FENOC
FirstEnergy Nuclear Operating Company

Beaver Valley Power Station
Route 168
P.O. Box 4
Shippingport, PA 15077-0004

Lew W. Myers
Senior Vice President

724-682-5234
Fax: 724-643-8069

October 4, 2001
L-01-126

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Subject: Beaver Valley Power Station, Unit No. 2
Docket No. 50-412, License No. NPF-73
Updated Inservice Testing Program, Issue 2, Revision 4

The purpose of this submittal is to provide the Nuclear Regulatory Commission (NRC) with an informational copy of revisions to the Beaver Valley Power Station Unit 2 (BVPS-2) Inservice Testing (IST) Program.

Enclosure 1 provides a summary of the IST program changes which have been incorporated into Issue 2, Revision 4.

Enclosure 2 is Issue 2, Revision 4 of the BVPS-2 IST Program. It has been determined that the Revision 4 IST program changes do not require NRC approval prior to implementation. This determination was based on the fact that all of the changes are either:

- in accordance with the ASME/ANSI Operations and Maintenance Standard Parts 6 and 10 (OM-6 and OM-10), or
- in compliance with the positions delineated in Attachment 1 and Supplement 1 of Generic Letter No. 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," or
- editorial in nature.

A047

If you have any questions regarding this submittal, please contact Mr. Thomas S. Cosgrove, Manager, Regulatory Affairs at 724-682-5203.

Sincerely,

Lew W. Myers

c: Mr. L. J. Burkhart, Project Manager
Mr. D. M. Kern, Sr. Resident Inspector
Mr. H. J. Miller, NRC Region I Administrator

ENCLOSURE 1

SUMMARY OF CHANGES TO THE BVPS-2 IST PROGRAM (ISSUE 2, REV. 4)

I. The following changes made to the Unit 2 IST Program are in accordance with ASME/ANSI Operations and Maintenance Standards, Parts 6 and 10 (OM-6 and OM-10) and Generic Letter 89-04, including Supplement 1 (NUREG-1482):

A. Deleted the full flow testing requirements for the Charging Pumps [2CHS*P21A, B and C], LHSI Pumps [2SIS*P21A and B] and Motor-Driven Auxiliary Feedwater Pumps [2FWE*P23A and B] from the BVPS-2 IST Program because it is not a requirement of the 1989 Edition of the ASME XI Code (ASME/ANSI OM-6). These pumps are already being tested for ASME XI under recirculation flow conditions quarterly. Full flow testing for each pump was previously included in the BVPS-2 IST Program to be consistent with BVPS-1, which was required to perform full flow testing during cold shutdowns and/or refueling outages in accordance with Position 9 of Generic Letter No. 89-04, due to lack of flow instrumentation in the flow path used in the quarterly recirculation flow tests. Since BVPS-2 has flow instrumentation in the flow paths used in the quarterly recirculation flow tests, additional testing through an alternate (i.e., full flow) flow path with instrumented lines is not required. Note, however, that each pump will continue to be run at full flow conditions in order to verify the full-stroke exercising requirements of ASME XI for associated system check valves. Note that a similar change was made for the Turbine-Driven Auxiliary Feedwater Pump [2FWE*P22] in Partial Revision 3B. Based on deletion of full flow testing per above, Pump Relief Request No. 2 was also revised accordingly to delete mention of any full flow testing for these pumps. (Pages 10-12, 17-18, 30-32 and 48-49)

B. Revised Valve Refueling Outage Justification (VROJ2) for Charging Pump Discharge Check Valves [2CHS*22, 23 and 24] to include a discussion about closure testing. During quarterly pump testing at recirculation flow, the non-running pumps' discharge check valves are verified to be closed when pump delta-p is verified greater than the minimum operating point (MOP) curve. During refueling outage pump testing at full flow conditions, the non-running pumps' discharge check valves are similarly verified to be closed and sufficiently leak tight so as not to affect the pump's performance against minimum system requirements to perform its safety function. This is permitted per ASME/ANSI OM-10, Paragraph 4.3.2.2. The Valve Outline sheet for [2CHS*22, 23 and 24] was also revised to reference VROJ2 and full-stroke reverse direction testing per 2OST-11.14B at refueling outages. (Pages 98 and 200-201)

C. Revised the leakage monitoring testing requirements for SI Check Valves [2SIS*545, 546, 547, 548, 550 and 552] to only require testing when maximum d/p conditions exist during shutdowns and startups from a refueling outage. Noted that "some" of these check valves may also be additionally monitored when maximum d/p conditions exist during cold shutdown(s) when RCP(s) are shutdown and started up in the course of normal plant shutdown and startup. This will eliminate the need to cycle RCPs on and off in order to test all of the

check valves during startups from cold shutdowns. However, cycling the RCPs will still be a requirement during startups from a refueling outage so that testing of all six check valves is completed within the minimum testing frequency requirement of once every 2 years per ASME/ANSI OM-10, Paragraph 4.2.2. (Page 110)

II. The following change made to the Unit 2 IST Program is editorial in nature:

A. Revised the surveillance tests referenced for stroking & timing [2MSS*SOV105A-F] to also include 2OST-24.4A. (Page 131)

III. The following changes were made in Partial Revisions 3A and 3B and are in accordance with ASME/ANSI Operations and Maintenance Standards, Parts 6 and 10 (OM-6 and OM-10) and Generic Letter 89-04, including Supplement 1 (NUREG-1482):

A. Partial Revision 3A deleted the Train "A" and "B" Main Steam Valve Area Cooler Supply Line Check Valves [2SWS*1103 and 1104] and VROJ48 from the BVPS-2 IST Program following permanent removal of the check valves from the system per DCP-2385 during the 8th Refueling Outage. (Pages 144 and 261)

B. Partial Revision 3B deleted the full flow testing requirements for the Turbine-Driven Auxiliary Feedwater Pump [2FWE*P22] from the BVPS-2 IST Program because it is not a requirement of the 1989 Edition of the ASME XI Code (ASME/ANSI OM-6). (See Item I.A. above for additional justification.) (Page 30)

ENCLOSURE 2

BVPS-2 IST Program (Revision 4)

BEAVER VALLEY POWER STATION

Unit 2

Inservice Testing (IST) Program For Pumps And Valves

Revision 4

Preparer	Date: 4/10/01
OSC Meeting # BV-OSC-16-01	Date: 4/17/01
Owner Approval	Date: 5/3/01
Approval Authority	Date: 5-8-01

Effective Date of Procedure 5/15/01

List of Effective Pages

Page	Revision	Page	Revision
i	4	47	4
ii	4	48	4
iii	4	49	4
1	4	50	4
2	4	51	4
3	4	52	4
4	4	53	4
5	4	54	4
6	4	55	4
7	4	56	4
8	4	57	4
9	4	58	4
10	4	59	4
11	4	60	4
12	4	61	4
13	4	62	4
14	4	63	4
15	4	64	4
16	4	65	4
17	4	66	4
18	4	67	4
19	4	68	4
20	4	69	4
21	4	70	4
22	4	71	4
23	4	72	4
24	4	73	4
25	4	74	4
26	4	75	4
27	4	76	4
28	4	77	4
29	4	78	4
30	4	79	4
31	4	80	4
32	4	81	4
33	4	82	4
34	4	83	4
35	4	84	4
36	4	85	4
37	4	86	4
38	4	87	4
39	4	88	4
40	4	89	4
41	4	90	4
42	4	91	4
43	4	92	4
44	4	93	4
45	4	94	4
46	4	95	4

