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Indian Point Energy Center
Unit 2
FAC Susceptible Non-Modeled (SNM) Program

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Table of Contents

1. Introduction

Flow-Accelerated Corrosion (FAC) is a form of material degradation that results in thinning of the inside pipe wall in carbon steel piping and fittings under certain flow and chemistry conditions. If undetected, FAC may result in piping rupture and subsequent fatalities, injuries, equipment damage, unplanned plant shutdown, and transients that pose undesirable challenges to plant operators. Consequently, all US nuclear plants, including Indian Point, have FAC programs in place to detect and mitigate FAC before piping failure, in accordance with Generic Letter 89-08 [7.1].

As methods to predict and monitor FAC in high-energy large-bore piping have improved over the past several years, attention is now turning towards small-bore piping. Failures in small-bore piping generally pose less of a hazard than failures in large-bore piping. However, a small-bore piping failure still has the potential to injure plant personnel or force a plant shutdown. Moreover, as plants age, failures in small-bore lines due to FAC are occurring more frequently. Therefore, a method to address FAC in small-bore piping becomes increasingly valuable in improving plant reliability and safety.

Susceptible Non-Modeled (SNM) lines include small-bore and some large-bore piping that is not suitable for predictive modeling. Small-bore piping is not suitable for CHECWORKS modeling primarily due to the random nature of the fit-up gap between the pipe and socket-weld fittings. In addition, the extremely large linear footage of small-bore lines and the often-unknown thermodynamic conditions combine to make detailed modeling of small-bore piping inefficient and sometimes inaccurate.

In addition to small-bore piping, some large-bore FAC susceptible piping is unsuitable for CHECWORKS modeling because of uncertain operating conditions. For example, steam trap and drain lines may combine in a header before draining to the condenser. The flow rates in such a manifold are difficult to determine, and therefore, an analytical model would be of limited value. Lines that are visually inspected, such as the turbine crossunder piping, are not typically modeled. Lines which are only susceptible at a particular location (e.g. at a nozzle or downstream of a flow element) are not usually modeled in CHECWORKS. Lines that have operating conditions outside of CHECWORKS modeling capabilities such as vent lines with entrained moisture are not modeled.

Since quantitative methods are not available for evaluating SNM piping, a qualitative method is used. This method addresses both the failure consequence and relative FAC susceptibility to develop a prioritized ranking of lines that can be used as input to the inspection planning process.

2. Purpose

The purpose of this document is to produce a prioritized ranking of all of the Indian Point Flow Accelerated Corrosion (FAC) Susceptible Non-Modeled (SNM) piping. These rankings are in accordance with Appendix A of NSAC 202L [7.2]. For lines established as SNM in the Indian Point System Susceptibility Evaluation (SSE) [7.3], this document determines the consequence of failure, the level of FAC susceptibility, and establishes the methodology used to perform the evaluation. The results of this document are to be used as input to inspection planning and selection of inspection locations and/or as a guide for a proactive small-bore replacement plan.

3. Scope

The scope of this SNM Program is defined as all conventional piping designated Susceptible Non-Modeled in the Indian Point System Susceptibility Evaluation (SSE) [7.3]. This document reflects the current operating status of the plant. Periodically, it should be reviewed and updated as necessary to reflect changes in plant configuration, operating conditions, related plant experience, and industry experience as recommended by EPRI'S "Recommendations for an Effective Flow-Accelerated Corrosion Program," NSAC 202L [7.2].

Section 4 of this document contains a record of all assumptions made. Section 5 describes the methodology employed in this analysis. The results obtained are documented in Section 6 and in the Appendices. Finally, Section 7 includes a list of all references used in this analysis.

4. Assumptions

4.1. General

4.1.1. Piping with nominal pipe size less than or equal to 2" is assumed to be socket welded. Likewise, lines over 2" in diameter are assumed butt-welded.

4.2. Infrequently Accessed Areas

4.2.1. An SNM line is not considered to pose a hazard to personnel upon failure if it is located in an inaccessible or infrequently accessed (low traffic) area during normal plant operation. Restricted areas, inaccessible areas, or infrequently accessed areas are considered not to pose a personnel hazard upon failure. The following general locations are considered to be low traffic, infrequently accessed areas:

- Inside containment
- Inside the condensers
- Locked rooms
- Equipment rooms that are not normally accessed except by operators on rounds

4.3. Burn Threshold

4.3.1. It is conservatively assumed that 112°F is the threshold point for burn injuries due to piping failure.

4.4. Condenser Lines

4.4.1. It is assumed that the plant can not withstand an FAC-related failure which leads to a rupture of an SNM line connected directly to the condenser. A rupture would cause a loss or decrease in condenser vacuum and thus require plant shutdown. However, the following situations can downgrade an SNM classification to Category 2 (see Section 5 for a definition of Category 2):

- The SNM line is in a low traffic area and
- The SNM line is non-safety-related and
- A small-bore line is connected to a larger header before entering the condenser, in which case the header would feedback through the small-bore leak and condenser vacuum would not be affected or
- The SNM line is low pressure and could be assumed to have a leak before a break, in which case the leak would be discovered during operator rounds and repaired.

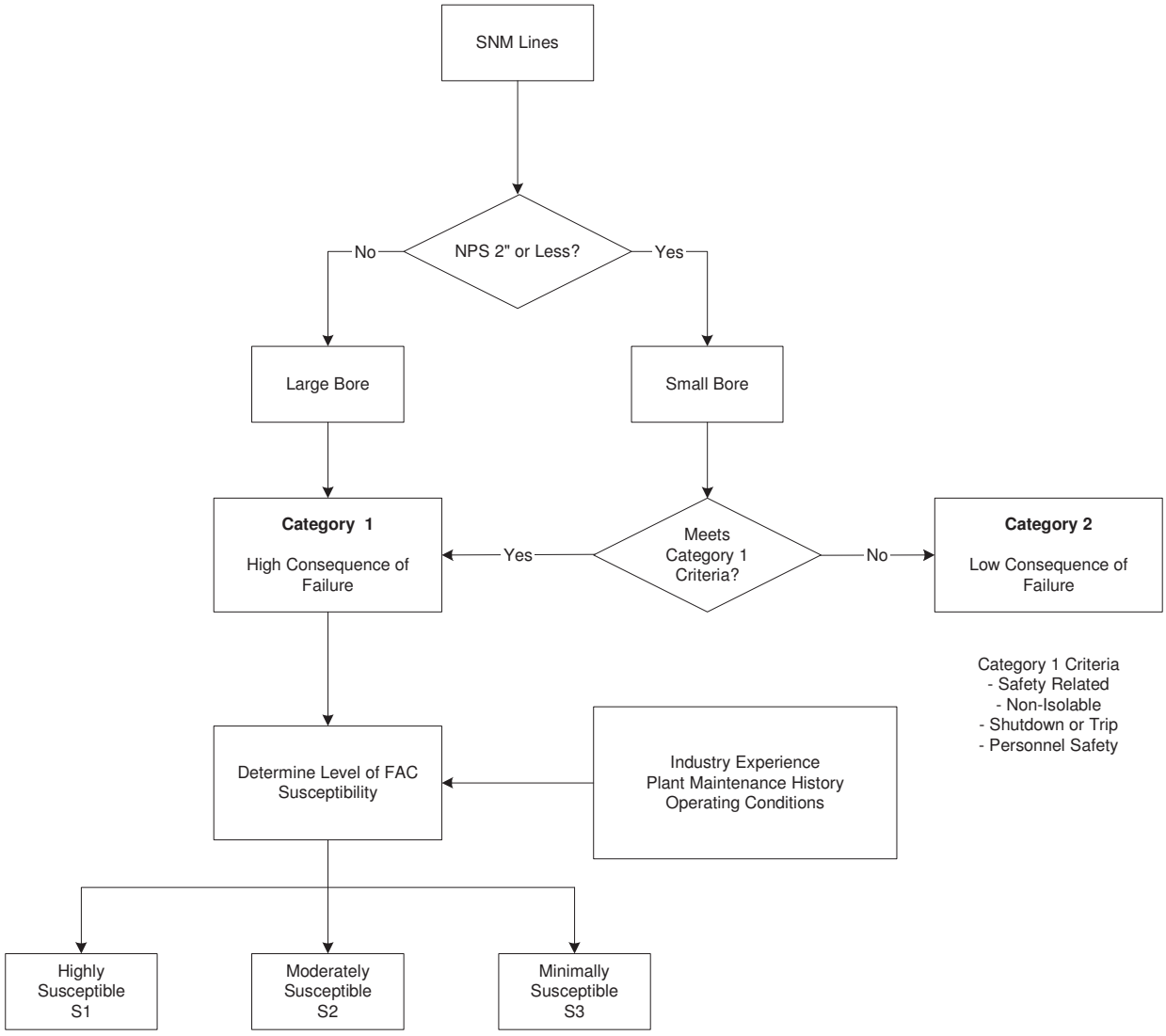
4.5. Operating Parameters

4.5.1. If design and operating parameters such as flow rates, temperatures and pressures are not available from the Indian Point PEPSE Model [7.4], pipe spec [7.5], or system descriptions [7.5], operating conditions are approximated in these SNM lines, using engineering judgment wherever necessary.

5. Methodology

A ranking method was used to evaluate the lines designated as Susceptible Non-Modeled (SNM) from the System Susceptibility Evaluation report [7.3]. The SNM lines were first categorized based on consequence of failure and were designated either High Consequence of Failure or Low Consequence of Failure – Category 1 or Category 2, respectively. Lines that are 2-inch nominal pipe size (NPS) or less (small-bore) and could be demonstrated to have minimal consequences of failure were designated Category 2. Category 1 lines were defined to consist of the remaining piping (potentially high consequences of failure). Category 1 lines were further evaluated for level of FAC susceptibility (high, moderate, or low) based on industry experience [7.7], plant experience/maintenance history [7.8], and operating conditions [7.4]. The methodology employed in this analysis consisted of a number of successive steps. Each step is explained in detail in the following sections. A flowchart of the methodology used is included in Figure 5.1.

Figure 5.1 SNM Analysis Methodology



The following sections provide a detailed description of the evaluation method.

5.1. Consequence of Failure

The criteria used to evaluate consequence of failure are based on Appendix A of NSAC 202L [7.2], the safety classification, the potential for injury to plant personnel, and the potential for forced shutdown as described below:

5.1.1. Size

All large-bore piping (NPS of greater than 2") was designated Category 1.

5.1.2. Safety-Related Piping

All SNM Safety-Related lines were designated Category 1. All ASME Code Class 1, 2, or 3 piping, based on pipe class, was considered Safety-Related in addition to lines designated as Safety-Related on the P&IDs.

5.1.3. Plant Personnel Safety

Any line whose failure would likely result in injury to plant personnel was designated Category 1. The likelihood of injury to plant personnel was taken as a function of the line's accessibility and operating temperature.

5.1.3.1. Accessibility

Piping located in inaccessible or infrequently accessed areas was considered unlikely to cause injury upon failure (see Assumption 4.2).

5.1.3.2. Operating Temperature

It was conservatively assumed that a person in the area of failure of a line with an operating temperature greater than or equal to 112°F would be injured (see Assumption 4.3).

5.1.4. Forced Shutdown

Any line whose failure would likely result in a forced plant shutdown was designated Category 1. A plant trip or shutdown required to repair an un-isolable leak are both considered a forced shutdown.

5.1.4.1. Trip

Any line whose failure is likely to cause a plant trip was considered to force a shutdown upon failure. For example, a failure in a vent line near the condenser may result in a loss of condenser vacuum and a consequent trip.

5.1.4.2. Non-Isolable Leak

Any line whose failure is likely to cause an un-isolable leak was considered to force a shutdown upon failure.

Some isolable leaks may require the plant to operate at reduced power. Any SNM line whose isolation due to failure would likely

force the plant to operate at reduced power was designated Category 1.

Table 5.1 provides a summary of the Consequence of Failure criteria discussed in this section as well as the abbreviation used for each criterion.

Table 5.1 Consequence of Failure Criteria

Abbreviation	Description
FI	High Consequence of Failure: non-Isolable line
FL	High Consequence of Failure: Large Bore line
FP	High Consequence of Failure: Personnel safety issue (frequently accessed location)
FS	High Consequence of Failure: Safety-Related line
FT	High Consequence of Failure: Shutdown or Trip upon failure

5.1.5. Category 2

All lines that do not meet any of the Category 1 criteria discussed above are considered Category 2, Low Consequence of Failure.

5.2. Relative Level of FAC Susceptibility

An FAC susceptibility analysis was performed for all the Category 1 SNM lines. This analysis provides a relative ranking of lines with respect to FAC susceptibility and aids in the inspection planning process. Industry experience, maintenance history, and operating conditions were considered in determining FAC susceptibility. Based on these factors, each line was evaluated as having: high susceptibility (S1), moderate susceptibility (S2), or low susceptibility (S3). The following guidelines were used to determine the relative level of FAC susceptibility of each line:

5.2.1. Industry Experience (IE)

Certain lines, such as operating vents, have a history of leaking. The CHECWORKS Users Group (CHUG) Plant Experience Database [7.7] provides a listing of FAC related wall thinning and through-wall failures at other plants. EPRI's *Flow-Accelerated Corrosion in Power Plants* provides historical data on FAC failures [7.9]. Finally, FACnet is an electronic forum used by FAC Coordinators and Program Owners throughout the industry to discuss imminent issues.

The Indian Point SNM lines which are similar in function and operating conditions to lines at other plants that have experienced wall thinning or failures were considered to have a relatively high susceptibility. These lines were generally ranked High for susceptibility level.

5.2.2. Plant Experience or Maintenance History (PE)

The Indian Point outage reports provided information regarding the history of FAC events/failures [7.8]. These lines were considered to have a

relatively high susceptibility, and were generally ranked High for susceptibility level.

5.2.3. Operating Conditions

Steam quality, operating temperature, flow rate, and frequency of operation were also considered in determining the relative FAC susceptibility of each line. The relationships between predicted FAC wear rate and these parameters are well established and are presented in EPRI's *Flow-Accelerated Corrosion in Power Plants* [7.9]. For example, FAC wear rates are generally higher for two-phase flow or for operating temperatures between 250-400°F. Although FAC is caused by a complex interaction of several parameters, an approximate susceptibility ranking can be achieved through consideration of these parameters along with field experience and sound engineering judgment.

Operating conditions were determined through review of the plant PEPSE Model [7.4], flow diagrams [7.10], and system design manuals [7.5]. Where operating conditions are known only upstream of flow elements, orifices, and control valves, thermodynamic conditions change significantly downstream if there is a large pressure drop. In these cases, the downstream operating conditions were estimated based on the known thermodynamic data and steam tables.

The following guidelines were used in determining relative FAC susceptibility:

5.2.3.1. Steam Quality (Q)

Lines operating with two-phase flow are generally more susceptible to FAC than single-phase lines. The predicted rate of FAC as a function of steam quality is highest for wet steam and drops off as the quality approaches either all water or all steam [7.2]. For the purposes of this document, steam quality was divided into three ranges based on FAC Effect as shown in Table 5.2.

Since the steam quality for SNM lines is usually not known exactly, these ranges provide a means of categorizing the steam quality of a line for determining the FAC susceptibility ranking. Lines operating with a quality between 30 and 99.5 percent were considered to be more susceptible than lines outside that range. If the steam quality was in the highly susceptible range, the line was generally ranked 1, depending on the other conditions such as temperature, operating frequency, and flow rate (see Sections 5.2.3.2. through 5.2.3.4). If the steam quality was outside of this range, it was generally ranked 2 depending on temperature, operating frequency, and flow rate. If flashing was present, the line was generally ranked "High" in terms of susceptibility.

Table 5.2 Steam Quality FAC Effect

Steam Quality	FAC Effect
30% ≤ Q < 99.5% or Flashing Steam	1 (High)
0% (Water) ≤ Q < 30%	2 (Moderate)
99.5% ≤ Q < 100%	3 (Low)

5.2.3.2. Operating Temperature (T)

Based on EPRI's *Flow-Accelerated Corrosion in Power Plants* [7.9], the predicted rate of FAC as a function of operating temperature is highest for temperatures in the range of 250°F - 400°F with higher or lower temperatures being relatively less susceptible. As with steam quality, the operating temperatures of SNM lines cannot always be determined exactly. Therefore, operating temperature was divided into three ranges based on FAC Effect as shown in Table 5.3.

Lines with operating temperatures in the high range were considered more susceptible than lines operating in the low range. Operating temperature alone cannot be used to determine FAC susceptibility but was considered along with the other parameters discussed in this section to determine a relative ranking.

Table 5.3 Temperature FAC Effect

Temperature Range (°F)	FAC Effect
250 ≤ T ≤ 350	1 (High)
350 < T ≤ 400	2 (Moderate)
T < 250, T > 400	3 (Low)

5.2.3.3. Operating Time or Frequency of Operation (O)

Lines that operate frequently tend to have more wall loss over time than those lines that operate less frequently. However, it is also true that many lines that operate only during startup or testing experience especially severe conditions while in service. Therefore, operating frequency alone is not a good indication of the likelihood of wall thinning.

For the purposes of this document, lines which operate infrequently were considered less susceptible relative only to lines of similar function and with similar operating conditions that operate more frequently. If a line is frequently operated and, based on industry and/or plant experience, encounters severe conditions during operation, it was ranked 1. If a line is infrequently operated and does not experience severe conditions during operation, it was generally ranked 2.

Operating frequency was ranked with a FAC Effect of 1 or 2 according to Table 5.4.

Table 5.4 Operating Time FAC Effect

Operation	FAC Effect
Lines operating frequently (or w/ severe conditions)	1 (High)
Lines operating infrequently	2 (Low)

5.2.3.4. Flow Rate

Higher flow rates resulting in high fluid velocities tend to result in higher FAC wear rates. Flow rates in SNM lines are often unknown. Where this information was available, those lines with higher flow rates were considered more susceptible. Flow Rate was ranked with a FAC Effect of C or L according to Table 5.5.

"Choking", also called critical or sonic flow, occurs when maximum flow through a restriction is reached. If a line experiences choked flow, it was ranked "High" for susceptibility. If the flow rate was known to be extremely low or if the line is a gravity drain, it was generally ranked "Low" for susceptibility. Flow rates were based on engineering judgment (see Section 5). In cases where flow rate played a major role in determining the FAC susceptibility, a note is provided in the Comments field.

Table 5.5 Flow FAC Effect

Operation	FAC Effect
Lines with Choked flow	C (High)
Lines with Low flow	L (Low)

6. Results

This report further categorized the susceptibility level for lines categorized SNM in the Indian Point SSE. For each line designated SNM, a corresponding Consequence of Failure designation and susceptibility level has been assigned. Table 6.1 provides a summary of the results of the SNM analysis.

Table 6.1 Results of SNM Analysis Indicating the Number of Lines for Each Susceptibility Level

Consequence of Failure	Susceptibility Level	Quantity
Category 1	S1	154
Category 1	S2	303
Category 1	S3	99
Category 2	N/A	146

*There are a total of 702 lines categorized as SNM.

6.1. Line SNM Analysis Results Table

The appendices of this document contain the results of the SNM line analysis for Indian Point Energy Center. The appendices are sorted by pipe size (large bore or small bore) and by susceptibility level (see Table 6.1). The following fields appear in these reports:

6.1.1. System

The system appears on the first line of each section within Appendix A. This is a two-digit code defined in the Indian Point SSE [7.3].

6.1.2. Subsystem Number

The subsystem number is provided above its associated group of lines.

6.1.3. Subsystem Description

A short description of the subsystem boundary is provided after the subsystem number.

6.1.4. Line Number

Indian Point Energy Center does not maintain a complete piping line list. Therefore, line names needed to be created. The majority of main piping lines, depending on susceptibility, were assigned a unique Line Number. The naming convention follows a format which includes unit number, system abbreviation, a sequential number, and, if necessary, a section designator used either for parts of the same line with different susceptibility characteristics or specifications or for preventing duplicate line names:

A-BBBB-CCC-D

A	Unit Number
BBBB	System Abbreviation
CCC	Sequential Number
D	Section Designator

Examples: 2-1EST-014, 2-AS-082-B

6.1.5. Size

The diameter of the line in inches is listed here. For lines with multiple sizes, the largest diameter is listed in the "Size" field.

6.1.6. Consequence of Failure (F)

Lines are classified as either Category 1 (potentially High Consequence of Failure) or Category 2 (Low Consequence of Failure) as described in Section 5.1. Category 1 lines are designated "1" in the table and Category 2 lines are designated "2".

6.1.7. Level of Susceptibility (S)

SNM Category 1 lines are ranked for FAC susceptibility as follows: 1 = High, 2 = Moderate, and 3 = Low susceptibility.

6.1.8. Consequence of Failure Criteria (F Crit)

The Consequence of Failure criteria as defined in Section 5.1 (see Table 5.1).

6.1.9. Operating Parameters

6.1.9.1. Op. Quality (Q)

The FAC Effect ranking based on operating steam quality as defined in section 5.2.3.1 (see Table 5.2).

6.1.9.2. Op. Temp (T)

The FAC Effect ranking based on the operating temperature as defined in section 5.2.3.2 (see Table 5.3).

6.1.9.3. Op. Time (O)

The FAC Effect ranking based on the percentage of time that the line actually operates as defined in Section 5.2.3.3 (see Table 5.4).

6.1.9.4. Op. Flow (Fl)

The FAC Effect ranking based on flow conditions as defined in Section 5.2.3.4 (see Table 5.5). This field is populated for lines that experience choked flow or low flow conditions. Otherwise,

the field is blank. In all cases at Indian Point, this field was left blank, so this column was omitted from the results table.

6.1.10. Priority

SNM lines are ranked for FAC priority as follows: 1 = High, 2 = Moderate, and 3 = Low priority.

6.1.11. Plant Experience (Plant Exp.)

If there is a plant event associated with a line then a "Y" appears in this column, otherwise "N" appears.

6.1.12. Industry Experience (Ind. Exp.)

If there is an industry event associated with a similar line, then "Y" appears in this column, otherwise "N" appears.

6.1.13. Comments

The Comments field contains any information pertinent to the line function as well as to its prioritization.

6.1.14. Flow Diagram (P&ID)

This field lists the flow diagram on which the line is found.

6.1.15. Reference

The Reference field documents the source of information used to categorize and/or prioritize the line. This field was generally left blank if only a standard resource such as a PEPSE Model [7.4] was used.

6.1.16. Line Description

This field contains a short description of the line function and/or line boundaries.

6.2. Color-Coded Flow Diagrams

The Color-Coded Flow Diagrams document contains Piping and Instrumentation Diagrams (P&IDs) of all FAC susceptible systems addressed in this document as well as in the System Susceptibility Evaluation (SSE). The P&IDs are color-coded based upon FAC susceptibility category. Line names were added to the flow diagrams when needed. See the Color-Coded Flow Diagrams Document 0700.104-04 for the color-coding convention.

6.3. Inspection Frequency (Priority)

SNM piping inspections should be prioritized based on ongoing plant and industry experience as well as susceptibility ranking. For example, a line categorized as highly susceptible may be inspected more frequently than a Moderate or Low Susceptibility line. This relationship between priority and susceptibility can be seen in the results table in Appendix A. As an alternative or

a supplement to inspections, a small-bore piping replacement program can be implemented.

6.4. Revision History

Changes made for each revision of this report are documented in Appendix F.

6.5. CHECWORKS Parametric Analysis

Each line to be inspected will contain a variety of geometry types. Attachment A contains a parametric analysis of various component geometries. CHECWORKS was used to rank various components based upon their geometric configuration and operating conditions. These rankings should be used when selecting components for inspection in the SNM Program.

7. References

7.1. "Erosion/Corrosion-Induced Pipe Wall Thinning", Generic Letter 89-08, U.S. Nuclear Regulatory Commission (NRC), May 2, 1989.

7.2. "Recommendations for an Effective Flow-Accelerated Corrosion Program," EPRI NSAC 202L-R3, 1011838, May 2006.

7.3. Indian Point Energy Center Unit 2 System Susceptibility Evaluation (SSE), Report No. 0700.104-02 Rev. 2A, dated 9/8/2011.

7.4. Indian Point "Uprate PEPSE Model with New HP Turbine High Pressure Turbine Expansion", Run Date 10/26/06.

7.5. "Entergy Nuclear Northeast Indian Point Energy Center – Unit No. 2: Specification For Fabrication of Piping Systems Turbine Generator Plant"; Specification No. 9321-01-248-18; Revision 18; January 15, 2010.

7.6. Indian Point System Descriptions/Design Manuals.

System Name	SD No.
Main and Reheat Steam Supply	18.00
Extraction Steam and Heater Drains and Vents	19.02
Condensate	20.00
Feedwater	21.00
Circulating Water	23.04
Service Water	24.00
Main Turbine Lube Oil	26.00
Auxiliary Steam	29.01
Instrument Air	29.02

7.7. CHUG Industry Experience Documents (see Attachment A).

7.8. Indian Point FAC Program History Outage Reports, transmitted to CSI on 7/15/2009.

7.9. EPRI, *Flow-Accelerated Corrosion in Power Plants*, B. Chexal et al, EPRI TR-106611-R1, 1998.

7.10. Indian Point Unit 2 FAC Susceptible Piping and Instrumentation Diagrams.

System (Drawing Title)	P&ID #	Rev #
Main Steam	9321-F-2017	84
Main Steam	A235308	49
Main Steam	227780	53
Main Steam Traps (Sheet 1)	9321-F-2041	35
Main Steam Traps (Sheet 2)	9321-F-2042	21
Steam Drain and Gland Seal for Low and High Pressure Turbines	B237144	4
Steam Drain and Gland Seal for Low and High Pressure Turbines	B237145	6
Boiler Feed Pump Turbine Steam Lines Drains & Vents	9321-H-2024	23
Moisture Separator and Reheater Drains & Vents	9321-F-2023	35
Moisture Preseparator	A228272	16
Extraction Steam	9321-F-2020	43
Extraction Steam Trap System	9321-F-2031	17
Heater Drains & Vents	9321-F-2022	53
Heater Drains & Vents	A235304	23
Moisture Separator Reheaters Vent Chamber Discharge	A209847	13
Superheater Building Service Boilers	9321-F-2120	69
Auxiliary Steam Supply and Condensate Return System	A209775	45
Auxiliary Steam System (Sheet 1)	B192490	22
Auxiliary Steam System (Sheet 2)	192491	39
Auxiliary Steam System (Sheet 3)	B192493	8
Water Treatment System (Sheet 3)	A192496	18
Steam Activated Carbon Filter	B227209	16
Auxiliary Boiler Feed	B193201	15
Condensate & Boiler Feed Pump Suction (Sheet 1)	9321-2018	141
Condensate & Boiler Feed Pump Suction (Sheet 2)	A235307	32
Boiler Feedwater	9321-F-2019	113
Steam Generator Blowdown & Blowdown Sample System	9321-F-2729	69

7.11. "CHECWORKS Steam/Feedwater Application Guidelines for Plant Modeling and Evaluation of Component Inspection Data". EPRI, Palo Alto, CA and CSI Technologies, Inc., Elgin, IL: 2009. 1019176. (For information only).

7.12. Indian Point Isometric Drawings for FAC-susceptible piping, gathered by CSI on 4/3/2009 (For information only).

7.13. Electronic correspondence between CSI and Indian Point personnel (see Attachment B) (For information only).

7.13.1. Email from Ryan Doremus (CSI) to Ian Mew (IPEC) regarding a Line Naming Convention, dated 7/27/2009.

7.13.2. Email from Ian Mew (IPEC) to Ryan Doremus (CSI) regarding responses to information requests, dated 8/10/2009.

7.13.3. Email from Ian Mew (IPEC) to Ryan Doremus (CSI) regarding responses to information requests, dated 8/13/2009.

7.14. CHUG Position Paper Number 6, Recommendations for an Effective Flow-Accelerated Corrosion Program for Small-Bore Piping, Revision 0, October 2007 (For information only).

7.15. "Flow Accelerated Corrosion Program Plan Supplement"; Edited by Hazel Pearsall, FAC Program Engineer; Dated April 28, 2003 (For information only).

Appendix A
SNM Program Lines
Indian Point Unit 2

Auxiliary Feedwater (AF), Unit 2

2-AF-01: Service Boiler Auxiliary Feedwater Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AF-001	6	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Deaerator Header to Boiler Feed Pumps
2-AF-002	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Aux. Feed header to #23 Boiler Feed Pump and #10 House Service Deaerator
2-AF-003	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Aux. Feed header to #21 Boiler Feed Pump
2-AF-004	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Aux. Feed header to #22 Boiler Feed Pump
2-AF-005	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Aux. Feed header to #23 Boiler Feed Pump
2-AF-006	6	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Aux. Feed header to #10 House Service Deaerator
2-AF-007	1.5	2						N/A	No	No		9321-F-2120	P&ID	Boiler Feed Pump overflow header to Deaerator
2-AF-008	1.5	2						N/A	No	No		9321-F-2120	P&ID	Boiler Feed Pump discharge Unit #3 tie-in.
2-AF-011-A	1	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	P&ID	#21 BFP discharge overflow line upstream of orifice

Auxiliary Feedwater (AF), Unit 2

2-AF-01: Service Boiler Auxiliary Feedwater Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AF-011-B	1	2						N/A	No	No		9321-F-2120	P&ID	#21 BFP discharge overflow line downstream of orifice
2-AF-012-A	1	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	P&ID	#22 BFP discharge overflow line upstream of orifice
2-AF-012-B	1	2						N/A	No	No		9321-F-2120	P&ID	#22 BFP discharge overflow line downstream of orifice
2-AF-013-A	1	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	P&ID	#23 BFP discharge overflow line upstream of orifice
2-AF-013-B	1	2						N/A	No	No		9321-F-2120	P&ID	#23 BFP discharge overflow line downstream of orifice
2-AF-014	3	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	#21 BFP discharge line
2-AF-015	3	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	#22 BFP discharge line
2-AF-016	3	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	#23 BFP discharge line
2-AF-017	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	#21 and #22 BFP discharge header

Auxiliary Feedwater (AF), Unit 2

2-AF-01: Service Boiler Auxiliary Feedwater Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AF-018	2.5	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	LH Boiler #22 Feed Line
2-AF-019	2.5	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	AF-144 bypass line
2-AF-020	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201, 9321-F-2021	P&ID	Unit 1 Service Boiler Feed Pump discharge tie-in line.
2-AF-021	1	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	P&ID	BFP discharge header to Desuperheater Station
2-AF-022	2.5	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	RH Boiler #21 Feed Line
2-AF-023	2.5	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	AF-138 bypass line
2-AF-024	0.75	2						N/A	No	No		9321-F-2120	P&ID	RH Boiler #21 Continuous Blowdown Line
2-AF-025	1.5	2						N/A	No	No		9321-F-2120	P&ID	RH Boiler #21 Intermittent Blowdown Line
2-AF-026	0.75	2						N/A	No	No		9321-F-2120	P&ID	LH Boiler #22 Continuous Blowdown Line
2-AF-027	1.5	2						N/A	No	No		9321-F-2120	P&ID	LH Boiler #22 Intermittent Blowdown Line

Auxiliary Feedwater (AF), Unit 2

2-AF-01: Service Boiler Auxiliary Feedwater Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AF-028	0.75	2						N/A	No	No		9321-F-2120	P&ID	Continuous Blowdown line to HSBSPCLs
2-AF-029	1.5	2						N/A	No	No		9321-F-2120	P&ID	Boiler Blowdown Tank Bottom Drain
2-AF-030	1.5	2						N/A	No	No		9321-F-2120	P&ID	Boiler Blowdown Tank Drain Bypass
2-AF-031	1.25	2						N/A	No	No		9321-F-2120	P&ID	Boiler Blowdown Tank Drain Vent
2-AF-032	6	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Boiler Blowdown Tank Drain
2-AF-033		2						N/A	No	No		B193201, 9321-F-2120	P&ID	ABSPCLB Aux. Feed Inlet
2-AF-034		2						N/A	No	No		9321-F-2120	P&ID	ABSPCLB Aux. Feed Outlet to Dissolved O2 Analyzer
2-AF-035		2						N/A	No	No		9321-F-2120	P&ID	ABSPCLB Aux. Feed Outlet to Cooling Bath
2-AF-037	2	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B193201	P&ID	Flash Tank Drain to Service Boiler Deaerator
2-AF-038	1.25	2						N/A	No	No		B193201	P&ID	Service Boiler Deaerator Vent
2-AF-039	6	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Deaerator 6" Drain to OB
2-AF-040	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Deaerator Drain vent

Auxiliary Feedwater (AF), Unit 2

2-AF-01: Service Boiler Auxiliary Feedwater Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AF-041	2	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B193201	P&ID	Service Boiler Deaerator 2" Drain to OB
2-AF-042	0.75	2						N/A	No	No		B193201	P&ID	Drain from multiport valve.
2-AF-043	6	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Deaerator Drain to Service Boiler Feed Pumps
2-AF-044	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump No. 11 Feed Line
2-AF-045	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump No. 12 Feed Line
2-AF-046	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump No. 13 Feed Line
2-AF-047	3	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump No. 11 Discharge Line
2-AF-048	3	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump No. 12 Discharge Line
2-AF-049	3	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump No. 13 Discharge Line

