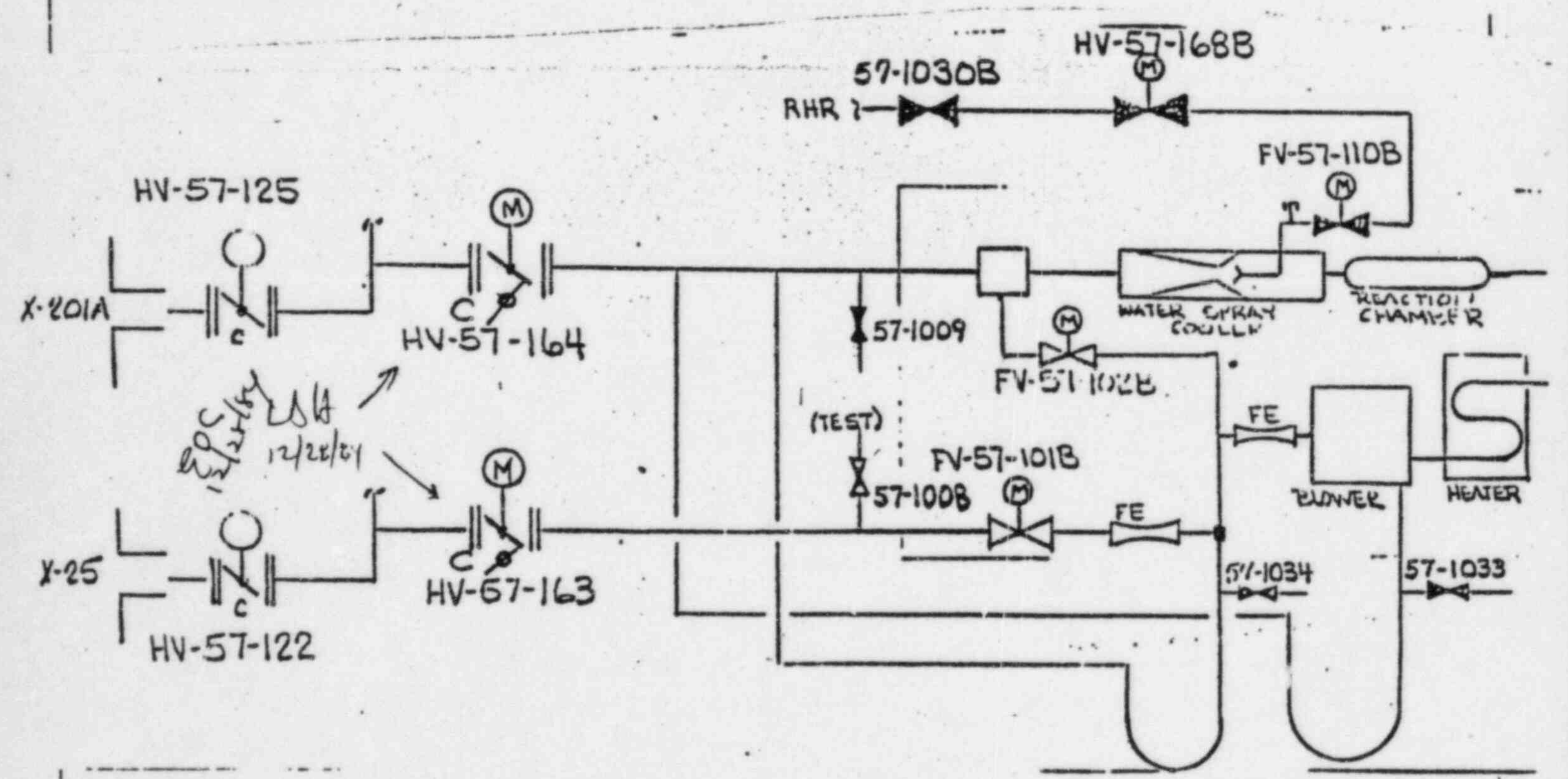
PENETRATION NO. HYDROGEN RECOMBINER

VALVE UNDER TEST "B" HYDROGEN RECOMBINER LOOP

TEST BOUNDARIES SEE SKETCH BELOW

TESTED BY *Beth Brown* DATE *12-29-84*

TIME	PRESSURE (psig)	FLOW (scc/min)	LLRT Test Box No. *21-1106*		Cal. Due Date *1-10-85*	
0	*46.3*	*71.4*	VOLUMETRICS LRM VALVE/SWITCH POSITIONS			
5	*46.3*	*75.2*	RANGE SEL (V-2)	TEST VALVE(V-3)	TEST LVL VALVE(V-4)	RANGE SEL SWITCH
10	*46.3*	*79.9*	*LOW*	*Flow*	*TEST*	*LOW*
15	*46.3*	*76.9*				
			ACCEPTANCE CRITERIA: No Off Scale Reading			
IMPOSED FLOW RATE= *Ø* sccm			TEST TAP VALVES: *57-1008*			
AVERAGE FLOW= *75.85* scc/min (ACTUAL)			TESTED PER PROCEDURE ST-1-058-702-1		LEAKAGE RATE = *1.7* scc/min	



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ADDITIONAL ACTION/TEST COMMENTS

Additional Action:

Additional Action required if other portions of test did not function properly or other discrepancies were noted during test.

1. MRF Submitted (MRF - Number)_____ _____

2. Other Action (Signature - Time/Date)_____ _____

TEST COMMENTS

_____

_____

_____

_____

_____

_____

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If ANY entry is made on this page, sign bottom of cover sheet.