Page	Revision
96	4
97	4
98	4
99	4
100	4
101	4
102	4
103	4
104	4
105	4
106	4
107	4
108	4
109	4
110	4
111	4
112	4
113	4
114	4
115	4
116	4
117	4
118	4
119	4
120	4
121	4
122	4
123	4
124	4
125	4
126	4
127	4
128	4
129	4
130	4
131	4
132	4
133	4
134	4
135	4
136	4
137	4
138	4
139	4
140	4
141	4
142	4
143	4
144	4
145	4
146	4
147	4
148	4
149	4
150	4
151	4
152	4
153	4
154	4
155	4
156	4
157	4
158	4
159	4
160	4
161	4
162	4
163	4
164	4
165	4
166	4
167	4
168	4
169	4
170	4
171	4
172	4
173	4
174	4
175	4
176	4
177	4
178	4
179	4
180	4
181	4
182	4
183	4
184	4
185	4
186	4
187	4
188	4
189	4
190	4
191	4
192	4
193	4
194	4
195	4
196	4
197	4

Page	Revision
198	4
199	4
201	4
202	4
203	4
204	4
205	4
206	4
207	4
208	4
209	4
210	4
211	4
212	4
213	4
214	4
215	4
216	4
217	4
218	4
219	4
220	4
221	4
222	4
223	4
224	4
225	4
226	4
227	4
228	4
229	4
230	4
231	4
232	4
233	4
234	4
235	4
236	4

Page	Revision
237	4
238	4
239	4
240	4
241	4
242	4
243	4
244	4
245	4
246	4
247	4
248	4
249	4
250	4
251	4
252	4
253	4
254	4
255	4
256	4
257	4
258	4
259	4
260	4
261	4
262	4
263	4
264	4
265	4
266	4
267	4
268	4
269	4
270	4
270	4
272	4

Table Of Contents

SECTION I: PUMP TESTING REQUIREMENTS

The Inservice Testing (IST) Program for pumps at Beaver Valley Power Station (BVPS), Unit 2, is based on the following:

- American Society of Mechanical Engineers (ASME)/American National Standards Institute (ANSI) Operations and Maintenance (OM) Standard, Part 6, "Inservice Testing of Pumps in Light Water Reactor Power Plants" (OM-6), OMa-1988 addenda to the OM-1987 edition, in accordance with the ASME Boiler and Pressure Vessel Code, Section XI, 1989 edition (the Code).

- Generic Letter No. 89-04, "Guidance on Developing Acceptable Inservice Testing Programs".

- NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants".

The pumps included in this program are all ASME Class 1, 2, or 3 centrifugal and positive displacement pumps that are provided with an emergency power source, which are required in shutting down a reactor to the cold shutdown condition, maintaining the cold shutdown condition, or mitigating the consequences of an accident, at BVPS, Unit 2.

The requirements of the Code and Generic Letter No. 89-04 including Supplement 1 (NUREG-1482) will be followed at all times unless specific relief has been granted by the NRC. An inservice test, run quarterly, to measure or observe the test quantities listed in Table 2 of OM-6, below, is required for all pumps in the IST Program.

TABLE 2
INSERVICE TEST PARAMETERS

Quantity	Remarks
Speed: N	**If variable speed**
Differential Pressure: ΔP	**Centrifugal Pumps, including vertical line shaft pumps**
Discharge Pressure: P	**Positive Displacement Pumps**
Flow Rate: Q	
Vibration: Velocity, V_v	**Peak**

Table 3b of OM-6, below, shows the allowable ranges for test results that will be used to determine if corrective action is required following performance of BVPS-2 Surveillance Tests. The test data will be compared to the ranges applied to the reference values for each test quantity.

TABLE 3b
RANGES FOR TEST PARAMETERS (PRESSURES AND FLOWS)

Test Parameter	Acceptable Range	Alert Range		Required Action Range	
		Low	High	Low	High
P (Positive displacement pumps)	0.93 to 1.10P_r	0.90 to < .93P_r	—	< 0.90P_r	> 1.10P_r
ΔP (Vertical line shaft pumps)	0.95 to 1.10ΔP_r	0.93 to < .95ΔP_r	—	< 0.93ΔP_r	> 1.10ΔP_r
Q (Positive displacement vertical line shaft pumps)	0.95 to 1.10Q_r	0.93 to < .95Q_r	—	< 0.93Q_r	> 1.10Q_r
ΔP (Centrifugal pumps)	0.90 to 1.10ΔP_r	—	—	< 0.90ΔP_r	> 1.10ΔP_r
Q (Centrifugal pumps)	0.90 to 1.10Q_r	—	—	< 0.90Q_r	> 1.10Q_r

GENERAL NOTE: The subscript r denotes reference value.

The limits for vibration readings are taken from Table 3a of OM-6, below.

TABLE 3a[1]
RANGES FOR TEST PARAMETERS (VIBRATIONS)

Pump Type	Pump Speed	Test Parameter	Acceptable Range	Alert Range	Required Action Range
Centrifugal and vertical line shaft	≥600 rpm	V_v	≤ 2.5 V_r	> 2.5 V_r to 6 V_r or > 0.325 in./sec.	> 6 V_r or > 0.70 in./sec.
Reciprocating		V_v	≤ 2.5 V_r	> 2.5 V_r to 6 V_r	> 6 V_r

NOTES:
(1) Vibration parameter per Table 2. V_r is vibration reference value in in./sec.

Corrective action shall be taken if necessary using the following:

1. If deviations fall within the "Alert Range" of Tables 3a and 3b of OM-6, the frequency of testing shall be doubled until the cause of the deviation is determined and the condition corrected.

2. If the deviations fall within the "Required Action Range" of Tables 3a and 3b of OM-6, the pump shall be declared inoperable immediately until the cause of the deviation has been determined and the condition corrected. An evaluation of the pump's condition with respect to system operability and technical specifications shall also be made as follows:

   a. If the inoperable pump is specifically identified in the technical specifications, then the applicable technical specification action statements shall be followed.

b. If the inoperable pump is in a system covered by a technical specification, an assessment of its condition shall be made to determine if it makes the system inoperable. If the condition of the pump renders the system inoperable, then the applicable system technical specification action statements shall be followed.

c. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any technical specification.

3. When tests show deviations outside of the acceptable range of Table 3a or 3b of OM-6, the instruments involved may be recalibrated and the test rerun. This is an alternative to replacement or repair, not an additional action that can be taken before declaring the pump inoperable.

4. The pump shall not be returned to service until the condition has been corrected. The corrective action shall be considered completed when a satisfactory inservice test has been conducted in accordance with Paragraph 4.4 of OM-6.

Per Paragraph 5.6 of OM-6 each pump shall run at least 2 minutes under conditions as stable as the system permits prior to measurement of the specified parameters.

Utilization of a pump curve in the BVPS-2 IST Program for performing testing and establishing acceptance criteria requires specific relief approved by the NRC prior to usage. The following guidance provided by NUREG-1482, Section 5.2 relating to the use of a pump curve shall be followed:

1. A pump curve shall be developed, or manufacturer's pump curve validated, when the pump is known to be operating acceptably.

2. The reference points used to develop or validate a pump curve shall be measured using instruments at least as accurate (accuracy and range) as required by OM-6, Paragraphs 4.6.1.1 and 4.6.1.2.

3. A pump curve shall be based on an adequate number of reference points, with a minimum of five (5).

4. Sufficient reference points shall be beyond the "flat" portion (low flow rates) of the pump curve in a range which includes or is as close as practical to the design basis flow rate.

5. Acceptance criteria based on a pump curve shall not conflict with technical specifications or UFSAR operability criteria (minimum operating point/curve) for flow rate and differential pressure, for the affected pump.

6. If vibration levels vary significantly over the range of pump conditions, a method of assigning appropriate vibration acceptance criteria should be developed for regions of the pump curve.