Auxiliary Feedwater (AF), Unit 2

2-AF-01: Service Boiler Auxiliary Feedwater Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AF-050	6	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump Discharge Header
2-AF-051	1.5	2						N/A	No	No		B193201	P&ID	AF59 Vent to Service Boiler Deaerator
2-AF-052	1.5	2						N/A	No	No		B193201	P&ID	AF58 Vent to Service Boiler Deaerator
2-AF-053	1.5	2						N/A	No	No		B193201	P&ID	AF57 Vent to Service Boiler Deaerator
2-AF-054	1.5	2						N/A	No	No		B193201	P&ID	Check valve vent header to Service Boiler Deaerator
2-AF-057		2						N/A	No	No		9321-F-2120	P&ID	Chemical Bench Sink

Auxiliary Steam (AS), Unit 2

2-AS-03: Remainder of Auxiliary Steam

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AS-001-A	10	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B192493, B192490, 192491	SD 29.01	10" Aux. Steam Header
2-AS-002	10	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	SD 29.01	Aux. Steam Header from Service Boilers
2-AS-003	8	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	SD 29.01	Aux. Steam from #22 LH Boiler
2-AS-004	8	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	SD 29.01	Aux. Steam from #21 RH Boiler
2-AS-005	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	SD 29.01	Aux. Steam Drain to Deaerator
2-AS-006	1.5	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	FCV-1148 Bypass Line
2-AS-008	1.25	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Steam to 21 and 22 Air Tempering Units
2-AS-009	8	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Steam to AST-26

Auxiliary Steam (AS), Unit 2

2-AS-03: Remainder of Auxiliary Steam

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AS-015	1.5	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	#21 RH Boiler Drain
2-AS-016	1.5	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	#22 LH Boiler Drain
2-AS-017	1.5	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	Boiler Drain Header to Blowdown Tank
2-AS-018	1	2						N/A	No	No		9321-F-2120	P&ID	RH Boiler #21 Atomizing Steam bleed-off line
2-AS-019	1	2						N/A	No	No		9321-F-2120	P&ID	LH Boiler #22 Atomizing Steam bleed-off line
2-AS-025	1	2						N/A	No	No		9321-F-2120	P&ID	Oil Separator Tank outlet
2-AS-026	1	2						N/A	No	No		9321-F-2120	P&ID	Oil Separator Tank outlet to Carbon Filter Tank
2-AS-027	1	2						N/A	No	No		9321-F-2120	P&ID	Oil Separator Tank outlet to Floor Drain
2-AS-030	2	2						N/A	No	No		B192490	P&ID	Steam to Water Heater
2-AS-031	6	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B192490	SD 29.01	Steam Header to Barge Steam Connections
2-AS-032	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B192490	SD 29.01	Steam to AS845
2-AS-033	1.5	2						N/A	No	No		B192490	P&ID	Steam to AS840

Auxiliary Steam (AS), Unit 2

2-AS-03: Remainder of Auxiliary Steam

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AS-036	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B192490	SD 29.01	Steam line to UH-1239
2-AS-037	1	2						N/A	No	No		B192490	P&ID	PRV-7343 Bypass
2-AS-039		2						N/A	No	No		B192490	P&ID	Steam to Screens
2-AS-046	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Steam header to Service Boiler Feed Pump No. 13
2-AS-047	6	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Steam header to Carbon Filter Tanks
2-AS-048	2	2						N/A	No	No		192491	P&ID	Steam to Service Boiler Phosphate Mix Tanks and Continuous Heaters
2-AS-051	2	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	192491	SD 29.01	Steam to Service Boiler Feed Pump No. 13
2-AS-053	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Steam from Service Boiler Feed Pump No. 13
2-AS-054	8	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Steam from Service Boiler Feed Pump No. 13 to #10 Service Deaerator
2-AS-055	8	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Steam from Service Boiler Feed Pump No. 13 to Atmospheric Vent header

Auxiliary Steam (AS), Unit 2

2-AS-03: Remainder of Auxiliary Steam

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AS-057	10	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	P&ID	Steam drain to #10 Service Deaerator via AS484
2-AS-058	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	P&ID	Steam to Heating and Ventilation Pressure Reducing Station
2-AS-060	2	2						N/A	No	No		192491	P&ID	Steam from Heating and Ventilation Pressure Reducing Station
2-AS-070	3	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491, B227209	SD 29.01	Steam header to Carbon Filter Tanks
2-AS-073	2	2						N/A	No	No		192491	P&ID	Header to Service Boiler Phosphate Mix Tanks
2-AS-074	0.75	2						N/A	No	No		192491	P&ID	Steam to Service Boiler Phosphate Mix Tank No. 11
2-AS-075	0.75	2						N/A	No	No		192491	P&ID	Steam to Service Boiler Phosphate Mix Tank No. 12
2-AS-076	2	2						N/A	No	No		192491	P&ID	Steam to Continuous Heaters via AS568
2-AS-077	2	2						N/A	No	No		192491	P&ID	Steam to Continuous Heaters via AS112
2-AS-079	2	2						N/A	No	No		192491	P&ID	Steam header to Continuous Heaters via AS568
2-AS-080	1	2						N/A	No	No		192491	P&ID	Steam to Continuous Heater No. 11

Auxiliary Steam (AS), Unit 2

2-AS-03: Remainder of Auxiliary Steam

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AS-081	1	2						N/A	No	No		192491	P&ID	Steam to Continuous Heater No. 12
2-AS-082-A	8	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Floor trench drain to cap
2-AS-082-B	1.5	2						N/A	No	No		192491	P&ID	Floor trench drain downstream of cap
2-AS-083	16	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Aux Steam Vent to Atmosphere
2-AS-087	3	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B227209	SD 29.01	Steam to 21ACFT
2-AS-088	3	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B227209	SD 29.01	Steam to 22ACFT
2-AS-091	0.75	2						N/A	No	No		B227209	P&ID	Port Basin drain from Aux. Steam supply to ACFTs
2-AS-093	1.5	2						N/A	No	No		B227209	P&ID	PRV-5245 Bypass
2-AS-096	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491, B193201	P&ID	Aux. Steam to Flash Tank

Auxiliary Steam Traps (AST), Unit 2

2-AST-01: Steam Trap Lines from Auxiliary Steam Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AST-002	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A227780, A209775	PEPSE	Steam to and from AST-50
2-AST-006	1.5	2						N/A	No	No		9321-F-2120	P&ID	Steam to Hot Water Heat Exchangers
2-AST-007	0.75	2						N/A	No	No		9321-F-2120	P&ID	Steam to and from AS-1176
2-AST-007-A	1	2						N/A	No	No		9321-F-2120	P&ID	Steam to Condensate Return via AST-35
2-AST-009	2	2						N/A	No	No		9321-F-2120	P&ID	Hot Water Heat Exchangers Discharge Line
2-AST-010	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	SD 29.01	Condensate Return Header
2-AST-011	0.75	2						N/A	No	No		9321-F-2120	P&ID	Steam to and from AS-1093
2-AST-013		2						N/A	No	No		9321-F-2120	P&ID	Steam Supply Drain to Condensate Return via AST-31
2-AST-017	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Steam to AST-33
2-AST-019	1	2						N/A	No	No		A209775	P&ID	AST-33 Discharge
2-AST-020	1	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Steam to AST-20

Auxiliary Steam Traps (AST), Unit 2

2-AST-01: Steam Trap Lines from Auxiliary Steam Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AST-021	1	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	#21 Fuel Oil Heater heating steam outlet
2-AST-021-A	1	2						N/A	No	No		A209775	P&ID	AST-20 Discharge
2-AST-022	1	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	#22 Fuel Oil Heater heating steam outlet
2-AST-023	1	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	#23 Fuel Oil Heater heating steam outlet
2-AST-024	1	2						N/A	No	No		9321-F-2120	P&ID	Fuel Oil heating steam outlet from steam traps to oil separator tank
2-AST-025	4	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Steam to AST-2 and 3
2-AST-027	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Steam to AST-6
2-AST-028	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Steam to AST-7
2-AST-032	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Steam to AST-4

Auxiliary Steam Traps (AST), Unit 2

2-AST-01: Steam Trap Lines from Auxiliary Steam Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AST-033	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Steam to AST-5
2-AST-034	0.75	2						N/A	No	No		B192490	P&ID	Steam to and from AS849
2-AST-035-A	0.75	2						N/A	No	No		A209775	P&ID	AST-6 Discharge
2-AST-036	0.75	2						N/A	No	No		A209775	P&ID	AST-7 Discharge
2-AST-037	1.5	2						N/A	No	No		A209775	P&ID	AST-4 Discharge
2-AST-038	0.75	2						N/A	No	No		B192490	P&ID	Steam to and from UH-1238
2-AST-038-A	0.75	2						N/A	No	No		A209775	P&ID	AST-5 Discharge
2-AST-041	1	2						N/A	No	No		B192490	P&ID	Steam to and from AST-27
2-AST-042	1	2						N/A	No	No		B192490	P&ID	AST-27 Bypass
2-AST-043	1	2						N/A	No	No		B192490	P&ID	Steam to and from AST-42
2-AST-044	1	2						N/A	No	No		B192490	P&ID	AST-42 Bypass
2-AST-049-A	0.5	2						N/A	No	No		192491	P&ID	Steam to and from AST-38
2-AST-050-A	0.5	2						N/A	No	No		192491	P&ID	Steam to and from AST-37
2-AST-052	0.75	2						N/A	No	No		192491	P&ID	Steam to and from AST-45
2-AST-058	1	2						N/A	No	No		A209775	P&ID	AST-2 Discharge
2-AST-059	1	2						N/A	No	No		A209775	P&ID	AST-3 Discharge
2-AST-061	1	2						N/A	No	No		192491	P&ID	Steam to and from AST-39

Auxiliary Steam Traps (AST), Unit 2

2-AST-01: Steam Trap Lines from Auxiliary Steam Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AST-063	1	2						N/A	No	No		192491	P&ID	Steam to and from AST-32
2-AST-065	1	2						N/A	No	No		192491	P&ID	AST-32 and 39 drain to Cond. Return Header
2-AST-066	2	2						N/A	No	No		192491	P&ID	Steam to and from FP-1198
2-AST-067	2	2						N/A	No	No		192491	P&ID	Steam to and from UH-1300
2-AST-069-A	3	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Stub to AST-30 and drain
2-AST-069-B	1	2						N/A	No	No		192491	P&ID	Steam to and from AST-30

Steam Generator Blowdown (BD), Unit 2

2-BD-01: Steam Generator Blowdown to Sample Coolers and Blowdown Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-BD-001	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 21 Blowdown via MS-67-A
2-BD-002	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 21 Blowdown via MS-67-B
2-BD-003	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 22 Blowdown via MS-67-C
2-BD-004	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 22 Blowdown via MS-67-D
2-BD-005	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 23 Blowdown via MS-67-E
2-BD-006	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 23 Blowdown via MS-67-F
2-BD-007	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 24 Blowdown via MS-67-G
2-BD-008	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 24 Blowdown via MS-67-H

Steam Generator Blowdown (BD), Unit 2

2-BD-01: Steam Generator Blowdown to Sample Coolers and Blowdown Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-BD-009-A	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 21 Blowdown Upstream of Line Spec Change
2-BD-010-A	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 22 Blowdown Upstream of Line Spec Change
2-BD-011-A	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 23 Blowdown Upstream of Line Spec Change
2-BD-012-A	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 24 Blowdown Upstream of Line Spec Change
2-BD-017	1	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 23 1" Blowdown Line
2-BD-018	1	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 24 1" Blowdown Line
2-BD-019	18	1	2	FL	2	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2729	P&ID	Blowdown Tank vent to Atmosphere

Extraction Steam Traps (EST), Unit 2

2-1EST-01: Extraction Steam Trap Headers to the Drains Collecting Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-1EST-013-A	4	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2031	P&ID	Steam Trap Header from EST-1 and 1A
2-1EST-013-B	4	1	1	FL	1	1	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2031	P&ID	Steam Trap Header from EST-1, 1A, 2, and 6
2-1EST-014	6	1	1	FL	1	1	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2031	P&ID	Main Extraction Steam Trap Header

2-3EST-01: Steam Trap lines from Extraction Steam to the #23 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-3EST-012-A	2	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-14
2-3EST-012-B	2	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-14 to Steam Trap Header
2-3EST-013-A	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-15
2-3EST-013-B	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Header from EST-15 to Steam Trap Header

Extraction Steam Traps (EST), Unit 2

2-3EST-01: Steam Trap lines from Extraction Steam to the #23 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-3EST-014-A	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-16
2-3EST-014-B	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Header from EST-16 to Steam Trap Header
2-3EST-015-A	2	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-17
2-3EST-015-B	2	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-17 to Steam Trap Header
2-3EST-016-A	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-18
2-3EST-016-B	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-18 to Steam Trap Header
2-3EST-017-A	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-19
2-3EST-017-B	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-19 to Steam Trap Header

Extraction Steam Traps (EST), Unit 2

2-3EST-01: Steam Trap lines from Extraction Steam to the #23 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-3EST-018-A	2	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-20
2-3EST-018-B	2	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-20 to Steam Trap Header
2-3EST-019-A	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-21
2-3EST-019-B	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-21 to Steam Trap Header
2-3EST-020-A	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-23
2-3EST-020-B	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-23 to Steam Trap Header

2-4EST-01: Lines from Stm Traps to the Stm Trap Drains Header from Ext lines to #24 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-4EST-001	0.75	1	1	FP	1	1	1	1	Yes	No	Components in the line have been replaced in the past. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-5 to Steam Trap Header

Extraction Steam Traps (EST), Unit 2

2-4EST-01: Lines from Stm Traps to the Stm Trap Drains Header from Ext lines to #24 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-4EST-002	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-6 to Steam Trap Header
2-4EST-003	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-7 to Steam Trap Header
2-4EST-004	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-8 to Steam Trap Header
2-4EST-005	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-9 to Steam Trap Header
2-4EST-006	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-10 to Steam Trap Header
2-4EST-007	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-11 to Steam Trap Header
2-4EST-008	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-12 to Steam Trap Header
2-4EST-009	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-13 to Steam Trap Header

Extraction Steam Traps (EST), Unit 2

2-5EST-01: Steam Trap lines from Extraction Steam to the #25 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5EST-040-A	0.75	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	P&ID	Extraction steam to EST-4
2-5EST-040-B	0.75	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	P&ID	EST-4 to Steam Trap Header

2-6EST-01: Steam Trap lines from Extraction Steam to the #26 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-6EST-015-A	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-1
2-6EST-015-B	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-1A
2-6EST-015-C	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-1 to Steam Trap Header
2-6EST-015-D	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-1A to Steam Trap Header
2-6EST-016-A	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-2

Extraction Steam Traps (EST), Unit 2

2-6EST-01: Steam Trap lines from Extraction Steam to the #26 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-6EST-016-B	0.75	1	1	FP	1	3	1	1	Yes	No	Components in this line have been replaced in the past. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE, Replacement History	EST-2 to Steam Trap Header

Extraction Steam (EX), Unit 2

2-3EX-01: Boiler Feed Pump Turbine Drains to Condensers

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-3EX-021	1.5	1	2	FP	1	3	1		No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents an injury risk to a passerby.	A227780	PEPSE	Continuous Drain from #21 Steam Generator Feed Pump Turbine drain to #21 Condenser
2-3EX-022	1.5	1	2	FP	1	3	1		No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents an injury risk to a passerby.	A227780	PEPSE	Continuous Drain from #22 Steam Generator Feed Pump Turbine drain to #22 Condenser

2-5EX-01: HP Turbine Crossunder Piping Drip Pots to the Condenser

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5EX-025-A	2	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235308	P&ID	Crossunder Piping leakoff from Moisture Preseparator A upstream of Pipe Spec Change
2-5EX-026-A	2	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235308	P&ID	Crossunder Piping leakoff from Moisture Preseparator B upstream of Pipe Spec Change
2-5EX-027-A	2	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235308	P&ID	Crossunder Piping leakoff from Moisture Preseparator C upstream of Pipe Spec Change
2-5EX-028-A	2	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235308	P&ID	Crossunder Piping leakoff from Moisture Preseparator D upstream of Pipe Spec Change
2-5EX-117	1.5	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	HP Turbine Drain

Extraction Steam (EX), Unit 2

2-5EX-01: HP Turbine Crossunder Piping Drip Pots to the Condenser

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5EX-118	1.5	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping leakoff to FCV-1156
2-5EX-119	1.5	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping leakoff to FCV-1164
2-5EX-120	1.5	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping leakoff to FCV-1157
2-5EX-121	1.5	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping leakoff to FCV-1165
2-5EX-122		1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping to Moisture Separator Outlet Line
2-5EX-123		1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping to Moisture Separator Outlet Line
2-5EX-124		1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping to Moisture Separator Outlet Line
2-5EX-125		1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping to Moisture Separator Outlet Line

Extraction Steam (EX), Unit 2

2-5EX-01: HP Turbine Crossunder Piping Drip Pots to the Condenser

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5EX-128		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237145, B237144	PEPSE	LP Leakoff Header to Gland Condenser
2-5EX-129	1.5	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping leakoff to FCV1154

2-6EX-01: HP Turbine Extraction Steam to #26 Feedwater Heaters

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-6EX-001-A	12	1	1	FL	1	3	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2020	SFA Model	ES8-1-6THPT ES to HDR: HP Turbine Extraction Nozzle to #26 FWHs.
2-6EX-002-A	12	1	1	FL	1	3	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2020	SFA Model	ES8-2-6THPT ES to HDR: HP Turbine Extraction Nozzle to #26 FWHs.
2-6EX-006-B	12	1	1	FL	1	3	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2020	SFA Model	ES8-7-6THPT ESHDR to FWH 26A: Extraction Steam Inlet Nozzle to FWH 26A.
2-6EX-008-B	12	1	1	FL	1	3	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2020	SFA Model	ES8-6-6THPT ESHDR to FWH 26B: Extraction Steam Inlet Nozzle to FWH 26B.
2-6EX-010-B	12	1	1	FL	1	3	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2020	SFA Model	ES8-4-6THPT ESHDR to FWH 26C: Extraction Steam Inlet Nozzle to FWH 26C.

Main Feed Water (FW), Unit 2

2-FW-01: Feedwater Lines from the Boiler Feed Pumps to the Steam Generators

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-FW-031-A	30	1	1	FL	2	3	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure. There is high industry experience in Feedwater min-flow lines.	9321-F-2019	PEPSE	Feedwater Header to Steam Generators downstream of Main Line to SG 23
2-FW-062	0.75	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2019	P&ID	Feedwater to Sampling Upstream of BFD-1138

2-FW-03: Boiler Feed Pump Recirc Lines to the Drains Collecting Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-FW-063	6	1	1	FL	2	2	2	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure. Industry experience exists in Boiler Feed Pump recirculation lines.	9321-F-2019	CSI Document 0700.104.C.008	BFP No. 21 Recirc to Drains Collecting Tank
2-FW-064	6	1	1	FL	2	2	2	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure. Industry experience exists in Boiler Feed Pump recirculation lines.	9321-F-2019	CSI Document 0700.104.C.008	BFP No. 22 Recirc to Drains Collecting Tank

Gland Sealing Steam (GS), Unit 2

2-GS-01: Gland Steam to and from HP, LP, and BFP Turbines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-GS-001	12	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal Steam Header to HP and LP Turbines
2-GS-002	10	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to HP Turbine
2-GS-003	10	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to HP Turbine
2-GS-004	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to LP Turbine 21
2-GS-005	2	1	2	FT	1	3	1	2	No	No	Loss of sealing steam to the turbine will cause a plant shutdown or downpower.	A235308	PEPSE	Gland Seal to LP Turbine 21
2-GS-006	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to LP Turbine 21
2-GS-007	2	1	2	FT	1	3	1	2	No	No	Loss of sealing steam to the turbine will cause a plant shutdown or downpower.	A235308	PEPSE	Gland Seal to LP Turbine 21
2-GS-008	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to LP Turbine 22
2-GS-009	2	1	2	FT	1	3	1	2	No	No	Loss of sealing steam to the turbine will cause a plant shutdown or downpower.	A235308	PEPSE	Gland Seal to LP Turbine 22

Gland Sealing Steam (GS), Unit 2

2-GS-01: Gland Steam to and from HP, LP, and BFP Turbines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-GS-010	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to LP Turbine 22
2-GS-011	2	1	2	FT	1	3	1	2	No	No	Loss of sealing steam to the turbine will cause a trip or downpower.	A235308	PEPSE	Gland Seal to LP Turbine 22
2-GS-012	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to LP Turbine 23
2-GS-013	2	1	2	FT	1	3	1	2	No	No	Loss of sealing steam to the turbine will cause a plant shutdown or downpower.	A235308	PEPSE	Gland Seal to LP Turbine 23
2-GS-014	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to LP Turbine 23
2-GS-015	2	1	2	FT	1	3	1	2	No	No	Loss of sealing steam to the turbine will cause a plant shutdown or downpower.	A235308	PEPSE	Gland Seal to LP Turbine 23
2-GS-016	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	Gland Seal supply to BFP Turbines
2-GS-020	4	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	Steam to BFPT #22
2-GS-021	4	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	Steam to BFPT #21

Gland Sealing Steam (GS), Unit 2

2-GS-01: Gland Steam to and from HP, LP, and BFP Turbines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-GS-022	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	Steam to BFPT #22
2-GS-023	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	Steam to BFPT #21
2-GS-032	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	BFPT #22 Gland Steam Discharge
2-GS-034	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	BFPT #21 Gland Steam Discharge
2-GS-036	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	BFPT Gland Steam Discharge Header to Gland Condenser
2-GS-038	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024, B237144	PEPSE	BFPT Gland Steam Discharge Header drain to waste header
2-GS-039	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	BFPT #21 Exhaust Cylinder Drain
2-GS-040	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	BFPT #22 Exhaust Cylinder Drain

Gland Sealing Steam (GS), Unit 2

2-GS-01: Gland Steam to and from HP, LP, and BFP Turbines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-GS-041	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	BFPT Exhaust Cylinder Drain header to Boiler Feed Pump Drip Tank
2-GS-042	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	BFPT Exhaust Cylinder Drain header line to Boiler Feed Pump Drip Tank vent
2-GS-043	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	BFPT Drip Tank vent to Condenser #21
2-GS-047		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237145	PEPSE	Gland Seal Return from HP Turbine
2-GS-048		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237145	PEPSE	Gland Seal Return from HP Turbine
2-GS-049		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Seal Return from #21 LP Turbine
2-GS-050		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Seal Return from #21 LP Turbine
2-GS-051		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Seal Return from #22 LP Turbine

Gland Sealing Steam (GS), Unit 2

2-GS-01: Gland Steam to and from HP, LP, and BFP Turbines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-GS-052		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Seal Return from #22 LP Turbine
2-GS-053		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Seal Return from #23 LP Turbine
2-GS-054		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Seal Return from #23 LP Turbine
2-GS-055		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237145, B237144	PEPSE	Gland Seal return header to Gland Condenser
2-GS-056		1	1	FL	2	1	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Condenser Drain to Main Condenser

Gland Steam Traps (GST), Unit 2

2-GST-01: Steam Trap Lines from the Gland Seal System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-GST-017	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	Steam to GST-1
2-GST-019	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	GST-1 Discharge to Header
2-GST-024	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	Steam to GST-3
2-GST-026	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	GST-3 Discharge to Header
2-GST-027	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	Steam to GST-2
2-GST-029	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	GST-2 Discharge to Header
2-GST-030	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	Header from GST-1 and 3
2-GST-031	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	Gland Steam Trap Header to Boiler Feed Pump Drip Tank

Heater Drains & Vents (HD), Unit 2

2-1HD-02: #21 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-1HD-021	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 21A High Level Dump to Condenser 23
2-1HD-022	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 21B High Level Dump to Condenser 22
2-1HD-023	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 21C High Level Dump to Condenser 21
2-1HD-024	5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 21A 5" Vent to Condenser 23
2-1HD-025	5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 21B 5" Vent to Condenser 22
2-1HD-026	5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 21C 5" Vent to Condenser 21
2-1HD-027	1	2						N/A	No	No	Low Temp and Press. Leak-before-break situation.	A235304	PEPSE	FWH 21A 1" Vent to Condenser 23
2-1HD-028	1	2						N/A	No	No	Low Temp and Press. Leak-before-break situation.	A235304	PEPSE	FWH 21B 1" Vent to Condenser 22
2-1HD-029	1	2						N/A	No	No	Low Temp and Press. Leak-before-break situation.	A235304	PEPSE	FWH 21C 1" Vent to Condenser 21

Heater Drains & Vents (HD), Unit 2

2-2HD-02: #22 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-2HD-019	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	P&ID	FWH 22A High Level Dump to Condenser 23
2-2HD-020	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	P&ID	FWH 22B High Level Dump to Condenser 22
2-2HD-021	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	P&ID	FWH 22C High Level Dump to Condenser 21
2-2HD-022	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	P&ID	FWH 22A 2-1/2" Vent to Condenser 23
2-2HD-023	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	P&ID	FWH 22B 2-1/2" Vent to Condenser 22
2-2HD-024	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	P&ID	FWH 22C 2-1/2" Vent to Condenser 21
2-2HD-025	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	P&ID	FWH 22A 1" Vent to Condenser 23
2-2HD-026	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	P&ID	FWH 22B 1" Vent to Condenser 22

Heater Drains & Vents (HD), Unit 2

2-2HD-02: #22 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-2HD-027	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	P&ID	FWH 22C 1" Vent to Condenser 21

2-3HD-02: #23 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-3HD-027	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23A Vent to 3EX-53
2-3HD-028	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23A Vent to 3EX-534
2-3HD-029	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23B Vent to 3EX-536
2-3HD-030	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23B Vent to 3EX-539
2-3HD-031	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23C Vent to 3EX-541
2-3HD-032	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23C Vent to 3EX-544

Heater Drains & Vents (HD), Unit 2

2-3HD-02: #23 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-3HD-039	3	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 23A 3" Vent Header
2-3HD-040	3	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 23B 3" Vent Header
2-3HD-041	3	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 23C 3" Vent Header
2-3HD-042	4	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	4" Vent Header from FWH 23A and 23B
2-3HD-043	4	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	4" Vent Header from #23 FWHs
2-3HD-044	1	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23A 1" Vent
2-3HD-045	1	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23B 1" Vent
2-3HD-046	1	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23C 1" Vent

Heater Drains & Vents (HD), Unit 2

2-3HD-02: #23 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-3HD-047	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	2" Vent From FWH 23A and 23B
2-3HD-048	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	2" Vent From #23 FWHs

2-4HD-02: #24 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-4HD-016	1	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 24A 1" Vent
2-4HD-017	1	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 24B 1" Vent
2-4HD-018	1	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 24C 1" Vent
2-4HD-019	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	2" Vent Header from FWH 24A and 24B
2-4HD-020	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	2" Vent Header from #24 FWHs to Condenser 22

Heater Drains & Vents (HD), Unit 2

2-4HD-02: #24 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-4HD-021	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 24A 2" Vent
2-4HD-022	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 24B 2" Vent
2-4HD-023	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 24B 2" Vent
2-4HD-024	3	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	3" Vent Header from FWH 24A and 24B
2-4HD-025	3	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	3" Vent Header from #24 FWHs to Condenser 22

2-5HD-02: Heater Vents from #25 Feedwater Heater and Heater Drain Tank vents to #25 Feedwater Heaters

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5HD-044	10	1	1	FL	1	2	1	1	Yes	No	Components in this line have been replaced. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2022	PEPSE, Replacement History	Heater Drain Tank vent to FWH 25A
2-5HD-045	10	1	1	FL	1	2	1	1	Yes	No	Components in this line have been replaced. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2022	PEPSE, Replacement History	Heater Drain Tank vent to FWH 25B

Heater Drains & Vents (HD), Unit 2

2-5HD-02: Heater Vents from #25 Feedwater Heater and Heater Drain Tank vents to #25 Feedwater Heaters

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5HD-046	10	1	1	FL	1	2	1	1	Yes	No	Components in this line have been replaced. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2022	PEPSE, Replacement History	Heater Drain Tank vent to FWH 25C
2-5HD-047	1.5	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 25A Vent
2-5HD-048	1.5	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 25B Vent
2-5HD-049	1.5	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 25C Vent
2-5HD-050	2	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	Vent header from FWH 25A and 25B
2-5HD-051	2.5	1	1	FL	1	2	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2022, A235304	PEPSE	#25 FWH Vent header to Condenser

2-5HD-03: HDT Drains to HDPs and Condensers and HDP Vents to HDT

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5HD-057	2	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	#21 HDP vent to HDT

Heater Drains & Vents (HD), Unit 2

2-5HD-03: HDT Drains to HDPs and Condensers and HDP Vents to HDT

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5HD-058	2	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	#22 HDP vent to HDT
2-5HD-059	24	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2022, A235304	PEPSE, Replacement History	Heater Drain Tank drain to Condensers
2-5HD-060	24	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	HDT Drain Header to Condensers 21 and 22
2-5HD-061-A	14	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	HDT Drain to LCV-5003
2-5HD-061-B	8	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	LCV-5003 to Condenser 21
2-5HD-062-A	14	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	HDT Drain to LCV-5002

Heater Drains & Vents (HD), Unit 2

2-5HD-03: HDT Drains to HDPs and Condensers and HDP Vents to HDT

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5HD-062-B	8	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	LCV-5002 to Condenser 22
2-5HD-063-A	14	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	HDT Drain to LCV-5001
2-5HD-063-B	8	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	LCV-5001 to Condenser 23

2-6HD-02: Heater Vents from #26 Feedwater Heater

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-6HD-025	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26A vent via 6EX-10
2-6HD-026	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26A vent via 6EX-500
2-6HD-027	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26A vent from 6EX-10 and 6EX-500

Heater Drains & Vents (HD), Unit 2

2-6HD-02: Heater Vents from #26 Feedwater Heater

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-6HD-028	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26A vent via 6EX-9
2-6HD-029	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26B vent via 6EX-10-1
2-6HD-030	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26B vent via 6EX-501
2-6HD-031	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26B vent from 6EX-10-1 and 6EX-501
2-6HD-032	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26B vent via 6EX-9-1
2-6HD-033	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26C vent via 6EX-10-2
2-6HD-034	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26C vent via 6EX-502
2-6HD-035	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26C vent from 6EX-10-2 and 6EX-502

Heater Drains & Vents (HD), Unit 2

2-6HD-02: Heater Vents from #26 Feedwater Heater

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-6HD-036	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26C vent via 6EX-9-2
2-6HD-037	1.5	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	Heater Start Up Vent Header from FWH 26A and 26B
2-6HD-038	2	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022, A235304	PEPSE	#26 FWH Startup Vent Header to Condenser
2-6HD-039	1.5	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	Heater Vent Header from FWH 26A and 26B
2-6HD-040	2	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022, A235304	PEPSE	#26 FWH Vent Header to Condenser

2-HD-01: Heater Drain Pump discharge to Boiler Feed Pumps

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-HD-004-A	0.5	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	#21 HDP to HDP Water Chem. Monitor Upstream of Root Isolation Valve
2-HD-005-A	0.5	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	#22 HDP to HDP Water Chem. Monitor Upstream of Root Isolation Valve

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-001	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2017, A235308	PEPSE	Main Steam from Steam Generator 21 Shell
2-MS-002	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2017, A235308	PEPSE	Main Steam from Steam Generator 22 Shell
2-MS-003	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2017, A235308	PEPSE	Main Steam from Steam Generator 23 Shell
2-MS-004	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2017, A235308	PEPSE	Main Steam from Steam Generator 24 Shell
2-MS-005	24	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Line from 2-MS-001 to Seal Steam and MSR Header.
2-MS-006	24	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Line from 2-MS-002 to Gland Seal Steam and MSR B Header.
2-MS-007	20	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308, A227780	PEPSE	Gland Seal Steam, MSR B, and Aux. Steam Header.

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-008	24	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Line from 2-MS-001 (3) to MSR A Header
2-MS-009	24	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Line from 2-MS-004 to MSR A Header
2-MS-010	20	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308, A227780	PEPSE	MSR A, BFP Turbine, SJAE, and Priming Ejector Header
2-MS-011	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam to NE HP Turbine Inlet
2-MS-011-A	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	MS-863 Bypass
2-MS-012	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam to SE HP Turbine Inlet
2-MS-012-A	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	MS-864 Bypass

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-013	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam to NW HP Turbine Inlet
2-MS-013-A	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	MS-865 Bypass
2-MS-014	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam to SW HP Turbine Inlet
2-MS-014-A	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	MS-866 Bypass
2-MS-015	20	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam Balancing Line between 2-MS-001 and 2-MS-003
2-MS-016	12	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam to Reheater Steam Control Station A.
2-MS-017	8	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Steam Control Station A line to PCV 1175-1

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-018	8	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Steam Control Station A line to PCV 1175-2
2-MS-019	1	1	3	FP	3	3	1	3	No	No	High quality main steam line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A227780	PEPSE	Reheater Steam Control Station A line to PCV 1108
2-MS-020	12	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Steam Header A
2-MS-021	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Header to MSR 21A
2-MS-022	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Header to MSR 22A
2-MS-023	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Header to MSR 23A
2-MS-024	12	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam to Reheater Steam Control Station B.