"B" POST LOCA RECOMBINER CONTAMINATED PIPING INSPECTION

DATA SHEET

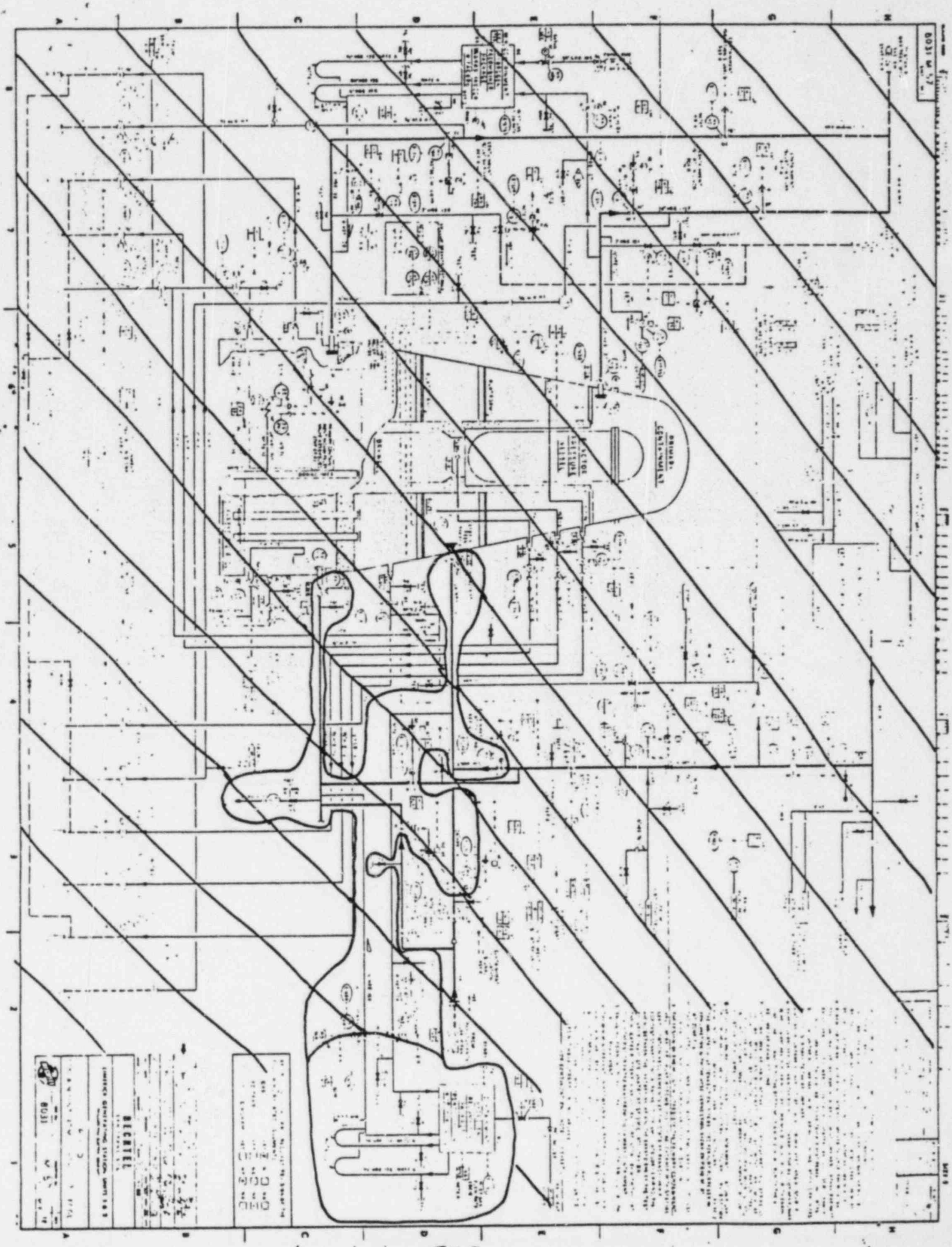
3850016380

ATTACHMENT A

Inspector: Bette Brown

System Mode shut down for LLRT Date 12-29-84

Component Number	Component Description	Comp. Mode (on/off) (open/shut)	Leak Rate	Corrective Action Date	Remarks
	NO LEAKAGE EVIDENT				
	NONE				



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LAH 12/28/87 EDC 12/28/87

Attachment 10

7/31/84

PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION
SURVEILLANCE TEST

ST-1-047-700-1 SCRAM DISCHARGE VOLUME CONTAMINATION PIPING INSPECTION

Test Freq.: 18 Months -OR- Initiating Events: 1. Reason _____
Tech. Spec.: 6.8.4.a 2. MRF No. _____
FSAR: 6.2.8.1
FSAR: 6.2.8.3

TEST RESULTS:

A. All Asterisked(*) Steps Completed SATISFACTORILY.

Performed By:	(Sign/Date)	J Fitzgerald	11/29/84
Performed By:	(Sign/Date)	N/A	N/A
Informed Test Complete:(ACO or CO)	(Sign/Date)	R Monaco	11/29/84
	(Time)		0855
Reviewed By:(SSVN or STA)	(Sign/Date)	Greg F Cullen	11-29-84

B. One or More Asterisked(*) Steps Test Results UNSATISFACTORY.

Performed By:	(Sign/Date)	_____	_____
Informed of Test Results: (CO or ACO)	(Sign/Date)	_____	_____
	(Time)		_____
Shift Supervision:	(Sign/Date)	_____	_____
Corrective Action:	MRF No.:	_____	
Initiated By:	(Sign/Date)	_____	_____

IMMEDIATELY NOTIFY SENIOR PLANT STAFF MEMBER

Person Notified:	(Name)	_____	
Date/Time Notified:	(Date/Time)	_____	_____
Notified By:	(Sign)	_____	

ADDITIONAL ACTION/TEST COMMENTS:

If any entry is made in Additional Action/Test Comments Section, person making initial entry sign here

(Sign/Date) _____ _____

1.0 PURPOSE

To inspect, measure, and record any leakage from components associated with the CRD Scram Discharge Volume System while the system is pressurized.

2.0 REFERENCES

2.1 8031-M-47, Control Rod Drive Hydraulic - Part B

2.2 NUREG-0737

3.0 TEST EQUIPMENT

3.1 Graduated cylinder(s)

3.2 Liter bottle(s)

3.3 Funnels

3.4 Stopwatch

3.5 Inspection mirror with handle

4.0 PRECAUTIONS & LIMITATIONS

4.1 If a procedural step cannot be completed, make a comment in the Additional Action/Test Comments section of the Data Sheet.

4.2 Signoff steps marked "SO" in the left-hand margin of the body of the procedure require a signoff on the Data Sheet or Procedure Cover Sheet.

4.3 Leakage rates of greater than 5 drops per min (.25 cc/min) shall be quantified. Put "$\leq$.25 cc/min" in the space provided on the Data Sheet Attachment A for components with leak rates of 5 drops per min.

4.4 Data Sheet steps marked (*) are specific Tech. Spec. requirements which will fail the test if not completed satisfactorily.

4.5 Any component exhibiting excessive amounts of leakage shall be documented in the Additional Actions/Test Comments section on the Cover Sheet and the SSVN shall be informed.

5.0 PREREQUISITES

5.1 Request RWP and HP assistance when needed.

5.2 Coordinate with the operator running GP-10 so that the test duration can be extended to allow proper inspection of SDV system components.

