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10 CFR 50.90

November 3, 2014

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2
Renewed Facility Operating License Nos. DPR-53 and DPR-69
NRC Docket Nos. 50-317 and 50-318

Subject: Response to Request for Additional Information Regarding Atmospheric Dump Valves License Amendment Request

References:
1. Letter from George H. Gellrich (Exelon Generation) to Document Control Desk (NRC), dated January 13, 2014, License Amendment Request: Add Technical Specification for Atmospheric Dump Valves
2. Letter from N. S. Morgan (NRC) to George H. Gellrich (Exelon Generation), dated September 17, 2014, Request for Additional Information Regarding Atmospheric Dump Valves License Amendment Request

In Reference 1 Calvert Cliffs Nuclear Power Plant requested an amendment to its Renewed Operating License Nos. DPR-53 and DPR-69 for Calvert Cliffs Unit Nos. 1 and 2, respectively, to add a new Technical Specification for the atmospheric dump valves. In Reference 2 the Nuclear Regulatory Commission requested additional information concerning the atmospheric dump valve license amendment request. Attachment (1) contains the requested information.

Enclosure (5) of Attachment (1) contains information that is proprietary to Westinghouse; therefore, it is accompanied by an affidavit signed by Westinghouse, the owner of the information (Attachment 2). The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses, with specificity, the considerations listed in 10 CFR 2.390(b)(4). Accordingly, it is requested that the information that is proprietary to Westinghouse be withheld from public disclosure. There is no non-proprietary version of Enclosure (5).

The responses in Attachment (1) do not change the No Significant Hazards Determination contained in Reference 1. There are no regulatory commitments contained in this correspondence.

A001
NRR

Should you have questions regarding this matter, please contact Mr. Douglas E. Lauver at (410) 495-5219.

I declare under penalty of perjury that the foregoing is true and correct. Executed on November 3, 2014.

Respectfully,

George Gellrich

George H. Gellrich
Site Vice President

GHG/PSF/bjd

Attachments: (1) Response to Request for Additional Information for Atmospheric Dump Valves

Enclosures:
1. Drawings of the ADV Valve Body, Operator
2. UFSAR Section 14.15
3. Operating Procedure OI-8C, Main Steam and MSR Vents and Drains
4. UFSAR Table 5A-5
5. PROPRIETARY Westinghouse Calculation CN-TAS-05-13, Revision 000, Calvert Cliffs Units 1 & 2 Steam Generator Tube Rupture Event

(2) Westinghouse Affidavit

cc: **(Without Enclosure 5)**
NRC Project Manager, Calvert Cliffs
NRC Regional Administrator, Region I
NRC Resident Inspector, Calvert Cliffs
S. Gray, MD-DNR

ATTACHMENT (1)

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION FOR ATMOSPHERIC DUMP VALVES

Calvert Cliffs Nuclear Power Plant
November 3, 2014

ATTACHMENT (1)

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION FOR ATMOSPHERIC DUMP VALVES

Balance of Plant:

NRC RAI BOP-1:

The licensee determined that the ADVs [Atmospheric Dump Valves] meet Title 10 of the Code of Federal Regulations (10 CFR) Section 50.36(c)(2)(ii) Criterion 3 and should be included in the plant TSs [Technical Specifications]. The licensee stated that they modeled the proposed new TS upon provision 3.7.4 in NUREG 1432, Revision 4, "Standard Technical Specifications [STS] - Combustion Engineering Plants," March 2012. In the STS bases document that supports TS 3.7.4, it states that four ADV lines are provided. Two ADV lines per SG [steam generator] are necessary in order to have at least one operable following an event rendering one SG unavailable and a single failure renders one of the ADVs inoperable on the other SG.

Specifically, the STS states:

- *LCO 3.7.4 Condition A (One required ADV line inoperable) a completion time of 7 days.*
- *LCO 3.7.4 Condition B (Two or more [required] ADV lines inoperable) a completion time of 24 hours.*

The licensee's LAR states:

- *LCO 3.7.18 Condition A (One required ADV line inoperable) a completion time of 48 [sic] days.*
- *LCO 3.7.18 Condition B (Two ADV lines inoperable) a completion time of 1 hour.*

The licensee only has two ADV lines per unit and one per SG. The licensee proposes TS 3.7.18 with a limiting condition for operation requiring two ADVs lines be operable. The licensee acknowledged that their plant design deviates from the STS design. In accordance with 10 CFR 50.36(b), TSs will be derived from the analyses and evaluation including the safety analysis report.

a. *Please provide a discussion of how the ADVs lines are used in accident mitigation in to order to determine the appropriate TS conditions, actions, and surveillance requirements (SRs).*

   The discussion should include the following:

   - [1] *The requirements of ADV remote operations*
   - [2] *The requirements of credited ADV local operation within a certain time restraint.*
   - [3] *The requirements of the ADVs being able to close remotely and manually.*
   - [4] *The requirements of the ADV lines meeting single failure assumption, following an event rendering one SG unavailable (i.e., what is licensing basis under single failure considerations).*
   - [5] *The requirements of the ADV block valves being credited in the analysis in the event the ADV fails to close once open.*
   - [6] *The technical basis, including a discussion of defense in depth and safety margins for the proposed LCO's 3.7.8, Condition A and B Completion Times of 48 hours and 1 hour, respectively.*

b. *In addition, describe the failure and affects analysis for the ADV line.*

CCNPP RESPONSE TO RAI BOP-1:

a.1 Calvert Cliff's has two ADVs (one per SG) which exhaust to atmosphere. There is one ADV per main steam line and one main steam line per SG. The ADVs are Copes-Vulcan, air-operated (air to open), 5-inch globe valves that are made of carbon steel. They have a steam flow capacity of 281,750 lbm/hr. Combined, the two valves are capable of passing 5% of the total secondary steam flow. This rating enables them to remove reactor decay heat during plant cooldown or heatup. The ADVs are designed for a maximum steam pressure of 1000 psig and a maximum temperature of 580°F. The valves are designed to fail in the shut position using an Inconel-X spring. Each valve is equipped with a manual override (hand wheel) to allow it to be locally manually operated as required. The ADVs can be isolated using a manually operated isolation valve that is installed upstream of each ADV inlet.

A drawing of the ADV valve body has been attached for reference (Enclosure 1). The ADV stem travels in the downward direction, into the steam space to open the valve. The valve is equipped with a pilot to assist in initial opening.

A drawing of the ADV valve operator has been attached for reference (Enclosure 1). The ADV is an air-to-open, fail closed, valve. Air is applied to the top of the valve diaphragm in order to lower the valve stem, and open the valve. Air acts against the large spring (item #31), compressing it, in order to open the valve. With no air on the diaphragm, the spring forces the valve shut.

A manual operator is provided with the valve. The operator forces a rod into the valve that will act to compress the spring. The manual operator does not function to close the valve. The manual operator can be inserted to open the valve, or removed to allow the valve to close.

Remote operation is the preferred method of operation; however, it is not credited in the accident analyses to mitigate the consequences of the event.

a.2 Local (manual handwheel) operation of the valve is credited to mitigate the consequences of some events. As described in the Updated Final Safety Analysis Report (UFSAR), Section 14.15, Steam Generator Tube Rupture, this event is the most limiting event for ADV operation. In this event, the ADV does not have to be operated for up to two hours following initiation of the event. Again, remote operation is preferred, but not required.

a.3 The ADVs need to be opened and closed manually to mitigate the consequences of some events. Remote operation is preferred, but not required.

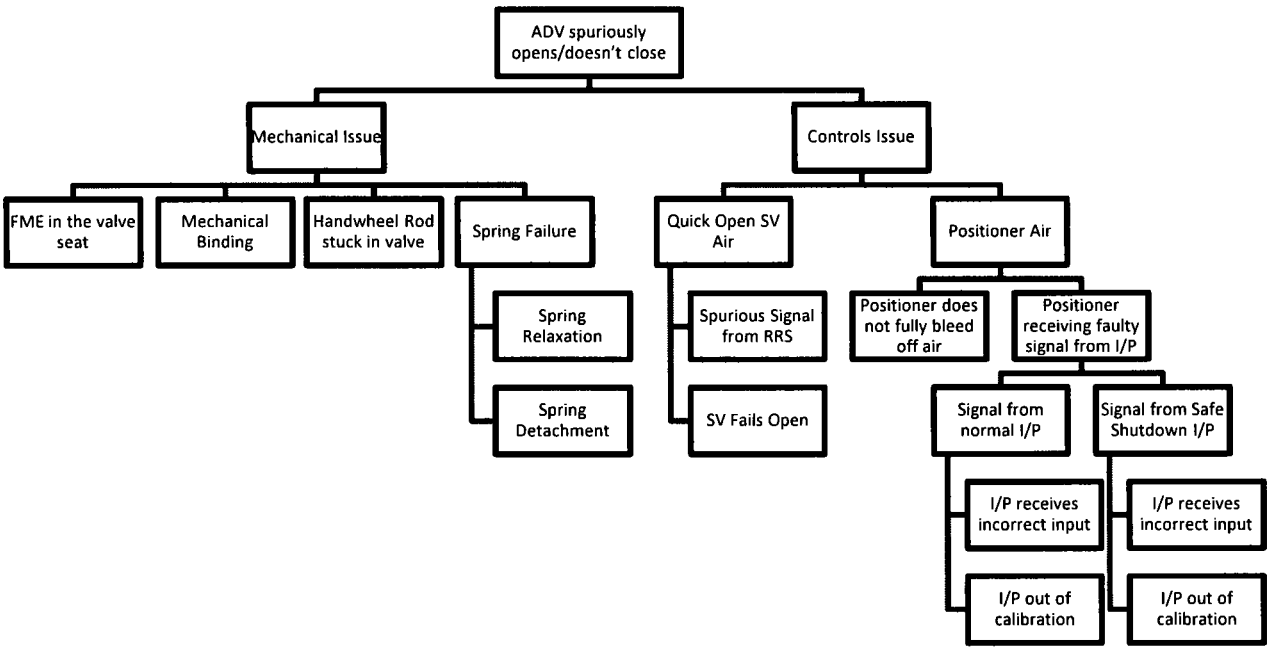
a.4 The ADVs do not meet single failure considerations. The original design of the atmospheric dump system did not include two valves per SG. The original steam generator tube rupture (SGTR) analyses assumed that the steam from the faulted SG was directed to the condenser through the turbine bypass system. The dose analysis at the time assumed all radioactivity was released through the condenser air removal system and not through the ADVs.

As the SGTR analysis was updated over time, and especially when it was updated to take advantage of the Alternate Source Term, the use of the ADVs was assumed to maximize offsite dose. The physical plant design did not change.

a.5 There is no assumption in the SGTR analysis concerning the closure of the block valve. The ADV is assumed to close.

a.6 The Completion Times were chosen to be consistent with the Completion Times in Millstone Unit 2 TS. Millstone Unit 2 is a Combustion Engineering plant with only one ADV per SG. Additionally, the Millstone Unit 2 TSs do not include the block valves in the TSs, even though we believe their design is virtually identical to ours.

b.1 A failure modes and affects analysis was performed to document conditions that could cause an ADV to either spuriously open, or not fully shut. The failures were divided into two sub groups, mechanical, and controls.



The mechanical failure modes considered are: FME in valve seat, mechanical binding, spring failure, and failure of the handwheel to retract.

The mechanical failure modes are considered to be controlled by preventative maintenance practices.

The control failure modes considered are: spurious air from the quick open solenoid valve, failure of the positioner to bleed off control air, and spurious signal from an I/P converter.

In the event that the quick open solenoid valve caused the ADV to spuriously open, the air line would be manually isolated from the ADV by a handvalve from the safe shutdown panel, per station procedures.

In the event that the normal I/P controller caused the ADV to spuriously open, either through hand indicating controller (HIC) failure or I/P calibration issues, the I/P would be isolated from the ADV positioner by a handvalve from the safe shutdown panel, per station procedures.

In the event that the safe shutdown panel I/P controller caused the ADV to spuriously open, either through HIC failure or I/P calibration issues, the I/P would be isolated from the ADV positioner by a handvalve from the safe shutdown panel, per station procedures.

In the event that the ADV positioner was not fully bleeding off air to the ADV diaphragm, instrument air to the ADV positioner would be isolated by the instrument air inlet valve, located outside the ADV enclosure, per station procedures.

NRC RAI BOP 2:

In the bases section of STS B3.7.4 – Combustion Engineering Plant, the ADV, also called atmospheric vent valves block valves are described as part of the ADV line. The STS for the two other types of pressurized water reactors (Westinghouse [B3.7.4] and Babcock and Wilcox [B3.7.4]) recommends a TS SR for the ADV block valve. In the description of the bases for the proposed TS B3.7.18, the licensee does include the statement, "Each ADV line consists of one ADV and an associated isolation valve. The ADVs are provided with upstream isolation valves to permit their being tested at power, if desired." However, the licensee did not propose a TS SR for these isolation valves.

If the ADVs cannot be closed due to the failure that causes the ADVs to spontaneously open and remain open, then the licensee can isolate the potential radiological steam release by closing the associated ADV isolation (block) valve.

a. Justify why there is not a TS surveillance for the ADV block valves.

b. Verify that the ADVs can be reliably closed in the event the ADV spontaneously opens.

CCNPP RESPONSE TO RAI BOP-2:

2a. The ADV block valve is not assumed to be operated in response to any accident scenario. Therefore, it does not meet the requirements of 10 CFR 50.36 for inclusion in the TS.

2b. Please see the response to question 1b which describes the failure modes that could cause the ADV to spuriously open.

NRC RAI 3:

In UFSAR Section 14.15.1, the licensee stated, "The use of the affected ADV in this analysis is for the purpose of maximizing the radiological releases during the event since the ADVs are not required for cooldown. The ADVs do not perform a safety function; other means are available for cooldown, turbine bypass valves, MSSVs [main steam safety valves], and once-through core cooling, if ADVs are unavailable. If neither ADV were used, releases to the atmosphere would decrease."

Additionally, the licensee states in UFSAR Section 14.15.2, "No credit was taken in the analysis for operation of the steam bypass valves to the condenser. All of the steam releases are assumed to be directly to the atmosphere via the MSSVs or the ADVs."

In the LAR, the licensee stated, in part, "The ADVs are part of the primary success path for cooldown of the Unit following a SGTR. In a SGTR, the fission product barrier [the reactor coolant system (RCS)] is assumed to be failed. Therefore, the ADVs meet 10 CFR 50.36(c)(2)(ii) Criterion 3 and should be included in the TSs. The proposed TS is based on NUREG-1432 and is modified based on plant specific design features."

The licensee's position is unclear in its UFSAR for how a SGTR is to be mitigated. In UFSAR Section 14.15.1, the licensee stated that there are other means available to cooldown the RCS during a SGTR. In the LAR, the licensee explains that the ADVs are part of the primary success path for cooldown of the Unit following a SGTR. Also, the ADVs are assumed to be used by the operator to cool down the unit to shutdown cooling system entry conditions because the accident is accompanied by a loss of offsite power.

Provide a description (update to UFSAR) of a SGTR event specifically showing which equipment that is now credited for accident mitigation, how that equipment is used, operator actions due to the loss of offsite power, and how a single failure would affect the ability of this equipment to perform its function.

CCNPP RESPONSE TO RAI BOP-3:

The updated UFSAR Section 14.15 is contained in Enclosure 2. This section was updated in conjunction with the preparation of this license amendment request.

NRC RAI BOP 4:

In the LAR, the licensee provides a discussion of the different types of expected accidents and transients in Table 1, Summary of UFSAR Chapter 14 Event Dispositions.

For the Excess Load Event, UFSAR Section 14.4.3.3 states that the radiological consequence of stuck open atmospheric dump and turbine bypass valves during an Excess Load Event is less adverse than the Loss of Non-Emergency Alternating Current (AC) Power event. Since non-emergency AC power is still available in the Excess Load Event, steam may be directed to the condenser after 10 minutes for controlled plant cooldown. When this happens, the steam (and any activity in it) is no longer being released directly to the atmosphere through the ADVs and MSSVs.

a. *Provide sufficient details on the valve and its failure modes that would cause the valve to spuriously open or fail open.*

b. *Identify the method to close the valve or isolate the flow path within 10 minutes, given the valve design and the failure modes.*

c. *Identify if this action is time critical and identified if this is a time critical operator action.*

CCNPP RESPONSE TO RAI BOP-4:

4a. Please see the response to question 1b which describes the failure modes that could cause the ADV to spuriously open.

4b. In the event that the valve went open, the hand controller in the Control Room would be switched from automatic to manual control, and output would be adjusted to 0%, sending the valve a signal to close.

4c. Isolating the ADVs after an Excess Load Event has been identified as a Time Critical Action and is captured within our Operator Response Time Program.

NRC RAI BOP 5:

In the LAR, the licensee provides a discussion of the different types of expected accidents and transients in Table 1, Summary of UFSAR Chapter 14 Event Dispositions.

For the Loss of Non-Emergency AC Power Event, UFSAR Section 14.10.2 states that with the atmospheric steam dump and turbine bypass systems inoperable, the SG pressure will rapidly approach the MSSVs' opening pressures. The MSSVs will open as this is the only path for removal of decay heat (i.e., steam). With reactor power decreasing to decay heat levels, the RCS will continue to transfer heat to the SGs, thereby keeping the main steam safeties open.

Also, UFSAR 14.10.2 states that the subcooled auxiliary feedwater decreases the SG temperature and starts to cool down the RCS. At 900 seconds (15 minutes), the analysis assumes the operator, by remote-manual operation of the ADVs, initiates plant cooldown. Therefore, the ability to remotely operate the ADVs is lost once non-emergency power is lost.

Provide sufficient information on the ADVs to explain how operation is performed within the time constraints identified in the safety analyses.

CCNPP RESPONSE TO RAI BOP-5:

The ADVs can be operated remotely when offsite power is lost. The components that require power are powered from sources that are either safety-related diesel-backed or safety-related battery-backed. If the operators choose to start the cooldown in 15 minutes, the remote manual option for ADV operation is available.

Updated Final Safety Analysis Report Section 14.10.2 assumes the ADVs do not operate initially to maximize the secondary side pressure during the event. The ADVs do not have a mitigating role in this event.

The discussion of operator cooldown at 900 seconds was developed as a point to terminate the core response analysis. The increase in reactivity analyzed during the event is terminated prior to 900 seconds.

Opening the ADVs as late as two hours into the event will not negatively affect the results of the limiting analysis in UFSAR Section 14.10. Therefore, remote manual operation of the ADVs is not required for response to this event.

NRC RAI BOP 6:

In the LAR, the licensee provides a discussion under "Testing History" and stated that the ADVs are very reliable valves and that ten years of Condition Reports were reviewed for any issues related to ADV operation.

The NRC [Nuclear Regulatory Commission] staff reviewed operating experiences for the ADVs at Calvert Cliffs and noted failures that where not described in the LAR.

Provide sufficient information to support your statement for the Calvert Cliffs ADVs 1/2-CV-3938 and 1/2-CV-3939. The ADVs that fail to open, fail to close, seat leakage, etc. should be described in the LAR.

CCNPP RESPONSE TO RAI BOP-6:

During review of the condition reports associated with the ADVs, instances where the ADV failed to open due to control signal or diaphragm failure were excluded since they have no impact on the local handwheel operation of the valve. The ADVs could have been opened in these cases to support an accident response. Instances where the ADV failed to fully shut due to control signal, or had indications of seat leakage, also have no impact on the local handwheel operation of the valve, and were excluded. Again, the ADVs could have been shut using the handwheel to support an accident response. Minor seat leakage does not impact the safety function of the valve nor contribute significantly to offsite doses.

NRC RAI BOP 7:

In the LAR, the licensee stated that, "if local manual operation is required, the ADVs can be locally opened or closed using a hand wheel attached to the ADV. The hand wheel is external to the ADV enclosure in the Auxiliary Building. The area is accessible following a turbine and reactor trip or an accident. Intermediate positioning of the ADV can also be performed using the hand wheel. The ADVs controls receive electrical power from emergency diesel generator-backed, engineered safety feature, 125 VDC unit control panels. When electrical power is unavailable, the quick-opening feature is disabled. The ADVs may still be automatically or manually controlled from the Control Room. Loss of control voltage also actuates an alarm in the Control Room. Local manual operation of the ADVs does not require electrical power or air to function as designed."

The ADV automatic controls and manual controls were not described in detail for the NRC staff to understand the valve controls and interactions. Provide the emergency procedures and sufficient information relate to manual ADV controls. Specifically, if the operator in the field takes over manual control of the ADV, are control signals from the reactor regulation system disabled? If so, how is the instrument logic locked out from controlling the ADV?

CCNPP RESPONSE TO RAI BOP-7:

In order to take manual control of the ADV, operators shifts ADV control from the Control Room to the safe shutdown panel. From the safe shutdown panel, the hand controller of the ADV to be manually operated is taken to 0%, sending the ADV a full shut signal. The ADV is then manually operated as necessary. The attached Operating Procedure OI-08C-1, Main Steam and MSR Vents and Drains, governs ADV operation by local hand wheel (Enclosure 3).

NRC RAI BOP 8:

In the LAR, the licensee stated that, "the ADVs and turbine bypass valves reduce, but do not eliminate, the probability of the main steam safety valves (MSSVs) opening following turbine and reactor trips from full power. The steam dump system is safety-related. Two normally shut ADVs are connected to the main steam headers between the containment penetrations and the MSSVs. When opened, the ADVs exhaust part of the secondary steam flow to the atmosphere through separate vent enclosures which extend from the 45-foot level up through the roof of the Auxiliary Building."

Details of the ADV exhaust path pipe routing through the Auxiliary Building roof is not specified. Provide sufficient information related to the ADV piping extension up through the roof of the Auxiliary Building. Specifically, are the ADV exhaust path and pipe route design against damage from hurricane or tornado generated missiles? Clarify the safety classification of the piping extension and whether it has been reviewed against vulnerability of hurricane or tornado generated missiles.

CCNPP RESPONSE TO RAI BOP-8:

The exhaust path pipe routing through the auxiliary building roof has been evaluated for the effects of tornado missiles as described in the UFSAR Section 5A.3.1.9. That section states:

> "Tornado-generated missile protection is not required for systems designed to meet the performance standards of draft General Design Criteria 2 if the resultant aggregated probability of exposures in excess of 10 CFR Part 100 guidelines is less than 10^{-6} per year per unit. The aggregate probability includes reasonable qualitative arguments, or conservative assumptions, such that the realistic probability can be shown to be lower than the calculated value."

Table 5A-5 provides the list of systems which are not required to have specific tornado missile protection. The ADV piping is on the Table. For ease of reference, the Table is contained in Enclosure 4.

Reactor Systems

NRC RAI RS-1:

The LAR refers to the updated final safety analysis report (UFSAR) Section 14.15, "Steam Generator Tube Rupture Event [SGTR]" as the limiting case for radiological releases due to ADV operation. Revision 46 of the UFSAR has the latest analytical evaluations of the Nuclear Steam Supply System (NSSS) response to a postulated SGTR event. Reference 4 of Section 14.15.5 presents the re-analyzed consequences for this event and has the following citation: "CA06595, Westinghouse Calculation CN-TAS-05-13, Revision 000, Calvert Cliffs Units 1 & 2 Steam Generator Tube Rupture Event." This calculation package is not currently available to the NRC staff. Please provide the calculation package CA06595, Westinghouse Calculation CN-TAS-05-13, Revision 000.

CCNPP RESPONSE TO RAI RS-1:

The requested calculation is provided as Enclosure 5. This calculation is proprietary to Westinghouse.

NRC RAI RS 2:

On page 5 of the LAR, it is stated that for the SGTR event under UFSAR Section 14.15, the ADV on the affected steam generator is assumed to open upon turbine and reactor trip and a loss of offsite power. However, UFSAR Section 14.15 does not provide "a loss of offsite power" as an assumption for the presented analysis. The UFSAR states that for the SGTR event analysis, "no credit was taken for the operation of the steam bypass valves to the condenser," it is later stated that other means are available for cooldown, if the ADVs are unavailable.

a. *Because the LAR states, in support of the TS, that the loss of offsite power is an assumption in the UFSAR analysis, provide justification for the loss of offsite power as an assumption in the SGTR event analysis or provide a revised analysis in support of the LAR that includes the loss of offsite power as an initial assumption for the SGTR event.*

b. *Provide documentation (analysis and procedures) as to what other means are available for cooldown if the ADVs are unavailable given the event assumptions of a loss of offsite power and no credit being taken for the operation of the steam bypass valves to the condenser.*

CCNPP RESPONSE TO RAI RS-2:

The analysis supporting UFSAR Section 14.15 assumes the loss of reactor coolant pumps 3 seconds after the reactor trip breakers open. This assumption is due to a loss of offsite power, even though that is not explicitly stated in the UFSAR.

The updated UFSAR Section 14.15 is attached as Enclosure 2. It has been updated to reflect the current understanding that a loss of offsite power is integral to the event, since it will drive all of the steam from the faulted SG to the atmosphere through the associated ADV. This will maximize the dose for the dose analysis.

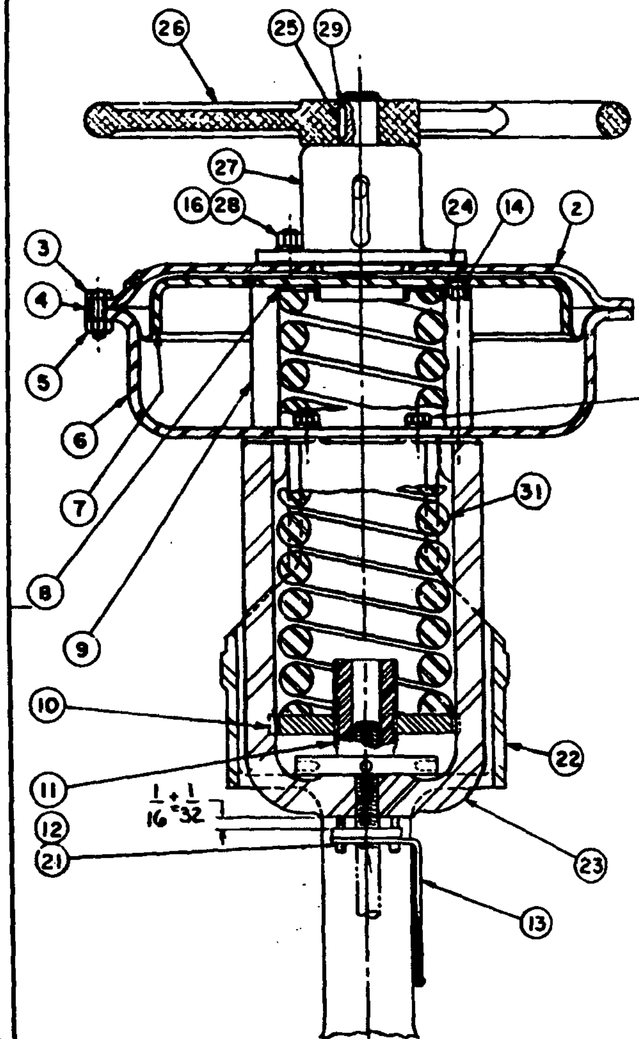
In reviewing UFSAR Section 14.15, it was determined that the statements related to other means of plant cooldown were not adequately supported by evaluation or analysis and they have been removed. This determination provided the basis for the need to request this license amendment request, since now the ADVs were the primary success path for plant cooldown as described in the emergency procedures for a SGTR.

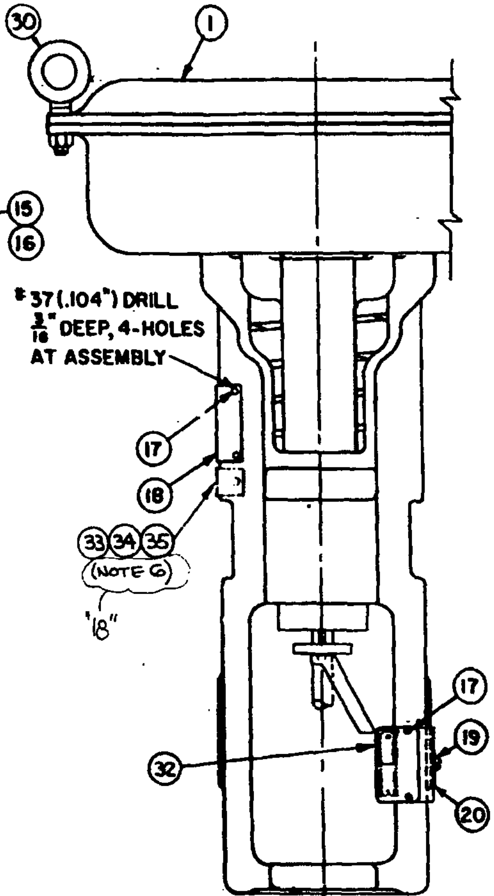
ENCLOSURE 1

Drawings of the ADV Valve Body, Operator

Calvert Cliffs Nuclear Power Plant
November 3, 2014

NO.	DATE	REVISIONS	BY	CHK.
12	4-20-78	SPRING ADJUSTING NUT MAT'L. WAS CAST BRONZE PER. ENG. CHG. 6048	T.S.	BM
13	10-4-79	UPDATED REV. STATUS BLOCK PER ENG. CHG. #6292	GSC	[illegible]
14	9-4-80	UPDATED REV. STATUS BLOCK PER ENG. CHG. 6395	D.R	[illegible]
15	3-15-82	UPDATED REV. STAT. BLK. E.C.#6455	GSC	[illegible]
16	1-8-83	UPDATED REV. STAT. BLK. E.C.#6764	GSC	BS
17	3-1-89	UPDATED REV. STAT. BLK. E.C.#7918	MSD	BM





REV.	DATE	DESCRIPTION	DRN	CHK	RE	APP'D
18	3/27/91	AS BUILT INFO ONLY DCR 91-0085 (FEC 89-02-30)	[illegible]	[illegible]	[illegible]	[illegible]

NOTES:

1. ON REVERSE ACTING UNITS, DIAPHRAGM PLATE (ITEM 7) MUST BE ATTACHED TO FRAME (ITEM 22) WITH SCREWS (ITEM 14) AND SPACERS (ITEM 9). ON DIRECT ACTING UNITS, DIAPHRAGM PLATE IS ATTACHED TO YOKE (ITEM 23) BY THE SAME METHOD.
2. WHEN ASSEMBLING ITEMS 10 & 11 USE CRANE COMPOUND 425A, CVD PART NO. 9523, ON THREADS.
3. TIGHTEN SCREWS, ITEM 21 TO 20 LBS. FT. OF TORQUE.
4. EYE BOLTS TO BE 180° APART.
5. REMOVE EYE BOLTS (ITEM 30) AND REPLACE WITH CAP SCREWS (ITEM 3) ON ALL OPERATOR ASSEMBLIES WHEN USED ON VALVES LARGER THAN 5" BEFORE SHIPPING.
6. ITEMS 33, 34, AND 35 ARE NOT APPLICABLE TO THE INSTALLED VALVE (FEC 89-02-30)

"18"

STEEL CONSTRUCTION

17	17	17	17	17	17
16	15	15	16	16	11
15	15	15	15	15	11
14	10	10	14	14	11
13	10	10	13	13	11
12	10	10	10	10	11
11	9	9	9	9	11
10	9	9	9	9	10
SHT. 1	SHT. 2	SHT. 3	SHT. 4	SHT. 5	SHT. 6

REVISION STATUS OF SHEETS

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
BREAK CORNERS 1/64 MAX.
FILLETS ARE 1/64 TO 1/32 R
√ INDICATES 250 FINISH
TOLERANCES ARE:

DIMENSION	UNDER 6	6-18	OVER 18
DECIMALS	±.005	±.005	±.010
FRACTIONS	±1/64	±1/32	±1/16

TOLERANCE ON ANGLES ± 2½°

PART CODE 4

COPES-VULCAN, INC.
LAKE CITY (ERIE CO.) PA. U.S.A.

DIAPHRAGM OPERATOR ASSEMBLY
MODEL D-100-100
3/4" STEM SIZE

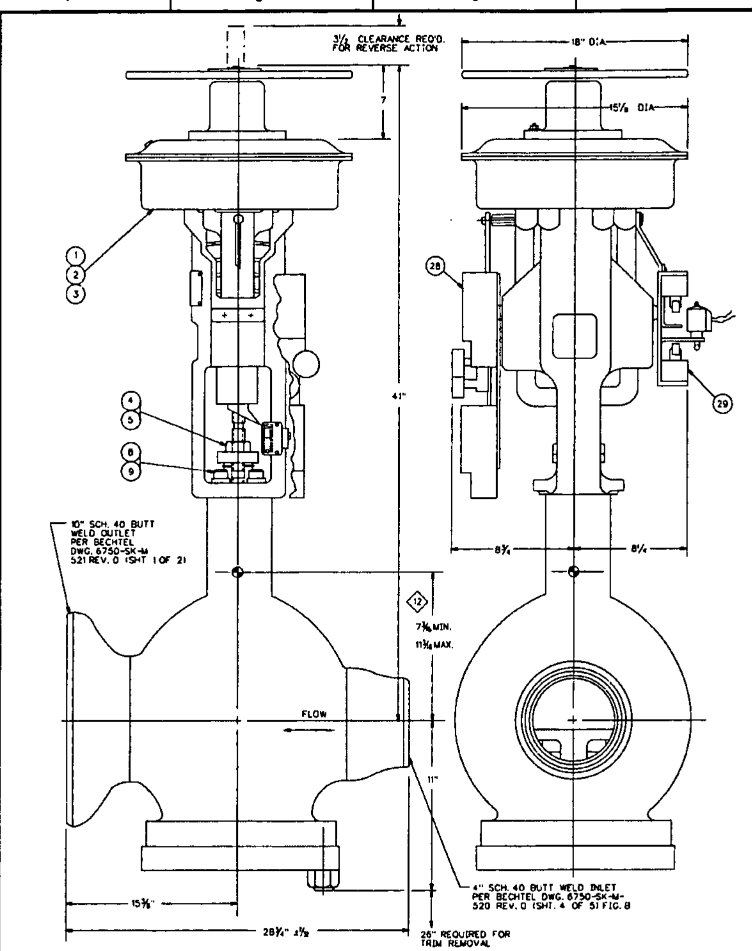
DRAWN KASPER DATE [illegible]
CHECKED [illegible] DATE [illegible]
APPR. [illegible] DATE [illegible]
JOB NO. [illegible]

FOLIO-L

DWG. NO. L-136417 SHT. 1 OF 6 REV. 18

DOCUMENT NO. 12312-21

STOP. THINK. ACT AND REVIEW



ACCESSORIES AS SPECIFIED	
DIRECT ACTING OPERATOR	X
REVERSE ACTING OPERATOR	
DIRECT ACTING POSITIONER	X
REVERSE ACTING POSITIONER	
HANDWHEEL	X
AIR LOCK VALVE	
LIMIT SWITCHES (2)	X
LUBRICATOR	
SOELNOID VALVE	X
CONTROLLER	
POSITIONER TRANSMITTER	X

LIST OF MATERIALS

	ITEM NO	NO. REQ.	PART NO.	PART CODE	DESCRIPTION	MAT'L	MAT'L S	DWG. NO	REMARKS
	1	1	136417	4	OPERATOR ASS'Y			L-136417	
	2	1	130906	3	SPRING	STEEL	COM'L	S-130906	SAE-6150 PR 5160
	3	1	81640	3	INDICATOR PLATE	BRASS	ASTM B36	S-81640	
	4	2	137477	3	STUD	STEEL	SAE-4140	S-137477	5/8-11 UNC X 3¼ LG
	5	2	1923	3	HEX NUT	STEEL	COM'L		5/8-11 UNC
	6	1	137236	3	GLAND FOLLOWER	STEEL	COM'L	M-137236	GRADE WCB
	7	1	137604	3	PACKING GLAND	STEEL	ASTM-A276	S-137604	TYPE 416
	8	4	137776	3	SOC. HD. CAP SCREW	STEEL	COM'L		⅝" -11 X 1⅛" LG
	9	2	137475	3	HOLD DOWN CLAMP	STEEL	COM'L	S-137475	STAMPING
	10	1	18263		RETAINING RING	STEEL	COM'L		WALDES #5100-150
	11	1			VALVE BODY ASS'Y		SK-A7010-95030-M		GR. WC-B (BODY)
NOTE 8	12	1	145381	5	INNER PLUG	STEEL	ASTM-A276	M-145381	TYPE 420
NOTE 11	13	1	185947	5	SPRING	STEEL	ASTM-A286	S-185947	
NOTE 15	14	1	355335	5	SPRING GUIDE	STEEL	ASTM-A276	B-355335	TYPE 410
NOTE 9, 10	15	1	144003	5	BALANCING CYLINDER	STEEL	COM'L	L-144003	TYPE 420
NOTE 12,13	16	1	337464	3	GASKET	FLEXICARB	COM'L		FLEXITALLIC #R3-6N
SEE NOTE 13	17	2	2642730		GASKET	FLEXICARB	COM'L		FLEXITALLIC
SEE NOTE 14	18	1	297480	3	PACKING SET	GRAFOIL	COM'L	CHESTERTON STYLE 5300	
	19	1	137579	3	PACKING WASHER	STEEL	COM'L	S-137579	300 SERIES
	20	1	144170	5	STEM	STEEL	ASTM-A276	M-144170	TYPE 316, COND. B
SEE NOTE 16	21	1	96227	3	ROLL PIN	STEEL	COM'L		TYPE 420
NOTE 9	22	1	145380	5	PLUG	STEEL	COM'L	L-145380	TYPE 420
NOTE 9, 10	23	1	144004	5	VALVE SEAT	STEEL	COM'L	L-144004	TYPE 420
	24	1	5486	3	PIPE PLUG	STEEL	COM'L		CAD. PLATED
	25	2	1440160	5	PISTON RING	STELLITE	COM'L	M-144016	HAYNES #25
	26	8	81341	3	STUD & NUT	STEEL	SEE NOTE 7	S-81341	
	27	1	143875	5	VALVE COVER	STEEL	ASTM A515	M-143875	GRADE 70
	28	1			ACCESSORY KIT			B-143222MOD	POSIT & POSIT. TRANS
	29	1	146709	5	ACCESSORY KIT			E-146709	SWITCHES & SOLENOID
	30	1	41216	3	PIPE PLUG	STEEL	COM'L		¼ NPT

"16"

REVISION

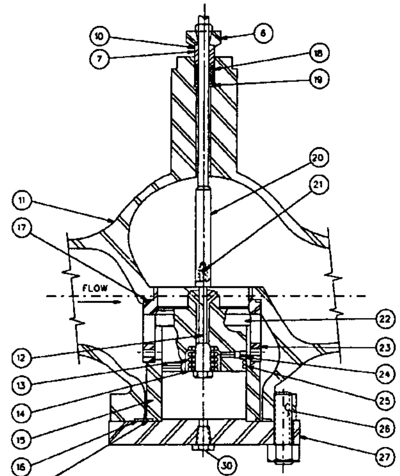
NO.	DESCRIPTION	DATE	REV BY	CK'D BY	APPROVAL
1	DELETE FINNED BONNET, ADD OPERATING CONDITIONS, JOB NO. WAS 91-16232-10, B.W. ENDS WERE 5", ADD ITEM #30 & 414 11" DIM.	1/27/70	DGK	WED	
2	COMPLETED B/W	3/11/70	RAB	WED	
3	ITEM 15 WAS UPPER GUIDE, MATL WAS 416. ITEM 25 NO REQD. WAS 1. ITEM 2 P/N WAS 81651	5/20/70	ECC	RL	
4	BUTT WELD OUTLET WAS PER BECHTEL DWG. 6750-SK-M-521; BUTT WELD INLET WAS PER BECHTEL DWG. 6750-SK-M-520 SHT. 4	9/22/70	EJV	NMC	
5	BUTT WELD ENDS WERE PER USA STD B16.25 FIG 32. ITEM #2 WAS 81652, ITEM #25 WAS 144169, ITEM 13 WAS 143998 & ITEM 14 WAS 143997, ITEM 22 WAS 144002 & ITEM 12 WAS 14000	9/22/70	DGK	WED JVV	
6	ADDED SOL. VALVE, ITEM 29 WAS S-135189 & ITEM 28 WAS B-143222, TAG 1-CV-3938 WAS 1-CV-3948	12/8/70	DGK	WED	
7	TAGGING 2-CV-3938 WAS 2-CV-3948 ITEM #29 WAS PT. NO. 140543	2/16/71	EJV	LEA	
8	CLARIFIED REV. 8, ITEM 24 WAS P/N 142208 ITEM 22 WAS REWORKED AS FOLLOWS: MACHINED OF CONTOUR SKIRT BELOW DWELL	11/7/73	RL	JVV	
9	MATL. ON ITEMS #12, 15, 22 & 23 WAS TYPE 440-C	12/16/77	DW	WRD	
10	ITEM NO. 13 P/N WAS 142209 PER DWG. S-142209, REV. 1	11/10/78	GDM	AW	
11	ITEM #16 REMARKS WAS R3-3S	10/10/79	DR	WEC	
12	ADDED C.G., VALVE WEIGHT WAS 580 LBS	8/2/90	LS	MH	
13	ITEM 16 WAS 81078, ITEM 17 WAS P.O. 003-769-1, ITEM 18 WAS 137596, ITEM 25 WAS 144016-X	7/31/92	AP	DJW	
14	ITEM 25 WAS P/N 192959	6/28/94	BM	DJW	
15	SPRING GUIDE (ITEM 14) WAS P/N 142206	12/8/95	MLW	MW	
16	PIN P/N 365083 (ITEM 21 WAS 96227)	2/14/01	RPR	RPR	

"16"

NOTES:

1. ASSEMBLE VALVE PER C.V PROCEDURE 1-2-187
2. FOR MAXIMUM CV OF 225. SET VALVE STROKE AT 2 INCHES
3. OPERATING TEMPERATURE 556° F
4. REQUIRED AIR TO OPERATE 60 P.S.I.G.
5. AIR PRESSURE IN DIAPHRAGM CHAMBER MUST NOT EXCEED 100 P.S.I.G. TO PREVENT COMPONENT DAMAGE
6. APPROXIMATE TOTAL VALVE WIEGHT (MIN/MAX) 382/518 LBS.
7. STUD MAT'L - STEEL, ASTM-A193 GR B7
   NUT MAT'L - STEEL, ASTM-194 GR 2H
8. TYPE 420 STEEL IS APPROVED AS AN ALTERNATE TO TYPE 440C STEEL-REVISED BY VENDOR DRAWING REV. 9 (REF. FEC 90-02-11)
9. TYPE 420 STEEL APPROVED AS AN ALTERNATE TO TYPE 440C STEEL (REF. FEC 88-03-26)
10. ASTM A743 GR CA-40 IS EQUIVALENT TO A276 TYPE 420 AND COMMERCIAL TYPE 420 (REF. FEC 90-02-11)
11. VENDOR DRAWING REV. 10 DOCUMENTS THE CHANGE IN PART NUMBER FOR INSTALLED SPRING (REF. FEC 90-02-11)
12. VENDOR DRAWING REV. 11 CORRECTS NOTED FLEXITALLIC IDENTIFICATION NUMBER (REF. FEC 90-02-11)
13. GRAPHITE FILLED SPIRAL WOUND GASKETS WITH 304, 316, OR 347 STAINLESS STEEL WRAPPER MATERIAL ARE ACCEPTABLE ALTERNATES FOR MCR 91-083-041-0
14. A COMMERICAL BRASS BUSHING (SPLIT) IS ALLOWED IN ITEM 18, PACKING SET. IN PLACE OF THE STANDARD CARBON BUSHING. DIMENSIONS AS FOLLOWS:
    BUSING O.D. = 1.498" +0, -.005
    BUSHING I.D. = 0.780" +0, -.005
    BUSHING LENGTH = FIELD TO FIT
15. IT IS ACCEPTABLE TO USE ASTM A276 SS 410 AS AN ALTERNATE MATERIAL FOR THE SPRING GUIDE (ITEM 14) PER ESP ES199501743-000
16. IT IS ACCEPTABLE TO USE SAE 51420 HV 460 TO 590 FOR THE ROLL PIN (ITEM 21- P/N 365083). SAE 51420 IS PART OF THE FAMILY OF TYPE 420 STEELS PER ES200100157-000 REV.0000.

"16"



TRIM DETAIL VIEW

TAG:	UNIT-1	UNIT-2
	1-CV-3939	2-CV-3939
	1-CV-3938	2-CV-3938

BECHTEL SEQUENCE 6750-M-282-2

THIS DWG. WAS REPRODUCED FROM "BLAW-KNOX" DWG. B-143178 DATED 10/6/69. BGE NO. 12312-0002

REV	DATE	DESCRIPTION	DWN	DSGN	OE	IR	APPROVED
15	5/29/98	AS BUILT INFO ONLY ES199501743-000	EJK	—	—	—	[illegible]
16	4/16/01	AS BUILT INFO ONLY ES200100157-000	[illegible]	—	—	—	[illegible]

MODEL D-100-100 OPER.
5" - 600 LB. U.S.A. STD
VALVE ASSEMBLY
(TANDEM TRIM)

CALVERT CLIFFS NUCLEAR POWER PLANT
NUCLEAR ENGINEERING DEPARTMENT
CALVERT CLIFFS UNIT 1&2 — SIZE: D — CAT.: 3
SCALE: NONE — VENDOR DWG. NO. B-143178 — REV. 16
INTER NO. 55396.DGN — DWG. NO. 12312-0002

"16" REV. 9 INCORPORATES "BLAW-KNOX" REV. 9 DATED 12/15/77, REV. 10 DATED 11-10-78, REV. 11 DATED 10/10/79
REV. 11 INCORPORATES "BLAW-KNOX CO." REV. 12 DATED 8/2/90
REV. 16 INCORPORATES "BLAW-KNOX CO." REV. 16 DATED 2/14/01

NOTICE:

ENCLOSURE 2

UFSAR Section 14.15

14.15 STEAM GENERATOR TUBE RUPTURE EVENT

14.15.1 IDENTIFICATION OF EVENT AND CAUSES

The SG is the interface heat exchanger between the RCS (primary) and the main steam system (secondary). The reactor coolant flows through tubes in the SG and transfers its heat to the feedwater on the shell side, thereby generating saturated steam. There are two SGs per reactor unit.