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-025	8	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Steam Control Station B line to PCV 1175-3
2-MS-026	8	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Steam Control Station B line to PCV 1175-4
2-MS-027	1	1	3	FP	3	3	1	3	No	No	High quality main steam line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A227780	PEPSE	Reheater Steam Control Station B line to PCV 1109
2-MS-028	12	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Steam Header B
2-MS-029	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Header to MSR 21B
2-MS-030	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Header to MSR 22B
2-MS-031	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Header to MSR 23B

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-032	1	1	3	FP	3	3	1	3	No	No	High quality main steam line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A227780	PEPSE	Reheater Cal. Line
2-MS-033	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam to BFP #21 Turbine
2-MS-034	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam to BFP #22 Turbine
2-MS-035	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam to SJAEs and Priming Ejectors
2-MS-036-A	3	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	SJAE Steam Supply Upstream of PCV 1132
2-MS-036-B	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	SJAE Steam Supply Downstream of PCV 1132
2-MS-037	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	SJAE Header

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-038	2	1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	Header to SJAE 21
2-MS-039	2	1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	Header to SJAE 22
2-MS-040	2	1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	Header to SJAE 23
2-MS-041		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-797
2-MS-042		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-798
2-MS-043		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-799
2-MS-044		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-800

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-045		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-801
2-MS-046		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-802
2-MS-047		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-803
2-MS-048		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-804
2-MS-049		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-805
2-MS-050		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-806
2-MS-051		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-807

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-052		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-808
2-MS-053		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-809
2-MS-054		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-810
2-MS-055		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-811
2-MS-056		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-812
2-MS-057		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-813
2-MS-058		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-814

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-059-A	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam to Priming Ejectors Header Upstream of PCV 1133
2-MS-059-B	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	Main Steam to Priming Ejectors Header Downstream of PCV 1133
2-MS-060	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	Priming Ejectors Header
2-MS-061	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	Priming Ejectors Header to PE 21
2-MS-062	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	Priming Ejectors Header to PE 22
2-MS-063	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	Priming Ejectors Header to PE 23
2-MS-064	12	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Balancing line between SE and SW HP Turbine Steam Feed Lines.
2-MS-076	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	P&ID	MS-863 Valve leakoff to condenser.

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-077	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	P&ID	MS-864 Valve leakoff to condenser.
2-MS-078	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	P&ID	MS-865 Valve leakoff to condenser.
2-MS-079	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	P&ID	MS-866 Valve leakoff to condenser.
2-MS-143	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235308	PEPSE	Main Steam Stop Valve drain to 23 Cond. West Side
2-MS-144	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235308	PEPSE	Main Steam Stop Valve drain to 23 Cond. East Side
2-MS-192	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam Header to Aux. Steam Upstream of PCV-1015
2-MS-198		1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	LH Control Valve Stem Leak-off Lines
2-MS-199		1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	RH Control Valve Stem Leak-off Lines

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-200	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Upper LH HP Turbine Feed Leakoff
2-MS-201	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Lower LH HP Turbine Feed Leakoff
2-MS-202	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Upper RH HP Turbine Feed Leakoff
2-MS-203	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Lower LH HP Turbine Feed Leakoff

2-MS-06: Main Steam Supply to Gland Steam Header

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-187	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam Supply to Gland Seal Regulator Station
2-MS-188-A	3	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal Steam Supply upstream of PCV-1145-1
2-MS-188-B	12	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal Steam Supply downstream of PCV-1145-1

Main Steam (MS), Unit 2

2-MS-06: Main Steam Supply to Gland Steam Header

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-189-A	3	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal Steam Supply upstream of PCV-1145-2
2-MS-189-B	12	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal Steam Supply downstream of PCV-1145-2
2-MS-191	12	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam to Gland Seal Steam Header.

Moisture Separator Reheater Drains (MSD), Unit 2

2-MSD-01: Moisture Separator Drains to the Heater Drain Tank and Drains Collecting Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MSD-097	2.5	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	MS Drain Tank 21A vent to MSR
2-MSD-098	2.5	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	MS Drain Tank 22A vent to MSR
2-MSD-099	2.5	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	MS Drain Tank 23A vent to MSR
2-MSD-100	2.5	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	MS Drain Tank 21B vent to MSR
2-MSD-101	2.5	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	MS Drain Tank 22B vent to MSR
2-MSD-102	2.5	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	MS Drain Tank 23B vent to MSR
2-MSD-103-A	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD33A-1-MSDT 21A to HDT: MS Drain Tank 21A Nozzle to Heater Drain Tank
2-MSD-103-C	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD33A-1-MSDT 21A to HDT: Heater Drain Tank Nozzle from MS Drain Tank 21A

Moisture Separator Reheater Drains (MSD), Unit 2

2-MSD-01: Moisture Separator Drains to the Heater Drain Tank and Drains Collecting Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MSD-104-A	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD34A-1-MSDT 22A to HDT: MS Drain Tank 22A Nozzle to Heater Drain Tank
2-MSD-104-C	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD34A-1-MSDT 22A to HDT: Heater Drain Tank Nozzle from MS Drain Tank 22A
2-MSD-105-A	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD35A-1-MSDT 23A to HDT: MS Drain Tank 23A Nozzle to Heater Drain Tank
2-MSD-105-C	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD35A-1-MSDT 23A to HDT: Heater Drain Tank Nozzle from MS Drain Tank 23A
2-MSD-106-A	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD36A-1-MSDT 21B to HDT: MS Drain Tank 21B Nozzle to Heater Drain Tank
2-MSD-106-C	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD36A-1-MSDT 21B to HDT: Heater Drain Tank Nozzle from MS Drain Tank 21B
2-MSD-107-A	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD37A-1-MSDT 22B to HDT: MS Drain Tank 22B Nozzle to Heater Drain Tank
2-MSD-107-C	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD37A-1-MSDT 22B to HDT: Heater Drain Tank Nozzle from MS Drain Tank 22B

Moisture Separator Reheater Drains (MSD), Unit 2

2-MSD-01: Moisture Separator Drains to the Heater Drain Tank and Drains Collecting Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MSD-108-A	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD38A-1-MSDT 23B to HDT: MS Drain Tank 23B Nozzle to Heater Drain Tank
2-MSD-108-C	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD38A-1-MSDT 23B to HDT: Heater Drain Tank Nozzle from MS Drain Tank 23B

2-MSD-02: Reheater Drains to #26 Feedwater Heaters and Condensers

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MSD-145	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater Drain Tank 21A Vent to MSR
2-MSD-146	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater Drain Tank 22A Vent to MSR
2-MSD-147	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater Drain Tank 23A Vent to MSR
2-MSD-148	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater Drain Tank 21B Vent to MSR
2-MSD-149	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater Drain Tank 22B Vent to MSR

Moisture Separator Reheater Drains (MSD), Unit 2

2-MSD-02: Reheater Drains to #26 Feedwater Heaters and Condensers

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MSD-150	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater Drain Tank 23B Vent to MSR
2-MSD-175	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater 21A to Condenser 23
2-MSD-176	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater 22A to Condenser 22
2-MSD-177	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater 23A to Condenser 23
2-MSD-178	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater 21B to Condenser 21
2-MSD-179	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater 22B to Condenser 22
2-MSD-180	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater 23B to Condenser 21

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-019-A	12	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Crossunder Steam Trap to Condenser 21
2-MST-020-A	12	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Crossunder Steam Trap to Condenser 21
2-MST-021-A	12	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Crossunder Steam Trap to Condenser 22
2-MST-022-A	12	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Crossunder Steam Trap to Condenser 22
2-MST-023-A	12	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Crossunder Steam Trap to Condenser 23
2-MST-024-A	12	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Crossunder Steam Trap to Condenser 23
2-MST-080-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main steam to MST-1
2-MST-080-B	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-1 to Steam Trap Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-081-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main steam to MST-2
2-MST-081-B	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-2 to Steam Trap Header
2-MST-082-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main steam to MST-3
2-MST-082-B	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-3 to Steam Trap Header
2-MST-083-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from Drain Pot to MST-4
2-MST-083-B	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-24 US Leakoff to MST-4.
2-MST-083-C		1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-4 to Steam Trap Header
2-MST-084-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-21 US Leakoff to MST-5

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-084-B	1.25	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-5 to Steam Trap Header
2-MST-085-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2A US Leakoff to MST-6
2-MST-085-B	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-21 DS Leakoff to MST-6
2-MST-085-C	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-6 to Steam Trap Header
2-MST-086-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2A DS Leakoff to MST-8
2-MST-086-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-8 to Steam Trap Header
2-MST-087-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2B DS Leakoff to MST-9
2-MST-087-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-9 to Steam Trap Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-088-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-22 DS Leakoff to MST-10
2-MST-088-B	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2B US Leakoff to MST-10
2-MST-088-C	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-10 to Steam Trap Header
2-MST-089-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-22 US Leakoff to MST-12
2-MST-089-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-12 to Steam Trap Header
2-MST-090-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-23 US Leakoff to MST-13
2-MST-090-B	1.25	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-13 to Steam Trap Header
2-MST-091-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-23 DS Leakoff to MST-14

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-091-B	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2C US Leakoff to MST-14
2-MST-091-C	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-14 to Steam Trap Header
2-MST-092-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2C DS Leakoff to MST-16
2-MST-092-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-16 to Steam Trap Header
2-MST-093-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-24 DS Leakoff to MST-18
2-MST-093-B	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2D US Leakoff to MST-18
2-MST-093-C	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-18 to Steam Trap Header
2-MST-094-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2D DS Leakoff to MST-20

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-094-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-20 to Steam Trap Header
2-MST-095-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-21
2-MST-095-B	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-21 to Steam Trap Header
2-MST-096-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-22
2-MST-096-B	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-22 to Steam Trap Header
2-MST-097-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-23
2-MST-097-B	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-23 to Steam Trap Header
2-MST-098-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Exit Nozzle US of Valve MS-90-1

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-099-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-25 via Steam Dump Lines
2-MST-099-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-25 to Steam Trap Header
2-MST-100-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-26 via Steam Dump Lines
2-MST-100-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-26 to Steam Trap Header
2-MST-101-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-27 via Steam Dump Lines
2-MST-101-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-27 to Steam Trap Header
2-MST-102-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-28 via Steam Dump Lines
2-MST-102-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-28 to Steam Trap Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-103-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-29 via Steam Dump Lines
2-MST-103-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-29 to Steam Trap Header
2-MST-104-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-30
2-MST-104-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-30 to Steam Trap Header
2-MST-105-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-31
2-MST-105-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-31 to Header
2-MST-105-D	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Header to Steam Trap Header
2-MST-106-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-32

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-106-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-32 to Steam Trap Header
2-MST-107-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	SD No. 18.0	Steam to MST-33
2-MST-107-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-33 to Steam Trap Header
2-MST-108-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-34
2-MST-108-B	1.25	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-34 to Steam Trap Header
2-MST-109-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-35
2-MST-109-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-35 to Steam Trap Header
2-MST-110-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-36

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-110-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-36 to Steam Trap Header
2-MST-111-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-37
2-MST-111-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-37 to Steam Trap Header
2-MST-112-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-38
2-MST-112-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-38 to Steam Trap Header
2-MST-113-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-39
2-MST-113-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-39 to Header
2-MST-113-D	1.25	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Header to Steam Trap Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-114-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-40
2-MST-114-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-40 to Header
2-MST-115-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-41
2-MST-115-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-41 to Header
2-MST-116-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-42 via Steam Dump Lines
2-MST-116-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-42 to Steam Trap Header
2-MST-117-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-43 via Steam Dump Lines
2-MST-117-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in this line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-43 to Steam Trap Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-118-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-44 via Steam Dump Lines
2-MST-118-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-44 to Steam Trap Header
2-MST-119-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-45 via Steam Dump Lines
2-MST-119-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-45 to Steam Trap Header
2-MST-120-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-46 via Steam Dump Lines
2-MST-120-B	1	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-46 to Steam Trap Header
2-MST-121-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-47 via Steam Dump Lines

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-121-B	1	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-47 to Steam Trap Header
2-MST-122-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-48
2-MST-122-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-48 to Steam Trap Header
2-MST-123-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-49
2-MST-123-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-49 to Steam Trap Header
2-MST-124-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-50
2-MST-124-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-50 to Steam Trap Header
2-MST-125-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-51

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-125-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-51 to Steam Trap Header
2-MST-126-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-52
2-MST-126-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-52 to Steam Trap Header
2-MST-127-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-56
2-MST-127-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-56 to Steam Trap Header
2-MST-128-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-57
2-MST-128-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-57 to Steam Trap Header
2-MST-129-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-58

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-129-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-58 to Steam Trap Header
2-MST-130-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-59
2-MST-130-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-59 to Steam Trap Header
2-MST-131-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-60
2-MST-131-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-60 to Header
2-MST-132-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-61
2-MST-132-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-61 to Steam Trap Header
2-MST-133-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-62

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-133-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-62 to Steam Trap Header
2-MST-134-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-63
2-MST-134-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-63 to Steam Trap Header
2-MST-135-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Steam to MST-64
2-MST-135-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-64 to Header
2-MST-136-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	Steam to MST-65
2-MST-136-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-65 to Header
2-MST-193-A	0.75	1	3	FP	3	3	1	3	No	No	High quality main steam line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A227780	PEPSE	Main Steam to MST-100

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-193-B	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A227780	PEPSE	MST-100 to Steam Trap Header

Moisture Preseparator Drains (PD), Unit 2

2-PD-01: Moisture Preseparator Drain Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-PD-005	3	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A228272	PEPSE	Moisture Preseparator "A" to 20" Line
2-PD-006	3	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A228272	PEPSE	Moisture Preseparator "B" to 20" Line
2-PD-007	3	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A228272	PEPSE	Moisture Preseparator "C" to 20" Line
2-PD-008	3	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A228272	PEPSE	Moisture Preseparator "D" to 20" Line
2-PD-009-A	20	1	1	FL	1	2	1	1	Yes	No	All other components in this line were replaced with Stainless Steel to mitigate FAC.	A228272	SFA Model	ES7A-1-SEP TKA VNT to FWH25: Separating Tank A Nozzle to Extraction Steam Header
2-PD-010-A	20	1	1	FL	1	2	1	1	Yes	No	All other components in this line were replaced with Stainless Steel to mitigate FAC.	A228272	SFA Model	ES7A-2-SEP TKB VNT to FWH25: Separating Tank B Nozzle to Extraction Steam Header

Reheat Steam Traps (RST), Unit 2

2-RST-01: Reheat Steam Trap Lines Downstream of Reheater Steam Traps

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-RST-001	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	RST-1 to BFP Turbine Drip Tank Header
2-RST-002	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	RST-2 to BFP Turbine Drip Tank Header
2-RST-003	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	RST-3 to BFP Turbine Drip Tank Header
2-RST-004	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	Reheat Steam Trap Header to BFP Turbine Drip Tank

Service Boiler (SB), Unit 2

2-SB-01: Service Boiler Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-SB-001	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780, A209775	PEPSE	Auxiliary Steam from PCV-1015
2-SB-004	2	2						N/A	No	No		9321-F-2120	P&ID	Steam to Condensate Return, Hot Water Heat Exchangers, and Office Unit Heaters
2-SB-005	2	2						N/A	No	No		9321-F-2120	P&ID	Steam to Hot Water Heat Exchangers and Office Unit Heaters
2-SB-011	1	2						N/A	No	No		9321-F-2120	P&ID	Header Drain to AST-35
2-SB-012	1.5	2						N/A	No	No		9321-F-2120	P&ID	Steam to Office Unit Heaters
2-SB-015	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Steam from Aux. Steam Header
2-SB-016	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Desuperheater Header
2-SB-022	2	2						N/A	No	No		A209775	P&ID	Steam trap header to Cond. Receiver
2-SB-023	4	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Header to Steam Traps
2-SB-026	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Desuperheater Header

Service Boiler (SB), Unit 2

2-SB-01: Service Boiler Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-SB-030	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Steam to Desuperheater
2-SB-039	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Service Boiler Header to Air Tempering Units
2-SB-042	6	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2021, B193201	P&ID	Line from #10 House Service Boiler Deaerator
2-SB-043	1.5	2						N/A	No	No		9321-F-2021, B193201	P&ID	Line from #10 House Service Boiler Deaerator

Condensate Return Unit Heaters to Service Boiler D (UH), Unit 2

2-UH-01: Condensate Return from Unit Heaters to the Deaerator

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UH-001	4	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775, 9321-F-2120	P&ID	Condensate return pumps to #20 House Service Deaerator
2-UH-002	4	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120, B193201	P&ID	Condensate return to #10 House Service Deaerator
2-UH-003	10	1	2	FL	3	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	SD No. 29.01	Desuperheater outlet header to various unit heaters
2-UH-004	8	1	2	FL	3	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	SD No. 29.01	Desuperheater outlet steam to Gland Seal Steam Header
2-UH-071	6	1	2	FL	1	1	1	2	No	No	Based on engineering judgment, these lines are not as susceptible as the numbers may imply. Susceptibility level was lowered accordingly. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Unit Heater Drain Header to Condensate Receiver
2-UH-072	6	1	2	FL	1	1	1	2	No	No	Based on engineering judgment, these lines are not as susceptible as the numbers may imply. Susceptibility level was lowered accordingly. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Unit Heater Drain Header to Condensate Receiver

Condensate Return Unit Heaters to Service Boiler D (UH), Unit 2

2-UH-01: Condensate Return from Unit Heaters to the Deaerator

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UH-073	4	1	2	FL	1	1	1	2	No	No	Based on engineering judgment, these lines are not as susceptible as the numbers may imply. Susceptibility level was lowered accordingly. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Condensate Receiver Vent to Atmosphere
2-UH-074	3	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Condensate Receiver Drain to Cond. Return Pump #21
2-UH-075	3	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Condensate Receiver Drain to Cond. Return Pump #22
2-UH-077	4	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Cond. Return Pump #21 Discharge
2-UH-078	4	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Cond. Return Pump #21 Discharge
2-UH-079	2	1	2	FP	2	1	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B193201	P&ID	Line from #20 House Service Boiler to Service Boiler Deaerator

Condensate Return Unit Heater Steam Traps (UHT), Unit 2

2-UHT-01: Steam Trap Lines from the Condensate Return from Unit Heaters to the Deaerator system

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UHT-005	1	1	2	FP	3	1	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	SD No. 29.01	Steam to UHT-510
2-UHT-006	1	1	2	FP	3	1	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	SD No. 29.01	Steam to UHT-511
2-UHT-007	2	2						N/A	No	No		A209775	P&ID	Steam trap header to Cond. Receiver from UHT-510.
2-UHT-008	1	2						N/A	No	No		A209775	P&ID	Steam from gland steam supply steam traps
2-UHT-009	2	2						N/A	No	No		A209775	P&ID	Steam to and from 215UHR
2-UHT-010	2	2						N/A	No	No		A209775	P&ID	Steam to and from 217UHR
2-UHT-011	2	2						N/A	No	No		A209775	P&ID	Steam to and from 29UHR
2-UHT-012	2	2						N/A	No	No		A209775	P&ID	Steam to and from 22UHR
2-UHT-013	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-2-1
2-UHT-014	2	2						N/A	No	No		A209775	P&ID	Steam to and from 221UHR
2-UHT-015	2	2						N/A	No	No		A209775	P&ID	Steam to and from 219UHR
2-UHT-016	2	2						N/A	No	No		A209775	P&ID	Steam to and from 211UHR
2-UHT-017	2	2						N/A	No	No		A209775	P&ID	Steam to and from 24UHR

Condensate Return Unit Heater Steam Traps (UHT), Unit 2

2-UHT-01: Steam Trap Lines from the Condensate Return from Unit Heaters to the Deaerator system

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UHT-018	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-2-2
2-UHT-019	2	2						N/A	No	No		A209775	P&ID	Steam to and from 225UHR
2-UHT-020	2	2						N/A	No	No		A209775	P&ID	Steam to and from 224UHR
2-UHT-021	2	2						N/A	No	No		A209775	P&ID	Steam to and from 223UHR
2-UHT-022	2	2						N/A	No	No		A209775	P&ID	Steam to and from 213UHR
2-UHT-023	2	2						N/A	No	No		A209775	P&ID	Steam to and from 27UHR
2-UHT-024	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-1-1
2-UHT-024-A	4	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Steam to UHT-512 and 513
2-UHT-025	1	2						N/A	No	No		A209775	P&ID	Steam to and from Oil Preheater
2-UHT-026	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-4-1
2-UHT-027	2	2						N/A	No	No		A209775	P&ID	Steam to and from 24AUHR
2-UHT-028	1.5	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-2-3
2-UHT-029	1	2						N/A	No	No		A209775	P&ID	Steam to and from 248UHR
2-UHT-030	1	2						N/A	No	No		A209775	P&ID	Steam to and from 250UHR

Condensate Return Unit Heater Steam Traps (UHT), Unit 2

2-UHT-01: Steam Trap Lines from the Condensate Return from Unit Heaters to the Deaerator system

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UHT-031	1	2						N/A	No	No		A209775	P&ID	Steam to and from 249UHR
2-UHT-032	1	2						N/A	No	No		A209775	P&ID	Steam to and from 252UHR
2-UHT-033	1	2						N/A	No	No		A209775	P&ID	Steam to and from 251UHR
2-UHT-034	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-11-3
2-UHT-035	1	2						N/A	No	No		A209775	P&ID	Steam to and from 247UHR
2-UHT-036	1	2						N/A	No	No		A209775	P&ID	Steam to and from 246UHR
2-UHT-037	1	2						N/A	No	No		A209775	P&ID	Steam to and from 245UHR
2-UHT-038	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-11-2
2-UHT-039	2	2						N/A	No	No		A209775	P&ID	UHT-511 outlet
2-UHT-040	2	2						N/A	No	No		A209775	P&ID	Steam to and from 214UHR
2-UHT-041	2	2						N/A	No	No		A209775	P&ID	Steam to and from 216UHR
2-UHT-042	2	2						N/A	No	No		A209775	P&ID	Steam to and from 218UHR
2-UHT-043	2	2						N/A	No	No		A209775	P&ID	Steam to and from 220UHR
2-UHT-044	2	2						N/A	No	No		A209775	P&ID	Steam to and from 222UHR
2-UHT-045	1	2						N/A	No	No		A209775	P&ID	Steam to and from 260UHR

Condensate Return Unit Heater Steam Traps (UHT), Unit 2

2-UHT-01: Steam Trap Lines from the Condensate Return from Unit Heaters to the Deaerator system

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UHT-046	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-4-2
2-UHT-047	2	2						N/A	No	No		A209775	P&ID	Steam to and from 21UHR
2-UHT-048	2	2						N/A	No	No		A209775	P&ID	Steam to and from 28UHR
2-UHT-049	2	2						N/A	No	No		A209775	P&ID	Steam to and from 23UHR
2-UHT-050	2	2						N/A	No	No		A209775	P&ID	Steam to and from 210UHR
2-UHT-051	2	2						N/A	No	No		A209775	P&ID	Steam to and from 212UHR
2-UHT-052	2	2						N/A	No	No		A209775	P&ID	Steam to and from 25UHR
2-UHT-053	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-11-1
2-UHT-056	1	2						N/A	No	No		A209775	P&ID	UHT-513 Discharge
2-UHT-057	0.5	2						N/A	No	No		A209775	P&ID	UHT-512 Discharge
2-UHT-060	0.75	2						N/A	No	No		A209775	P&ID	21 Air Tempering Unit Discharge
2-UHT-061	0.75	2						N/A	No	No		A209775	P&ID	22 Air Tempering Unit Discharge
2-UHT-062	1	2						N/A	No	No		A209775	P&ID	Steam to various unit heaters
2-UHT-063	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from UH-TSC-1
2-UHT-064	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from 242UHR

Condensate Return Unit Heater Steam Traps (UHT), Unit 2

2-UHT-01: Steam Trap Lines from the Condensate Return from Unit Heaters to the Deaerator system

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UHT-065	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from 243UHR
2-UHT-066	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from 244UHR
2-UHT-067	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-8-246
2-UHT-068	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from 253UHR
2-UHT-069	2	2						N/A	No	No		A209775	P&ID	Unit Heater Drain to Discharge Tunnel
2-UHT-089	0.75	2						N/A	No	No		B227209	P&ID	Steam to and from UH-1020
2-UHT-090	0.75	2						N/A	No	No		B227209	P&ID	Steam to and from UH-1019
2-UHT-092	0.75	2						N/A	No	No		B227209	P&ID	Steam to and from UH-1021

Report Header Legend:

F	Consequence of Failure 1 = High Consequence of Failure (Category 1) 2 = Low Consequence of Failure (Category 2)
S	Susceptibility level 1 = High Susceptibility 2 = Moderate Susceptibility 3 = Low Susceptibility
F Crit.	Consequence of Failure Criteria (see below)
Q	Operating Quality code 1 = 30% to 99.5% 2 = < 30% 3 = > 99.5%
T	Operating Temperature code 1 = 250 to 350 deg F 2 = 350 to 400 deg F 3 = < 250 deg F, > 400 deg F
O	Operating time code 1 = Lines operating frequently or w/ severe cond. 2 = Lines operating infrequently
Priority	Priority 1 = High Priority 2 = Moderate Priority 3 = Low Priority
Plant Exp.	Plant Experience
Ind. Exp.	Industry Experience

Consequence of Failure Criteria (F Crit.) Legend:

FI	High consequence of Failure: non-Isolable line
FL	High consequence of Failure: Large-bore line
FP	High consequence of Failure: Personnel safety issue (frequently accessed location)
FS	High consequence of Failure: Safety-related line
FT	High consequence of Failure: shutdown or Trip upon failure

Appendix B

SNM Program Lines Sorted by Susceptibility

High Consequence of Failure - High Susceptibility

Indian Point Unit 2

Extraction Steam Traps (EST), Unit 2

2-1EST-01: Extraction Steam Trap Headers to the Drains Collecting Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-1EST-013-B	4	1	1	FL	1	1	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2031	P&ID	Steam Trap Header from EST-1, 1A, 2, and 6
2-1EST-014	6	1	1	FL	1	1	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2031	P&ID	Main Extraction Steam Trap Header

2-3EST-01: Steam Trap lines from Extraction Steam to the #23 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-3EST-012-A	2	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-14
2-3EST-012-B	2	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-14 to Steam Trap Header
2-3EST-013-A	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-15
2-3EST-013-B	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Header from EST-15 to Steam Trap Header
2-3EST-014-A	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-16

Extraction Steam Traps (EST), Unit 2

2-3EST-01: Steam Trap lines from Extraction Steam to the #23 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-3EST-014-B	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Header from EST-16 to Steam Trap Header
2-3EST-015-A	2	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-17
2-3EST-015-B	2	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-17 to Steam Trap Header
2-3EST-016-A	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-18
2-3EST-016-B	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-18 to Steam Trap Header
2-3EST-017-A	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-19
2-3EST-017-B	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-19 to Steam Trap Header
2-3EST-018-A	2	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-20

Extraction Steam Traps (EST), Unit 2

2-3EST-01: Steam Trap lines from Extraction Steam to the #23 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-3EST-018-B	2	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-20 to Steam Trap Header
2-3EST-019-A	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-21
2-3EST-019-B	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-21 to Steam Trap Header
2-3EST-020-A	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-23
2-3EST-020-B	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-23 to Steam Trap Header

2-4EST-01: Lines from Stm Traps to the Stm Trap Drains Header from Ext lines to #24 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-4EST-001	0.75	1	1	FP	1	1	1	1	Yes	No	Components in the line have been replaced in the past. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-5 to Steam Trap Header
2-4EST-002	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-6 to Steam Trap Header

Extraction Steam Traps (EST), Unit 2

2-4EST-01: Lines from Stm Traps to the Stm Trap Drains Header from Ext lines to #24 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-4EST-003	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-7 to Steam Trap Header
2-4EST-004	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-8 to Steam Trap Header
2-4EST-005	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-9 to Steam Trap Header
2-4EST-006	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-10 to Steam Trap Header
2-4EST-007	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-11 to Steam Trap Header
2-4EST-008	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-12 to Steam Trap Header
2-4EST-009	0.75	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-13 to Steam Trap Header

Extraction Steam Traps (EST), Unit 2

2-5EST-01: Steam Trap lines from Extraction Steam to the #25 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5EST-040-A	0.75	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	P&ID	Extraction steam to EST-4
2-5EST-040-B	0.75	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	P&ID	EST-4 to Steam Trap Header

2-6EST-01: Steam Trap lines from Extraction Steam to the #26 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-6EST-016-B	0.75	1	1	FP	1	3	1	1	Yes	No	Components in this line have been replaced in the past. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE, Replacement History	EST-2 to Steam Trap Header

Extraction Steam (EX), Unit 2

2-5EX-01: HP Turbine Crossunder Piping Drip Pots to the Condenser

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5EX-025-A	2	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235308	P&ID	Crossunder Piping leakoff from Moisture Preseparator A upstream of Pipe Spec Change
2-5EX-026-A	2	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235308	P&ID	Crossunder Piping leakoff from Moisture Preseparator B upstream of Pipe Spec Change
2-5EX-027-A	2	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235308	P&ID	Crossunder Piping leakoff from Moisture Preseparator C upstream of Pipe Spec Change
2-5EX-028-A	2	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235308	P&ID	Crossunder Piping leakoff from Moisture Preseparator D upstream of Pipe Spec Change
2-5EX-117	1.5	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	HP Turbine Drain
2-5EX-118	1.5	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping leakoff to FCV-1156
2-5EX-119	1.5	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping leakoff to FCV-1164
2-5EX-120	1.5	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping leakoff to FCV-1157

Extraction Steam (EX), Unit 2

2-5EX-01: HP Turbine Crossunder Piping Drip Pots to the Condenser

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5EX-121	1.5	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping leakoff to FCV-1165
2-5EX-122		1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping to Moisture Separator Outlet Line
2-5EX-123		1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping to Moisture Separator Outlet Line
2-5EX-124		1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping to Moisture Separator Outlet Line
2-5EX-125		1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping to Moisture Separator Outlet Line
2-5EX-129	1.5	1	1	FP	1	1	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Crossunder piping leakoff to FCV1154

2-6EX-01: HP Turbine Extraction Steam to #26 Feedwater Heaters

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-6EX-001-A	12	1	1	FL	1	3	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2020	SFA Model	ES8-1-6THPT ES to HDR: HP Turbine Extraction Nozzle to #26 FWHs.

Extraction Steam (EX), Unit 2

2-6EX-01: HP Turbine Extraction Steam to #26 Feedwater Heaters

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-6EX-002-A	12	1	1	FL	1	3	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2020	SFA Model	ES8-2-6THPT ES to HDR: HP Turbine Extraction Nozzle to #26 FWHs.
2-6EX-006-B	12	1	1	FL	1	3	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2020	SFA Model	ES8-7-6THPT ESHDR to FWH 26A: Extraction Steam Inlet Nozzle to FWH 26A.
2-6EX-008-B	12	1	1	FL	1	3	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2020	SFA Model	ES8-6-6THPT ESHDR to FWH 26B: Extraction Steam Inlet Nozzle to FWH 26B.
2-6EX-010-B	12	1	1	FL	1	3	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2020	SFA Model	ES8-4-6THPT ESHDR to FWH 26C: Extraction Steam Inlet Nozzle to FWH 26C.