5.3 Inspector is familiar with the SDV system layout and location.

5.4 Obtain copy of the previous inspection Data Sheet Attachment A.

5.5 The SDV System Piping is at pressure preferably during operational hydrostatic test GP-10.

6.0 PROCEDURE

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS PERFORMING THIS TEST TO ENSURE ALL BLANKS AND DATA SHEETS ARE CORRECTLY AND COMPLETELY FILLED IN.

6.1 Preparation

SO 6.1.1 Verify all prerequisites are satisfied.

6.1.2 Record appropriate information for each piece of measurement and test equipment used with a PECo number and verify the equipment is within it's calibration period.

6.2 Shift Permission to Test

SO 6.2.1 Obtain Shift Supervision's (SSVN's) permission to start test.

SO 6.2.2 Obtain Control Room Operator's permission to start test.

6.3 SDV System Contaminated Piping Inspection

ACTUAL LEAK RATE MEASUREMENT METHODS WILL BE LEFT TO THE DISCRETION OF THE INSPECTOR(S) INVOLVED. THE ONLY GUIDELINE BEING THAT ALL DATA WILL BE A MEASURED QUANTITY OF FLUID OVER TIME USING A STOPWATCH. DROPS PER MINUTE CAN BE USED AS A MEASUREMENT 20 DROPS = 1CC. ALL RECORDED DATA SHALL BE IN CUBIC CENTIMETERS PER MIN. (CC/MIN)

6.3.1 Record on Data Sheet Attachment A all components, within the boundaries of Attachment B, exhibiting leakage, their leak rate and a description of the location of the leak. Pay particular attention to system components identified as having measurable leakage in the last test.

6.3.2 From the leak rate data on Attachment A, calculate the total system leak rate and document the results on the Data Sheet Section 6.3.

6.4 Test Results Evaluation

SO 6.4.1 Compare the leakage limit in 8.1 to the total system leakage rate. If the limit is exceeded prepare a MRF to reduce the system leakage rate so that it is within the limit.

6.4.2 If any component's leakage rate has increased significantly since the last inspection prepare a MRF to repair the component.

6.4.3 If any component's leakage is a major portion of the overall system leakage limit prepare a MRF to its repair.

7.0 RETURN TO NORMAL

SO 7.1 Inform SSVN and ACO the test is complete.

8.0 ACCEPTANCE CRITERIA

8.1 The SDV system shall not exhibit a total leak rate of greater than (later).

AT TEST COMPLETION, ENSURE COVER SHEET IS CORRECTLY AND COMPLETELY FILLED IN.

SCRAM DISCHARGE VOLUME CONTAMINATED PIPING INSPECTION

DATA SHEET (1 of 2)

ACTION REQUIRED — INITIALS

6.0 PROCEDURE

6.1 Preparation

6.1.1 All prerequisites satisfied — JPF

6.1.2 Test Equipment — JPF

INSTRUMENT	MFR./MODEL	SER. NO.	CAL. DUE DATE
STOPWATCH	SPORT 1000	53-0020	8-27-85

6.2 Shift Permission to Test

6.2.1 SSVN permission obtained — JPF

6.2.2 ACO permission to test — CVH
ACO

11/29/84/0710
Date Time

6.3 Scram Discharge Volume Contaminated Piping Inspection

6.3.4 SDV system total leak rate:

0.8 JPF/min CC/MIN

0.000211 GAL/MIN
(1 cc/min = .000264 gal/min) — JPF

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SCRAM DISCHARGE VOLUME
CONTAMINATED PIPING INSPECTION

DATA SHEET (2 of 2)

ACTION REQUIRED	INITIALS
6.4 Test Results Evaluation	
6.4.1 The total SDV system leakage rate is within Acceptable Limits	JJF (*)
7.0 RETURN TO NORMAL	
7.1 SSVN and ACO informed of test completion.	JJF

IF ANY ENTRY IS MADE IN THIS SECTION, SIGN COVER SHEET IN APPROPRIATE SPACE.