The Steam Generator Tube Rupture (SGTR) event is a penetration of the barrier between the RCS and the main steam system. The integrity of this barrier is significant from the standpoint of radiological safety, in that a leaking SG tube allows the transfer of reactor coolant into the main steam system. Radioactivity contained in the reactor coolant would then mix with water in the secondary side of the affected SG. This radioactivity would be transported by steam to the turbine and then to the condenser, or directly to the condenser via the turbine bypass valves, or directly to the atmosphere via the MSSVs or the ADVs. Any noncondensible radioactive gases entering the condenser are removed by the condenser priming and air removal system and discharged to the plant vent.

Experience with nuclear SGs indicates that the probability of complete severance (double-ended break) of a tube is remote. The more probable modes of failure, which result in smaller penetrations, are those involving the occurrence of pinholes or small cracks in the tubes, and of cracks in the seal welds between the tubes and tube sheet. In the event of a SG tube leakage or rupture, the reactor coolant leaks into the secondary side of the SG. The reactor coolant transfer causes the level in the affected SG to increase and the pressurizer level to decrease, provided that the tube leak rate exceeds the capacity of the charging pumps. In the case of a double-ended tube rupture (design basis SGTR event), the leak rate far exceeds the charging pump capacities and, consequently, the pressurizer level will decrease. The decrease in the pressurizer level and the inability of the heaters to maintain pressurizer pressure causes the RCS pressure to decrease. The rate of RCS depressurization is determined by the leak rate, the charging flow rate and the pressurizer heater capacity. Furthermore, when the pressurizer level decreases to the point where the heaters would be uncovered, this mitigation for the pressure decrease is lost.

The drop in the RCS pressure will also initiate a reactor trip on the TM/LP pressure limit, ensuring that the SAFDLs are not exceeded. Following sufficient time for trip signal processing delays and decay of the CEA holding coil flux, the CEAs enter the core and add negative reactivity, which rapidly reduces the core fission power and heat generation rate, and causes the reactor coolant temperature to decrease.

At approximately the time of reactor trip, the pressurizer empties and the RCS pressure rapidly decreases to the hot leg saturation pressure. The decrease in RCS pressure will also initiate a SIAS. As the pressure drops below the HPSI pump shut-off head, SI flow is delivered to the core. The RCS pressure gradually increases following the initiation of the SIAS and the SI flow, and stabilizes at a pressure near that of the HPSI pump head. The SI flow offsets the coolant mass loss due to the ruptured tube, and results in slowing the depressurization of the RCS. Note that the larger the pressure difference between the primary and secondary, the larger the leak rate.

The SG pressure remains constant until the reactor trip on low pressurizer pressure occurs. The rapid closure of the turbine control and stop valves following turbine trip sharply reduces the secondary steam flow and causes a secondary pressure "spike" to occur. The quick opening of the steam dump and bypass control system (not credited in the safety analysis) following turbine trip, however, limits the magnitude of the secondary pressure spike, and gradually reduces the secondary pressure as the RCS residual heat reaches decay levels.

Based on available indications (i.e., reactor trip, pressurizer level indicators, SG level indicators, condenser off-gas radiation monitor, radiation monitors in the SG blowdown sample lines, SG level indicators, etc.), the operator can identify the nature of the event and manually isolate the SG with the ruptured tube. Once the isolation has occurred, the operator can initiate cooldown per the Emergency Operating Procedures (EOPs). During the cooldown period, the operator may steam the affected SG in order to prevent it from overfilling. The analysis credits backflow from the SG to the primary.

The objective of this analysis is to determine the maximum 0-2 hour EAB TEDE, the 30 day LPZ TEDE, and the 30 day Control Room TEDE which would result from a design basis SGTR event. Doses from this event must meet 10 CFR 50.67 and Reference 1 limits: a) below 10% of the 10 CFR 50.67 limits for the EAB and LPZ limits due to Concurrent Iodine Spike (CIS), b) below the 10 CFR 50.67 EAB and LPZ limits for the fuel damage and Preaccident Iodine Spike (PIS), and c) below the 10 CFR 50.67 Control Room limit for all SGTR events.

The SGTR event analysis accounts for SG tube plugging. Tube plugging reduces the heat transfer surface area and the flow area in the SG, which reduces RCS flow rate and lowers SG pressure. Tube plugging increases the activity release due to increased SG DP.

Isolation of an ADV may occur when an ADV begins to leak at an excessive rate. The ADV is isolated to prevent further leakage and damage to the valve. The SGTR event assumes that the ADV of the unaffected SG is isolated at the onset of the event. Thus, the initial plant cooldown is accomplished using the ADV of the affected SG only. The operator will be required to identify the blocked ADV, initiate actions to unblock the ADV of the intact SG, and isolate the affected SG to mitigate the release of radioactivity to the environment. After the operator isolates the affected SG, the operator will continue cooling down the RCS using the intact SG. The affected SG level will be maintained by using backflow to the RCS. The operator continues the cooldown until the shutdown entry conditions are reached.

The use of the affected ADV in this analysis is for the purpose of maximizing the radiological releases during the event.

14.15.2 SEQUENCE OF EVENTS AND SYSTEMS OPERATION

The sequence of events for a typical limiting case is presented in Table 14.15-2. Several cases were analyzed to examine the effect of time of reactor trip, initial SG pressure, AFW actuation and flow, subcooling, plugged tubes, and cooldown rate on radiological dose consequences. The results, in most cases, did not differ significantly and the sequence of events for the presented case utilizes several assumptions regarding system operation that are chosen to maximize the radiological doses. The operator actions assumed in the analysis are consistent with EOPs.

The analysis assumed a loss of forced circulation following the reactor trip, which results in higher hot leg temperature, higher fraction of the leak flow flashing into the affected SG, slower cooldown and RCS depressurization, and reduces the capability to cool down the plant via the unaffected SG. All of these effects result in higher doses.

No credit was taken in the analysis for operation of the turbine bypass valves to the condenser. All of the steam releases are assumed to be directly to the atmosphere via the MSSVs or the ADVs.

The SG blowdown is assumed to be unavailable for level control.

The analysis assumed the lowest allowed opening setpoint for the MSSVs to maximize their releases to the atmosphere. Furthermore, minimum AFW flow was assumed based on the automatic action of the AFAS, which maximizes SG pressures and ADV releases to the atmosphere during the post-trip period prior to operator action.

The ADV of the unaffected or intact SG is isolated at the onset of the event. Therefore, initially, all of the heat removal is through the ADV of the affected SG. Also, the unblocking of the isolated ADV may comprise up to a 2 hour delay as personnel need to access the manual control station which is outside the Control Room or manually operate the ADV using the handweel.

The operator actions assumed in this analysis are consistent with the Calvert Cliffs EOPs. The first operator action is assumed at 15 minutes following the reactor trip. Subsequently, a time delay of two minutes between each discrete operator action is assumed. The major post-trip EOP analysis assumptions regarding operator actions are:

1. Operate the ADV on the affected SG: 15 minutes after reactor trip, the operator takes manual control of the ADV on the affected SG to prevent further cycling of the MSSVs.
2. Take manual control of the AFW to the SGs: Two minutes after opening the affected SG ADV, the operator takes manual control of the AFW flow to each SG, with flow initially delivered to both SGs.
3. Stabilize the plant and maintain cold leg temperature: The operator quickly diagnoses the event and stabilizies the RCS to a temperature which precludes a challenge to the MSSVs using the SG ADVs and AFW. The length of the stabilization period is assumed to be no more than 10 minutes from the time that the operator takes manual control of the ADVs. As a result of this diagnosis, the operator initiates action to unisolate the ADV of the intact SG, which is assumed to be isolated at this time. The actions may take up to 1 hour after taking control.
4. Cool the RCS before isolating the Affected SG: After the stabilization period, the operator begin to cool the RCS at a rate of up to 100°F/hr to maximum steam releases.
5. Isolate the Affected SG: The operator isolates the affected SG when T_{HOT} is less than 515°F (including uncertainties). The analysis assumes no opening of the ADV or MSSVs of the affected SG after 2 hours. However, the ADV of the affected SG may be opened 24 hours into the accident to hasten shutdown.
6. Plant cooldown after isolation of the affected SG: Following the isolation of the affected SG, the operator cools down the plant using the ADV on the intact SG at a maximum of 35°F/hr to maximize steam releases.
7. Maintain SG pressure and level: The pressure and level of the affected SG will initially be controlled by steaming to atmosphere for up to 2 hours. In addition, the RCS will be aggressively cooled down to achieve backflow from the affected SG as early in the event as possible.
8. Maintain subcooling margin during the event: A target subcooling margin of 50°F is maintained by the operator. This value consists of 25°F required by the EOPs and 25°F of core exit thermocouple uncertainty.
9. Maintain pressurizer level: The pressurizer level is maintained by controlling safety injection flow. In addition, the RCS is aggressively cooled down to achieve backflow from the affected SG as early in the event as possible.
10. Pressurizer control actions and control systems: The operator uses the HPSI system and the pressurizer vent (or auxiliary spray) to control RCS inventory and subcooling.

The combination of the assumed cooldown rate and the high subcooling margin including instrument uncertainties result in a conservatively slow depressurization of the RCS, which maximizes the tube leakage. The increased leak rate raises the final activity level released through the affected SG. It also leads to a high liquid level in the SG early in the event resulting in the opening of the affected SG ADV and more frequent releases to the environment. However, at 2 hours into the event, the affected SG is completely isolated. Thus, the affected SG level is maintained by using backflow to the RCS. The ADV steaming is increased by the assumption of a lower actual SG level to accommodate instrument uncertainties.

Together, these assumptions, in combination with the radiological assumptions presented in Section 14.15.3.2, assure that the radiological dose results from the analysis conservatively bound the expected doses for this event.

14.15.3 ANALYSIS OF EFFECTS AND CONSEQUENCES

14.15.3.1 Core and System Performance

A. Mathematical Models

The thermal hydraulic response of the NSSS to the SGTR was simulated using the Reference 6 computer program up to the time the operator takes control of the plant (15 minutes after trip). Operator actions to mitigate the effects of the SGTR event and bring the plant to shutdown cooling entry conditions were simulated using a CESEC-based cooldown algorithm, referred to as the COOL code.

B. Input Parameters and Initial Conditions

The input parameters and initial conditions used in the analysis are listed in Table 14.15-1 for the present cycles of Unit 1 and Unit 2. The selected values of these inputs maximize the radiological releases to the atmosphere during the transient.

The maximum allowed Technical Specification core inlet temperature, including instrument uncertainties, results in a correspondingly high initial SG pressure. This increases the steam released through the MSSVs and the ADVs throughout the event.

The minimum core flow results in higher than average coolant temperature and higher enthalpy fluid entering the SG, a resultant increase in flashing fraction, and higher activity releases through the MSSVs and ADVs.

A maximum initial pressure and a maximum initial pressurizer liquid volume, delay the reactor trip. Delaying reactor trip is conservative because it increases the amount of heat to be removed and increases steam releases.

The SG level is maintained within a small range during operation, the limits of which would have no effect on the trip time and insignificant effect on the AFW actuation time.

The analysis assumed the lowest allowed opening setpoint for the MSSVs to maximize their releases to the atmosphere.

The selection of fuel and moderator temperature coefficients are not significant, as there is no change in the core power or temperature prior to reactor trip. The TM/LP trip uncertainty is applied to lower the setpoint to

delay trip. Three HPSI pumps are assumed to be started on SIAS, thus maximizing the flow delivered to the RCS upon SIAS. These assumptions result in higher post-trip RCS pressures, and maximize the tube leakage.

The radiological consequences of the SGTR event are also dependent on the break size. As the break size is decreased from that of a double-ended rupture, the integral leak is reduced and the radiological consequences will be less severe. Therefore, the most adverse break size is the largest assumed break of a full double-ended rupture of a SG tube.

C. Results

Table 14.15-2 presents the sequence of events for the double-ended rupture of a SG tube event with the loss of forced circulation upon reactor trip. Figures 14.15-1 through 14.15-16 present the dynamic behavior of important NSSS parameters during this event. The only scenario presented is the one that assumes isolation of the affected SG 2 hours into the transient while maintaining the highest subcooling possible by accounting for core exit thermocouple uncertainty.

The sequence of events and NSSS response plots are based on the RSG configuration.

The double-ended break of a SG tube results in a primary-to-secondary leak rate which exceeds the capacity of the charging pumps. As a result, pressurizer level and pressure gradually decrease from their initial values. For the case discussed here, maximum charging flow and zero letdown was assumed to delay the time of reactor trip. As the pressure decreases, the proportional heaters and then backup heaters are turned on to prevent further depressurization. All heaters are turned off automatically as the pressurizer level is decreasing to levels which result in uncovery of the heaters. The depressurization of the RCS and pressurizer level decrease continue, resulting in an approach to DNB SAFDL. The TM/LP trip is designed to trip the reactor before the DNB SAFDL is reached. The analysis of the SGTR event demonstrates that the action of the TM/LP trip prevents the DNB SAFDL from being exceeded, since the rate of depressurization for this event is less than the rate of depressurization for the RCS Depressurization event. The analysis credits a reactor trip only when the low pressurizer pressure floor of the TM/LP trip is reached. The loss of forced circulation (RCP pumps tripping) is assumed to occur 3 seconds after the trip breakers are opened, resulting in the initiation of the RCS flow coastdown.

The analysis also assumes the steam bypass system to the condenser will become unavailable and that the unaffected SG ADV is blocked for 60 minutes into cooldown. The affected SG ADV automatically opens at trip time and then modulates on a program based on RCS average temperature. The turbine valve closure due to the reactor trip causes the SG pressures to rise, and leads to the opening of the MSSVs. They reopen and close several times during the period until the operator takes action to cool the plant.

The loss of forced circulation and the RCS flow coastdown result in reduction of flow into the upper head region of the reactor vessel. This region becomes thermal-hydraulically decoupled from the rest of the RCS,

and due to flashing caused by the depressurization and boiloff from the metal structure to coolant heat transfer, voids begin to form in this region.

The pressurizer empties due to the continued primary-to-secondary leak and the post-trip RCS liquid shrinkage. The continued RCS and pressurizer depressurization results in SIAS generation and delivery of the HPSI flow to the RCS when the RCS pressure decreases below the HPSI pump head.

The AFW actuation setpoint is reached in the unaffected SG and the AFW is delivered to both SGs following system and piping delays.

Fifteen minutes following the trip, the operator takes manual control of the plant, which consists of manual control of ADVs, AFW and HPSI. The analysis of the limiting case assumes that at this point the operator has diagnosed the event.

Following the diagnosis, the operators begin to cooldown the RCS at approximately 100°F/hr, using the ADV on the affected SG and the AFW system until the hot leg temperature of the affected loop reaches an isolation temperature of 493.21°F (515°F per EOPs minus 21.79°F uncertainty).

14.15.3.2 Radiological Consequences

The limiting SGTR event as re-analyzed by Reference 4 is considered to be a complete double-ended tube break. The SGTR event allows primary coolant to leak into the secondary side via the SG. In the case of the double-ended tube rupture, the leak rate far exceeds the charging pump capacities and, consequently, the pressurizer level decreases. The decrease in the pressurizer level and the inability of the heaters to maintain pressurizer pressure causes the RCS pressure to decrease. The drop in the pressure will cause a rector trip on TM/LP, ensuring that the DNB SAFDL is not exceeded. Peak linear heat rate is of no concern because there is no appreciable power increase during the transient. Thus, no fuel damage is postulated to occur during this event. The reactor trip also generates a turbine trip causing the secondary pressure to rapidly increase due to closure of the turbine valve. In the assumed evolution, the turbine bypass valves are not available to mitigate the rise in secondary pressure. The action of the ADVs and MSSVs will limit the secondary pressure until the operator is able to assume control. After the operator identifies the event, the operator initiates a cooldown of the RCS. In this analysis, the ADV of the intact SG is assumed to be isolated at the beginning of the event for up to 2 hours. Thus, this initial cooldown is carried out using the ADV of the affected SG only. After 2 hours, the operator isolates the affected SG and continues cooling down the RCS using the intact SG. The affected SG level will be maintained by using backflow to the RCS. The operator continues the cooldown via the ADV of the unaffected SG until the SDC entry conditions are reached. A 30 day cooldown via the ADV of the unaffected SG is conservatively assumed. Note that the operators can reopen the ADV of the affected SG for up to 8 hours after an initial cooldown of 24 hours post-accident to attain SDC in 32 hours post-accident.

The AST methodology of 10 CFR 50.67 and Reference 1 is used to calculate offsite and Control Room doses for a SGTR event. If no or minimal fuel damage is postulated, the activity is the maximum coolant activity allowed by the Technical Specifications, assuming 2 cases of iodine spiking. The PIS case assumes that a reactor transient has occurred prior to the postulated SGTR event and has raised

the primary coolant iodine concentration to the maximum value permitted by the Technical Specifications, 30 μCi/gm. The CIS case assumes that the transient associated with the SGTR event causes an iodine spike in the primary system. The increase in primary coolant iodine concentration is estimated using a spiking model that assumes the iodine release rate from the fuel rods to the primary coolant increases to a value 335 times greater than the release rate corresponding to the iodine concentration at the equilibrium value with an 8 hour duration.

A. Assumptions and Conditions

The assumptions and parameters employed for the evaluation of radiological releases are:

(1) CIS doses are calculated assuming that the iodine release rate from the fuel rods to the primary coolant increases to a value 335 times greater than the release rate corresponding to the iodine concentration at the equilibrium value (0.5 μCi/gm DEQ I-131 activity). The primary CIS activities are released homogeneously into the primary system over the 8 hour duration of the CIS spike.

(2) PIS doses are calculated assuming that a reactor transient has occurred prior to the postulated SGTR and has raised the primary coolant iodine concentration to the maximum value permitted by the Technical Specifications: 30 μCi/gm. The primary PIS activities are assumed to be homogeneously distributed throughout the primary system at the beginning of the accident.

(3) The specific activity of the primary coolant is assumed to be 100/E μCi/gm noble gas per Technical Specifications.

(4) An initial DEQ I-131 secondary activity of 0.1 μCi/gm is assumed (Technical Specification limit). The secondary activities are assumed to be homogeneously distributed throughout the secondary system at the beginning of the accident.

(5) The dose conversion factors were extracted from References 2 and 3.

(6) The iodine releases from the SGs to the environment are assumed to be 97% elemental and 3% organic.

(7) The main Control Room inleakage points include the West Road inlets, the Turbine Building, and Access Control Units 11 and 13 on the Auxiliary Building roof. Installation of automatic isolation dampers and radiation monitors at Access Control Units 11 and 13 on the Auxiliary Building roof were credited.

- A Control Room inleakage rate of 3500 cfm was based on measured inleakage measurements.
- Control Room recirculation filtration is credited assuming 10,000 ± 10% cfm flow at 90% filter efficiency for elemental and organic iodine and 99% for particulates with a 20 minute delay time.
- 0-8, 8-24, and 24-720 hour breathing rates of 3.5E-04, 1.8E-04, and 2.3E-04 m^3/sec are assumed.
- 0-24, 24-96, and 96-720 hour Control Room occupancy factors of 1.0, 0.6, and 0.4 are assumed.

(8) The primary to secondary ruptured tube leakage and Technical Specification leakage of 200 gpd are assumed to continue until SDC conditions defined as 300°F and 270 psia are attained and releases from the SGs have been terminated. Per Reference 1, the Technical Specification leakage should be apportioned between affected and unaffected SGs in such a manner that the calculated dose is

maximized. Thus, since the primary to secondary flow from the RCS to the affected SG was maximized in Reference 4 for the worst-case thermal-hydraulic conditions, all of the Technical Specification primary to secondary leakage is assumed to flow to the unaffected SG.

(9) The portion of the primary fluid leaking into the SG that flashes into steam is dependent on the enthalpy of the primary liquid and the saturation enthalpy of the SG. When there is a steam release to the atmosphere, the flashed portion is released before the steam in the SG. The flashing portion has a decontamination factor of 1.0. The non-flashing portion of the primary leak flow is assumed to mix uniformly with the liquid in the SG.

(10) The SG is assumed to have a decontamination factor of 100, so that the concentration of radioactivity in the steam phase is 1/100 of the concentration in the liquid phase.

Additional inputs and assumptions are detailed in Table 14.15-3.

B. Mathematical Model

The behavior of the primary and secondary systems during and after a double-ended tube break SGTR event was modeled by Reference 4. The CESEC-III NSSS simulation code was used to model the SGTR for primary and secondary response during the initial portion of the event. However, CESEC-III does not have the capability to model the multiple operator actions credited in the SGTR event. Thus, the remainder of the event was simulated using the COOL-II code, which can model explicit operator actions. The COOL-II Code is a thermal-hydraulic code that simulates the plant cooldown by operator actions based upon the Calvert Cliffs EOPs. Because the COOL-II code does not have a kinetics model, CESEC-III is run to approximately 15 minutes past reactor trip to ensure all power being generated is from decay heat and a conservative decay heat curve is input to COOL-II.

The SGTR occurs at a time t=0 with the PIS primary activity and the Technical Specification secondary activity uniformly distributed throughout their respective systems. The SGTR occurs at a time t=0 with the Technical Specification secondary activity uniformly distributed throughout the secondary system and with the CIS primary activity released homogeneously into the primary system over an 8 hour duration. The primary noble gases are released at a 200 gpd rate into the unaffected SG and at the time-dependent tube rupture leak rate into the affected SG and then directly through the ADVs and MSSVs into the environment, when the ADVs and MSSVs are in the open position. The primary iodines are released at a 200 gpd rate into the unaffected SG and at the time-dependent tube rupture leak rate into the affected SG, where a percentage is vented directly through the ADVs and MSSVs into the environment via flashing. The remaining iodines are added to the secondary system, which is released by steaming with a partition factor of 100 out of the ADVs, when the ADVs and MSSVs are in the open position. No cleanup mechanisms (spray, filtration, plateout) are assumed in the primary or secondary systems. The activity released to the environment is transported to the site boundary and to the Control Room via appropriate atmospheric dispersion coefficients. Control Room filtration is credited in this analysis. The Control Room and site boundary doses are calculated based on appropriate breathing rates and occupancy factors and on References 2 and 3 dose conversion factors.

The Control Room and offsite doses are calculated for the SGTR event based on the AST methodology of Reference 1. This was accomplished by utilizing the RADTRAD computer transport code. The RADTRAD computer code calculates TEDE and thyroid doses to personnel at the site boundary, low population zone, and Control Room per 10 CFR 50.67 resulting from any postulated accident which releases radioactivity within any primary or secondary system. RADTRAD models the transport of up to 63 radionuclides from the source region, through a secondary region, and then to the environment and to the Control Room. The code includes the capability to model time-dependent activity release; time-dependent spray/filtration/deposition removal processes, piping/filter/inleakage transfer mechanisms, atmospheric dispersion; and natural decay.

C. Results

The EAB, LPZ, and Control Room doses for the design-basis CIS and PIS SGTR event for the two cooldown modes described previously are detailed in the following table:

SGTR Event Results

	EAB Rem	LPZ Rem	Control Room Rem
CIS			
Unaffected ADV 0-30 days	0.1964	0.0484	1.7081
Affected ADV 0-2/24-32 hr	0.1964	0.0476	1.6929
Regulatory Limits	2.5	2.5	5
PIS			
Unaffected ADV 0-30 days	0.4910	0.1164	4.1590
Affected ADV 0-2/24-32 hr	0.4910	0.1162	4.1655
Regulatory Limits	25	25	5

Note that all values are below the regulatory limits.

14.15.4 CONCLUSION

The analysis of the SGTR event demonstrates that the action of the TM/LP trip prevents the DNB SAFDL from being exceeded. All doses are within 10 CFR 50.67 and Reference 1 limits, as approved by Reference 5.

This event is not affected by the transition to AREVA Advanced CE-14 HTP fuel because the key parameters for this event are plant related system responses which are unchanged from, or bounded by, the current analysis. These parameters are not adversely affected by either the transition cycle or full core implementation of AREVA fuel. Therefore, this analysis remains applicable to plant operation with AREVA fuel.

14.15.5 REFERENCES

1. Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," July 2000
2. Federal Guidance Report (FGR) 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," September 1988
3. Federal Guidance Report (FGR) 12, "External Exposure to Radionuclides in Air, Water, and Soil," September 1993

4. CA06595, Westinghouse Calculation CN-TAS-05-13, Revision 000, Calvert Cliffs Units 1 & 2 Steam Generator Tube Rupture Event

5. Letter from D. V. Pickett (NRC) to J. A. Spina (CCNPP), "Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 - Amendment Re: Implementation of Alternative Radiological Source Term (TAC Nos. MC8845 and MC8846)," dated August 29, 2007

6. CESEC-III, Mod 5 computer program (ABB Topical Report "CESEC, Digital Simulation of a Combustion Engineering Nuclear Steam Supply System" Enclosure 1-P to LD-82-001, December, 1981

TABLE 14.15-1

INITIAL CONDITIONS AND INPUT PARAMETERS FOR THE STEAM GENERATOR TUBE RUPTURE EVENT

PARAMETER	UNITS	UNIT 1[(a)]	UNIT 2[(a)]
Core Power	MWt	2754	2754
T_{in}	°F	550	550
RCS Pressure	psia	2286	2286
SG Tubes Plugged		2500	2500
Core Mass Flow Rate	$x10^6$ lbm/hr	134.0	134.0
Secondary Pressure	psia	890.5	890.5
Tube ID	inches	0.654	0.654
Pressurizer Liquid Level at Full Power	ft^3	952	952
Low Pressurizer Pressure (TM/LP Floor) Setpoint	psia	1829	1829
Safety Injection Actuation (SIAS) Setpoint	psia	1765	1765

(a) These values represent inputs to the limiting transient scenario analyzed for each unit. In general, a range of initial conditions and input parameters, including uncertainties, were evaluated to determine the limiting case.

TABLE 14.15-2

SEQUENCE OF EVENTS FOR THE STEAM GENERATOR TUBE RUPTURE EVENT

TIME	EVENT	SETPOINT OR VALUE
0.0	Tube Rupture Occurs	---
8.4	Proportional Pressurizer Heaters Setpoint Reached, psia	2275
66.4	Backup Pressurizer Heaters Setpoint Reached, psia	2200
348.4	Pressurizer Heaters De-energize due to Low Pressurizer Level, ft^3	270
417.8	Low Pressurizer Pressure Trip Analysis Setpoint is Reached, psia	1829
418.7	Trip Breakers Open	---
	ADVs Open, °F	535
420.8	MSSVs Open, psia	935
421.7	Loss of Forced Circulation, RCPs Begin to Cost Down	
426.2	Maximum SG Pressure is Reached, psia	986
430.9	SIAS Setpoint is Reached, psia	1765
438.3	Pressurizer Empties	---
456.7	MSSVs Close, psia	878
	The MSSVs subsequently cycle repeatedly	
478.4	Safety Injection Flow Begins to Enter the RCS, psia	1351
749.9	AFW Actuation Setpoint is Reached Unaffected SG	204" BNL
1018.5	AFW is Initiated to Unaffected SG	100 gpm
1318.7	Operator Takes Manual Control of the Plant and Begins Cooldown at Rate of 100°F/hr by Adjusting the ADVs on the affected SG	---
1438.7	AFW Increase to Both SGs (2 minutes past takeover time)	200 gpm/SG
1800	Operator Opens the Pressurizer Vent	
2270	Hot Leg Reaches Isolation Temperature, °F	493.21
2280	Adequate Pressurizer Level, Inches (Operator Begins to Throttle HPSIs)	101
5040	Operator Unblocks ADV of Intact SG	

TABLE 14.15-3

ASSUMPTIONS FOR RADIOLOGICAL CONSEQUENCES OF THE STEAM GENERATOR TUBE RUPTURE EVENT

PARAMETER	DESIGN BASIS ASSUMPTION
Primary system activity:	
Pre-existing iodine spike (PIS), μCi/gm	30
Event GIS, μCi/gm	0.5
Spiking factor	335
Secondary system activity, μCi/gm	0.1
Primary-to-secondary leak rate in the unaffected SG, gpd	200
EAB Atmospheric Dispersion factor (X/Q) sec/m^3, 0 - 2 hr	1.44×10^{-4}
LPZ Atmospheric Dispersion Factor (X/Q), sec/m^3	
0 - 2 hr	3.39×10^{-5}
2 - 24 hr	2.2×10^{-6}
24 - 720 hr	5.4×10^{-7}
Decontamination factor between the water and steam phases in the SGs	100
Breathing rate, m^3/sec	
0 - 8 hr	3.5×10^{-4}
8 - 24 hr	1.8×10^{-4}
24 - 720 hr	2.3×10^{-4}
Control Room Atmospheric Dispersion Factor (χ/Q), sec/m^3	
0 - 2 hr	3.83×10^{-3}
2 - 8 hr	3.25×10^{-3}
8 - 24 hr	1.32×10^{-3}
1 - 4 days	9.92×10^{-4}
4 - 30 days	7.92×10^{-4}

ENCLOSURE 3

Operating Procedure OI-8C, Main Steam and MSR Vents and Drains

CALVERT CLIFFS NUCLEAR POWER PLANT

UNIT ONE

OI-8C

MAIN STEAM AND MSR VENTS AND DRAINS

REVISION 31

Safety Related

CONTINUOUS USE

Approval Authority:

General Supervisor - Shift Operations

LIST OF EFFECTIVE PAGES

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PROCEDURE ALTERATIONS

PAGE NUMBER	REVISION/CHANGE
23-29,42-45	03100

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TABLE OF CONTENTS

1.0 PURPOSE

A. The purpose of this procedure is to provide a detailed description of the operation of the Unit 1 Main Steam and Moisture Separator Reheater Vents and Drains.

2.0 APPLICABILITY/SCOPE

A. Provides instructions for starting up, securing, and operating High Pressure Drains.

B. Provides instructions for startup and normal operation of Intermediate Pressure and Extraction Line vents and drains.

C. Discusses the following Auxiliary Blowdown Tank operations:

- Startup and normal operation of tank and pumps
- Shifting of pumps
- Pumpout of tank to 21A Circulating Waterbox outlet

D. Contains directions for manual operation of Turbine Bypass Valves.

E. Discusses the following Atmospheric Dump Valve operations:

- Operation from 1C43
- Local operation using manual handwheel, including cycling to verify operation

F. Contains a checklist of instructions used to identify sources of plant inefficiency and lost heat capacity.

3.0 REFERENCES AND DEFINITIONS

3.1 DEVELOPMENTAL REFERENCES

A. Vendor Technical Manual Atmospheric Dump, Turbine Bypass Valve Type 0-100 (12312-010)

B. CNG-HU-1.01-1001, Human Performance Tools and Verification Practices.

C. P&IDs

1. OM-35 (60-700-E), Main Steam and Reheat (Sheets 1 and 2).
2. OM-37 (60-701-E), Extraction Steam (Sheets 1 and 2).
3. OM-39 (60-702-E), Condensate & Feedwater System (Sheets 1, 2, & 3).
4. OM-41 (60-703-E), Moisture Separator & Reheater Drains & Vents System (Sheets 1 & 2).
5. OM-44 (60-705-E), Heater Drains & Vent System (Sheets 1 & 2).
6. OM-114 (60-740-E), Misc. Steam Line Drainage System Unit No. 1 (Sheets 1 & 2).

3.2 PERFORMANCE REFERENCES

A. MN-1-110, Procedure Controlled Activities.

3.3 DEFINITIONS

[PC]: Symbol preceding a Critical Step which requires a Peer Check Verification Practice **PER** CNG-HU-1.01-1001, HUMAN PERFORMANCE TOOLS AND VERIFICATION PRACTICES.

4.0 PREREQUISITES

A. Prerequisites will vary depending on which section of the procedure is being performed. Prerequisites for each section will be listed as Initial Conditions at the beginning of the applicable section.

5.0 PRECAUTIONS

A. Certain devices can be operated remotely from inside the Control Room or locally in the plant. The Control Room shall be kept informed whenever conducting the following:

1. Operating handswitches on panel 1T22.

2. Locally operating Turbine Bypass Valves.

3. Operating Atmospheric Dump Valves using the controller at 1C43 **OR** locally using the manual handwheel.

B. Observe the following precautions when operating Atmospheric Dump Valves (ADVs):

1. Direct access from Containment atmosphere to outside atmosphere could occur if an unisolated ADV is opened while the secondary side of its associated Steam Generator is open to containment. During movement of irradiated fuel assemblies within containment, ensure that Technical Specification 3.9.3 requirements are met.

2. Coordinate with the Control Room when operating a dump valve locally using the manual handwheel, since changes in position affect steam demand.

3. The manual handwheel will generally be used only when no air is available for remote valve operation. If an ADV is positioned manually in the absence of an air signal, and air subsequently becomes available, the valve may open farther as it responds to the air signal. For this reason, the procedure directs that controller demand be adjusted to 0% prior to operating the valve manually.

4. Some nitrogen pressure will be lost if an unisolated ADV is operated while a nitrogen blanket is present in that Steam Generator.

5. ADV enclosures are HELB barriers. HELB barriers are controlled **PER** EN-1-135, **CONTROL** OF BARRIERS.

6. If a unit is in Mode 1, no more than one Atmospheric Dump Valve (ADV) and one Turbine Bypass Valve (TBV) shall be scheduled to be taken out-of-service at one time, **PER** MN-1-124.

5.0 PRECAUTIONS (Continued)

C. This procedure contains step(s) that require Risk Based Verification Practices.

1. **ALL** manipulations on the Main Control Boards require mandatory Peer Checks, so they are not marked with a symbol **UNLESS** a Concurrent Verification or an Independent Verification is required.

2. Pre-screened steps that require the use of a Verification Practice are identified by a symbol preceding the step.

3. The SM, CRS, or any other person involved with the task may designate additional steps requiring the use of Verification Practices.

4. The SM or CRS may waive the use of a Peer Check during emergency conditions, or where an entry into a high radiation area is required.

D. Due to energy in the system, the potential for severe water hammer to occur exists. Actions should be evaluated to prevent or mitigate the effects of a water hammer such as slowly operating valves, throttling discharge valves, cooling down the system, etc. as determined by the Shift Manager.

6.0 SYSTEM OPERATION

6.1 STARTUP OF HIGH PRESSURE DRAINS

A. Initial Conditions

1. Plant is in Mode 5 or Mode 6.
2. Valves with STARTUP positions indicated are aligned to their STARTUP positions **PER** ATTACHMENT 1A, ATTACHMENT 1B, and ATTACHMENT 1C.
3. Valves are aligned **PER** ATTACHMENT 1D, ATTACHMENT 2A, ATTACHMENT 2B, and ATTACHMENT 2C.
4. Vacuum is broken in Main Condenser.

B. Procedure

1. **POSITION** AUX BD TK PP SELECTOR SWITCH, 1-HS-6642, as follows:
   a. **IF** 11 Pump is desired as the "lead" pump, **THEN PLACE** switch in 11-12 position.
   b. **IF** 12 Pump is desired as the "lead" pump, **THEN PLACE** switch in 12-11 position.
2. **ENSURE** the following local handswitches in AUTO:
   - 11 AUX BD TK PP, 1-HS-6640
   - 12 AUX BD TK PP, 1-HS-6641
3. **PLACE** Main Steam Line Drain handswitches on 1T22 in STARTUP positions **PER** APPENDIX A.
4. **PLACE** High Pressure Steam Drains listed in APPENDIX B in their STARTUP positions.
5. **PLACE** MS UPSTREAM DRN ISOL VLVS, 1-HS-6622, in OPEN at panel 1C02.
6. **PLACE** MS LINE DRN VLVS, 1-HS-6600, in open on 1C02.

6.2 NORMAL OPERATION OF HIGH PRESSURE DRAINS

A. Initial Conditions

1. Main Steam headers are at normal temperature and pressure **OR** vacuum is drawn in the Main Condenser.

B. Procedure

CAUTION

Changing steam demand will cause changes to core reactivity, secondary plant efficiency and S/G thermal performance. **[B0270]**

1. **VERIFY** MS UPSTREAM DRN ISOL VLVS, 1-HS-6622, in OPEN at panel 1C02.

2. **PLACE** MS LINE DRN VLVS, 1-HS-6600, in AUTO on 1C02.

3. **PLACE** Main Steam Line Drain handswitches on 1T22 in NORMAL OP positions **PER** APPENDIX A.

4. **PLACE** High Pressure Steam Drain Valves listed on APPENDIX B in their NORMAL OP positions.

6.3 SECURING HIGH PRESSURE DRAINS

A. Initial Conditions

1. It is desired to break vacuum in the Main Condenser.

B. Procedure

CAUTION

Changing steam demand will cause changes to core reactivity, secondary plant efficiency and S/G thermal performance. **[B0270]**

1. **PLACE** High Pressure Steam Drain Valves listed on APPENDIX B in their STARTUP positions, to realign their associated drains to the Auxiliary Blowdown Tank.

6.4 STARTUP OF INTERMEDIATE PRESSURE DRAINS

A. Initial Conditions

1. Preparations for startup are being made.
2. Steam has not yet been admitted to Main Turbine.

B. Procedure

1. **ALIGN** Moisture Separator Reheater Maintenance Drain Valve handswitches on 1T22 **PER** APPENDIX C.
2. **PLACE** MSR DRN TK NORM LVL CONTR LINE DRNS, 1-HS-3740, in NORM at panel 1C03.
3. **PLACE** the following MSR Drain Valve handswitches in CLOSE at panel 1C03:
   - 11 MSR 1-RDV-3701-CV, 1-HS-3701
   - 11 MSR 1ST STG 1-RDV-3703-CV, 1-HS-3703
   - 11 MSR 2ND STG 1-RDV-3705-CV, 1-HS-3705
   - 12 MSR 1-RDV-3708-CV, 1-HS-3708
   - 12 MSR 1ST STG 1-RDV-3710-CV, 1-HS-3710
   - 12 MSR 2ND STG 1-RDV-3712-CV, 1-HS-3712
4. **PLACE** MSR DRN VLVS, 1-HS-3700, in OPEN at panel 1C02.

6.5 NORMAL OPERATION OF INTERMEDIATE PRESSURE DRAINS

A. Initial Conditions

1. Turbine Generator is at approximately 15% load.

B. Procedure

1. **PLACE AND** momentarily **HOLD** MSR DRN VLVS, 1-HS-3700, in CLOSE at panel 1C02.

2. **VERIFY** associated Drain MOV's shut at 1T22:

   - 11 MSR
     - 1-MOV-3700A
     - 1-MOV-3703
     - 1-MOV-4072
     - 1-MOV-4073
     - 1-MOV-4074
   - 12 MSR
     - 1-MOV-3707
     - 1-MOV-3710
     - 1-MOV-4075
     - 1-MOV-4076
     - 1-MOV-4077

6.6 STARTUP OF EXTRACTION LINE DRAINS

A. Initial Conditions

1. Preparations for startup are being made.
2. Steam has not yet been admitted to the Main Turbine.

B. Procedure

1. **ENSURE OPEN** the following Extraction Steam Line Drain Orifice Bypass Valves:
   - 13B DRN ORIF BYP, 1-ES-193
   - 13A & B DRN ORIF BYP, 1-ES-194
   - 13A & B DRN ORIF BYP, 1-ES-195
   - 14A DRN ORIF BYP, 1-ES-254
   - 14B DRN ORIF BYP, 1-ES-256
   - FO BYP FROM 15A FWH, 1-ES-188
   - FO BYP FROM 15B FWH, 1-ES-189
   - 16A DRN ORIF BYP, 1-ES-185
   - 16B DRN ORIF BYP, 1-ES-187
2. **ALIGN** Extraction Steam Line Drain Line Valve handswitches on 1T22 **PER** APPENDIX D.
3. **PLACE** EXTR LINE DRN ORIFICE BYP VLVS, 1-HS-1431, in OPEN at 1C02.

6.7 NORMAL OPERATION OF EXTRACTION LINE DRAINS

A. Initial Conditions

1. Turbine Generator is at 30% load or greater.

B. Procedure

CAUTION
Changing steam demand will cause changes to core reactivity, secondary plant efficiency and S/G thermal performance. **[B0270]**

1. **SHUT** the following Extraction Steam Line Drain Orifice Bypass Valves:
   - 13B DRN ORIF BYP, 1-ES-193
   - 13A & B DRN ORIF BYP, 1-ES-194
   - 13A & B DRN ORIF BYP, 1-ES-195
   - 14A DRN ORIF BYP, 1-ES-254
   - 14B DRN ORIF BYP, 1-ES-256
   - FO BYP FROM 15A FWH, 1-ES-188
   - FO BYP FROM 15B FWH, 1-ES-189
   - 16A DRN ORIF BYP, 1-ES-185
   - 16B DRN ORIF BYP, 1-ES-187

6.8 PUMPING 11 AUXILIARY BLOWDOWN TANK TO 21A CIRC WATERBOX OUTLET

A. Initial Conditions

1. 21 Circulating Water Pump is running.
2. 11 Auxiliary Blowdown Tank radioactivity concentration is too high to allow draining to Unit 1 Turbine Building.
3. A liquid radwaste discharge permit has been issued to authorize discharging 11 Auxiliary Blowdown Tank to 21 Circulating Water Conduit.
4. Rad Con Ops is available to provide coverage for rig removal.

B. Procedure

1. **CHECK SHUT** AUX BD PPS SUCT DRN, 1-MS-278.
2. **CHECK SHUT** 21A WTR BOX LG ISOL, 2-CW-202.
3. **INSTALL** temporary piping rig as shown in FIGURE 1 **PER** MN-1-110, Procedure Controlled Activites.
4. **PERFORM** second verification to ensure temporary rig is properly installed.
5. **OPEN** 21A WTR BOX LG ISOL, 2-CW-202.
6. **OPEN** AUX BD PPS SUCT DRN, 1-MS-278.
7. **START** temporary pump, **AND ENSURE** 11 Auxiliary Blowdown Tank level is lowering, to confirm discharge is in progress.
8. **WHEN** discharge is complete,
   THEN PERFORM the following:
   a. **STOP** temporary pump.
   b. **SHUT** AUX BD PPS SUCT DRN, 1-MS-278.
   c. **SHUT** 21A WTR BOX LG ISOL, 2-CW-202.
9. **IF** another Auxiliary Blowdown Tank discharge is planned,
   THEN PERFORM the following:
   a. **OBTAIN** a new liquid radwaste discharge permit.
   b. **PERFORM** Steps 5 through 9.

6.8.B Procedure (Continued)

10. **WHEN** temporary piping rig is no longer needed,
THEN PERFORM the following:

    a. **ENSURE SHUT** AUX BD PPS SUCT DRN, 1-MS-278.

    b. **ENSURE SHUT** 21A WTR BOX LG ISOL, 2-CW-202.

CAUTION

Liquid in the temporary piping rig must be considered radioactive, and handled accordingly, until certified clean by Rad Con. Also, liquid in the rig may be hot, and should be allowed to cool before rig is disassembled.

    c. **WHEN** temporary piping rig is cool to the touch, **AND** Rad Con coverage is provided,
    THEN PROCEED to Step 10.d.

    d. **REMOVE** temporary hose from 1-MS-278, **AND ENSURE** that all liquid which exits hose is captured into a container supplied by Chemistry.

    e. **CONNECT** hose to a source of non-radioactive water, **AND ALIGN** water source to temporary piping rig.

    f. **OPEN** 21A WTR BOX LG ISOL, 2-CW-202, **AND START** temporary pump.

    g. **WHEN** rig has been flushed for at least 15 minutes,
    THEN PEFORM the following:

        (1) **STOP** the temporary pump.

        (2) **SHUT** 21A WTR BOX LG ISOL, 2-CW-202.

        (3) **ISOLATE** flushing water aligned in Step 10.e.

    h. **REMOVE** temporary piping rig **PER** MN-1-110, **AND DRAIN** piping to container supplied by Chemistry.

    i. **PERFORM** second verification to ensure temporary rig is properly removed **AND** that pipe caps and plugs are properly installed.

    j. **ENSURE** that temporary piping rig **AND** drain container are checked for presence of radioactivity, and handled accordingly.

11. **ENSURE** general housekeeping/cleanliness requirements for the work area have been maintained.

6.9 ADJUSTING THE SETPOINT FOR THE TBV CONTROLLER

A. Initial Condition

1. An evolution is in progress where a TBV setpoint is desired other than 900 PSIA.

B. Procedure

CAUTION
If the Main Turbine is paralleled to the grid, the TBV setpoint can be lowered to just above steam header pressure, but **NOT** less than 830 PSIA.

1. With permission of the CRS or DSRO, **LOWER** the setpoint for the TBV Controller, 1-PIC-4056, to the desired steam header pressure.

2. **PERFORM** an independent check to ensure the setpoint for 1-PIC-4056 is at the desired value.

3. **WHEN** the evolution is completed,
THEN ADJUST the setpoint for the TBV Controller, 1-PIC-4056, to 900 PSIA.

4. **PERFORM** an independent check to ensure the setpoint for 1-PIC-4056 is at 900 PSIA.

6.10 MANUAL OPERATION OF A TURBINE BYPASS VALVE [B0154]

A. Initial Conditions

1. One of the following conditions is present:

   a. One or more Turbine Bypass Valves can not be operated in automatic.

   b. Manual operation of a Turbine Bypass Valve has been directed by an approved procedure.

B. Procedure

NOTE
Overfilling the oil reservoir may cause oil overflow.

CAUTION
Changing steam demand will cause changes to core reactivity, secondary plant efficiency and S/G thermal performance. **[B0270]**

1. **[PC] REMOVE** cap from oil filler piping on selected Turbine Bypass Valve **AND ENSURE** oil level is at center of horizontal filler piping.

   a. **IF** oil level is lower than required,
   THEN FILL oil reservoir as necessary.