7. When the reference pump curve may have been affected by repair, replacement, or routine servicing, a new reference pump curve shall be determined or the previous pump curve revalidated by an inservice test.

Manufacturer supplied skid-mounted pumps which are integral sub-components of, and are required to support operation of a parent pump or other component, are often times not designed to be tested in accordance with the ASME XI Code, regardless of their ASME Code class. Therefore, ASME Code class manufacturer supplied skid-mounted pumps are not included in the BVPS Unit 2 IST Program because it has been recognized by the NRC in NUREG-1482, Section 3.4, that the test of the parent pump or other component itself challenges the operability of the sub-components. This ensures that the skid-mounted pumps operate acceptably commensurate with their safety functions provided satisfactory performance of the parent pump or other component is demonstrated by an applicable surveillance test.

Records of the results of inservice tests and corrective actions as required by Paragraph 7 of OM-6 are maintained in computerized or in tabular form. Pump performance characteristics will be examined for trends.

The following five sections of this document are the "Pump Outlines", "Pump Cold Shutdown Justifications", "Pump Refueling Outage Justifications", "Pump Relief Requests", and "Pump Minimum Operating Point (MOP) Curves" sections.

The "Pump Outlines" section is a listing of all the pumps in the IST Program, their testing requirements, and their specific pump cold shutdown justification, refueling outage justification, and/or relief request reference numbers. The pumps are arranged according to system and pump mark number. The following abbreviations and designations are used on the Pump Outlines and throughout the IST Program for pumps:

N	- Speed
P	- Discharge Pressure
ΔP	- Differential Pressure
Q	- Flowrate
V	- Vibration
2BVT	- Unit 2 Beaver Valley Test
2OST	- Unit 2 Operating Surveillance Test
Q	- Quarterly Test Frequency
CSD	- Cold Shutdown Frequency
R	- Refueling Test Frequency
2 YR	- Required every 2 years, but normally done at refueling
PRR	- Pump Relief Request

PCSJ - Pump Cold Shutdown Justification

PROJ - Pump Refueling Outage Justification

X - Meets or exceeds OM-6 requirements

NA - Not Applicable

The "Pump Cold Shutdown Justifications" section contains the detailed technical description of conditions prohibiting the required testing of safety-related pumps and an alternate test method to be performed during cold shutdowns. Beaver Valley Unit 2 reactor containment is maintained subatmospheric as required by technical specifications. The subatmospheric condition presents a hazardous working environment for station personnel and is considered inaccessible for surveillance testing. Surveillance testing that requires a reactor containment entry will be performed at cold shutdown and refueling. The pump cold shutdown justification(s) for a specific pump are referenced by the number(s) listed on the pump's outline sheets.

The "Pump Refueling Outage Justifications" section contains the detailed technical description of conditions prohibiting the required testing of safety-related pumps and an alternate test method to be performed during refueling outages. The pump refueling outage justification(s) for a specific pump are referenced by the number(s) listed on the pump's outline sheets.

The "Pump Relief Requests" section contains the detailed technical description of particular conditions and equipment installations prohibiting the testing of some of the characteristics of safety-related pumps. An alternate test method and the frequency of revised testing is also included to meet the intent of 10CFR50.55a. The relief request(s) for a specific pump is referenced by the number(s) listed on the pump's testing outline sheet.

The "Pump Minimum Operating Point (MOP) Curves" section contains a graphical representation of the minimum allowable pump flow versus head, which is required to meet the applicable safety analysis, for each centrifugal pump in the Unit 2 IST Program.

SECTION II: PUMP OUTLINES

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21A Charging Pump	**Pump Number:** 2CHS*P21A	**Code Class:** 2	**System:** 7-Chemical and Volume Control

Function:	To provide normal RCS inventory makeup, seal injection and high head safety injection.	**Type:** Centrifugal	**Dwg. OM No.:** 7-1A **Dwg. Coord.:** C-4
Remarks:	Pump is tested quarterly on recirculation flow with the VCT via the normal charging header and/or via the miniflow recirc path. Also see PRR1 and PRR2.		

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	7.4 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2CHS-PI151B] and Pump Suction Pressure Indicator [2CHS-PI151A], local. See PRR2 for range and accuracy of Pump Suction Pressure Indicator [2CHS-PI151A].
Q	7.4 (Q)	X	Summation of flow rates from Flow Indicators [2CHS-FI122A, 124A, 127A, 130A, 160], Control Room, and [2CHS-FI170], local.
V	7.4 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21B Charging Pump	**Pump Number:** 2CHS*P21B	**Code Class:** 2	**System:** 7-Chemical and Volume Control

Function:	To provide normal RCS inventory makeup, seal injection and high head safety injection.	**Type:** Centrifugal	**Dwg. OM No.:** 7-1A **Dwg. Coord.:** D-4

Remarks: Pump is tested quarterly on recirculation flow with the VCT via the normal charging header and/or via the miniflow recirc path. Also see PRR1 and PRR2.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	7.5 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2CHS-PI152B] and Pump Suction Pressure Indicator [2CHS-PI152A], local. See PRR2 for range and accuracy of Pump Suction Pressure Indicator [2CHS-PI152A].
Q	7.5 (Q)	X	Summation of flow rates from Flow Indicators [2CHS-FI122A, 124A, 127A, 130A, 160], Control Room, and [2CHS-FI170], local.
V	7.5 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21C Charging Pump	**Pump Number:** 2CHS*P21C	**Code Class:** 2	**System:** 7-Chemical and Volume Control

Function:	To provide normal RCS inventory makeup, seal injection and high head safety injection.	**Type:** Centrifugal	**Dwg. OM No.:** 7-1A **Dwg. Coord.:** E-4
Remarks:	Pump is tested quarterly on recirculation flow with the VCT via the normal charging header and/or via the miniflow recirc path. Also see PRR1 and PRR2.		

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	7.6 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2CHS-PI153B] and Pump Suction Pressure Indicator [2CHS-PI153A], local. See PRR2 for range and accuracy of Pump Suction Pressure Indicator [2CHS-PI153A].
Q	7.6 (Q)	X	Summation of flow rates from Flow Indicators [2CHS-FI122A, 124A, 127A, 130A, 160], Control Room, and [2CHS-FI170], local.
V	7.6 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 22A Boric Acid Transfer Pump	**Pump Number:** 2CHS*P22A	**Code Class:** 3	**System:** 7-Chemical and Volume Control

Function: Chemical shim and emergency boration supply.	**Type:** Centrifugal	**Dwg. OM No.:** 7-2 **Dwg. Coord.:** C-2

Remarks: Pump is tested quarterly at full flow by recirculating the Boric Acid Tank. Also see PRR1 and PRR2.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	7.1 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2CHS-PI105] and Pump Suction Pressure Indicator [2CHS-PI123A], local. See PRR2 for range and accuracy of Pump Suction Pressure Indicator [2CHS-PI123A].
Q	7.1 (Q)	X	Flow Indicator [2CHS-FI123A(B)], local.
V	7.1 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 22B Boric Acid Transfer Pump	**Pump Number:** 2CHS*P22B	**Code Class:** 3	**System:** 7-Chemical and Volume Control

Function: Chemical shim and emergency boration supply.		**Type:** Centrifugal	**Dwg. OM No.:** 7-2
			Dwg. Coord.: F-2