Main Feed Water (FW), Unit 2

2-FW-01: Feedwater Lines from the Boiler Feed Pumps to the Steam Generators

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-FW-031-A	30	1	1	FL	2	3	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure. There is high industry experience in Feedwater min-flow lines.	9321-F-2019	PEPSE	Feedwater Header to Steam Generators downstream of Main Line to SG 23

2-FW-03: Boiler Feed Pump Recirc Lines to the Drains Collecting Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-FW-063	6	1	1	FL	2	2	2	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure. Industry experience exists in Boiler Feed Pump recirculation lines.	9321-F-2019	CSI Document 0700.104.C.008	BFP No. 21 Recirc to Drains Collecting Tank
2-FW-064	6	1	1	FL	2	2	2	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure. Industry experience exists in Boiler Feed Pump recirculation lines.	9321-F-2019	CSI Document 0700.104.C.008	BFP No. 22 Recirc to Drains Collecting Tank

Gland Sealing Steam (GS), Unit 2

2-GS-01: Gland Steam to and from HP, LP, and BFP Turbines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-GS-056		1	1	FL	2	1	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Condenser Drain to Main Condenser

Heater Drains & Vents (HD), Unit 2

2-3HD-02: #23 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-3HD-027	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23A Vent to 3EX-53
2-3HD-028	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23A Vent to 3EX-534
2-3HD-029	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23B Vent to 3EX-536
2-3HD-030	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23B Vent to 3EX-539
2-3HD-031	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23C Vent to 3EX-541
2-3HD-032	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23C Vent to 3EX-544
2-3HD-039	3	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 23A 3" Vent Header
2-3HD-040	3	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 23B 3" Vent Header

Heater Drains & Vents (HD), Unit 2

2-3HD-02: #23 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-3HD-041	3	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 23C 3" Vent Header
2-3HD-042	4	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	4" Vent Header from FWH 23A and 23B
2-3HD-043	4	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	4" Vent Header from #23 FWHs
2-3HD-044	1	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23A 1" Vent
2-3HD-045	1	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23B 1" Vent
2-3HD-046	1	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 23C 1" Vent
2-3HD-047	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	2" Vent From FWH 23A and 23B
2-3HD-048	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	2" Vent From #23 FWHs

Heater Drains & Vents (HD), Unit 2

2-4HD-02: #24 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-4HD-016	1	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 24A 1" Vent
2-4HD-017	1	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 24B 1" Vent
2-4HD-018	1	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 24C 1" Vent
2-4HD-019	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	2" Vent Header from FWH 24A and 24B
2-4HD-020	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	2" Vent Header from #24 FWHs to Condenser 22
2-4HD-021	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 24A 2" Vent
2-4HD-022	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 24B 2" Vent
2-4HD-023	2	1	1	FP	1	1	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	PEPSE	FWH 24B 2" Vent

Heater Drains & Vents (HD), Unit 2

2-4HD-02: #24 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-4HD-024	3	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	3" Vent Header from FWH 24A and 24B
2-4HD-025	3	1	1	FL	1	1	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	3" Vent Header from #24 FWHs to Condenser 22

2-5HD-02: Heater Vents from #25 Feedwater Heater and Heater Drain Tank vents to #25 Feedwater Heaters

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5HD-044	10	1	1	FL	1	2	1	1	Yes	No	Components in this line have been replaced. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2022	PEPSE, Replacement History	Heater Drain Tank vent to FWH 25A
2-5HD-045	10	1	1	FL	1	2	1	1	Yes	No	Components in this line have been replaced. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2022	PEPSE, Replacement History	Heater Drain Tank vent to FWH 25B
2-5HD-046	10	1	1	FL	1	2	1	1	Yes	No	Components in this line have been replaced. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2022	PEPSE, Replacement History	Heater Drain Tank vent to FWH 25C
2-5HD-047	1.5	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 25A Vent
2-5HD-048	1.5	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 25B Vent

Heater Drains & Vents (HD), Unit 2

2-5HD-02: Heater Vents from #25 Feedwater Heater and Heater Drain Tank vents to #25 Feedwater Heaters

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5HD-049	1.5	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 25C Vent
2-5HD-050	2	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	Vent header from FWH 25A and 25B
2-5HD-051	2.5	1	1	FL	1	2	1	1	No	Yes	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2022, A235304	PEPSE	#25 FWH Vent header to Condenser

2-5HD-03: HDT Drains to HDPs and Condensers and HDP Vents to HDT

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5HD-057	2	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	#21 HDP vent to HDT
2-5HD-058	2	1	1	FP	1	2	1	1	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	#22 HDP vent to HDT
2-5HD-059	24	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2022, A235304	PEPSE, Replacement History	Heater Drain Tank drain to Condensers
2-5HD-060	24	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	HDT Drain Header to Condensers 21 and 22

Heater Drains & Vents (HD), Unit 2

2-5HD-03: HDT Drains to HDPs and Condensers and HDP Vents to HDT

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5HD-061-A	14	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	HDT Drain to LCV-5003
2-5HD-061-B	8	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	LCV-5003 to Condenser 21
2-5HD-062-A	14	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	HDT Drain to LCV-5002
2-5HD-062-B	8	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	LCV-5002 to Condenser 22
2-5HD-063-A	14	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	HDT Drain to LCV-5001
2-5HD-063-B	8	1	1	FL	2	2	1	1	Yes	No	Components in this line have been replaced with FAC-resistant material. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE, Replacement History	LCV-5001 to Condenser 23

Heater Drains & Vents (HD), Unit 2

2-6HD-02: Heater Vents from #26 Feedwater Heater

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-6HD-025	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26A vent via 6EX-10
2-6HD-026	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26A vent via 6EX-500
2-6HD-027	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26A vent from 6EX-10 and 6EX-500
2-6HD-028	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26A vent via 6EX-9
2-6HD-029	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26B vent via 6EX-10-1
2-6HD-030	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26B vent via 6EX-501
2-6HD-031	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26B vent from 6EX-10-1 and 6EX-501
2-6HD-032	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26B vent via 6EX-9-1

Heater Drains & Vents (HD), Unit 2

2-6HD-02: Heater Vents from #26 Feedwater Heater

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-6HD-033	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26C vent via 6EX-10-2
2-6HD-034	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26C vent via 6EX-502
2-6HD-035	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26C vent from 6EX-10-2 and 6EX-502
2-6HD-036	1	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	FWH 26C vent via 6EX-9-2
2-6HD-037	1.5	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	Heater Start Up Vent Header from FWH 26A and 26B
2-6HD-038	2	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022, A235304	PEPSE	#26 FWH Startup Vent Header to Condenser
2-6HD-039	1.5	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	Heater Vent Header from FWH 26A and 26B
2-6HD-040	2	1	1	FP	1	2	1	1	No	Yes	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022, A235304	PEPSE	#26 FWH Vent Header to Condenser

Moisture Separator Reheater Drains (MSD), Unit 2

2-MSD-01: Moisture Separator Drains to the Heater Drain Tank and Drains Collecting Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MSD-097	2.5	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	MS Drain Tank 21A vent to MSR
2-MSD-098	2.5	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	MS Drain Tank 22A vent to MSR
2-MSD-099	2.5	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	MS Drain Tank 23A vent to MSR
2-MSD-100	2.5	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	MS Drain Tank 21B vent to MSR
2-MSD-101	2.5	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	MS Drain Tank 22B vent to MSR
2-MSD-102	2.5	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	MS Drain Tank 23B vent to MSR
2-MSD-103-A	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD33A-1-MSDT 21A to HDT: MS Drain Tank 21A Nozzle to Heater Drain Tank
2-MSD-103-C	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD33A-1-MSDT 21A to HDT: Heater Drain Tank Nozzle from MS Drain Tank 21A

Moisture Separator Reheater Drains (MSD), Unit 2

2-MSD-01: Moisture Separator Drains to the Heater Drain Tank and Drains Collecting Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MSD-104-A	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD34A-1-MSDT 22A to HDT: MS Drain Tank 22A Nozzle to Heater Drain Tank
2-MSD-104-C	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD34A-1-MSDT 22A to HDT: Heater Drain Tank Nozzle from MS Drain Tank 22A
2-MSD-105-A	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD35A-1-MSDT 23A to HDT: MS Drain Tank 23A Nozzle to Heater Drain Tank
2-MSD-105-C	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD35A-1-MSDT 23A to HDT: Heater Drain Tank Nozzle from MS Drain Tank 23A
2-MSD-106-A	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD36A-1-MSDT 21B to HDT: MS Drain Tank 21B Nozzle to Heater Drain Tank
2-MSD-106-C	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD36A-1-MSDT 21B to HDT: Heater Drain Tank Nozzle from MS Drain Tank 21B
2-MSD-107-A	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD37A-1-MSDT 22B to HDT: MS Drain Tank 22B Nozzle to Heater Drain Tank
2-MSD-107-C	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD37A-1-MSDT 22B to HDT: Heater Drain Tank Nozzle from MS Drain Tank 22B

Moisture Separator Reheater Drains (MSD), Unit 2

2-MSD-01: Moisture Separator Drains to the Heater Drain Tank and Drains Collecting Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MSD-108-A	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD38A-1-MSDT 23B to HDT: MS Drain Tank 23B Nozzle to Heater Drain Tank
2-MSD-108-C	6	1	1	FL	2	2	1	1	Yes	No	All other components in this line have been clad with Stainless Steel to mitigate FAC.	9321-F-2023	SFA Model	MSD38A-1-MSDT 23B to HDT: Heater Drain Tank Nozzle from MS Drain Tank 23B

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-019-A	12	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Crossunder Steam Trap to Condenser 21
2-MST-020-A	12	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Crossunder Steam Trap to Condenser 21
2-MST-021-A	12	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Crossunder Steam Trap to Condenser 22
2-MST-022-A	12	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Crossunder Steam Trap to Condenser 22
2-MST-023-A	12	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Crossunder Steam Trap to Condenser 23
2-MST-024-A	12	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Crossunder Steam Trap to Condenser 23
2-MST-100-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-26 to Steam Trap Header
2-MST-102-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-28 to Steam Trap Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-103-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-29 to Steam Trap Header
2-MST-116-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-42 to Steam Trap Header
2-MST-117-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in this line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-43 to Steam Trap Header
2-MST-118-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-44 to Steam Trap Header
2-MST-119-B	1.25	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-45 to Steam Trap Header
2-MST-120-B	1	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-46 to Steam Trap Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-121-B	1	1	1	FP	1	3	1	1	Yes	No	Components have been replaced in a similar line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID, Replacement History	MST-47 to Steam Trap Header

Moisture Preseparator Drains (PD), Unit 2

2-PD-01: Moisture Preseparator Drain Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-PD-005	3	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A228272	PEPSE	Moisture Preseparator "A" to 20" Line
2-PD-006	3	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A228272	PEPSE	Moisture Preseparator "B" to 20" Line
2-PD-007	3	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A228272	PEPSE	Moisture Preseparator "C" to 20" Line
2-PD-008	3	1	1	FL	1	2	1	1	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A228272	PEPSE	Moisture Preseparator "D" to 20" Line
2-PD-009-A	20	1	1	FL	1	2	1	1	Yes	No	All other components in this line were replaced with Stainless Steel to mitigate FAC.	A228272	SFA Model	ES7A-1-SEP TKA VNT to FWH25: Separating Tank A Nozzle to Extraction Steam Header
2-PD-010-A	20	1	1	FL	1	2	1	1	Yes	No	All other components in this line were replaced with Stainless Steel to mitigate FAC.	A228272	SFA Model	ES7A-2-SEP TKB VNT to FWH25: Separating Tank B Nozzle to Extraction Steam Header

Report Header Legend:

F	Consequence of Failure 1 = High Consequence of Failure (Category 1) 2 = Low Consequence of Failure (Category 2)
S	Susceptibility level 1 = High Susceptibility 2 = Moderate Susceptibility 3 = Low Susceptibility
F Crit.	Consequence of Failure Criteria (see below)
Q	Operating Quality code 1 = 30% to 99.5% 2 = < 30% 3 = > 99.5%
T	Operating Temperature code 1 = 250 to 350 deg F 2 = 350 to 400 deg F 3 = < 250 deg F, > 400 deg F
O	Operating time code 1 = Lines operating frequently or w/ severe cond. 2 = Lines operating infrequently
Priority	Priority 1 = High Priority 2 = Moderate Priority 3 = Low Priority
Plant Exp.	Plant Experience
Ind. Exp.	Industry Experience

Consequence of Failure Criteria (F Crit.) Legend:

FI	High consequence of Failure: non-Isolable line
FL	High consequence of Failure: Large-bore line
FP	High consequence of Failure: Personnel safety issue (frequently accessed location)
FS	High consequence of Failure: Safety-related line
FT	High consequence of Failure: shutdown or Trip upon failure

Appendix C

SNM Program Lines Sorted by Susceptibility

High Consequence of Failure - Moderate Susceptibility

Indian Point Unit 2

Auxiliary Feedwater (AF), Unit 2

2-AF-01: Service Boiler Auxiliary Feedwater Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AF-001	6	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Deaerator Header to Boiler Feed Pumps
2-AF-002	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Aux. Feed header to #23 Boiler Feed Pump and #10 House Service Deaerator
2-AF-003	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Aux. Feed header to #21 Boiler Feed Pump
2-AF-004	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Aux. Feed header to #22 Boiler Feed Pump
2-AF-005	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Aux. Feed header to #23 Boiler Feed Pump
2-AF-006	6	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Aux. Feed header to #10 House Service Deaerator
2-AF-011-A	1	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	P&ID	#21 BFP discharge overflow line upstream of orifice
2-AF-012-A	1	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	P&ID	#22 BFP discharge overflow line upstream of orifice

Auxiliary Feedwater (AF), Unit 2

2-AF-01: Service Boiler Auxiliary Feedwater Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AF-013-A	1	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	P&ID	#23 BFP discharge overflow line upstream of orifice
2-AF-014	3	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	#21 BFP discharge line
2-AF-015	3	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	#22 BFP discharge line
2-AF-016	3	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	#23 BFP discharge line
2-AF-017	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	#21 and #22 BFP discharge header
2-AF-018	2.5	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	LH Boiler #22 Feed Line
2-AF-019	2.5	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	AF-144 bypass line
2-AF-020	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201, 9321-F-2021	P&ID	Unit 1 Service Boiler Feed Pump discharge tie-in line.

Auxiliary Feedwater (AF), Unit 2

2-AF-01: Service Boiler Auxiliary Feedwater Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AF-021	1	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	P&ID	BFP discharge header to Desuperheater Station
2-AF-022	2.5	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	RH Boiler #21 Feed Line
2-AF-023	2.5	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	AF-138 bypass line
2-AF-032	6	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Boiler Blowdown Tank Drain
2-AF-037	2	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B193201	P&ID	Flash Tank Drain to Service Boiler Deaerator
2-AF-039	6	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Deaerator 6" Drain to OB
2-AF-040	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Deaerator Drain vent
2-AF-041	2	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B193201	P&ID	Service Boiler Deaerator 2" Drain to OB

Auxiliary Feedwater (AF), Unit 2

2-AF-01: Service Boiler Auxiliary Feedwater Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AF-043	6	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Deaerator Drain to Service Boiler Feed Pumps
2-AF-044	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump No. 11 Feed Line
2-AF-045	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump No. 12 Feed Line
2-AF-046	4	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump No. 13 Feed Line
2-AF-047	3	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump No. 11 Discharge Line
2-AF-048	3	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump No. 12 Discharge Line
2-AF-049	3	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump No. 13 Discharge Line
2-AF-050	6	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B193201	P&ID	Service Boiler Pump Discharge Header

Auxiliary Steam (AS), Unit 2

2-AS-03: Remainder of Auxiliary Steam

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AS-001-A	10	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B192493, B192490, 192491	SD 29.01	10" Aux. Steam Header
2-AS-002	10	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	SD 29.01	Aux. Steam Header from Service Boilers
2-AS-003	8	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	SD 29.01	Aux. Steam from #22 LH Boiler
2-AS-004	8	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	SD 29.01	Aux. Steam from #21 RH Boiler
2-AS-005	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	SD 29.01	Aux. Steam Drain to Deaerator
2-AS-006	1.5	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	FCV-1148 Bypass Line
2-AS-008	1.25	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Steam to 21 and 22 Air Tempering Units
2-AS-009	8	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	P&ID	Steam to AST-26

Auxiliary Steam (AS), Unit 2

2-AS-03: Remainder of Auxiliary Steam

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AS-015	1.5	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	#21 RH Boiler Drain
2-AS-016	1.5	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	#22 LH Boiler Drain
2-AS-017	1.5	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	Boiler Drain Header to Blowdown Tank
2-AS-031	6	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B192490	SD 29.01	Steam Header to Barge Steam Connections
2-AS-032	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B192490	SD 29.01	Steam to AS845
2-AS-036	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B192490	SD 29.01	Steam line to UH-1239
2-AS-046	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Steam header to Service Boiler Feed Pump No. 13
2-AS-047	6	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Steam header to Carbon Filter Tanks

Auxiliary Steam (AS), Unit 2

2-AS-03: Remainder of Auxiliary Steam

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AS-051	2	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	192491	SD 29.01	Steam to Service Boiler Feed Pump No. 13
2-AS-053	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Steam from Service Boiler Feed Pump No. 13
2-AS-054	8	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Steam from Service Boiler Feed Pump No. 13 to #10 Service Deaerator
2-AS-055	8	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Steam from Service Boiler Feed Pump No. 13 to Atmospheric Vent header
2-AS-057	10	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	P&ID	Steam drain to #10 Service Deaerator via AS484
2-AS-058	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	P&ID	Steam to Heating and Ventilation Pressure Reducing Station
2-AS-070	3	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491, B227209	SD 29.01	Steam header to Carbon Filter Tanks
2-AS-082-A	8	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Floor trench drain to cap

Auxiliary Steam (AS), Unit 2

2-AS-03: Remainder of Auxiliary Steam

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AS-083	16	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Aux Steam Vent to Atmosphere
2-AS-087	3	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B227209	SD 29.01	Steam to 21ACFT
2-AS-088	3	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B227209	SD 29.01	Steam to 22ACFT
2-AS-096	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491, B193201	P&ID	Aux. Steam to Flash Tank

Auxiliary Steam Traps (AST), Unit 2

2-AST-01: Steam Trap Lines from Auxiliary Steam Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AST-002	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A227780, A209775	PEPSE	Steam to and from AST-50
2-AST-010	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120	SD 29.01	Condensate Return Header
2-AST-017	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Steam to AST-33
2-AST-020	1	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Steam to AST-20
2-AST-021	1	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	#21 Fuel Oil Heater heating steam outlet
2-AST-022	1	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	#22 Fuel Oil Heater heating steam outlet
2-AST-023	1	1	2	FP	1	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2120	SD 29.01	#23 Fuel Oil Heater heating steam outlet
2-AST-025	4	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Steam to AST-2 and 3

Auxiliary Steam Traps (AST), Unit 2

2-AST-01: Steam Trap Lines from Auxiliary Steam Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AST-027	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Steam to AST-6
2-AST-028	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Steam to AST-7
2-AST-032	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Steam to AST-4
2-AST-033	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Steam to AST-5
2-AST-069-A	3	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	192491	SD 29.01	Stub to AST-30 and drain

Steam Generator Blowdown (BD), Unit 2

2-BD-01: Steam Generator Blowdown to Sample Coolers and Blowdown Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-BD-001	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 21 Blowdown via MS-67-A
2-BD-002	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 21 Blowdown via MS-67-B
2-BD-003	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 22 Blowdown via MS-67-C
2-BD-004	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 22 Blowdown via MS-67-D
2-BD-005	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 23 Blowdown via MS-67-E
2-BD-006	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 23 Blowdown via MS-67-F
2-BD-007	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 24 Blowdown via MS-67-G
2-BD-008	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 24 Blowdown via MS-67-H

Steam Generator Blowdown (BD), Unit 2

2-BD-01: Steam Generator Blowdown to Sample Coolers and Blowdown Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-BD-009-A	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 21 Blowdown Upstream of Line Spec Change
2-BD-010-A	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 22 Blowdown Upstream of Line Spec Change
2-BD-011-A	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 23 Blowdown Upstream of Line Spec Change
2-BD-012-A	2	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 24 Blowdown Upstream of Line Spec Change
2-BD-017	1	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 23 1" Blowdown Line
2-BD-018	1	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2729	P&ID	SG 24 1" Blowdown Line
2-BD-019	18	1	2	FL	2	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2729	P&ID	Blowdown Tank vent to Atmosphere

Extraction Steam Traps (EST), Unit 2

2-1EST-01: Extraction Steam Trap Headers to the Drains Collecting Tank

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-1EST-013-A	4	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2031	P&ID	Steam Trap Header from EST-1 and 1A

2-6EST-01: Steam Trap lines from Extraction Steam to the #26 FWHs

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-6EST-015-A	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-1
2-6EST-015-B	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-1A
2-6EST-015-C	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-1 to Steam Trap Header
2-6EST-015-D	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	EST-1A to Steam Trap Header
2-6EST-016-A	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2031	PEPSE	Extraction Steam to EST-2

Extraction Steam (EX), Unit 2

2-3EX-01: Boiler Feed Pump Turbine Drains to Condensers

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-3EX-021	1.5	1	2	FP	1	3	1		No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents an injury risk to a passerby.	A227780	PEPSE	Continuous Drain from #21 Steam Generator Feed Pump Turbine drain to #21 Condenser
2-3EX-022	1.5	1	2	FP	1	3	1		No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents an injury risk to a passerby.	A227780	PEPSE	Continuous Drain from #22 Steam Generator Feed Pump Turbine drain to #22 Condenser

2-5EX-01: HP Turbine Crossunder Piping Drip Pots to the Condenser

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-5EX-128		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237145, B237144	PEPSE	LP Leakoff Header to Gland Condenser

Main Feed Water (FW), Unit 2

2-FW-01: Feedwater Lines from the Boiler Feed Pumps to the Steam Generators

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-FW-062	0.75	1	2	FP	2	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2019	P&ID	Feedwater to Sampling Upstream of BFD-1138

Gland Sealing Steam (GS), Unit 2

2-GS-01: Gland Steam to and from HP, LP, and BFP Turbines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-GS-001	12	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal Steam Header to HP and LP Turbines
2-GS-002	10	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to HP Turbine
2-GS-003	10	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to HP Turbine
2-GS-004	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to LP Turbine 21
2-GS-005	2	1	2	FT	1	3	1	2	No	No	Loss of sealing steam to the turbine will cause a plant shutdown or downpower.	A235308	PEPSE	Gland Seal to LP Turbine 21
2-GS-006	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to LP Turbine 21
2-GS-007	2	1	2	FT	1	3	1	2	No	No	Loss of sealing steam to the turbine will cause a plant shutdown or downpower.	A235308	PEPSE	Gland Seal to LP Turbine 21
2-GS-008	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to LP Turbine 22
2-GS-009	2	1	2	FT	1	3	1	2	No	No	Loss of sealing steam to the turbine will cause a plant shutdown or downpower.	A235308	PEPSE	Gland Seal to LP Turbine 22

Gland Sealing Steam (GS), Unit 2

2-GS-01: Gland Steam to and from HP, LP, and BFP Turbines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-GS-010	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to LP Turbine 22
2-GS-011	2	1	2	FT	1	3	1	2	No	No	Loss of sealing steam to the turbine will cause a trip or downpower.	A235308	PEPSE	Gland Seal to LP Turbine 22
2-GS-012	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to LP Turbine 23
2-GS-013	2	1	2	FT	1	3	1	2	No	No	Loss of sealing steam to the turbine will cause a plant shutdown or downpower.	A235308	PEPSE	Gland Seal to LP Turbine 23
2-GS-014	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal to LP Turbine 23
2-GS-015	2	1	2	FT	1	3	1	2	No	No	Loss of sealing steam to the turbine will cause a plant shutdown or downpower.	A235308	PEPSE	Gland Seal to LP Turbine 23
2-GS-016	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	Gland Seal supply to BFP Turbines
2-GS-020	4	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	Steam to BFPT #22
2-GS-021	4	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	Steam to BFPT #21

Gland Sealing Steam (GS), Unit 2

2-GS-01: Gland Steam to and from HP, LP, and BFP Turbines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-GS-022	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	Steam to BFPT #22
2-GS-023	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	Steam to BFPT #21
2-GS-032	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	BFPT #22 Gland Steam Discharge
2-GS-034	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	BFPT #21 Gland Steam Discharge
2-GS-036	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	BFPT Gland Steam Discharge Header to Gland Condenser
2-GS-038	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024, B237144	PEPSE	BFPT Gland Steam Discharge Header drain to waste header
2-GS-039	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	BFPT #21 Exhaust Cylinder Drain
2-GS-040	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	BFPT #22 Exhaust Cylinder Drain

Gland Sealing Steam (GS), Unit 2

2-GS-01: Gland Steam to and from HP, LP, and BFP Turbines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-GS-041	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	BFPT Exhaust Cylinder Drain header to Boiler Feed Pump Drip Tank
2-GS-042	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	BFPT Exhaust Cylinder Drain header line to Boiler Feed Pump Drip Tank vent
2-GS-043	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-H-2024	PEPSE	BFPT Drip Tank vent to Condenser #21
2-GS-047		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237145	PEPSE	Gland Seal Return from HP Turbine
2-GS-048		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237145	PEPSE	Gland Seal Return from HP Turbine
2-GS-049		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Seal Return from #21 LP Turbine
2-GS-050		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Seal Return from #21 LP Turbine
2-GS-051		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Seal Return from #22 LP Turbine

Gland Sealing Steam (GS), Unit 2

2-GS-01: Gland Steam to and from HP, LP, and BFP Turbines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-GS-052		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Seal Return from #22 LP Turbine
2-GS-053		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Seal Return from #23 LP Turbine
2-GS-054		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237144	PEPSE	Gland Seal Return from #23 LP Turbine
2-GS-055		1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	B237145, B237144	PEPSE	Gland Seal return header to Gland Condenser

Gland Steam Traps (GST), Unit 2

2-GST-01: Steam Trap Lines from the Gland Seal System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-GST-017	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	Steam to GST-1
2-GST-019	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	GST-1 Discharge to Header
2-GST-024	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	Steam to GST-3
2-GST-026	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	GST-3 Discharge to Header
2-GST-027	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	Steam to GST-2
2-GST-029	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	GST-2 Discharge to Header
2-GST-030	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	Header from GST-1 and 3
2-GST-031	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	Gland Steam Trap Header to Boiler Feed Pump Drip Tank

Heater Drains & Vents (HD), Unit 2

2-1HD-02: #21 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-1HD-021	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 21A High Level Dump to Condenser 23
2-1HD-022	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 21B High Level Dump to Condenser 22
2-1HD-023	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 21C High Level Dump to Condenser 21
2-1HD-024	5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 21A 5" Vent to Condenser 23
2-1HD-025	5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 21B 5" Vent to Condenser 22
2-1HD-026	5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	PEPSE	FWH 21C 5" Vent to Condenser 21

2-2HD-02: #22 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-2HD-019	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	P&ID	FWH 22A High Level Dump to Condenser 23

Heater Drains & Vents (HD), Unit 2

2-2HD-02: #22 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-2HD-020	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	P&ID	FWH 22B High Level Dump to Condenser 22
2-2HD-021	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	P&ID	FWH 22C High Level Dump to Condenser 21
2-2HD-022	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	P&ID	FWH 22A 2-1/2" Vent to Condenser 23
2-2HD-023	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	P&ID	FWH 22B 2-1/2" Vent to Condenser 22
2-2HD-024	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235304	P&ID	FWH 22C 2-1/2" Vent to Condenser 21
2-2HD-025	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	P&ID	FWH 22A 1" Vent to Condenser 23
2-2HD-026	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	P&ID	FWH 22B 1" Vent to Condenser 22
2-2HD-027	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235304	P&ID	FWH 22C 1" Vent to Condenser 21

Heater Drains & Vents (HD), Unit 2

2-HD-01: Heater Drain Pump discharge to Boiler Feed Pumps

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-HD-004-A	0.5	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	#21 HDP to HDP Water Chem. Monitor Upstream of Root Isolation Valve
2-HD-005-A	0.5	1	2	FP	2	2	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2022	PEPSE	#22 HDP to HDP Water Chem. Monitor Upstream of Root Isolation Valve

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-036-B	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	SJAE Steam Supply Downstream of PCV 1132
2-MS-037	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	SJAE Header
2-MS-038	2	1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	Header to SJAE 21
2-MS-039	2	1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	Header to SJAE 22
2-MS-040	2	1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	Header to SJAE 23
2-MS-041		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-797
2-MS-042		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-798

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-043		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-799
2-MS-044		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-800
2-MS-045		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-801
2-MS-046		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-802
2-MS-047		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-803
2-MS-048		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-804
2-MS-049		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-805

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-050		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-806
2-MS-051		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-807
2-MS-052		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-808
2-MS-053		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-809
2-MS-054		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-810
2-MS-055		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-811
2-MS-056		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-812

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-057		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-813
2-MS-058		1	2	FT	1	3	1	2	No	No	This line is necessary for removing non-condensable gases from the condenser. A failure in this line will cause a trip or a downpower	A227780	SD No. 18.0	SJAE Steam Supply via MS-814
2-MS-059-B	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	Main Steam to Priming Ejectors Header Downstream of PCV 1133
2-MS-060	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	Priming Ejectors Header
2-MS-061	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	Priming Ejectors Header to PE 21
2-MS-062	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	Priming Ejectors Header to PE 22
2-MS-063	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	SD No. 18.0	Priming Ejectors Header to PE 23
2-MS-076	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	P&ID	MS-863 Valve leakoff to condenser.

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-077	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	P&ID	MS-864 Valve leakoff to condenser.
2-MS-078	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	P&ID	MS-865 Valve leakoff to condenser.
2-MS-079	3	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	P&ID	MS-866 Valve leakoff to condenser.
2-MS-143	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235308	PEPSE	Main Steam Stop Valve drain to 23 Cond. West Side
2-MS-144	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A235308	PEPSE	Main Steam Stop Valve drain to 23 Cond. East Side
2-MS-198		1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	LH Control Valve Stem Leak-off Lines
2-MS-199		1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	RH Control Valve Stem Leak-off Lines
2-MS-200	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Upper LH HP Turbine Feed Leakoff

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-201	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Lower LH HP Turbine Feed Leakoff
2-MS-202	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Upper RH HP Turbine Feed Leakoff
2-MS-203	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B237145	P&ID	Lower LH HP Turbine Feed Leakoff

2-MS-06: Main Steam Supply to Gland Steam Header

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-188-B	12	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal Steam Supply downstream of PCV-1145-1
2-MS-189-B	12	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal Steam Supply downstream of PCV-1145-2
2-MS-191	12	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam to Gland Seal Steam Header.

Moisture Separator Reheater Drains (MSD), Unit 2

2-MSD-02: Reheater Drains to #26 Feedwater Heaters and Condensers

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MSD-145	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater Drain Tank 21A Vent to MSR
2-MSD-146	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater Drain Tank 22A Vent to MSR
2-MSD-147	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater Drain Tank 23A Vent to MSR
2-MSD-148	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater Drain Tank 21B Vent to MSR
2-MSD-149	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater Drain Tank 22B Vent to MSR
2-MSD-150	2.5	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater Drain Tank 23B Vent to MSR
2-MSD-175	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater 21A to Condenser 23
2-MSD-176	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater 22A to Condenser 22

Moisture Separator Reheater Drains (MSD), Unit 2

2-MSD-02: Reheater Drains to #26 Feedwater Heaters and Condensers

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MSD-177	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater 23A to Condenser 23
2-MSD-178	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater 21B to Condenser 21
2-MSD-179	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater 22B to Condenser 22
2-MSD-180	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2023	PEPSE	Reheater 23B to Condenser 21

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-080-B	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-1 to Steam Trap Header
2-MST-081-B	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-2 to Steam Trap Header
2-MST-082-B	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-3 to Steam Trap Header
2-MST-083-C		1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-4 to Steam Trap Header
2-MST-084-B	1.25	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-5 to Steam Trap Header
2-MST-085-C	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-6 to Steam Trap Header
2-MST-086-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-8 to Steam Trap Header
2-MST-087-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-9 to Steam Trap Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-088-C	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-10 to Steam Trap Header
2-MST-089-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-12 to Steam Trap Header
2-MST-090-B	1.25	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-13 to Steam Trap Header
2-MST-091-C	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-14 to Steam Trap Header
2-MST-092-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-16 to Steam Trap Header
2-MST-093-C	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-18 to Steam Trap Header
2-MST-094-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-20 to Steam Trap Header
2-MST-095-B	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-21 to Steam Trap Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-096-B	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-22 to Steam Trap Header
2-MST-097-B	1.5	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-23 to Steam Trap Header
2-MST-099-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-25 to Steam Trap Header
2-MST-101-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-27 to Steam Trap Header
2-MST-104-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-30 to Steam Trap Header
2-MST-105-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-31 to Header
2-MST-105-D	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Header to Steam Trap Header
2-MST-106-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-32 to Steam Trap Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-107-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	SD No. 18.0	Steam to MST-33
2-MST-107-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-33 to Steam Trap Header
2-MST-108-B	1.25	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-34 to Steam Trap Header
2-MST-109-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-35 to Steam Trap Header
2-MST-110-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-36 to Steam Trap Header
2-MST-111-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-37 to Steam Trap Header
2-MST-112-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-38 to Steam Trap Header
2-MST-113-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-39 to Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-113-D	1.25	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Header to Steam Trap Header
2-MST-114-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-40 to Header
2-MST-115-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-41 to Header
2-MST-122-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-48 to Steam Trap Header
2-MST-123-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-49 to Steam Trap Header
2-MST-124-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-50 to Steam Trap Header
2-MST-125-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-51 to Steam Trap Header
2-MST-126-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-52 to Steam Trap Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-127-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-56
2-MST-127-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-56 to Steam Trap Header
2-MST-128-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-57
2-MST-128-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-57 to Steam Trap Header
2-MST-129-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-58
2-MST-129-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-58 to Steam Trap Header
2-MST-130-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-59
2-MST-130-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-59 to Steam Trap Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-131-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-60
2-MST-131-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-60 to Header
2-MST-132-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-61
2-MST-132-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-61 to Steam Trap Header
2-MST-133-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-62
2-MST-133-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-62 to Steam Trap Header
2-MST-134-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	Steam to MST-63
2-MST-134-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	P&ID	MST-63 to Steam Trap Header

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-135-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-64 to Header
2-MST-136-A	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	Steam to MST-65
2-MST-136-B	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	P&ID	MST-65 to Header
2-MST-193-B	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A227780	PEPSE	MST-100 to Steam Trap Header

Reheat Steam Traps (RST), Unit 2

2-RST-01: Reheat Steam Trap Lines Downstream of Reheater Steam Traps

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-RST-001	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	RST-1 to BFP Turbine Drip Tank Header
2-RST-002	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	RST-2 to BFP Turbine Drip Tank Header
2-RST-003	0.75	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	RST-3 to BFP Turbine Drip Tank Header
2-RST-004	2	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-H-2024	PEPSE	Reheat Steam Trap Header to BFP Turbine Drip Tank

Service Boiler (SB), Unit 2

2-SB-01: Service Boiler Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-SB-001	6	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780, A209775	PEPSE	Auxiliary Steam from PCV-1015
2-SB-015	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Steam from Aux. Steam Header
2-SB-016	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Desuperheater Header
2-SB-023	4	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Header to Steam Traps
2-SB-026	1	1	2	FP	1	3	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	P&ID	Desuperheater Header
2-SB-030	8	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Steam to Desuperheater
2-SB-039	4	1	2	FL	1	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Service Boiler Header to Air Tempering Units
2-SB-042	6	1	2	FL	2	2	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2021, B193201	P&ID	Line from #10 House Service Boiler Deaerator

Condensate Return Unit Heaters to Service Boiler D (UH), Unit 2

2-UH-01: Condensate Return from Unit Heaters to the Deaerator

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UH-001	4	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775, 9321-F-2120	P&ID	Condensate return pumps to #20 House Service Deaerator
2-UH-002	4	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2120, B193201	P&ID	Condensate return to #10 House Service Deaerator
2-UH-003	10	1	2	FL	3	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	SD No. 29.01	Desuperheater outlet header to various unit heaters
2-UH-004	8	1	2	FL	3	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	SD No. 29.01	Desuperheater outlet steam to Gland Seal Steam Header
2-UH-071	6	1	2	FL	1	1	1	2	No	No	Based on engineering judgment, these lines are not as susceptible as the numbers may imply. Susceptibility level was lowered accordingly. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Unit Heater Drain Header to Condensate Receiver
2-UH-072	6	1	2	FL	1	1	1	2	No	No	Based on engineering judgment, these lines are not as susceptible as the numbers may imply. Susceptibility level was lowered accordingly. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Unit Heater Drain Header to Condensate Receiver

Condensate Return Unit Heaters to Service Boiler D (UH), Unit 2

2-UH-01: Condensate Return from Unit Heaters to the Deaerator

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UH-073	4	1	2	FL	1	1	1	2	No	No	Based on engineering judgment, these lines are not as susceptible as the numbers may imply. Susceptibility level was lowered accordingly. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Condensate Receiver Vent to Atmosphere
2-UH-074	3	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Condensate Receiver Drain to Cond. Return Pump #21
2-UH-075	3	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Condensate Receiver Drain to Cond. Return Pump #22
2-UH-077	4	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Cond. Return Pump #21 Discharge
2-UH-078	4	1	2	FL	2	1	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Cond. Return Pump #21 Discharge
2-UH-079	2	1	2	FP	2	1	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	B193201	P&ID	Line from #20 House Service Boiler to Service Boiler Deaerator

Condensate Return Unit Heater Steam Traps (UHT), Unit 2

2-UHT-01: Steam Trap Lines from the Condensate Return from Unit Heaters to the Deaerator system

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UHT-005	1	1	2	FP	3	1	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	SD No. 29.01	Steam to UHT-510
2-UHT-006	1	1	2	FP	3	1	1	2	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A209775	SD No. 29.01	Steam to UHT-511
2-UHT-024-A	4	1	2	FL	1	3	1	2	No	No	This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A209775	P&ID	Steam to UHT-512 and 513

Report Header Legend:

F	Consequence of Failure 1 = High Consequence of Failure (Category 1) 2 = Low Consequence of Failure (Category 2)
S	Susceptibility level 1 = High Susceptibility 2 = Moderate Susceptibility 3 = Low Susceptibility
F Crit.	Consequence of Failure Criteria (see below)
Q	Operating Quality code 1 = 30% to 99.5% 2 = < 30% 3 = > 99.5%
T	Operating Temperature code 1 = 250 to 350 deg F 2 = 350 to 400 deg F 3 = < 250 deg F, > 400 deg F
O	Operating time code 1 = Lines operating frequently or w/ severe cond. 2 = Lines operating infrequently
Priority	Priority 1 = High Priority 2 = Moderate Priority 3 = Low Priority
Plant Exp.	Plant Experience
Ind. Exp.	Industry Experience

Consequence of Failure Criteria (F Crit.) Legend:

FI	High consequence of Failure: non-Isolable line
FL	High consequence of Failure: Large-bore line
FP	High consequence of Failure: Personnel safety issue (frequently accessed location)
FS	High consequence of Failure: Safety-related line
FT	High consequence of Failure: shutdown or Trip upon failure

Appendix D

SNM Program Lines Sorted by Susceptibility

High Consequence of Failure - Low Susceptibility

Indian Point Unit 2

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-001	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2017, A235308	PEPSE	Main Steam from Steam Generator 21 Shell
2-MS-002	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2017, A235308	PEPSE	Main Steam from Steam Generator 22 Shell
2-MS-003	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2017, A235308	PEPSE	Main Steam from Steam Generator 23 Shell
2-MS-004	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	9321-F-2017, A235308	PEPSE	Main Steam from Steam Generator 24 Shell
2-MS-005	24	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Line from 2-MS-001 to Seal Steam and MSR Header.
2-MS-006	24	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Line from 2-MS-002 to Gland Seal Steam and MSR B Header.
2-MS-007	20	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308, A227780	PEPSE	Gland Seal Steam, MSR B, and Aux. Steam Header.