2. **[PC] SHUT** selected Turbine Bypass Valve instrument air isolation:

   - 1-MS-3940-TBV, 1-IA-82
   - 1-MS-3942-TBV, 1-IA-328
   - 1-MS-3944-TBV, 1-IA-330
   - 1-MS-3946-TBV, 1-IA-310

3. **[PC] SHUT** selected Turbine Bypass Valve hydraulic pump bypass isolation:

   - 1-MS-3940-TBV, 1-MS-383
   - 1-MS-3942-TBV, 1-MS-384
   - 1-MS-3944-TBV, 1-MS-385
   - 1-MS-3946-TBV, 1-MS-386

6.10.B Procedure (Continued)

4. **[PC] PLACE** selected Turbine Bypass Valve auto/manual hand valve in MANUAL:

   - 1-MS-3940-TBV, 1-MS-3940-HV
   - 1-MS-3942-TBV, 1-MS-3942-HV
   - 1-MS-3944-TBV, 1-MS-3944-HV
   - 1-MS-3946-TBV, 1-MS-3946-HV

5. **PERFORM** the following as necessary to operate the selected turbine bypass valve:

   a. **IF** it is desired to open valve,
   THEN STROKE lever until selected valve opens required amount.

   b. **IF** it is desired to close valve,
   THEN CRACK OPEN hydraulic pump bypass isolation until selected valve closes desired amount.

6. **[PC] WHEN** manual operation of selected Turbine Bypass Valve is no longer required,
   THEN PERFORM the following:

   a. **THROTTLE OPEN** selected Turbine Bypass Valve hydraulic pump bypass isolation one full turn:

      - 1-MS-3940-TBV, 1-MS-383
      - 1-MS-3942-TBV, 1-MS-384
      - 1-MS-3944-TBV, 1-MS-385
      - 1-MS-3946-TBV, 1-MS-386

   b. **PLACE** selected Turbine Bypass Valve auto/manual hand valve in AUTO:

      - 1-MS-3940-TBV, 1-MS-3940-HV
      - 1-MS-3942-TBV, 1-MS-3942-HV
      - 1-MS-3944-TBV, 1-MS-3944-HV
      - 1-MS-3946-TBV, 1-MS-3946-HV

6.10.B.6 Procedure (Continued)

c. **OPEN** instrument air isolation to selected Turbine Bypass Valve:

- 1-MS-3940-TBV, 1-IA-82
- 1-MS-3942-TBV, 1-IA-328
- 1-MS-3944-TBV, 1-IA-330
- 1-MS-3946-TBV, 1-IA-310

6.11 ATMOSPHERIC DUMP VALVE OPERATION FROM 1C43

A. Initial Conditions

1. Any of the following conditions is present:

   a. One or more Atmospheric Dump Valves (ADVs) can not be operated from the Control Room **AND** operation is necessary.

   b. Operation of one or more ADVs from 1C43 has been directed by an approved procedure.

B. Procedure

NOTE

The total time steam is vented through each ADV is tracked, to allow Chemistry to calculate the extent of any possible release that may be caused by activity in the Steam Generators.

CAUTION

Changing steam demand will cause changes to core reactivity, secondary plant efficiency and S/G thermal performance. **[B0270]**

1. **[PC] IF** 11 ADV is to be operated from 1C43,
   THEN PERFORM the following:

   a. **ADJUST** 11 ADV Control, 1-HC-4056A, to 0% output at 1C43.

   b. **POSITION** the following handvalves on west wall of 45 ft Switchgear Room to POSITION 2: **(P0053)**

      - 11 ADV Aux Shutdown Control Transfer, 1-MS-3938A-HV
      - 11 ADV Quick Open SV Override Handvalve, 1-MS-3938B-HV

   c. **CHECK** the following alarms received:

      - "LOCAL CONTR L/U IMPR" on 1C04
      - "AFW STATUS PANEL" on 1C03

   d. **ADJUST** 11 ADV Controller at 1C43 as necessary to achieve desired valve position, **AND RECORD** total time that 11 ADV was open.

6.11.B Procedure (Continued)

CAUTION
Changing steam demand will cause changes to core reactivity, secondary plant efficiency and S/G thermal performance. **[B0270]**

2. **[PC] IF** 12 ADV is to be operated from 1C43,
THEN PERFORM the following:

   a. **ADJUST** 12 ADV Control, 1-HC-4056B, to 0% output at 1C43.

   b. **POSITION** the following handvalves on west wall of 45 ft Switchgear Room to POSITION 2: **(P0053)**

      - 12 ADV Aux Shutdown Control Transfer, 1-MS-3939A-HV
      - 12 ADV Quick Open SV Override Handvalve, 1-MS-3939B-HV

   c. **CHECK** the following alarms received:

      - "LOCAL CONTR L/U IMPR" on 1C04
      - "AFW STATUS PANEL" on 1C03

   d. **ADJUST** 12 ADV Controller at 1C43 as necessary to achieve desired valve position, **AND RECORD** total time that 12 ADV was open.

3. **[PC] WHEN** 11 ADV control is to be returned to the Control Room,
THEN PERFORM the following:

   a. **ENSURE** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 is in MANUAL. 03100

   b. **ADJUST** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 to 0% output.

   c. **POSITION** the following handvalves to POSITION 1:

      - 11 ADV Aux Shutdown Control Transfer, 1-MS-3938A-HV
      - 11 ADV Quick Open SV Override Handvalve, 1-MS-3938B-HV

   d. **ADJUST** 1-HIC-4056 as necessary at 1C03, **AND RECORD** total time that 11 ADV was open. 03100

6.11.B Procedure (Continued)

4. **[PC] WHEN** 12 ADV control is to be returned to the Control Room, **THEN PERFORM** the following:

   a. **ENSURE** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 is in MANUAL. 03100

   b. **ADJUST** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 to 0% output.

   c. **POSITION** the following handvalves to POSITION 1:

      - 12 ADV Aux Shutdown Control Transfer, 1-MS-3939A-HV
      - 12 ADV Quick Open SV Override Handvalve, 1-MS-3939B-HV

   d. **ADJUST** 1-HIC-4056 as necessary at 1C03, **AND RECORD** total time that 12 ADV was open. 03100

5. **IF** both 11 ADV and 12 ADV controls are aligned to the Control Room, **THEN CHECK** the following alarms clear:

   - "LOCAL CONTR L/U IMPR" on 1C04
   - "AFW STATUS PANEL" on 1C03

6. **WHEN** operation of ADVs is complete, **THEN NOTIFY** Chemistry of total time open for each ADV.

6.12 ATMOSPHERIC DUMP VALVE OPERATION USING LOCAL HANDWHEEL

A. Initial Conditions

1. One of the following conditions is present:

   a. One or more Atmospheric Dump Valves (ADVs) can not be operated remotely **AND** operation is necessary.

   b. Manual operation of one or more ADVs has been directed by an approved procedure.

B. Procedure

NOTE
The total time steam is vented through each ADV is tracked, to allow Chemistry to calculate the extent of any possible release that may be caused by activity in the Steam Generators.

CAUTION
Changing steam demand will cause changes to core reactivity, secondary plant efficiency and S/G thermal performance. **[B0270]**

1. **ESTABLISH** communication between the controlling station and an operator stationed locally at ADVs in Auxiliary Building.

2. **ENSURE** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 is in MANUAL. 03100

3. **ADJUST** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 to 0% output. 03100

4. **PLACE** controller for each selected ADV at 1C43 in MANUAL **AND ENSURE** that each selected controller is set at 0% output:

   - 11 ADV, 1-HC-4056A
   - 12 ADV, 1-HC-4056B

NOTE
ADV manual operators are reverse acting; handwheel is turned clockwise to open, and counterclockwise to shut. Manual operation of ADVs may be more difficult than normal when steam pressure is not acting on the valve disk.

5. **OPERATE** each selected ADV locally, using chain operator, as necessary to achieve desired valve position, **AND RECORD** total time that each ADV was open.

6.12.B Procedure (Continued)

6. **WHEN** manual operation of a selected ADV is no longer desired,
   THEN PERFORM the following:

   a. **SHUT** selected ADV using chain operator.

   b. **OPERATE** controller at panel 1C43 **OR** at panel 1C03 as desired. | 03100

   c. **RECORD** total time that each ADV was open.

7. **WHEN** operation of ADVs is complete,
   THEN NOTIFY Chemistry of total time open for each ADV.

6.13 CYCLING ATMOSPHERIC DUMP VALVES MANUALLY TO VERIFY OPERATION (PE 1-83 -5-O-R) [B0455]

NOTE
To satisfy the requirements of this test, valves will require cycling when RCS temperature is less than 200° F, and again when RCS temperature is 532° F.

A. Initial Conditions

1. Atmospheric Dump Valve (ADV) to be exercised is not required for operation.
2. RCS temperature is less than 200° F.

B. Procedure

WARNING
Direct access from containment atmosphere to outside atmosphere could occur if an unisolated ADV is opened while the secondary side of its associated Steam Generator is open. During movement of irradiated fuel assemblies within containment, ensure that Technical Specification 3.9.3 requirements are met.

1. **ENSURE** RCS temperature is less than 200° F.
2. **IF** one or more of the following conditions exists:
   - Movement of irradiated fuel assemblies within containment are in progress **AND** Steam Generator secondary side is open to containment
   - A nitrogen blanket is present and pressure must be maintained in Steam Generators
   - Isolation of ADVs is desired for any other reason

   THEN SHUT ADV isolations:
   - 11 SG ATMOS DUMP ISOL, 1-MS-101
   - 12 SG ATMOS DUMP ISOL, 1-MS-104
3. **ESTABLISH** communication between the controlling station and an operator stationed locally at ADVs in Auxiliary Building.
4. **ENSURE** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 is in MANUAL. 03100
5. **ADJUST** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 to 0% output. 03100

6.13.B Procedure (Continued)

6. **PLACE** controller for each ADV at 1C43 in MANUAL **AND ENSURE** that each controller is set at 0% output:

   - 11 ADV, 1-HC-4056A
   - 12 ADV, 1-HC-4056B

NOTE

ADV manual operators are reverse acting; handwheel is turned clockwise to open, and counterclockwise to shut. Manual operation of ADVs may be more difficult than normal when steam pressure is not present on the valve disk.

7. **CYCLE** each ADV fully open **AND** fully shut locally, using chain operator.

8. **IF** it is desired to have ADVs available during plant heatup,
   THEN OPEN ADV isolations:

   - 11 SG ATMOS DUMP ISOL, 1-MS-101
   - 12 SG ATMOS DUMP ISOL, 1-MS-104

9. **IF** desired,
   THEN SECURE operator stationed at ADVs.

10. **RESTORE** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 as directed by CRS. 03100

11. **WHEN** RCS temperature is at least 532° F,
    THEN PROCEED to the next step.

NOTE

The total time steam is vented through each ADV is tracked, to allow Chemistry to calculate the extent of any possible release that may be caused by activity in the Steam Generators.

CAUTION

Changing steam demand will cause changes to core reactivity, secondary plant efficiency and S/G thermal performance. **[B0270]**

12. **IF** operator was secured in Step 9,
    THEN ESTABLISH communication between the controlling station and an operator stationed locally at ADVs in Auxiliary Building.

6.13.B Procedure (Continued)

13. **IF** it is desired to exercise ADVs without venting steam,
THEN ENSURE SHUT ADV isolations:

    - 11 SG ATMOS DUMP ISOL, 1-MS-101
    - 12 SG ATMOS DUMP ISOL, 1-MS-104

14. **ENSURE** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 is in MANUAL. 03100

15. **ADJUST** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 to 0% output. 03100

16. **PLACE** controller for each ADV at 1C43 in MANUAL **AND ENSURE** that each controller is set at 0% output:

    - 11 ADV, 1-HC-4056A
    - 12 ADV, 1-HC-4056B

NOTE

ADV manual operators are reverse acting; handwheel is turned clockwise to open, and counterclockwise to shut. Manual operation of ADVs may be more difficult than normal when steam pressure is not present on the valve disk.

17. **IF** ADVs are **NOT** manually isolated,
THEN RECORD total time each ADV is open when performing the next step.

18. **CYCLE** each ADV fully open **AND** fully shut locally, using chain operator.

19. **IF** previously isolated,
THEN OPEN ADV isolations:

    - 11 SG ATMOS DUMP ISOL, 1-MS-101
    - 12 SG ATMOS DUMP ISOL, 1-MS-104

20. **IF** ADVs were **NOT** manually isolated during performance of Step 18,
THEN NOTIFY Chemistry of total time open for each ADV.

21. **RESTORE** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 as directed by CRS. 03100

6.14 PLANT EFFICIENCY DIAGNOSTIC

A. Initial Conditions

1. Operations desires to identify possible causes of reduced plant efficiency, and where possible, correct them.

B. Discussion

1. Secondary Systems Engineering Unit (SSEU) performs Valve Leakage Tests periodically, both during operation and after returning to power from an outage. This test allows Operations to conduct all or part of a similar test at their discretion. If it is more convenient, SSEU may be contacted to conduct their test.

2. This test will be most effective when performed at full power. At full power, some losses may be detected which would go unnoticed at lower power levels. Since SSEU conducts their test and collects their data at full power, comparison of readings with their trended data will be more meaningful.

3. If the procedure steps are performed in the order given, the most easily identified sources of reduced efficiency will be examined first. However, the steps may be performed in any order.

4. Steps in this section may be performed in parallel, when judged appropriate. However, if plant efficiency improves following simultaneous isolation of two or more potential sources of leakage, it will be difficult to determine which of the actions resulted in the improvement.

5. With Shift Manager approval, steps may be omitted or the diagnostic terminated at any time, for the following reasons:

   a. Current plant conditions can not support the performance of a step, **OR** render a step unnecessary.

   b. Losses in efficiency have been identified to an extent which makes conduct of the remainder of the test unnecessary.

   IF the test is terminated prior to completion of all steps,
   THEN EVALUATE the effect that any valves left isolated will have on plant operation.

6. Temperatures can be more easily compared with historical data if surface temperatures are taken at the designated SSEU test points on each pipe. These points are indicated on the checklist, where available, and are marked on the piping physically in the plant.

6.14 PLANT EFFICIENCY DIAGNOSTIC (Continued)

NOTE
Any Condition Reports submitted under this section should include the phrase "Thermal Performance Issue" in the description.

C. Procedure

1. **IF** Unit 1 was recently aligned to supply Auxiliary Steam for steam seals and SGFPs on Unit 2,
   THEN a reduction in plant output may result.

2. **EXAMINE** Main Steam relief valves and ADVs locally for leakage, **AND SUBMIT** a Condition Report to repair any valve found leaking.

3. **IF** any of the following conditions are noted when AFW Pumps are **NOT** running, (indicating AFW Pump steam supply control valve leakby),
   THEN SUBMIT a Condition Report to repair any leaking valve.

   - Abnormal warmth at pump turbine **OR** on control valve downstream piping
   - Pump turbine is turning
   - Steam is observed at pump turbine exhaust

4. **CHECK** condenser and waterbox performance as follows:

NOTE
Condenser Performance report is located in the Balance of Plant Application.

   a. **OBTAIN** Condenser Performance report from the Plant Computer.

NOTE
If circulating water injection temperature is rising and greater than 60° F, then a degradation in condenser vacuum may cause a reduction in plant output. Between 60° F and 70° F, expect a reduction of approximately 0.8 MWe in electrical output for each 1° F rise in temperature above 60° F.

   b. **IF** waterbox ΔT is greater than 12° F,
   THEN NOTIFY Shift Manager, so a reduction in power can be planned to clean waterboxes.

   c. **IF** current on any Circulating Water Pump is **NOT** normal or is oscillating, **OR** waterbox inlet and outlet pressures are **NOT** normal,
   THEN NOTIFY Shift Manager, so that SSEU and Maintenance can be contacted to evaluate.

6.14.C.4 Procedure (Continued)

d. **IF** degradation of condenser vacuum is present which is **NOT** accounted for by Steps 4.a through 4.c,
THEN PERFORM the following:

(1) **REFER** to AOP-07G-1, LOSS OF CONDENSER VACUUM for specific components to be checked.

(2) **SUBMIT** a Condition Report for any leak requiring maintenance.

5. **DETERMINE** approximate condenser temperature for use in the remainder of this test, by averaging the values of Exhaust Hood Temperature computer points 1T4404-5, 1T4404-6, and 1T4404-7.

NOTE
Pipes entering the condenser should be at approximately condenser temperature.

6. **RECORD** temperatures downstream of Feedwater Heater relief valves in Table 1 of APPENDIX E, using the associated temperature indicators, **AND SUBMIT** a Condition Report to investigate and repair any relief valve whose downstream temperature is greater than 130° F.

7. **RECORD** vent header temperatures at SSEU test points downstream of Feedwater Heater vent valves in Table 2 of APPENDIX E, **AND SUBMIT** a Condition Report to investigate and repair any vent valve whose associated downstream header temperature is greater than 130° F.

8. **RECORD** pipe temperatures downstream of the components in Table 3 of APPENDIX E, as close to the condenser as possible.

6.14.C Procedure (Continued)

CAUTION
Changing steam demand will cause changes to core reactivity, secondary plant efficiency and S/G thermal performance. **[B0270]**

9. **IF** temperature is greater than 160° F for any point checked in Table 3 of APPENDIX E, **AND** there is **NOT** an orifice bypass valve associated with that point,
THEN PERFORM the following:

   a. **ISOLATE** the component using the manual isolation listed, **AND RECORD** time and date isolated.

   b. **MONITOR** plant parameters until stabilized, **AND RECORD** any observed change in megawatt output or heat rate.

   c. **IF** megawatt output **OR** heat rate changes,
   THEN PERFORM the following:

      (1) **SUBMIT** a Condition Report to repair.

      (2) **IF** the Shift Manager approves,
      THEN PERFORM the following:

         (a) **MAINTAIN** the component isolated until repairs are made.

         (b) **ENSURE** the Evolutions in Progress is updated on the Shift Turnover Information Sheet.

   d. **UNISOLATE** the component using the manual isolation listed, **AND RECORD** time and date unisolated.

6.14.C Procedure (Continued)

10. **IF** temperature is greater than 160° F for any point checked in Table 3 of APPENDIX E, **AND** there is an orifice bypass valve associated with that point, **THEN PERFORM** the following:

    a. **ENSURE** that high level is **NOT** present for that drain before proceeding.

CAUTION
Changing steam demand will cause changes to core reactivity, secondary plant efficiency and S/G thermal performance. **[B0270]**

    b. **SHUT** the orifice bypass valve using its handswitch at 1T22.

    c. **IF** valve reopens with no high level present,
    THEN PERFORM the following:

        (1) **SUBMIT** a Condition Report to repair.

        (2) **SHUT AND DEENERGIZE** valve.

    d. **MONITOR** plant parameters until stabilized, **AND RECORD** any observed change in megawatt output or heat rate.

    e. **IF** megawatt output **OR** heat rate changes,
    THEN SUBMIT a Condition Report to investigate and repair the orifice bypass valve.

    f. **IF** pipe temperature is still greater than 160° F,
    THEN PERFORM the following:

        (1) **ISOLATE** the affected drain line at the condenser.

        (2) **SUBMIT** a Condition Report to investigate and repair the bad orifice.

        (3) **WHEN** repairs have been made,
        THEN OPEN the valve shut in Step 10.f.1.

    g. **IF** valve was shut and deenergized in Step 10.c, **AND** the Shift Manager approves,
    THEN valve may remain deenergized until repairs are made.

11. **CHECK** components in Table 4 of APPENDIX E, as follows:

    a. **RECORD** pipe temperatures downstream of the components, as close to the condenser as possible.

    b. **CHECK** upstream temperature of high level dump valves, **AND SUBMIT** a Condition Report to investigate for possible seat leakage any valve whose temperature is above ambient.

6.14.C Procedure (Continued)

12. **IF** temperature is greater than 160° F for any component checked in Table 4 of APPENDIX E, **AND** Shift Manager approval is obtained, **THEN PERFORM** the following:

NOTE

GS-NPO approval is required to isolate any Feedwater Heater high level dump valve for longer than one shift.

CAUTION

Changing steam demand will cause changes to core reactivity, secondary plant efficiency and S/G thermal performance. **[B0270]**

a. **ISOLATE** the suspect valve using the manual isolation listed, **AND RECORD** time and date isolated.

b. **MONITOR** plant parameters until stabilized, **AND RECORD** any observed change in megawatt output or heat rate.

c. **IF** megawatt output **OR** heat rate changes, **THEN SUBMIT** a Condition Report to investigate and repair.

d. **OPEN** the valve shut in Step 12.a.

13. **IF** any valve in Tables 1 through 4 of APPENDIX E is leaking by enough to yield a 1 megawatt increase when isolated, **THEN RECORD** required data for that valve on Data Sheet 1 of APPENDIX E, **AND SUBMIT** to SSEU for their records.

14. **CHECK** APPENDIX E to ensure that no lines are unintentionally left isolated.

6.15 SHIFTING AUX BLOWDOWN TANK PUMPS

A. Initial Conditions

1. Auxiliary Blowdown Tank is in service **PER** Section 6.1, STARTUP OF HIGH PRESSURE DRAINS.

B. Procedure

1. **ENSURE** the following local handswitches are in AUTO.
   - 11 AUX BD TK PP, 1-HS-6640
   - 12 AUX BD TK PP, 1-HS-6641
2. **POSITION** AUX BD TK PP SELECTOR SWITCH, 1-HS-6642, as follows:
   a. **IF** 11 Pump is desired as the "lead" pump,
   THEN PLACE switch in 11-12 position.
   b. **IF** 12 Pump is desired as the "lead" pump,
   THEN PLACE switch in 12-11 position.

****** END ******

6.16 MANUAL PUMP DOWN OF THE AUX BLOWDOWN TANK

A. Initial Conditions

None

B. Procedure

1. **ENSURE** the following local handswitches are in STOP.
   - 11 AUX BD TK PP, 1-HS-6640
   - 12 AUX BD TK PP, 1-HS-6641
2. **START** the desired Aux Blowdown Tank Pump(s):
   - 11 Aux Blowdown Tank Pump, 1-HS-6640
   - 12 Aux Blowdown Tank Pump, 1-HS-6641
3. **WHEN** the Aux Blowdown Tank is at the desired level,
   THEN STOP the desired Aux Blowdown Tank Pump(s) by placing the handswitch(es) in the STOP position:
   - 11 Aux Blowdown Tank Pump, 1-HS-6640
   - 12 Aux Blowdown Tank Pump, 1-HS-6641
4. **IF** the Aux Blowdown Tank pumps were in AUTO,
   THEN PLACE the following local handswitches in AUTO:
   - 11 AUX BD TK PP, 1-HS-6640
   - 12 AUX BD TK PP, 1-HS-6641

6.17 TRANSITIONING BETWEEN TBV AND ADV CONTROL AT NOP AND NOT

A. Initial Conditions

1. Reactor Power is less than the available capacity of ADVs (2.5% steam flow each).
2. The plant is approximately at NOP and NOT.
3. A degraded condition requiring maintenance exists that prohibits use of the Turbine Bypass Valves.

B. Procedure

1. **IF** desired to transition from TBV control to ADV control, **THEN PERFORM** the following:
   a. **ENSURE** that Chemistry has prepared any required permits for the release of steam into the environment.
   b. **ANNOUNCE**, via the plant page, that steam will be exhausted from the ADVs and loud noise and steam are expected.
   c. **IF** TBV controller, PIC-4056 is in AUTO, **THEN PERFORM** the following:
      (1) **PLACE** ADV controller, HIC-4056 in MANUAL.
      (2) **CONTINUOUSLY MONITOR** RCS temperature while adjusting ADV and TBV controllers.

NOTE
A TBV controller output of 12.5% equals an ADV controller output of 100%.

      (3) **SLOWLY RAISE** the output on ADV controller, HIC-4056 until TBV controller output, PIC-4056 has lowered to zero percent **AND** the TBVs are shut.
      (4) **IF** desired to remove TBVs from service, **THEN PLACE** TBV controller, PIC-4056 in MANUAL with zero percent output.
      (5) **ADJUST** ADV controller, HIC-4056 output to maintain RCS temperature approximately 532° F (525° F - 535° F).

6.17.B.1 Procedure (Continued)

d. **IF** TBV controller, PIC-4056 is in MANUAL,
THEN PERFORM the following:

(1) **PLACE** ADV controller, HIC-4056 in manual.

(2) **CONTINUOUSLY MONITOR** RCS temperature while adjusting ADV and TBV controllers.

(3) **CONCURRENTLY PERFORM** the following while maintaining RCS temperature approximately 532° F (525° F - 535° F):

(a) **SLOWLY RAISE** the output on ADV controller, HIC-4056.

(b) **SLOWLY LOWER** the output on TBV controller, PIC-4056 until TBV controller, PIC-4056 output has lowered to zero percent **AND** the TBVs are shut.

(4) **IF** desired to remove TBVs from service,
THEN ENSURE the following:

(a) TBV controller, PIC-4056 is in MANUAL with zero percent output.

(b) All TBVs indicate shut.

(5) **ADJUST** ADV controller, HIC-4056 output to maintain RCS temperature approximately 532° F (525° F - 535° F).

6.17.B Procedure (Continued)

2. **IF** desired to transition from ADV control to TBV control, **THEN PERFORM** the following:

   a. **ENSURE** TBV controller, PIC-4056 setpoint is at 900 PSIA.

   b. **IF** TBV controller, PIC-4056 is in AUTO, **THEN PERFORM** the following:

      (1) **CONTINUOUSLY MONITOR** RCS temperature while adjusting ADV and TBV controllers.

      (2) **CONCURRENTLY PERFORM** the following while maintaining RCS temperature approximately 532° F (525° F - 535° F):

         (a) **SLOWLY LOWER** the output on ADV controller, HIC-4056 to zero percent.

         (b) **VERIFY** that the output on TBV controller, PIC-4056 is rising **AND** the TBVs are controlling RCS temperature.

      (3) **WHEN** desired to restore ADV control to AUTO, **THEN PERFORM** the following:

         (a) **VERIFY** that the TBVs are controlling RCS temperature.

         (b) **CHECK** that Tave is less than 535° F.

         (c) **PLACE** ADV controller, HIC-4056 to AUTO.

6.17.B.2 Procedure (Continued)

c. **IF** TBV controller, PIC-4056 is in MANUAL,
THEN PERFORM the following:

(1) **CONTINUOUSLY MONITOR** RCS temperature while adjusting ADV and TBV controllers.

(2) **CONCURRENTLY PERFORM** the following while maintaining RCS temperature approximately 532° F (525° F - 535° F):

(a) **SLOWLY LOWER** the output on ADV controller, HIC-4056 to zero percent.

(b) **SLOWLY RAISE** the output on TBV controller, PIC-4056 until ADV controller, HIC-4056 output has been lowered to zero percent **AND** the ADVs are shut.

(3) **ADJUST** TBV controller, PIC-4056 output in manual to maintain RCS temperature approximately 532° F (525° F - 535° F).

(4) **WHEN** desired to restore TBV control to AUTO,
THEN PERFORM the following:

(a) **ENSURE** TBV controller, PIC-4056 setpoint is at 900 PSIA.

(b) **PLACE** TBV controller, PIC-4056 in AUTO.

(5) **WHEN** desired to restore ADV control to AUTO,
THEN PERFORM the following:

(a) **VERIFY** that the TBVs are controlling RCS temperature.

(b) **CHECK** that Tave is less than 535° F.

(c) **PLACE** ADV controller, HIC-4056 to AUTO.

d. **NOTIFY** Chemistry that the discharge of steam via the ADVs is complete.

6.18 RESEAT ADV FOLLOWING OPERATION

A. Initial Conditions

1. ADV indicating intermediate in the Control Room while ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 is set to 0% output. 03100
2. Plant Conditions allow for isolation of the affected ADV. 03100

B. Procedure

1. **REFERENCE** TRM for applicablity. 03100
2. **ENSURE** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 is in MANUAL. 03100
3. **ADJUST** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 to 0% output. 03100
4. **SHUT** affected ADV isolation: 03100
   - 11 SG ATMOS DUMP ISOL, 1-MS-101
   - 12 SG ATMOS DUMP ISOL, 1-MS-104
5. **SHUT** IA supply to affected ADV positioner: 03100
   - 1-MS-3938-CV POSIT ISOL, 1-IA-1209 (11 ADV)
   - 1-MS-3939-CV POS. ISOL, 1-IA-1208 (12 ADV)
6. **WAIT** 5 minutes for ADV to reseat. 03100
7. **CHECK** ADV position indication at 1C03. 03100
   a. **IF** ADV indicates intermediate,
   THEN PERFORM the following:
      (1) **SUBMIT** a Condition Report.
      (2) **CONTACT** System Manager.
8. **OPEN** IA supply to affected ADV positioner: 03100
   - 1-MS-3938-CV POSIT ISOL, 1-IA-1209 (11 ADV)
   - 1-MS-3939-CV POS. ISOL, 1-IA-1208 (12 ADV)

6.18.B Procedure (Continued)

9. **CHECK** ADV position indication at 1C03. 03100

   a. **IF** ADV indicates intermediate,
   THEN PERFORM the following:

      (1) **SUBMIT** a Condition Report.

      (2) **CONTACT** System Manager.

10. **IF** affected ADV indicated shut in step 7 and step 9, 03100
    THEN STROKE affected ADV as follows:

    a. **[PC] IF** 11 ADV is to be operated from 1C43,
    THEN PERFORM the following:

       (1) **ADJUST** 11 ADV Control, 1-HC-4056A, to 0% output at 1C43.

       (2) **POSITION** the following handvalves on west wall of 45 ft Switchgear Room to POSITION 2: **(P0053)**

          - 11 ADV Aux Shutdown Control Transfer, 1-MS-3938A-HV
          - 11 ADV Quick Open SV Override Handvalve, 1-MS-3938B-HV

       (3) **CHECK** the following alarms received:

          - "LOCAL CONTR L/U IMPR" on 1C04
          - "AFW STATUS PANEL" on 1C03

       (4) **ADJUST** 11 ADV Control, 1-HC-4056A at 1C43 to fully open 11 ADV.

       (5) **ADJUST** 11 ADV Control, 1-HC-4056A at 1C43 to fully shut 11 ADV.

       (6) **RETURN** 11 ADV control to the Control Room by performing the following:

          (a) **ENSURE** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 is in MANUAL.

          (b) **ADJUST** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 to 0% output.

          (c) **POSITION** the following handvalves to POSITION 1:

             - 11 ADV Aux Shutdown Control Transfer, 1-MS-3938A-HV
             - 11 ADV Quick Open SV Override Handvalve, 1-MS-3938B-HV

6.18.B.10 Procedure (Continued)

b. **[PC]** **IF** 12 ADV is to be operated from 1C43, **THEN PERFORM** the following: 03100

(1) **ADJUST** 12 ADV Control, 1-HC-4056B, to 0% output at 1C43.

(2) **POSITION** the following handvalves on west wall of 45 ft Switchgear Room to POSITION 2: **(P0053)**

- 12 ADV Aux Shutdown Control Transfer, 1-MS-3939A-HV
- 12 ADV Quick Open SV Override Handvalve, 1-MS-3939B-HV

(3) **CHECK** the following alarms received:

- "LOCAL CONTR L/U IMPR" on 1C04
- "AFW STATUS PANEL" on 1C03

(4) **ADJUST** 12 ADV Control, 1-HC-4056B at 1C43 to fully open 12 ADV.

(5) **ADJUST** 12 ADV Control, 1-HC-4056B at 1C43 to fully shut 12 ADV.

(6) **RETURN** 12 ADV control to the Control Room by performing the following:

(a) **ENSURE** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 is in MANUAL.

(b) **ADJUST** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 to 0% output.

(c) **POSITION** the following handvalves to POSITION 1:

- 12 ADV Aux Shutdown Control Transfer, 1-MS-3939A-HV
- 12 ADV Quick Open SV Override Handvalve, 1-MS-3939B-HV

11. **IF** affected ADV fails to indicate properly during step 10, **THEN PERFORM** the following: 03100

a. **SUBMIT** a Condition Report.

b. **CONTACT** System Manager.

12. **OPEN** affected ADV isolation: 03100

- 11 SG ATMOS DUMP ISOL, 1-MS-101
- 12 SG ATMOS DUMP ISOL, 1-MS-104

6.18.B Procedure (Continued)

13. **RESTORE** ATMOSPHERIC STEAM DUMP CONTR 1-HIC-4056 on 1C03 as directed by CRS. 03100

****** END ******

7.0 POST PERFORMANCE ACTIVITIES

A. Upon completion of attachments, forward the original(s) to the Operations Senior Administrative Assistant for retention **PER** CNG-PR-3.01-1000, Records Management.

8.0 BASES

[B0154] AOP/EOP cross reference per NUREG 1358:
1. AOP-3F, LOSS OF OFFSITE POWER WHILE IN MODES 3, 4, 5, OR 6, Section titled CONTINUE THE COOLDOWN, refer to this OI for instruction on manually operating the TBVs.

[B0270] Operator Reactivity Management Procedure Review Guidelines. Letter from B. Shick to M. Navin 9-22-95.

[B0455] Letter from B.B. Mrowca to J.M. Hogg dated 4-22-99, states that manual cycling of the Atmospheric Dump Valves (ADVs) is required to ensure ADV functionality by periodically operating the ADVs using the chain operator. EOP-3 and EOP-6 credit operating the ADVs manually in the event they can not be controlled from the Control Room.

[B2468] ES199701511 MSIV bypass valves must be maintained closed during normal operations other than equalizing across MSIVs during startup due to having been removed from the GL 89-10 program.

9.0 RECORDS

A. Records generated by this procedure shall be transferred to Records Management **PER** CNG-PR-3.01-1000, Records Management.

10.0 ATTACHMENTS

A. FIGURE 1, TEMPORARY PIPING RIG.

B. APPENDIX A, MAIN STEAM LINE DRAINS ON PANEL 1T22.

C. APPENDIX B, VALVES OPERATED TO SHIFT STM DRNS FROM AUX B/D TNK TO MN CNDSR.

D. APPENDIX C, MOISTURE SEPARATOR REHEATER DRAINS ON PANEL 1T22.

E. APPENDIX D, EXTRACTION STEAM LINE DRAINS ON PANEL 1T22.

F. APPENDIX E, PLANT EFFICIENCY DIAGNOSTIC CHECKLIST.

G. ATTACHMENT 1A, MAIN STEAM VENTS AND DRAINS.

H. ATTACHMENT 1B, EXTRACTION STEAM VENTS AND DRAINS.

I. ATTACHMENT 1C, MSR VENTS AND DRAINS.

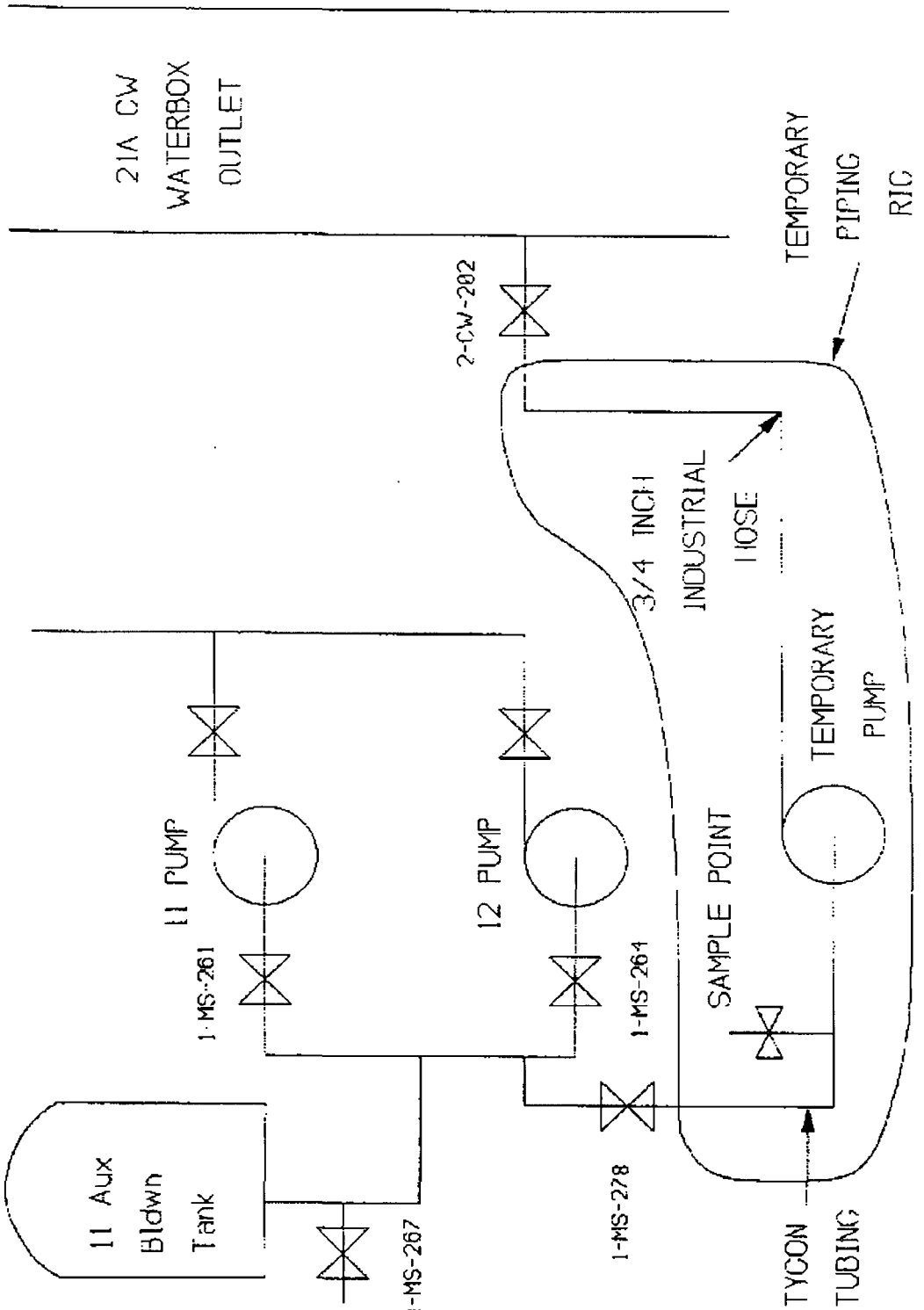
J. ATTACHMENT 2A, MAIN STEAM INSTRUMENTATION VALVES.

10.0 ATTACHMENTS (Continued)

K. ATTACHMENT 2B, EXTRACTION STEAM INSTRUMENTATION VALVES.

L. ATTACHMENT 2C, MSR INSTRUMENTATION VALVES.

TEMPORARY PIPING RIG



APPENDIX A
MAIN STEAM LINE DRAINS ON PANEL 1T22

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MOV-6600	OPEN AUTO	12 MN STM DRN NO. 2			
1-MOV-6601	OPEN AUTO	12 MN STM DRN NO. 3			
1-MOV-6602	OPEN AUTO	11 MN STM DRN NO. 4			
1-MOV-6603	OPEN AUTO	12 MN STM DRN NO. 5			
1-MOV-6604	OPEN AUTO	11 MN STM DRN NO. 6			
1-MOV-6605	OPEN AUTO	11 MN STM DRN NO. 7			
1-MOV-6606	OPEN AUTO	TURB BYPASS DRN NO. 1			
1-MOV-6607	OPEN AUTO	TURB BYPASS DRN NO. 19			
1-MOV-6608	OPEN AUTO	TURB BYPASS DRN NO. 22			
1-MOV-6609	OPEN AUTO	11 SGFP TURB INLET DRN NO. 14			

APPENDIX A
MAIN STEAM LINE DRAINS ON PANEL 1T22

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MOV-6610	OPEN AUTO	12 SGFP TURB INLET DRN NO. 12			
1-MOV-6611	AUTO	5 MN STM DRN ISO VV HNDS			
1-MOV-6612	AUTO	6 MN STM DRN ISO VV HNDS			
1-MOV-6613	AUTO	MAIN STM LINE DRAIN 17			
1-MOV-6615	AUTO	MAIN STM LINE DRAIN 18			
1-MOV-6620	AUTO	12 MN STM DRN NO. 23			
1-MOV-6621	AUTO	MAIN STM. LINE DRN #24			

APPENDIX B
VALVES OPERATED TO SHIFT STM DRNS FROM AUX B/D TNK TO MN CNDSR

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-142	SHUT OPEN	1-DR-1 OUT TO COND STOP	S END 13 CNDSR		
1-MS-145	SHUT OPEN	1-DR-2 OUT TO CONDR STOP	SW END 13 CNDSR		
1-MS-148	SHUT OPEN	1-DR-3 OUT TO COND STOP	SW END 13 CNDSR		
1-MS-151	SHUT OPEN	1-DR-4 OUT TO COND STOP	SW END 13 CNDSR		
1-MS-154	SHUT OPEN	1-DR-5 OUT TO COND STOP	MID S 13 CNDSR		
1-MS-157	SHUT OPEN	1-DR-6 OUT TO COND STOP	MID S 13 CNDSR		
1-MS-160	SHUT OPEN	1-DR-7 OUT TO COND STOP	SW END 13 CNDSR		
1-MS-166	SHUT OPEN	1-DR-10 OUT TO COND STOP	S END 11 CNDSR W 8 ft FROM CATWALK		
1-MS-168	OPEN SHUT	1-DR-10 FO BYP	12 ft TB W SIDE 11 SGFP		
1-MS-169	SHUT OPEN	1-DR-11 OUT TO COND STOP	N END 13 CNDSR W 8 ft FROM CATWALK		

APPENDIX B
VALVES OPERATED TO SHIFT STM DRNS FROM AUX B/D TNK TO MN CNDSR

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-171	OPEN SHUT	1-DR-11 FO BYP	AT MS-123 12 SGFP MS		
1-MS-187	SHUT OPEN	1-DR-12 OUT TO COND STOP	NW SIDE CATWALK 13 CNDSR		
1-MS-189	SHUT OPEN	1-DR-14 OUT TO COND STOP	CATWALK W SIDE 11 CNDSR		
1-MS-176	SHUT OPEN	1-DR-16 OUT TO COND STOP	S END 11 CNDSR W 8 ft FROM CATWALK		
1-MS-178	OPEN SHUT	1-DR-16 FO BYP	E SIDE 11 SGFP		
1-MS-163	SHUT OPEN	1-DR-17 OUT TO COND STOP	S END 13 CNDSR EDGE 2ND LVL DECK		
1-MS-180	OPEN SHUT	1-DR-17 FO BYP	MN STM PEN RM		
1-MS-165	SHUT OPEN	1-DR-18 OUT TO COND STOP	S END 13 CNDSR EDGE 2ND LVL DECK		
1-MS-182	OPEN SHUT	1-DR-18 FO BYP	MN STM PEN RM		
1-MS-184	SHUT OPEN	1-DR-19 OUT TO COND	S END 13 CNDSR 2ND LVL DECK		

APPENDIX B
VALVES OPERATED TO SHIFT STM DRNS FROM AUX B/D TNK TO MN CNDSR

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-191	SHUT OPEN	1-DR-22 OUT TO COND STOP	S END 13 COND 2ND LVL DECK		
1-MS-199	SHUT OPEN	1-DR-23 OUT TO COND STOP	N END 11 CNDSR		
1-MS-194	OPEN SHUT	1-DR-23 FO BYP	MN STM PEN RM		
1-MS-200	SHUT OPEN	1-DR-24 OUT TO COND STOP	N END 11 CNDSR		
1-MS-196	OPEN SHUT	1-DR-24 FO BYP	MN STM PEN RM		
1-MS-143	OPEN SHUT	1-DR-1 OUTLET TO AUX TK STOP	W 11 CNDSR S OF S STAIRS		
1-MS-146	OPEN SHUT	1-DR-2 OUT TO AUX BD TK STOP	W 11 CNDSR S OF S STAIRS		
1-MS-149	OPEN SHUT	1-DR-3 OUT TO AUX BD TK STOP	W 11 CNDSR S OF S STAIRS		
1-MS-152	OPEN SHUT	1-DR-4 OUT TO AUX BD TK STOP	W 11 CNDSR S OF S STAIRS		
1-MS-155	OPEN SHUT	1-DR-5 OUT TO AUX BD TK STOP	NW CORNER 11 CNDSR		

APPENDIX B
VALVES OPERATED TO SHIFT STM DRNS FROM AUX B/D TNK TO MN CNDSR

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-158	OPEN SHUT	1-DR-6 OUT TO AUX BD TK	NW CORNER 11 CNDSR		
1-MS-161	OPEN SHUT	1-DR-7 OUT TO AUX BD TK STOP	NW SIDE 11 CNDSR		
1-MS-167	OPEN SHUT	1-DR-10 OUT TO AUX BD TK	12 ft U1 TB S OF 5 ft STAIRS, W OF 11 CNDSR		
1-MS-170	OPEN SHUT	1-DR-11 OUT TO AUX BD TK STOP	12 ft U1 TB S OF 5 ft STAIRS, W OF 11 CNDSR		
1-MS-173	OPEN SHUT	1-DR-12 OUT TO AUX BD TK STOP	12 ft U1 TB S OF 5 ft STAIRS, W OF 11 CNDSR		
1-MS-175	OPEN SHUT	1-DR-14 OUT TO AUX BD TK STOP	12 ft U1 TB S OF 5 ft STAIRS, W OF 11 CNDSR		
1-MS-177	OPEN SHUT	1-DR-16 OUTLET TO AUX BD TK STOP	12 ft U1 TB S OF 5 ft STAIRS, W OF 11 CNDSR		
1-MS-179	OPEN SHUT	1-DR-17 OUT TO AUX BD TK STOP	12 ft U1 TB S OF 5 ft STAIRS, W OF 11 CNDSR		

APPENDIX B
VALVES OPERATED TO SHIFT STM DRNS FROM AUX B/D TNK TO MN CNDSR

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-181	OPEN SHUT	1-DR-18 OUT TO AUX BD TK STOP	12 ft U1 TB S OF 5 ft STAIRS, W OF 11 CNDSR		
1-MS-185	OPEN SHUT	1-DR-19 OUT TO AUX TK STOP	12 ft U1 TB S OF 5 ft STAIRS, W OF 11 CNDSR		
1-MS-186	OPEN SHUT	1-DR-20 OUT TO AUX BD TK STOP	NW 11 SGFP AT EXH		
1-MS-188	OPEN SHUT	1-DR-21 OUT TO AUX BD TK STOP	SE OF 12 SGFP EXH		
1-MS-192	OPEN SHUT	1-DR-22 OUT TO AUX BD TK STOP	S OF 5 ft STAIRS, W OF 11 CNDSR		
1-MS-193	OPEN SHUT	1-DR-23 OUT TO AUX BD TK STOP	E OF 5 ft STAIRS ABOVE AUX BD TK		
1-MS-195	OPEN SHUT	1-DR-24 OUT TO AUX BD TK STOP	BY AUX BD TK		