Remarks: Pump is tested quarterly at full flow by recirculating the Boric Acid Tank. Also see PRR1 and PRR2.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	7.2 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2CHS-PI110] and Pump Suction Pressure Indicator [2CHS-PI123B], local. See PRR2 for range and accuracy of Pump Suction Pressure Indicator [2CHS-PI123B].
Q	7.2 (Q)	X	Flow Indicator [2CHS-FI123B(A)], local.
V	7.2 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21A Residual Heat Removal Pump	**Pump Number:** 2RHS*P21A	**Code Class:** 2	**System:** 10-Residual Heat Removal

Function: Long term decay heat removal.	**Type:** Vertical Centrifugal	**Dwg. OM No.:** 10-1 **Dwg. Coord.:** B-3

Remarks: Pump is tested quarterly at full flow by recirculating the RCS during cold shutdowns and refueling outages per PCSJ1. Also see PRR1.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	10.1 (CSD,R)	X	Calculated using Pump Discharge Pressure Indicator [2RHS-PI602A] and Pump Suction Pressure Indicator [2RHS-PI603A], Control Room.
Q	10.1 (CSD,R)	X	Summation of flow rates from Flow Indicators [2RHS-FI607A], [2RHS-FI605A], and [2CHS-FI150], Control Room.
V	10.1 (CSD,R)	X	Portable monitoring equipment using velocity units. Motor bearing vibrations will be obtained because the pump bearings are in the driver.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21B Residual Heat Removal Pump	**Pump Number:** 2RHS*P21B	**Code Class:** 2	**System:** 10-Residual Heat Removal
Function: Long term decay heat removal.		**Type:** Vertical Centrifugal	**Dwg. OM No.:** 10-1 **Dwg. Coord.:** E-3
Remarks: Pump is tested quarterly at full flow by recirculating the RCS during cold shutdowns and refueling outages per PCSJ1. Also see PRR1.			

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	10.2 (CSD,R)	X	Calculated using Pump Discharge Pressure Indicator [2RHS-PI602B] and Pump Suction Pressure Indicator [2RHS-PI603B], Control Room.
Q	10.2 (CSD,R)	X	Summation of flow rates from Flow Indicators [2RHS-FI607B], [2RHS-FI605B], and [2CHS-FI150], Control Room.
V	10.2 (CSD,R)	X	Portable monitoring equipment using velocity units. Motor bearing vibrations will be obtained because the pump bearings are in the driver.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21A Low Head Safety Injection Pump	**Pump Number:** 2SIS*P21A	**Code Class:** 2	**System:** 11-Safety Injection

Function: Low pressure - high volume safety injection.	**Type:** Centrifugal	**Dwg. OM No.:** 11-1 **Dwg. Coord.:** E-2

Remarks: Pump is tested quarterly on recirculation flow with the RWST. Also see PRR1 and PRR2.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	11.1 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2SIS-PI943] and Pump Suction Pressure Indicator [2SIS-PI938], local. See PRR2 for range and accuracy of Pump Suction Pressure Indicator [2SIS-PI938].
Q	11.1 (Q)	X	Flow indicator [2SIS-FIS970A], local.
V	11.1 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21B Low Head Safety Injection Pump	**Pump Number:** 2SIS*P21B	**Code Class:** 2	**System:** 11-Safety Injection

Function: Low pressure - high volume safety injection.	**Type:** Centrifugal	**Dwg. OM No.:** 11-1 **Dwg. Coord.:** G-2

Remarks: Pump is tested quarterly on recirculation flow with the RWST. Also see PRR1 and PRR2.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	11.2 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2SIS-PI944] and Pump Suction Pressure Indicator [2SIS-PI939], local. See PRR2 for range and accuracy of Pump Suction Pressure Indicator [2SIS-PI939].
Q	11.2 (Q)	X	Flow indicator [2SIS-FIS970B], local.
V	11.2 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21A Quench Spray Pump	**Pump Number:** 2QSS*P21A	**Code Class:** 2	**System:** 13-Containment Depressurization

Function:	To provide borated water from the RWST to the containment spray header for containment depressurization following a DBA.	**Type:** Centrifugal	**Dwg. OM No.:** 13-2 **Dwg. Coord.:** A-9

Remarks: Pump is tested quarterly at full flow by recirculating the RWST. Also see PRR1.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	13.1 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2QSS-PI101A] and Pump Suction Pressure Indicator [2QSS-PI102A], Control Room.
Q	13.1 (Q)	X	Flow Indicator [2QSS-FIS101A or 102A], local.
V	13.1 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21B Quench Spray Pump	**Pump Number:** 2QSS*P21B	**Code Class:** 2	**System:** 13-Containment Depressurization

Function: To provide borated water from the RWST to the containment spray header for containment depressurization following a DBA.		**Type:** Centrifugal	**Dwg. OM No.:** 13-2 **Dwg. Coord.:** G-9

Remarks: Pump is tested quarterly at full flow by recirculating the RWST. Also see PRR1.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	13.2 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2QSS-PI101B] and Pump Suction Pressure Indicator [2QSS-PI102B], Control Room.
Q	13.2 (Q)	X	Flow Indicator [2QSS-FIS101B or 102B], local.
V	13.2 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 24A Chemical Injection Pump	**Pump Number:** 2QSS*P24A	**Code Class:** 2	**System:** 13-Containment Depressurization

Function: Chemical injection to the Quench Spray System during containment depressurization.	**Type:** Positive Displacement	**Dwg. OM No.:** 13-2 **Dwg. Coord.:** C-6

Remarks: Pump is tested quarterly at full flow by recirculating the RWST. Also see PRR1.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
P	13.10A (Q)	X	Pump Discharge Pressure Indicator [2QSS-PI111A], local.
Q	13.10A (Q)	X	Flow Indicator [2QSS-FIS105A], local.
V	13.10A (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 24B Chemical Injection Pump	**Pump Number:** 2QSS*P24B	**Code Class:** 2	**System:** 13-Containment Depressurization

Function: Chemical injection to the Quench Spray System during containment depressurization.	**Type:** Positive Displacement	**Dwg. OM No.:** 13-2	**Dwg. Coord.:** E-6

Remarks: Pump is tested quarterly at full flow by recirculating the RWST. Also see PRR1.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
P	13.10B (Q)	X	Pump Discharge Pressure Indicator [2QSS-PI111B], local.
Q	13.10B (Q)	X	Flow Indicator [2QSS-FIS105B], local.
V	13.10B (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21A Recirculation Spray Pump	**Pump Number:** 2RSS*P21A	**Code Class:** 2	**System:** 13-Containment Depressurization

Function: Circulate containment sump water for long term containment depressurization.	**Type:** Vertical Line Shaft	**Dwg. OM No.:** 13-1
		Dwg. Coord.: F-3

Remarks: Pump is normally tested during refueling outages at full flow by circulating water from a temporary dike built around the containment sump area through a test loop per PROJ1. Also see PRR1 and PRR2.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	2BVT 1.13.5 (2 YR)	X (PRR2)	Calculated using a local temporary discharge pressure test gauge, and a local temporary suction pressure test gauge. See PRR2 for range and accuracy of temporary suction pressure test gauge.
Q	2BVT 1.13.5 (2 YR)	X	Flow Indicator [2RSS-FI157A], Control Room.
V	2BVT 1.13.5 (2 YR)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21B Recirculation Spray Pump	**Pump Number:** 2RSS*P21B	**Code Class:** 2	**System:** 13-Containment Depressurization

Function:	Circulate containment sump water for long term containment depressurization.	**Type:** Vertical Line Shaft	**Dwg. OM No.:** 13-1 **Dwg. Coord.:** E-8