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-008	24	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Line from 2-MS-001 (3) to MSR A Header
2-MS-009	24	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Line from 2-MS-004 to MSR A Header
2-MS-010	20	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308, A227780	PEPSE	MSR A, BFP Turbine, SJAE, and Priming Ejector Header
2-MS-011	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam to NE HP Turbine Inlet
2-MS-011-A	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	MS-863 Bypass
2-MS-012	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam to SE HP Turbine Inlet
2-MS-012-A	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	MS-864 Bypass

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-013	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam to NW HP Turbine Inlet
2-MS-013-A	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	MS-865 Bypass
2-MS-014	28	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam to SW HP Turbine Inlet
2-MS-014-A	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	MS-866 Bypass
2-MS-015	20	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam Balancing Line between 2-MS-001 and 2-MS-003
2-MS-016	12	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam to Reheater Steam Control Station A.
2-MS-017	8	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Steam Control Station A line to PCV 1175-1

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-018	8	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Steam Control Station A line to PCV 1175-2
2-MS-019	1	1	3	FP	3	3	1	3	No	No	High quality main steam line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A227780	PEPSE	Reheater Steam Control Station A line to PCV 1108
2-MS-020	12	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Steam Header A
2-MS-021	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Header to MSR 21A
2-MS-022	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Header to MSR 22A
2-MS-023	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Header to MSR 23A
2-MS-024	12	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam to Reheater Steam Control Station B.

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-025	8	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Steam Control Station B line to PCV 1175-3
2-MS-026	8	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Steam Control Station B line to PCV 1175-4
2-MS-027	1	1	3	FP	3	3	1	3	No	No	High quality main steam line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A227780	PEPSE	Reheater Steam Control Station B line to PCV 1109
2-MS-028	12	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Steam Header B
2-MS-029	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Header to MSR 21B
2-MS-030	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Header to MSR 22B
2-MS-031	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Reheater Header to MSR 23B

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-032	1	1	3	FP	3	3	1	3	No	No	High quality main steam line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A227780	PEPSE	Reheater Cal. Line
2-MS-033	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam to BFP #21 Turbine
2-MS-034	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam to BFP #22 Turbine
2-MS-035	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam to SJAEs and Priming Ejectors
2-MS-036-A	3	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	SJAE Steam Supply Upstream of PCV 1132
2-MS-059-A	6	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam to Priming Ejectors Header Upstream of PCV 1133
2-MS-064	12	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Balancing line between SE and SW HP Turbine Steam Feed Lines.

Main Steam (MS), Unit 2

2-MS-01: Main Steam from Stm Gen to HP Turbine, BFP Turbine, MSRs, Aux. Steam, SJAEs, and Priming Ejectors.

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-192	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A227780	PEPSE	Main Steam Header to Aux. Steam Upstream of PCV-1015

2-MS-06: Main Steam Supply to Gland Steam Header

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MS-187	4	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Main Steam Supply to Gland Seal Regulator Station
2-MS-188-A	3	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal Steam Supply upstream of PCV-1145-1
2-MS-189-A	3	1	3	FL	3	3	1	3	No	No	High quality main steam line. This large bore line is important to plant operation and/or is a personnel safety issue upon failure.	A235308	PEPSE	Gland Seal Steam Supply upstream of PCV-1145-2

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-080-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main steam to MST-1
2-MST-081-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main steam to MST-2
2-MST-082-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main steam to MST-3
2-MST-083-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from Drain Pot to MST-4
2-MST-083-B	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-24 US Leakoff to MST-4.
2-MST-084-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-21 US Leakoff to MST-5
2-MST-085-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2A US Leakoff to MST-6
2-MST-085-B	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-21 DS Leakoff to MST-6

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-086-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2A DS Leakoff to MST-8
2-MST-087-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2B DS Leakoff to MST-9
2-MST-088-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-22 DS Leakoff to MST-10
2-MST-088-B	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2B US Leakoff to MST-10
2-MST-089-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-22 US Leakoff to MST-12
2-MST-090-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-23 US Leakoff to MST-13
2-MST-091-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-23 DS Leakoff to MST-14
2-MST-091-B	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2C US Leakoff to MST-14

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-092-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2C DS Leakoff to MST-16
2-MST-093-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-1-24 DS Leakoff to MST-18
2-MST-093-B	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2D US Leakoff to MST-18
2-MST-094-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam from MS-2D DS Leakoff to MST-20
2-MST-095-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-21
2-MST-096-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-22
2-MST-097-A	1.5	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-23
2-MST-098-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Exit Nozzle US of Valve MS-90-1

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-099-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-25 via Steam Dump Lines
2-MST-100-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-26 via Steam Dump Lines
2-MST-101-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-27 via Steam Dump Lines
2-MST-102-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-28 via Steam Dump Lines
2-MST-103-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-29 via Steam Dump Lines
2-MST-104-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-30
2-MST-105-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-31
2-MST-106-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-32

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-108-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-34
2-MST-109-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-35
2-MST-110-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-36
2-MST-111-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-37
2-MST-112-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-38
2-MST-113-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-39
2-MST-114-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-40
2-MST-115-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Main Steam to MST-41

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-116-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-42 via Steam Dump Lines
2-MST-117-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-43 via Steam Dump Lines
2-MST-118-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-44 via Steam Dump Lines
2-MST-119-A	1.25	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-45 via Steam Dump Lines
2-MST-120-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-46 via Steam Dump Lines
2-MST-121-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-47 via Steam Dump Lines
2-MST-122-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-48
2-MST-123-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-49

Main Steam Traps (MST), Unit 2

2-MST-01: Steam Trap Lines from the Main Steam System

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-MST-124-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-50
2-MST-125-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-51
2-MST-126-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2042	PEPSE	Main Steam to MST-52
2-MST-135-A	1	1	3	FP	3	3	1	3	No	No	This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	9321-F-2041	PEPSE	Steam to MST-64
2-MST-193-A	0.75	1	3	FP	3	3	1	3	No	No	High quality main steam line. This line exists in an area accessible by plant personnel during operation, and a leak presents a burn risk to a passerby.	A227780	PEPSE	Main Steam to MST-100

Report Header Legend:

F	Consequence of Failure 1 = High Consequence of Failure (Category 1) 2 = Low Consequence of Failure (Category 2)
S	Susceptibility level 1 = High Susceptibility 2 = Moderate Susceptibility 3 = Low Susceptibility
F Crit.	Consequence of Failure Criteria (see below)
Q	Operating Quality code 1 = 30% to 99.5% 2 = < 30% 3 = > 99.5%
T	Operating Temperature code 1 = 250 to 350 deg F 2 = 350 to 400 deg F 3 = < 250 deg F, > 400 deg F
O	Operating time code 1 = Lines operating frequently or w/ severe cond. 2 = Lines operating infrequently
Priority	Priority 1 = High Priority 2 = Moderate Priority 3 = Low Priority
Plant Exp.	Plant Experience
Ind. Exp.	Industry Experience

Consequence of Failure Criteria (F Crit.) Legend:

FI	High consequence of Failure: non-Isolable line
FL	High consequence of Failure: Large-bore line
FP	High consequence of Failure: Personnel safety issue (frequently accessed location)
FS	High consequence of Failure: Safety-related line
FT	High consequence of Failure: shutdown or Trip upon failure

Appendix E

SNM Program Lines Sorted by Susceptibility

Low Consequence of Failure

Indian Point Unit 2

Auxiliary Feedwater (AF), Unit 2

2-AF-01: Service Boiler Auxiliary Feedwater Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AF-007	1.5	2						N/A	No	No		9321-F-2120	P&ID	Boiler Feed Pump overflow header to Deaerator
2-AF-008	1.5	2						N/A	No	No		9321-F-2120	P&ID	Boiler Feed Pump discharge Unit #3 tie-in.
2-AF-011-B	1	2						N/A	No	No		9321-F-2120	P&ID	#21 BFP discharge overflow line downstream of orifice
2-AF-012-B	1	2						N/A	No	No		9321-F-2120	P&ID	#22 BFP discharge overflow line downstream of orifice
2-AF-013-B	1	2						N/A	No	No		9321-F-2120	P&ID	#23 BFP discharge overflow line downstream of orifice
2-AF-024	0.75	2						N/A	No	No		9321-F-2120	P&ID	RH Boiler #21 Continuous Blowdown Line
2-AF-025	1.5	2						N/A	No	No		9321-F-2120	P&ID	RH Boiler #21 Intermittent Blowdown Line
2-AF-026	0.75	2						N/A	No	No		9321-F-2120	P&ID	LH Boiler #22 Continuous Blowdown Line
2-AF-027	1.5	2						N/A	No	No		9321-F-2120	P&ID	LH Boiler #22 Intermittent Blowdown Line
2-AF-028	0.75	2						N/A	No	No		9321-F-2120	P&ID	Continuous Blowdown line to HSBSPCLs
2-AF-029	1.5	2						N/A	No	No		9321-F-2120	P&ID	Boiler Blowdown Tank Bottom Drain
2-AF-030	1.5	2						N/A	No	No		9321-F-2120	P&ID	Boiler Blowdown Tank Drain Bypass
2-AF-031	1.25	2						N/A	No	No		9321-F-2120	P&ID	Boiler Blowdown Tank Drain Vent

Auxiliary Feedwater (AF), Unit 2

2-AF-01: Service Boiler Auxiliary Feedwater Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AF-033		2						N/A	No	No		B193201, 9321-F-2120	P&ID	ABSPCLB Aux. Feed Inlet
2-AF-034		2						N/A	No	No		9321-F-2120	P&ID	ABSPCLB Aux. Feed Outlet to Dissolved O2 Analyzer
2-AF-035		2						N/A	No	No		9321-F-2120	P&ID	ABSPCLB Aux. Feed Outlet to Cooling Bath
2-AF-038	1.25	2						N/A	No	No		B193201	P&ID	Service Boiler Deaerator Vent
2-AF-042	0.75	2						N/A	No	No		B193201	P&ID	Drain from multiport valve.
2-AF-051	1.5	2						N/A	No	No		B193201	P&ID	AF59 Vent to Service Boiler Deaerator
2-AF-052	1.5	2						N/A	No	No		B193201	P&ID	AF58 Vent to Service Boiler Deaerator
2-AF-053	1.5	2						N/A	No	No		B193201	P&ID	AF57 Vent to Service Boiler Deaerator
2-AF-054	1.5	2						N/A	No	No		B193201	P&ID	Check valve vent header to Service Boiler Deaerator
2-AF-057		2						N/A	No	No		9321-F-2120	P&ID	Chemical Bench Sink

Auxiliary Steam (AS), Unit 2

2-AS-03: Remainder of Auxiliary Steam

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AS-018	1	2						N/A	No	No		9321-F-2120	P&ID	RH Boiler #21 Atomizing Steam bleed-off line
2-AS-019	1	2						N/A	No	No		9321-F-2120	P&ID	LH Boiler #22 Atomizing Steam bleed-off line
2-AS-025	1	2						N/A	No	No		9321-F-2120	P&ID	Oil Separator Tank outlet
2-AS-026	1	2						N/A	No	No		9321-F-2120	P&ID	Oil Separator Tank outlet to Carbon Filter Tank
2-AS-027	1	2						N/A	No	No		9321-F-2120	P&ID	Oil Separator Tank outlet to Floor Drain
2-AS-030	2	2						N/A	No	No		B192490	P&ID	Steam to Water Heater
2-AS-033	1.5	2						N/A	No	No		B192490	P&ID	Steam to AS840
2-AS-037	1	2						N/A	No	No		B192490	P&ID	PRV-7343 Bypass
2-AS-039		2						N/A	No	No		B192490	P&ID	Steam to Screens
2-AS-048	2	2						N/A	No	No		192491	P&ID	Steam to Service Boiler Phosphate Mix Tanks and Continuous Heaters
2-AS-060	2	2						N/A	No	No		192491	P&ID	Steam from Heating and Ventilation Pressure Reducing Station
2-AS-073	2	2						N/A	No	No		192491	P&ID	Header to Service Boiler Phosphate Mix Tanks
2-AS-074	0.75	2						N/A	No	No		192491	P&ID	Steam to Service Boiler Phosphate Mix Tank No. 11
2-AS-075	0.75	2						N/A	No	No		192491	P&ID	Steam to Service Boiler Phosphate Mix Tank No. 12
2-AS-076	2	2						N/A	No	No		192491	P&ID	Steam to Continuous Heaters via AS568

Auxiliary Steam (AS), Unit 2

2-AS-03: Remainder of Auxiliary Steam

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AS-077	2	2						N/A	No	No		192491	P&ID	Steam to Continuous Heaters via AS112
2-AS-079	2	2						N/A	No	No		192491	P&ID	Steam header to Continuous Heaters via AS568
2-AS-080	1	2						N/A	No	No		192491	P&ID	Steam to Continuous Heater No. 11
2-AS-081	1	2						N/A	No	No		192491	P&ID	Steam to Continuous Heater No. 12
2-AS-082-B	1.5	2						N/A	No	No		192491	P&ID	Floor trench drain downstream of cap
2-AS-091	0.75	2						N/A	No	No		B227209	P&ID	Port Basin drain from Aux. Steam supply to ACFTs
2-AS-093	1.5	2						N/A	No	No		B227209	P&ID	PRV-5245 Bypass

Auxiliary Steam Traps (AST), Unit 2

2-AST-01: Steam Trap Lines from Auxiliary Steam Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AST-006	1.5	2						N/A	No	No		9321-F-2120	P&ID	Steam to Hot Water Heat Exchangers
2-AST-007	0.75	2						N/A	No	No		9321-F-2120	P&ID	Steam to and from AS-1176
2-AST-007-A	1	2						N/A	No	No		9321-F-2120	P&ID	Steam to Condensate Return via AST-35
2-AST-009	2	2						N/A	No	No		9321-F-2120	P&ID	Hot Water Heat Exchangers Discharge Line
2-AST-011	0.75	2						N/A	No	No		9321-F-2120	P&ID	Steam to and from AS-1093
2-AST-013		2						N/A	No	No		9321-F-2120	P&ID	Steam Supply Drain to Condensate Return via AST-31
2-AST-019	1	2						N/A	No	No		A209775	P&ID	AST-33 Discharge
2-AST-021-A	1	2						N/A	No	No		A209775	P&ID	AST-20 Discharge
2-AST-024	1	2						N/A	No	No		9321-F-2120	P&ID	Fuel Oil heating steam outlet from steam traps to oil separator tank
2-AST-034	0.75	2						N/A	No	No		B192490	P&ID	Steam to and from AS849
2-AST-035-A	0.75	2						N/A	No	No		A209775	P&ID	AST-6 Discharge
2-AST-036	0.75	2						N/A	No	No		A209775	P&ID	AST-7 Discharge
2-AST-037	1.5	2						N/A	No	No		A209775	P&ID	AST-4 Discharge
2-AST-038	0.75	2						N/A	No	No		B192490	P&ID	Steam to and from UH-1238
2-AST-038-A	0.75	2						N/A	No	No		A209775	P&ID	AST-5 Discharge
2-AST-041	1	2						N/A	No	No		B192490	P&ID	Steam to and from AST-27

Auxiliary Steam Traps (AST), Unit 2

2-AST-01: Steam Trap Lines from Auxiliary Steam Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-AST-042	1	2						N/A	No	No		B192490	P&ID	AST-27 Bypass
2-AST-043	1	2						N/A	No	No		B192490	P&ID	Steam to and from AST-42
2-AST-044	1	2						N/A	No	No		B192490	P&ID	AST-42 Bypass
2-AST-049-A	0.5	2						N/A	No	No		192491	P&ID	Steam to and from AST-38
2-AST-050-A	0.5	2						N/A	No	No		192491	P&ID	Steam to and from AST-37
2-AST-052	0.75	2						N/A	No	No		192491	P&ID	Steam to and from AST-45
2-AST-058	1	2						N/A	No	No		A209775	P&ID	AST-2 Discharge
2-AST-059	1	2						N/A	No	No		A209775	P&ID	AST-3 Discharge
2-AST-061	1	2						N/A	No	No		192491	P&ID	Steam to and from AST-39
2-AST-063	1	2						N/A	No	No		192491	P&ID	Steam to and from AST-32
2-AST-065	1	2						N/A	No	No		192491	P&ID	AST-32 and 39 drain to Cond. Return Header
2-AST-066	2	2						N/A	No	No		192491	P&ID	Steam to and from FP-1198
2-AST-067	2	2						N/A	No	No		192491	P&ID	Steam to and from UH-1300
2-AST-069-B	1	2						N/A	No	No		192491	P&ID	Steam to and from AST-30

Heater Drains & Vents (HD), Unit 2

2-1HD-02: #21 Feedwater Heater Vents

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-1HD-027	1	2						N/A	No	No	Low Temp and Press. Leak-before-break situation.	A235304	PEPSE	FWH 21A 1" Vent to Condenser 23
2-1HD-028	1	2						N/A	No	No	Low Temp and Press. Leak-before-break situation.	A235304	PEPSE	FWH 21B 1" Vent to Condenser 22
2-1HD-029	1	2						N/A	No	No	Low Temp and Press. Leak-before-break situation.	A235304	PEPSE	FWH 21C 1" Vent to Condenser 21

Service Boiler (SB), Unit 2

2-SB-01: Service Boiler Lines

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-SB-004	2	2						N/A	No	No		9321-F-2120	P&ID	Steam to Condensate Return, Hot Water Heat Exchangers, and Office Unit Heaters
2-SB-005	2	2						N/A	No	No		9321-F-2120	P&ID	Steam to Hot Water Heat Exchangers and Office Unit Heaters
2-SB-011	1	2						N/A	No	No		9321-F-2120	P&ID	Header Drain to AST-35
2-SB-012	1.5	2						N/A	No	No		9321-F-2120	P&ID	Steam to Office Unit Heaters
2-SB-022	2	2						N/A	No	No		A209775	P&ID	Steam trap header to Cond. Receiver
2-SB-043	1.5	2						N/A	No	No		9321-F-2021, B193201	P&ID	Line from #10 House Service Boiler Deaerator

Condensate Return Unit Heater Steam Traps (UHT), Unit 2

2-UHT-01: Steam Trap Lines from the Condensate Return from Unit Heaters to the Deaerator system

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UHT-007	2	2						N/A	No	No		A209775	P&ID	Steam trap header to Cond. Receiver from UHT-510.
2-UHT-008	1	2						N/A	No	No		A209775	P&ID	Steam from gland steam supply steam traps
2-UHT-009	2	2						N/A	No	No		A209775	P&ID	Steam to and from 215UHR
2-UHT-010	2	2						N/A	No	No		A209775	P&ID	Steam to and from 217UHR
2-UHT-011	2	2						N/A	No	No		A209775	P&ID	Steam to and from 29UHR
2-UHT-012	2	2						N/A	No	No		A209775	P&ID	Steam to and from 22UHR
2-UHT-013	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-2-1
2-UHT-014	2	2						N/A	No	No		A209775	P&ID	Steam to and from 221UHR
2-UHT-015	2	2						N/A	No	No		A209775	P&ID	Steam to and from 219UHR
2-UHT-016	2	2						N/A	No	No		A209775	P&ID	Steam to and from 211UHR
2-UHT-017	2	2						N/A	No	No		A209775	P&ID	Steam to and from 24UHR
2-UHT-018	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-2-2
2-UHT-019	2	2						N/A	No	No		A209775	P&ID	Steam to and from 225UHR
2-UHT-020	2	2						N/A	No	No		A209775	P&ID	Steam to and from 224UHR

Condensate Return Unit Heater Steam Traps (UHT), Unit 2

2-UHT-01: Steam Trap Lines from the Condensate Return from Unit Heaters to the Deaerator system

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UHT-021	2	2						N/A	No	No		A209775	P&ID	Steam to and from 223UHR
2-UHT-022	2	2						N/A	No	No		A209775	P&ID	Steam to and from 213UHR
2-UHT-023	2	2						N/A	No	No		A209775	P&ID	Steam to and from 27UHR
2-UHT-024	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-1-1
2-UHT-025	1	2						N/A	No	No		A209775	P&ID	Steam to and from Oil Preheater
2-UHT-026	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-4-1
2-UHT-027	2	2						N/A	No	No		A209775	P&ID	Steam to and from 24AUHR
2-UHT-028	1.5	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-2-3
2-UHT-029	1	2						N/A	No	No		A209775	P&ID	Steam to and from 248UHR
2-UHT-030	1	2						N/A	No	No		A209775	P&ID	Steam to and from 250UHR
2-UHT-031	1	2						N/A	No	No		A209775	P&ID	Steam to and from 249UHR
2-UHT-032	1	2						N/A	No	No		A209775	P&ID	Steam to and from 252UHR
2-UHT-033	1	2						N/A	No	No		A209775	P&ID	Steam to and from 251UHR
2-UHT-034	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-11-3
2-UHT-035	1	2						N/A	No	No		A209775	P&ID	Steam to and from 247UHR

Condensate Return Unit Heater Steam Traps (UHT), Unit 2

2-UHT-01: Steam Trap Lines from the Condensate Return from Unit Heaters to the Deaerator system

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UHT-036	1	2						N/A	No	No		A209775	P&ID	Steam to and from 246UHR
2-UHT-037	1	2						N/A	No	No		A209775	P&ID	Steam to and from 245UHR
2-UHT-038	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-11-2
2-UHT-039	2	2						N/A	No	No		A209775	P&ID	UHT-511 outlet
2-UHT-040	2	2						N/A	No	No		A209775	P&ID	Steam to and from 214UHR
2-UHT-041	2	2						N/A	No	No		A209775	P&ID	Steam to and from 216UHR
2-UHT-042	2	2						N/A	No	No		A209775	P&ID	Steam to and from 218UHR
2-UHT-043	2	2						N/A	No	No		A209775	P&ID	Steam to and from 220UHR
2-UHT-044	2	2						N/A	No	No		A209775	P&ID	Steam to and from 222UHR
2-UHT-045	1	2						N/A	No	No		A209775	P&ID	Steam to and from 260UHR
2-UHT-046	1	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-4-2
2-UHT-047	2	2						N/A	No	No		A209775	P&ID	Steam to and from 21UHR
2-UHT-048	2	2						N/A	No	No		A209775	P&ID	Steam to and from 28UHR
2-UHT-049	2	2						N/A	No	No		A209775	P&ID	Steam to and from 23UHR
2-UHT-050	2	2						N/A	No	No		A209775	P&ID	Steam to and from 210UHR

Condensate Return Unit Heater Steam Traps (UHT), Unit 2

2-UHT-01: Steam Trap Lines from the Condensate Return from Unit Heaters to the Deaerator system

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UHT-051	2	2						N/A	No	No		A209775	P&ID	Steam to and from 212UHR
2-UHT-052	2	2						N/A	No	No		A209775	P&ID	Steam to and from 25UHR
2-UHT-053	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-11-1
2-UHT-056	1	2						N/A	No	No		A209775	P&ID	UHT-513 Discharge
2-UHT-057	0.5	2						N/A	No	No		A209775	P&ID	UHT-512 Discharge
2-UHT-060	0.75	2						N/A	No	No		A209775	P&ID	21 Air Tempering Unit Discharge
2-UHT-061	0.75	2						N/A	No	No		A209775	P&ID	22 Air Tempering Unit Discharge
2-UHT-062	1	2						N/A	No	No		A209775	P&ID	Steam to various unit heaters
2-UHT-063	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from UH-TSC-1
2-UHT-064	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from 242UHR
2-UHT-065	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from 243UHR
2-UHT-066	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from 244UHR
2-UHT-067	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from UHT-8-246
2-UHT-068	0.75	2						N/A	No	No		A209775	P&ID	Steam to and from 253UHR
2-UHT-069	2	2						N/A	No	No		A209775	P&ID	Unit Heater Drain to Discharge Tunnel

Condensate Return Unit Heater Steam Traps (UHT), Unit 2

2-UHT-01: Steam Trap Lines from the Condensate Return from Unit Heaters to the Deaerator system

Line Number	Size (in.)	F	S	F Crit.	Q	T	O	Priority	Plant Exp.	Ind. Exp.	Comments	P&ID No.	Reference	Line Description
2-UHT-089	0.75	2						N/A	No	No		B227209	P&ID	Steam to and from UH-1020
2-UHT-090	0.75	2						N/A	No	No		B227209	P&ID	Steam to and from UH-1019
2-UHT-092	0.75	2						N/A	No	No		B227209	P&ID	Steam to and from UH-1021

Report Header Legend:

F	Consequence of Failure 1 = High Consequence of Failure (Category 1) 2 = Low Consequence of Failure (Category 2)
S	Susceptibility level 1 = High Susceptibility 2 = Moderate Susceptibility 3 = Low Susceptibility
F Crit.	Consequence of Failure Criteria (see below)
Q	Operating Quality code 1 = 30% to 99.5% 2 = < 30% 3 = > 99.5%
T	Operating Temperature code 1 = 250 to 350 deg F 2 = 350 to 400 deg F 3 = < 250 deg F, > 400 deg F
O	Operating time code 1 = Lines operating frequently or w/ severe cond. 2 = Lines operating infrequently
Priority	Priority 1 = High Priority 2 = Moderate Priority 3 = Low Priority
Plant Exp.	Plant Experience
Ind. Exp.	Industry Experience

Consequence of Failure Criteria (F Crit.) Legend:

FI	High consequence of Failure: non-Isolable line
FL	High consequence of Failure: Large-bore line
FP	High consequence of Failure: Personnel safety issue (frequently accessed location)
FS	High consequence of Failure: Safety-related line
FT	High consequence of Failure: shutdown or Trip upon failure

Appendix F
Revision History

Revision 0

Initial Issue of document.

Revision 1

System, subsystem, and line names were updated to incorporate the new system list.

Revision 2

Lines were updated to incorporate line replacement history. Table F.1 below details the changes:

Table F.1 Line Changes

Line Number	Change	Reference
2-6EX-001-A	Added line for susceptible exit nozzle.	SFA Database
2-6EX-002-A	Added line for susceptible exit nozzle.	SFA Database
2-6EX-006-B	Added line for susceptible exit nozzle.	SFA Database
2-6EX-008-B	Added line for susceptible exit nozzle.	SFA Database
2-6EX-010-B	Added line for susceptible exit nozzle.	SFA Database
2-MSD-103-A	Added line for susceptible exit nozzle.	SFA Database
2-MSD-103-C	Added line for susceptible inlet nozzle.	SFA Database
2-MSD-104-A	Added line for susceptible exit nozzle.	SFA Database
2-MSD-104-C	Added line for susceptible inlet nozzle.	SFA Database
2-MSD-105-A	Added line for susceptible exit nozzle.	SFA Database
2-MSD-105-C	Added line for susceptible inlet nozzle.	SFA Database
2-MSD-106-A	Added line for susceptible exit nozzle.	SFA Database
2-MSD-106-C	Added line for susceptible inlet nozzle.	SFA Database
2-MSD-107-A	Added line for susceptible exit nozzle.	SFA Database
2-MSD-107-C	Added line for susceptible inlet nozzle.	SFA Database
2-MSD-108-A	Added line for susceptible exit nozzle.	SFA Database
2-MSD-108-C	Added line for susceptible inlet nozzle.	SFA Database
2-PD-009-A	Added line for susceptible exit nozzle.	SFA Database
2-PD-010-A	Added line for susceptible exit nozzle.	SFA Database

Attachment A
CHECWORKS Parametric Analysis

The EPRI computer program CHECWORKS is used to predict corrosion rates for large bore FAC-susceptible conventional piping with known operating conditions. Operating conditions such as temperature, qualities, and flow rate, along with component data such as type of fitting and material, are all inputs to CHECWORKS. The output includes a predicted corrosion rate for each component, which can then be used in the selection process of inspecting components.

In some cases, however, CHECWORKS is of less value. For example, if the operating conditions in a particular line are unknown, the CHECWORKS predicted corrosion rates are highly uncertain. Also, most small-bore lines are socket-welded, and the uncertainty in the fit-up gap makes the CHECWORKS predictions less accurate. In cases like these, it is difficult to predict the absolute wear rates with any accuracy. However, a simplified analytical method of ranking geometries in order of susceptibility is useful in identifying those components that are most likely to experience wall thinning. The method used to rank components in order of relative susceptibility was a parametric CHECWORKS analysis.

For this parametric analysis, it was assumed that for a set of carbon steel components experiencing identical flow conditions (temperature, mass flow rate, and quality), the only difference in predicted corrosion rate would be due to the different geometries. It was further assumed that a uniform change in operating conditions would result in a uniform change in predicted corrosion rates. These assumptions are based on conversations with EPRI personnel.

These assumptions were tested by running several sample CHECWORKS lines. A sample line was created which included every CHECWORKS geometry code. In addition, both short radius (1 R/D) and long radius (1.5 R/D) elbows were included.

The CHECWORKS geometry codes differ for different kinds of tees, elbows, and other fittings. For example, a fitting with another fitting within one pipe diameter upstream will have a different geometry code than one without a close upstream fitting. A detailed description of the geometry codes is provided in the CHECWORKS User's Guide.

To eliminate variables, the input data was held constant as much as possible. As a baseline case, typical feedwater operating conditions were entered. An outside diameter of 10.75 inches was used for all geometry codes. Also, the same flow rate was used for all geometry codes. An orifice size equal to one half of the inside diameter of the pipe was used. The CHECWORKS default values were used for all other input data. CHECWORKS predicts separate wear rates for the large end and small ends of a reducer as well as the upstream main, downstream main, and branch sections of tees. This necessitated that these geometry codes be modeled multiple times to obtain consistent wear rates. For example, reducers were modeled as both 12-inch by 10 inch and 10 inch by 8 inch. Only the wear rates from the 10 inch sections were used for comparison.