APPENDIX C
MOISTURE SEPARATOR REHEATER DRAINS ON PANEL 1T22

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MOV-1526	AUTO	16A-B FDWTR HTR STM LINE DRN VV 1526			
1-MOV-1527	AUTO	16A-B FDWTR HTR STM LINE DRN VV 1527			
1-MOV-3721 1-CV-3702	NORM	11 MSR DRN TK LVL CONT/DRN VV			
1-MOV-3723 1-CV-3704	NORM	11 1ST STG DRN TK LVL CONT/DRN VV			
1-MOV-3725 1-CV-3706	NORM	11 2ND STG DRN TK LVL CONT/DRN VV			
1-MOV-3728 1-CV-3709	NORM	12 MSR DRN TK LVL CONT/DRN VV			
1-MOV-3730 1-CV-3711	NORM	12 1ST STG DRN TK LVL CONT/DRN VV			
1-MOV-3732 1-CV-3713	NORM	12 2ND STG DRN TK LVL CONT/DRN VV			
1-MOV-3700A	AUTO	11 MSR SHELL DRN VV 3700			

APPENDIX C
MOISTURE SEPARATOR REHEATER DRAINS ON PANEL 1T22

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MOV-3703	AUTO	11 MSR SHELL DRN 1-MOV-3703			
1-MOV-3707	AUTO	12 MSR SHELL DRN VV 3707			
1-MOV-3710	AUTO	12 MSR SHELL DRN VV 3710			
1-MOV-4072	AUTO	11 MSR 1ST STG STM LINE DRN			
1-MOV-4073	AUTO	11 MSR 2ND STG STM DRN VV 4073			
1-MOV-4074	AUTO	11 MSR 2ND STG STM DRN VV 4074			
1-MOV-4075	AUTO	12 MSR 1ST STG STM LINE DRN			
1-MOV-4076	AUTO	12 MSR 2ND STG STM DRN VV 4076			
1-MOV-4077	AUTO	12 MSR 2ND STG STM DRN VV 4077			

APPENDIX D
EXTRACTION STEAM LINE DRAINS ON PANEL 1T22

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-CV-1431	CLOSE	LP TURB EXTRAC BYP-DRN VV 1431			
1-CV-1433	CLOSE	LP TURB EXTRAC BYP-DRN VV 1433			
1-CV-1435	CLOSE	LP TURB EXTRAC BYP-DRN VV 1435			
1-CV-1437	CLOSE	LP TURB EXTRAC BYP-DRN VV 1437			
1-CV-1439	CLOSE	LP TURB EXTRAC BYP-DRN VV 1439			
1-CV-1441	CLOSE	LP TURB EXTRAC BYP-DRN VV 1441			
1-MOV-1525	AUTO	14A-B FDWTR HTR STM LINE DRN VV 1525			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 1 - FEEDWATER HEATER RELIEF VALVES

COMPONENT/INDICATOR	LOCATION	TEMP (°F)	CR #
15A FWH RELIEF RV-1426 1-TI-1426	45 ft AT 15A FWH		
15B FWH RELIEF RV-1428 1-TI-1428	45 ft AT 15B FWH		
14A FWH RELIEF RV-1422 1-TI-1422	27 ft AT 14A FWH		
14B FWH RELIEF RV-1424 1-TI-1424	27 ft AT 14B FWH		
16A FWH RELIEF RV-1416 1-TI-1416	27 ft AT 16A FWH		
16B FWH RELIEF RV-1414 1-TI-1414	27 ft AT 16B FWH		
13A FWH RELIEF RV-1418 1-TI-1418	12 ft AT 13A FWH		
13B FWH RELIEF RV-1420 1-TI-1420	12 ft AT 13B FWH		

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 2 - FEEDWATER HEATER VENT VALVES

COMPONENT/TEST POINT	LOCATION	TEMP (°F)	CR #
16 FWH COMBINED VENT (9A&B)	27 ft WEST SIDE		
15 FWH COMBINED VENT (10A&B)	27 ft WEST SIDE		
14 FWH COMBINED VENT (14A&B)	27 ft NORTH WEST SIDE		
13 FWH COMBINED VENT (15A&B)	27 ft NORTH WEST SIDE		
11A FWH COMBINED VENT (16)	27 ft EAST SIDE		
12A FWH COMBINED VENT (17)	27 ft EAST SIDE		
11B FWH COMBINED VENT (20)	27 ft EAST SIDE		
12B FWH COMBINED VENT (21)	27 ft EAST SIDE		
11C FWH COMBINED VENT (24)	27 ft EAST SIDE		
12C FWH COMBINED VENT (25)	27 ft EAST SIDE		

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 3 - MAIN STEAM DRAINS

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
ORIFICE BYPASS 1-MOV-6606 (80) 1-DR-1 OUT TO COND STOP 1-MS-142	SOUTHWEST END 13 CNDSR LOWER PLATFORM			
ORIFICE BYPASS 1-MOV-6600 (55) 1-DR-2 OUT TO CONDR STOP 1-MS-145	SOUTHWEST END 13 CNDSR UPPER PLATFORM			
ORIFICE BYPASS 1-MOV-6601 (53) 1-DR-3 OUT TO COND STOP 1-MS-148	SOUTHWEST END 13 CNDSR UPPER PLATFORM			
ORIFICE BYPASS 1-MOV-6602 (52) 1-DR-4 OUT TO COND STOP 1-MS-151	SOUTHWEST END 13 CNDSR UPPER PLATFORM			
ORIFICE BYPASS 1-MOV-6603 (57) 1-DR-5 OUT TO COND STOP 1-MS-154	SOUTH 13 CNDSR UPPER PLATFORM MID LEVEL			
ORIFICE BYPASS 1-MOV-6604 (56) 1-DR-6 OUT TO COND STOP 1-MS-157	SOUTH 13 CNDSR UPPER PLATFORM MID LEVEL			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 3 - MAIN STEAM DRAINS (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
ORIFICE BYPASS 1-MOV-6605 (54) 1-DR-7 OUT TO COND STOP 1-MS-160	SOUTHWEST 13 CNDSR UPPER PLATFORM			
ORIFICE BYPASS 1-MS-168 (36) 1-DR-10 OUT TO COND STOP 1-MS-166	SW 11 CNDSR CATWALK BETWEEN OUTLET BOXES			
ORIFICE BYPASS 1-MS-171 (35) 1-DR-11 OUT TO COND STOP 1-MS-169	NW 13 CNDSR CATWALK BETWEEN OUTLET BOXES			
ORIFICE BYPASS 1-MOV-6610 (38) 1-DR-12 OUT TO COND STOP 1-MS-187	NORTHWEST 13 CNDSR CATWALK			
ORIFICE BYPASS 1-MOV-6609 (41) 1-DR-14 OUT TO COND STOP 1-MS-189	WEST SIDE 11 CNDSR CATWALK			
ORIFICE BYPASS 1-MS-178 (37) 1-DR-16 OUT TO COND STOP 1-MS-176	W 11 CNDSR CATWALK BETWEEN OUTLET BOXES			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 3 - MAIN STEAM DRAINS (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
ORIFICE BYPASS 1-MOV-6607 (81) 1-DR-19 OUT TO COND STOP 1-MS-184	SOUTH END 13 CNDSR LOWER PLATFORM			
ORIFICE BYPASS 1-MOV-6608 (79) 1-DR-22 OUT TO COND STOP 1-MS-191	SOUTH END 13 CNDSR LOWER PLATFORM			
ORIFICE BYPASS 1-MS-180 (83) 1-DR-17 OUT TO COND STOP 1-MS-163	SOUTH END 13 CNDSR LOWER PLATFORM			
ORIFICE BYPASS 1-MS-182 (82) 1-DR-18 OUT TO COND STOP 1-MS-165	SOUTH END 13 CNDSR LOWER PLATFORM			
ORIFICE BYPASS 1-MS-194 (45) 1-DR-23 OUT TO COND STOP 1-MS-199	NORTH END 11 CNDSR IN PIT			
ORIFICE BYPASS 1-MS-196 (44) 1-DR-24 OUT TO COND STOP 1-MS-200	NORTH END 11 CNDSR IN PIT			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 3 - MAIN STEAM DRAINS (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
ORIFICE BYPASS 1-MOV-4658 (76) MAIN STOP VLVS BEFORE SEAT COMMON DRNS 1-MS-203	SOUTH END 13 CNDSR CATWALK LOWER PLATFORM			
DRAIN 1-MOV-5087 (43) SGFPT 11 HP STOP VLV ABOVE SEAT DRN TO COND 1-MS-204	WEST SIDE 11 CNDSR ALONG CATWALK			
ORIFICE BYPASS 1-MOV-5088 (42) SGFPT 11 HP STOP VLV BELOW SEAT DRN TO COND 1-MS-205	WEST SIDE 11 CNDSR ALONG CATWALK			
DRAIN 1-MOV-5092 (39) SGFPT 12 HP STOP VLV ABOVE SEAT DRN TO COND 1-MS-209	SOUTHEAST 13 CNDSR ALONG CATWALK			
ORIFICE BYPASS 1-MOV-5093 (40) SGFPT 12 STOP BELOW SEAT DRN TO COND 1-MS-210	SOUTHEAST 13 CNDSR ALONG CATWALK			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 3 - MAIN STEAM DRAINS (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
DRAIN 1-MOV-4022 (66) 11 2ND STG MSR SUPP LINE DRN 1-MS-201	SOUTH END 13 CNDSR UPPER PLATFORM			
DRAIN 1-MOV-4023 (67) 12 2ND STG MSR SUPP LINE DRN 1-MS-202	SOUTH END 13 CNDSR UPPER PLATFORM			
DRAIN 1-MOV-5089 (43A) SGFPT 11 LP STOP VLV ABOVE SEAT DRN TO COND 1-MS-206	WEST SIDE 11 CNDSR ALONG CATWALK			
DRAIN 1-MOV-5090 (43B) SGFPT 11 LP STOP VLV BELOW SEAT DRN CONT VLV CHEST DRN TO COND 1-MS-207	WEST SIDE 11 CNDSR ALONG CATWALK			
DRAIN 1-MOV-5094 (38A) SGFPT 12 LP STOP VLV ABOVE SEAT DRN TO COND 1-MS-211	SOUTHEAST 13 CNDSR ALONG CATWALK			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 3 - MAIN STEAM DRAINS (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
DRAIN 1-MOV-5095 (40A) SGFPT 12 LP STOP VLV BELOW SEAT DRN & CONT VLV CHEST DRN TO COND 1-MS-212	SOUTHEAST 13 CNDSR ALONG CATWALK			
DRAIN 1-MOV-5091 (110A) SGFPT 11 1ST STG EXH DRN ISOL 1-MS-208	CATWALK WEST BETWEEN 12 & 13 CNDSR			
DRAIN 1-MOV-5096 (104A) SGFPT 12 1ST STG EXH DRN 1-MS-213	CATWALK WEST BETWEEN 12 & 13 CNDSR			
(FO-6622) (72A) STM SEAL HDR DRN 1-MS-214	SOUTH END 13 CNDSR UPPER PLATFORM			
DRAIN 1-MOV-3721 (86) 11 MSR DRN TK LC LINE DRN 1-RDV-159	SOUTH END 13 CNDSR LOWER PLATFORM			
DRAIN 1-MOV-3723 (84) 11 MSR 1ST STG DRN TK LC LINE DRN 1-RDV-160	SOUTH END 13 CNDSR LOWER PLATFORM			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 3 - MAIN STEAM DRAINS (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
ORIFICE BYPASS 1-RDV-187 & DRAIN 1-MOV-3725 (85) 11 2ND STG MSR DRN TK LC LINE DRN 1-RDV-161	SOUTH END 13 CNDSR LOWER PLATFORM			
ORIFICE STRAINER BYPASS 1-MOV-3700 (71) 11 MSR POCKET DRN ISOL 1- RDV-155	SOUTHEAST 13 CNDSR UPPER PLATFORM			
ORIFICE STRAINER BYPASS 1-MOV-3703 (72) 11 MSR POCKET DRN ISOL 1-RDV-156	SOUTHEAST 13 CNDSR UPPER PLATFROM			
ORIFICE STRAINER BYPASS 1-MOV-3707 (59) 12 MSR POCKET DRN ISOL 1-RDV-157	SOUTHWEST 13 CNDSR UPPER PLATFORM			
ORIFICE STRAINER BYPASS 1-MOV-3710 (60) 12 MSR POCKET DRN ISOL 1-RDV-158	SOUTHWEST 13 CNDSR UPPER PLATFORM			
DRAIN 1-MOV-3728 (75) 12 MSR DRN TK LC LINE DRN 1-RDV-162	SOUTHWEST 13 CNDSR LOWER PLATFORM			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 3 - MAIN STEAM DRAINS (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
ORIFICE BYPASS 1-RDV-179 & DRAIN 1-MOV-3730 (73) 12 1ST STG MSR DRN TK LC LINE DRN 1-RDV-163	SOUTHWEST 13 CNDSR LOWER PLATFORM			
DRAIN 1-MOV-4072 (70) 11 MSR 1ST STG RHT DRN 1-RDV-165	SOUTH END 13 CNDSR UPPER PLATFORM			
DRAIN 1-MOV-4075 (61) 12 MSR 1ST STG RHT DRN 1-RDV-168	SOUTH SIDE 13 CNDSR UPPER PLATFORM			
ORIFICE BYPASS 1-ES-256 & 1-CV-1441 (29) COMMON DRN ISOL 1-ES-125	12 ft W SIDE 11 CNDSR BETWEEN OUTLET BOXES			
ORIFICE BYPASS 1-ES-195 & 1-CV-1435 (30) 13A&B DRN COMMON 1-ES-136	12 ft W SIDE 11 CNDSR BETWEEN OUTLET BOXES			
ORIFICE BYPASS 1-CV-1437 (31) 14 EXT DRN TO COND 12 1-ES-126	12 ft W SIDE 11 CNDSR BETWEEN OUTLET BOXES			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 3 - MAIN STEAM DRAINS (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
ORIFICE BYPASS 1-ES-194 & 1-CV-1433 (32) 13A & B DRN COMMON 1-ES-137	12 ft W SIDE 11 CNDSR BETWEEN OUTLET BOXES			
ORIFICE BYPASS 1-CV-1439 (33) 14 EXT DRN TO COND 11 1-ES-127	12 ft W SIDE 11 CNDSR BETWEEN OUTLET BOXES			
ORIFICE BYPASS 1-ES-193 & 1-CV-1431 (34) 13A&B DRN COMMON 1-ES-138	12 ft W SIDE 11 CNDSR BETWEEN OUTLET BOXES			
ORIFICE BYPASS 1-ES-185 & 1-MOV-1526 (64) 16A DRN COMMON 1-ES-140	SOUTH SIDE 13 CNDSR UPPER PLATFORM			
ORIFICE BYPASS 1-ES-187 & 1-MOV-1527 (65) 16B DRN COMMON 1-ES-141	SOUTH SIDE 13 CNDSR UPPER PLATFORM			
ORIFICE BYPASS 1-ES-254 & 1-MOV-1525 (13) ES TO 14A FWH COMMON DRN ISOL TO CNDSR 1-ES-139	27 ft 11 CNDSR NORTH SIDE			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 3 - MAIN STEAM DRAINS (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
DRAIN 1-MOV-4076 (62) 12 MSR COLD RHT DRN 1-MS-271	SOUTH SIDE 13 CNDSR UPPER PLATFORM			
DRAIN 1-MOV-4077 (63) 12 MSR COLD RHT DRN 1-MS-270	SOUTH SIDE 13 CNDSR UPPER PLATFORM			
DRAIN 1-MOV-4074 (68) 11 MSR COLD RHT DRN 1-MS-269	SOUTH SIDE 13 CNDSR UPPER PLATFORM			
DRAIN 1-MOV-4073 (69) 11 MSR COLD RHT DRN 1-MS-268	SOUTH SIDE 13 CNDSR UPPER PLATFORM			
DRAIN 1-MOV-3732 (74) 12 MSR 2ND STG DRN TK LC LINE DRN 1-RDV-164	SOUTH END 13 CNDSR LOWER PLATFORM			
ORIFICE BYPASS 1-ES-189 & 1-ES-188 (78) COMMON DRN ISOL FROM 15 FWH TO 13 CNDSR 1-ES-190	SOUTH END 13 CNDSR LOWER PLATFORM			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 3 - MAIN STEAM DRAINS (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
(N/A) 11 HOTWELL DEAERATING ISOL O-AHB-126	12 ft WEST SIDE CNDSR		- - - - - - -	- - - - -
(N/A) 12 HOTWELL DEAERATING ISOL O-AHB-127	12 ft WEST SIDE CNDSR		- - - - - - -	- - - - -
(N/A) 13 HOTWELL DEAERATING ISOL O-AHB-128	12 ft WEST SIDE CNDSR		- - - - - - -	- - - - -

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 4 - HIGH LEVEL DUMP, TURBINE BYPASS, AND MINIFLOW VALVES

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
11 SGFP MINI FLOW 1-CV-4484 (116) 11 SGFP MINI FLOW CNDSR ISOL 1-FW-110	WEST SIDE CNDSR PIT NORTH			
12 SGFP MINI FLOW 1-CV-4485 (102) 12 SGFP MINI FLOW HDR CNDSR ISOL 1-FW-114	WEST SIDE CNDSR PIT SOUTH			
11 MSR DRN TK HLDV 1-CV-3701 (94) STOP 11 MSR DRN TK HI LVL DUMP 13 COND 1-RDV-106	SOUTH END CNDSR PIT LOWER PLATFORM			
11 MSR 1ST STG DRN TNK HLDV 1-CV-3703 (98) STOP 11 1ST STG RHTR DRN TK HI LVL DUMP TO 13 COND 1-RDV-112	SOUTH END CNDSR PIT LOWER PLATFORM			
11 MSR 2ND STG DRN TNK HLDV 1-CV-3705 (96) STOP 11 2ND STG RHTR DRN TK TO 13 COND 1-RDV-118	SOUTH END CNDSR PIT LOWER PLATFORM			
12 MSR DRN TNK HLDV 1-CV-3708 (92) STOP 12 MSR DRN TK TO 13 COND 1-RDV-124	SOUTH END CNDSR PIT LOWER PLATFORM			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 4 - HIGH LEVEL DUMP, TURBINE BYPASS, AND MINIFLOW VALVES (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
12 MSR 1ST STG DRN TNK HLDV 1-CV-3710 (88) STOP 12 1ST STG RHTR DRN TK TO 13 COND 1-RDV-130	SOUTH END CNDSR PIT LOWER PLATFORM			
12 MSR 2ND STG DRN TNK HLDV 1-CV-3712 (90) STOP 12 2ND STG RHTR DRN TO 13 COND 1-RDV-136	SOUTH END CNDSR PIT LOWER PLATFORM			
11A FWH HLDV 1-CV-1447 (47) 11A FWH HI LVL DUMP TO 11 COND 1-HDV-200	12 ft EAST SIDE CNDSR PIT			
11B FWH HLDV 1-CV-1449 (49) 11B FWH H1 LVL DUMP TO 12 COND 1-HDV-206	12 ft EAST SIDE CNDSR PIT			
11C FWH HLDV 1-CV-1451 (51) 11C FWH HI LVL DUMP TO 13 COND 1-HDV-212	12 ft EAST SIDE CNDSR PIT			
12A FWH HLDV 1-CV-1453 (19) 12A FWH HI LVL DUMP TO 11 COND 1-HDV-182	27 ft EAST SIDE			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 4 - HIGH LEVEL DUMP, TURBINE BYPASS, AND MINIFLOW VALVES (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
12B FWH HLDV 1-CV-1455 (23) 12B FWH HI LVL DUMP TO 12 COND 1-HDV-188	27 ft EAST SIDE			
12C FWH HLDV 1-CV-1457 (27) 12C FWH HI LVL DUMP TO 13 COND 1-HDV-194	27 ft EAST SIDE			
13A FWH HLDV 1-CV-1419 (112) 13A FWH HI LVL DUMP TO 11 COND 1-HDV-165	CNDSR PIT WEST SIDE			
13B FWH HLDV 1-CV-1421 (118) 13B FWH HI LVL DUMP TO 11 COND 1-HDV-173	CNDSR PIT WEST SIDE			
15A FWH HLDV 1-CV-1427 (109) 15A FWH HI LVL DUMP TO 12 COND 1-HDV-158	CNDSR PIT WEST SIDE			
15B FWH HLDV 1-CV-1429 (107) 15B FWH HI LVL DUMP TO 12 COND 1-HDV-159	CNDSR PIT WEST SIDE			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 4 - HIGH LEVEL DUMP, TURBINE BYPASS, AND MINIFLOW VALVES (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
16A FWH HLDV 1-CV-1417 (100) 16A FWH HI LVL DUMP TO 13 COND 1-HDV-156	CNDSR PIT WEST SIDE			
16B FWH HLDV 1-CV-1415 (105) 16B FWH HI LVL DUMP TO 13 COND 1-HDV-157	CNDSR PIT WEST SIDE			
11 HTR DRN TK HLDV 1-CV-1468 (114) 11 HDT HI LVL DUMP 1-HDV-144	CNDSR PIT WEST SIDE			
12 HTR DRN TNK HLDV 1-CV-1465 (104) 12 HDT HI LVL DUMP 1-HDV-155	CNDSR PIT WEST SIDE			
TURBINE BYPASS VALVE 1-CV-3940 (7) 1-MS-3940-CV TBV DNSTRM STOP 1-MS-331	27 ft WEST SIDE			
TURBINE BYPASS VALVE 1-CV-3942 (8) 1-MS-3942-CV TBV DNSTRM STOP 1-MS-332	27 ft WEST SIDE			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

TABLE 4 - HIGH LEVEL DUMP, TURBINE BYPASS, AND MINIFLOW VALVES (continued)

COMPONENT MANUAL ISOLATION	LOCATION	°F	IF ISOLATED -date/time- IF UNISOLATED	ΔMW ΔHEAT RATE
TURBINE BYPASS VALVE 1-CV-3944 (11) 1-MS-3944-CV TBV DNSTRM STOP 1-MS-333	27 ft WEST SIDE			
TURBINE BYPASS VALVE 1-CV-3946 (12) 1-MS-3946-CV TBV DNSTRM STOP 1-MS-334	27 ft WEST SIDE			
CONDS PP MINI FLOW 1-CV-4438 (28) OUT STOP TO COND PP MINI FLOW CV 1-CD-147	27 ft EAST SIDE			
CONDS BSTR PP MINI FLOW 1-CV-4486 (15) CCBP MINI FLOW OUT TO 11 CNDSR 1-CD-125	27 ft NORTH END			

PLANT EFFICIENCY DIAGNOSTIC CHECKLIST

DATA SHEET 1 - PLANT EFFICIENCY DIAGNOSTIC (UNIT 1)

The valves listed below have been identified as leaking by. When isolated, plant parameters changed by the amount shown.

VALVE LEAKING BY	CONDITION REPORT #	ΔMW or ΔHEAT RATE

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-101	OPEN	11 SG ATMOS DUMP ISOL	MS PEN RM		OI-12B
1-MS-102	SHUT	BYP VLV 11 S/G MS HDR TO AFW PP TURB	MS PEN RM (HANDWHEEL ON 45 ft)		OI-12B, 32
1-MS-103	----	11 MS HDR TO PP TURB CKV	MS PEN RM		OI-32
1-MS-104	OPEN	12 SG ATMOS DUMP ISOL	MS PEN RM		OI-12B
1-MS-105	SHUT	BYP VLV 12 S/G MS HDR TO AFW PP TURB	MS PEN RM (HANDWHEEL ON 45 ft)		OI-12B, 32
1-MS-106	----	12 MS HDR TO PP TURB CKV	MS PEN RM		OI-32
1-MS-107	LOCKED OPEN	MS INLET 12 AFW PP TURB	AFW PP RM		OI-32
1-MS-108	----	MS INLET CKV 12 AFW PP TURB	AFW PP RM		OI-32
1-MS-109	LOCKED OPEN	MS INLET 11 AFW PP TURB	AFW PP RM		OI-32
1-MS-110	----	MS INLET CKV 11 AFW TURB	AFW PP RM		OI-32

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-111	SHUT (1)	11 MS HDR VENT	27 ft TB U1 SW ABOVE HDR		
1-MS-112	SHUT (1)	12 MS HDR VENT	27 ft TB U1 SW ABOVE HDR		
1-MS-113	SHUT	MS TO 11 SGFP B/U VENT ISOL	12 ft TB U1 E OF 11 HDT OVHD		
1-MS-114	OPEN	1-MS-3946-CV TBV UPSTRM STOP	27 ft TB U1 W OF 1-MS-3946-CV		
1-MS-115	SHUT	1-MS-3946-CV TBV VENT	NEXT TO 1-MS-3946-CV		
1-MS-116	OPEN	1-MS-3944-CV TBV UPSTRM STOP	27 ft W U1 TB W OF 3944-CV		
1-MS-117	SHUT	1-MS-3944-CV TBV VENT	NEXT TO 1-MS-3944-CV		
1-MS-118	OPEN	1-MS-3942-CV TBV UPSTRM STOP	27 ft TB W SIDE CNDSR W 1-MS-3942-CV		
1-MS-119	SHUT	1-MS-3942-CV TBV VENT	NEXT TO 1-MS-3942-CV		
1-MS-120	OPEN	1-MS-3940-CV TBV UPSTRM STOP	27 ft U1 TB W OF CV-3940		

(1) INACCESSABLE, NO VISABLE LEAKAGE WITH HEADER PRESSURIZED

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-121	SHUT	1-MS-3940-CV TBV VENT	AT CV-3940		
1-MS-122	SHUT	MS TO 12 SGFP VENT	12 ft TB ABOVE 12 SGFP		
1-MS-123	SHUT OPEN	STOP MS TO 12 SGFP	E OF 12 SGFP		
1-MS-124	SHUT OPEN	REHEAT STOP TO 12 SGFP	E OF 12 SGFP		
1-MS-125	----	CKV REHEAT TO 12 SGFP	W OF 12 SGFP		
1-MS-126	SHUT	BYP 12 SGFP TURB EXH	27 ft ABOVE 12 SGFP EXH LINE		
1-MS-127	SHUT OPEN	STOP MS TO 11 SGFP	12 ft W SIDE 11 SGFP		
1-MS-128	SHUT OPEN	STOP REHEAT TO 11 SGFP	12 ft W SIDE 11 SGFP		
1-MS-129	----	CKV REHEAT TO 11 SGFP	12 ft W SIDE 11 SGFP		
1-MS-130	SHUT	BYP 11 SGFP TURB EXH	27 ft ABOVE 11 SGFP EXH LINE		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-131	OPEN	REHEAT TO AHB	27 ft W OF 12 CNDSR AT DECK		
1-MS-132	----	CKV REHEAT TO AHB	27 ft W OF 12 CNDSR AT DECK		
1-MS-133	----	1-DR-25 CKV	MN STM PEN RM		OI-32
1-MS-134	----	1-DR-26 CKV	MN STM PEN RM		OI-32
1-MS-137	CRACKED OPEN	THROT/STOP VLV ABOVE SEAT DRN 11 AFW PP TURB	OUTSIDE AFW PP RM E SIDE		OI-32
1-MS-138	CRACKED OPEN	THROT/STOP VLV BELOW SEAT DRN 11 AFW PP TURB	OUTSIDE AFW PP RM E SIDE		OI-32
1-MS-139	CRACKED OPEN	THROT/STOP VLV ABOVE SEAT DRN 12 AFW PP TURB	OUTSIDE AFW PP RM E SIDE		OI-32
1-MS-140	CRACKED OPEN	THROT/STOP VLV BELOW SEAT DRN 12 AFW PP TURB	OUTSIDE AFW PP RM E SIDE		OI-32
1-MS-141	SHUT	1-DR-1 STAND PIPE DRN	E 12 SGFP		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-142	SHUT OPEN	1-DR-1 OUT TO COND STOP	S END 13 CNDSR		
1-MS-143	OPEN SHUT	1-DR-1 OUTLET TO AUX BD TK STOP	W 11 CNDSR S OF S STAIRS		
1-MS-144	SHUT	1-DR-2 STAND PIPE DRN ISOL	W OF SMPL SINK		
1-MS-145	SHUT OPEN	1-DR-2 OUT TO CONDR STOP	SW END 13 CNDSR		
1-MS-146	OPEN SHUT	1-DR-2 OUT TO AUX BD TK STOP	W 11 CNDSR S OF S STAIRS		
1-MS-147	SHUT	1-DR-3 STAND PIPE DRN	W OF EHC		
1-MS-148	SHUT OPEN	1-DR-3 OUT TO COND STOP	SW END 13 CNDSR		
1-MS-149	OPEN SHUT	1-DR-3 OUT TO AUX BD TK STOP	W 11 CNDSR S OF S STAIRS		
1-MS-150	SHUT	1-DR-4 STAND PIPE DRN	W OF EHC		
1-MS-151	SHUT OPEN	1-DR-4 OUT TO COND STOP	SW END 13 CNDSR		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-152	OPEN SHUT	1-DR-4 OUT TO AUX BD TK STOP	W 11 CNDSR S OF S STAIRS		
1-MS-153	SHUT	1-DR-5 STAND PIPE DRN	W WALL W SMPL SINK		OI-12B
1-MS-154	SHUT OPEN	1-DR-5 OUT TO COND STOP	MID S 13 CNDSR		
1-MS-155	OPEN SHUT	1-DR-5 OUT TO AUX BD TK STOP	NW CORNER 11 CNDSR		
1-MS-156	SHUT	1-DR-6 STAND PIPE DRN	BEHIND SMPL SINK		OI-12B
1-MS-157	SHUT OPEN	1-DR-6 OUT TO COND STOP	MID S 13 CNDSR		
1-MS-158	OPEN SHUT	1-DR-6 OUT TO AUX BD TK	NW CORNER 11 CNDSR		
1-MS-159	SHUT	1-DR-7 STAND PIPE DRN	N OF SMPL SINK		
1-MS-160	SHUT OPEN	1-DR-7 OUT TO COND STOP	SW END 13 CNDSR		
1-MS-161	OPEN SHUT	1-DR-7 OUT TO AUX BD TK STOP	NW SIDE 11 CNDSR		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-162	SHUT	DR-8 ORIF BYPASS	AFW PP RM		OI-32
1-MS-163	SHUT OPEN	1-DR-17 OUT TO COND STOP	S 13 CNDSR EDGE 2ND LEVEL DECK		
1-MS-164	SHUT	DR-9 ORIF BYPASS	AFW PP RM		OI-32
1-MS-165	SHUT OPEN	1-DR-18 OUT TO COND STOP	S 13 CNDSR EDGE 2ND LEVEL DECK		
1-MS-166	SHUT OPEN	1-DR-10 OUT TO COND STOP	S END 11 CNDSR W SIDE 8 ft FROM CATWALK		
1-MS-167	OPEN SHUT	1-DR-10 OUT TO AUX BD TK	12 ft TB U1 S OF 5 ft STAIR W 11 CNDSR		
1-MS-168	OPEN SHUT	1-DR-10 FO BYP	12 ft U1 TB W SIDE 11 SGFP		
1-MS-169	SHUT OPEN	1-DR-11 OUT TO COND STOP	N END 13 CNDSR W SIDE 8 ft FROM CATWALK		
1-MS-170	OPEN SHUT	1-DR-11 OUT TO AUX BD TK STOP	12 ft TB U1 S OF 5 ft STAIR W 11 CNDSR		
1-MS-171	OPEN SHUT	1-DR-11 FO BYP	AT MS-123 12 SGFP MS		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-172	SHUT	1-DR-12 STAND PIPE DRN	12 ft TB U1 SW SIDE 12 SGFP		
1-MS-173	OPEN SHUT	1-DR-12 OUT TO AUX BD TK STOP	12 ft TB U1 S OF 5 ft STAIRS W 11 CNDSR		
1-MS-174	SHUT	1-DR-14 STAND PIPE DRN	12 ft TB U1 SW SIDE 11 SGFP		
1-MS-175	OPEN SHUT	1-DR-14 OUT TO AUX BD TK STOP	12 ft TB U1 S OF 5 ft STAIRS W 11 CNDSR		
1-MS-176	SHUT OPEN	1-DR-16 OUT TO COND STOP	S END 11 CNDSR W SIDE 8 ft FROM CATWALK		
1-MS-177	OPEN SHUT	1-DR-16 OUTLET TO AUX BD TK STOP	12 ft TB U1 S OF 5 ft STAIRS W OF CNDSR		
1-MS-178	OPEN SHUT	1-DR-16 FO BYP	W SIDE 11 SGFP		
1-MS-179	OPEN SHUT	1-DR-17 OUT TO AUX BD TK STOP	12 ft TB U1 S OF 5 ft STAIRS W OF 11 CNDSR		
1-MS-180	OPEN SHUT	1-DR-17 FO BYP	U1 STEAM PEN RM		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-181	OPEN SHUT	1-DR-18 OUT TO AUX BD TK STOP	12 ft TB U1 S OF 5 ft STAIRS W OF 11 CNDSR		
1-MS-182	OPEN SHUT	1-DR-18 FO BYP	U1 STM PEN RM		
1-MS-183	SHUT	1-DR-19 STAND PIPE DRN	E OF 11 HDT 12 ft		
1-MS-184	SHUT OPEN	1-DR-19 OUT TO COND	S END 13 CNDSR 2ND LEVEL DECK		
1-MS-185	OPEN SHUT	1-DR-19 OUT TO AUX TK STOP	12 ft TB U1 S OF 5 ft STAIRS W OF 11 CNDSR		
1-MS-186	OPEN SHUT	1-DR-20 OUT TO AUX BD TK STOP	12 ft TB U1 NW 11 SGFP AT EXH		
1-MS-187	SHUT OPEN	1-DR-12 OUT TO COND STOP	NW SIDE CATWALK 13 CNDSR		
1-MS-188	OPEN SHUT	1-DR-21 OUT TO AUX BD TK	12 ft TB U1 SE 12 SGFP AT EXH		
1-MS-189	SHUT OPEN	1-DR-14 OUT TO COND STOP	CATWALK W SIDE 11 CNDSR		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-190	SHUT	1-DR-22 STAND PIPE DRN	12 ft TB U1 E OF 12 SGFP		
1-MS-191	SHUT OPEN	1-DR-22 OUT TO COND STOP	12 ft TB U1 S END 13 CNDSR 2ND LVL DECK		
1-MS-192	OPEN SHUT	1-DR-22 OUT TO AUX BD TK STOP	12 ft TB U1 S OF 5 ft STAIRS W OF 11 CNDSR		
1-MS-193	OPEN SHUT	1-DR-23 OUT TO AUX BD TK STOP	E OF 5 ft STAIRS ABOVE AUX BD TK		
1-MS-194	OPEN SHUT	1-DR-23 FO BYP	U1 STM PEN RM		
1-MS-195	OPEN SHUT	1-DR-24 OUT TO AUX BD TK STOP	BY AUX BD TK		
1-MS-196	OPEN SHUT	1-DR-24 FO BYP	U1 STM PEN RM		
1-MS-197	LOCKED OPEN	11 SGFPT CASING MOIST REMOVAL DRN	DECK CATWALK W 11 CNDSR		
1-MS-198	LOCKED OPEN	12 SGFP CASING MOIST REMOVAL DRN	DECK CATWALK W 13 CNDSR		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-199	SHUT OPEN	1-DR-23 OUT TO COND STOP	N END 11 CNDSR		
1-MS-200	SHUT OPEN	1-DR-24 OUT TO COND STOP	N END 11 CNDSR		
1-MS-201	OPEN	11 2ND STG MSR SUPP LINE DRN	S END 13 CNDSR 2ND LVL		
1-MS-202	OPEN	12 2ND STG MSR SUPP LINE DRN	S END 13 CNDSR 2ND LVL		
1-MS-203	OPEN	MAIN STOP VLVS BEFORE SEAT COMMON DRNS	CNDSR PIT S OF 13 CNDSR ON CATWALK		
1-MS-204	OPEN	SGFPT 11 HP STOP VLV ABOVE SEAT DRN TO COND	CATWALK W 11 CNDSR		
1-MS-205	OPEN	SGFPT 11 HP STOP VLV BELOW SEAT DRN TO COND	CATWALK W 11 CNDSR		
1-MS-206	OPEN	SGFPT 11 LP STOP VLV ABOVE SEAT DRN TO COND	CATWALK W 11 CNDSR		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-207	OPEN	SGFPT 11 LP STOP VLV BELOW SEAT DRN CONT VLV CHEST DRN TO COND	CATWALK W 11 CNDSR		
1-MS-208	OPEN	SGFPT 11 1ST STG EXH DRN ISOL	W CATWALK 2 ft BELOW GRATE UNDER 11 HDT HI LVL DUMP		
1-MS-209	OPEN	SGFPT 12 HP STOP VLV ABOVE SEAT DRN TO COND	W SIDE CATWALK BY S END 13 CNDSR		
1-MS-210	OPEN	SGFPT 12 HP STOP BELOW SEAT DRN TO COND	W SIDE CATWALK BY S END 13 CNDSR		
1-MS-211	OPEN	SGFPT 12 LP STOP VLV ABOVE SEAT DRN TO COND	W SIDE CATWALK BY S END 13 CNDSR		
1-MS-212	OPEN	SGFPT 12 LP STOP VLV BELOW SEAT DRN & CONT VLV CHEST DRN TO COND	W SIDE CATWALK S END 13 CNDSR		
1-MS-213	OPEN	SGFPT 12 1ST STG EXH DRN	CATWALK W SIDE BETW 12 & 13 CNDSR		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-214	OPEN	STM SEAL HDR DRN	S END 13 CNDSR 10 ft ABOVE 2ND LVL		
1-MS-215	OPEN	GLAND EXH HDR DRN	ABOVE 11B AMERTAP PANEL W OF 11 CNDSR		
1-MS-216	LOCKED SHUT	COMB MS SUPP TO AFW PPS DRN ISOL	OUTSIDE 5 ft FAN RM		OI-32
1-MS-217	LOCKED SHUT	COMB MS SUPP TO AFW PPS ISOL	OUTSIDE 5 ft FAN RM		OI-32
1-MS-218	SHUT	11 S/G HDR VENT ISOL	27 ft MSIV RM N WALL		OI-32
1-MS-219	SHUT	11 S/G B/U HDR VENT ISOL	27 ft MSIV RM N WALL		OI-32
1-MS-220	SHUT	12 S/G HDR VENT TO AFW PPS	MN STM PEN RM		OI-32
1-MS-221	SHUT	12 S/G HDR VENT B/U TO AFW PPS	MN STM PEN RM		OI-32
1-MS-222	SHUT	AFW PPS MS HDR WM-UP	NW CORNER MS PEN RM		OI-12B, 32
1-MS-223	SHUT (1)	11 MAIN STM HDR VENT	27 ft ABOVE MS HDR IN TB S OF 12 MSR		

(1) INACCESSABLE, NO VISABLE LEAKAGE WITH HEADER PRESSURIZED

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-224	SHUT (1)	12 MAIN STM HDR VENT	27 ft ABOVE MS HDR IN TB S OF 12 MSR		
1-MS-225	LOCKED SHUT	11 AFW PP MUD LEG DRN ISOL	W SIDE 11 AFW PP		
1-MS-226	SHUT	11 AFW PP MUD LEG ST INLET	W SIDE 11 AFW PP		
1-MS-227	SHUT	11 AFW PP MUD LEG ST OUTLET	W SIDE 11 AFW PP		
1-MS-228	LOCKED SHUT	11 AFW PP MUD LEG ST BYPASS	W SIDE 11 AFW PP		
1-MS-229	SHUT	MS TO SGFP 11 VENT ISOL	12 ft TB U1 E 11 HDT OVHD		
1-MS-230	SHUT	1-MS-3946-CV TBV B/U VENT	AT CV-3946		
1-MS-231	SHUT	1-MS-3944-CV TBV B/U VENT	AT CV-3944		
1-MS-232	SHUT	1-MS-3942-CV TBV B/U VENT	AT CV-3942		
1-MS-233	SHUT	1-MS-3940-CV TBV B/U VENT	AT CV-3940		

(1) INACCESSABLE, NO VISABLE LEAKAGE WITH HEADER PRESSURIZED

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-234	SHUT	B/U VENT MS TO 12 SGFP	27 ft TB W SIDE UNDER GRATING BY 12 CHILLER		
1-MS-235	THROTTLED (2)	DRN 1-MS-4026-RV DRN	27 ft U1 TB W SIDE 12 MSR		
1-MS-236	THROTTLED (2)	DRN 1-MS-4025-RV DRN	27 ft U1 TB W SIDE 12 MSR		
1-MS-237	THROTTLED (2)	DRN 1-MS-4024-RV DRN	27 ft U1 TB W SIDE 12 MSR		
1-MS-238	THROTTLED (2)	DRN 1-MS-4023-RV DRN	27 ft U1 TB E WALL BY 11 MSR		
1-MS-239	THROTTLED (2)	DRN 1-MS-4022-RV DRN	27 ft U1 TB E WALL BY 11 MSR		
1-MS-240	THROTTLED (2)	DRN 1-MS-4021-RV DRN	27 ft U1 TB E WALL BY 11 MSR		
1-MS-241	SHUT	1 MN TURB STOP UPSTREAM VENT ISOL B/U	S SIDE 14 STOP VLV OVHD		
1-MS-242	SHUT	1 MN TURB STOP UPSTREAM VENT ISOL	S SIDE 14 STOP VLV OVHD		

(2) THROTTLED ONE TURN OPEN.