Remarks: Pump is normally tested during refueling outages at full flow by circulating water from a temporary dike built around the containment sump area through a test loop per PROJ1. Also see PRR1 and PRR2.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	2BVT 1.13.5 (2 YR)	X (PRR2)	Calculated using a local temporary discharge pressure test gauge, and a local temporary suction pressure test gauge. See PRR2 for range and accuracy of temporary suction pressure test gauge.
Q	2BVT 1.13.5 (2 YR)	X	Flow Indicator [2RSS-FI157B], Control Room.
V	2BVT 1.13.5 (2 YR)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21C Recirculation Spray Pump	**Pump Number:** 2RSS*P21C	**Code Class:** 2	**System:** 13-Containment Depressurization

Function:	Circulate containment sump water for long term containment depressurization and long term core recirculation.	**Type:** Vertical Line Shaft	**Dwg. OM No.:** 13-1 **Dwg. Coord.:** E-5

Remarks: Pump is normally tested during refueling outages at full flow by circulating water from a temporary dike built around the containment sump area through a test loop per PROJ1. Also see PRR1 and PRR2.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	2BVT 1.13.5 (2 YR)	X (PRR2)	Calculated using a local temporary discharge pressure test gauge, and local temporary suction pressure test gauge. See PRR2 for range and accuracy of temporary suction pressure test gauge.
Q	2BVT 1.13.5 (2 YR)	X	Flow Indicator [2RSS-FI157C], Control Room.
V	2BVT 1.13.5 (2 YR)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21D Recirculation Spray Pump	**Pump Number:** 2RSS*P21D	**Code Class:** 2	**System:** 13-Containment Depressurization

Function:	Circulate containment sump water for long term containment depressurization and long term core recirculation.	**Type:** Vertical Line Shaft	**Dwg. OM No.:** 13-1 **Dwg. Coord.:** E-6
Remarks:	Pump is normally tested during refueling outages at full flow by circulating water from a temporary dike built around the containment sump area through a test loop per PROJ1. Also see PRR1 and PRR2.		

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	2BVT 1.13.5 (2 YR)	X (PRR2)	Calculated using a local temporary discharge pressure test gauge, and local temporary suction pressure test gauge. See PRR2 for range and accuracy of temporary suction pressure test gauge.
Q	2BVT 1.13.5 (2 YR)	X	Flow Indicator [2RSS-FI157D], Control Room.
V	2BVT 1.13.5 (2 YR)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21A Component Cooling Water Pump	**Pump Number:** 2CCP*P21A	**Code Class:** 3	**System:** 15-Primary Component Cooling Water

Function:	Provide cooling water to Residual Heat Removal Heat Exchangers and reactor plant components.	**Type:** Centrifugal	**Dwg. OM No.:** 15-1 **Dwg. Coord.:** B-4

Remarks: Pump is tested quarterly through various CCP supplied heat exchangers using a pump curve per PRR3. Also see PRR1 and PRR2.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	15.1 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2CCP-PI145A], Control Room, and Pump Suction Pressure Indicator [2CCP-PI150A], local. See PRR2 for range and accuracy of Pump Suction Pressure Indicator [2CCP-PI150A].
Q	15.1 (Q)	X	Flow Indicator [2CCP-FI117A1], Control Room.
V	15.1 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump **Name:** 21B Component Cooling Water Pump	**Pump** **Number:** 2CCP*P21B	**Code** **Class:** 3	**System:** 15-Primary Component Cooling Water
Function: Provide cooling water to Residual Heat Removal Heat Exchangers and reactor plant components.		**Type:** Centrifugal	**Dwg. OM No.:** 15-1 **Dwg. Coord.:** F-4
Remarks: Pump is tested quarterly through various CCP supplied heat exchangers using a pump curve per PRR3. Also see PRR1 and PRR2.			

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	15.2 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2CCP-PI145B], Control Room, and Pump Suction Pressure Indicator [2CCP-PI150B], local. See PRR2 for range and accuracy of Pump Suction Pressure Indicator [2CCP-PI150B].
Q	15.2 (Q)	X	Summation of flow rates from Flow Indicators [2CCP-FI117B1], Control Room, [2CCP-FI103] and [2CCP-FI102], local.
V	15.2 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21C Component Cooling Water Pump	**Pump Number:** 2CCP*P21C	**Code Class:** 3	**System:** 15-Primary Component Cooling Water

Function:	Provide cooling water to Residual Heat Removal Heat Exchangers and reactor plant components.	**Type:** Centrifugal	**Dwg. OM No.:** 15-1 **Dwg. Coord.:** D-4

Remarks: Pump is tested quarterly through various CCP supplied heat exchangers using a pump curve per PRR3. Also see PRR1 and PRR2.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	15.3 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2CCP-PI145C], Control Room, and Pump Suction Pressure Indicator [2CCP-PI150C], local. See PRR2 for range and accuracy of Pump Suction Pressure Indicator [2CCP-PI150C].
Q	15.3 (Q)	X	Flow Indicator [2CCP-FI117A1], Control RoomOR summation of flow rates from Flow Indicators [2CCP-FI117B1], Control Room, [2CCP-FI103] and [2CCP-FI102], local.
V	15.3 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: Turbine Driven Auxiliary Feedwater Pump	**Pump Number:** 2FWE*P22	**Code Class:** 3	**System:** 24-Auxiliary Feedwater

Function:	Provide emergency makeup to Steam Generators during loss of normal feedwater.	**Type:** Centrifugal	**Dwg. OM No.:** 24-3 **Dwg. Coord.:** E-4

Remarks: Pump is tested quarterly (on a staggered test basis with the other AFW Pumps) on recirculation flow with the PPDWST. Also see PRR1.

Parameter	2OST-(Frequency)	Req'd	Comments
N	24.4 (Q)	X	No installed rpm indication. Use portable monitoring equipment - Stroboscope.
ΔP	24.4 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2FWE-PI155] and Pump Suction Pressure Indicator [2FWE-PI156], local.
Q	24.4 (Q)	X	Flow Indicator [2FWE-FI155], local.
V	24.4 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 23A Motor Driven Auxiliary Feedwater Pump	**Pump Number:** 2FWE*P23A	**Code Class:** 3	**System:** 24-Auxiliary Feedwater

Function:	Provide emergency makeup to Steam Generators during loss of normal feedwater.	**Type:** Centrifugal	**Dwg. OM No.:** 24-3 **Dwg. Coord.:** F-4

Remarks: Pump is tested quarterly (on a staggered test basis with the other AFW Pumps) on recirculation flow with the PPDWST. Also see PRR1.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	24.2 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2FWE-PI155A] and Pump Suction Pressure Indicator [2FWE-PI156A], local.
Q	24.2 (Q)	X	Flow Indicator [2FWE-FI155A], local.
V	24.2 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 23B Motor Driven Auxiliary Feedwater Pump	**Pump Number:** 2FWE*P23B	**Code Class:** 3	**System:** 24-Auxiliary Feedwater

Function: Provide emergency makeup to Steam Generators during loss of normal feedwater.	**Type:** Centrifugal	**Dwg. OM No.:** 24-3
		Dwg. Coord.: G-4

Remarks: Pump is tested quarterly (on a staggered test basis with the other AFW Pumps) on recirculation flow with the PPDWST. Also see PRR1.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	24.3 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2FWE-PI155B] and Pump Suction Pressure Indicator [2FWE-PI156B], local.
Q	24.3 (Q)	X	Flow Indicator [2FWE-FI155B], local.
V	24.3 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21A Service Water Pump	**Pump Number:** 2SWS*P21A	**Code Class:** 3	**System:** 30-Service Water

Function:	Provide cooling water to Recirculation Spray Heat Exchangers and reactor plant components under normal and emergency conditions.	**Type:** Vertical Line Shaft	**Dwg. OM No.:** 30-1 **Dwg. Coord.:** C-2