An FAC analysis was performed where the temperature, flow rate, quality, and water chemistry were individually varied. At each set of conditions the predicted corrosion rates were recorded. The predicted corrosion rates were then normalized. For the single-phase conditions, the wear rate for orifices was significantly higher than the other geometry codes. For the dual-phase conditions, control valves were ranked significantly higher than the other geometry codes. Since the orifice sizes and the throttle positions typically vary, the wear rates for these geometry codes were not used to normalize the wear rates. Instead, the wear rate from the second most highly ranked geometry code was used.

A total of six sets of conditions were run, as listed in Table A.1:

Table A.1 CHECWORKS Parametric Analysis Run Conditions

Run No.	Temperature (ºF)	Flow Rate (Mlb/hr)	Quality	Type of Run
1	500	3	0	Baseline single-phase case
2	350	3	0	Variation of temp
3	500	1.5	0	Variation of flow
4	500	3	50%	Two-phase
5	500	3	75%	Two-phase
6	500	3	96%	Two-phase

As expected, altering the water chemistry did not alter the relative ranking of components within the single-phase and two-phase environments. Based on these results, future changes to the secondary water chemistry should not require a revision to the parametric CHECWORKS analysis. The normalized wear rates are presented in Table A.2 of the CHECWORKS parametric analysis.

It was observed that the relative ranking of the various geometries did not change with changes in operating conditions for single-phase conditions. Moreover, the normalized values of predicted corrosion rates did not change for single phase. However, there were slight variations in the relative rankings when the operating quality was varied for dual-phase conditions. Naturally, the normalized values of wear rate also varied, but this variation was minor. The normalized wear rate varied the most for Type-9 Pipe (>15D). It varied by 0.042", which resulted in its ranking changing by 9 components. However, this was the exception. Most other components varied by less than 0.010". More importantly, the relative ranking for two-phase conditions varied significantly compared to the single-phase conditions. Therefore, the normalized wear rates were averaged to obtain a single ranking for dual-phase condition.

Note that this ranking method is not valid for orifices or pipe downstream of orifices because the predicted corrosion rate for these components strongly depends on the orifice size, which varies independently of the operating conditions. Orifices and pipe downstream of orifices were included only for information purposes and these results should be applied with caution. In addition, control valves may have different flow areas depending on the degree of throttling taking place, and therefore these results should also be applied with caution.

Table A.2 CHECWORKS Parametric Analysis Results

SINGLE-PHASE CONDITIONS			TWO-PHASE CONDITIONS		
Component Type	**Geometry Code**	**Normalized Wear Factor**	**Component Type**	**Geometry Code**	**Normalized Wear Factor**
ORIFICE	6	1.993	CONTROL VALVE	24	1.040
180 BEND, S.R.	5	1.000	GLOBE VALVE	21	1.000
180 BEND, L.R.	5	1.000	TEE, TYPE 14	14	0.769
TEE, TYPE 14	14	0.917	ORIFICE	6	0.724
TEE, TYPE 13	13	0.833	TEE, TYPE 13	13	0.699
TEE, TYPE 11	11	0.833	TEE, TYPE 12	12	0.655
GLOBE VALVE	21	0.833	EXIT NOZZLE	31	0.602
ANGLE VALVE	20	0.833	TEE, TYPE 11	11	0.600
CHECK VALVE	25	0.833	PIPE DS EXP. ELBOW	69	0.600
TEE, TYPE 10	10	0.833	180 BEND, S.R.	5	0.510
CONTROL VALVE	24	0.833	TEE, TYPE 10	10	0.501
GATE VALVE	22	0.833	CHECK VALVE	25	0.482
EXIT NOZZLE	31	0.833	EXP. ELBOW, L.R.	19	0.480
GENERIC VALVE	8	0.833	EXP. ELBOW, S.R.	19	0.480
PIPE DS ANGLE VALVE	70	0.833	180 BEND, L.R.	5	0.480
BUTTERFLY VALVE	23	0.833	GATE VALVE	22	0.442
TEE, TYPE 12	12	0.683	PIPE DS TEE	61	0.432
EXP. ELBOW, L.R.	19	0.668	GENERIC VALVE	8	0.422
EXP. ELBOW, S.R.	19	0.668	INLET NOZZLE	30	0.402
INLET NOZZLE	30	0.667	90 ELBOW, S.R. (>1D)	2	0.397
90 ELBOW, L.R. (<1D)	4	0.617	90 ELBOW, S.R. (<1D)	4	0.397
90 ELBOW, S.R. (>1D)	2	0.617	PIPE DS 90 ELBOW	54	0.385
90 ELBOW, S.R. (<1D)	4	0.617	90 ELBOW, L.R. (>1D)	2	0.369
90 ELBOW, L.R. (>1D)	2	0.617	90 ELBOW, L.R. (<1D)	4	0.369
REDUCER (<1D)	7	0.583	45 ELBOW, S.R. (<1D)	3	0.360
45 ELBOW, L.R. (<1D)	3	0.583	45 ELBOW, S.R. (>1D)	1	0.339
45 ELBOW, S.R. (<1D)	3	0.583	45 ELBOW, L.R. (<1D)	3	0.335
PIPE DS 180 BEND	55	0.583	REDUCER (<1D)	7	0.335
45 ELBOW, S.R. (>1D)	1	0.550	45 ELBOW, L.R. (>1D)	1	0.316
45 ELBOW, L.R. (>1D)	1	0.550	PIPE DS 180 BEND	55	0.310
PIPE DS 90 ELBOW	54	0.533	PIPE (>15D)	9	0.309
RED. ELBOW, L.R.	16	0.518	BUTTERFLY VALVE	23	0.303
RED. ELBOW, S.R.	16	0.518	PIPE DS ANGLE VALVE	70	0.303
EXPANDER	18	0.500	ANGLE VALVE	20	0.302
TEE, TYPE 15	15	0.500	TEE, TYPE 15	15	0.301
PIPE DS TEE	60	0.500	PIPE DS TEE	57	0.301
PIPE DS TEE	61	0.450	PIPE DS 45 ELBOW	53	0.301
PIPE DS 90 ELBOW	52	0.417	PIPE DS TEE	65	0.296
PIPE DS TEE	57	0.417	PIPE DS REDUCER	67	0.280
REDUCER (>1D)	17	0.417	EXPANDER	18	0.265
PIPE DS 45 ELBOW	53	0.417	PIPE DS 90 ELBOW	52	0.251
PIPE DS EXP. ELBOW	69	0.417	RED. ELBOW, L.R.	16	0.250
PIPE DS EXPANDER	68	0.417	RED. ELBOW, S.R.	16	0.250
PIPE DS ORIFICE	56	0.399	PIPE DS 45 ELBOW	51	0.221
PIPE DS 45 ELBOW	51	0.367	PIPE DS EXPANDER	68	0.201
PIPE DS VALVE	58	0.367	REDUCER (>1D)	17	0.201
PIPE DS TEE	64	0.333	PIPE DS ORIFICE	56	0.192
PIPE DS TEE	65	0.333	PIPE DS TEE	60	0.182
PIPE DS RED. ELBOW	66	0.333	PIPE DS VALVE	58	0.177
PIPE DS TEE	62	0.333	PIPE DS TEE	64	0.161
PIPE DS REDUCER	67	0.333	PIPE DS RED. ELBOW	66	0.137
PIPE DS TEE	63	0.333	PIPE DS TEE	62	0.121
PIPE (>15D)	9	0.260	PIPE DS TEE	63	0.121

Attachment B
Referenced Correspondence and Communication

Email from Ryan Doremus (CSI) to Ian Mew (IPEC) regarding a Line Naming Convention, dated 7/27/2009.

Ian,

I'm close to the point where I will have to start assigning line names for categorization purposes. Since the P&IDs seem to be very good at giving line information (size, pipe class, etc.), I want to propose a simple naming convention that consists of Unit #, System Abbreviation, a sequential number, and if needed a sequential letter that would be used if susceptibility changes within a line.

U-SSS-000-A

U = Unit Number
SSS = System Abbreviation
000 = Sequential Number
A = Section of line that is split for susceptibility.

For example: 2-6EX-003 or 2-BFD-002-A

Let me know what you think.

Thank you,

Ryan D. Doremus
Engineer
CSI Technologies, Inc.
(847) 836-3000 x796
rdoremus@csitechnologies.com

Email from Ian Mew (IPEC) to Ryan Doremus (CSI) regarding responses to information requests, dated 8/10/2009.

Ryan,

Answers to item 6, 9 & 10 will be sent shortly.

Ian D. Mew
IPEC FAC Engineer
Phone 914-827-7741

From: Koutsakos, Michael
Sent: Monday, August 10, 2009 7:32 AM
To: Mew, Ian
Cc: Koutsakos, Michael
Subject: RE: IPEC Unit 2 SSE/SNM Information Request

1. Lines actually exist. They should be included in the Checworks model.
2. Under normal operation, all MS trap bypasses are normally closed, unless the trap has been identified as deficient.
3. Under normal operation, less than 2% of the time.
4. Under normal operation, less than 2% of the time.
5. Under normal operation, less than 2% of the time.
6. Talk to James Peters (Chemistry Supervisor)
7. Under normal operation, less than 2% of the time.
8. Under normal operation, less than 2% of the time.
9. Talk to James Peters (Chemistry Supervisor)
10. Talk to James Peters (Chemistry Supervisor)

From: Mew, Ian
Sent: Thursday, August 06, 2009 9:56 AM
To: Koutsakos, Michael
Subject: FW: IPEC Unit 2 SSE/SNM Information Request

Can you answer Questions 1-10 or point me to a person who can.

Ian D. Mew
IPEC FAC Engineer
Phone 914-827-7741

From: Ryan Doremus [mailto:RDoremus@csitechnologies.com]
Sent: Friday, July 24, 2009 4:29 PM
To: Mew, Ian
Subject: IPEC Unit 2 SSE/SNM Information Request

CSI Document No. 0700.104.C.004

Ian,

I completed a cursory review of the SSE/SNM IP2 and have a few pieces of information that would be helpful:

1. Do actual lines exist from the HP Turbine to the Moisture Preseparators or are the Preseparators connected directly to the turbine? If they exist, are they inspected visually or should they be included in the CHECWORKS model?
2. Is it safe to assume that all Main Steam steam trap bypass valves on 9321-F-2041 and 9321-F-2042 are normally closed despite the fact that some are shown open?
3. Does the Feedwater Heater Bypass line (A235307, G-5) operate more or less than 2% of the time?
4. Do the Boiler Feed Pump discharge lines to the Drains Collecting Tank (9321-F-2017, H-6) operate more or less than 2% of the time?
5. Does the 18" HP Feedwater Heater Bypass line (9321-F-2019, F-3) operate more or less than 2% of the time?
6. Do the lines from the Heater Drain Pump Discharge to the HDP Water Chemistry Monitor (9321-F-2022, A2) operate more or less than 2% of the time?
7. Do the level control lines from the Heater Drain Tank to the Condenser (A235304, A-1 C-1 F-1) operate more or less than 2% of the time?
8. Do the Moisture Separator drains to the Drains Collecting Tank (9321-F-2023, H4) operate more or less than 2% of the time?
9. Do the SG Blowdown lines to the sample coolers (9321-F-2729, D-6) operate more or less than 2% of the time?
10. What is the outlet temperature of the SG Blowdown sample coolers (9321-F-2729, E-6)?

Any information on these would be helpful. Feel free to forward these questions on to system engineers or to send me operating procedures that might answer the questions. To maintain the integrity of the project schedule, we will need these answers by Wednesday, August 5.

In addition to the above, please send the Aux. Steam operating procedures (SOP 29.1.1, 29.1.2, and 29.1.3) and the following drawings:

9321-F-2027
9321-F-2028
9321-F-2033
9321-F-2067
9321-F-2720
9321-F-2722
9321-F-2723
9321-F-2745
9321-F-7020
A205957
B237144
192491

If it's possible, I would like to have these drawings and the Aux. Steam OPs by next week, even if they come separately from the questions, to give me time to analyze them. If you have any questions, please feel free to contact me.

Thank you,

Ryan D. Doremus
Engineer
CSI Technologies, Inc.
(847) 836-3000 x796
rdoremus@csitechnologies.com

Email from Ian Mew (IPEC) to Ryan Doremus (CSI) regarding responses to information requests, dated 8/13/2009.

See Answers below.

Ian D. Mew
IPEC FAC Engineer
Phone 914-827-7741

From: Mew, Ian
Sent: Monday, August 10, 2009 7:49 AM
To: Peters, James G
Subject: FW: IPEC Unit 2 SSE/SNM Information Request

Jim,
Can you answer the following questions? I need the answer to develop a System Susceptibility Evaluation for the FAC program for IP2.

11. Do the lines from the Heater Drain Pump Discharge to the HDP Water Chemistry Monitor (9321-F-2022, A2) operate more or less than 2% of the time? Yes 1 month a year – all material is SS after the root isolation valve which is less than 1 foot long
12. Do the SG Blowdown lines to the sample coolers (9321-F-2729, D-6) operate more or less than 2% of the time? Sample lines are all SS from the blowdown lines thru the coolers
13. What is the outlet temperature of the SG Blowdown sample coolers (9321-F-2729, E-6)? - from CCW heat exchanger outlet temp is <140F

Ian D. Mew
IPEC FAC Engineer
Phone 914-827-7741

From: Ryan Doremus [mailto:RDoremus@csitechnologies.com]
Sent: Friday, July 24, 2009 4:29 PM
To: Mew, Ian
Subject: IPEC Unit 2 SSE/SNM Information Request

CSI Document No. 0700.104.C.004

Ian,

I completed a cursory review of the SSE/SNM IP2 and have a few pieces of information that would be helpful:

14. Do actual lines exist from the HP Turbine to the Moisture Preseparators or are the Preseparators connected directly to the turbine? If they exist, are they inspected visually or should they be included in the CHECWORKS model?
15. Is it safe to assume that all Main Steam steam trap bypass valves on 9321-F-2041 and 9321-F-2042 are normally closed despite the fact that some are shown open?
16. Does the Feedwater Heater Bypass line (A235307, G-5) operate more or less than 2% of the time?
17. Do the Boiler Feed Pump discharge lines to the Drains Collecting Tank (9321-F-2017, H-6) operate more or less than 2% of the time?

18. Does the 18" HP Feedwater Heater Bypass line (9321-F-2019, F-3) operate more or less than 2% of the time?
19. Do the lines from the Heater Drain Pump Discharge to the HDP Water Chemistry Monitor (9321-F-2022, A2) operate more or less than 2% of the time?
20. Do the level control lines from the Heater Drain Tank to the Condenser (A235304, A-1 C-1 F-1) operate more or less than 2% of the time?
21. Do the Moisture Separator drains to the Drains Collecting Tank (9321-F-2023, H4) operate more or less than 2% of the time?
22. Do the SG Blowdown lines to the sample coolers (9321-F-2729, D-6) operate more or less than 2% of the time?
23. What is the outlet temperature of the SG Blowdown sample coolers (9321-F-2729, E-6)?

Any information on these would be helpful. Feel free to forward these questions on to system engineers or to send me operating procedures that might answer the questions. To maintain the integrity of the project schedule, we will need these answers by Wednesday, August 5.

In addition to the above, please send the Aux. Steam operating procedures (SOP 29.1.1, 29.1.2, and 29.1.3) and the following drawings:

9321-F-2027
9321-F-2028
9321-F-2033
9321-F-2067
9321-F-2720
9321-F-2722
9321-F-2723
9321-F-2745
9321-F-7020
A205957
B237144
192491

If it's possible, I would like to have these drawings and the Aux. Steam OPs by next week, even if they come separately from the questions, to give me time to analyze them. If you have any questions, please feel free to contact me.

Thank you,

Ryan D. Doremus
Engineer
CSI Technologies, Inc.
(847) 836-3000 x796
rdoremus@csitechnologies.com

Email from Brian Trudeau (CSI) to Ian Mew (IPEC) regarding report comments, dated 11/23/2009.

CSI Doc. No. 0700.104.C.019

Ian,

This email captures our discussion today concerning your comments on the Unit 2 SSE & SNM. I understand that these two items are the extent of your comments. We will give you a call to go over these and inform you how we have incorporated them prior to sending the final version of the SSE & SNM on or before Dec 4.

1) Ian sent new data to CSI's Ryan Doremus on historical inspections and replacements that he would like incorporated. This may impact plant experience for SNM lines and susceptibility if the entire line has been replaced with FAC resistant material. CSI will assess this data, make the appropriate changes, and provide Ian with a list of impacted lines.
2) Ian requested that CSI provide comments on why SNM lines were evaluated for high consequence of failure. A reason code is given, such as plant shutdown (FT) or unable to isolate (FI), but Ian would like further comments/discussion of this reason. For example, Ian would like to know why a line would cause the plant to shutdown if it fails. For large bore SNM lines, CSI will add the note "This large bore line is important to plant operation and/or may be a personnel safety issue upon failure."

CSI will apply comment 2, above to applicable lines in the Unit 3 SNM.

Thanks,

Brian Trudeau
CSI Technologies, Inc.
(847) 836-3000 ext. 717

Attachment C
Industry FAC Experience Table

Industry experience is an important factor in the identification of systems, subsystems, and lines susceptible to Flow-Accelerated Corrosion (FAC). A table of important industry events and their applicability to Indian Point 2 was compiled using the following sources:

- "Recommendations for an Effective Flow-Accelerated Corrosion Program," EPRI NSAC 202L-R3, 2006.
- EPRI, *Flow-Accelerated Corrosion in Power Plants*, B. Chexal et al, EPRI TR-106611-R1, 1998.
- CHUG Plant Experience Database, Revision 2, December 1995.
- 26th CHUG Meeting Presentation by Jeff Horowitz "Review and Lessons Learned from Historical FAC Failures".
- 31st CHUG Meeting Presentation by Aaron Kelley "Unit 1 #2 LP Heater ES Nozzles".
- 32th CHUG Meeting Presentation by Doug Munson "Update on Mihama-3".
- 33rd CHUG Meeting Presentation by Aaron Kelley "Results of L2R10 Inspections at LaSalle Unit 2".
- 33rd CHUG Meeting Presentation by Whit Gallman "Unisolable Steam Leak Downstream of Valve 2HM-23".
- CHUG Conference Meeting Minutes, FAC Experience Reports, and Presentations.
- FACnet Email Message Archive.
- Secondary Pipe Rupture (9 August 2004, Mihama Unit 3, Kansai EPC), WANO EAR TYO 04-013, October 8, 2004.
- Information Notice 82-2: Failures in Turbine Exhaust Lines", U.S. Nuclear Regulatory Commission (NRC), July 9, 1982.
- "Information Notice 86-106: Feedwater Line Break", U.S. Nuclear Regulatory Commission (NRC), December 16, 1986.
- "Information Notice 86-106, Supplement 1: Feedwater Line Break", U.S. Nuclear Regulatory Commission (NRC), February 13, 1987.
- "Information Notice 86-106, Supplement 2: Feedwater Line Break", U.S. Nuclear Regulatory Commission (NRC), March 18, 1987.
- "NRC Bulletin No. 87-01: Thinning of Pipe Walls in Nuclear Power Plants", U.S. Nuclear Regulatory Commission (NRC), July 9, 1987.
- "Information Notice 87-36, Significant Unexpected Erosion of Feedwater Lines", U.S. Nuclear Regulatory Commission (NRC), August 4, 1987.
- "Information Notice 88-17, Summary of Responses to NRC Bulletin 87-01, Thinning of Pipe Walls in Nuclear Power Plants", U.S. Nuclear Regulatory Commission (NRC), April 22, 1988.

- "Information Notice 86-106, Supplement 3: Feedwater Line Break", U.S. Nuclear Regulatory Commission (NRC), November 10, 1988.
- "Erosion/Corrosion-Induced Pipe Wall Thinning", Generic Letter 89-08, U.S. Nuclear Regulatory Commission (NRC), May 2, 1989.
- "Investigation into Flow-Accelerated Corrosion at Low Temperatures", Technical Update 1015070, Electric Power Research Institute (EPRI), November 2007.
- "Flow-Accelerated Corrosion – The Entrance Effect", Technical Update 1015072, Electric Power Research Institute (EPRI), November 2007.
- "Erosive Attack", Technical Update 1015071, Electric Power Research Institute (EPRI), November 2007.

Item Number	System	Location/Area	Plant	Plant Type	Year	Notes
1	All	Downstream of Flow Orifices and Flow Meters	Many	BWR, PWR		Failures reported in piping immediately downstream of orifices and flow meters. This is a generic issue applicable to all systems.
2	All	Downstream of Control Valves (level control valves)	Millstone 2&3, Surry	BWR, PWR		Many plants reported instances of FAC degradation and some significant failures (Millstone 2&3, Surry). This is a generic issue applicable to all systems.
3	All	Downstream of Leaking Valves and Steam Traps	Many	All		Leaking valves and steam traps may be found by plant thermal performance evaluation. Downstream piping may experience severe conditions and may have been excluded from FAC Program due to infrequent operation. This is a generic issue applicable to all systems.
4	All	Miscellaneous Drains to Common Headers into Condenser	Many	All		Extensive industry exp in miscellaneous drain headers from steam drains to the condenser. In addition to FAC, these headers are susceptible to liquid impingement erosion and/or flashing/cavitation as explained in EPRI Erosive Attack Technical Update 1015071.
5	Condensate	Feedwater Pump Suction	Surry Unit 2	PWR	1986	Pipe rupture at Surry Unit 2. Occurred in 18" OD, Tnom = 0.5" elbow upstream of feedwater pumps (first elbow off header to FWP). T=374 deg F.
6	Condensate	Condensate (between 4th highest pressure FWH and dearator)	Mihama	PWR	2004	Failure in condensate system at Mihama. Occurred in 22" pipe downstream of flow measuring orifice. 284 deg F
7	Extraction Steam (or Bleed Steam)	Extraction Steam (All stages carrying wet steam)	Oconee, Vermont Yankee, Trojan, Zion, Browns Ferry	BWR, PWR	1982	Failures in steam lines due to FAC. All extraction stages carrying wet steam are susceptible to FAC. In general, all plants have experience with thinning in the extraction steam system (plants listed appeared in NRC Information Notice 82-22)
8	Extraction Steam (or Bleed Steam)	HP Extraction 2nd Stage	ANO 2	PWR	1989	Fishmouth failure at ANO 2. Occurred in 14" OD, 2-phase flow. Failure at Zion (1988), Oconee (1982).
9	Extraction Steam (or Bleed Steam)	HP Extraction	Sequoyah 2	PWR	1993	Fishmouth failure at Sequoyah 2. Occurred in 10" straight pipe downstream of tee in HP extraction.

Item Number	System	Location/Area	Plant	Plant Type	Year	Notes
10	Extraction Steam (or Bleed Steam)	Extraction (4th Stage)	Fort Calhoun	PWR	1997	Fishmouth rupture at Fort Calhoun in third elbow (12" bent pipe R/D = 5) downstream of turbine in extraction steam system. Section of upstream piping had been replaced in 1985 due to FAC; this downstream section was not inspected. 411 deg F, 2 phase
11	Extraction Steam (or Bleed Steam)	Extraction (carbon steel components in Cr-Mo/Stainless/etc line)	LaSalle	BWR	2004	Failure of LP Heater inlet nozzles (carbon steel nozzles in Cr-Mo line). Also through-walls on carbon steel pup piece on bellows assembly in Cr-Mo line (bellows was stainless steel). The conclusion from these events is that to be non-susceptible to FAC the entire line (incl. nozzles, valves, pup pieces, etc.) must be of FAC-resistant material.
12	Feedwater	Feedwater Pump Outlet & DS of CVs	Oyster Creek	BWR	1978	Thinning caused by FAC at Oyster Creek in 1978. Cracking observed at feedwater pump outlet and downstream of flow/level control valves.
13	Feedwater	Feedwater Pump Discharge	Navajo	Fossil	1982	Pipe rupture at Navajo. Occurred in 10" OD, Tnom = 0.365" elbow downstream of boiler feed pump. T=360 deg F.
14	Feedwater	Final Feedwater (Safety-Related)	Trojan	PWR	1987	Extensive thinning to min acceptable wall thickness at Trojan in safety related feedwater (and non-safety related). High velocity and large counterbores exacerbated FAC.
15	Feedwater	Feedwater at Flow Measurement Orifice	Loviisa	PWR	1990	Rupture at Loviisa. Occurred in feedwater system at flow measurement orifice.
16	Feedwater	Feedwater	Pleasant Prairie	Fossil	1995	Instantaneous double-ended pipe break at Pleasant Prairie. Occurred in 12" feedwater line downstream of valve station and upstream of economizer and boiler.
17	Feedwater	Control Valve Bypass Lines	San Onofre and Diablo Canyon	BWR, PWR		Serious thinning at San Onofre and Diablo Canyon (could be valve leakage, left open at full power-high velocity, or infrequent but severe conditions).
18	Feedwater	Feedwater Pump Min Flow (Recirculation) Lines	Many	All		Feedwater pump min flow lines to condenser have experienced significant degradation.
19	Heater Drain	Heater Drain Pump Recirc (Bypass)	Millstone 2	PWR	1995	Failure at Millstone 2. Occurred in 8" recirc line from heater drain pump to heater drain tank. Line operated during startup only (0-30% power).

Item Number	System	Location/Area	Plant	Plant Type	Year	Notes
20	Heater Vents	Feedwater Heater Vents to Condenser	ANO, Kewaunee, McGuire, Point Beach, Waterford	PWR, BWR		Extensive FAC-induced thinning found throughout this system at many plants. Some plants have replaced the entire system with non-susceptible material (stainless steel or Cr-Mo).
21	Main Steam	Cross-Under Piping (also called Cold Reheat, HP Turbine to Moisture Separator)	North Anna, ANO, Point Beach, D.C. Cook	BWR, PWR		Significant FAC in cross-under piping at North Anna, ANO, and Point Beach. Some plants have small amounts of Cu/Cr in this lines which significantly reduces FAC.
22	Moisture Separator Drain	Moisture Separator Drain Tank Drain	Millstone 3	PWR	1990	Catastrophic failure at Millstone 3. Occurred in 6" OD Moisture Sep. Drain Tank drain immediately downstream of level CV. 380 deg F, 0% quality.
23	Reheater Drain	Reheater Drain Tank Drain	Millstone 2	PWR	1991	Rupture at Millstone 2. Occurred in 8" Reheater Drain Tank drain immediately downstream of level CV. 463 deg F, 0% quality.
24	Reheater Drain	First Stage Reheater Drain	Callaway	PWR	1999	Failure at Callaway just downstream of long horizontal section in first stage reheater drain. 417 deg F, 4.5% quality
25	Reheater Drain	Moisture Separator Reheater Drain/Vent to Drain Tank (Scavenging Steam)	McGuire	PWR	2005	Unisolable steam leak occurred in 2" line that vents wet steam from MSR to drain tank. Flashing contributed to wear (pressure drop caused by "tortuous path" through many fittings in line). 540 deg F, wet steam
26	Multiple Systems	Deoxygenated lines operating at 120ºF	South Texas Project, Palo Verde, Surry	PWR, BWR		Some plants have experienced Low-Temperature FAC wear in deoxygenated, neutral water at about 120ºF as per EPRI Technical Report 1015170 “Investigation into Flow-Accelerated Corrosion at Low Temperatures.
27	Multiple Systems	Multiple Locations	Diablo Canyon, Salem, V. C. Summer	PWR, BWR		Pipes made of corrosive material have shown high corrosion rates downstream of welds connecting non-resistant material to the resistant material.

Attachment D
SNM Small Bore Inspections

Table D.1 below lists all small bore *FAC Manager Web Edition* Components that have been associated with an SNM Line. If the component is not linked to an SNM line in *FAC Manager* it will not appear in this table. Due to a lack of documentation from previous inspections, some inspections are missing from this table, and others did not have enough information to be properly trended. Components that have not been properly trended have "N/A" in the Limiting NSI column and will be updated after enough information is found to properly calculate a reinspection interval. The table is sorted by relative susceptibility, then alphabetically by System, Subsystem, Line, and Component. If a field reads "N/A", there is not enough information in *FAC Manager* to populate this field.

Table D.1 Small Bore SNM Inspections from FAC Manager

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
EST	2-3EST-01	2-3EST-016-B	EST-18	0.75	1	1	8/11/2004	42
EX	2-5EX-01	2-5EX-026-A	227-1P	2	1	1	5/5/1997	46
EX	2-5EX-01	2-5EX-026-A	227-2C	2	1	1	5/5/1997	24
EX	2-5EX-01	2-5EX-026-A	241-1N	2	1	1	5/15/1997	82
EX	2-5EX-01	2-5EX-026-A	241-2C	2	1	1	5/15/1997	51
EX	2-5EX-01	2-5EX-026-A	241-3R	2	1	1	5/15/1997	20
EX	2-5EX-01	2-5EX-026-A	241-4P DS	2	1	1	5/15/1997	69
EX	2-5EX-01	2-5EX-026-A	241-4P US	2	1	1	5/15/1997	37
EX	2-5EX-01	2-5EX-026-A	241-5E	2	1	1	5/15/1997	33
EX	2-5EX-01	2-5EX-028-A	241-10P	2	1	1	5/15/1997	20
EX	2-5EX-01	2-5EX-028-A	241-11E	2	1	1	5/15/1997	34
EX	2-5EX-01	2-5EX-028-A	241-12P US	2	1	1	5/15/1997	61
HD	2-3HD-02	2-3HD-027	240-35P US	2	1	1	5/8/1997	58
HD	2-3HD-02	2-3HD-028	240-10P US	2	1	1	5/8/1997	50
HD	2-3HD-02	2-3HD-029	239-35P US	2	1	1	5/8/1997	70
HD	2-3HD-02	2-3HD-030	239-10P US	2	1	1	5/8/1997	80
HD	2-3HD-02	2-3HD-030	239-11E	2	1	1	4/9/2008	42
HD	2-3HD-02	2-3HD-030	239-2P	2	1	1	9/25/2002	99
HD	2-3HD-02	2-3HD-030	239-3E	2	1	1	9/25/2002	45
HD	2-3HD-02	2-3HD-030	239-4P	2	1	1	9/25/2002	99
HD	2-3HD-02	2-3HD-031	238-35P US	2	1	1	5/8/1997	82
HD	2-3HD-02	2-3HD-032	238-10P US	2	1	1	5/8/1997	73
HD	2-4HD-02	2-4HD-021	274-1C	2	1	1	5/18/2000	99
HD	2-4HD-02	2-4HD-021	274-1N	2	1	1	5/18/2000	71
HD	2-4HD-02	2-4HD-021	274-1P	2	1	1	5/18/2000	99
HD	2-5HD-03	2-5HD-057	5EX-24P DS	2	1	1	4/22/2006	20
HD	2-5HD-03	2-5HD-058	5EX-29	2	1	1	3/11/2010	50
HD	2-5HD-03	2-5HD-058	5EX-29P DS	2	1	1	4/11/2000	90
HD	2-5HD-03	2-5HD-058	5EX-30	2	1	1	4/11/2000	40
HD	2-5HD-03	2-5HD-058	5EX-30P	2	1	1	4/11/2000	74
HD	2-6HD-02	2-6HD-028	278-1C	1	1	1	3/14/2000	99
HD	2-6HD-02	2-6HD-028	278-1E	1	1	1	3/14/2000	71
HD	2-6HD-02	2-6HD-028	278-1N	1	1	1	3/14/2000	99
HD	2-6HD-02	2-6HD-028	278-1P	1	1	1	3/14/2000	99