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-243	SHUT	2 MN TURB STOP UPSTREAM VENT ISOL B/U	S SIDE 13 STOP VLV OVHD		
1-MS-244	SHUT	2 MN TURB STOP UPSTREAM VENT	S SIDE 13 STOP VLV OVHD		
1-MS-245	SHUT	3 MN TURB STOP UPSTREAM VENT ISOL B/U	S SIDE 12 STOP VLV OVHD		
1-MS-246	SHUT	3 STOP VLV UPSTREAM VENT ISOL	S SIDE 12 STOP VLV OVHD		
1-MS-247	SHUT	4 STOP VLV UPSTREAM VENT ISOL B/U	S SIDE 11 STOP VLV OVHD		
1-MS-248	SHUT	4 STOP VLV UPSTREAM VENT ISOL	S SIDE 11 STOP VLV OVHD		
1-MS-249	SHUT	11 S/G HDR VENT ISOL	27 ft MSIV RM N WALL		OI-32
1-MS-250	SHUT	11 S/G HDR B/U VENT ISOL	27 ft MSIV RM N WALL		OI-32
1-MS-251	LOCKED OPEN	11 S/G ROOT SUPP TO AFW PPS	27 ft MSIV RM N WALL		OI-32

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-252	----	HOT REHEAT TO PH HOT WTR GEN CKV	12 ft U2 AT PH GEN		INTERNALS REMOVED
1-MS-253	OPEN	HOT REHEAT TO PH HOT WTR GEN STOP	12 ft U2 AT PH GEN		
1-MS-254	LOCKED SHUT	12 AFW PP TURB CASING DRN	AFW PP RM		OI-32
1-MS-255	CRACKED OPEN	12 AFW PP TURB STM DRN	OUTSIDE AFW PP RM E SIDE		OI-32
1-MS-256	OPEN	12 AFW PP TURB EXH LINE DRN	AFW PP RM		OI-32
1-MS-257	LOCKED SHUT	11 AFW PP TURB CASING DRN	AFW PP RM		OI-32
1-MS-258	CRACKED OPEN	11 AFW PP TURB STM DRN	OUTSIDE AFW PP RM E SIDE		OI-32
1-MS-259	OPEN	11 AFW PP TURB EXH LINE DRN	AFW PP RM		OI-32
1-MS-260	OPEN	ISOL MN GLAND SEAL REG	27 ft TB U1 SE 12 MSR		
1-MS-261	OPEN	11 AUX BD TK PP 11 SUCT	NW COND PIT		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-262	OPEN	11 AUX BD TK PP 11 DISCH	NW COND PIT		
1-MS-263	----	11 AUX BD TK PP 11 DISCH CKV	NW COND PIT		
1-MS-264	OPEN	11 AUX BD TK PP 12 SUCT	NW COND PIT		
1-MS-265	OPEN	11 AUX BD TK PP 12 DISCH	NW COND PIT		
1-MS-266	----	11 AUX BD TK PP 12 DISCH CKV	NW COND PIT		
1-MS-267	SHUT	11 AUX BD TK DRN TO CIRC WTR	NW COND PIT		
1-MS-268	OPEN	11 MSR COLD RHT DRN	SW END 13 COND 2ND LVL		
1-MS-269	OPEN	11 MSR COLD RHT DRN	SW END 13 CNDSR 2ND LVL		
1-MS-270	OPEN	12 MSR COLD RHT DRN	SW END 13 CNDSR 2ND LVL		
1-MS-271	OPEN	12 MSR COLD RHT DRN	SW END 13 CNDSR 2ND LVL		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-272	OPEN	11 AFW PP TURB EXH LINE DRN	AFW PP RM		OI-32
1-MS-273	SHUT	11 S/G EQ ISOL TO AFW PPS	27 ft MSIV RM N WALL		OI-32
1-MS-274	LOCKED SHUT	12 AFW PP MUD LEG DRN ISOL	W SIDE 12 AFW PP		OI-32
1-MS-275	SHUT	12 AFW PP MUD LEG ST INLET	W SIDE 12 AFW PP		OI-32
1-MS-276	SHUT	12 AFW PP MUD LEG ST OUTLET	W SIDE 12 AFW PP		OI-32
1-MS-277	LOCKED SHUT	12 AFW PP MUD LEG ST BYPASS	W SIDE 12 AFW PP		OI-32
1-MS-278	SHUT	AUX BD PPS SUCT DRN	5 ft TB U1 AT AUX BD PPS		
1-MS-279	LOCKED OPEN	11 SGFPT EXH HOOD DRN	5 ft TB U1 STAIRS N SIDE 2ND LVL		
1-MS-280	LOCKED OPEN	12 SGFPT EXH HOOD DRN	AT LADDER S END 13 CNDSR		
1-MS-281	SHUT	11 AUX BD TK VENT	NW CNDSR PIT TOP OF AUX BD TK		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-282	LOCKED OPEN	11 S/G-SUPP TO COMB HDR TO AFW PPS	45 ft MSIV RM		OI-32
1-MS-285	SHUT	11 MSR 2ND STG VENT	27 ft U1 TB NW SIDE GS		
1-MS-286	SHUT	11 MSR 2ND STG B/U VENT	27 ft U1 TB NW SIDE GS		
1-MS-287	SHUT	12 MSR 2ND STG VENT	27 ft U1 TB W SIDE SUPP LINE 2ND STG		
1-MS-288	SHUT	12 MSR 2ND STG B/U VENT	27 ft U1 TB W SIDE SUPP LINE 2ND STG		
1-MS-289	SHUT	TBV HDR DRN ISOL	12 ft U1 TB E OF 12 SGFP		
1-MS-290	SHUT	TBV HDR DRN	12 ft U1 TB E OF 12 SGFP		
1-MS-291	SHUT	RHT TO 12 SGFPT VENT	12 ft U1 TB SW UNDER SUPP LINE SW 12 SGFP		
1-MS-292	SHUT	1-DR-1 STAND PIPE B/U DRN	E 12 SGFP		
1-MS-293	SHUT	1-DR-2 STAND PIPE DRN B/U	W OF SMPL SINK		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-294	SHUT	1-DR-3 STAND PIPE DRN B/U	W OF EHC		
1-MS-295	SHUT	1-DR-4 STAND PIPE DRN B/U	W OF EHC		
1-MS-296	LOCKED SHUT	1-DR-5 STAND PIPE VENT	27' TB SW CORNER		OI-12B
1-MS-297	LOCKED SHUT	1-DR-5 STAND PIPE VENT B/U	27' TB SW CORNER		OI-12B
1-MS-298	SHUT	1-DR-5 STAND PIPE DRN B/U	W WALL W SMPL SINK		
1-MS-299	LOCKED SHUT	1-DR-6 STAND PIPE VENT	27' TB SW CORNER		OI-12B
1-MS-300	LOCKED SHUT	1-DR-6 STAND PIPE VENT B/U	27' TB SW CORNER		OI-12B
1-MS-301	SHUT	1-DR-6 STAND PIPE DRN B/U	BEHIND SMPL SINK		
1-MS-302	SHUT	1-DR-7 STAND PIPE DRN B/U	N SMPL SINK		
1-MS-303	OPEN	DR-8 THROT VLV TO AUX BD TK	12 ft TURB N END OF CNDSR		OI-32

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-304	OPEN	DR-9 THROT VLV TO AUX BD TK	12 ft TURB N END OF CNDSR		OI-32
1-MS-305	SHUT	DR-25/26 ORIF BYP	MN STM PEN RM		OI-32
1-MS-306	OPEN	DR-25/26 THROT VLV TO AUX BD TK	12 ft TB N END OF CNDSR		OI-32
1-MS-307	SHUT	1-DR-19 PIPE B/U DRN	12 ft E 11 HDT		
1-MS-308	OPEN	1-DR-20 TO AUX BD TK B/U ISOL	N OF 5 ft STAIRS W OF 11 CNDSR		
1-MS-309	OPEN	1-DR-21 TO AUX BD TK B/U ISOL	S OF 5 ft STAIRS E OF 11 CNDSR		
1-MS-310	SHUT	1-DR-22 STAND PIPE B/U DRN	E OF 12 SGFP		
1-MS-311	SHUT	11 SGFPT HP STOP ABOVE SEAT DRN LINE DRN	CATWALK E SIDE NW END 11 CNDSR		
1-MS-312	SHUT	11 SGFPT HP STOP BELOW SEAT DRN LINE DRN	CATWALK E SIDE NW END 11 CNDSR		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-313	SHUT	11 SGFPT LP STOP ABOVE SEAT DRN LINE DRN	CATWALK E SIDE NW END 11 CNDSR		
1-MS-314	SHUT	11 SGFPT LP STOP BELOW SEAT DRN & CONT VLV CHEST DRN LINE DRN	CATWALK E SIDE NW END 11 CNDSR		
1-MS-315	SHUT	12 SGFPT HP STOP ABOVE SEAT DRN LINE DRN	CATWALK E SIDE SW END 13 CNDSR		
1-MS-316	SHUT	12 SGFPT HP STOP BELOW SEAT DRN LINE DRN	CATWALK E SIDE SW END 13 CNDSR		
1-MS-317	SHUT	12 SGFPT LP STOP ABOVE SEAT DRN LINE DRN	CATWALK E SIDE SW END 13 CNDSR		
1-MS-318	SHUT	12 SGFPT LP STOP BELOW SEAT DRN & CONT VLV CHEST DRN LINE DRN	CATWALK E SIDE SW END 13 CNDSR		
1-MS-323	----	3 COMBINED INTERCEPT VLV (CIV) PACKING L/O CKV	W BELOW CIV		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-324	----	3 CIV PACKING L/O CKV	W BELOW CIV		
1-MS-325	----	4 CIV PACKING L/O CKV	E BELOW CIV		
1-MS-326	----	4 CIV PACKING L/O CKV	E BELOW CIV		
1-MS-327	----	5 CIV PACKING L/O CKV	E BELOW CIV		
1-MS-328	----	5 CIV PACKING L/O CKV	E BELOW CIV		
1-MS-329	----	6 CIV PACKING L/O CKV	E BELOW CIV		
1-MS-330	----	6 CIV PACKING L/O CKV	E BELOW CIV		
1-MS-331	OPEN	1-MS-3940-CV TBV DNSTRM STOP	27 ft U1 TB E OF TBVs		
1-MS-332	OPEN	1-MS-3942-CV TBV DNSTRM STOP	27 ft U1 TB E OF TBVs		
1-MS-333	LOCKED OPEN	1-MS-3944-CV TBV DNSTRM STOP	27 ft U1 TB E OF TBVs		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-334	OPEN	1-MS-3946-CV TBV DNSTRM STOP	27 ft U1 TB E OF TBVs		
1-MS-335	OPEN	COMB MS SUPP TO AFW PPS DRN ISOL	OUTSIDE 5 ft FAN RM		OI-32
1-MS-336	LOCKED OPEN	ROOT SUPP 12 S/G TO AFW PPS	27 ft MSIV RM N WALL		OI-32
1-MS-337	SHUT	EQ ISOL 12 S/G HDR TO AFW PPS	27 ft MSIV RM N WALL		OI-32
1-MS-338	LOCKED OPEN	12 S/G SUPP TO COMB HDR TO AFW PPS	45 ft MSIV RM		OI-32
1-MS-339	OPEN	COMB MS SUPP TO AFW PPS DRN ISOL	OUTSIDE 5 ft FAN RM		OI-32
1-MS-340	SHUT	TEST CONN 12 S/G HDR TO AFW PPS	27 ft MSIV RM N WALL		OI-32
1-MS-341	SHUT	B/U TEST CONN 12 S/G HDR TO AFW PPS	27 ft MSIV RM N WALL		OI-32
1-MS-342	SHUT	VENT ISOL FOR 1-DR-5 & 1-DR-6	27' TB SW CORNER		OI-12B
1-MS-360	----	1 CIV PACKING L/O CKV	W BELOW CIV		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-361	----	2 CIV PACKING 40 CKV	W BELOW CIV		
1-MS-383	THROTTLED (2)	HYD PP BYP ISOL	ON 1-MS-3940-TBV		
1-MS-384	THROTTLED (2)	HYD PP BYP ISOL	ON 1-MS-3942-TBV		
1-MS-385	THROTTLED (2)	HYD PP BYP ISOL	ON 1-MS-3944-TBV		
1-MS-386	THROTTLED (2)	HYD PP BYP ISOL	ON 1-MS-3946-TBV		
1-MS-500	OPEN	11 AFW PP TURB INSIDE STM RING DRN ISOL	AFW PP RM		OI-32
1-MS-501	LOCKED SHUT	11 AFW PP TURB INSIDE STM RING DRN	AFW PP RM		OI-32
1-MS-502	LOCKED SHUT	11 AFW PP TURB INSIDE ABOVE SEAT DRN	AFW PP RM		OI-32
1-MS-503	LOCKED SHUT	11 AFW PP TURB INSIDE BELOW SEAT DRN	AFW PP RM		OI-32
1-MS-504	OPEN	12 AFW PP TURB INSIDE STM RING DRN ISOL	AFW PP RM		OI-32

(2) THROTTLED ONE TURN OPEN.

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-505	LOCKED SHUT	12 AFW PP TURB INSIDE STM RING DRN	AFW PP RM		OI-32
1-MS-506	LOCKED SHUT	12 AFW PP TURB INSIDE ABOVE SEAT DRN	AFW PP RM		OI-32
1-MS-507	LOCKED SHUT	12 AFW PP TURB INSIDE BELOW SEAT DRN	AFW PP RM		OI-32
1-MS-569	OPEN	FO 6601 DNSTRM ISOL	12 ft U1 TB W EHC		
1-MS-570	OPEN	FO 6601 UPSTREAM B/U ISOL	12 ft U1 TB W EHC		
1-MS-571	OPEN	FO 6601 UPSTRM ISOL	12 ft U1 TB W EHC		
1-MS-572	OPEN	FO 6602 DNSTRM ISOL	12 ft U1 TB W EHC		
1-MS-573	OPEN	FO 6602 UPSTRM ISOL	12 ft U1 TB W EHC		
1-MS-574	OPEN	FO 6602 UPSTRM B/U ISOL	12 ft U1 TB W EHC		
1-MS-600	OPEN	6 CIV PACKING L/O DRN ISOL	27 ft NE 11 CNDSR		
1-MS-601	----	1 CIV PACKING L/O CKV	UNDER 4 CIV		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-602	----	2 CIV PACKING L/O CKV	UNDER 5 CIV		
1-MS-603	SHUT	DRN REHEAT TO PH	UNDER PIPE FROM MS-131		
1-MS-604	SHUT	DRN SGFP 11 EXH	UNDER EXH		
1-MS-605	SHUT	DRN SGFP 12 EXH	UNDER EXH		
1-MS-606	SHUT	MSR 11 DRN TK VENT	TOP OF LINE 27 ft E		
1-MS-607	SHUT	MSR 12 DRN TK VENT	TOP OF LINE 27 ft W		
1-MS-608	OPEN	GE DRN SGFP ISOL	BEHIND 12 CAR		
1-MS-609	SHUT	1-MS-4713-YS DRN	BEHIND 12 CAR		
1-MS-610	SHUT	1-MS-3940-CV DNSTRM HDR TEST CONX	UNDER 27 ft GRATING DNSTRM SIDE CVs		
1-MS-611	SHUT	1-MS-3940-CV DNSTRM HDR TEST CONX	UNDER 27 ft GRATING DNSTRM SIDE CVs		
1-MS-612	SHUT	1-MS-3942-CV DNSTRM HDR TEST CONX	UNDER 27 ft GRATING DNSTRM SIDE CVs		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-613	SHUT	1-MS-3942-CV DNSTRM HDR TEST CONX	UNDER 27 ft GRATING DNSTRM SIDE CVs		
1-MS-614	SHUT	1-MS-3944-CV DNSTRM HDR TEST CONX	UNDER 27 ft GRATING DNSTRM SIDE CVs		
1-MS-615	SHUT	1-MS-3944-CV DNSTRM HDR TEST CONX	UNDER 27 ft GRATING DNSTRM SIDE CVs		
1-MS-616	SHUT	1-MS-3946-CV DNSTRM HDR TEST CONX	UNDER 27 ft GRATING DNSTRM SIDE CVs		
1-MS-617	SHUT	1-MS-3946-CV DNSTRM HDR TEST CONX	UNDER 27 ft GRATING DNSTRM SIDE CVs		
1-MS-618	----	11 MISCELLANEOUS DRAIN TANK COLD REHEAT STEAM INLET CHECK VALVE	TB PIT WEST SIDE OF TANK		
1-MS-619	SHUT (5)	11 MISCELLANEOUS DRAIN TANK COLD REHEAT STEAM INLET B/U ISOLATION VALVE	TB PIT WEST SIDE OF TANK		

(5) MAY BE THROTTLED WHEN SPARGING MISC DRN TK

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-620	OPEN	MS DRN 1-DR-25 OUTLET ISOL VALVE	MAIN STEAM PEN ROOM		
1-MS-621	OPEN	MS DRN 1-DR-26 OUTLET ISOL VALVE	MAIN STEAM PEN ROOM		
1-MS-1004A	OPEN	3988-PI B/U & 3989-PT ROOT	ON STM SUPP HDR		OI-32
1-MS-1005A	OPEN	3988-PI & 3989-PT ROOT	ON STM SUPP HDR		OI-32
1-MS-1032	SHUT	CAPPED CONX ISOL	ON STM INLET TO 11 AFW PP		OI-32
1-MS-1033	SHUT	CAPPED CONX ISOL	ON STM INLET TO 11 AFW PP		OI-32
1-MS-1037	SHUT	CAPPED CONX ISOL	ON STM INLET TO 12 AFW PP		OI-32
1-MS-1038	SHUT	CAPPED CONX ISOL	ON STM INLET TO 12 AFW PP		OI-32
1-MS-1045	SHUT	1-MS-4021 FT HP ROOT	SW END OF MSR 11		
1-MS-1047	SHUT	12 MSR 1ST STG STM SUPP TEST CONX	SW END OF MSR 12		

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1048	SHUT	1-MS-4021 FT LP ROOT	SW END OF MSR 11		
1-MS-1053	OPEN	1-MS-4021 PI ROOT	SW END OF MSR 11		
1-MS-1054	SHUT	1-MS-4025 FT HP ROOT	SW END OF MSR 12		
1-MS-1056	SHUT	1-MS-4025 FT LP ROOT B/U	SW END OF MSR 12		
1-MS-1057	SHUT	1-MS-4025 FT LP ROOT	SW END OF MSR 12		
1-MS-1061	OPEN	1-MS-4025 PI ROOT	SW END OF MSR 12		
1-MS-1063	SHUT	1-MS-4020 FT HP ROOT	SE END OF MSR 11		
1-MS-1064	SHUT	11 MSR 1ST STG STM SUPP TEST CONX	SW END OF 11 MSR		
1-MS-1065	SHUT	1-MS-4020 FT LP ROOT	SE END OF MSR 11		
1-MS-1066	SHUT	1-MS-4020 FT LP ROOT B/U	SE END OF MSR 11		
1-MS-1070	OPEN	1-MS-4020 PI ROOT	SE NEAR 11 MSR		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1071	OPEN	1-MS-4020 PI ROOT B/U	SE NEAR 11 MSR		
1-MS-1074	OPEN	1-MS-4019 PT ROOT	SE NEAR 11 MSR		
1-MS-1077	SHUT	1-MS-4024 FT HP ROOT	SW NEAR 12 MSR		
1-MS-1078	SHUT	1-MS-4024 FT LP ROOT B/U	SW NEAR 12 MSR		
1-MS-1079	SHUT	1-MS-4024 FT LP ROOT	SW NEAR 12 MSR		
1-MS-1083	OPEN	1-MS-4024 PI ROOT	SW NEAR 12 MSR		
1-MS-1085	OPEN	1-MS-4023 PT ROOT	SW NEAR 12 MSR		
1-MS-1088	OPEN	1-MS-4050 PI, 4056 PT & 4050 PP ROOT	SW OF EHC UNIT		
1-MS-1089	OPEN	1-MS-4050 PI, 4056 PT & 4050 PP ROOT B/U	SW OF EHC UNIT		
1-MS-1092	SHUT	1-MS-4050 PP ISOL	SW OF EHC UNIT		
1-MS-1093	SHUT	1-MS-4050 PP ISOL	SW OF EHC UNIT		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1094	OPEN	1-MS-4049 PI & 4049 PP ROOT	BY EHC		
1-MS-1095	OPEN	1-MS-4049 PI & 4049 PP ROOT B/U	BY EHC		
1-MS-1097	SHUT	1-MS-4049 PP ISOL	BY EHC		
1-MS-1098	SHUT	1-MS-4049 PP ISOL	BY EHC		
1-MS-1099	OPEN (3)	1-MS-3958 PS & 1-MS-3957 PT ROOT	UNDER HP TURBINE CASING		
1-MS-1100	OPEN	1-MS-3958 PS ROOT	W OF 15 FWH EXT BTVs		
1-MS-1101	OPEN	1-MS-3957 PT ROOT	W OF 15 FWH EXT BTVs		
1-MS-1108	OPEN (4)	1-MS-4040 PT ROOT	UNDER HP TURBINE CASING		
1-MS-1110	OPEN	1-MS-4040 PT ROOT	E OF 15 FWH EXT BTVs		
1-MS-1117	OPEN	1-MS-4022 PI ROOT	W SIDE 11 MSR		
1-MS-1119	OPEN	1-MS-4026 PI ROOT	E SIDE 12 MSR		
1-MS-1121	OPEN	1-MS-3991 PT ROOT	NEXT TO 11 MSIV		

(3) INACCESSABLE, VERIFY MAIN CONDENSER VACUUM IS FORMED BY CRACKING 1-MS-1104 AND 1-MS-1105
(4) INACCESSABLE, VERIFY MAIN CONDENSER VACUUM IS FORMED BY CRACKING 1-MS-1114 AND 1-MS-1113

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1122	OPEN	1-MS-3991 PT ROOT	NEXT TO 11 MSIV		
1-MS-1125	SHUT	1-MS-3991 PP ISOL	MS PEN RM E 11 MSIV		
1-MS-1126	SHUT	1-MS-3991 PP ISOL	MS PEN RM E 11 MSIV		
1-MS-1127	OPEN	1-MS-4008 PT ROOT	NEXT TO MSIV 12		
1-MS-1128	OPEN	1-MS-4008 PT ROOT	NEXT TO MSIV 12		
1-MS-1131	SHUT	1-MS-4008 PP ISOL	MS PEN RM E 11 MSIV		
1-MS-1132	SHUT	1-MS-4008 PP ISOL	MS PEN RM E 11 MSIV		
1-MS-1133	OPEN	1-MS-3965-1 FT HP ROOT	ABOVE 11 HDT		
1-MS-1134	OPEN	1-MS-3965-1 FT LP ROOT	ABOVE 11 HDT		
1-MS-1141	OPEN	1-MS-3966-1 FT LP ROOT	ABOVE 12 HDT		
1-MS-1142	OPEN	1-MS-3966-1 FT HP ROOT	ABOVE 12 HDT		
1-MS-1149	OPEN	1-MS-3958 FT LP ROOT	SW SIDE 11 SGFP		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1150	OPEN	1-MS-3958 FT LP B/U ROOT	SW SIDE 11 SGFP		
1-MS-1151	OPEN	1-MS-3958 FT HP ROOT	SW SIDE 11 SGFP		
1-MS-1152	OPEN	1-MS-3958 FT HP B/U ROOT	SW SIDE 11 SGFP		
1-MS-1162	OPEN	1-MS-3973 FT LP ROOT	SE SIDE 12 SGFP		
1-MS-1163	OPEN	1-MS-3973 FT LP B/U ROOT	SE SIDE 12 SGFP		
1-MS-1164	OPEN	1-MS-3973 FT HP ROOT	SE SIDE 12 SGFP		
1-MS-1165	OPEN	1-MS-3973 FT HP B/U ROOT	SE SIDE 12 SGFP		
1-MS-1198	OPEN	1-MS-4911 LS & LG LWR ROOT 12 SGFP TURB	E SIDE 12 SGFP		
1-MS-1199	OPEN	1-MS-4711 LS LG UPR ROOT 12 SGFP TURB	E SIDE 12 SGFP		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1208	OPEN	1-MS-4705 LG & LS LWR ROOT; 11 SGFP	N SIDE 11 SGFP		
1-MS-1209	OPEN	1-MS-4708 LG & LS UPR ROOT 11 SGFP	E SIDE 11 SGFP		
1-MS-1218	OPEN (4)	1-MS-4039-PT ROOT	UNDER HP TURB		
1-MS-1221	OPEN	1-MS-3952-PT ROOT	BESIDE 1 STOP VALVE		
1-MS-1228	OPEN	1-MS-4059 & 4066 PT'S ROOT	27 ft W TB OFF OF MSR SW COLD RHT LINE		
1-MS-1229	OPEN	1-MS-4055A,B,C PT ROOT	27 ft U1 SW OF 15B BTV		
1-MS-1233	SHUT	1-MS-4022 SX ROOT	UNDER COLD RHT TO 11 MSR		
1-MS-1234	SHUT	1-MS-4022 SX ISOL	UNDER COLD RHT TO 11 MSR		
1-MS-1235	SHUT	1-MS-4023 SX ROOT	UNDER COLD RHT TO 11 MSR		
1-MS-1236	SHUT	1-MS-4023 SX ISOL	UNDER COLD RHT TO 11 MSR		

(4) INACCESSABLE, VERIFY MAIN CONDENSER VACUUM IS FORMED BY CRACKING 1-MS-1220

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1237	SHUT	1-MS-4026 SX ROOT	UNDER COLD RHT TO 12 MSR		
1-MS-1238	SHUT	1-MS-4026 SX ISOL	UNDER COLD RHT TO 12 MSR		
1-MS-1239	SHUT (5)	COLD REHEAT STEAM SUPPLY TO 11 MISCELLANEOUS DRAIN TANK AND 1-SX-4027 ISOLATION VALVE	TB PIT WEST OF MISC DRN TK		
1-MS-1240	SHUT (5)	COLD REHEAT STEAM SUPPLY TO 11 MISCELLANEOUS DRAIN TANK AND 1-SX-4027 ROOT VALVE	TB PIT WEST OF MISC DRN TK		
1-MS-1251	SHUT	1-MS-6601 LS UPR ROOT B/U	SW EHC PKG		
1-MS-1253	SHUT	1-MS-6601 LS LWR ROOT B/U	SW EHC PKG		
1-MS-1261	OPEN	1-MS-6602 LS UPR ROOT B/U	W OF EHC E-112		

(5) MAY BE OPEN WHEN SPARGING MISC DRN TK

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1263	OPEN	1-MS-6602 LS LWR ROOT B/U	W OF EHC E-112		
1-MS-1267	OPEN	1-MS-6600 LS UPR ROOT	W OF U1 SMPL SINK		
1-MS-1269	OPEN	1-MS-6600 LS LWR ROOT	W OF U1 SMPL SINK		
1-MS-1273	OPEN	1-MS-6603 LS UPR ROOT	W OF U1 SMPL SINK		OI-12B
1-MS-1275	OPEN	1-MS-6603 LS LWR ROOT	W OF U1 SMPL SINK		OI-12B
1-MS-1279	OPEN	1-MS-6604 LS UPR ROOT	W U1 SMPL SINK		
1-MS-1281	OPEN	1 MS 6604 LS LWR ROOT	W U1 SMPL SINK		OI-12B
1-MS-1285	OPEN	1-MS-6605 LS UPR ROOT	N U1 SMPL SINK		
1-MS-1287	OPEN	1-MS-6605 LS LWR ROOT	N U1 SMPL SINK		
1-MS-1292	OPEN	1-MS-6606 LS UPR ROOT	E 12 SGFP		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1293	OPEN	1-MS-6606 LS LWR ROOT	E 12 SGFP		
1-MS-1297	OPEN	1-MS-6607 LS UPR ROOT	E 11 SGFP		
1-MS-1299	OPEN	1-MS-6607 LS LWR ROOT	E 11 SGFP		
1-MS-1303	OPEN	1-MS-6608 LS UPR ROOT	E 11 SGFP		
1-MS-1306	OPEN	1-MS-6608 LS LWR ISOL	E 11 SGFP		
1-MS-1309	OPEN	1-MS-6609 LS LWR ROOT	NW ABOVE 11 SGFP		
1-MS-1310	OPEN	1-MS-6609 LS UPR ROOT	NW ABOVE 11 SGFP		
1-MS-1313	OPEN	1-MS-6610 LS LWR ROOT	SW ABOVE 12 SGFP		
1-MS-1314	OPEN	1-MS-6610 LS UPR ROOT	SW ABOVE 12 SGFP		
1-MS-1317	OPEN	1-MS-6640 LS UPR ROOT	5 ft ON AUX BD TK		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1318	OPEN	1-MS-6640 LS LWR ROOT	5 ft ON AUX BD TK		
1-MS-1321	OPEN	1-MS-6641 LS UPR ROOT	5 ft ON AUX BD TK		
1-MS-1322	OPEN	1-MS-6641 LS LWR ROOT	5 ft ON AUX BD TK		
1-MS-1325	OPEN	1-MS-6642 LG LWR ROOT	5 ft ON AUX BD TK		
1-MS-1326	OPEN	1-MS-6642 LG UPR ROOT	5 ft ON AUX BD TK		
1-MS-1329	OPEN	1-MS-6643 PI ROOT	ABOVE AUX BD PP		
1-MS-1331	OPEN	1-MS-6644 PI ROOT	ABOVE AUX BD PP		
1-MS-1333	SHUT	MS HDR TO 11 SGFP TURB VENT	ON MS SUPP HDR OVHD 11 SGFP TURB		
1-MS-1334	SHUT	MS HDR TO 11 SGFP TURB VENT B/U	ON MS SUPP HDR OVHD 11 SGFP TURB		
1-MS-1335	OPEN	1-MS-4024 PT ROOT	PLATFORM DNSTREAM 2ND STG STM CV FOR 12 MSR		
1-MS-1336	SHUT	12 MSR TEST CONX	E SIDE 12 MSR TK		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1337	SHUT	12 MSR TEST CONX	E SIDE 12 MSR TK		
1-MS-1338	OPEN	1-MS-4033 PI ROOT	AT TURB SKIRT		
1-MS-1340	SHUT	1-MS-3945 PP ROOT	AT TURB SKIRT		
1-MS-1341	OPEN	1-MS-4035 PI ROOT	AT TURB SKIRT		
1-MS-1342	OPEN	1-MS-4035 PI ISOL	AT TURB SKIRT		
1-MS-1343	OPEN	1-MS-4037 PI; 4026 PS & 4025 PS ROOT	AT TURB SKIRT		
1-MS-1345	SHUT	11 MSR TEST CONN	W SIDE 11 MSR TK		
1-MS-1346	SHUT	11 MSR TEST CONN	E SIDE 11 MSR TK		
1-MS-1347	SHUT	11 MSR TEST CONN	E SIDE 11 MSR TK		
1-MS-1348	SHUT	12 MSR TEST CONN	W SIDE 12 MSR TK		
1-MS-1349	SHUT	12 MSR TEST CONN	W SIDE 12 MSR TK		
1-MS-1350	SHUT	12 MSR TEST CONN	W SIDE 12 MSR TK		
1-MS-1351	SHUT	12 MSR TEST CONN	W SIDE 12 MSR TK		
1-MS-1352	SHUT	12 MSR TEST CONN	E SIDE 12 MSR TK		
1-MS-1353	SHUT	12 MSR TEST CONN	E SIDE 12 MSR TK		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1354	SHUT	12 MSR TEST CONN	E SIDE 12 MSR TK		
1-MS-1355	SHUT	12 MSR TEST CONN	E SIDE 12 MSR TK		
1-MS-1356	SHUT	1-MS-4028-PP ISOL	27 ft OVHD TURB BYPASS CV-3946		
1-MS-1357	SHUT	1-MS-4028-PP ISOL	27 ft ON STANCHION NEAR 11 HTR DRN PP COOLER UNIT		
1-MS-1358	SHUT	1-MS-4030-PP ISOL	27 ft OVHD 12 SGFP EXH LINE		
1-MS-1359	SHUT	1-MS-4030-PP ISOL	27 ft ON STANCHION S OF 12 SGFP EXH LINE		
1-MS-1360	SHUT	1-MS-4032-PP ROOT	27 ft OVHD STEPS BY NW CORNER 12 MSR		
1-MS-1361	SHUT	1-MS-4032-PP ISOL	27 ft ON STANCHION S OF 12 SGFP EXH LINE		
1-MS-1362	OPEN	HDR ISOL-HOT REHEAT TO PP 4032	27 ft OVHD 12 SGFP EXH LINE		
1-MS-1365	SHUT	1-MS-4033-PP ROOT	27 ft IN OVHD & 8 ft E OF 11B FW HTR		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1366	SHUT	1-MS-4033-PP ISOL	27 ft ON STANCHION E OF 12 CNDSR		
1-MS-1367	SHUT	1-MS-4035-PP ROOT	27 ft IN OVHD & E OF 12C FW HTR		
1-MS-1368	SHUT	1-MS-4035-PP ISOL	27 ft W OF MINI FLOW ISOL TO 13 CNDSR		
1-MS-1369	SHUT	1-MS-4037-PP ROOT	27 ft OVHD STAIRS NW CORNER OF 11 MSR		
1-MS-1370	SHUT	1-MS-4037-PP ISOL	27 ft W OF MINI FLOW ISOL TO 13 CNDSR		
1-MS-1371	OPEN	1-MS-4062-PT ROOT	27 ft OVHD & E OF 12 FW HTR		
1-MS-1373	SHUT	11 MSR TEST CONX	27 ft ON STANCHION E OF 12 CNDSR		
1-MS-1375	OPEN	1-MS-3961-PI ROOT	ON AUX STM HEADER TO 11 SGFP		
1-MS-1377	SHUT	1-MS-3980-PP ROOT	AT 12 SGFP		
1-MS-1378	SHUT	1-MS-3980-PP ISOL	AT 12 SGFP		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1379	OPEN	1-MS-3980-PI ROOT	ON TOP AUX STM HDR TO 12 SGFP		
1-MS-1381	SHUT	1-MS-3944-PP ROOT	AT TURB SKIRT		
1-MS-1382	SHUT	1-MS-3944-PP ISOL	AT TURB SKIRT		
1-MS-1383	SHUT	1-MS-3961-PP ROOT	DNSTREAM REHEAT ISO TO 11 SGFP		
1-MS-1384	SHUT	1-MS-3961-PP ISOL	DNSTREAM REHEAT ISO TO 11 SGFP		
1-MS-1385	OPEN	1-MS-4061-PT ROOT	27 ft BY HP TURB STOP VLV 4		
1-MS-1390	OPEN	1-MS-4020 PT ROOT	ON PLATFORM BELOW 45 ft BY 11 MSR 2ND STG CV		
1-MS-1430	OPEN	1-MS-4054-PT ROOT	27 ft BY #4 HP TURB STOP VLV		
1-MS-1433	OPEN	1-MS-4021 PT ROOT	27 ft E SIDE OF 11 MSR		
1-MS-1442	LOCKED OPEN	11 STEAM GENERATOR FEED PUMP LOW VACUUM TRIP PANEL 1ND5000 ROOT VALVE	W SIDE 11 SGFP		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1443	LOCKED OPEN	12 STEAM GENERATOR FEED PUMP LOW VACUUM TRIP PANEL 1ND5050 ROOT VALVE	E SIDE 12 SGFP		
1-MS-1444	SHUT	AUX BLOWDOWN TANK SAMPLE VALVE	UNDER AUX BLOWDOWN TANK		
1-MS-1445	SHUT	INSTRUMENT TUBING ISOL VLV ON MSR 11 SHELL VENT	NORTH END MSR 11		
1-MS-1446	SHUT	INSTRUMENT TUBING ISOL VLV ON MSR 11 SHELL VENT	NORTH END MSR 11		
1-MS-1447	SHUT	INSTRUMENT TUBING ISOL VLV ON MSR 11 SHELL VENT	NORTH END MSR 11		
1-MS-1448	SHUT	INSTRUMENT TUBING ISOL VLV ON MSR 11 SHELL VENT	NORTH END MSR 11		
1-MS-1449	SHUT	INSTRUMENT TUBING ISOL VLV ON MSR 11 SHELL VENT	NORTH END MSR 11		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1450	SHUT	INSTRUMENT TUBING ISOL VLV ON MSR 11 SHELL VENT	NORTH END MSR 11		
1-MS-2314-CV	OPEN SHUT	13 STEAM LEAD DR	W OF SGFP SEAL BOOSTER PUMPS		
1-MS-2315-CV	OPEN SHUT	11 STEAM LEAD DR	W OF SGFP SEAL BOOSTER PUMPS		
1-MS-3938-CV	SHUT	STM GEN 11 ATMOS DUMP VLV	45 ft AB N		
1-MS-3938-SV	----	STM GEN 11 ATMOS DUMP QUICK OPEN SV	45 ft AB		
1-MS-3938A-HV	OPEN TO 1-I/P-3938	AUX S/D CONTROL X-FER HV	45 ft SWGR RM W WALL		
1-MS-3938B-HV	OPEN TO 1-MS-3938-SV	QUICK OPEN OR HV	45 ft SWGR RM W WALL		
1-MS-3939-CV	SHUT	STM GEN 12 ATMOS DUMP VLV	45 ft AB		
1-MS-3939-SV	----	STM GEN 12 ATMOS DUMP QUICK OPEN SV	45 ft AB		
1-MS-3939A-HV	OPEN TO 1-I/P-3939	AUX S/D CONTROL X-FER HV	45 ft SWGR RM W WALL		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-3938B-HV	OPEN TO 1-MS-3939-SV	QUICK OPEN OR HV	45 ft SWGR RM W WALL		
1-MS-3940-HV	AUTO	AUTO/MANUAL HAND VALVE	ON 1-MS-3940-TBV		
1-MS-3940-CV	SHUT	TURB BYP VLV (TBV)	27 ft W OF CNDSR		
1-MS-3940A-PCV	----	SUPP AIR TO CLOSE	ON 1-MS-3940-TBV		
1-MS-3940B-PCV	----	SUPP AIR TO I/P	ON 1-MS-3940-TBV		
1-MS-3940C-PCV	----	SUPP AIR TO QUICK OPEN	ON 1-MS-3940-TBV		
1-MS-3940D-PCV	----	SUPP AIR TO VLV POSITIONER	ON 1-MS-3940-TBV		
1-MS-3940-SV	----	IA ISOL FOR AIR TO OPEN	ON 1-MS-3940-TBV		
1-MS-3941A-SV	----	IA ISOL FOR AIR TO CLOSE	ON 1-MS-3940-TBV		
1-MS-3941B-SV	----	IA ISOL FOR QUICK OPEN	ON 1-MS-3940-TBV		
1-MS-3942-HV	AUTO	AUTO/MANUAL HAND VALVE	ON 1-MS-3942-TBV		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-3942-CV	SHUT	TURB BYP VLV (TBV)	27 ft W OF CNDSR		
1-MS-3942A-PCV	----	SUPP AIR TO CLOSE	ON 1-MS-3942-TBV		
1-MS-3942B-PCV	----	SUPP AIR TO I/P	ON 1-MS-3942-TBV		
1-MS-3942C-PCV	----	SUPP AIR TO QUICK OPEN	ON 1-MS-3942-TBV		
1-MS-3942D-PCV	----	SUPP AIR TO VLV POSITIONER	ON 1-MS-3942-TBV		
1-MS-3942-SV	----	IA ISOL FOR AIR TO OPEN	ON 1-MS-3942-TBV		
1-MS-3943A-SV	----	IA ISOL FOR AIR TO CLOSE	ON 1-MS-3942-TBV		
1-MS-3943B-SV	----	IA ISOL FOR QUICK OPEN	ON 1-MS-3942-TBV		
1-MS-3944-HV	AUTO	AUTO/MANUAL HAND VALVE	ON 1-MS-3944-TBV		
1-MS-3944-CV	SHUT	TURB BYP VLV (TBV)	27 ft W OF CNDSR		
1-MS-3944A-PCV	----	SUPP AIR TO CLOSE	ON 1-MS-3944-TBV		
1-MS-3944B-PCV	----	SUPP AIR TO I/P	ON 1-MS-3944-TBV		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-3944C-PCV	----	SUPP AIR TO QUICK OPEN	ON 1-MS-3944-TBV		
1-MS-3944D-PCV	----	SUPP AIR TO VLV POSITIONER	ON 1-MS-3944-TBV		
1-MS-3944-SV	----	IA ISOL FOR AIR TO OPEN	ON 1-MS-3944-TBV		
1-MS-3945A-SV	----	IA ISOL FOR AIR TO CLOSE	ON 1-MS-3944-TBV		
1-MS-3945B-SV	----	IA ISOL FOR QUICK OPEN	ON 1-MS-3944-TBV		
1-MS-3946-HV	AUTO	AUTO/MANUAL HAND VALVE	ON 1-MS-3946-TBV		
1-MS-3946-CV	SHUT	TURB BYP VLV (TBV)	27 ft W OF CNDSR		
1-MS-3946A-PCV	----	SUPP AIR TO CLOSE	ON 1-MS-3946-TBV		
1-MS-3946B-PCV	----	SUPP AIR TO I/P	ON 1-MS-3946-TBV		
1-MS-3946C-PCV	----	SUPP AIR TO QUICK OPEN	ON 1-MS-3946-TBV		
1-MS-3946D-PCV	----	SUPP AIR TO VLV POSITIONER	ON 1-MS-3946-TBV		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-3946-SV	----	IA ISOL FOR AIR TO OPEN	ON 1-MS-3946-TBV		
1-MS-3947A-SV	----	IA ISOL FOR AIR TO CLOSE	ON 1-MS-3946-TBV		
1-MS-3947B-SV	----	IA ISOL FOR QUICK OPEN	ON 1-MS-3946-TBV		
1-MS-3959A-CV	----	11 SGFPT HP STOP VLV	TB 12' W SIDE OF 11 SGFP		
1-MS-3959B-CV	----	11 SGFPT HP GOVNR VLV	TB 12' W SIDE OF 11 SGFP		
1-MS-3961A-CV	----	11 SGFPT LP STOP VLV	TB 12' E SIDE OF 11 SGFP		
1-MS-3961B-CV	---- (1)	11 SGFPT LP GOVNR VLV	TB 12' ON TOP OF 11 SGFPT		
1-MS-3964-MOV	OPEN	11 SGF PP TURB EXH	ABOVE 11 SGFP		
1-MS-3974A-CV	----	12 SGFPT HP STOP VLV	TB 12' E SIDE OF 12 SGFP		
1-MS-3974B-CV	----	12 SGFPT HP GOVNR VLV	TB 12' E SIDE OF 12 SGFP		

(1) VALVE IS VERIFIED INSTALLED. COULD NOT HANG TEMP TAG DUE TO LOCATION ON TRIP SENSITIVE EQUIPMENT.

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-3980A-CV	----	12 SGFPT LP STOP VLV	TB 12' W SIDE OF 12 SGFP		
1-MS-3980B-CV	---- (1)	12 SGFPT LP GOVNR VLV	TB 12' ON TOP OF 12 SGFPT		
1-MS-3981-MOV	OPEN	12 SGF PP TURB EXH	ABOVE 12 SGFP		
1-MS-3986	OPEN (5) (6)	11 AFW PP TURB THROT/STOP VLV	AFW PP RM		OI-32
1-MS-3986-SV	----	11 AFW PP TURB THROT/STOP VLV TRIP	AFW PP RM		OI-32
1-MS-3987-HV	ALIGNED TO MCR CONTROL	FROM 3987A I/P - 11 CONTROL SIGNAL SELECT VLV	AFW PP RM W WALL		OI-32
1-MS-3988	SHUT (5) (7)	12 AFW PP TURB THROT/STOP VLV	AFW PP RM		OI-32
1-MS-3988-SV	----	12 AFW PP TURB THROT/STOP VLV TRIP	AFW PP RM		OI-32

(1) VALVE IS VERIFIED INSTALLED. COULD NOT HANG TEMP TAG DUE TO LOCATION ON TRIP SENSITIVE EQUIPMENT.
(5) POSITION OF THIS VALVE SHALL BE ADMINISTRATIVELY CONTROLLED IN ACCORDANCE WITH THE REQUIREMENTS OF NO-1-205.
(6) SHUT IF 12 AFW PP IS ALIGNED FOR AUTO START.
(7) OPEN IF 12 AFW PP IS ALIGNED FOR AUTO START

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-3989-HV	ALIGNED TO MCR CONTROL	FROM 3989A I/P - 12 CONTROL SIGNAL SELECT VLV	AFW PP RM W WALL		OI-32
1-MS-3992-RV	----	11 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-3993-RV	----	11 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-3994-RV	----	11 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-3995-RV	----	11 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-3996-RV	----	11 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-3997-RV	----	11 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-3998-RV	----	11 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-3999-RV	----	11 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-4000-RV	----	12 STM GEN SAFETY RV	MN STM PEN RM		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-4001-RV	----	12 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-4002-RV	----	12 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-4003-RV	----	12 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-4004-RV	----	12 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-4005-RV	----	12 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-4006-RV	----	12 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-4007-RV	----	12 STM GEN SAFETY RV	MN STM PEN RM		
1-MS-4017-MOV	SHUT	MSR 2nd STG HI LOAD MOV			OPER AT 1C02 W/HS-4018
1-MS-4018-MOV	SHUT	MSR 2nd STG HI LOAD MOV			OPER AT 1C02 W/HS-4018
1-MS-4019-MOV	SHUT	MSR 1st STG STM SOURCE MOV			OPER AT 1C02 W/HS-4019

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-4020-MOV	SHUT	MSR 1st STG STM SOURCE MOV			OPER AT 1C02 W/HS-4019
1-MS-4021-CV	SHUT OPEN	MN STM TO 11 MSR 2ND STG BYP	42 ft U1 TB S CONTR AT 27 ft E OF MN STOP VLVS		
1-MS-4021-RV	----	MS RHTR 11 SHELL	ON MSR		
1-MS-4022-RV	----	MS RHTR 11 SHELL	ON MSR		
1-MS-4022-MOV	OPEN SHUT	RHT STM DRN VLV	S END 11 MSR		HS-4022 AT 1C02
1-MS-4023-RV	----	MS RHTR 11 SHELL	ON MSR		
1-MS-4023-MOV	OPEN SHUT	RHT STM DRN VLV	S END 12 MSR		HS-4022 AT 1C02
1-MS-4024-CV	SHUT OPEN	MS TO 12 MSR 2ND STG BYP	42 ft U1 TB SW - CONTR AT 27 ft W OF MN STOP VLVS		
1-MS-4024-RV	----	MS RHTR 12 SHELL	ON MSR		
1-MS-4025-MOV	SHUT	MSR 2nd STG STM SOURCE MOV			OPER AT 1C02 W/HS-4025
1-MS-4025-RV	----	MS RHTR 12 SHELL	ON MSR		

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-4026-MOV	SHUT	MSR 2nd STG STM SOURCE MOV			OPER AT 1C02 W/HS-4025
1-MS-4026-RV	----	MS RHTR 12 SHELL	ON MSR		
1-MS-4043-CV	OPEN	MSIV 11	MN STM PEN RM		OI-12B
1-MS-4045-MOV	SHUT (5) **[B2468]**	MSIV 11 BYP VLV	MN STM PEN RM		OI-12B
1-MS-4048-CV	OPEN	MSIV 12	STM PEN RM		OI-12B
1-MS-4052-MOV	SHUT (5) **[B2468]**	MSIV 12 BYP VLV	MN STM PEN RM		OI-12B
1-MS-4070-CV	SHUT (5) WITH HS IN AUTO	11 S/G MS TO AFW PP TURB	MN STM PEN RM		OI-32
1-MS-4070-SV	----	11 S/G MS TO AFW PPS	27 ft E PEN		OI-32
1-MS-4070A-CV	SHUT (5)	11 SG BYP SUPP TO AFW PPS	MS PEN RM		OI-32
1-MS-4070A-SV	----	IA TO 11 SG BYP SUPP TO AFW PPS	MS PEN RM		OI-32
1-MS-4071-CV	SHUT (5) WITH HS IN AUTO	12 S/G MS TO AFW PP TURB	MS PEN RM		OI-32
1-MS-4071-SV	----	12 S/G MS TO AFW PP	27 ft E		OI-32

(5) POSITION OF THIS VALVE SHALL BE ADMINISTRATIVELY CONTROLLED IN ACCORDANCE WITH THE REQUIREMENTS OF NO-1-205.

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-4071A-CV	SHUT (5)	12 SG BYP SUPP TO AFW PPS	MS PEN RM		OI-32
1-MS-4071A-SV	----	IA TO 12 SG BYP SUPP TO AFW PPS	MS PEN RM		OI-32
1-MS-4073-MOV	OPEN AUTO	11 MSR COLD REHEAT DRN			OPER AT 1T22 & COMMON HS-3700 AT 1C02
1-MS-4074-MOV	OPEN AUTO	11 MSR COLD REHEAT DRN			OPER AT 1T22 & COMMON HS-3700 AT 1C02
1-MS-4076-MOV	OPEN AUTO	12 MSR COLD REHEAT DRN			OPER AT 1T22 & COMMON HS-3700 AT 1C02
1-MS-4077-MOV	OPEN AUTO	12 MSR COLD REHEAT DRN			OPER AT 1T22 & COMMON HS-3700 AT 1C02
1-MS-4651-MOV	OPEN SHUT	12 STEAM LEAD DR	W OF SGFP SEAL BSTR PUMPS		

(5) POSITION OF THIS VALVE SHALL BE ADMINISTRATIVELY CONTROLLED IN ACCORDANCE WITH THE REQUIREMENTS OF NO-1-205.