Remarks: Pump is tested quarterly through various SWS supplied heat exchangers using a pump curve per PRR4. Also see PRR1 and PRR5.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	30.2 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2SWS-PI101A] and river water elevation from Ohio River Level Recorder [LR-1CW-101], local, as permitted by NUREG-1482, Section 5.5.3, "Use of Tank or Bay Level to Calculate Differential Pressure".
Q	30.2 (Q)	X	Flow Indicator [2SWS-FIT100], local.
V	30.2 (Q)	X (PRR5)	Portable monitoring equipment using velocity units. The motor outboard axial (MOA) vibration measurement is not accessible and will not be obtained per PRR5.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21B Service Water Pump	**Pump Number:** 2SWS*P21B	**Code Class:** 3	**System:** 30-Service Water

Function:	Provide cooling water to Recirculation Spray Heat Exchangers and reactor plant components under normal and emergency conditions.	**Type:** Vertical Line Shaft	**Dwg. OM No.:** 30-1 **Dwg. Coord.:** D-2

Remarks: Pump is tested quarterly through various SWS supplied heat exchangers using a pump curve per PRR4. Also see PRR1 and PRR5.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	30.3 (Q)	X	Calculated using Pump Discharge Pressure Indicator [2SWS-PI101B] and river water elevation from Ohio River Level Recorder [LR-1CW-101], local, as permitted by NUREG-1482, Section 5.5.3, "Use of Tank or Bay Level to Calculate Differential Pressure".
Q	30.3 (Q)	X	Flow Indicator [2SWS-FIT100S], local.
V	30.3 (Q)	X (PRR5)	Portable monitoring equipment using velocity units. The motor outboard axial (MOA) vibration measurement is not accessible and will not be obtained per PRR5.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21C Service Water Pump	**Pump Number:** 2SWS*P21C	**Code Class:** 3	**System:** 30-Service Water

Function:	Provide cooling water to Recirculation Spray Heat Exchangers and reactor plant components under normal and emergency conditions.	**Type:** Vertical Line Shaft	**Dwg. OM No.:** 30-1 **Dwg. Coord.:** G-2

Remarks: Pump is tested quarterly through various SWS supplied heat exchangers using a pump curve per PRR4. Also see PRR1 and PRR5.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	30.6A or 6B (Q)	X	Calculated using Pump Discharge Pressure Indicator [2SWS-PI101C] and river water elevation from Ohio River Level Recorder [LR-1CW-101], local, as permitted by NUREG-1482, Section 5.5.3, "Use of Tank or Bay Level to Calculate Differential Pressure".
Q	30.6A or 6B (Q)	X	Flow Indicator [2SWS-FIT100(S)], local.
V	30.6A or 6B (Q)	X (PRR5)	Portable monitoring equipment using velocity units. The motor outboard axial (MOA) vibration measurement is not accessible and will not be obtained per PRR5.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21A Fuel Oil Transfer Pump	**Pump Number:** 2EGF*P21A	**Code Class:** 3	**System:** 36-Diesel Fuel Oil

Function:	Transfer fuel from the underground storage tank to the day tank.	**Type:** Vertical Line Shaft	**Dwg. OM No.:** 36-1 **Dwg. Coord.:** F-3

Remarks: Pump is normally tested bi-monthly at full flow from the fuel oil storage tank to the day tank. Also see PRR1, PRR2 and PRR6.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	36.1 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2EGF-PI201A] and Fuel Oil Storage Tank level from [2EGF-LIS201A], local, as permitted by NUREG-1482, Section 5.5.3, "Use of Tank or Bay Level to Calculate Differential Pressure." See PRR2 for range and accuracy of Pump Discharge Pressure Indicator [2EGF-PI201A].
Q	36.1 (Q)	X (PRR6)	No instrumentation is provided for flow. A level change over time in the day tank will be measured using Level Gauge [2EGF*LG201], local, and converted to flowrate per PRR6.
V	36.1 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21B Fuel Oil Transfer Pump	**Pump Number:** 2EGF*P21B	**Code Class:** 3	**System:** 36-Diesel Fuel Oil

Function:	Transfer fuel from the underground storage tank to the day tank.	**Type:** Vertical Line Shaft	**Dwg. OM No.:** 36-1 **Dwg. Coord.:** E-3

Remarks: Pump is normally tested bi-monthly at full flow from the fuel oil storage tank to the day tank. Also see PRR1, PRR2 and PRR6.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	36.1 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2EGF-PI201B] and Fuel Oil Storage Tank level from [2EGF-LIS201A], local, as permitted by NUREG-1482, Section 5.5.3, "Use of Tank or Bay Level to Calculate Differential Pressure." See PRR2 for range and accuracy of Pump Discharge Pressure Indicator [2EGF-PI201B].
Q	36.1 (Q)	X (PRR6)	No instrumentation is provided for flow. A level change over time in the day tank will be measured using Level Gauge [2EGF*LG201], local, and converted to flowrate per PRR6.
V	36.1 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21C Fuel Oil Transfer Pump	**Pump Number:** 2EGF*P21C	**Code Class:** 3	**System:** 36-Diesel Fuel Oil

Function:	Transfer fuel from the underground storage tank to the day tank.	**Type:** Vertical Line Shaft	**Dwg. OM No.:** 36-1 **Dwg. Coord.:** F-8

Remarks: Pump is normally tested bi-monthly at full flow from the fuel oil storage tank to the day tank. Also see PRR1, PRR2 and PRR6.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	36.2 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2EGF-PI201C] and Fuel Oil Storage Tank level from [2EGF-LIS201B], local, as permitted by NUREG-1482, Section 5.5.3, "Use of Tank or Bay Level to Calculate Differential Pressure." See PRR2 for range and accuracy of Pump Discharge Pressure Indicator [2EGF-PI201C].
Q	36.2 (Q)	X (PRR6)	No instrumentation is provided for flow. A level change over time in the day tank will be measured using Level Gauge [2EGF*LG202], local, and converted to flowrate per PRR6.
V	36.2 (Q)	X	Portable monitoring equipment using velocity units.

BVPS-2 IST

PUMP OUTLINE

Pump Name: 21D Fuel Oil Transfer Pump	**Pump Number:** 2EGF*P21D	**Code Class:** 3	**System:** 36-Diesel Fuel Oil

Function:	Transfer fuel from the underground storage tank to the day tank.	**Type:** Vertical Line Shaft	**Dwg. OM No.:** 36-1
			Dwg. Coord.: E-8

Remarks: Pump is normally tested bi-monthly at full flow from the fuel oil storage tank to the day tank. Also see PRR1, PRR2 and PRR6.

Parameter	2OST-(Frequency)	Req'd	Comments
N	NA	NA	Constant speed induction motor.
ΔP	36.2 (Q)	X (PRR2)	Calculated using Pump Discharge Pressure Indicator [2EGF-PI201D] and Fuel Oil Storage Tank level from [2EGF-LIS201B], local, as permitted by NUREG-1482, Section 5.5.3, "Use of Tank or Bay Level to Calculate Differential Pressure." See PRR2 for range and accuracy of Pump Discharge Pressure Indicator [2EGF-PI201D].
Q	36.2 (Q)	X (PRR6)	No instrumentation is provided for flow. A level change over time in the day tank will be measured using Level Gauge [2EGF*LG202], local, and converted to flowrate per PRR6.
V	36.2 (Q)	X	Portable monitoring equipment using velocity units.

SECTION III: PUMP COLD SHUTDOWN JUSTIFICATIONS

PUMP COLD SHUTDOWN JUSTIFICATION 1

Pump Mark No(s): 2RHS*P21A
2RHS*P21B

Code Class: 2

System: 10 - Residual Heat Removal

Function: To provide long term removal of decay heat from the reactor core and sensible heat from the RCS in order to achieve and maintain the plant in a cold shutdown condition.