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
HD	2-6HD-02	2-6HD-028	278-2P	1	1	1	3/14/2000	99
MST	2-MST-01	2-MST-117-B	MST43-Pipe 1	1.25	1	1	10/7/2002	47
MST	2-MST-01	2-MST-117-B	MST43-Pipe 2 DS	1.25	1	1	10/7/2002	57
MST	2-MST-01	2-MST-117-B	MST43-Pipe 2 US	1.25	1	1	10/7/2002	48
MST	2-MST-01	2-MST-117-B	MST43-Pipe 3 DS	1.25	1	1	10/7/2002	35
MST	2-MST-01	2-MST-117-B	MST43-Pipe 3 US	1.25	1	1	10/7/2002	26
MST	2-MST-01	2-MST-117-B	MST43-Pipe 4	1.25	1	1	10/7/2002	99
MST	2-MST-01	2-MST-117-B	MST43-Tee 1	1.25	1	1	10/7/2002	99
MST	2-MST-01	2-MST-118-B	MST44-Pipe 1	1.25	1	1	10/8/2002	99
MST	2-MST-01	2-MST-118-B	MST44-Pipe 2 DS	1.25	1	1	10/8/2002	99
MST	2-MST-01	2-MST-118-B	MST44-Pipe 2 US	1.25	1	1	10/8/2002	99
MST	2-MST-01	2-MST-118-B	MST44-Pipe 3 DS	1.25	1	1	10/8/2002	86
MST	2-MST-01	2-MST-118-B	MST44-Pipe 3 US	1.25	1	1	10/8/2002	78
MST	2-MST-01	2-MST-118-B	MST44-Pipe 4	1.25	1	1	10/8/2002	54
MST	2-MST-01	2-MST-118-B	MST44-Tee 1	1.25	1	1	10/8/2002	84
MST	2-MST-01	2-MST-119-B	MST45-Pipe 1 DS	1.25	1	1	10/8/2002	36
MST	2-MST-01	2-MST-119-B	MST45-Pipe 1 US	1.25	1	1	10/8/2002	37
MST	2-MST-01	2-MST-119-B	MST45-Pipe 2 DS	1.25	1	1	10/8/2002	64
MST	2-MST-01	2-MST-119-B	MST45-Pipe 2 US	1.25	1	1	10/8/2002	54
MST	2-MST-01	2-MST-119-B	MST45-Pipe 3 DS	1.25	1	1	10/8/2002	64
MST	2-MST-01	2-MST-119-B	MST45-Pipe 3 US	1.25	1	1	10/8/2002	49
MST	2-MST-01	2-MST-119-B	MST45-Pipe 4	1.25	1	1	10/8/2002	81
MST	2-MST-01	2-MST-119-B	MST45-Tee 1	1.25	1	1	10/8/2002	77
MST	2-MST-01	2-MST-120-B	MST46-Pipe 1	1	1	1	10/8/2002	50
MST	2-MST-01	2-MST-120-B	MST46-Pipe 2 DS	1	1	1	10/8/2002	45
MST	2-MST-01	2-MST-120-B	MST46-Pipe 2 US	1	1	1	10/8/2002	53
MST	2-MST-01	2-MST-120-B	MST46-Pipe 3 DS	1	1	1	10/8/2002	64
MST	2-MST-01	2-MST-120-B	MST46-Pipe 3 US	1	1	1	10/8/2002	52
MST	2-MST-01	2-MST-120-B	MST46-Pipe 4	1	1	1	10/8/2002	33
MST	2-MST-01	2-MST-120-B	MST46-Tee 1	1	1	1	10/8/2002	97
BD	2-BD-01	2-BD-005	256-28P	2	1	2	5/27/1997	99
BD	2-BD-01	2-BD-006	256-37P DS	2	1	2	5/27/1997	85
BD	2-BD-01	2-BD-006	256-38E	2	1	2	5/27/1997	20
BD	2-BD-01	2-BD-006	256-39P DS	2	1	2	5/27/1997	41
BD	2-BD-01	2-BD-006	256-39P US	2	1	2	5/27/1997	99
BD	2-BD-01	2-BD-009-A	MS46-1	2	1	2	1/31/1993	25
BD	2-BD-01	2-BD-009-A	MS46-1P DS	2	1	2	1/31/1993	31
BD	2-BD-01	2-BD-009-A	MS46-1P US	2	1	2	1/31/1993	31
BD	2-BD-01	2-BD-009-A	MS46-1P-1	2	1	2	1/31/1993	20
BD	2-BD-01	2-BD-009-A	MS46-2	2	1	2	1/31/1993	25
BD	2-BD-01	2-BD-009-A	MS46-2P-2	2	1	2	1/31/1993	40
BD	2-BD-01	2-BD-009-A	MS46-2P-3	2	1	2	1/31/1993	50
BD	2-BD-01	2-BD-009-A	MS46-3	2	1	2	1/31/1993	32
BD	2-BD-01	2-BD-009-A	MS46-3P	2	1	2	1/31/1993	40
BD	2-BD-01	2-BD-009-A	MS46-4	2	1	2	11/12/2002	75
BD	2-BD-01	2-BD-009-A	MS46-4P US	2	1	2	11/12/2002	63

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
BD	2-BD-01	2-BD-009-A	MS46-4P-1 DS	2	1	2	11/12/2002	62
BD	2-BD-01	2-BD-009-A	MS46-4P-1 US	2	1	2	5/8/2006	99
BD	2-BD-01	2-BD-009-A	MS46-4P-1DS	2	1	2	N/A	23
BD	2-BD-01	2-BD-009-A	MS46-5	2	1	2	4/4/1995	42
BD	2-BD-01	2-BD-009-A	MS46-5P	2	1	2	10/23/2004	99
BD	2-BD-01	2-BD-009-A	MS46-6	2	1	2	4/5/1995	99
BD	2-BD-01	2-BD-009-A	MS46-6P	2	1	2	N/A	23
BD	2-BD-01	2-BD-009-A	MS46-6P US	2	1	2	4/5/1995	82
BD	2-BD-01	2-BD-009-A	MS46-7P2	2	1	2	4/26/2000	99
BD	2-BD-01	2-BD-009-A	MS46-7R	2	1	2	4/26/2000	99
BD	2-BD-01	2-BD-010-A	MS45-1	2	1	2	1/31/1993	33
BD	2-BD-01	2-BD-010-A	MS45-1P	2	1	2	1/31/1993	34
BD	2-BD-01	2-BD-010-A	MS45-1P-1	2	1	2	1/31/1993	32
BD	2-BD-01	2-BD-010-A	MS45-2P-1	2	1	2	N/A	42
BD	2-BD-01	2-BD-010-A	MS45-2P-3	2	1	2	N/A	42
BD	2-BD-01	2-BD-010-A	MS45-2R	2	1	2	5/8/2006	99
BD	2-BD-01	2-BD-010-A	MS45-3	2	1	2	5/8/2006	70
BD	2-BD-01	2-BD-010-A	MS45-3P-1	2	1	2	2/9/1996	47
BD	2-BD-01	2-BD-010-A	MS-45-3P-1	2	1	2	N/A	23
BD	2-BD-01	2-BD-010-A	MS45-6	2	1	2	4/4/1995	20
BD	2-BD-01	2-BD-010-A	MS45-7	2	1	2	N/A	23
BD	2-BD-01	2-BD-010-A	MS45-7P2	2	1	2	4/26/2000	99
BD	2-BD-01	2-BD-010-A	MS45-7R	2	1	2	4/26/2000	99
BD	2-BD-01	2-BD-011-A	MS47-1	2	1	2	1/31/1993	36
BD	2-BD-01	2-BD-011-A	MS47-10P1	2	1	2	N/A	23
BD	2-BD-01	2-BD-011-A	MS47-1P	2	1	2	1/31/1993	31
BD	2-BD-01	2-BD-011-A	MS47-1P-1	2	1	2	1/31/1993	64
BD	2-BD-01	2-BD-011-A	MS47-2P-2	2	1	2	1/31/1993	35
BD	2-BD-01	2-BD-011-A	MS47-3	2	1	2	1/31/1993	51
BD	2-BD-01	2-BD-011-A	MS47-3P	2	1	2	1/31/1993	20
BD	2-BD-01	2-BD-011-A	MS47-4P	2	1	2	N/A	21
BD	2-BD-01	2-BD-011-A	MS47-4P DS	2	1	2	1/31/1993	31
BD	2-BD-01	2-BD-011-A	MS47-4P-1	2	1	2	5/8/2006	87
BD	2-BD-01	2-BD-011-A	MS47-5	2	1	2	1/31/1993	55
BD	2-BD-01	2-BD-011-A	MS47-5P	2	1	2	N/A	23
BD	2-BD-01	2-BD-011-A	MS47-5P US	2	1	2	1/31/1993	50
BD	2-BD-01	2-BD-011-A	MS47-8VP	2	1	2	4/4/1995	38
BD	2-BD-01	2-BD-011-A	MS47-9P	2	1	2	N/A	23
BD	2-BD-01	2-BD-012-A	256-40T	2	1	2	5/27/1997	82
BD	2-BD-01	2-BD-012-A	256-41P US	2	1	2	5/27/1997	61
BD	2-BD-01	2-BD-012-A	MS48-1	2	1	2	1/31/1993	36
BD	2-BD-01	2-BD-012-A	MS48-10P1	2	1	2	N/A	23
BD	2-BD-01	2-BD-012-A	MS48-10P2	2	1	2	N/A	23
BD	2-BD-01	2-BD-012-A	MS48-1P	2	1	2	1/31/1993	36
BD	2-BD-01	2-BD-012-A	MS48-1P-1	2	1	2	1/31/1993	20
BD	2-BD-01	2-BD-012-A	MS48-2P-2	2	1	2	1/31/1993	20

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
BD	2-BD-01	2-BD-012-A	MS48-3	2	1	2	1/31/1993	30
BD	2-BD-01	2-BD-012-A	MS48-3P	2	1	2	1/31/1993	49
BD	2-BD-01	2-BD-012-A	MS48-4P-1	2	1	2	5/8/2006	50
BD	2-BD-01	2-BD-012-A	MS48-8VP	2	1	2	4/4/1995	42
BD	2-BD-01	2-BD-012-A	MS48-9P	2	1	2	N/A	23
GS	2-GS-01	2-GS-039	215-1P	2	1	2	4/22/1997	31
GS	2-GS-01	2-GS-039	215-1P DS	2	1	2	10/30/2002	38
GS	2-GS-01	2-GS-039	215-2E	2	1	2	4/8/2008	29
GS	2-GS-01	2-GS-039	215-2P US	2	1	2	10/30/2002	43
GS	2-GS-01	2-GS-039	215-6P	2	1	2	4/23/1997	42
GS	2-GS-01	2-GS-039	21BFPT	2	1	2	4/27/2006	89
GS	2-GS-01	2-GS-040	215-10E	2	1	2	10/30/2002	30
GS	2-GS-01	2-GS-040	215-10P US	2	1	2	10/30/2002	51
GS	2-GS-01	2-GS-040	215-7P	2	1	2	N/A	22
GS	2-GS-01	2-GS-040	215-7P DS	2	1	2	4/22/1997	45
GS	2-GS-01	2-GS-040	215-8E	2	1	2	4/18/2000	25
GS	2-GS-01	2-GS-040	215-8P US	2	1	2	4/18/2000	36
GS	2-GS-01	2-GS-040	215-9P DS	2	1	2	10/30/2002	46
GS	2-GS-01	2-GS-040	22BFPT	2	1	2	10/23/2004	22
GS	2-GS-01	2-GS-042	215-18P DS	1	1	2	4/22/1997	70
GS	2-GS-01	2-GS-042	215-19E	1	1	2	4/22/1997	35
GS	2-GS-01	2-GS-042	215-19P	1	1	2	4/22/1997	57
GS	2-GS-01	2-GS-042	215-20E	1	1	2	4/22/1997	62
GS	2-GS-01	2-GS-042	215-20P US	1	1	2	4/22/1997	40
HD	2-2HD-02	2-2HD-025	222-10E	1	1	2	5/22/1997	38
HD	2-2HD-02	2-2HD-025	222-10P DS	1	1	2	4/28/1997	71
HD	2-2HD-02	2-2HD-025	222-10P US	1	1	2	5/22/1997	56
HD	2-2HD-02	2-2HD-025	222-11E	1	1	2	4/28/1997	44
HD	2-2HD-02	2-2HD-025	222-11P US	1	1	2	4/28/1997	57
HD	2-2HD-02	2-2HD-025	222-1P DS	1	1	2	5/22/1997	66
HD	2-2HD-02	2-2HD-025	222-2E	1	1	2	5/22/1997	34
HD	2-2HD-02	2-2HD-025	222-3P	1	1	2	5/22/1997	60
HD	2-2HD-02	2-2HD-025	222-4E	1	1	2	5/22/1997	44
HD	2-2HD-02	2-2HD-025	222-6E	1	1	2	5/22/1997	38
HD	2-2HD-02	2-2HD-025	222-6P US	1	1	2	5/22/1997	36
HD	2-2HD-02	2-2HD-025	222-9P DS	1	1	2	5/22/1997	60
MS	2-MS-01	2-MS-039	252-18P US	2	1	2	5/14/1997	50
MS	2-MS-01	2-MS-058	252-30E	N/A	1	2	6/6/1997	33
MS	2-MS-01	2-MS-144	250-1P	0.75	1	2	5/22/1997	70
MST	2-MST-01	2-MST-101-B	MST27-Pipe 1	1	1	2	10/7/2002	61
MST	2-MST-01	2-MST-101-B	MST27-Pipe 2 DS	1	1	2	10/7/2002	55
MST	2-MST-01	2-MST-101-B	MST27-Pipe 2 US	1	1	2	10/7/2002	51
MST	2-MST-01	2-MST-101-B	MST27-Pipe 3 DS	1	1	2	10/7/2002	85
MST	2-MST-01	2-MST-101-B	MST27-Pipe 3 US	1	1	2	10/7/2002	57
MST	2-MST-01	2-MST-101-B	MST27-Pipe 4	1	1	2	10/7/2002	94
MST	2-MST-01	2-MST-101-B	MST27-Tee 1	1	1	2	10/7/2002	99

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
MST	2-MST-01	2-MST-123-B	MST-49	1	1	2	8/11/2004	28
MST	2-MST-01	2-MST-124-B	MST50-Pipe 1	1	1	2	10/9/2002	75
MST	2-MST-01	2-MST-124-B	MST50-Pipe 2 DS	1	1	2	10/9/2002	77
MST	2-MST-01	2-MST-124-B	MST50-Pipe 2 US	1	1	2	10/9/2002	74
MST	2-MST-01	2-MST-124-B	MST50-Pipe 3	1	1	2	10/9/2002	40
MST	2-MST-01	2-MST-124-B	MST50-Pipe 4	1	1	2	10/9/2002	54
MST	2-MST-01	2-MST-124-B	MST50-Tee 1	1	1	2	10/9/2002	66
MST	2-MST-01	2-MST-125-B	MST51-Pipe 1	1	1	2	10/9/2002	39
MST	2-MST-01	2-MST-125-B	MST51-Pipe 2 DS	1	1	2	10/9/2002	99
MST	2-MST-01	2-MST-125-B	MST51-Pipe 2 US	1	1	2	10/9/2002	77
MST	2-MST-01	2-MST-125-B	MST51-Pipe 3	1	1	2	10/9/2002	76
MST	2-MST-01	2-MST-125-B	MST51-Pipe 4	1	1	2	10/9/2002	99
MST	2-MST-01	2-MST-125-B	MST51-Tee 1	1	1	2	10/9/2002	63
MST	2-MST-01	2-MST-131-A	252-1T	1	1	2	4/9/2008	28
MST	2-MST-01	2-MST-101-A	MST27-Elbow 1	1	1	3	10/7/2002	51
MST	2-MST-01	2-MST-101-A	MST27-Elbow 2	1	1	3	10/7/2002	40
MST	2-MST-01	2-MST-113-A	248-14P	1	1	3	5/7/1997	48
MST	2-MST-01	2-MST-113-A	248-15C	1	1	3	5/7/1997	76
MST	2-MST-01	2-MST-117-A	MST43-Elbow 1	1.25	1	3	10/7/2002	47
MST	2-MST-01	2-MST-117-A	MST43-Elbow 2	1.25	1	3	10/7/2002	29
MST	2-MST-01	2-MST-117-A	MST43-PIPE US	1.25	1	3	3/16/2010	80
MST	2-MST-01	2-MST-118-A	MST44-Elbow 1	1.25	1	3	10/8/2002	62
MST	2-MST-01	2-MST-118-A	MST44-Elbow 2	1.25	1	3	10/8/2002	29
MST	2-MST-01	2-MST-119-A	MST45-Elbow 1	1.25	1	3	10/8/2002	52
MST	2-MST-01	2-MST-119-A	MST45-Elbow 2	1.25	1	3	10/8/2002	30
MST	2-MST-01	2-MST-120-A	MST46-Elbow 1	1	1	3	10/8/2002	42
MST	2-MST-01	2-MST-120-A	MST46-Elbow 2	1	1	3	10/8/2002	56
MST	2-MST-01	2-MST-124-A	MST50-Elbow 1	1	1	3	10/9/2002	34
MST	2-MST-01	2-MST-125-A	MST51-Elbow 1	1	1	3	10/9/2002	77
AS	2-AS-03	2-AS-018	279-6P	1	2		5/18/2000	55
AS	2-AS-03	2-AS-018	279-6R	1	2		5/18/2000	99

Table D.2 below lists all small bore replacements from *FAC Manager Web Edition* Components that have been associated with an SNM Line. If the component is not linked to an SNM line in *FAC Manager* it will not appear in this table. Components may be missing from this table due to the lack of this link. The table is sorted by relative susceptibility, then alphabetically by System, Subsystem, Line, and Component.

Table D.2 Small Bore SNM Replacements from FAC Manager

System	Subsystem	Line Number	Component	Line Size	F	S	Install Date
EX	2-5EX-01	2-5EX-028-A	241-10P	2	1	1	4/28/1997
EX	2-5EX-01	2-5EX-028-A	241-11E	2	1	1	4/28/1997
HD	2-2HD-02	2-2HD-025	222-10E	1	1	2	2/16/2000
HD	2-2HD-02	2-2HD-025	222-10P DS	1	1	2	2/16/2000
HD	2-2HD-02	2-2HD-025	222-10P US	1	1	2	2/16/2000
HD	2-2HD-02	2-2HD-025	222-11E	1	1	2	2/16/2000
HD	2-2HD-02	2-2HD-025	222-11P US	1	1	2	2/16/2000
HD	2-2HD-02	2-2HD-025	222-1P DS	1	1	2	2/16/2000
HD	2-2HD-02	2-2HD-025	222-2E	1	1	2	2/16/2000
HD	2-2HD-02	2-2HD-025	222-3P	1	1	2	2/16/2000
HD	2-2HD-02	2-2HD-025	222-4E	1	1	2	2/16/2000
HD	2-2HD-02	2-2HD-025	222-6E	1	1	2	2/16/2000
HD	2-2HD-02	2-2HD-025	222-6P US	1	1	2	2/16/2000
HD	2-2HD-02	2-2HD-025	222-9P DS	1	1	2	2/16/2000
N/A	N/A	N/A	250-17P	1.5	N/A	N/A	4/28/1997
N/A	N/A	N/A	EST4-Pipe 1	0.75	N/A	N/A	10/26/2002
N/A	N/A	N/A	245-7P	1	N/A	N/A	2/24/1995

Attachment E
SNM Large Bore Inspections

Table E.1 below lists all large bore *FAC Manager Web Edition* Components that have been associated with an SNM Line. If the component is not linked to an SNM line in *FAC Manager* it will not appear in this table. Due to a lack of documentation from previous inspections, some inspections are missing from this table, and others did not have enough information to be properly trended. Components that have not been properly trended have "N/A" in the Limiting NSI column and will be updated after enough information is found to properly calculate a reinspection interval. The table is sorted by relative susceptibility, then alphabetically by System, Subsystem, Line, and Component. If a field reads "N/A", there is not enough information in *FAC Manager* to populate this field.

Table E.1 Large Bore SNM Inspections from FAC Manager

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
EST	2-1EST-01	2-1EST-013-B	EST-14	4	1	1	4/28/1997	23
EST	2-1EST-01	2-1EST-013-B	EST-14P	4	1	1	4/28/1997	22
EST	2-1EST-01	2-1EST-013-B	EST-15	4	1	1	4/28/1997	21
EST	2-1EST-01	2-1EST-013-B	EST-16P	4	1	1	N/A	23
EST	2-1EST-01	2-1EST-013-B	EST-17	4	1	1	N/A	23
EST	2-1EST-01	2-1EST-013-B	EST-17P	4	1	1	N/A	23
EST	2-1EST-01	2-1EST-013-B	EST-20P US	4	1	1	3/3/1995	33
EST	2-1EST-01	2-1EST-013-B	EST-21	4	1	1	3/3/1995	34
EST	2-1EST-01	2-1EST-013-B	EST-21P DS	4	1	1	3/3/1995	28
EST	2-1EST-01	2-1EST-013-B	EST-21P US	4	1	1	3/1/1995	20
EST	2-1EST-01	2-1EST-013-B	EST-22	4	1	1	3/1/1995	20
EST	2-1EST-01	2-1EST-013-B	EST-22P	4	1	1	3/1/1995	24
EST	2-1EST-01	2-1EST-013-B	EST-23P	4	1	1	3/3/1995	20
EST	2-1EST-01	2-1EST-013-B	EST-23P US	4	1	1	N/A	23
EST	2-1EST-01	2-1EST-013-B	EST-24	4	1	1	3/3/1995	99
EST	2-1EST-01	2-1EST-013-B	EST-24P	4	1	1	3/3/1995	20
EST	2-1EST-01	2-1EST-013-B	EST-29P	4	1	1	4/13/1995	30
EST	2-1EST-01	2-1EST-013-B	EST-29P US	4	1	1	N/A	23
EST	2-1EST-01	2-1EST-013-B	EST-30A	4	1	1	4/13/1995	22
EST	2-1EST-01	2-1EST-013-B	EST-30AP	4	1	1	4/13/1995	21
EST	2-1EST-01	2-1EST-013-B	EST-30B	4	1	1	4/13/1995	20
EST	2-1EST-01	2-1EST-013-B	EST-30P DS	4	1	1	N/A	25
EST	2-1EST-01	2-1EST-013-B	EST-31	4	1	1	3/1/1995	99
EST	2-1EST-01	2-1EST-013-B	EST-31P DS	4	1	1	3/1/1995	99
EST	2-1EST-01	2-1EST-013-B	EST-31P US	4	1	1	4/13/1995	99
EST	2-1EST-01	2-1EST-013-B	EST-31P-1	4	1	1	4/13/1995	99
EST	2-1EST-01	2-1EST-013-B	EST-31T	4	1	1	4/13/1995	99
EST	2-1EST-01	2-1EST-014	EST-1P-1	6	1	1	4/23/1997	21
EST	2-1EST-01	2-1EST-014	EST-1T	6	1	1	4/28/1997	25
EST	2-1EST-01	2-1EST-014	EST-2P	6	1	1	N/A	23
EST	2-1EST-01	2-1EST-014	EST-3P	6	1	1	N/A	23
FW	2-FW-03	2-FW-063	213-4P	6	1	1	4/24/1997	43
FW	2-FW-03	2-FW-063	213-6P	6	1	1	4/24/1997	31
FW	2-FW-03	2-FW-063	213-6R	6	1	1	4/28/1997	57

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
FW	2-FW-03	2-FW-063	Valve FCV-1115	6	1	1	3/23/2010	99
FW	2-FW-03	2-FW-064	213-1P	6	1	1	4/24/1997	99
FW	2-FW-03	2-FW-064	213-3P	6	1	1	4/24/1997	31
FW	2-FW-03	2-FW-064	213-3R	6	1	1	4/28/1997	44
HD	2-3HD-02	2-3HD-039	223-9R	3	1	1	4/29/1997	28
HD	2-3HD-02	2-3HD-040	223-10P1 DS	3	1	1	4/29/1997	99
HD	2-3HD-02	2-3HD-041	223-11P1 DS	3	1	1	4/29/1997	85
HD	2-3HD-02	2-3HD-042	223-10P DS	4	1	1	4/29/1997	99
HD	2-3HD-02	2-3HD-042	223-10P US	4	1	1	4/29/1997	98
HD	2-3HD-02	2-3HD-042	223-10T	4	1	1	4/29/1997	50
HD	2-3HD-02	2-3HD-042	223-11T	4	1	1	4/29/1997	44
HD	2-3HD-02	2-3HD-043	223-11P US	4	1	1	4/29/1997	54
HD	2-3HD-02	2-3HD-043	223-13P DS	4	1	1	5/9/2000	85
HD	2-3HD-02	2-3HD-043	223-14E	4	1	1	5/9/2000	40
HD	2-3HD-02	2-3HD-043	223-14P DS	4	1	1	4/6/2000	21
HD	2-3HD-02	2-3HD-043	223-14P US	4	1	1	5/9/2000	60
HD	2-3HD-02	2-3HD-043	223-15E	4	1	1	4/6/2000	22
HD	2-3HD-02	2-3HD-043	223-15P DS	4	1	1	5/9/2000	47
HD	2-3HD-02	2-3HD-043	223-15P US	4	1	1	4/6/2000	41
HD	2-3HD-02	2-3HD-043	223-16E	4	1	1	5/9/2000	25
HD	2-3HD-02	2-3HD-043	223-16P DS	4	1	1	5/14/1997	42
HD	2-3HD-02	2-3HD-043	223-16P US	4	1	1	5/9/2000	32
HD	2-3HD-02	2-3HD-043	223-17E	4	1	1	5/14/1997	26
HD	2-3HD-02	2-3HD-043	223-17P DS	4	1	1	5/14/1997	46
HD	2-3HD-02	2-3HD-043	223-17P US	4	1	1	5/14/1997	26
HD	2-3HD-02	2-3HD-043	223-18E	4	1	1	5/14/1997	26
HD	2-3HD-02	2-3HD-043	223-18P	4	1	1	4/28/1997	39
HD	2-3HD-02	2-3HD-043	223-19E	4	1	1	4/28/1997	26
HD	2-3HD-02	2-3HD-043	223-19P US	4	1	1	4/28/1997	30
HD	2-4HD-02	2-4HD-025	274-25N	3	1	1	4/13/2000	38
HD	2-4HD-02	2-4HD-025	274-25P DS	3	1	1	4/13/2000	78
HD	2-5HD-02	2-5HD-044	5EXV-11	10	1	1	3/13/2010	44
HD	2-5HD-02	2-5HD-044	5EXV-11P	10	1	1	N/A	23
HD	2-5HD-02	2-5HD-044	5EXV-11P-1	10	1	1	N/A	23
HD	2-5HD-02	2-5HD-044	5EXV-12P	10	1	1	3/14/1995	36
HD	2-5HD-02	2-5HD-044	5EXV-13	10	1	1	3/14/1995	36
HD	2-5HD-02	2-5HD-044	5EXV-13N	10	1	1	11/2/2002	73
HD	2-5HD-02	2-5HD-044	5EXV-13P DS	10	1	1	3/14/1995	52
HD	2-5HD-02	2-5HD-044	5EXV-13P US	10	1	1	11/2/2002	56
HD	2-5HD-02	2-5HD-044	5EXV-3	10	1	1	N/A	20
HD	2-5HD-02	2-5HD-045	5EXV-10	10	1	1	3/14/1995	37
HD	2-5HD-02	2-5HD-045	5EXV-10N	10	1	1	5/30/1997	48
HD	2-5HD-02	2-5HD-045	5EXV-10P	10	1	1	3/14/1995	49
HD	2-5HD-02	2-5HD-045	5EXV-2	10	1	1	N/A	20
HD	2-5HD-02	2-5HD-045	5EXV-8	10	1	1	N/A	21
HD	2-5HD-02	2-5HD-045	5EXV-8P	10	1	1	N/A	23

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
HD	2-5HD-02	2-5HD-045	5EXV-9P	10	1	1	3/14/1995	44
HD	2-5HD-02	2-5HD-046	5EXV-1	10	1	1	N/A	20
HD	2-5HD-02	2-5HD-046	5EXV-4	10	1	1	N/A	20
HD	2-5HD-02	2-5HD-046	5EXV-5	10	1	1	N/A	20
HD	2-5HD-02	2-5HD-046	5EXV-5P	10	1	1	N/A	20
HD	2-5HD-02	2-5HD-046	5EXV-6	10	1	1	N/A	20
HD	2-5HD-02	2-5HD-046	5EXV-6P	10	1	1	3/14/1995	75
HD	2-5HD-02	2-5HD-046	5EXV-7	10	1	1	3/14/1995	42
HD	2-5HD-02	2-5HD-046	5EXV-7P	10	1	1	3/14/1995	41
HD	2-5HD-02	2-5HD-051	277-18P DS	2.5	1	1	5/9/2000	99
HD	2-5HD-02	2-5HD-051	277-19E	2.5	1	1	5/9/2000	31
HD	2-5HD-02	2-5HD-051	277-20P DS	2.5	1	1	5/9/2000	87
HD	2-5HD-02	2-5HD-051	277-20P US	2.5	1	1	5/9/2000	96
HD	2-5HD-02	2-5HD-051	277-21E	2.5	1	1	5/9/2000	58
HD	2-5HD-02	2-5HD-051	277-22P DS	2.5	1	1	4/12/2000	68
HD	2-5HD-02	2-5HD-051	277-22P US	2.5	1	1	5/9/2000	92
HD	2-5HD-02	2-5HD-051	277-23N	2.5	1	1	4/12/2000	28
HD	2-5HD-03	2-5HD-059	5EXC-1	24	1	1	11/9/2002	59
HD	2-5HD-03	2-5HD-059	5EXC-1P DS	24	1	1	11/9/2002	39
HD	2-5HD-03	2-5HD-059	5EXC-2	24	1	1	2/6/1995	43
HD	2-5HD-03	2-5HD-059	5EXC-2A	24	1	1	3/1/1995	29
HD	2-5HD-03	2-5HD-059	5EXC-2P DS	24	1	1	3/1/1995	24
HD	2-5HD-03	2-5HD-059	5EXC-2P US	24	1	1	11/9/2002	43
HD	2-5HD-03	2-5HD-061-A	5EXC-21	14	1	1	4/1/2008	37
HD	2-5HD-03	2-5HD-061-A	5EXC-21P-1 DS	14	1	1	11/12/2002	50
HD	2-5HD-03	2-5HD-061-A	5EXC-21P-1 US	14	1	1	4/27/2000	28
HD	2-5HD-03	2-5HD-061-B	205-22P US	8	1	1	4/9/1997	26
HD	2-5HD-03	2-5HD-061-B	205-22P-1	8	1	1	11/11/2002	47
HD	2-5HD-03	2-5HD-061-B	205-22R	8	1	1	4/28/1997	43
HD	2-5HD-03	2-5HD-061-B	205-23P DS	8	1	1	4/28/2000	76
HD	2-5HD-03	2-5HD-061-B	205-23P US	8	1	1	4/28/2000	43
HD	2-5HD-03	2-5HD-061-B	205-23T	8	1	1	4/28/2000	53
HD	2-5HD-03	2-5HD-061-B	205-24P US	8	1	1	4/28/2000	26
HD	2-5HD-03	2-5HD-061-B	205-24T	8	1	1	4/28/2000	46
HD	2-5HD-03	2-5HD-061-B	5EXC-27	8	1	1	4/30/1997	24
HD	2-5HD-03	2-5HD-061-B	5EXC-27P	8	1	1	5/30/1997	24
HD	2-5HD-03	2-5HD-061-B	5EXC-29	8	1	1	2/25/1995	31
HD	2-5HD-03	2-5HD-061-B	5EXC-29P DS	8	1	1	2/25/1995	34
HD	2-5HD-03	2-5HD-061-B	5EXC-30P	8	1	1	2/25/1995	29
HD	2-5HD-03	2-5HD-062-A	205-15PUS	14	1	1	N/A	23
HD	2-5HD-03	2-5HD-062-B	205-13P US	8	1	1	4/10/1997	32
HD	2-5HD-03	2-5HD-062-B	205-13R	8	1	1	4/28/1997	44
HD	2-5HD-03	2-5HD-062-B	205-14P DS	8	1	1	11/9/2002	94
HD	2-5HD-03	2-5HD-062-B	205-15P US	8	1	1	11/9/2002	37
HD	2-5HD-03	2-5HD-062-B	205-15T	8	1	1	11/9/2002	54
HD	2-5HD-03	2-5HD-062-B	5EXC-17	8	1	1	4/29/1997	36

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
HD	2-5HD-03	2-5HD-062-B	5EXC-17P US	8	1	1	4/29/1997	28
HD	2-5HD-03	2-5HD-062-B	5EXC-19	8	1	1	4/28/1997	61
HD	2-5HD-03	2-5HD-062-B	5EXC-19N	8	1	1	4/28/1997	45
HD	2-5HD-03	2-5HD-062-B	5EXC-19P DS	8	1	1	4/28/1997	39
HD	2-5HD-03	2-5HD-062-B	5EXC-19P-1	8	1	1	4/28/1997	41
HD	2-5HD-03	2-5HD-063-B	205-5P US	8	1	1	5/2/1997	32
HD	2-5HD-03	2-5HD-063-B	205-5P-1 DS	8	1	1	4/28/2000	44
HD	2-5HD-03	2-5HD-063-B	205-5R	8	1	1	5/2/1997	27
HD	2-5HD-03	2-5HD-063-B	5EXC-10	8	1	1	N/A	23
HD	2-5HD-03	2-5HD-063-B	5EXC-11	8	1	1	5/6/1997	40
HD	2-5HD-03	2-5HD-063-B	5EXC-11N	8	1	1	5/6/1997	30
HD	2-5HD-03	2-5HD-063-B	5EXC-11P	8	1	1	N/A	23
HD	2-5HD-03	2-5HD-063-B	5EXC-11P DS	8	1	1	5/6/1997	33
HD	2-5HD-03	2-5HD-063-B	5EXC-9	8	1	1	N/A	23
HD	2-5HD-03	2-5HD-063-B	5EXC-9P DS	8	1	1	N/A	20
HD	2-5HD-03	2-5HD-063-B	5EXC-9P US	8	1	1	N/A	23
MSD	2-MSD-01	2-MSD-097	288-2P DS	2.5	1	1	11/8/2002	78
MSD	2-MSD-01	2-MSD-097	288-4P US	2.5	1	1	11/8/2002	81
MSD	2-MSD-01	2-MSD-097	288-5EXV-DS-MS21A	2.5	1	1	11/8/2002	79
MSD	2-MSD-01	2-MSD-100	231-2P DS	2.5	1	1	5/6/1997	79
MSD	2-MSD-01	2-MSD-100	231-3E	2.5	1	1	5/6/1997	32
MSD	2-MSD-01	2-MSD-100	231-3P	2.5	1	1	5/6/1997	37
MSD	2-MSD-01	2-MSD-100	231-4E	2.5	1	1	5/6/1997	99
MSD	2-MSD-01	2-MSD-100	231-4P US	2.5	1	1	5/6/1997	99
MSD	2-MSD-01	2-MSD-106-A	1B-1	6	1	1	N/A	23
MSD	2-MSD-01	2-MSD-106-A	1B-10	6	1	1	3/2/1995	42
MSD	2-MSD-01	2-MSD-106-A	1B-10P DS	6	1	1	3/2/1995	51
MSD	2-MSD-01	2-MSD-106-A	1B-10P US	6	1	1	3/2/1995	42
MSD	2-MSD-01	2-MSD-106-A	1B-11	6	1	1	3/2/1995	34
MSD	2-MSD-01	2-MSD-106-A	1B-11P DS	6	1	1	3/2/1995	38
MSD	2-MSD-01	2-MSD-106-A	1B-11P US	6	1	1	3/2/1995	41
MSD	2-MSD-01	2-MSD-106-A	1B-12	6	1	1	3/2/1995	32
MSD	2-MSD-01	2-MSD-106-A	1B-12P DS	6	1	1	4/5/1995	36
MSD	2-MSD-01	2-MSD-106-A	1B-12P US	6	1	1	3/2/1995	45
MSD	2-MSD-01	2-MSD-106-A	1B-13	6	1	1	N/A	23
MSD	2-MSD-01	2-MSD-106-A	1B-13P	6	1	1	N/A	23
MSD	2-MSD-01	2-MSD-106-A	1B-14	6	1	1	4/5/1995	29
MSD	2-MSD-01	2-MSD-106-A	1B-15	6	1	1	N/A	23
MSD	2-MSD-01	2-MSD-106-A	1B-2	6	1	1	N/A	23
MSD	2-MSD-01	2-MSD-106-A	1B-3	6	1	1	N/A	23
MSD	2-MSD-01	2-MSD-106-A	1B-3N	6	1	1	5/19/1997	29
MSD	2-MSD-01	2-MSD-106-A	1B-4	6	1	1	3/20/1995	25
MSD	2-MSD-01	2-MSD-106-A	1B-4P	6	1	1	3/8/1995	59
MSD	2-MSD-01	2-MSD-106-A	1B-5	6	1	1	3/21/1995	39
MSD	2-MSD-01	2-MSD-106-A	1B-5P	6	1	1	3/16/1995	45