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-4652-MOV	OPEN SHUT	14 STEAM LEAD DR	W OF SGFP SEAL BSTR PUMPS		
1-MS-4658-MOV	OPEN SHUT	MN CONT VLVS BEFORE SEAT DRN	12 ft S END BELOW MN STOP VLVS		
1-MS-5087-MOV	OPEN SHUT	11 SGFP HP STOP ABOVE SEAT DRN	E 11 SGFP		HS-5087 AT 1C03
1-MS-5088-MOV	OPEN SHUT	11 SGFP HP STOP BELOW SEAT DRN	E 11 SGFP		HS-5087 AT 1C03
1-MS-5089-MOV	OPEN SHUT	11 SGFP LP STOP ABOVE SEAT DRN	E 11 SGFP		HS-5087 AT 1C03
1-MS-5090-MOV	OPEN SHUT	11 SGFP LP STOP BELOW SEAT & CV CHEST DRN	E 11 SGFP		HS-5087 AT 1C03
1-MS-5091-MOV	OPEN SHUT	11 SGFP 1ST STG EXH DRN	E 11 SGFP		HS-5087 AT 1C03
1-MS-5092-MOV	OPEN SHUT	12 SGFP HP STOP ABOVE SEAT DRN	E 12 SGFP		HS-5092 AT 1C03
1-MS-5093-MOV	OPEN SHUT	12 SGFP HP STOP BELOW SEAT DRN	E 12 SGFP		HS-5092 AT 1C03
1-MS-5094-MOV	OPEN SHUT	12 SGFP LP STOP ABOVE SEAT DRN	E 12 SGFP		HS-5092 AT 1C03

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-5095-MOV	OPEN SHUT	12 SGFP LP STOP BELOW SEAT & CV CHEST DRN	E 12 SGFP		HS-5092 AT 1C03
1-MS-5096-MOV	OPEN SHUT	12 SGFP 1ST STG EXH DRN	E 12 SGFP		HS-5092 AT 1C03
1-MS-6318-RV	----	S/G N_2 LAYUP RV	27' TB SW CORNER		
1-MS-6600-MOV	OPEN SHUT	1-DR-2 FO BYP	12 ft TB SW SMPL SINK		OPERATED AT 1T22
1-MS-6601-MOV	OPEN SHUT	1-DR-3 FO BYP	12 ft TB NW CORNER EHC SKID		OPERATED AT 1T22
1-MS-6602-MOV	OPEN SHUT	1-DR-4 FO BYP	12 ft TB NEXT TO BEAM #E112		OPERATED AT 1T22
1-MS-6603-MOV	OPEN SHUT	1-DR-5 FO BYP	12 ft TB SW CRNR BEHIND SAMPLE SINK		OPERATED AT 1T22
1-MS-6604-MOV	OPEN SHUT	1-DR-6 FO BYP	12 ft TB SW CRNR BEHIND SAMPLE SINK		OPERATED AT 1T22
1-MS-6605-MOV	OPEN SHUT	1-DR-7 FO BYP	12 ft TB SW CRNR BEHIND SAMPLE SINK		OPERATED AT 1T22
1-MS-6606-MOV	OPEN SHUT	1-DR-1 FO BYP	12 ft TB ABOVE 14 CAR		OPERATED AT 1T22

ATTACHMENT 1A
MAIN STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-6607-MOV	OPEN SHUT	1-DR-19 FO BYP	12 ft TB ABOVE 12 CAR		OPERATED AT 1T22
1-MS-6608-MOV	OPEN SHUT	1-DR-22 FO BYP	12 ft TB ABOVE 14 CAR		OPERATED AT 1T22
1-MS-6609-MOV	OPEN SHUT	1-DR-14 FO BYP	12 ft TB E SIDE 11 SGFP		OPERATED AT 1T22
1-MS-6610-MOV	OPEN SHUT	1-DR-12 FO BYP	12 ft TB E SIDE 12 SGFP		OPERATED AT 1T22
1-MS-6611-MOV	OPEN	1-DR-5 ISOL	12 ft TB BEHIND SAMPLE SINK		OPERATED AT 1T22. OI-12B
1-MS-6612-MOV	OPEN	1-DR-6 ISOL	12 ft TB BEHIND SAMPLE SINK		OPERATED AT 1T22. OI-12B
1-MS-6613-MOV	OPEN	1-DR-17 ISOL	MN STM PEN RM		OPERATED AT 1T22. OI-12B
1-MS-6615-MOV	OPEN	1-DR-18 ISOL	MN STM PEN RM		OPERATED AT 1T22. OI-12B
1-MS-6620-MOV	OPEN	1-DR-23 ISOL	MN STM PEN RM		OPERATED AT 1T22
1-MS-6621-MOV	OPEN	1-DR-24 ISOL	MN STM PEN RM		OPERATED AT 1T22

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
0-ES-144	SHUT	CASK WASHDOWN ISOL	5 ft AB OVHD BETW MCCs 103 & 203		
0-ES-145	SHUT	CASK WASHDOWN CONX ISOL	69 ft U2 AB BY SFP		
0-ES-147	SHUT	HOSE CONX DECON RM	DECON RM		
0-ES-148	SHUT	HOSE CONX DECON RM	DECON RM		
0-ES-150	SHUT (1)	0-ES-4275 CV INLET	S WALL EVAP RM		
0-ES-151	OPEN	0-ES-4275 CV OUTLET	S WALL EVAP RM		
0-ES-152	SHUT	0-ES-4275 CV BYPASS	S WALL EVAP RM		
0-ES-154	SHUT (2)	0-ES-4277 CV INLET	S WALL EVAP RM		
0-ES-155	OPEN	0-ES-4277 CV OUTLET	S WALL EVAP RM		
0-ES-156	SHUT	0-ES-4277 CV BYPASS	S WALL EVAP RM		
0-ES-157	SHUT (3)	PCV 4260 INLET	27 ft U1 TB SW		
0-ES-158	SHUT (3)	PCV 4260 OUT	27 ft U1 TB SW		
0-ES-177	SHUT	PCV 4260 DRN	27 ft U1 TB SW		

(1) OPEN IF 11 RC WASTE EVAPORATOR IS IN SERVICE.
(2) OPEN IF 12 RC WASTE EVAPORATOR IS IN SERVICE.
(3) OPEN IF REQUIRED BY OI-17E.

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
0-ES-178	SHUT	PCV 4260 TEST CONX	27 ft U1 TB SW		
0-ES-200	SHUT	ES TO EVAP HDR DRN	5 ft AB CENTER HALL ACROSS FROM CC HX RM		
0-ES-201	SHUT	ES TO EVAP HDR DRN	5 ft AB CENTER HALL BTWN U1 & U2 VCT RMS		
0-ES-214	OPEN	ES TO EVAP DRN ISOL	5 ft AB U1 SIDE BY RCMU PPs		
0-ES-215	SHUT	ES TO EVAP DRN LINE DRN	5 ft AB U1 SIDE BY RCMU PPs		
0-ES-216	OPEN	ES TO EVAP DRN LN STM TRAP INLET ISOL	5 ft AB U1 SIDE BY RCMU PPs		
0-ES-217	OPEN	ES TO EVAP DRN LN STM TRAP OUTLET ISOL	5 ft AB U1 SIDE BY RCMU PPs		
0-ES-218	SHUT	ES TO EVAP DRN LN STM TRAP BYP	5 ft AB U1 SIDE BY RCMU PPs		
0-ES-230	SHUT	EXT STM ISOL TO DECON RM	OUTSIDE DECON RM OVHD 5 ft AB		
0-ES-231	SHUT	TEST CONN	69 ft U2 AB BY SFP		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
0-ES-665	OPEN	PRESS SENSE SUPP TO 0-PC-4260	27 ft U1 TB SW CORNER		
0-ES-1002	SHUT	STM TRAP VENT	5 ft U1 AB BY RCMU PPs		
0-ES-1003	OPEN	0-ES-4275-PT ROOT	SW CORNER EVAP RM		
0-ES-1004	OPEN	0-ES-4275-PT ISOL	SW CORNER EVAP RM		
0-ES-1005	SHUT	0-ES-4275-PT DRN	SW CORNER EVAP RM		
0-ES-2002	OPEN	0-ES-4277-PT ROOT	EVAP TOP E SIDE EVAP RM		
0-ES-2003	SHUT	0-ES-4277-PT DRN	N SIDE OF EVAP RM		
0-ES-2004	OPEN	0-ES-4277-PT ISOL	N SIDE OF EVAP RM		
0-ES-4260-PCV	----	ES SUPP TO AUX BLDG	27 ft TB S END U1		
0-ES-4260-RV	----	ES SUPP LN TO AUX BLDG RV	27 ft TB S END U1		
0-ES-4275-CV	SHUT AUTO	ES SUPP TO 11 RCW EVAP	S OF EVAP ON WALL		
0-ES-4275-SV	----	ES SUPP TO 11 RCW EVAP	N OF 11 EVAP		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
0-ES-4277-CV	SHUT AUTO	STM SUPP CV TO 12 RCW EVAP	S WALL EVAP RM		
0-ES-4277-SV	----	ES TO 12 RCW EVAP	S OF EVAP		
1-ES-101	OPEN	EXT STM SUPPLY FOR 16A FWH	SW 13 CNDSR E OF MSR		
1-ES-102	OPEN	EXT STM SUPPLY FOR 16B FWH	SW 13 CNDSR E OF MSR		
1-ES-103	OPEN	EXT STM SUPPLY FOR 15A FWH	S 13 CNDSR		
1-ES-104	OPEN	EXT STM SUPPLY FOR 15B FWH	S 13 CNDSR		
1-ES-105	SHUT	16A FWH SUPPLY BYP VLV	SW 13 CNDSR		
1-ES-106	OPEN	STOP 13 FWH	W OF CNDSR		
1-ES-107	OPEN	STOP 13 FWH	W OF CNDSR		
1-ES-108	OPEN	STOP 13 FWH	W OF CNDSR		
1-ES-109	OPEN	EXT STM SUPPLY FOR 13B FWH	INBOARD OF 14B FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-110	OPEN	EXT STM SUPPLY FOR 13A FWH	OUTBOARD OF 14A FWH		
1-ES-111	OPEN	EXT STM SUPPLY FOR 14A FWH	W SIDE OF CNDSR		
1-ES-112	OPEN	EXT STM SUPPLY FOR 14B FWH	W SIDE OF CNDSR		
1-ES-113	SHUT	EXT STM SUPPLY TO EVAPS ISOL	27 ft U1 TB SW		
1-ES-114	----	CKV TO AUX BLDG	27 ft U1 TB SW		
1-ES-115	AS DESIRED	ISOL TO AUX BLDG	27 ft U1 TB SW		
1-ES-116	SHUT	16 A&B BTV BYP DRN LINE	AT CV-1445 E 11 MSR		
1-ES-117	OPEN	16A BTV DNSTRM DRN ISOL TO COND	UNDER 16A EXT LINE		
1-ES-118	OPEN	16B BTV DNSTRM DRN ISOL TO COND	UNDER 16B EXT LINE		
1-ES-119	SHUT	ES SUPP LINE TO 16A FWH VENT	ATOP EXT LINE		
1-ES-120	SHUT	EX SUPP LINE TO 16B FWH VENT	ATOP EXT LINE		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-121	OPEN	15A BTV DNSTRM DRN ISOL TO COND	BOTTOM OF EXT LINE		
1-ES-122	OPEN	15B BTV DNSTRM DRN ISOL TO COND	BOTTOM OF EXT LINE		
1-ES-123	SHUT	ES SUPP LINE TO 15A FWH VENT	TOP OF EXT LINE		
1-ES-124	SHUT	ES SUPP LINE TO 15B FWH VENT	TOP OF EXT LINE		
1-ES-125	OPEN	COMMON DRN ISOL	12 ft W OF CNDSR		
1-ES-126	OPEN	14 EXT DRN TO COND 12	12' W SIDE OF CNDSR BETWEEN OUTLET		
1-ES-127	OPEN	14 EXT DRN TO COND 11	12 ft W 11 CNDSR		
1-ES-128	SHUT	ES TO 14A & B FWH'S VENT	ON EXT LINE		
1-ES-129	SHUT	ES TO 14A FWH VENT	ON EXT LINE 27 ft		
1-ES-130	SHUT	ES TO 14B FWH VENT	ON EXT LINE 27 ft		
1-ES-131	SHUT	VENT WASTE EVAP	27 ft OVHD		
1-ES-132	OPEN	13A & B DRN	BY BTV 1-ES-1434		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-133	OPEN	13A & B DRN	BY BTV 1-ES-1434		
1-ES-135	SHUT	VENT FWH 13A & B	27 ft ABOVE 11 SGFP EXH		
1-ES-136	OPEN	13A & B DRN COMMON	12 ft W OF CNDSR		
1-ES-137	OPEN	13A & B DRN COMMON	12 ft W OF CNDSR		
1-ES-138	OPEN	13A & B DRN COMMON	12 ft W OF CNDSR		
1-ES-139	OPEN	ES TO 14A FWH COMMON DRN ISOL TO COND	27 ft SW CORNER OF 11 CNDSR		
1-ES-140	OPEN	16A EXT DRN TO 13 HOTWELL	S OF 13 CNDSR		
1-ES-141	OPEN	16B EXT DRN TO 13 HOTWELL	S OF 13 CNDSR		
1-ES-142	LOCKED SHUT	ES TO U-1 CNTMT ISOL	27 ft W PEN		
1-ES-145	LOCKED SHUT	TEST CONN	27 ft W PEN AT PEN		
1-ES-146	OPEN	1-LS-1525 UPR ROOT	12 ft W OF CNDSR		
1-ES-147	OPEN	13A & B DRN	BY BTV 1-ES-1430		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-164	OPEN	14A EXT STM LINE DRN ISOL	27 ft BY 1-ES-1436 BTV		
1-ES-165	OPEN	1-FO-1438 ISOL	27 ft UNDER 1-ES-1438 BTV		
1-ES-166	SHUT	1-LS-1525 LVL POT DRN	12 ft W OF CNDSR		
1-ES-168	SHUT	1-LS-1431 LVL POT DRN	12 ft W OF CNDSR		
1-ES-169	SHUT	1-LS-1439 LVL POT DRN	12 ft W OF CNDSR		
1-ES-170	SHUT	1-LS-1433 LVL POT DRN	12 ft W OF CNDSR		
1-ES-171	SHUT	1-LS-1437 LVL POT DRN	12 ft W OF CNDSR		
1-ES-172	SHUT	1-LS-1435 LVL POT DRN	12 ft W OF CNDSR		
1-ES-173	SHUT	1-LS-1441 LVL POT DRN	12 ft W OF CNDSR		
1-ES-174	SHUT	1-LS-1527 LVL POT DRN	27 ft UNDER 1-ES-1444 BTV		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-175	SHUT	1-LS-1526 LVL POT DRN	27 ft UNDER 1-LS-1443 BTV		
1-ES-176	OPEN	U-1 ES SUPP DRN	27 ft U1 TB SW		
1-ES-184	SHUT	16A BTV DNSTRM DRN LINE	UNDER 16A EXT LINE		
1-ES-185	OPEN SHUT	16A DRN DRN ORIF BYP	UNDER 16A EXT LINE		
1-ES-186	SHUT	16B BTV DNSTRM DRN LINE	UNDER 16B EXT LINE		
1-ES-187	OPEN SHUT	16B DRN DRN ORIF BYP	UNDER 16B EXT LINE		
1-ES-188	OPEN SHUT	FO BYP FROM 15A FWH	12 ft S ON WALL		
1-ES-189	OPEN SHUT	FO BYP FROM 15B FWH	12 ft S ON WALL		
1-ES-190	OPEN	COMMON DRN ISOL FROM 15 FWH TO 13 CNDSR	S OF 13 CNDSR IN COND PT		
1-ES-193	OPEN SHUT	13B DRN ORIF BYP	BY BTV 1-ES-1430		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-194	OPEN SHUT	13A & B DRN ORIF BYP	BY BTV 1-ES-1432		
1-ES-195	OPEN SHUT	13A & B DRN DRN ORIF BYP	BY BTV 1-ES-1434		
1-ES-204	SHUT	BD HDR DRN TO 13A FWH	4' ABOVE S END OF 13A FWH		
1-ES-205	(4)	BD ISOL TO 13B FWH	25' OVHD ABOVE S END 13B FWH		
1-ES-206	SHUT	BD HDR DRN TO 13B FWH	4' ABOVE S END OF 13B FWH		
1-ES-207	(4)	BD ISOL TO 13A FWH	25' OVHD ABOVE S END 13A FWH		
1-ES-208	SHUT	11A LP FWH LT-1446 VENT VALVE	N SIDE 11A FWH		
1-ES-209	SHUT	11B LP FWH LT-1448 VENT VALVE	N SIDE 11B FWH		
1-ES-210	SHUT	12A LP FWH LT-1452 VENT VALVE	S SIDE 12A FWH		
1-ES-211	SHUT	12B LP FWH LT-1454 VENT VALVE	S SIDE 12B FWH		

(4) VALVE IS OPEN IF B/D IS ALIGNED TO FWHs/VALVE IS SHUT IF B/D IS ALIGNED TO HDTs

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-212	SHUT	11C LP FWH LT-1450 VENT VALVE	N SIDE 11C FWH		
1-ES-213	SHUT	12C LP FWH LT-1456 VENT VALVE	S SIDE 12C FWH		
1-ES-254	OPEN SHUT	14A DRN ORIF BYP	27 ft BY 1-ES-1436 BTV		
1-ES-256	OPEN SHUT	14B DRN ORIF BYP	27 ft UNDER 1-ES-1438 BTV		
1-ES-260	SHUT	ES TO 13A FWH DRN	12 ft OVHD BY 13A FWH		
1-ES-265	OPEN	1-FO-1434 ISOL	27 ft BY BTV-1434		
1-ES-266	SHUT	ES TO 13B FWH DRN	12 ft OVHD BY 13B FWH		
1-ES-267	SHUT	ES TO U1 CNTMT B/U ISOL	5 ft AB OVHD BY CNTMT SUMP MOVs		
1-ES-300	OPEN	1446 LC UPR ROOT	ON FWH		
1-ES-301	OPEN	1446 LC LWR ROOT	ON FWH		
1-ES-302	SHUT	1446 LC VENT	ON FWH		
1-ES-303	SHUT	1446 LC DRN	ON FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-304	OPEN	1446 LG UPR ROOT	ON FWH		
1-ES-305	OPEN	1446 LG LWR ROOT	ON FWH		
1-ES-306	SHUT	1446 LG DRN	ON FWH		
1-ES-307	OPEN	1446 LT UPR ROOT	ON FWH		
1-ES-308	OPEN	1446 LT LWR ROOT	ON FWH		
1-ES-309	SHUT	1446 LT VENT	ON FWH		
1-ES-310	SHUT	1446 LT DRAIN	12 ft E CNDSR		
1-ES-311	OPEN	1446 LT UPR ISOL	12 ft E CNDSR		
1-ES-312	SHUT	1446 LT EQUAL	12 ft E CNDSR		
1-ES-313	OPEN	1446 LT LWR ISOL	12 ft E CNDSR		
1-ES-314	SHUT	1446 LT DRN	12 ft E CNDSR		
1-ES-315	LOCKED OPEN	1446 LS UPR ROOT	ON FWH		
1-ES-316	SHUT	1446 LS VENT	ON FWH		
1-ES-317	SHUT	1446 LS DRN	ON FWH		
1-ES-318	OPEN	1446 LS LWR ROOT	ON FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-319	LOCKED OPEN	1447 LS UPR ROOT	ON FWH		
1-ES-320	SHUT	1447 LS VENT	ON FWH		
1-ES-321	SHUT	1447 LS DRN	ON FWH		
1-ES-322	OPEN	1447 LS LWR ROOT	ON FWH		
1-ES-323	SHUT	11A FWH LWR TAP DRN	ON FWH		
1-ES-324	OPEN	1448 LC UPR ISOL	ON FWH		
1-ES-325	OPEN	1448 LC LWR ISOL	ON FWH		
1-ES-326	SHUT	1448 LC UPR VENT	ON FWH		
1-ES-327	SHUT	1448 LC LWR DRN	ON FWH		
1-ES-328	OPEN	1448 LG UPR ROOT	ON FWH		
1-ES-329	OPEN	1448 LG LWR ROOT	ON FWH		
1-ES-330	SHUT	1448 LG DRN	ON FWH		
1-ES-331	OPEN	1448 LT UPR ROOT	ON FWH		
1-ES-332	OPEN	1448 LT LWR ROOT	ON FWH		
1-ES-333	SHUT	1448 LT VENT	ON FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-334	SHUT	1448 LT DRAIN	12 ft E CNDSR		
1-ES-335	OPEN	1448 LT UPR ISOL	12 ft E CNDSR		
1-ES-336	SHUT	1448 LT EQUAL	12 ft E CNDSR		
1-ES-337	OPEN	1448 LT LWR ISOL	12 ft E CNDSR		
1-ES-338	SHUT	1448 LT DRN	12 ft E CNDSR		
1-ES-339	LOCKED OPEN	1448 LS UPR ROOT	ON FWH		
1-ES-340	SHUT	1448 LS VENT	ON FWH		
1-ES-341	SHUT	1448 LS DRN	ON FWH		
1-ES-342	OPEN	1448 LS LWR ROOT	ON FWH		
1-ES-343	LOCKED OPEN	1449 LS UPR ROOT	ON FWH		
1-ES-344	SHUT	1449 LS VENT	ON FWH		
1-ES-345	SHUT	1449 LS DRN	ON FWH		
1-ES-346	OPEN	1449 LS LWR ROOT	ON FWH		
1-ES-347	SHUT	11B FWH LWR TAP DRN	ON FWH		
1-ES-348	OPEN	1450 LC UPR ROOT	ON FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-349	OPEN	1450 LC LWR ROOT	ON FWH		
1-ES-350	SHUT	1450 LC UPR VENT	ON FWH		
1-ES-351	SHUT	1450 LC DRN	ON FWH		
1-ES-352	OPEN	1450 LG UPR ROOT	ON FWH		
1-ES-353	OPEN	1450 LG LWR ROOT	ON FWH		
1-ES-354	SHUT	1450 LG DRN	ON FWH		
1-ES-355	OPEN	1450 LT UPR ROOT	ON FWH		
1-ES-356	OPEN	1450 LT LWR ROOT	ON FWH		
1-ES-357	SHUT	1450 LT VENT	ON FWH		
1-ES-358	SHUT	1450 LT DRAIN	12 ft E CNDSR		
1-ES-359	OPEN	1450 LT UPR ISOL	12 ft E CNDSR		
1-ES-360	SHUT	1450 LT EQUAL	12 ft E CNDSR		
1-ES-361	OPEN	1450 LT LWR ISOL	12 ft E CNDSR		
1-ES-362	SHUT	1450 LT DRN	12 ft E CNDSR		
1-ES-363	LOCKED OPEN	1450 LS UPR ROOT	ON FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-364	SHUT	1450 LS VENT	ON FWH		
1-ES-365	SHUT	1450 LS DRN	ON FWH		
1-ES-366	OPEN	1450 LS LWR ROOT	ON FWH		
1-ES-367	LOCKED OPEN	1451 LS UPR ROOT	ON FWH		
1-ES-368	SHUT	1451 LS VENT	ON FWH		
1-ES-369	SHUT	1450 LS DRN	ON FWH		
1-ES-370	OPEN	1451 LS LWR ROOT	ON FWH		
1-ES-371	SHUT	11C FWH LWR TAP DR	ON FWH		
1-ES-372	OPEN	1452 LC UPR ROOT	ON FWH		
1-ES-373	OPEN	1452 LC LWR ROOT	ON FWH		
1-ES-374	SHUT	1452 LC VENT	ON FWH		
1-ES-375	SHUT	1452 LC DRN	ON FWH		
1-ES-376	OPEN	1452 LG UPR ROOT	ON FWH		
1-ES-377	OPEN	1452 LG LWR ROOT	ON FWH		
1-ES-378	SHUT	1452 LG DRN	ON FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-379	OPEN	1452 LT UPR ROOT	ON FWH		
1-ES-380	OPEN	1452 LT LWR ROOT	ON FWH		
1-ES-381	SHUT	1452 LT VENT	ON FWH		
1-ES-382	SHUT	1452 LT DRAIN	12 ft E CNDSR		
1-ES-383	OPEN	1452 LT UPR ISOL	12 ft E CNDSR		
1-ES-384	SHUT	1452 LT EQUAL	12 ft E CNDSR		
1-ES-385	OPEN	1452 LT LWR ISOL	12 ft E CNDSR		
1-ES-386	SHUT	1452 LT DRN	12 ft E CNDSR		
1-ES-387	LOCKED OPEN	1452 LS UPR ROOT	ON FWH		
1-ES-388	SHUT	1452 LS VENT	ON FWH		
1-ES-389	SHUT	1452 LS DRN	ON FWH		
1-ES-390	OPEN	1452 LS LWR ROOT	ON FWH		
1-ES-391	LOCKED OPEN	1453 LS UPR ROOT	ON FWH		
1-ES-392	SHUT	1453 LS VENT	ON FWH		
1-ES-393	SHUT	1453 LS DRN	ON FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-394	OPEN	1453 LS LWR ROOT	ON FWH		
1-ES-395	SHUT	12A FWH LWR TAP DRN	ON FWH		
1-ES-396	OPEN	1454 LC UPR ROOT	ON FWH		
1-ES-397	OPEN	1454 LC LWR ROOT	ON FWH		
1-ES-398	SHUT	1454 LC VENT	ON FWH		
1-ES-399	SHUT	1454 LC DRN	ON FWH		
1-ES-400	OPEN	1454 LG UPR ROOT	ON FWH		
1-ES-401	OPEN	1454 LG LWR ROOT	ON FWH		
1-ES-402	SHUT	1454 LG DRN	ON FWH		
1-ES-403	OPEN	1454 LT UPR ROOT	ON FWH		
1-ES-404	OPEN	1454 LT LWR ROOT	ON FWH		
1-ES-405	SHUT	1454 LT VENT	ON FWH		
1-ES-406	SHUT	1454 LT DRAIN	12 ft E CNDSR		
1-ES-407	OPEN	1454 LT UPR ISOL	12 ft E CNDSR		
1-ES-408	SHUT	1454 LT EQUAL	12 ft E CNDSR		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-409	OPEN	1454 LT LWR ISOL	12 ft E CNDSR		
1-ES-410	SHUT	1454 LT DRN	12 ft E CNDSR		
1-ES-411	LOCKED OPEN	1454 LS UPR ROOT	ON FWH		
1-ES-412	SHUT	1454 LS VENT	ON FWH		
1-ES-413	SHUT	1454 LS DRN	ON FWH		
1-ES-414	OPEN	1454 LS LWR ROOT	ON FWH		
1-ES-415	LOCKED OPEN	1455 LS UPR ROOT	ON FWH		
1-ES-416	SHUT	1454 LS VENT	ON FWH		
1-ES-417	SHUT	1455 LS DRN	ON FWH		
1-ES-418	OPEN	1455 LS LWR ROOT	ON FWH		
1-ES-419	SHUT	12B FWH LWR TAP DRN	ON FWH		
1-ES-420	OPEN	1456 LC UPR ROOT	ON FWH		
1-ES-421	OPEN	1456 LC LWR ROOT	ON FWH		
1-ES-422	SHUT	1456 LC VENT	ON FWH		
1-ES-423	SHUT	1456 LC DRN	ON FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-424	OPEN	1456 LG UPR ROOT	ON FWH		
1-ES-425	OPEN	1456 LG LWR ROOT	ON FWH		
1-ES-426	SHUT	1456 LG DRN	ON FWH		
1-ES-427	OPEN	1456 LT UPR ROOT	ON FWH		
1-ES-428	OPEN	1456 LT LWR ROOT	ON FWH		
1-ES-429	SHUT	1356 LT VENT	ON FWH		
1-ES-430	SHUT	1456 LT DRAIN	12 ft E CNDSR		
1-ES-431	OPEN	1456 LT UPR ISOL	12 ft E CNDSR		
1-ES-432	SHUT	1456 LT EQUAL	12 ft E CNDSR		
1-ES-433	OPEN	1456 LT LWR ISOL	12 ft E CNDSR		
1-ES-434	SHUT	1456 LT DRN	12 ft E CNDSR		
1-ES-435	LOCKED OPEN	1456 LS UPR ROOT	ON FWH		
1-ES-436	SHUT	1456 LS VENT	ON FWH		
1-ES-437	SHUT	1456 LS DRN	ON FWH		
1-ES-438	OPEN	1456 LS LWR ROOT	ON FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-439	LOCKED OPEN	1457 LS UPR ROOT	ON FWH		
1-ES-440	SHUT	1457 LS VENT	ON FWH		
1-ES-441	SHUT	1456 LS DRN	ON FWH		
1-ES-442	OPEN	1457 LS LWR ROOT	ON FWH		
1-ES-443	SHUT	12C FWH LWR TAP DRN	ON FWH		
1-ES-444	OPEN	1418 LC UPR ROOT	E SIDE FWH		
1-ES-445	OPEN	1418 LC LWR ROOT	E SIDE FWH		
1-ES-446	SHUT	1418 LC VENT	E SIDE FWH		
1-ES-447	SHUT	1418 LC DRN	E SIDE FWH		
1-ES-448	OPEN	1418 LG UPR ROOT	E SIDE FWH		
1-ES-449	OPEN	1418 LG LWR ROOT	E SIDE FWH		
1-ES-450	SHUT	1418 LG DRN	E SIDE FWH		
1-ES-451	OPEN	1418 LT UPR ROOT	E SIDE FWH		
1-ES-452	OPEN	1418 LT LWR ROOT	E SIDE FWH		
1-ES-453	SHUT	1418 LT VENT	E SIDE FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-454	SHUT	1418 LT DRN	E SIDE FWH		
1-ES-455	OPEN	1418 LT UPR ISOL	E SIDE FWH		
1-ES-456	SHUT	1418 LT EQUAL	E SIDE FWH		
1-ES-457	OPEN	1418 LT LWR ISOL	E SIDE FWH		
1-ES-458	SHUT	1418 LT DRN	E SIDE FWH		
1-ES-459	OPEN	1418 LS UPR ROOT	E SIDE FWH		
1-ES-460	SHUT	1418 LS VENT	E SIDE FWH		
1-ES-461	SHUT	1418 LS DRN	E SIDE FWH		
1-ES-462	OPEN	1418 LS LWR ROOT	E SIDE FWH		
1-ES-463	OPEN	1419 LS UPR ROOT	E SIDE FWH		
1-ES-464	SHUT	1419 LS VENT	E SIDE FWH		
1-ES-465	SHUT	1419 LS DRN	E SIDE FWH		
1-ES-466	OPEN	1419 LS LWR ROOT	E SIDE FWH		
1-ES-467	SHUT	13A FWH LWR TAP DRN	E SIDE FWH		
1-ES-468	OPEN	1420 LC UPR ROOT	E SIDE FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-469	OPEN	1420 LC LWR ROOT	E SIDE FWH		
1-ES-470	SHUT	1420 LC VENT	E SIDE FWH		
1-ES-471	SHUT	1420 LC DRN	E SIDE FWH		
1-ES-472	OPEN	1420 LG UPR ROOT	E SIDE FWH		
1-ES-473	OPEN	1420 LG LWR ROOT	E SIDE FWH		
1-ES-474	SHUT	1420 LG DRN	E SIDE FWH		
1-ES-475	OPEN	1420 LT UPR ROOT	E SIDE FWH		
1-ES-476	OPEN	1420 LT LWR ROOT	E SIDE FWH		
1-ES-477	SHUT	1420 LT VENT	E SIDE FWH		
1-ES-478	SHUT	1420 LT DRN	E SIDE FWH		
1-ES-479	OPEN	1420 LT UPR ISOL	E SIDE FWH		
1-ES-480	SHUT	1420 LT EQUAL	E SIDE FWH		
1-ES-481	OPEN	1420 LT LWR ISOL	E SIDE FWH		
1-ES-482	SHUT	1420 LT DRN	E SIDE FWH		
1-ES-483	OPEN	1420 LS UPR ROOT	E SIDE FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-484	SHUT	1420 LS VENT	E SIDE FWH		
1-ES-485	SHUT	1420 LS DRN	E SIDE FWH		
1-ES-486	OPEN	1420 LS LWR ROOT	E SIDE FWH		
1-ES-487	OPEN	1421 LS UPR ROOT	E SIDE FWH		
1-ES-488	SHUT	1421 LS VENT	E SIDE FWH		
1-ES-489	SHUT	1421 LS DRN	E SIDE FWH		
1-ES-490	OPEN	1421 LS LWR ROOT	E SIDE FWH		
1-ES-491	SHUT	13B FWH LWR TAP DRN	E SIDE FWH		
1-ES-492	OPEN	1426 LC UPR ROOT	E SIDE FWH		
1-ES-493	OPEN	1426 LC LWR ROOT	E SIDE FWH		
1-ES-494	SHUT	1426 LC VENT	E SIDE FWH		
1-ES-495	SHUT	1426 LC DRN	E SIDE FWH		
1-ES-496	OPEN	1426 LG UPR ROOT	E SIDE FWH		
1-ES-497	OPEN	1426 LG LWR ROOT	E SIDE FWH		
1-ES-498	SHUT	1426 LG DRN	E SIDE FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-499	OPEN	1426 LT UPR ROOT	E SIDE FWH		
1-ES-500	OPEN	1426 LT LWR ROOT	E SIDE FWH		
1-ES-501	SHUT	1426 LT VENT	E SIDE FWH		
1-ES-502	SHUT	1426 LT DRN	E SIDE FWH		
1-ES-503	OPEN	1426 LT UPR ISOL	E SIDE FWH		
1-ES-504	SHUT	1426 LT EQUAL	E SIDE FWH		
1-ES-505	OPEN	1426 LT LWR ISOL	E SIDE FWH		
1-ES-506	SHUT	1426 LT DRN	E SIDE FWH		
1-ES-507	OPEN	1426 LS UPR ROOT	E SIDE FWH		
1-ES-508	SHUT	1426 LS VENT	E SIDE FWH		
1-ES-509	SHUT	1426 LS DRN	E SIDE FWH		
1-ES-510	OPEN	1426 LS LWR ROOT	E SIDE FWH		
1-ES-511	OPEN	1427 LS UPR ROOT	E SIDE FWH		
1-ES-512	SHUT	1427 LS VENT	E SIDE FWH		
1-ES-513	SHUT	1427 LS DRN	E SIDE FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-514	OPEN	1427 LS LWR ROOT	E SIDE FWH		
1-ES-515	SHUT	15A FWH LWR TAP DRN	E SIDE FWH		
1-ES-516	OPEN	1428 LC UPR ROOT	ON 15B FWH		
1-ES-517	OPEN	1428 LC LWR ROOT	ON 15B FWH		
1-ES-518	SHUT	1428 LC VENT	ON 15B FWH		
1-ES-519	SHUT	1428 LC DRN	ON 15B FWH		
1-ES-520	OPEN	1428 LG UPR ROOT	ON 15B FWH		
1-ES-521	OPEN	1428 LG LWR ROOT	ON 15B FWH		
1-ES-523	OPEN	1428 LT UPR ROOT	ON 15B FWH		
1-ES-524	OPEN	1428 LT LWR ROOT	ON 15B FWH		
1-ES-525	SHUT	1428 LT VENT	ON 15B FWH		
1-ES-526	SHUT	1428 LT DRN	ON 15B FWH		
1-ES-527	OPEN	1428 LT UPR ISOL	ON 15B FWH		
1-ES-528	SHUT	1428 LT EQUAL	ON 15B FWH		
1-ES-529	OPEN	1428 LT LWR ISOL	ON 15B FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-530	SHUT	1428 LT DRN	ON 15B FWH		
1-ES-531	OPEN	1428 LS UPR ROOT	ON 15B FWH		
1-ES-532	SHUT	1428 LS VENT	ON 15B FWH		
1-ES-533	SHUT	1428 LS DRN	ON 15B FWH		
1-ES-534	OPEN	1428 LS LWR ROOT	ON 15B FWH		
1-ES-535	OPEN	1429 LS UPR ROOT	ON 15B FWH		
1-ES-536	SHUT	1429 LS VENT	ON 15B FWH		
1-ES-537	SHUT	1429 LS DRN	ON 15B FWH		
1-ES-538	OPEN	1429 LS LWR ROOT	ON 15B FWH		
1-ES-539	SHUT	15B FWH LWR TAP DRN	ON 15B FWH		
1-ES-540	OPEN	1416 LC UPR ROOT	ON 16A FWH		
1-ES-541	OPEN	1416 LC LWR ROOT	ON 16A FWH		
1-ES-542	SHUT	1416 LC VENT	ON 16A FWH		
1-ES-543	SHUT	1416 LC DRN	ON 16A FWH		
1-ES-544	OPEN	1417 LI UPR ROOT	ON 16A FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-545	OPEN	1417 LI LWR ROOT	ON 16A FWH		
1-ES-546	SHUT	1417 LI LWR DRN	ON 16A FWH		
1-ES-552	OPEN	1416 LT UPR ROOT	ON 16A FWH		
1-ES-553	OPEN	1416 LT LWR ROOT	ON 16A FWH		
1-ES-554	SHUT	1416 LT VENT	ON 16A FWH		
1-ES-555	SHUT	1416 LT UPR DRN	ON 16A FWH		
1-ES-556	OPEN	1416 LT UPR ISOL	ON 16A FWH		
1-ES-557	SHUT	1416 LT INST EQUAL	ON 16A FWH		
1-ES-558	OPEN	1416 LT LWR ISOL	ON 16A FWH		
1-ES-559	SHUT	1416 LT LWR DRN	ON 16A FWH		
1-ES-560	OPEN	1416 LS UPR ROOT	ON 16A FWH		
1-ES-561	SHUT	1416 LS VENT	ON 16A FWH		
1-ES-562	SHUT	1416 LS DRN	ON 16A FWH		
1-ES-563	OPEN	1416 LS LWR ROOT	ON 16A FWH		
1-ES-564	OPEN	1417 LS UPR ROOT	ON 16A FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-565	SHUT	1417 LS VENT	ON 16A FWH		
1-ES-566	SHUT	1417 LS DRN	ON 16A FWH		
1-ES-567	OPEN	1417 LS LWR ROOT	ON 16A FWH		
1-ES-568	SHUT	16A FWH LWR TAP DRN	ON 16A FWH		
1-ES-569	OPEN	1414 LC UPR ROOT	ON 16B FWH		
1-ES-570	OPEN	1414 LC LWR ROOT	ON 16B FWH		
1-ES-571	SHUT	1414 LC VENT	ON 16B FWH		
1-ES-572	SHUT	1414 LC DRN	ON 16B FWH		
1-ES-573	OPEN	1415 LI UPR ROOT	ON 16B FWH		
1-ES-574	OPEN	1415 LI LWR ROOT	ON 16B FWH		
1-ES-575	SHUT	1415 LI LWR DRN	ON 16B FWH		
1-ES-581	OPEN	1414 LT UPR ROOT	ON 16B FWH		
1-ES-582	OPEN	1414 LT LWR ROOT	ON 16B FWH		
1-ES-583	SHUT	1414 LT UPR VENT	ON 16B FWH		
1-ES-584	SHUT	1414 LT UPR DRN	ON 16B FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-585	OPEN	1414 LT UPR ISOL	ON 16B FWH		
1-ES-586	SHUT	1414 LT EQUAL	ON 16B FWH		
1-ES-587	OPEN	1414 LT LWR ISOL	ON 16B FWH		
1-ES-588	SHUT	1414 LT LWR DRN	ON 16B FWH		
1-ES-589	OPEN	1414 LS UPR ROOT	ON 16B FWH		
1-ES-590	SHUT	1414 LS VENT	ON 16B FWH		
1-ES-591	SHUT	1414 LS DRN	ON 16B FWH		
1-ES-592	OPEN	1414 LS LWR ROOT	ON 16B FWH		
1-ES-593	OPEN	1415 LS UPR ROOT	ON 16B FWH		
1-ES-594	SHUT	1415 LS VENT	ON 16B FWH		
1-ES-595	SHUT	1415 LS DRN	ON 16B FWH		
1-ES-596	OPEN	1415 LS LWR ROOT	ON 16B FWH		
1-ES-597	SHUT	16B FWH LWR TAP DRN	ON 16B FWH		
1-ES-598	OPEN	1422 LS UPR ROOT	E SIDE FWH		
1-ES-599	OPEN	1422 LS LWR ROOT	E SIDE FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-600	SHUT	1422 LS VENT	E SIDE FWH		
1-ES-601	SHUT	1422 LS DRN	E SIDE FWH		
1-ES-602	OPEN	1422 LG UPR ROOT	E SIDE FWH		
1-ES-603	OPEN	1422 LG LWR ROOT	E SIDE FWH		
1-ES-604	OPEN	1423 LS UPR ROOT	E SIDE FWH		
1-ES-605	OPEN	1423 LS LWR ROOT	E SIDE FWH		
1-ES-606	SHUT	1423 LS VENT	E SIDE FWH		
1-ES-607	SHUT	1423 LS DRN	E SIDE FWH		
1-ES-608	SHUT	14A FWH LWR TAP DRN	E SIDE FWH		
1-ES-609	OPEN	1424 LS UPR ROOT	W SIDE FWH		
1-ES-610	OPEN	1424 LS LWR ROOT	W SIDE FWH		
1-ES-611	SHUT	1424 LS VENT	W SIDE FWH		
1-ES-612	SHUT	1424 LS DRN	W SIDE FWH		
1-ES-613	OPEN	1424 LG UPR ROOT	W SIDE FWH		
1-ES-614	OPEN	1424 LG LWR ROOT	W SIDE FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-615	OPEN	1425 LS UPR ROOT	W SIDE FWH		
1-ES-616	OPEN	1425 LS LWR ROOT	W SIDE FWH		
1-ES-617	SHUT	1425 LS VENT	W SIDE FWH		
1-ES-618	SHUT	1425 LS DRN	W SIDE FWH		
1-ES-619	SHUT	14B FWH LWR TAP DRN	W SIDE FWH		
1-ES-620	OPEN	1-LS-1525 LWR ROOT	12 ft W OF CNDSR		
1-ES-621	SHUT	1-LS-1525 VENT	12 ft W OF CNDSR		
1-ES-622	SHUT	1-LS-1525 DRN	12 ft W OF CNDSR		
1-ES-623	OPEN	1-LS-1526 UPR ROOT	27 ft UNDER 1-LS-1443 BTV		
1-ES-624	OPEN	1-LS-1526 LWR ROOT	27 ft UNDER 1-LS-1443 BTV		
1-ES-625	SHUT	1-LS-1526 VENT	27 ft UNDER 1-LS-1443 BTV		
1-ES-626	SHUT	1-LS-1526 DRN	27 ft UNDER 1-LS-1443 BTV		
1-ES-627	OPEN	1-LS-1527 UPR ROOT	27 ft UNDER 1-ES-1444 BTV		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-628	OPEN	1-LS-1527 LWR ROOT	27 ft UNDER 1-ES-1444 BTV		
1-ES-629	SHUT	1-LS-1527 VENT	27 ft UNDER 1-ES-1444 BTV		
1-ES-630	SHUT	1-LS-1527 DRN	27 ft UNDER 1-ES-1444 BTV		
1-ES-631	OPEN	1-LS-1431 UPR ROOT	12 ft W OF CNDSR		
1-ES-632	OPEN	1-LS-1431 LWR ROOT	12 ft W OF CNDSR		
1-ES-633	SHUT	1-LS-1431 VENT	12 ft W OF CNDSR		
1-ES-634	SHUT	1-LS-1431 DRN	12 ft W OF CNDSR		
1-ES-635	OPEN	1-LS-1433 UPR ROOT	12 ft W OF CNDSR		
1-ES-636	OPEN	1-LS-1433 LWR ROOT	12 ft W OF CNDSR		
1-ES-637	SHUT	1-LS-1433 VENT	12 ft W OF CNDSR		
1-ES-638	SHUT	1-LS-1433 DRN	12 ft W OF CNDSR		
1-ES-639	OPEN	1-LS-1435 UPR ROOT	12 ft W OF CNDSR		
1-ES-640	OPEN	1-LS-1435 LWR ROOT	12 ft W OF CNDSR		
1-ES-641	SHUT	1-LS-1435 UPR VENT	12 ft W OF CNDSR		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-642	SHUT	1-LS-1435 LWR DRN	12 ft W OF CNDSR		
1-ES-643	OPEN	1-LS-1437 UPR ROOT	12 ft W OF CNDSR		
1-ES-644	OPEN	1-LS-1437 LWR ROOT	12 ft W OF CNDSR		
1-ES-645	SHUT	1-LS-1437 VENT	12 ft W OF CNDSR		
1-ES-646	SHUT	1-LS-1437 DRN	12 ft W OF CNDSR		
1-ES-647	OPEN	1-LS-1439 UPR ROOT	12 ft W OF CNDSR		
1-ES-648	OPEN	1-LS-1439 LWR ROOT	12 ft W OF CNDSR		
1-ES-649	SHUT	1-LS-1439 VENT	12 ft W OF CNDSR		
1-ES-650	SHUT	1-LS-1439 DRN	12 ft W OF CNDSR		
1-ES-651	OPEN	1-LS-1441 UPR ROOT	12 ft W OF CNDSR		
1-ES-652	OPEN	1-LS-1441 LWR ROOT	12 ft W OF CNDSR		
1-ES-653	SHUT	1-LS-1441 VENT	12 ft W OF CNDSR		
1-ES-654	SHUT	1-LS-1441 DRN	12 ft W OF CNDSR		
1-ES-655	LOCKED THROT	11A FWH BRIDLE ISOL	ON FWH		
1-ES-656	LOCKED THROT	11B FWH BRIDLE ISOL	ON FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-657	LOCKED THROT	11C FWH BRIDLE ISOL	ON FWH		
1-ES-658	SHUT	14B FWH 1-LG-1424 DRAIN VLV	E OF 14B FWH		
1-ES-659	SHUT	14A FWH 1-LG-1422 DRAIN VLV	E OF 14A FWH		
1-ES-660	OPEN	U-1 EXT STM SUPP TO AUX BLDG DRN B/U	12 ft AB OVHD UNDER ES HDRs		
1-ES-661	OPEN	U-1 EXTRACTION STEAM TO AB 1-DR-1861 STM TRAP INLET VLV	U-1, 27 ft TB SW CORNER UNDER GRATING		
1-ES-662	OPEN	U-1 EXTRACTION STEAM TO AB 1-DR-1861 STM TRAP OUTLET VLV	U-1, 27 ft TB SW CORNER UNDER GRATING		
1-ES-663	SHUT	U-1 EXTRACTION STEAM TO AB 1-DR-1861 STM TRAP BYPASS VLV	U-1, 27 ft TB SW CORNER UNDER GRATING		
1-ES-664	OPEN	EXT STM SUPP TO 16A FWH DRN LINE ISOL	27 ft UNDER GRATING BY 16A BTV		