ADDITIONAL ACTION/TEST COMMENTS _____

Data Sheet

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Inspector: JP Fitzgerald

System Mode GP-10 Ops Hydro @ 985 psig Date: 11/29/84

Sheet 1 of 1

Component No.	Component Description	Comp. Mode (on/off) (open/shut)	Leak Rate	Corrective Action Date	Remarks
XV-47-1F011	SOV Drain Valve	~~Open~~ Off Shut	0.8 cc/min	Adjust Packing	MERF Issued Equipment Trouble Tag # 2449

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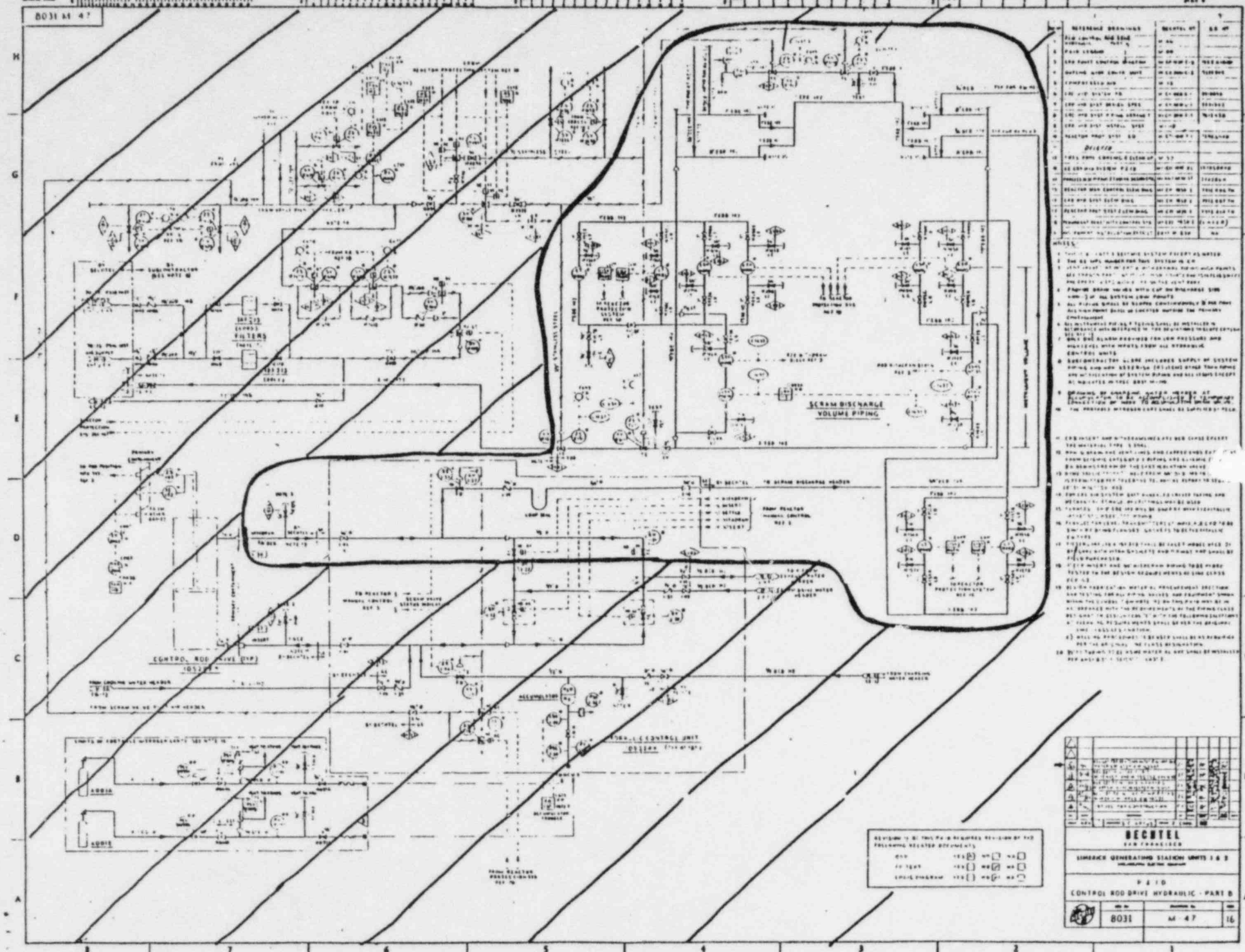
SCRAM DISCHARGE VOLUME PIPING
CONTROL ROD DRIVE (TYP)
DECHTEL
SAN FRANCISCO
LIMERICK GENERATING STATION UNITS 1 & 2
P & I D
CONTROL ROD DRIVE HYDRAULIC - PART B
8031
M 47