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
MSD	2-MSD-01	2-MSD-106-A	1B-5R	6	1	1	3/15/1995	29
MSD	2-MSD-01	2-MSD-106-A	1B-6	6	1	1	N/A	23
MSD	2-MSD-01	2-MSD-106-A	1B-6P	6	1	1	3/7/1995	30
MSD	2-MSD-01	2-MSD-106-A	1B-7	6	1	1	N/A	23
MSD	2-MSD-01	2-MSD-106-A	1B-8	6	1	1	N/A	23
MSD	2-MSD-01	2-MSD-106-A	1B-9	6	1	1	N/A	23
MSD	2-MSD-01	2-MSD-106-A	1B-9P	6	1	1	3/2/1995	57
MST	2-MST-01	2-MST-019-A	217-10P	12	1	1	4/28/1997	36
MST	2-MST-01	2-MST-019-A	217-11P	12	1	1	4/28/1997	46
MST	2-MST-01	2-MST-019-A	217-11R	12	1	1	4/28/1997	50
MST	2-MST-01	2-MST-019-A	217-12E	12	1	1	4/28/1997	73
MST	2-MST-01	2-MST-019-A	217-12P	12	1	1	4/28/1997	53
MST	2-MST-01	2-MST-019-A	220-10E	12	1	1	5/10/2000	35
MST	2-MST-01	2-MST-019-A	220-10P US	12	1	1	5/11/2000	48
MST	2-MST-01	2-MST-019-A	220-13P DS	12	1	1	5/10/2000	50
MST	2-MST-01	2-MST-019-A	220-14E	12	1	1	5/10/2000	37
MST	2-MST-01	2-MST-019-A	220-14P US	12	1	1	5/10/2000	55
MST	2-MST-01	2-MST-019-A	220-1P DS	12	1	1	11/5/2002	59
MST	2-MST-01	2-MST-019-A	220-2E	12	1	1	11/5/2002	49
MST	2-MST-01	2-MST-019-A	220-2P US	12	1	1	11/5/2002	56
MST	2-MST-01	2-MST-019-A	220-9R	12	1	1	5/7/1997	42
MST	2-MST-01	2-MST-021-A	219-10P DS	12	1	1	10/1/2002	82
MST	2-MST-01	2-MST-021-A	219-11E	12	1	1	10/1/2002	62
MST	2-MST-01	2-MST-021-A	219-11P US	12	1	1	10/1/2002	37
MST	2-MST-01	2-MST-021-A	219-13P	12	1	1	5/12/2000	37
MST	2-MST-01	2-MST-021-A	219-14E	12	1	1	5/12/2000	43
MST	2-MST-01	2-MST-021-A	219-14P	12	1	1	5/12/2000	49
MST	2-MST-01	2-MST-021-A	219-15N	12	1	1	5/12/2000	47
MST	2-MST-01	2-MST-021-A	219-7P DS	12	1	1	5/12/2000	59
MST	2-MST-01	2-MST-021-A	219-7P US	12	1	1	5/7/1997	56
MST	2-MST-01	2-MST-021-A	219-7R	12	1	1	5/7/1997	32
MST	2-MST-01	2-MST-021-A	219-8E	12	1	1	5/12/2000	50
MST	2-MST-01	2-MST-021-A	219-8P US	12	1	1	5/12/2000	31
MST	2-MST-01	2-MST-021-A	226-7P DS	12	1	1	3/15/2000	59
MST	2-MST-01	2-MST-021-A	226-7P US	12	1	1	4/28/1997	33
MST	2-MST-01	2-MST-021-A	226-7R	12	1	1	4/28/1997	61
MST	2-MST-01	2-MST-021-A	226-8E	12	1	1	3/15/2000	67
MST	2-MST-01	2-MST-021-A	226-8P DS	12	1	1	3/17/2000	69
MST	2-MST-01	2-MST-021-A	226-8P US	12	1	1	3/15/2000	66
MST	2-MST-01	2-MST-021-A	226-9E	12	1	1	3/17/2000	67
MST	2-MST-01	2-MST-021-A	226-9N	12	1	1	3/17/2000	54
MST	2-MST-01	2-MST-023-A	218-9R	12	1	1	4/30/1997	46
MST	2-MST-01	2-MST-023-A	225-14R	12	1	1	5/7/1997	91
MST	2-MST-01	2-MST-023-A	225-15P US	12	1	1	5/7/1997	52
AF	2-AF-01	2-AF-022	DS of Valve AF138	2.5	1	2	10/26/2002	21

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
AS	2-AS-03	2-AS-003	280-8P US	8	1	2	5/19/2000	72
BD	2-BD-01	2-BD-019	SGBTV-2E	18	1	2	11/4/2002	65
BD	2-BD-01	2-BD-019	SGBTV-2E US Pipe	18	1	2	11/4/2002	83
EX	2-5EX-01	2-5EX-128	267-29E	N/A	1	2	10/23/2004	82
EX	2-5EX-01	2-5EX-128	267-30P	N/A	1	2	10/23/2004	53
EX	2-5EX-01	2-5EX-128	267-31R	N/A	1	2	6/3/1997	42
EX	2-5EX-01	2-5EX-128	267-32E	N/A	1	2	6/3/1997	68
EX	2-5EX-01	2-5EX-128	267-33P	N/A	1	2	6/3/1997	27
EX	2-5EX-01	2-5EX-128	267-6E1	N/A	1	2	6/6/1997	35
EX	2-5EX-01	2-5EX-128	267-6P DS	N/A	1	2	6/6/1997	38
EX	2-5EX-01	2-5EX-128	267-6T	N/A	1	2	6/6/1997	28
GS	2-GS-01	2-GS-002	263-24R	10	1	2	6/9/1997	55
GS	2-GS-01	2-GS-002	263-25P US	10	1	2	6/9/1997	51
GS	2-GS-01	2-GS-016	262-17P DS	6	1	2	6/3/1997	93
GS	2-GS-01	2-GS-016	262-18T	6	1	2	6/3/1997	33
GS	2-GS-01	2-GS-016	262-19R	6	1	2	6/3/1997	67
GS	2-GS-01	2-GS-016	262-33P US	6	1	2	6/3/1997	99
GS	2-GS-01	2-GS-016	3EX-TELO-23P DS	6	1	2	5/7/1997	77
GS	2-GS-01	2-GS-016	3EX-TELO-24	6	1	2	5/7/1997	67
GS	2-GS-01	2-GS-016	3EX-TELO-25P US	6	1	2	5/7/1997	89
GS	2-GS-01	2-GS-020	262-20E	4	1	2	6/3/1997	62
GS	2-GS-01	2-GS-020	3EX-TELO9	4	1	2	3/19/1995	26
GS	2-GS-01	2-GS-020	3EX-TELO9P	4	1	2	3/19/1995	76
GS	2-GS-01	2-GS-021	3EX-TELO2	4	1	2	3/25/1995	48
GS	2-GS-01	2-GS-032	3EX-TELO14P	3	1	2	N/A	23
GS	2-GS-01	2-GS-032	3EX-TELO15	3	1	2	N/A	23
GS	2-GS-01	2-GS-032	3EX-TELO15P	3	1	2	N/A	23
GS	2-GS-01	2-GS-034	3EX-TELO3P	3	1	2	N/A	23
GS	2-GS-01	2-GS-034	3EX-TELO4	3	1	2	N/A	23
GS	2-GS-01	2-GS-034	3EX-TELO4P	3	1	2	N/A	23
GS	2-GS-01	2-GS-034	3EX-TELO8	3	1	2	N/A	23
GS	2-GS-01	2-GS-036	3EX-TELO16P	6	1	2	N/A	23
GS	2-GS-01	2-GS-036	3EX-TELO17	6	1	2	N/A	23
GS	2-GS-01	2-GS-036	3EX-TELO17P	6	1	2	N/A	23
GS	2-GS-01	2-GS-041	215-14R	3	1	2	4/28/1997	31
GS	2-GS-01	2-GS-041	215-15P US	3	1	2	4/23/1997	39
GS	2-GS-01	2-GS-041	215-15T	3	1	2	4/23/1997	57
HD	2-1HD-02	2-1HD-021	212-1E	6	1	2	4/21/1997	44
HD	2-1HD-02	2-1HD-021	212-1P US	6	1	2	4/21/1997	46
HD	2-1HD-02	2-1HD-022	212-2P US	6	1	2	4/18/1997	33
HD	2-1HD-02	2-1HD-023	212-3P US	6	1	2	4/18/1997	41
HD	2-1HD-02	2-1HD-024	221-10P DS	5	1	2	4/25/1997	58
HD	2-1HD-02	2-1HD-024	221-11E	5	1	2	4/25/1997	52

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
HD	2-1HD-02	2-1HD-024	221-12E	5	1	2	4/25/1997	47
HD	2-1HD-02	2-1HD-024	221-13P US	5	1	2	4/25/1997	59
HD	2-1HD-02	2-1HD-025	247-1N	5	1	2	5/10/1997	56
HD	2-1HD-02	2-1HD-025	247-2P US	5	1	2	5/10/1997	68
HD	2-1HD-02	2-1HD-026	286-3P DS	5	1	2	10/10/2002	48
HD	2-1HD-02	2-1HD-026	286-5P US	5	1	2	10/10/2002	64
HD	2-1HD-02	2-1HD-026	286-HV21C-1E	5	1	2	10/10/2002	53
HD	2-2HD-02	2-2HD-019	209-1E	6	1	2	4/14/1997	46
HD	2-2HD-02	2-2HD-019	209-1P US	6	1	2	4/14/1997	36
HD	2-2HD-02	2-2HD-020	209-3E	6	1	2	4/18/1997	43
HD	2-2HD-02	2-2HD-020	209-3P US	6	1	2	4/18/1997	42
HD	2-2HD-02	2-2HD-021	209-5E	6	1	2	4/14/1997	37
HD	2-2HD-02	2-2HD-021	209-5P US	6	1	2	4/14/1997	30
HD	2-2HD-02	2-2HD-023	246-17P DS	2.5	1	2	5/22/1997	52
HD	2-2HD-02	2-2HD-023	246-18E	2.5	1	2	5/22/1997	40
HD	2-2HD-02	2-2HD-023	246-19P US	2.5	1	2	5/22/1997	66
HD	2-2HD-02	2-2HD-023	246-1N	2.5	1	2	5/14/1997	51
HD	2-2HD-02	2-2HD-023	246-21P DS	2.5	1	2	5/27/1997	42
HD	2-2HD-02	2-2HD-023	246-22E	2.5	1	2	5/27/1997	28
HD	2-2HD-02	2-2HD-023	246-23P US	2.5	1	2	5/27/1997	34
HD	2-2HD-02	2-2HD-023	246-2P	2.5	1	2	5/14/1997	66
HD	2-2HD-02	2-2HD-023	246-3E	2.5	1	2	5/14/1997	20
HD	2-2HD-02	2-2HD-023	246-4P DS	2.5	1	2	5/21/1997	70
HD	2-2HD-02	2-2HD-023	246-5E	2.5	1	2	5/21/1997	42
HD	2-2HD-02	2-2HD-023	246-6P DS	2.5	1	2	5/21/1997	66
HD	2-2HD-02	2-2HD-023	246-6P US	2.5	1	2	5/21/1997	66
HD	2-2HD-02	2-2HD-023	246-7E	2.5	1	2	5/21/1997	26
HD	2-2HD-02	2-2HD-024	229-10E	2.5	1	2	5/22/1997	24
HD	2-2HD-02	2-2HD-024	229-10P DS	2.5	1	2	4/30/1997	38
HD	2-2HD-02	2-2HD-024	229-10P US	2.5	1	2	5/22/1997	54
HD	2-2HD-02	2-2HD-024	229-11E	2.5	1	2	4/30/1997	20
HD	2-2HD-02	2-2HD-024	229-11P US	2.5	1	2	4/30/1997	34
HD	2-2HD-02	2-2HD-024	229-2P DS	2.5	1	2	5/22/1997	52
HD	2-2HD-02	2-2HD-024	229-3E	2.5	1	2	5/22/1997	26
HD	2-2HD-02	2-2HD-024	229-3P	2.5	1	2	5/22/1997	48
HD	2-2HD-02	2-2HD-024	229-4E	2.5	1	2	5/22/1997	34
HD	2-2HD-02	2-2HD-024	229-6E	2.5	1	2	5/22/1997	34
HD	2-2HD-02	2-2HD-024	229-6P US	2.5	1	2	5/22/1997	44
HD	2-2HD-02	2-2HD-024	229-9P DS	2.5	1	2	5/22/1997	40
MS	2-MS-01	2-MS-036-B	252-2T	3	1	2	5/12/1997	40
MS	2-MS-01	2-MS-036-B	252-3T	3	1	2	5/12/1997	35
MS	2-MS-01	2-MS-036-B	252-4P US	3	1	2	5/12/1997	27
MS	2-MS-01	2-MS-036-B	252-5E	3	1	2	4/1/2008	34
MS	2-MS-01	2-MS-036-B	252-7E	3	1	2	4/1/2008	35
MS	2-MS-01	2-MS-036-B	252-9P DS	3	1	2	5/14/1997	41
MS	2-MS-01	2-MS-036-B	252-9T	3	1	2	5/14/1997	33

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
MS	2-MS-01	2-MS-076	275-10P DS	3	1	2	3/18/2000	35
MS	2-MS-01	2-MS-076	275-10P US	3	1	2	11/6/2002	37
MS	2-MS-01	2-MS-076	275-11E	3	1	2	3/18/2000	74
MS	2-MS-01	2-MS-076	275-12P DS	3	1	2	3/18/2000	57
MS	2-MS-01	2-MS-076	275-12P US	3	1	2	3/18/2000	44
MS	2-MS-01	2-MS-076	275-13E	3	1	2	3/18/2000	60
MS	2-MS-01	2-MS-076	275-14N	3	1	2	3/18/2000	28
MS	2-MS-01	2-MS-076	275-8P DS	3	1	2	11/6/2002	72
MS	2-MS-01	2-MS-076	275-9E	3	1	2	11/6/2002	66
MS	2-MS-01	2-MS-076	276-1N	3	1	2	5/18/2000	99
MS	2-MS-01	2-MS-076	276-1P	3	1	2	5/18/2000	70
MS	2-MS-01	2-MS-079	235-2E	3	1	2	4/26/2006	95
MS	2-MS-01	2-MS-079	235-3P DS	3	1	2	5/9/1997	49
MS	2-MS-01	2-MS-079	235-4E	3	1	2	5/9/1997	66
MS	2-MS-01	2-MS-079	235-5P DS	3	1	2	5/9/1997	33
MS	2-MS-01	2-MS-079	235-5P US	3	1	2	5/9/1997	23
MS	2-MS-01	2-MS-079	235-6E	3	1	2	5/9/1997	82
MS	2-MS-01	2-MS-079	235-7P	3	1	2	5/9/1997	32
MS	2-MS-07	2-MS-188-B	263-17E	12	1	2	6/2/1997	48
MS	2-MS-07	2-MS-188-B	263-18P	12	1	2	6/2/1997	47
MS	2-MS-07	2-MS-188-B	263-19R	12	1	2	6/2/1997	25
MS	2-MS-07	2-MS-189-B	263-5P US	12	1	2	9/27/2002	58
MS	2-MS-07	2-MS-189-B	263-6R	12	1	2	10/26/2002	42
MS	2-MS-07	2-MS-191	263-21P DS	12	1	2	6/9/1997	60
MS	2-MS-07	2-MS-191	263-22T	12	1	2	6/9/1997	45
MS	2-MS-07	2-MS-191	263-23P US	12	1	2	6/9/1997	35
MSD	2-MSD-02	2-MSD-145	MS-1A1	2.5	1	2	4/26/2006	99
MSD	2-MSD-02	2-MSD-145	MS-1A1P	2.5	1	2	4/26/2006	70
MSD	2-MSD-02	2-MSD-145	MS-1A2	2.5	1	2	11/19/2004	99
MSD	2-MSD-02	2-MSD-145	MS-1A2P	2.5	1	2	4/26/2006	52
MSD	2-MSD-02	2-MSD-145	MS-1A3P US	2.5	1	2	9/25/2002	64
MSD	2-MSD-02	2-MSD-146	MS-2A3P	2.5	1	2	N/A	23
MSD	2-MSD-02	2-MSD-146	MS-2A4	2.5	1	2	N/A	23
MSD	2-MSD-02	2-MSD-146	MS-2A4P	2.5	1	2	N/A	23
MSD	2-MSD-02	2-MSD-148	MS-1B2	2.5	1	2	4/13/2000	31
MSD	2-MSD-02	2-MSD-148	MS-1B2P DS	2.5	1	2	4/13/2000	77
MSD	2-MSD-02	2-MSD-148	MS-1B3P US	2.5	1	2	4/13/2000	42
MSD	2-MSD-02	2-MSD-149	MS-2B1	2.5	1	2	4/26/2006	91
MSD	2-MSD-02	2-MSD-149	MS-2B1N	2.5	1	2	4/26/2006	99
MSD	2-MSD-02	2-MSD-149	MS-2B2	2.5	1	2	4/26/2006	93
MSD	2-MSD-02	2-MSD-149	MS-2B2P	2.5	1	2	4/26/2006	99
MSD	2-MSD-02	2-MSD-149	MS-2B3	2.5	1	2	4/26/2006	99
MSD	2-MSD-02	2-MSD-149	MS-2B4	2.5	1	2	4/26/2006	99
MSD	2-MSD-02	2-MSD-149	MS-2B4N	2.5	1	2	4/26/2006	80
MSD	2-MSD-02	2-MSD-149	MS-2B4R	2.5	1	2	4/26/2006	99
MSD	2-MSD-02	2-MSD-150	MS-3B4	2.5	1	2	5/24/1997	46

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
MSD	2-MSD-02	2-MSD-150	MS-3B4P	2.5	1	2	5/24/1997	99
MSD	2-MSD-02	2-MSD-175	MS-1A25R	8	1	2	3/17/1995	87
MSD	2-MSD-02	2-MSD-175	MS-1A27P DS	8	1	2	N/A	23
MSD	2-MSD-02	2-MSD-175	MS-1A33	8	1	2	3/18/1995	33
MSD	2-MSD-02	2-MSD-175	MS-1A33P DS	8	1	2	3/18/1995	35
MSD	2-MSD-02	2-MSD-175	MS-1A33P US	8	1	2	3/18/1995	36
MSD	2-MSD-02	2-MSD-175	MS-1A34	8	1	2	3/18/1995	27
MSD	2-MSD-02	2-MSD-175	MS-1A34P-1	8	1	2	4/17/1997	38
MSD	2-MSD-02	2-MSD-175	MS-1A34P-2	8	1	2	3/18/1995	33
MSD	2-MSD-02	2-MSD-175	MS-1A34R-2	8	1	2	4/28/1997	37
MSD	2-MSD-02	2-MSD-176	MS-2A26	8	1	2	3/17/1995	30
MSD	2-MSD-02	2-MSD-176	MS-2A26P	8	1	2	3/17/1995	45
MSD	2-MSD-02	2-MSD-176	MS-2A26P-1 DS	8	1	2	2/5/1995	49
MSD	2-MSD-02	2-MSD-176	MS-2A26P-1 US	8	1	2	3/17/1995	48
MSD	2-MSD-02	2-MSD-176	MS-2A27	8	1	2	3/16/1995	34
MSD	2-MSD-02	2-MSD-176	MS-2A27P DS	8	1	2	2/5/1995	34
MSD	2-MSD-02	2-MSD-176	MS-2A27P US	8	1	2	3/16/1995	38
MSD	2-MSD-02	2-MSD-176	MS-2A28	8	1	2	3/17/1995	34
MSD	2-MSD-02	2-MSD-176	MS-2A28P	8	1	2	3/16/1995	41
MSD	2-MSD-02	2-MSD-176	MS-2A28P DS	8	1	2	N/A	23
MSD	2-MSD-02	2-MSD-176	MS-2A29	8	1	2	3/16/1995	25
MSD	2-MSD-02	2-MSD-176	MS-2A29P	8	1	2	3/16/1995	46
MSD	2-MSD-02	2-MSD-176	MS-2A30	8	1	2	3/17/1995	43
MSD	2-MSD-02	2-MSD-176	MS-2A30P DS	8	1	2	3/16/1995	45
MSD	2-MSD-02	2-MSD-176	MS-2A30P US	8	1	2	2/5/1995	42
MSD	2-MSD-02	2-MSD-176	MS-2A31	8	1	2	3/16/1995	52
MSD	2-MSD-02	2-MSD-176	MS-2A31P	8	1	2	3/18/1995	50
MSD	2-MSD-02	2-MSD-176	MS-2A32	8	1	2	3/18/1995	23
MSD	2-MSD-02	2-MSD-176	MS-2A32P	8	1	2	3/18/1995	34
MSD	2-MSD-02	2-MSD-176	MS-2A33	8	1	2	3/27/2008	32
MSD	2-MSD-02	2-MSD-176	MS-2A33P	8	1	2	3/19/1995	39
MSD	2-MSD-02	2-MSD-176	MS-2A33R	8	1	2	4/28/1997	48
MSD	2-MSD-02	2-MSD-176	MS-2A34	8	1	2	3/27/2008	26
MSD	2-MSD-02	2-MSD-176	MS-2A34P	8	1	2	3/18/1995	42
MSD	2-MSD-02	2-MSD-177	MS-3A28	8	1	2	N/A	20
MSD	2-MSD-02	2-MSD-177	MS-3A28R	8	1	2	4/28/1997	33
MSD	2-MSD-02	2-MSD-177	MS-3A29	8	1	2	N/A	20
MSD	2-MSD-02	2-MSD-177	MS-3A29P	8	1	2	11/2/2002	89
MSD	2-MSD-02	2-MSD-177	MS-3A30N	8	1	2	11/2/2002	30
MSD	2-MSD-02	2-MSD-178	MS-1B41P	6	1	2	4/16/1997	41
MSD	2-MSD-02	2-MSD-178	MS-1B41R	6	1	2	4/28/1997	33
MSD	2-MSD-02	2-MSD-178	MS-1B42P	6	1	2	4/15/1997	31
MSD	2-MSD-02	2-MSD-179	MS-2B27P	6	1	2	3/27/1995	51
MSD	2-MSD-02	2-MSD-179	MS-2B56	6	1	2	3/27/1995	25
MSD	2-MSD-02	2-MSD-179	MS-2B62P	6	1	2	4/15/1997	34
MSD	2-MSD-02	2-MSD-179	MS-2B62R	6	1	2	4/28/1997	42

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
MSD	2-MSD-02	2-MSD-180	MS-3B44P	6	1	2	4/16/1997	30
MSD	2-MSD-02	2-MSD-180	MS-3B44P1	6	1	2	5/15/1997	38
MSD	2-MSD-02	2-MSD-180	MS-3B44R	6	1	2	5/15/1997	54
SB	2-SB-01	2-SB-030	284-7R	8	1	2	5/11/2000	23
UH	2-UH-01	2-UH-003	282-22P DS	10	1	2	5/19/2000	79
UH	2-UH-01	2-UH-003	282-23T	10	1	2	5/19/2000	30
UH	2-UH-01	2-UH-003	282-24R	10	1	2	5/19/2000	61
UH	2-UH-01	2-UH-003	282-31P	10	1	2	5/19/2000	51
UH	2-UH-01	2-UH-003	283-20R	10	1	2	5/15/2000	22
UH	2-UH-01	2-UH-003	283-21P US	10	1	2	5/15/2000	52
UH	2-UH-01	2-UH-003	283-6P DS	10	1	2	5/15/2000	64
UH	2-UH-01	2-UH-003	283-7T	10	1	2	5/15/2000	34
UH	2-UH-01	2-UH-003	283-8R	10	1	2	5/15/2000	39
UH	2-UH-01	2-UH-003	283-9P US	10	1	2	5/15/2000	53
UH	2-UH-01	2-UH-071	281-11P US	6	1	2	4/26/2000	64
UH	2-UH-01	2-UH-071	281-12E	6	1	2	4/26/2000	66
UH	2-UH-01	2-UH-071	281-13P DS	6	1	2	4/26/2000	68
UH	2-UH-01	2-UH-071	281-2P US	6	1	2	4/26/2000	87
UH	2-UH-01	2-UH-071	281-3E	6	1	2	4/26/2000	93
UH	2-UH-01	2-UH-071	281-4P	6	1	2	4/26/2000	41
MS	2-MS-01	2-MS-011-A	259-15E	4	1	3	4/1/2008	54
MS	2-MS-01	2-MS-011-A	259-16P US	4	1	3	5/8/1997	39
MS	2-MS-01	2-MS-012-A	254-15E	4	1	3	4/9/2008	34
MS	2-MS-01	2-MS-012-A	254-16P US	4	1	3	5/8/1997	59
MS	2-MS-01	2-MS-012-A	254-20P DS	4	1	3	5/6/2000	49
MS	2-MS-01	2-MS-012-A	254-21E	4	1	3	5/6/2000	53
MS	2-MS-01	2-MS-012-A	254-22P US	4	1	3	5/6/2000	48
MS	2-MS-01	2-MS-013-A	259-10P US	4	1	3	2/16/2000	37
MS	2-MS-01	2-MS-013-A	259-3E	4	1	3	5/8/1997	69
MS	2-MS-01	2-MS-013-A	259-4P US	4	1	3	5/9/1997	34
MS	2-MS-01	2-MS-013-A	259-8P DS	4	1	3	2/16/2000	40
MS	2-MS-01	2-MS-013-A	259-9E	4	1	3	4/8/2008	20
MS	2-MS-01	2-MS-014-A	254-10P US	4	1	3	N/A	23
MS	2-MS-01	2-MS-014-A	254-3E	4	1	3	4/3/2008	41
MS	2-MS-01	2-MS-014-A	254-4P US	4	1	3	5/7/1997	45
MS	2-MS-01	2-MS-014-A	254-7E	4	1	3	11/12/2002	38
MS	2-MS-01	2-MS-014-A	254-8P DS	4	1	3	N/A	23
MS	2-MS-01	2-MS-014-A	254-9E	4	1	3	3/24/2010	32
MS	2-MS-01	2-MS-017	251-12E	8	1	3	5/20/1997	58
MS	2-MS-01	2-MS-017	251-13P US	8	1	3	5/20/1997	40
MS	2-MS-01	2-MS-018	251-21P	8	1	3	5/20/1997	46
MS	2-MS-01	2-MS-018	251-22E	8	1	3	5/20/1997	93
MS	2-MS-01	2-MS-018	251-23P US	8	1	3	5/20/1997	46
MS	2-MS-01	2-MS-034	248-12P DS	4	1	3	5/7/1997	50
MS	2-MS-01	2-MS-034	248-13T	4	1	3	10/23/2004	30
MS	2-MS-01	2-MS-034	248-16P US	4	1	3	5/7/1997	27

System	Subsystem	Line Number	Component	Line Size (in)	F	S	Last Inspection	NSI
MS	2-MS-01	2-MS-035	252-10P US	6	1	3	5/14/1997	40
MS	2-MS-01	2-MS-035	252-10T	6	1	3	5/13/1997	39
MS	2-MS-01	2-MS-035	252-11P	6	1	3	5/15/1997	52

Table E.2 below lists all large bore replacements from *FAC Manager Web Edition* Components that have been associated with an SNM Line. If the component is not linked to an SNM line in *FAC Manager* it will not appear in this table. Components may be missing from this table due to the lack of this link. The table is sorted by relative susceptibility, then alphabetically by System, Subsystem, Line, and Component.

Table E.2 Large Bore SNM Replacements from FAC Manager

System	Subsystem	Line Number	Component	Line Size	F	S	Install Date
EST	2-1EST-01	2-1EST-013-B	EST-14	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-14P	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-15	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-20P US	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-21	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-21P DS	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-21P US	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-22	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-22P	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-23P	4	1	1	6/30/1997
EST	2-1EST-01	2-1EST-013-B	EST-24	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-24P	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-29P	4	1	1	6/30/1997
EST	2-1EST-01	2-1EST-013-B	EST-30A	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-30AP	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-30B	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-30P DS	4	1	1	6/30/1997
EST	2-1EST-01	2-1EST-013-B	EST-31	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-31P DS	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-31P US	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-31P-1	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-013-B	EST-31T	4	1	1	4/28/1997
EST	2-1EST-01	2-1EST-014	EST-1T	6	1	1	4/28/1997
HD	2-3HD-02	2-3HD-039	223-9R	3	1	1	10/26/2002
HD	2-3HD-02	2-3HD-042	223-10P DS	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-042	223-10P US	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-042	223-10T	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-042	223-11T	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-11P US	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-13P DS	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-14E	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-14P DS	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-14P US	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-15E	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-15P DS	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-15P US	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-16E	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-16P DS	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-16P US	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-17E	4	1	1	10/26/2002

System	Subsystem	Line Number	Component	Line Size	F	S	Install Date
HD	2-3HD-02	2-3HD-043	223-17P DS	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-17P US	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-18E	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-18P	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-19E	4	1	1	10/26/2002
HD	2-3HD-02	2-3HD-043	223-19P US	4	1	1	10/26/2002
HD	2-5HD-03	2-5HD-061-B	5EXC-27P	8	1	1	2/16/2000
HD	2-2HD-02	2-2HD-023	246-17P DS	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-023	246-18E	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-023	246-19P US	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-023	246-21P DS	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-023	246-22E	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-023	246-23P US	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-023	246-2P	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-023	246-3E	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-023	246-4P DS	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-023	246-5E	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-023	246-6P DS	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-023	246-6P US	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-023	246-7E	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-024	229-10E	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-024	229-10P DS	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-024	229-10P US	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-024	229-11E	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-024	229-11P US	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-024	229-2P DS	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-024	229-3E	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-024	229-3P	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-024	229-4E	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-024	229-6E	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-024	229-6P US	2.5	1	2	2/16/2000
HD	2-2HD-02	2-2HD-024	229-9P DS	2.5	1	2	2/16/2000
SB	2-SB-01	2-SB-030	284-7R	8	N/A	N/A	7/1/1997
N/A	N/A	N/A	4EXA-12P	20	N/A	N/A	10/26/2002
N/A	N/A	N/A	4EXA-14	20	N/A	N/A	10/26/2002
N/A	N/A	N/A	4EXB-13P	20	N/A	N/A	10/26/2002
N/A	N/A	N/A	4EXB-14P	20	N/A	N/A	10/26/2002
N/A	N/A	N/A	4EXB-9P DS	20	N/A	N/A	10/26/2002
N/A	N/A	N/A	4EXB-9P US	20	N/A	N/A	10/26/2002
N/A	N/A	N/A	FWH-22C	54.75	N/A	N/A	5/8/2000
N/A	N/A	N/A	FWH-23B-1	53.875	N/A	N/A	5/8/2000
N/A	N/A	N/A	FWH-23C 1N	53.875	N/A	N/A	5/8/2000
N/A	N/A	N/A	FWH-23C 2N	53.875	N/A	N/A	5/8/2000
N/A	N/A	N/A	MPSD1	6	N/A	N/A	2/14/1986
N/A	N/A	N/A	MPSD10	10	N/A	N/A	2/14/1986
N/A	N/A	N/A	MPSD11	10	N/A	N/A	2/14/1986
N/A	N/A	N/A	MPSD12	10	N/A	N/A	2/14/1986

System	Subsystem	Line Number	Component	Line Size	F	S	Install Date
N/A	N/A	N/A	MPSD2	6	N/A	N/A	2/14/1986
N/A	N/A	N/A	MPSD3	10	N/A	N/A	2/14/1986
N/A	N/A	N/A	MPSD4	10	N/A	N/A	2/14/1986
N/A	N/A	N/A	MPSD5	10	N/A	N/A	2/14/1986
N/A	N/A	N/A	MPSD6	10	N/A	N/A	2/14/1986
N/A	N/A	N/A	MPSD7	10	N/A	N/A	2/14/1986
N/A	N/A	N/A	MPSD8	10	N/A	N/A	2/14/1986
N/A	N/A	N/A	MPSD9	10	N/A	N/A	2/14/1986