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-665	SHUT	16B FWH SUPPLY BYP VLV	27 ft SW OF 13 CNDSR		
1-ES-666	SHUT	13 COND ES SX ISOL	27 ft TB E SIDE 13 CNDSR		
1-ES-667	SHUT	13 COND ES SX ISOL	27 ft TB E SIDE 13 CNDSR		
1-ES-668	SHUT	13 COND ES SX ISOL	27 ft TB E SIDE 13 CNDSR		
1-ES-669	SHUT	12 COND ES SX ISOL	27 ft TB E SIDE 12 CNDSR		
1-ES-670	SHUT	12 COND ES SX ISOL	27 ft TB E SIDE 12 CNDSR		
1-ES-671	SHUT	12 COND ES SX ISOL	27 ft TB E SIDE 12 CNDSR		
1-ES-672	SHUT	11 COND ES SX ISOL	27 ft TB E SIDE 11 CNDSR		
1-ES-673	SHUT	11 COND ES SX ISOL	27 ft TB E SIDE 11 CNDSR		
1-ES-674	SHUT	11 COND ES SX ISOL	27 ft TB E SIDE 11 CNDSR		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-1006	OPEN	1-ES-1414 PT ROOT	27 ft OVHD EXT STM HDR		
1-ES-1009	OPEN	1-ES-1416 PT ROOT	27 ft OVHD EXT STM HDR		
1-ES-1012	OPEN	1-ES-1418 PT ROOT	27 ft E OF 14A FWH		
1-ES-1015	OPEN	1-ES-1420 PT ROOT	27 ft W OF 14B FWH		
1-ES-1018	OPEN	1-ES-1422 PT ROOT	27 ft OVHD ON EXT STM HDR 15B FWH		
1-ES-1021	OPEN	1-ES-1424 PT ROOT	27 ft OVHD ON 14B EXT STM HDR		
1-ES-1024	OPEN	1-ES-1426 PT ROOT	45 ft OVHD ON EXT STM LINE		
1-ES-1027	OPEN	1-ES-1428 PT ROOT	45 ft OVHD ON EXT STM LINE		
1-ES-1030	SHUT	1 PP 1518 ROOT	27 ft U1 TB COLD RHT LINE		
1-ES-1031	SHUT	1 PP 1518 ISOL	27 ft U1 TB COLD RHT LINE		
1-ES-1032	SHUT	1 SX 1445 ROOT	27 ft U1 TB COLD RHT LINE		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-1033	SHUT	1 SX 1445 ISOL	27 ft U1 TB COLD RHT LINE		
1-ES-1038	SHUT	1 SX 1416 ROOT	27 ft U1 TB 16A EXT LINE BY FWH		
1-ES-1039	SHUT	1 SX 1416 B/U ROOT	27 ft U1 TB 16A EXT LINE BY FWH		
1-ES-1040	SHUT	1 SX 1414 ROOT	27 ft U1 TB 16B EXT LINE BY FWH		
1-ES-1041	SHUT	1 SX 1414 ISOL	27 ft U1 TB 16B EXT LINE BY FWH		
1-ES-1048	SHUT	1-ES-1429 SX ROOT	27 ft OVHD BY 14 FWHs		
1-ES-1050	SHUT	1 SX 1428A ROOT	45 ft OFF 15B FWH EXT LINE		
1-ES-1051	SHUT	1 SX 1428A ISOL	45 ft OFF 15B FWH EXT LINE		
1-ES-1052	SHUT	1 SX 1500 ROOT	DOWNSTREAM 1-ES-1434 BTV		
1-ES-1053	SHUT	1 SX 1492 ROOT	DOWNSTREAM 1-ES-1432 BTV		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-1054	SHUT	1 SX 1482 ROOT	DOWNSTREAM 1-ES-1430 BTV		
1-ES-1055	SHUT	1 SX 1430 ROOT	13A EXT LINE 27 ft E OF 14A FWH		
1-ES-1056	SHUT	1 SX 1430 ISOL	13A EXT LINE W OF BTV 1-ES-1430		
1-ES-1057	SHUT	1-SX-1424 ROOT	NEXT TO BTV 1-ES-1438		
1-ES-1058	SHUT	1-SX-1422 ROOT	27 ft ABOVE 1-ES-1436 BTV		
1-ES-1061	SHUT	1 PP 1520 ROOT	S OF COLD RHT LINE		
1-ES-1062	SHUT	1 PP 1520 ISOL	S OF WALL		
1-ES-1063	SHUT	1 PP 1416 ROOT	ON 16A FWH		
1-ES-1064	SHUT	1 PP 1416 ISOL	E OF 16A FWH		
1-ES-1065	SHUT	1 PP 1414 ROOT	ON 16B FWH		
1-ES-1066	SHUT	1 PP 1414 ISOL	E OF 16B FWH		
1-ES-1069	SHUT	1 PP 1428 ROOT	45 ft ON 15B FWH		
1-ES-1070	SHUT	1 PP 1428 ISOL	45 ft ON 15B FWH		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-1071	SHUT	1 PP 1430 ROOT	W OF TOP EXT STM LINE		
1-ES-1072	SHUT	1 PP 1430 ISOL	W OF BTV 1-ES-1430		
1-ES-1073	SHUT	1 PP 1418 ROOT	E OF 14A FWH		
1-ES-1075	SHUT	1 PP 1420 ROOT	W OF 14B FWH		
1-ES-1077	SHUT	1 PP 1422 ROOT	ON TOP OF 14A FWH		
1 ES-1077A	SHUT	14A ES HDR TEST CONX	27 ft TOP 14A FWH ON HDR		
1-ES-1078	SHUT	1-PP-1422 ISOL	27 ft ON STANCHION BY 11 HDT		
1-ES-1079	SHUT	1 PP 1424 ROOT	ON TOP OF 14B FWH		
1-ES-1080	SHUT	1 PP 1424 ROOT B/U	E OF 14B FWH		
1-ES-1081	SHUT	1-SX-1427 ROOT	S AT 15A FWH BTV		
1-ES-1082	SHUT	1-SX-1429A ROOT	S AT 15B FWH BTV		
1-ES-1084	SHUT	1-ES-1429 SX ISOL	27 ft BY 14 FWHs		
1-ES-1085	OPEN	1450 PT ROOT	TURB SKIRT W SIDE		
1-ES-1087	SHUT	1508 PP ROOT	TURB SKIRT		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-1088	OPEN	1456 PT ROOT	TURB SKIRT W SIDE		
1-ES-1090	SHUT	1506 PP ROOT	TURB SKIRT W SIDE		
1-ES-1091	OPEN	1451 PT ROOT	TURB SKIRT DOOR S 4 VLV E SIDE		
1-ES-1093	SHUT	1502 PP ROOT	TURB SKIRT E SIDE		
1-ES-1094	OPEN	1448 PT ROOT	TURB SKIRT W SIDE		
1-ES-1096	SHUT	1496 PP ROOT	TURB SKIRT W SIDE		
1-ES-1097	OPEN	1454 PT ROOT	TURB SKIRT W SIDE		
1-ES-1099	SHUT	1494 PP ROOT	TURB SKIRT W SIDE		
1-ES-1101	OPEN	1449 PT ROOT	TURB SKIRT E SIDE		
1-ES-1103	SHUT	1490 PP ROOT	TURB SKIRT E SIDE		
1-ES-1104	OPEN	1446 PT ROOT	TURB SKIRT W SIDE		
1-ES-1106	SHUT	1484 PP ROOT	TURB SKIRT W SIDE		
1-ES-1107	OPEN	1452 PT ROOT	TURB SKIRT W SIDE		
1-ES-1109	SHUT	1482 PP ROOT	TURB SKIRT W SIDE		
1-ES-1110	OPEN	1447 PT ROOT	TURB SKIRT E SIDE		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-1112	SHUT	1478 PP ROOT	TURB SKIRT E SIDE		
1-ES-1113	SHUT	1-ES-1416 SX CLR INLT ISOL	27 ft ON STANCHION E 16A FWH		
1-ES-1114	SHUT	1-ES-1416 SX ISOL	27 ft ON STANCHION E 16A FWH		
1-ES-1120	SHUT	1-ES-1426A SX ROOT	27 ft OVHD BY 14 FWHs		
1-ES-1121	SHUT	1-ES-1426A SX ISOL	27 ft BY 14 FWHs		
1-ES-1123	SHUT	ES HDR TO 14B FWH TEST CONT	27 ft OVHD OF 14B FWH		
1-ES-1126	SHUT	1-ES-1523 PP ROOT	27 ft OVHD ON COLD RHT LINE		
1-ES-1127	SHUT	1-ES-1523 PP ISOL	27 ft ON WALL W OF 15 BTVs		
1-ES-1128	SHUT	1-ES-1523 SX ROOT	27 ft OVHD ON COLD RHT LINE		
1-ES-1129	SHUT	1-ES-1523 SX ISOL	27 ft ON WALL W OF 15 BTVs		
1-ES-1130	SHUT	1-ES 1522 PP ROOT	27 ft OVHD ON COLD RHT LINE		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-1131	SHUT	1-ES-1522 PP ISOL	27 ft ON WALL E OF 15 BTVs		
1-ES-1132	SHUT	1-ES-1522 SX ROOT	27 ft OVHD ON COLD RHT LINE		
1-ES-1133	SHUT	1-ES-1522 SX ISOL	27 ft ON WALL E OF 15 BTVs		
1-ES-1430-BTV	SHUT OPEN	13 A & B FWH BTV	27 ft W CNDSR		
1-ES-1430-SV	----	BTV CONTROL	27 ft BY 1430 BTV		
1-ES-1431-CV	OPEN SHUT	1-ES-1430-BTV BYP TO COND	12 ft W OF CNDSR		
1-ES-1431-SV	----	EXTR BYP VLV CONTROL	12 ft W SIDE OF CNDSR ON CATWALK		
1-ES-1432-BTV	SHUT OPEN	13 A & B FWH BTV	27 ft W SIDE CNDSR		
1-ES-1432-SV	----	BTV CONTROL	27 ft BY 1432 BTV		
1-ES-1433-CV	OPEN SHUT	1-ES-1432-BTV BYP TO COND	12 ft S OF 12 CNDSR		
1-ES-1433-SV	----	EXTR BYP VLV CONTROL	12 ft N SIDE OF CNDSR ON CATWALK		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-1434-BTV	SHUT OPEN	13 A & B FWH BTV	27 ft W SIDE CNDSR		
1-ES-1434-SV	----	BTV CONTROL	27 ft BY 1434 BTV		
1-ES-1435-CV	OPEN SHUT	1-ES-1434-BTV BYP TO COND	12 ft W OF 13 CNDSR		
1-ES-1435-SV	----	EXTR BYP VLV CONTROL	12 ft W SIDE CNDSR ON CATWALK		
1-ES-1436-BTV	SHUT OPEN	14A FWH BTV	27 ft W SIDE CNDSR		
1-ES-1436-SV	----	BTV CONTROL	27 ft BY 1436 BTV		
1-ES-1437-CV	OPEN SHUT	1-ES-1436-BTV BYP TO COND	12 ft W OF 12 CNDSR		
1-ES-1437-SV	----	EXTR BYP VLV CONTROL	12 ft N SIDE CNDSR ON CATWALK		
1-ES-1438-SV	----	BTV CONTROL	27 ft BY 1438 BTV		
1-ES-1438-BTV	SHUT OPEN	14B FWH BTV	27 ft W		
1-ES-1439-CV	OPEN SHUT	1-ES-1438-BTV BYP TO COND	12 ft W OF 11 CNDSR		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-1439-SV	----	EXTR BYP VLV CONTROL	12 ft W SIDE CNDSR ON CATWALK		
1-ES-1440-BTV	SHUT OPEN	15A FWH BTV	27 ft S SIDE CNDSR		
1-ES-1440-SV	----	BTV CONTROL	27 ft BY BTV N OF STOP VLVS		
1-ES-1441-CV	OPEN SHUT	1-ES-1438-BTV BYP TO COND	12 ft W OF 13 CNDSR		
1-ES-1441-SV	----	EXTR BYP VLV	12 ft W SIDE CNDSR ON CATWALK		
1-ES-1442-BTV	SHUT OPEN	15B FWH BTV	27 ft S SIDE 13 CNDSR		
1-ES-1442-SV	----	BTV CONTROL	27 ft BY BTV N OF STOP VLVS		
1-ES-1443-BTV	SHUT OPEN	16A FWH BTV	27 ft SW 13 CNDSR		
1-ES-1443-SV	----	BTV CONTROL	27 ft BY BTV E OF 11 MSR		
1-ES-1444-SV	----	BTV CONTROL	27 ft BY BTV E OF 11 MSR		

ATTACHMENT 1B
EXTRACTION STEAM VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-1444-BTV	SHUT OPEN	16B FWH BTV	27 ft SW 13 CNDSR		
1-ES-1445-CV	OPEN SHUT	BTV BYP TO COND	27 ft AT EXT S OF 13 CNDSR		
1-ES-1445-SV	----	EXTR BYP VLV CONTROL	27 ft BY CV E OF 11 MSR		
1-ES-1525-MOV	AUTO	1-FO-1525 BYP	12 ft W OF CNDSR		
1-ES-1526-MOV	AUTO	1-FO-1526 BYP	12 ft S OF CNDSR		SPRING RETURN TO AUTO
1-ES-1527-MOV	AUTO	1-FO-1527 BYP	12 ft S OF CNDSR		SPRING RETURN TO AUTO
1-ES-2005	SHUT	TEST CONN	27 ft W PEN UNDER GRATING		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-101	OPEN	INLET 11 MSR DRN TK LCV	5 ft TB W 11 MSR DRN TK		
1-RDV-102	----	CKV 11 MSR DRN TK TO 11 FWH DRN TK	5 ft TB W 11 MSR DRN TK		
1-RDV-103	OPEN	STOP 11 MSR TK TO 11 HTR DRN TK	27 ft TB ABOVE 11 HTR DRN TK		
1-RDV-104	OPEN	INLET 11 MSR DRN TK HI LVL DUMP TO 13 COND	5 ft TB W 11 MSR DRN TK		
1-RDV-105	----	CKV 11 MSR DRN TK HI LVL DUMP TO 13 COND	5 ft TB W 11 MSR DRN TK		
1-RDV-106	OPEN	STOP 11 MSR DRN TK HI LVL DUMP TO 13 COND	S END 13 CNDSR		
1-RDV-107	OPEN	INLET 11 1ST STG RHTR DRN TK LCV	S OF 1ST STG DRN TK		
1-RDV-108	----	CKV 11 1ST STG RHTR DRN TK TO 15A FWH SHELL	S OF 1ST STG DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-109	OPEN	STOP 11 1ST STG RHTR DRN TK TO 15A FWH SHELL	45 ft		
1-RDV-110	OPEN	INLET 11 1ST STG RHTR DRN TK HI LVL DUMP	5 ft N 1ST STG DRN TK		
1-RDV-111	----	CKV 11 1ST STG RHTR DRN TK HI LVL DUMP TO 13 COND	5 ft N 1ST STG DRN TK		
1-RDV-112	OPEN	STOP 11 1ST STG RHTR DRN TK HI LVL DUMP TO 13 COND	S END 13 CNDSR		
1-RDV-113	OPEN	INLET 11 2ND STG RHTR DRN TK LCV	5 ft W OF 2ND STG 11 MSR DRN TK		
1-RDV-114	----	CKV 11 2ND STG RHTR DRN TK TO 16A FWH SHELL	5 ft W OF 2ND STG 11 MSR DRN TK		
1-RDV-115	OPEN	STOP 11 2ND STG RHTR DRN TK TO 16A FWH SHELL	TOP OF 16A FW HTR		
1-RDV-116	OPEN	INLET 11 2ND STG RHTR DRN TK HI LVL DUMP	5 ft W OF 2ND STG 11 MSR DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-117	----	CKV 11 2ND STG RHTR DRN TK TO 13 COND	5 ft W OF 2ND STG 11 MSR DRN TK		
1-RDV-118	OPEN	STOP 11 2ND STG RHTR DRN TK TO 13 COND	S END 13 CNDSR		
1-RDV-119	OPEN	INLET 12 MSR DRN TK LCV	SE UNDER MSR DRN TK		
1-RDV-120	----	CKV 12 MSR DRN TK TO 12 HTR DRN TK	SE UNDER MSR DRN TK		
1-RDV-121	OPEN	STOP 12 MSR DRN TK TO 12 HTR DRN TK	27 ft ATOP 12 HDT		
1-RDV-122	OPEN	INLET 12 MSR DRN TK HI LVL DUMP	SE UNDER 12 MSR DRN TK		
1-RDV-123	----	CKV 12 MSR DRN TK TO 13 COND	SE UNDER 12 MSR DRN TK		
1-RDV-124	OPEN	STOP 12 MSR DRN TK TO 13 COND	S END 13 CNDSR		
1-RDV-125	OPEN	INLET 12 1ST STG RHTR DRN TK LCV	N SIDE 1ST STG DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-126	----	CKV 12 1ST STG RHTR DRN TK TO 15B FWH SHELL	N SIDE 1ST STG DRN TK		
1-RDV-127	OPEN	STOP 12 1ST STG RHTR DRN TK TO 15B FWH SHELL	ATOP 15B FWH		
1-RDV-128	OPEN	INLET 12 1ST STG RHTR DRN TK HI LVL DUMP	N SIDE 1ST STG DRN TK		
1-RDV-129	----	CKV 12 1ST STG RHTR DRN TK TO 13 COND	N SIDE 1ST STG DRN TK		
1-RDV-130	OPEN	STOP 12 1ST STG RHTR DRN TK TO 13 COND	S END 13 CNDSR		
1-RDV-131	OPEN	INLET 12 2ND STG RHTR DRN TK LCV	W SIDE 2ND STG DRN TK		
1-RDV-132	----	CKV 12 2ND STG RHTR DRN TK TO 16B FWH SHELL	W SIDE 2ND STG DRN TK		
1-RDV-133	OPEN	STOP 12 2ND STG RHTR DRN TK TO 16B FWH SHELL	ATOP 16B FWH		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-134	OPEN	INLET 12 2ND STG RHTR DRN TK HI LVL DUMP	E SIDE 2ND STG DRN TK		
1-RDV-135	----	CKV 12 2ND STG RHTR DRN TK TO 13 COND	E SIDE 2ND STG DRN TK		
1-RDV-136	OPEN	STOP 12 2ND STG RHTR DRN TO 13 COND	S END 13 CNDSR		
1-RDV-138	SHUT	DRN 11 MSR DRN TK 13 COND	PIT AT 13 CNDSR		
1-RDV-140	SHUT	DRN 11 1ST STG MSR DRN TK TO 13 COND	PIT AT 13 CNDSR		
1-RDV-142	SHUT	DRN 11 2ND STG MSR DRN TK TO 13 COND	PIT AT 13 CNDSR		
1-RDV-144	SHUT	DRN 12 MSR DRN TK 13 COND	PIT AT 13 CNDSR		
1-RDV-146	SHUT	DRN 12 1ST STG MSR DRN TK TO 13 COND	PIT AT 13 CNDSR		
1-RDV-148	SHUT	DRN 12 2ND STG MSR DRN TK TO 13 COND	PIT AT 13 CNDSR		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-149	SHUT	VENT FROM 11 MSR DRN TK TO 11 HTR DRN TK	27 ft ABOVE LINE TO HDT W OF 11 MSR		
1-RDV-150	SHUT	VENT FROM 11 1ST STG MSR DRN TK TO SHELL SIDE 15A FWH	ABOVE 15A FWH		
1-RDV-151	SHUT	VENT FROM 11 2ND STG MSR DRN TK TO SHELL SIDE 16A FWH	ABOVE 16 FWH		
1-RDV-152	SHUT	VENT FROM 12 MSR DRN TK TO 12 HTR DRN TK	27 ft OVERHEAD BY STANCHION G110		
1-RDV-153	SHUT	VENT 12 1ST STG MSR DRN TK TO SHELL SIDE 15B FWH	ABOVE 15B FWH		
1-RDV-154	SHUT	VENT FROM 12 2ND STG MSR DRN TK SHELL SIDE 16B FWH	ABOVE 16B FWH		
1-RDV-155	OPEN	11 MSR POCKET DRN ISOL	SE END 13 CNDSR 10 ft UP		
1-RDV-156	OPEN	11 MSR POCKET DRN ISOL	SE END 13 CNDSR 10 ft UP		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-157	OPEN	12 MSR POCKET DRN ISOL	SW END 13 CNDSR 10 ft UP		
1-RDV-158	OPEN	12 MSR POCKET DRN ISOL	SW END 13 CNDSR 10 ft UP		
1-RDV-159	OPEN	11 MSR DRN TK LC LINE DRN	S END 13 CNDSR		
1-RDV-160	OPEN	11 1ST STG MSR DRN TK LC LINE DRN	S END 13 CNDSR		
1-RDV-161	OPEN	11 2ND STG MSR DRN TK LC LINE DRN	S END 13 CNDSR		
1-RDV-162	OPEN	12 MSR DRN TK LC LINE DRN	SW END 13 CNDSR		
1-RDV-163	OPEN	12 1ST STG MSR DRN TK LC LINE DRN	SW END 13 CNDSR		
1-RDV-164	OPEN	12 2ND STG MSR DRN TK LC LINE DRN	SW END 13 CNDSR		
1-RDV-165	OPEN	11 MSR 1ST STG RHT DRN	S END 13 CNDSR 2ND LVL		
1-RDV-166	SHUT	B/U VENT FROM 11 2ND STG MSR DRN TK TO SHELL 16A FWH	ABOVE 16 FWH		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-167	SHUT	B/U VENT FROM 12 2ND STG MSR DRN TK TO SHELL SIDE 16B FWH	ABOVE 16 FWH		
1-RDV-168	OPEN	12 MSR 1ST STG RHT DRN	S END 13 CNDSR 2ND LVL		
1-RDV-170	SHUT OPEN	11 MSR 1ST STG SCAV STM ISOL	12 ft SW & UNDER 11 MSR		
1-RDV-171	SHUT OPEN	12 MSR 1ST STG SCAV STM ISOL	12 ft E OF 12 MSR		
1-RDV-172	SHUT OPEN	11 MSR 2ND STG SCAV STM TO 16A FWH EXT	W OF 16A EXT BTV		
1-RDV-173	SHUT OPEN	12 MSR 2ND STG SCAV STM TO 16B FWH EXH	W OF 16B EXT BTV		
1-RDV-174	SHUT	11 MSR 2ND STG SCAV STM TO COLD RHT	ON COLD RHT		
1-RDV-175	SHUT	12 MSR 2ND STG SCAV STM TO COLD RHT	E OF 12 MSR ON COLD REHEAT		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-176	OPEN	12 MSR 2ND STG SCAV STM COMB ISOL	SW UNDER 12 MSR 1ST STG SUPPLY		
1-RDV-177	OPEN	12 MSR 1ST STG SCAV STM B/U	SE UNDER 12 MSR 1ST STG DRN		
1-RDV-178	SHUT	11 MSR 2ND STG SCAV STM TEST CONN	WEST OF GLAND EXHAUSTER BELOW 11 MSR		
1-RDV-179	SHUT	12 MSR 2ND STG SCAV STM DRN LINE ORIFICE BYP	S OF 12 SGFP BRACKET COLL TK		
1-RDV-180	OPEN	12 MSR 2ND STG SCAV STM DRN LINE ISOL	S OF 12 SGFP BRACKET COLL TK		
1-RDV-181	OPEN	11 MSR 2ND STG SCAV STM COMB ISOL	ABOVE SE STAIRS TO 5 ft TB		
1-RDV-182	OPEN	11 MSR 2ND STG SCAV STM TO 16A FWH EXT B/U	ABOVE SE STAIRS TO 5 ft TB		
1-RDV-183	SHUT	11 MSR 1ST STG SCAV STM TEST CONN	12 ft ON W SIDE OF 11 MSR		
1-RDV-184	SHUT	1-RDV-1412-RV DISCH LINE VENT	E OF 12 MSR		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-185	OPEN	11 MSR 1ST STG SCAV STM B/U	SE END UNDER 11 MSR		
1-RDV-186	SHUT	11 MSR 1ST STG SCAV STM TEST CONN	ABOVE SE STAIRS TO 5 ft TB		
1-RDV-187	SHUT	11 MSR 2ND STG SCAV STM DRN LINE ORIFICE BYP	N OF SE STAIRS W OF 11 MSR 2ND STG DRN TK		
1-RDV-188	OPEN	11 MSR 2ND STG SCAV STM DRN LINE ISOL	N OF SE STAIRS W OF 11 MSR 2ND STG DRN TK		
1-RDV-189	SHUT	1-RDV-1413-RV DISCH LINE VENT	ABOVE 16A FWH		
1-RDV-190	SHUT	11 MSR 2ND STG SCAV STM TO 16A FWH TEST CONN	ABOVE 16A FWH		
1-RDV-1001	OPEN	1-RDV-3701 LS UPR ROOT	IN PIT ON S SIDE ON 11 MSR DRN TK		
1-RDV-1002	OPEN	1-RDV-3701 LS LWR ROOT	IN PIT ON S SIDE OF 11 MSR DRN TK		
1-RDV-1005	OPEN	1-RDV-3702 LS UPR ROOT	IN PIT ON S SIDE OF 11 MSR DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1006	OPEN	1-RDV-3702 LS LWR ROOT	IN PIT ON S SIDE OF 11 MSR DRN TK		
1-RDV-1009	OPEN	1-RDV-3701 LT UPR ROOT	IN PIT ON S SIDE OF 11 MSR DRN TK		
1-RDV-1010	OPEN	1-RDV-3701 LT LWR ROOT	IN PIT UNDER S SIDE OF 11 MSR DRN TK		
1-RDV-1016	OPEN	1-RDV-3701 LC UPR ROOT	IN PIT ON S SIDE OF 11 MSR DRN TK		
1-RDV-1017	OPEN	1-RDV-3701 LC LWR ROOT	IN PIT ON S SIDE OF 11 MSR DRN TK		
1-RDV-1020	OPEN	1-RDV-3702 LC LWR ROOT	IN PIT ON S SIDE OF 11 MSR DRN TK		
1-RDV-1021	OPEN	1-RDV-3702 LC UPR ROOT	IN PIT ON S SIDE OF 11 MSR DRN TK		
1-RDV-1024	OPEN	1-RDV-3701 LG UPR ROOT	IN PIT ON W SIDE OF 11 MSR DRN TK		
1-RDV-1025	OPEN	1-RDV-3701 LG LWR ROOT	IN PIT ON W SIDE OF 11 MSR DRN TK		
1-RDV-1028	OPEN	1-RDV-3703 LS UPR ROOT	IN PIT ON E SIDE OF 11 MSR 1ST STG DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1029	OPEN	1-RDV-3703 LS LWR ROOT	IN PIT ON E SIDE OF 11 MSR 1ST STG DRN TK		
1-RDV-1032	OPEN	1-RDV-3701 LS UPR ROOT	IN PIT ON E SIDE OF 11 MSR 1ST STG DRN TK		
1-RDV-1033	OPEN	1-RDV-3704 LS LWR ROOT	IN PIT ON E SIDE OF 11 MSR 1ST STG DRN TK		
1-RDV-1036	OPEN	1-RDV-3703 LT UPR ROOT	IN PIT ON E SIDE OF 11 MSR 1ST STG DRN TK		
1-RDV-1037	OPEN	1-RDV-3703 LT LWR ROOT	IN PIT ON N SIDE OF 11 MSR 1ST STG DRN TK		
1-RDV-1043	OPEN	1-RDV-3703 LC UPR ROOT	IN PIT ON N SIDE OF 11 MSR 1ST STG DRN TK		
1-RDV-1044	OPEN	1-RDV-3703 LC LWR ROOT	IN PIT ON N SIDE OF 11 MSR 1ST STG DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1047	OPEN	1-RDV-3704 LC LWR ROOT	IN PIT ON S SIDE OF 11 MSR 1ST STG DRN TK		
1-RDV-1048	OPEN	1-RDV-3704 LC UPR ROOT	IN PIT ON S SIDE OF 11 MSR 1ST STG DRN TK		
1-RDV-1051	OPEN	1-RDV-3703 LG UPR ROOT	IN PIT ON N SIDE OF 11 MSR 1ST STG DRN TK		
1-RDV-1052	OPEN	1-RDV-3703 LG LWR ROOT	IN PIT ON N SIDE OF 11 MSR 1ST STG DRN TK		
1-RDV-1055	OPEN	1-RDV-3705 LS UPR ROOT	IN PIT ON N SIDE OF 11 MSR 2ND STG DRN TK		
1-RDV-1056	OPEN	1-RDV-3705 LS LWR ROOT	IN PIT ON N SIDE OF 11 MSR 2ND STG DRN TK		
1-RDV-1059	OPEN	1-RDV-3706 LS UPR ROOT	IN PIT ON S SIDE OF 11 MSR 2ND STG DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1060	OPEN	1-RDV-3706 LS LWR ROOT	IN PIT ON S SIDE OF 11 MSR 2ND STG DRN TK		
1-RDV-1063	OPEN	1-RDV-3705 LT UPR ROOT	IN PIT ON S SIDE OF 11 MSR 2ND STG DRN TK		
1-RDV-1064	OPEN	1-RDV-3705 LT LWR ROOT	IN PIT ON S SIDE OF 11 MSR 2ND STG DRN TK		
1-RDV-1070	OPEN	1-RDV-3705 LC UPR ROOT	IN PIT ON N SIDE OF 11 MSR 2ND STG DRN TK		
1-RDV-1071	OPEN	1-RDV-3705 LC LWR ROOT	IN PIT ON N SIDE OF 11 MSR 2ND STG DRN TK		
1-RDV-1074	OPEN	1-RDV-3706 LC LWR ROOT	IN PIT ON N SIDE OF 11 MSR 2ND STG DRN TK		
1-RDV-1075	OPEN	1-RDV-3706 LC UPR ROOT	IN PIT ON S SIDE OF 11 MSR 2ND STG DRN TK		

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1078	OPEN	1-RDV-3705 LG UPR ROOT	IN PIT ON E SIDE OF 11 MSR 2ND STG DRN TK		
1-RDV-1079	OPEN	1-RDV-3705 LG LWR ROOT	IN PIT ON E SIDE OF 11 MSR 2ND STG DRN TK		
1-RDV-1081	OPEN	1-RDV-3705-LG UPPER ISOLATION	IN PIT ON E SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1082	OPEN	1-RDV-3705-LG LOWER ISOLATION	IN PIT ON E SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1083	OPEN	1-RDV-3708 LS UPR ROOT	IN PIT ON S SIDE OF 12 MSR DRN TK		
1-RDV-1084	OPEN	1-RDV-3708 LS LWR ROOT	IN PIT ON S SIDE OF 12 MSR DRN TK		
1-RDV-1087	OPEN	1-RDV-3709 LS UPR ROOT	IN PIT ON S SIDE OF 12 MSR DRN TK		
1-RDV-1088	OPEN	1-RDV-3709 LS LWR ROOT	IN PIT ON S SIDE OF 12 MSR DRN TK		
1-RDV-1091	OPEN	1-RDV-3708 LT UPR ROOT	IN PIT ON S SIDE OF 12 MSR DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1092	OPEN	1-RDV-3708 LT LWR ROOT	IN PIT ON S SIDE OF 12 MSR DRN TK		
1-RDV-1098	OPEN	1-RDV-3708 LC UPR ROOT	IN PIT ON S SIDE OF 12 MSR DRN TK		
1-RDV-1099	OPEN	1-RDV-3708 LC LWR ROOT	IN PIT ON S SIDE OF 12 MSR DRN TK		
1-RDV-1102	OPEN	1-RDV-3709 LC LWR ROOT	IN PIT ON E SIDE OF 12 MSR DRN TK		
1-RDV-1103	OPEN	1-RDV-3709 LC UPR ROOT	IN PIT ON E SIDE OF 12 MSR DRN TK		
1-RDV-1106	OPEN	1-RDV-3708 LG UPR ROOT	IN PIT ON E SIDE OF 12 MSR DRN TK		
1-RDV-1107	OPEN	1-RDV-3708 LG LWR ROOT	IN PIT ON E SIDE OF 12 MSR DRN TK		
1-RDV-1110	OPEN	1-RDV-3710 LS UPR ROOT	IN PIT ON E SIDE OF 12 MSR 1ST STG DRN TK		
1-RDV-1111	OPEN	1-RDV-3710 LS LWR ROOT	IN PIT ON E SIDE OF 12 MSR 1ST STG DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1114	OPEN	1-RDV-3711 LS UPR ROOT	IN PIT ON E SIDE OF 12 MSR 1ST STG DRN TK		
1-RDV-1115	OPEN	1-RDV-3711 LS LWR ROOT	IN PIT ON E SIDE OF 12 MSR 1ST STG DRN TK		
1-RDV-1118	OPEN	1-RDV-3710 LT UPR ROOT	IN PIT ON E SIDE OF 12 MSR 1ST STG DRN TK		
1-RDV-1119	OPEN	1-RDV-3710 LT LWR ROOT	IN PIT ON N SIDE OF 12 MSR 1ST STG DRN TK		
1-RDV-1125	OPEN	1-RDV-3710 LC UPR ROOT	IN PIT ON E SIDE OF 12 MSR 1ST STG DRN TK		
1-RDV-1126	OPEN	1-RDV-3710 LC LWR ROOT	IN PIT ON E SIDE OF 12 MSR 1ST STG DRN TK		
1-RDV-1129	OPEN	1-RDV-3711 LC LWR ROOT	IN PIT ON E SIDE OF 12 MSR 1ST STG DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1130	OPEN	1-RDV-3711 LC UPR ROOT	IN PIT ON E SIDE OF 12 MSR 1ST STG DRN TK		
1-RDV-1133	OPEN	1-RDV-3710 LG UPR ROOT	IN PIT ON N SIDE OF 12 MSR 1ST STG DRN TK		
1-RDV-1134	OPEN	1-RDV-3710 LG LWR ROOT	IN PIT ON N SIDE OF 12 MSR 1ST STG DRN TK		
1-RDV-1137	OPEN	1-RDV-3712 LS UPR ROOT	IN PIT ON N SIDE OF 12 MSR 2ND STG DRN TK		
1-RDV-1138	OPEN	1-RDV-3712 LS LWR ROOT	IN PIT ON N SIDE OF 12 MSR 2ND STG DRN TK		
1-RDV-1141	OPEN	1-RDV-3713 LS UPR ROOT	IN PIT ON N SIDE OF 12 MSR 2ND STG DRN TK		
1-RDV-1142	OPEN	1-RDV-3713 LS LWR ROOT	IN PIT ON N SIDE OF 12 MSR 2ND STG DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1145	OPEN	1-RDV-3712 LT UPR ROOT	IN PIT ON N SIDE OF 12 MSR 2ND STG DRN TK		
1-RDV-1146	OPEN	1-RDV-3712 LT LWR ROOT	IN PIT ON N SIDE OF 12 MSR 2ND STG DRN TK		
1-RDV-1152	OPEN	1-RDV-3712 LC UPR ROOT	IN PIT ON N SIDE OF 12 MSR 2ND STG DRN TK		
1-RDV-1153	OPEN	1-RDV-3712 LC LWR ROOT	IN PIT ON N SIDE OF 12 MSR 2ND STG DRN TK		
1-RDV-1156	OPEN	1-RDV-3713 LC LWR ROOT	IN PIT ON S SIDE OF 12 MSR 2ND STG DRN TK		
1-RDV-1157	OPEN	1-RDV-3713 LC UPR ROOT	IN PIT ON W SIDE OF 12 MSR 2ND STG DRN TK		
1-RDV-1160	OPEN	1-RDV-3712 LG UPPER ISOL	ON 12 MSR 2ND STG DRN TK		
1-RDV-1161	OPEN	1-RDV-3712 LG LOWER ISOL	ON 12 MSR 2ND STG DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1164	OPEN	1-RDV-3700 LS UPR ROOT	12 OVHD E OF 11 MSR		
1-RDV-1165	OPEN	1-RDV-3700 LS LWR ROOT	12 UNDER 11 MSR		
1-RDV-1167	OPEN	1-RDV-3707 LS UPR ROOT	27 ft E SIDE OF 12 MSR		
1-RDV-1168	OPEN	1-RDV-3707 LS LWR ROOT	27 ft UNDER GRATING E SIDE 12 MSR		
1-RDV-1170	SHUT	1-RDV-3704 SX ROOT	45 ft OVHD 15A FWH		
1-RDV-1171	SHUT	1-RDV-3704 SX ISOL	45 ft W SIDE 15A FWH		
1-RDV-1172	SHUT	1-RDV-3703 SX ROOT	27 ft ON S SIDE 11 MSR DRN TK		
1-RDV-1173	SHUT	1-RDV-3701 SX ISOL	IN PIT ON E SIDE 11 MSR DRN TK		
1-RDV-1174	SHUT	1-RDV-3701A SX ROOT	IN PIT UNDER 11 MSR DRN TK		
1-RDV-1178	SHUT	1-RDV-3705 SX ROOT	27 ft ON S SIDE 11 MSR		
1-RDV-1179A	SHUT	MSR 11 1ST STG DRN TEST CONX	27 ft ON DRN LINE S SIDE OF 11 MSR		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1180	SHUT	1-RDV-3702 SX ROOT	27 ft OVHD 11 HTR DRN TK		
1-RDV-1181	SHUT	1-RDV-3702 SX ISOL	27 ft STANCHION NE 11 HTR DRN TK		
1-RDV-1183	SHUT	1-RDV-3706 SX ISOL	27 ft W OF 16A FWH		
1-RDV-1184	SHUT	1-RDV-3706 SX ISOL	27 ft OVHD 16A FWH		
1-RDV-1185	SHUT	1-RDV-3708 SX ROOT	12 ft UNDER W SIDE 12 MSR DRN TK		
1-RDV-1186	SHUT	1-RDV-3708 SX ISOL	IN PIT W 12 MSR DRN TK		
1-RDV-1187	SHUT	1-RDV-3708A SX ROOT	IN PIT UNDER 12 MSR DRN TK		
1-RDV-1188	SHUT	SX ROOT	N SIDE 12 MSR DRN TK IN PIT		
1-RDV-1189	SHUT	1-RDV-3710 SX ROOT	27 ft N OF CATWALK AROUND 12 MSR		
1-RDV-1191	SHUT	1-RDV-3710A SX ROOT	11 PIT N SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1192	SHUT	1-RDV-3709 SX ROOT	27 ft OVHD 12 HTR DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1193	SHUT	1-RDV-3709 SX ISOL	27 ft ON STANCHION SE OF 12 HTR DRN TK		
1-RDV-1194	SHUT	1-RDV-3711 SX ROOT	45 ft OVHD OF 15B FWH		
1-RDV-1195	SHUT	1-RDV-3711 SX ISOL	45 ft ON STANCHION W OF 15B FWH		
1-RDV-1196	SHUT	1-RDV-3712 SX ROOT	27 ft N OF CATWALK AROUND 12 MSR		1SX3712 removed due to leak. Tube encapsulated. (Reference ECP-12-000468)
1-RDV-1199	SHUT	1-RDV-3713 SX ROOT	27 ft ABOVE 16B FWH		
1-RDV-1200	SHUT	1-RDV-3713 SX ISOL	27 ft ON STANCHION OF 16B FWH		
1-RDV-1202	SHUT	SPARE	TB 12'UNDER 11 MSR		
1-RDV-1206	SHUT	SPARE	TB PIT BY SE STAIRS TO 12' TB		
1-RDV-1209	SHUT	SPARE	TB PIT W 11 MSR DRN TK		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1412-RV	----	FWH 16B SHELL & MSR 12 2ND STG DRN TK VENT LINE RELIEF	ABOVE 16B FWH ON VENT LINE FROM 12 MSR 2ND STG DRN TK		
1-RDV-1413-RV	----	11 MSR 2ND STG DRN TK DRN HDR RV	27 ft OVHD E OF 16A FWH		
1-RDV-3700-MOV	OPEN AUTO	MSR DRN VLVS	UNDER 11 MSR SW CORNER 8' IN OVHD		OPERATE AT 1T22 & COMMON HS-3700 AT 1C02
1-RDV-3701-CV	OPEN SHUT	11 MSR HI LVL DUMP VLV TO 13 CNDSR	IN PIT S END OF CNDSR		
1-RDV-3701-SV	----	11 MSR HI LVL DUMP VLV TO 13 CNDSR	IN PIT ON S END OF CNDSR		
1-RDV-3701A-SV	----	11 MSR DRN TK HLCV CONT	IN PIT ON S END OF CNDSR		
1-RDV-3702-CV	NORM	11 MSR DRN TK NLCV	AT TK		HS-3721 ON 1T22
1-RDV-3702-SV	----	11 MSR DRN TK NLCV CONT	IN PIT ON N SIDE 11 MSR DRN TK		
1-RDV-3703-CV	OPEN SHUT	11 MSR 1ST STG DRN TK HLCV	IN PIT S END OF CNDSR		

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-3703-MOV	OPEN AUTO	11 MSR SHELL DRN VLV 3701	UNDER 11 MSR NW CORNER 8' IN OVHD		OPERATE AT 1T22 & COMMON HS-3700 AT 1C02
1-RDV-3703-SV	----	11 MSR 1ST STG DRN TK HLCV CONT	IN PIT S END OF CNDSR		
1-RDV-3704-CV	NORM	11 MSR 1ST STG DRN TK NLCV	AT TK		HS-3723 ON 1T22
1-RDV-3704-SV	----	11 MSR 1ST STG DRN TK NLCV CONT	IN PIT S SIDE MSR 11 1ST STG DRN TK		
1-RDV-3705-CV	OPEN SHUT	11 MSR 2ND STG DRN TK HLCV	IN PIT S END OF CNDSR		
1-RDV-3705-SV	----	11 MSR 2ND STG DRN TK HLCV CONT	IN PIT S END OF CNDSR		
1-RDV-3706-CV	NORM	11 MSR 2ND STG DRN TK NLCV	AT TK		HS-3725 ON 1T22
1-RDV-3706-SV	----	11 MSR 2ND STG DRN TK NLCV CONT	CNDSR PIT N OF 11 MSR 2ND STG DRN TK		
1-RDV-3707-MOV	OPEN AUTO	12 MSR SHELL DRN VLV 3707	UNDER 12 MSR SE CORNER 8' IN OVHD		OPERATE AT 1T22 & COMMON HS-3700 AT 1C02

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-3708-CV	OPEN SHUT	12 MSR DRN TK HLCV	IN PIT S END OF CNDSR		
1-RDV-3708-SV	----	12 MSR DRN TK HLCV CONT	COND PIT S END CNDSR BY 1-RDV-3708 CV		
1-RDV-3708A-SV	----	12 MSR DRN TK HLCV CONT	COND PIT S END BY 1-RDV-3708-CV		
1-RDV-3709-CV	NORM	12 MSR DRN TK NLCV	AT TK		HS-3728 ON 1T22
1-RDV-3709-SV	----	12 MSR DRN TK NLCV CONT	COND PIT N SIDE OF 12 MSR DRN TK		
1-RDV-3710-CV	OPEN SHUT	12 MSR 1ST STG DRN TK HLCV	IN PIT S END OF CNDSR		
1-RDV-3710-MOV	OPEN AUTO	12 MSR SHELL DRN VLV 3711	UNDER 12 MSR NE CORNER 8' IN OVHD		OPERATE AT 1T22 & COMMON HS-3700 AT 1C02
1-RDV-3710-SV	----	12 MSR 1ST STG DRN TK HLCV CONT	COND PIT S END BY 1-RDV-3710-CV		
1-RDV-3711-CV	NORM	12 MSR 1ST STG DRN TK NLCV	AT TK		HS-3730 ON 1T22

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-3711-SV	----	12 MSR 1ST STG DRN TK NLCV CONT	COND PIT N SIDE 12 MSR 1ST STG DRN TK		
1-RDV-3712-CV	OPEN SHUT	12 MSR 2ND STG DRN TK HLCV	IN PIT S END OF CNDSR		
1-RDV-3712-SV	----	12 MSR 2ND STG DRN TK HLCV CONT	COND PIT S END BY 1-RDV-3712-CV		
1-RDV-3713-CV	NORM	12 MSR 2ND STG DRN TK NLCV	AT TK		INDICATION HS-3732 ON 1T22
1-RDV-3713-SV	----	12 MSR 2ND STG DRN TK NLCV CONT	COND PIT N 12 MSR 2ND STG DRN TK		
1-RDV-3721-MOV	NORM	11 MSR DRN TK DRN LINE DRN	AT TK		HS-3721 ON 1T22
1-RDV-3723-MOV	NORM	11 MSR 1ST STG DRN TK LINE DRN	AT TK		HS-3723 ON 1T22
1-RDV-3725-MOV	NORM	11 MSR 2ND STG DRN TK DRN LINE DRN	AT TK		HS-3725 ON 1T22
1-RDV-3728-MOV	NORM	12 MSR DRN TK DRN LINE DRN	AT TK		HS-3728 ON 1T22
1-RDV-3730-MOV	NORM	12 MSR 1ST STG DRN TK LINE DRN	AT TK		HS-3730 ON 1T22

ATTACHMENT 1C
MSR VENTS AND DRAINS

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-3732-MOV	NORM	12 MSR 2ND STG DRN LINE DRN	N END 12 MSR DRN TK		HS-3732 ON 1T22
1-RDV-4072-MOV	OPEN AUTO	11 MSR 1ST STG STM LINE DRN	S END 11 MSR 10' IN OVHD		OPERATE AT 1T22 AND COMMON HS-3700 AT 1C02
1-RDV-4075-MOV	OPEN SHUT	12 MSR 1ST STG STM LINE DRN	S END 12 MSR 10' IN OVHD		OPERATE AT 1T22 AND COMMON HS-3700 AT 1C02