Test Requirement: Per OM-6, Paragraph 5.1, "Frequency of Inservice Tests", an inservice test shall be run on each pump, nominally every 3 months.

Basis for CSJ: These pumps are not required to be run at power and are considered out of service. They are not returned to service until RCS temperature is ≤ 350F and RCS pressure is ≤ 360 psig. Per OM-6, Paragraph 5.4, "Pumps in Systems Out of Service", the test schedule need not be followed for pumps in a system not required to be operable.

In addition, these pumps are located inside containment. If tested at power, test personnel would have to make a containment entry to properly monitor pump operation. However, Beaver Valley Unit 2 reactor containment is maintained subatmospheric as required by technical specifications. The subatmospheric condition presents a hazardous working environment for station personnel and is considered inaccessible for surveillance testing.

Alternate Test: These pumps will be tested quarterly at full flow only during cold shutdowns and refueling outages per 2OST-10.1 and 2OST-10.2 (Residual Heat Removal Pump Performance Tests).

References: OM-6, Paragraphs 5.1 and 5.4.

SECTION IV: PUMP REFUELING OUTAGE JUSTIFICATIONS

PUMP REFUELING OUTAGE JUSTIFICATION 1

Pump Mark No(s): 2RSS*P21A
2RSS*P21B
2RSS*P21C
2RSS*P21D

Code Class: 2

System: 13 - Containment Depressurization

Function: To circulate water from the reactor containment sump to the spray rings at the top of the containment dome for the purpose of removing heat from the containment atmosphere thereby depressing and holding containment pressure subatmospheric for the long term following a DBA. In addition, the "C" and "D" Recirculation Spray Pumps also take suction from the containment sump to provide water to the High Head Safety Injection Pumps for long term core recirculation.

Test Requirement: Per OM-6, Paragraph 5.1, "Frequency of Inservice Tests", an inservice test shall be run on each pump, nominally every 3 months.

Basis for ROJ: These vertical suction well centrifugal pumps are located outside of containment in the safeguards building, but take suction from the containment sump. They are not operated during normal plant operation and are maintained in a "dry" layup condition between refueling outages along with their associated heat exchangers. The only time that water is introduced to the suction of these pumps is for testing purposes and following an accident resulting in a containment isolation phase B signal, when the pumps start after an approximately 628 second time delay to allow for the containment sump to be filled by the Quench Spray System and any primary plant leakage. In order to test these pumps, a temporary dike must be erected inside reactor containment around the containment sump with enough water added to ensure an adequate NPSH for each pump. Per OM-6, Paragraph 5.5, "Pumps Lacking Required Fluid Inventory", pumps in dry sumps need not be tested every 3 months, however, they shall be tested at least once every 2 years with the required fluid inventory provided during this test.

Alternate Test: These pumps will be tested at full flow once during each refueling outage per 2BVT 1.13.5 (Recirculation Spray Pump Test).

References: OM-6, Paragraphs 5.1 and 5.5.

SECTION V: PUMP RELIEF REQUESTS

PUMP RELIEF REQUEST 1

Pump Mark No(s): All of the pumps in the IST Program. **Code Class:** 2, 3

System: Various

Function: Various

Test Requirement: Per OM-6, Paragraph 6, "Analyses and Evaluation", if deviations fall within the alert range of Table 3a for vibrations, the frequency of testing specified in Paragraph 5.1, shall be doubled until the cause of the deviation is determined and the condition corrected.

Basis for Relief: In accordance with 10CFR50.55a(a)(3)(i), relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety.

The ASME OMc Code-1994, Subsection ISTB, Paragraph 4.6, "New Reference Values," states in cases where a pump's test parameters are within the alert or required action ranges and the pump's continued use at the changed values is supported by an analysis, a new set of reference values may be established. Paragraph 4.6 goes on to say that this analysis shall include verification of the pump's operational readiness. The analysis shall also include both a pump level and system level evaluation of operational readiness, the cause of the change in pump performance, and an evaluation of all trends indicated by available data. The results of this analysis shall be documented in the record of tests.

Spectral analysis may be used to determine the mechanical condition of a pump. The reason for testing a pump on double frequency is to obtain additional information so that the condition of the pump may be determined. Spectral data can provide information to determine if misalignment, unbalance, resonance, looseness or a bearing problem is present. Through a review of the spectral data over a period of time, any change in condition of the pump may also be determined.

PUMP RELIEF REQUEST 1

Alternate Test: BVPS-2 proposes to implement ASME OMc Code-1994, Subsection ISTB, Paragraph 4.6 for vibration measurements for all of the pumps in the IST Program. Spectral vibration data is currently being obtained for each vibration measurement on all of the pumps. Each time a pump enters the alert range for vibration, an analysis of the spectral vibration data will be performed to determine the cause of the higher vibrations. If the analysis supports continued operation, the pump will be removed from double frequency testing and a new set of reference valves may be obtained. However, to avoid stair-stepping to failure, a new set of reference values may only be obtained once prior to performing corrective maintenance. If the cause of the higher vibrations cannot be determined, or if the data shows a continuing trend such that the condition of the pump may continue to degrade until it can no longer fulfill its function, the pump will remain on double frequency testing until the condition is corrected.

References: OM-6, Paragraphs 5.1 and 6, and Table 3.
ISTB, Paragraph 4.6.

PUMP RELIEF REQUEST 2

Pump Mark No(s): See the attached Table. **Code Class:** 2, 3

System: Various

Function: Various

Test Requirement: Per OM-6, Paragraph 4.6.1.2(a), "Range", the full-scale range of each analog instrument shall be not greater than three times the reference value.

Basis for Relief: In accordance with 10CFR50.55a(a)(3)(i), relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety.

The pumps listed on the attached table use instruments which do not meet the requirements of OM-6, Paragraph 4.6.1.2(a), however, the accuracy of the instruments used is more conservative than the requirements of OM-6, Paragraph 4.6.1.1, "Quality", and Table 1, "Acceptable Instrument Accuracy". Per the attached table, the combination of higher range and better accuracy for each instrument yields a reading at least equivalent to the reading achieved from instruments that meet OM-6, Paragraph 4.6.1.1 and Table 1 requirements. Therefore, relief is requested in accordance with NUREG-1482, Section 5.5.1, "Range and Accuracy of Analog Instruments".

Alternate Test: Use the instruments listed on the attached table as long as the combination of the higher range and better accuracy for each instrument yields a reading at least equivalent to the reading achieved from instruments that meet OM-6 requirements.

References: OM-6, Paragraphs 4.6.1.1 and 4.6.1.2(a), and Table 1. NUREG-1482, Section 5.5.1.