ATTACHMENT 1D
MS AND ES VALVES IN U-1 CNTMT

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1001	OPEN	1-FT-1011 ROOT	ON STM HDR		
1-MS-1002	OPEN	1-FT-1011 ROOT	ON STM HDR		
1-MS-1003	OPEN	1-FT-1011 B/U ROOT	ON STM HDR		
1-MS-1004	OPEN	1-FT-1011 B/U ROOT	ON STM HDR		
1-MS-1016	OPEN	1-FT-1021 ROOT	ON STM HDR		
1-MS-1017	OPEN	1-FT-1021 ROOT	ON STM HDR		
1-MS-1018	OPEN	1-FT-1021 B/U ROOT	ON STM HDR		
1-MS-1019	OPEN	1-FT-1021 B/U ROOT	ON STM HDR		
1-ES-143	SHUT	RX HD WASHDOWN	69 ft U1 WALL CNTMT		
1-ES-144	LOCKED SHUT	RX HD WASHDOWN	40 ft U1 W CNTMT		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-370	THROTTLED	IA PRESS EQUAL ISOL FOR AIR TO CLOSE	ON 1-MS-3940-TBV		
1-MS-371	THROTTLED	IA PRESS EQUAL ISOL FOR AIR TO OPEN	ON 1-MS-3940-TBV		
1-MS-372	THROTTLED	IA PRESS EQUAL ISOL FOR AIR TO CLOSE	ON 1-MS-3942-TBV		
1-MS-373	THROTTLED	IA PRESS EQUAL ISOL FOR AIR TO OPEN	ON 1-MS-3942-TBV		
1-MS-374	THROTTLED	IA PRESS EQUAL ISOL FOR AIR TO CLOSE	ON 1-MS-3944-TBV		
1-MS-375	THROTTLED	IA PRESS EQUAL ISOL FOR AIR TO OPEN	ON 1-MS-3944-TBV		
1-MS-376	THROTTLED	IA PRESS EQUAL ISOL FOR AIR TO CLOSE	ON 1-MS-3946-TBV		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-377	THROTTLED	IA PRESS EQUAL ISOL FOR AIR TO OPEN	ON 1-MS-3946-TBV		
1-MS-1000A	OPEN	PI 3986 ISOL	AFW PP RM WEST WALL		
1-MS-1003A	OPEN	PI 3988 ISOL	AFW PP RM BY PI 3988		
1-MS-1005	SHUT	1-FT-1011 VENT B/U	45 ft EAST		
1-MS-1006	SHUT	1-FT-1011 VENT B/U	45 ft EAST		
1-MS-1007	SHUT	1-FT-1011 VENT	45 ft EAST		
1-MS-1009	OPEN	1-FT-1011 STOP	45 ft EAST		
1-MS-1010	OPEN	1-FT-1011 STOP	45 ft EAST		
1-MS-1011	SHUT	1-FT-1011 EQ	45 ft EAST		
1-MS-1012	SHUT	1-FT-1011 DRN B/U	45 ft EAST		
1-MS-1013	SHUT	1-FT-1011 DRN B/U	45 ft EAST		
1-MS-1014	SHUT	1-FT-1011 DRN	45 ft EAST		
1-MS-1015	SHUT	1-FT-1011 DRN	45 ft EAST		
1-MS-1020	SHUT	1-FT-1021 VENT	ON STM HDR UNDER 69 ft GRATING		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1021	SHUT	1-FT-1021 VENT B/U	ON STM HDR UNDER 69 ft GRATING		
1-MS-1022	SHUT	1-FT-1021 VENT	ON STM HDR UNDER 69 ft GRATING		
1-MS-1024	OPEN	1-FT-1021 STOP	45 ft WEST		
1-MS-1025	OPEN	1-FT-1021 STOP	45 ft WEST		
1-MS-1026	SHUT	1-FT-1021 EQ	45 ft WEST		
1-MS-1027	SHUT	1-FT-1021 DRN B/U	45 ft WEST		
1-MS-1028	SHUT	1-FT-1021 DRN B/U	45 ft WEST		
1-MS-1029	SHUT	1-FT-1021 DRN	45 ft WEST		
1-MS-1030	SHUT	1-FT-1021 DRN	45 ft WEST		
1-MS-1033A	SHUT	PI 3989 & PI 3988 DRN	AFW PP RM WEST WALL		
1-MS-1034	OPEN	PI 3989 ISOL	AFW PP RM WEST WALL		
1-MS-1034A	SHUT	PT 3987 & PI 3986 DRN	AFW PP RM WEST WALL		
1-MS-1035	OPEN	PT 3987 ISOL	AFW PP RM WEST WALL		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1049	SHUT	1-MS-4021 FT HP ISOL	SW END OF MSR 11		
1-MS-1050	SHUT	1-MS-4021 FT LP ISOL	SW END OF MSR 11		
1-MS-1051	OPEN	1-MS-4021 FT EQUAL	SW END OF MSR 11		
1-MS-1052	OPEN	1-MS-4021 PI ISOL	SW END OF MSR 11		
1-MS-1058	SHUT	1-MS-4025 FT HP ISOL	SW END OF MSR 12		
1-MS-1059	SHUT	1-MS-4025 FT LP ISOL	SW END OF MSR 12		
1-MS-1060	OPEN	1-MS-4025 FT EQUAL	SW END OF MSR 12		
1-MS-1062	OPEN	1-MS-4025 PI ISOL	SW END OF MSR 12		
1-MS-1067	SHUT	1-MS-4020 FT LP ISOL	SE END OF MSR 11		
1-MS-1068	SHUT	1-MS-4020 FT HP ISOL	SE END OF MSR 11		
1-MS-1069	OPEN	1-MS-4020 FT EQUAL	SE END OF MSR 11		
1-MS-1075	SHUT	1-MS-4019 PT DRN	SE NEAR 11 MSR		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1076	OPEN	1-MS-4019 PT ISOL	SE NEAR 11 MSR		
1-MS-1080	SHUT	1-MS-4024 FT LP ISOL	SW NEAR 12 MSR		
1-MS-1081	SHUT	1-MS-4024 FT HP ISOL	SW NEAR 12 MSR		
1-MS-1082	OPEN	1-MS-4024 FT EQUAL	SW NEAR 12 MSR		
1-MS-1084	OPEN	1-MS-4024 PI ISOL	SW NEAR 12 MSR		
1-MS-1086	SHUT	1-MS-4023 PT DRN	SW NEAR 12 MSR		
1-MS-1087	OPEN	1-MS-4023 PT ISOL	SW NEAR 12 MSR		
1-MS-1090	OPEN	1-MS-4050 PI ISOL	SW OF EHC UNIT		
1-MS-1091	OPEN	1-MS-4056 PT ISOL	SW OF EHC UNIT		
1-MS-1096	OPEN	1-MS-4049 PI ISOL	BY EHC		
1-MS-1102	OPEN	1-MS-3957 PT ISOL	W OF 15 FWH EXT BTVs		
1-MS-1103	OPEN	1-MS-3958 PS ISOL	W OF 15 FWH EXT BTVs		
1-MS-1104	SHUT	1-MS-3958 PS DRN	W OF 15 FWH EXT BTVs		
1-MS-1105	SHUT	1-MS-3958 PS DRN B/U	W OF 15 FWH EXT BTVs		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1106	SHUT	1-MS-3957 PT DRN	W OF 15 FWH EXT BTVs		
1-MS-1107	SHUT	1-MS-3957 PT DRN B/U	W OF 15 FWH EXT BTVs		
1-MS-1112	OPEN	1-MS-4040 PT ISOL	E OF 15 FWH EXT BTVs		
1-MS-1113	SHUT	1-MS-4040 PT DRN	E OF 15 FWH EXT BTVs		
1-MS-1114	SHUT	1-MS-4040 PT DRN B/U	E OF 15 FWH EXT BTVs		
1-MS-1118	OPEN	1-MS-4022 PI ISOL	W SIDE OF 11 MSR		
1-MS-1120	OPEN	1-MS-4026 PI ISOL	E SIDE OF 12 MSR		
1-MS-1123	OPEN	1-MS-3991 PT ISOL	SOUTH WALL 27 ft E PEN ROOM		
1-MS-1124	OPEN	1-MS-3991 PT ISOL	SOUTH WALL 27 ft E PEN ROOM		
1-MS-1129	OPEN	1-MS-4008 PT ISOL	SOUTH WALL 27 ft E PEN ROOM		
1-MS-1130	OPEN	1-MS-4008 PT ISOL	SOUTH WALL 27 ft E PEN ROOM		
1-MS-1135	SHUT	1-MS-3965-1 FT HP VENT	ABOVE 11 SGFP		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1136	SHUT	1-MS-3965-1 FT LP VENT	ABOVE 11 SGFP		
1-MS-1137	OPEN	1-MS-3965-1 FT HP ISOL	ABOVE 11 SGFP		
1-MS-1138	OPEN	1-MS-3965-1 FT LP ISOL	ABOVE 11 SGFP		
1-MS-1139	SHUT	1-MS-3965-1 FT DRN	ABOVE 11 SGFP		
1-MS-1140	SHUT	1-MS-3965-1 FT DRN	ABOVE 11 SGFP		
1-MS-1143	SHUT	1-MS-3966-1 FT HP VENT	ABOVE 12 HDT		
1-MS-1144	SHUT	1-MS-3966-1 FT LP VENT	ABOVE 12 HDT		
1-MS-1145	OPEN	1-MS-3966-1 FT LP ISOL	ABOVE 12 HDT		
1-MS-1146	OPEN	1-MS-3966-1 FT HP ISOL	ABOVE 12 HDT		
1-MS-1147	SHUT	1-MS-3966-1 FT DRN	ABOVE 12 HDT		
1-MS-1148	SHUT	1-MS-3966-1 FT DRN	ABOVE 12 HDT		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1153	OPEN	1-MS-3958 FT LP ISOL	SW SIDE 11 SGFP		
1-MS-1154	OPEN	1-MS-3958 FT HP ISOL	SW SIDE 11 SGFP		
1-MS-1155	SHUT	1-MS-3958 FT LP VENT	SW SIDE 11 SGFP		
1-MS-1156	SHUT	1-MS-3958 FT HP VENT	SW SIDE 11 SGFP		
1-MS-1157	SHUT	1-MS-3958 FT BYP	SW SIDE 11 SGFP		
1-MS-1158	SHUT	1-MS-3958 FT DRN	SW SIDE 11 SGFP		
1-MS-1159	SHUT	1-MS-3958 FT DRN	SW SIDE 11 SGFP		
1-MS-1160	SHUT	1-MS-3958 FT DRN	SW SIDE 11 SGFP		
1-MS-1161	SHUT	1-MS-3958 FT DRN	SW SIDE 11 SGFP		
1-MS-1166	OPEN	1-MS-3973 FT LP ISOL	SE SIDE 12 SGFP		
1-MS-1167	OPEN	1-MS-3973 FT HP ISOL	SE SIDE 12 SGFP		
1-MS-1168	SHUT	1-MS-3973 FT LP VENT	SE SIDE 12 SGFP		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1169	SHUT	1-MS-3973 FT HP VENT	SE SIDE 12 SGFP		
1-MS-1170	SHUT	1-MS-3973 FT EQUAL	SE SIDE 12 SGFP		
1-MS-1171	SHUT	1-MS-3973 FT DRN	SE SIDE 12 SGFP		
1-MS-1172	SHUT	1-MS-3973 FT DRN	SE SIDE 12 SGFP		
1-MS-1173	SHUT	1-MS-3973 FT DRN	SE SIDE 12 SGFP		
1-MS-1174	SHUT	1-MS-3973 FT DRN	SE SIDE 12 SGFP		
1-MS-1177	SHUT	HIGH PRESSURE ROOT STOP 1-FE-4217	27' TB S OF 11 MSR		
1-MS-1178	SHUT	LOW PRESSURE ROOT STOP 1-FE-4217	27' TB S OF 11 MSR		
1-MS-1181	SHUT	1-MS-3965-1 FT EQUAL	ABOVE 11 SGFP		
1-MS-1182	SHUT	1-MS-3966-1 FT EQUAL	ABOVE 12 SGFP		
1-MS-1198	OPEN	12 SGFPT CASING 1LG4711/1LS4711A/1 LS4711B/1LS4711C/1 LS4711D LOWER ROOT VLV	TB 12' UNDER 12 SGFPT		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1199	OPEN	12 SGFPT CASING 1LG4711/1LS4711A/1 LS4711B/1LS4711C/1 LS4711D UPPER ROOT VLV	TB 12' EAST SIDE OF 12 SGFPT		
1-MS-1202	OPEN	1-MS-4711 LG UPR ISOL; 12 SGFP	E SIDE 12 SGFP		
1-MS-1203	OPEN	1-MS-4711 LG LWR ISOL; 12 SGFP	E SIDE 12 SGFP		
1-MS-1204	SHUT	1-MS-4711 LG DRN; 12 SGFP	E SIDE 12 SGFP		
1-MS-1205	SHUT	1-MS-4711 LG VENT; 12 SGFP	E SIDE 12 SGFP		
1-MS-1206	SHUT	12 SGFPT CASING 1LG4711/1LS4711A/1 LS4711B/1LS4711C/1 LS4711D VENT VLV	TB 12' EAST SIDE OF 12 SGFPT		
1-MS-1207	SHUT	12 SGFPT CASING 1LG4711/1LS4711A/1 LS4711B/1LS4711C/1 LS4711D DRN VLV	TB 12' UNDER 12 SGFPT		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1208	OPEN	11 SGFPT CASING 1LG4705/1LS4705A/1 LS4705B/1LS4705C/1 LS4705D LOWER ROOT VLV	TB 12' UNDER 11 SGFPT		
1-MS-1209	OPEN	11 SGFPT CASING 1LG4705/1LS4705A/1 LS4705B/1LS4705C/1 LS4705D UPPER ROOT VLV	TB 12' UNDER 11 SGFPT		
1-MS-1212	OPEN	1-MS-4705-LG UPR ISOL; 11 SGFP	UNDER 11 SGFP HP STOP VLV		
1-MS-1213	OPEN	1-MS-4705-LG LWR ISOL; 11 SGFP	UNDER 11 SGFP HP STOP VLV		
1-MS-1214	SHUT	1-MS-4705-LS DRN; 11 SGFP	UNDER 11 SGFP HP STOP VLV		
1-MS-1215	SHUT	1-MS-4705-LG VENT; 11 SGFP	UNDER 11 SGFP HP STOP VLV		
1-MS-1216	SHUT	11 SGFPT CASING 1LG4705/1LS4705A/1 LS4705B/1LS4705C/1 LS4705D VENT VLV	TB 12' UNDER 11 SGFPT HP STOP VLV		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1217	SHUT	11 SGFPT CASING 1LG4705/1LS4705A/1 LS4705B/1LS4705C/1 LS4705D DRN VLV	TB 12' UNDER 11 SGFPT		
1-MS-1219	OPEN	1-MS-4039-PT ISOL	27 ft NEAR 12 MSR 2ND STG LOAD CONTR		
1-MS-1220	SHUT	1-MS-4039-PT VENT	27 ft NEAR 12 MSR 2ND STG LOAD CONTR		
1-MS-1222	SHUT	1-MS-3952 PT VENT	27 ft ON STANCHION N OF STOP VLV		
1-MS-1223	OPEN	1-MS-3952 PT ISOL	27 ft ON STANCHION N OF STOP VLV		
1-MS-1230	OPEN	1-MS-4055 PT ISOL	27 ft U1 TB SW OF 15B BTV		
1-MS-1232	SHUT	1-MS-4055A,B,C PT DRN	27 ft U1 TB SW OF 15B BTV		
1-MS-1252	SHUT	1-MS-6601 LS UPR ISOL	SW OF EHC		
1-MS-1254	SHUT	1-MS-6601 LS LWR ISOL	SW OF EHC		
1-MS-1255	SHUT	1-MS-6601 LS VENT	SW OF EHC		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1256	SHUT	1-MS-6601 LS DRN	SW OF EHC		
1-MS-1262	OPEN	1-MS-6602 LS UPR ISOL	W OF EHC E-112		
1-MS-1264	OPEN	1-MS-6602 LS LWR ISOL	W OF EHC E-112		
1-MS-1265	SHUT	1-MS-6602 LS VENT	W OF EHC E-112		
1-MS-1266	SHUT	1-MS-6602 LS DRN	W OF EHC E-112		
1-MS-1268	OPEN	1-MS-6600 LS UPR ISOL	W OF U1 SMPL SINK		
1-MS-1270	OPEN	1-MS-6600 LS LWR ISOL	W OF U1 SMPL SINK		
1-MS-1271	SHUT	1-MS-6600 LS VENT	W OF U1 SMPL SINK		
1-MS-1272	SHUT	1-MS-6600 LS DRN	W OF U1 SMPL SINK		
1-MS-1274	OPEN	1-MS-6603 LS UPR ISOL	W OF U1 SMPL SINK		
1-MS-1276	OPEN	1-MS-6603 LS LWR ISOL	W OF U1 SMPL SINK		
1-MS-1277	SHUT	1-MS-6603 LS VENT	W OF U1 SMPL SINK		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1278	SHUT	1-MS-6603 LS DRN	W OF U1 SMPL SINK		
1-MS-1280	OPEN	1-MS-6604 LS UPR ISOL	W OF U1 SMPL SINK		OI-12B
1-MS-1282	OPEN	1-MS-6604 LS LWR ISOL	W OF U1 SMPL SINK		
1-MS-1283	SHUT	1-MS-6604 LS VENT	W OF U1 SMPL SINK		
1-MS-1284	SHUT	1-MS-6604 LS DRN	W OF U1 SMPL SINK		
1-MS-1289	SHUT	1-MS-6605 LS VENT	N OF U1 SMPL SINK		
1-MS-1290	SHUT	1-MS-6605 LS DRN	N OF U1 SMPL SINK		
1-MS-1291	OPEN	1-MS-6606 LS UPR ISOL	E 12 SGFP		
1-MS-1294	OPEN	1-MS-6606 LS LWR ISOL	E 12 SGFP		
1-MS-1295	SHUT	1-MS-6606 LS VENT	E 12 SGFP		
1-MS-1296	SHUT	1-MS-6606 LS DRN	E 12 SGFP		
1-MS-1298	OPEN	1-MS-6607 LS UPR ISOL	E OF 11 HDT		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1300	OPEN	1-MS-6607 LS LWR ISOL	E OF 11 HDT		
1-MS-1301	SHUT	1-MS-6607 LS VENT	E OF 11 HDT		
1-MS-1302	SHUT	1-MS-6607 LS DRN	E OF 11 HDT		
1-MS-1304	OPEN	1-MS-6608 LS UPR ISOL	E 12 SGFP		
1-MS-1305	OPEN	1-MS-6608 LS LWR ISOL	E 12 SGFP		
1-MS-1307	SHUT	1-MS-6608 LS VENT	E 12 SGFP		
1-MS-1308	SHUT	1-MS-6608 LS DRN	E 12 SGFP		
1-MS-1311	SHUT	1-MS-6609 LS VENT	NW ABOVE 11 SGFP		
1-MS-1312	SHUT	1-MS-6609 LS DRN	NW ABOVE 11 SGFP		
1-MS-1315	SHUT	1-MS-6610 LS VENT	SW ABOVE 12 SGFP		
1-MS-1316	SHUT	1-MS-6610 LS DRN	SW ABOVE 12 SGFP		
1-MS-1319	SHUT	1-MS-6640 LS VENT	5 ft ON AUX BD TK		
1-MS-1320	SHUT	1-MS-6640 LS DRN	5 ft ON AUX BD TK		
1-MS-1323	SHUT	1-MS-6641 LS VENT	5 ft ON AUX BD TK		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1324	SHUT	1-MS-6641 LS DRN	5 ft ON AUX BD TK		
1-MS-1328	SHUT	1-MS-6642 LG DRN	5 ft ON AUX BD TK		
1-MS-1330	OPEN	1-MS-6643 PI ISOL	ABOVE AUX BD PP		
1-MS-1332	OPEN	1-MS-6644 PI ISOL	ABOVE AUX BD PP		
1-MS-1339	OPEN	1-MS-4037-PI ISOL	AT TURB SKIRT		
1-MS-1342	OPEN	1-MS-4035-PI ISOL	AT TURB SKIRT		
1-MS-1344	OPEN	1-MS-4037-PI ISOL	AT TURB SKIRT		
1-MS-1363	OPEN	1-MS-4060-PT ISOL	27 ft N OF 12 HTR DRN PP COOLER UNIT		
1-MS-1364	SHUT	1-MS-4060-PT DRN	27 ft BY 1-MS-1363		
1-MS-1372	OPEN	1-MS-4062-PT ISOL	ON STANCHION E OF MINIFLOW ISOL TO 12 CNDSR		
1-MS-1373	SHUT	TEST CONN 11 MSR	ON STANCHION E OF MINIFLOW ISOL TO 12 CNDSR		
1-MS-1376	OPEN	1-MS-3961-PI ISOL	WEST OF 11 SGFP		
1-MS-1380	OPEN	1-MS-3980-PI ISOL	W OF 12 SGFP		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1386	OPEN	1-MS-4061-PT ISOL	ON CONCRETE STANCHION N OF CONTROL VLV 4		
1-MS-1388	OPEN	1-MS-4054 PT ISOL	ON CONCRETE STANCHION N OF CONTROL VLV 4		
1-MS-1389	SHUT	1-MS-4054-PT VENT	ON CONCRETE STANCHION N OF STOP VLV 4		
1-MS-1400	SHUT	1-MS-3991 PT VENT	27 ft E PEN; S WALL OVHD	OI-12B	
1-MS-1401	SHUT	1-MS-3991 PT B/U DRN	27 ft E PEN; S WALL		
1-MS-1402	SHUT	1-MS-3991 PT DRN	27 ft E PEN; S WALL	OI-12B	
1-MS-1403	SHUT	1-MS-4008 PT VENT	27 ft E PEN; S WALL OVHD	OI-12B	
1-MS-1404	SHUT	1-MS-4008 PT B/U DRN	27 ft E PEN; S WALL	OI-12B	
1-MS-1405	SHUT	1-MS-4008 PT DRN	27 ft E PEN; S WALL		
1-MS-1406	OPEN	1-MS-1013A PT ISOL	45 ft E SIDE CNTMT		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1407	SHUT	1-MS-1013A PT DRN B/U	45 ft E SIDE CNTMT		
1-MS-1408	SHUT	1-MS-1013A PT DRN	45 ft E SIDE CNTMT		
1-MS-1409	OPEN	1-MS-1013B PT ISOL	45 ft E SIDE CNTMT		
1-MS-1410	SHUT	1-MS-1013B PT DRN B/U	45 ft E SIDE CNTMT		
1-MS-1411	SHUT	1-MS-1013B PT DRN	45 ft E SIDE CNTMT		
1-MS-1412	OPEN	1-MS-1013D PT ISOL	45 ft E SIDE CNTMT		
1-MS-1413	SHUT	1-MS-1013D PT DRN B/U	45 ft E SIDE CNTMT		
1-MS-1414	SHUT	1-MS-1013D PT DRN	45 ft E SIDE CNTMT		
1-MS-1415	OPEN	1-MS-1013C PT ISOL	45 ft E SIDE CNTMT		
1-MS-1416	SHUT	1-MS-1013C PT DRN B/U	45 ft E SIDE CNTMT		
1-MS-1417	SHUT	1-MS-1013C PT DRN	45 ft E SIDE CNTMT		
1-MS-1418	OPEN	1-MS-1023A PT ISOL	45 ft W SIDE CNTMT		
1-MS-1419	SHUT	1-MS-1023A PT DRN B/U	45 ft W SIDE CNTMT		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1420	SHUT	1-MS-1023A PT DRN	45 ft W SIDE CNTMT		
1-MS-1421	OPEN	1-MS-1023B PT ISOL	45 ft W SIDE CNTMT		
1-MS-1422	SHUT	1-MS-1023B PT DRN B/U	45 ft W SIDE CNTMT		
1-MS-1423	SHUT	1-MS-1023B PT DRN	45 ft W SIDE CNTMT		
1-MS-1424	OPEN	1-MS-1023D PT ISOL	45 ft W SIDE CNTMT		
1-MS-1425	SHUT	1-MS-1023D PT DRN B/U	45 ft W SIDE CNTMT		
1-MS-1426	SHUT	1-MS-1023D PT DRN	45 ft W SIDE CNTMT		
1-MS-1427	OPEN	1-MS-1023C PT ISOL	45 ft W SIDE CNTMT		
1-MS-1428	SHUT	1-MS-1023C DRN B/U	45 ft W SIDE CNTMT		
1-MS-1429	SHUT	1-MS-1023C DRN	45 ft W SIDE CNTMT		
1-MS-1434	SHUT	11 MAIN STEAM HEADER 1-SX-1434 ISOLATION VALVE	U-1 TURB 27 ft SW CRNR 10 ft IN THE OVERHEAD		
1-MS-1435	SHUT	11 MAIN STEAM HEADER 1-SX-1434 B/U ISOLATION VALVE	U-1 TURB 27 ft SW CRNR 10 ft IN THE OVERHEAD		

ATTACHMENT 2A
MAIN STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-MS-1436	SHUT	11 MAIN STEAM HEADER 1-PP-1436 ISOLATION VALVE	U-1 TURB 27 ft SW CRNR 10 ft IN THE OVERHEAD		
1-MS-1437	SHUT	11 MAIN STEAM HEADER 1-PP-1436 B/U ISOLATION VALVE	U-1 TURB 27 ft SW CRNR 10 ft IN THE OVERHEAD		
1-MS-1440	SHUT	12 MAIN STEAM HEADER 1-PP-1440 ISOLATION VALVE	U-1 TURB 27 ft SW CRNR 10 ft IN THE OVERHEAD		
1-MS-1441	SHUT	12 MAIN STEAM HEADER 1-PP-1440 B/U ISOLATION VALVE	U-1 TURB 27 ft SW CRNR 10 ft IN THE OVERHEAD		
1-MS-1451	OPEN	1-MS-4055B PT ISOL	27 ft U1 TB SW OF 15B BTV		
1-MS-1452	OPEN	1-MS-4055C PT ISOL	27 ft U1 TB SW OF 15B BTV		

ATTACHMENT 2B
EXTRACTION STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-1007	OPEN	1-ES-1414-PT ISOL	27 ft ON STANCHION J110 E OF 16A FWH		
1-ES-1008	SHUT	1-ES-1414-PT DRN	27 ft ON STANCHION J110 E OF 16A FWH		
1-ES-1010	OPEN	1-ES-1416-PT ISOL	27 ft ON STANCHION H110 W OF 16A FWH		
1-ES-1011	SHUT	1-ES-1416-PT DRN	27 ft ON STANCHION H110 W OF 16A FWH		
1-ES-1013	OPEN	1-ES-1418-PT ISOL	12 ft BETWEEN 13 FWHs		
1-ES-1014	SHUT	1-ES-1418-PT DRN	12 ft BETWEEN 13 FWHs		
1-ES-1016	OPEN	1-ES-1420-PT ISOL	12 ft BETWEEN FWHs		
1-ES-1017	SHUT	1-ES-1420-PT DRN	12 ft BETWEEN FWHs		
1-ES-1019	OPEN	1-ES-1422-PT ISOL	27 ft ABOVE 11 SGFP		
1-ES-1020	SHUT	1-ES-1422-PT DRN	27 ft ABOVE 11 SGFP		
1-ES-1022	OPEN	1-ES-1424-PT ISOL	27 ft BETWEEN 14A & B FWHs		

ATTACHMENT 2B
EXTRACTION STEAM INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-ES-1023	SHUT	1-ES-1424-PT DRN	27 ft BETWEEN 14A & B FWHs		
1-ES-1025	OPEN	1-ES-1426-PT ISOL	45 ft W SIDE 15A FWH		
1-ES-1026	SHUT	1-ES-1426-PT DRN	45 ft W SIDE 15A FWH		
1-ES-1028	OPEN	1-ES-1428-PT ISOL	45 ft W SIDE 15B FWH		
1-ES-1029	SHUT	1-ES-1428-PT DRN	45 ft W SIDE 15B FWH		
1-ES-1086	OPEN	1450 PT ISOL	TURB SKIRT W SIDE		
1-ES-1089	OPEN	1456 PT ISOL	TURB SKIRT W SIDE		
1-ES-1092	OPEN	1451 PT ISOL	TURB SKIRT E SIDE		
1-ES-1095	OPEN	1448 PT ISOL	TURB SKIRT W SIDE		
1-ES-1098	OPEN	1454 PT ISOL	TURB SKIRT W SIDE		
1-ES-1102	OPEN	1449 PT ISOL	TURB SKIRT E SIDE		
1-ES-1105	OPEN	1446 PT ISOL	TURB SKIRT W SIDE		
1-ES-1108	OPEN	1452 PT ISOL	TURB SKIRT W SIDE		
1-ES-1111	OPEN	1447 PT ISOL	TURB SKIRT E SIDE		

ATTACHMENT 2C
MSR INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1003	SHUT	1-RDV-3701-LS VENT	IN PIT ON S SIDE 11 MSR DRN TK		
1-RDV-1004	SHUT	1-RDV-3701-LS DRN	IN PIT ON S SIDE 11 MSR DRN TK		
1-RDV-1007	SHUT	1-RDV-3702-LS VENT	IN PIT ON S SIDE 11 MSR DRN TK		
1-RDV-1008	SHUT	1-RDV-3702-LS DRN	IN PIT ON S SIDE 11 MSR DRN TK		
1-RDV-1011	OPEN	1-RDV-3701-LT UPR ISOL	IN PIT UNDER S SIDE 11 MSR DRN TK		
1-RDV-1012	OPEN	1-RDV-3701-LT LWR ISOL	IN PIT UNDER S SIDE 11 MSR DRN TK		
1-RDV-1013	SHUT	1-RDV-3701-LT EQUAL	IN PIT UNDER S SIDE 11 MSR DRN TK		
1-RDV-1014	SHUT	1-RDV-3701-LT DRN	IN PIT UNDER S SIDE 11 MSR DRN TK		
1-RDV-1015	SHUT	1-RDV-3701-LT VENT	IN PIT ON S SIDE 11 MSR DRN TK		
1-RDV-1015A	SHUT	1-RDV-3701-LT DRN	IN PIT UNDER S SIDE 11 MSR DRN TK		

ATTACHMENT 2C
MSR INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1018	SHUT	1-RDV-3701-LC VENT	IN PIT ON S SIDE 11 MSR DRN TK		
1-RDV-1019	SHUT	1-RDV-3701-LC DRN	IN PIT ON S SIDE 11 MSR DRN TK		
1-RDV-1022	SHUT	1-RDV-3702-LC DRN	IN PIT ON S SIDE 11 MSR DRN TK		
1-RDV-1023	SHUT	1-RDV-3702-LC VENT	IN PIT ON S SIDE 11 MSR DRN TK		
1-RDV-1026	SHUT	1-RDV-3701-LG DRN	IN PIT ON W SIDE 11 MSR DRN TK		
1-RDV-1027	SHUT	1-RDV-3701-LG VENT	IN PIT ON W SIDE 11 MSR DRN TK		
1-RDV-1030	SHUT	1-RDV-3703-LS VENT	IN PIT ON E SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1031	SHUT	1-RDV-3703-LS DRN	IN PIT ON E SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1034	SHUT	1-RDV-3704-LS VENT	IN PIT ON E SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1035	SHUT	1-RDV-3704-LS DRN	IN PIT ON E SIDE 11 MSR 1ST STG DRN TK		

ATTACHMENT 2C
MSR INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1038	OPEN	1-RDV-3703-LT UPR ISOL	IN PIT ON E SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1039	OPEN	1-RDV-3703-LT LWR ISOL	IN PIT ON E SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1040	SHUT	1-RDV-3703-LT EQUAL	IN PIT ON E SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1041	SHUT	1-RDV-3703-LT DRN	IN PIT ON E SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1042	SHUT	1-RDV-3703-LT VENT	IN PIT ON E SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1042A	SHUT	1-RDV-3703-LT DRN	IN PIT ON E SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1045	SHUT	1-RDV-3703-LC VENT	IN PIT ON N SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1046	SHUT	1-RDV-3703-LC DRN	IN PIT ON N SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1049	SHUT	1-RDV-3704-LC DRN	IN PIT ON S SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1050	SHUT	1-RDV-3704-LC VENT	IN PIT ON S SIDE 11 MSR 1ST STG DRN TK		

ATTACHMENT 2C
MSR INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1053	SHUT	1-RDV-3703-LG DRN	IN PIT ON N SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1054	SHUT	1-RDV-3703-LG VENT	IN PIT ON N SIDE 11 MSR 1ST STG DRN TK		
1-RDV-1057	SHUT	1-RDV-3705-LS VENT	IN PIT ON N SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1058	SHUT	1-RDV-3705-LS DRN	IN PIT ON N SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1061	SHUT	1-RDV-3706-LS VENT	IN PIT ON S SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1062	SHUT	1-RDV-3706-LS DRN	IN PIT ON S SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1065	OPEN	1-RDV-3705-LT UPR ISOL	IN PIT ON S SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1066	OPEN	1-RDV-3705-LT LWR ISOL	IN PIT ON S SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1067	SHUT	1-RDV-3705-LT EQUAL	IN PIT ON S SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1068	SHUT	1-RDV-3705-LT DRN	IN PIT ON S SIDE 11 MSR 2ND STG DRN TK		

ATTACHMENT 2C
MSR INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1069	SHUT	1-RDV-3705-LT VENT	IN PIT ON S SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1069A	SHUT	1-RDV-3705-LT DRN	IN PIT ON S SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1072	SHUT	1-RDV-3705-LC VENT	IN PIT ON N SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1073	SHUT	1-RDV-3705-LC DRN	IN PIT ON N SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1076	SHUT	1-RDV-3706-LC DRN	IN PIT ON S SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1077	SHUT	1-RDV-3706-LC VENT	IN PIT ON S SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1080	SHUT	1-RDV-3705-LG DRN	IN PIT ON E SIDE 11 MSR 2ND STG DRN TK		
1-RDV-1085	SHUT	1-RDV-3708-LS VENT	IN PIT ON S SIDE 12 MSR DRN TK		
1-RDV-1086	SHUT	1-RDV-3708-LS DRN	IN PIT ON S SIDE 12 MSR DRN TK		
1-RDV-1089	SHUT	1-RDV-3709-LS VENT	IN PIT ON S SIDE 12 MSR DRN TK		

ATTACHMENT 2C
MSR INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1090	SHUT	1-RDV-3709-LS DRN	IN PIT ON S SIDE 12 MSR DRN TK		
1-RDV-1093	OPEN	1-RDV-3708-LT LWR ISOL	IN PIT ON S SIDE 12 MSR DRN TK		
1-RDV-1094	OPEN	1-RDV-3708-LT UPR ISOL	IN PIT ON S SIDE 12 MSR DRN TK		
1-RDV-1095	SHUT	1-RDV-3708-LT EQUAL	IN PIT ON S SIDE 12 MSR DRN TK		
1-RDV-1096	SHUT	1-RDV-3708-LT DRN	IN PIT ON S SIDE 12 MSR DRN TK		
1-RDV-1097	SHUT	1-RDV-3708-LT VENT	IN PIT ON S SIDE 12 MSR DRN TK		
1-RDV-1097A	SHUT	1-RDV-3708-LT DRN	IN PIT ON S SIDE 12 MSR DRN TK		
1-RDV-1100	SHUT	1-RDV-3708-LC VENT	IN PIT ON S SIDE 12 MSR DRN TK		
1-RDV-1101	SHUT	1-RDV-3708-LC DRN	IN PIT ON S SIDE 12 MSR DRN TK		
1-RDV-1104	SHUT	1-RDV-3709-LC DRN	IN PIT ON E SIDE 12 MSR DRN TK		

ATTACHMENT 2C
MSR INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1105	SHUT	1-RDV-3709-LC VENT	IN PIT ON E SIDE 12 MSR DRN TK		
1-RDV-1108	SHUT	1-RDV-3708-LG DRN	IN PIT ON E SIDE 12 MSR DRN TK		
1-RDV-1109	SHUT	1-RDV-3708-LG VENT	IN PIT ON E SIDE 12 MSR DRN TK		
1-RDV-1112	SHUT	1-RDV-3710-LS VENT	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1113	SHUT	1-RDV-3710-LS DRN	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1116	SHUT	1-RDV-3711-LS VENT	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1117	SHUT	1-RDV-3711-LS DRN	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1120	OPEN	1-RDV-3710-LT LWR ISOL	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1121	OPEN	1-RDV-3710-LT UPR ISOL	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1122	SHUT	1-RDV-3710-LT EQUAL	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		

ATTACHMENT 2C
MSR INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1123	SHUT	1-RDV-3710-LT DRN	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1124	SHUT	1-RDV-3710-LT VENT	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1124A	SHUT	1-RDV-3710-LT DRN	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1127	SHUT	1-RDV-3710-LC VENT	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1128	SHUT	1-RDV-3710-LC DRN	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1131	SHUT	1-RDV-3711-LC DRN	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1132	SHUT	1-RDV-3711-LC VENT	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1135	SHUT	1-RDV-3710-LG DRN	IN PIT ON N SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1136	SHUT	1-RDV-3710-LG VENT	IN PIT ON N SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1139	SHUT	1-RDV-3712-LS VENT	IN PIT ON N SIDE 12 MSR 2ND STG DRN TK		

ATTACHMENT 2C
MSR INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1140	SHUT	1-RDV-3712-LS DRN	IN PIT ON N SIDE 12 MSR 2ND STG DRN TK		
1-RDV-1143	SHUT	1-RDV-3713-LS VENT	IN PIT ON N SIDE 12 MSR 2ND STG DRN TK		
1-RDV-1144	SHUT	1-RDV-3713-LS DRN	IN PIT ON N SIDE 12 MSR 2ND STG DRN TK		
1-RDV-1147	OPEN	1-RDV-3712-LT LWR ISOL	IN PIT ON N SIDE 12 MSR 2ND STG DRN TK		
1-RDV-1148	OPEN	1-RDV-3712-LT UPR ISOL	IN PIT ON N SIDE 12 MSR 2ND STG DRN TK		
1-RDV-1149	SHUT	1-RDV-3712-LT EQUAL	IN PIT ON N SIDE 12 MSR 2ND STG DRN TK		
1-RDV-1150	SHUT	1-RDV-3712-LT DRN	IN PIT ON N SIDE 12 MSR 2ND STG DRN TK		
1-RDV-1151	SHUT	1-RDV-3712-LT VENT	IN PIT ON N SIDE 12 MSR 2ND STG DRN TK		
1-RDV-1151A	SHUT	1-RDV-3712-LT DRN	IN PIT ON N SIDE 12 MSR 2ND STG DRN TK		
1-RDV-1154	SHUT	1-RDV-3712-LC VENT	IN PIT ON N SIDE 12 MSR 2ND STG DRN TK		

ATTACHMENT 2C
MSR INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1155	SHUT	1-RDV-3712-LC DRN	IN PIT ON N SIDE 12 MSR 2ND STG DRN TK		
1-RDV-1158	SHUT	1-RDV-3713-LC DRN	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1159	SHUT	1-RDV-3713-LC VENT	IN PIT ON E SIDE 12 MSR 1ST STG DRN TK		
1-RDV-1160	OPEN	12 MSR SECOND STAGE DRAIN TANK 1-LG-3712 UPPER ROOT VALVE	ABOVE 12 MSR 2ND STAGE DRN TK SW CORNER U-1 PIT		
1-RDV-1161	OPEN	12 MSR SECOND STAGE DRAIN TANK 1-LG-3712 LOWER ROOT VALVE	BELOW 12 MSR 2ND STAGE DRN TK SW CORNER U-1 PIT		
1-RDV-1162	SHUT	1-RDV-3712-LG DRN	IN PIT ON W SIDE 12 MSR 2ND STG DRN TK		
1-RDV-1165A	SHUT	1-RDV-3700-LS DRN	12 ft OVHD OF 11 MSR		
1-RDV-1166	SHUT	1-RDV-3700-LS VENT	12 ft OVHD OF 11 MSR		
1-RDV-1168A	SHUT	1-RDV-3707-LS DRN	12 ft UNDER 12 MSR		
1-RDV-1169	SHUT	1-RDV-3707-LS VENT	27 ft UNDER GRATING ON E SIDE OF 12 MSR		

ATTACHMENT 2C
MSR INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1212	OPEN	11 MSR DRAIN TANK 1-LG-3701 UPPER ISOLATION VALVE	ABOVE 11 MSR DRN TK SE CORNER U-1 PIT		
1-RDV-1213	OPEN	11 MSR DRAIN TANK 1-LG-3701 LOWER ISOLATION VALVE	BELOW 11 MSR DRN TK SE CORNER U-1 PIT		
1-RDV-1214	OPEN	11 MSR FIRST STAGE DRAIN TANK 1-LG-3703 UPPER ISOLATION VALVE	ABOVE 11 MSR 1ST STAGE DRN TK SE CORNER U-1 PIT		
1-RDV-1215	OPEN	11 MSR FIRST STAGE DRAIN TANK 1-LG-3703 LOWER ISOLATION VALVE	BELOW 11 MSR 1ST STAGE DRN TK SE CORNER U-1 PIT		
1-RDV-1216	OPEN	12 MSR DRAIN TANK 1-LG-3708 UPPER ISOLATION VALVE	ABOVE 12 MSR DRN TK SW CORNER U-1 PIT		
1-RDV-1217	OPEN	12 MSR DRAIN TANK 1-LG-3708 LOWER ISOLATION VALVE	BELOW 12 MSR DRN TK SW CORNER U-1 PIT		
1-RDV-1218	OPEN	12 MSR FIRST STAGE DRAIN TANK 1-LG-3710 UPPER ISOLATION VALVE	ABOVE 12 MSR 1ST STAGE DRN TK SW CORNER U-1 PIT		

ATTACHMENT 2C
MSR INSTRUMENTATION VALVES

VALVE NUMBER	STARTUP/ NORMAL OP. POS	DESCRIPTION	LOCATION	INIT/ DATE	COMMENTS
1-RDV-1219	OPEN	12 MSR FIRST STAGE DRAIN TANK 1-LG-3710 LOWER ISOLATION VALVE	BELOW 12 MSR 1ST STAGE DRN TK SW CORNER U-1 PIT		
1-RDV-1220	OPEN	12 MSR SECOND STAGE DRAIN TANK 1-LG-3712 UPPER ISOLATION VALVE	ABOVE 12 MSR 2ND STAGE DRN TK SW CORNER U-1 PIT		
1-RDV-1221	OPEN	12 MSR SECOND STAGE DRAIN TANK 1-LG-3712 LOWER ISOLATION VALVE	BELOW 12 MSR 2ND STAGE DRN TK SW CORNER U-1 PIT		
1-RDV-1222	SHUT	12 MSR SECOND STAGE DRAIN TANK 1-LG-3712 VENT VALVE	ABOVE 12 MSR 2ND STAGE DRN TK SW CORNER U-1 PIT		

ENCLOSURE 4

UFSAR Table 5A-5

TABLE 5A-5

ASSESSMENT OF PROBABILITY OF EXPOSURES IN EXCESS OF 10 CFR PART 100 FOR EQUIPMENT LOCATIONS WITHOUT TORNADO-GENERATED MISSILE RESISTANT BARRIERS

NUMBER	DESCRIPTION	LOCATION	PROBABILITY OF EXPOSURE IN EXCESS OF 10 CFR PART 100 GUIDELINES PER YEAR PER UNIT
1	EDG Nos. 1B, 2A, and 2B engine intake air filter and exhaust piping and muffler	Exposed components located on the roof of the Auxiliary Building	< 5E-08
2	AFW turbine exhaust piping	Portion of piping running from the floor of the 27' in the Turbine Building out through the roof of the Auxiliary Building on the associated Unit.	< 1E-08
3	MSSV and ADV vent stacks	Portion of vent stack from floor of the 69' Elevation in the main plant exhaust equipment room out through the roof of the Auxiliary Building on the associated Unit.	< 5E-08
4	SRW head tanks and exposed piping	SRW head tanks in the main plant exhaust equipment room (69' Elevation) and exposed SRW piping on the main generators in the Turbine Building (45' Elevation). For Unit 1 only, the SRW piping to the condensate booster pumps in the Unit 1 Turbine Building 12' Elevation.	< 1E-07
5	Saltwater pumps and piping	Below the intake structure roof pump access hatches on each unit.	< 1E-07
6	21 FOST vent	On roof of 21 FOST Building	<1E-09
7	EDG No. 1A exhaust ducts	Attached to the safety-related Diesel Generator Building structure	<1E-07
Aggregate Probability (per Section 5A.3.1.9, acceptable if less than < 1E-06.)			< 5E-07

ATTACHMENT (2)

WESTINGHOUSE AFFIDAVIT

CAW-14-4056

AFFIDAVIT

STATE OF CONNECTICUT:

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COUNTY OF HARTFORD:

Before me, the undersigned authority, personally appeared Mark J. Stofko, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

Mark J. Stofko, Manager
I&C Licensing

Sworn to and subscribed before me
this 27th day of October 2014

Laurie J. White
Notary Public

My Commission expires: 8/31/2019

(1) I am Manager, I&C Licensing, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.

(2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.

(3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.

(4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.

(i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.

(ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitute Westinghouse policy and provide the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

(a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

(b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.

(c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.

(d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.

(e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.

(f) It contains patentable ideas, for which patent protection may be desirable.

(iii) There are sound policy reasons behind the Westinghouse system which include the following:

(a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.

(b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.

(c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

(d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.

(e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.

(f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

(iv) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.

(v) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.

(vi) The proprietary information sought to be withheld in this submittal is that which is contained in CN-TAS-05-13, Revision 1, "Calvert Cliffs Units 1 & 2 Steam Generator Tube Rupture Event" (Proprietary), for submittal to the Commission, being transmitted by Exelon Generation Company letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with Steam Generator Tube Rupture Safety Analysis and associated Radiological Dose methodologies, and may be used only for that purpose.

(a) This information is part of that which will enable Westinghouse to:

(i) Perform Non-LOCA UFSAR Safety Analyses.

(ii) Alternative Source Term Radiological Dose Analyses.

(b) Further this information has substantial commercial value as follows:

(i) Westinghouse plans to sell the use of similar information to its customers for the purpose of modeling operator actions as part of a Non-LOCA safety analysis event.

(ii) Westinghouse can sell support and defense of Alternative Source Term analyses and methodologies.

(iii) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar technical evaluation justifications and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.