PUMP RELIEF REQUEST 2

IST PUMP INSTRUMENTATION			
Pump ID#	**Instrument ID#**	**Condition Requiring Relief**	**Basis for Relief/Alternate Test**
2CHS*P21A 2CHS*P21B 2CHS*P21C	2CHS-PI151A 2CHS-PI152A 2CHS-PI153A	The range of the gauges is greater than three times the reference pressures during quarterly recirculation flow testing.	These gauges are the suction pressure gauges for the Charging Pumps. They are sized for all modes of pump operation including accident conditions (i.e., can take suction from the Recirculation Spray Pumps) with a range of 0-160 psig. During recirculation flow testing, the suction pressures are approx. 25% of the range. Their calibration accuracy is 0.5%, which would yield a reading more accurate than OM-6 requirements.
2CHS*P22A 2CHS*P22B	2CHS-PI123A 2CHS-PI123B	The range of the gauges is greater than three times the reference pressures during quarterly testing.	These gauges are the suction pressure gauges for the Boric Acid Transfer Pumps. They are sized for all modes of pump operation and Boric Acid Storage Tank levels with a range of 0-30 psig. During quarterly testing, the suction pressures are approx. 10-15% of the range. Their calibration accuracy is 0.5%, which would yield a reading more accurate than OM-6 requirements.
2SIS*P21A 2SIS*P21B	2SIS-PI938 2SIS-PI939	The range of the gauges is greater than three times the reference pressures during quarterly recirculation flow testing.	These gauges are the suction pressure gauges for the Low Head Safety Injection Pumps. They are sized for recirculation and full flow testing with a range of 0-160 psig. During recirculation flow testing, the suction pressures are approx. 20% of the range. Their calibration accuracy is 0.5%, which would yield a reading more accurate than OM-6 requirements.
2RSS*P21A 2RSS*P21B 2RSS*P21C 2RSS*P21D	Test Gauges (Suction Pressure)	The range of the gauges may be greater than three times the reference pressures during testing at refueling.	A test gauge is installed on the suction line of each Recirculation Spray Pump during testing at refueling. A test dam is erected and filled with water to provide NPSH. The gauges are sized for varying levels of water in the test dam with suction pressures varying typically between 20-30 IWC. Test gauges of varying ranges and accuracies may be used; however, the combination of range and accuracy would yield a pressure reading within ± 1.2 IWC. Therefore, their better calibration with a larger range would yield a reading more accurate than OM-6 requirements.
2CCP*P21A 2CCP*P21B 2CCP*P21C	2CCP-PI150A 2CCP-PI150B 2CCP-PI150C	The range of the gauges is greater than three times the reference pressures during quarterly testing.	These are the suction pressure gauges for the Component Cooling Water Pumps. They are sized for all modes of pump operation with a range of 0-60 psig. A pump curve is used during quarterly testing as approved by Pump Relief Request No. 3. The suction pressures vary between 24-37% of the range. Their calibration accuracy is 0.5%, which would yield a reading more accurate than OM-6 requirements.

PUMP RELIEF REQUEST 2

IST PUMP INSTRUMENTATION			
Pump ID#	**Instrument ID#**	**Condition Requiring Relief**	**Basis for Relief/Alternate Test**
2EGF*P21A 2EGF*P21B 2EGF*P21C 2EGF*P21D	2EGF-PI201A 2EGF-PI201B 2EGF-PI201C 2EGF-PI201D	The range of the gauges is greater than three times the reference pressures during bi-monthly testing.	These are the discharge pressure gauges for the Emergency Diesel Generator Fuel Oil Transfer Pumps. They are sized for all modes of pump operation with a range of 0-30 psig. During bi-monthly testing, discharge pressures are between 8.5 and 10.5 psig, slightly below 1/3 of the range. Their calibration accuracy is 1.0%, which would yield a reading more accurate than OM-6 requirements.

PUMP RELIEF REQUEST 3

Pump Mark No(s): 2CCP*P21A
2CCP*P21B
2CCP*P21C

Code Class: 3

System: 15 - Primary Component Cooling Water

Function: To circulate cooling water through various reactor plant components during normal operation, and through the Residual Heat Removal Heat Exchangers following an accident in order to achieve and maintain the plant in a cold shutdown condition.

Test Requirement: Per OM-6, Paragraph 5.2, "Test Procedure", an inservice test shall be conducted with the pump operating at specified test reference conditions. Per Sub-Paragraph 5.2(b), the resistance of the system shall be varied until the flow rate equals the reference value. The pressure shall then be determined and compared to its reference value. Alternatively, the flow rate can be varied until the pressure equals the reference value and the flow rate shall be determined and compared to the reference flow rate value.

Basis for Relief: In accordance with 10CFR50.55a(f)(5)(iii), relief is requested on the basis that compliance with the code requirement is impractical at BVPS-2.

The amount of Primary Component Cooling Water (CCP) System flow is dependent on the Service Water System and on seasonal Ohio River water temperatures due to the design of the CCP temperature control system. During Primary Component Cooling Pump testing, additional flow is obtained by placing the Residual Heat Removal (RHR) System Heat Exchangers into service. The overall amount of flow may vary by several hundred gallons per minute between cool winter months and warm summer months.

In order to increase flow to a reference value during cold winter months, the manual valves at the discharge of the RHR Heat Exchangers would require throttling in the open direction. These valves are located in the reactor containment building which is maintained subatmospheric as required by technical specifications. The subatmospheric condition presents a hazardous working environment for station personnel (i.e., requires self-contained breathing apparatus and entry via an airlock into an atmosphere of approximately 9 psia) and is considered inaccessible for surveillance testing. Surveillance testing that requires reactor containment entry is performed at cold shutdown and refueling.

PUMP RELIEF REQUEST 3

Basis for Relief:

In order to throttle flow to a reference value during warm summer months, a manual valve at the discharge of the pumps needs to be used since the RHR Heat Exchanger throttle valves are located inside containment. Operating experience has shown that any throttling of the pump discharge valves results in a large reduction in cooling water flow to the Reactor Coolant Pump thermal barrier heat exchangers, bearing lube oil coolers and motor stator air coolers resulting in low flow alarms. This could result in heatup of the Reactor Coolant Pumps to near required manual pump trip setpoints which could ultimately result in a plant trip. In addition, the added thermal cycling of these coolers for pump testing could prematurely degrade these heat exchangers.

OM-6, Paragraph 4.5, "To Establish an Additional Set of Reference Values", provides for multiple sets of reference values. A pump curve is merely a graphical representation of the fixed response of the pump to an infinite number of flow conditions which are based on some finite number of reference values verified by measurement. Relief is, therefore, requested to use a pump curve, which should provide an equivalent level of quality and safety in trending pump performance and degradation. Flow will be permitted to vary as system conditions require. Delta-P will be calculated and converted to a developed head for which OM-6 ranges will be applied.

Alternate Test:

A pump curve (developed per the guidelines in NUREG-1482, Section 5.2, "Use of Variable Reference Values for Flow Rate and Differential Pressure During Pump Testing") will be used to compare flowrate with developed pump head at the flow conditions dictated by seasonal temperatures each quarter per 2OST-15.1, 2OST-15.2 and 2OST-15.3 (Component Cooling Water Pump Tests). Since normal flow varies based on Component Cooling Water System requirements due to Service Water System and seasonal Ohio River water temperatures, the most limiting vibration acceptance criteria will be used over this range of flows based on baseline vibration data obtained at various flow points on the pump curve.

References:

OM-6, Paragraphs 4.5 and 5.2 (including 5.2(b)).
NUREG-1482, Section 5.2.

PUMP RELIEF REQUEST 4

Pump Mark No(s): 2SWS*P21A
2SWS*P21B
2SWS*P21C

Code Class: 3

System: 30 - Service Water

Function: To provide cooling water to various reactor plant components under normal and emergency conditions, and through the Recirculation Spray Heat Exchangers following a DBA.

Test Requirement: Per OM-6, Paragraph 5.2, "Test Procedure", an inservice test shall be conducted with the pump operating at specified test reference conditions. Per Sub-Paragraph 5.2(b), the resistance of the system shall be varied until the flow rate equals the reference value. The pressure shall then be determined and compared to its reference value. Alternatively, the flow rate can be varied until the pressure equals the reference value and the flow rate shall be determined and compared to the reference flow rate value.

Basis for Relief: In accordance with 10CFR50.55a(f)(5)(iii), relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety.

Operating experience has shown that plant conditions due to heat loads requiring cooling by the Service Water System may preclude returning the Service Water Pumps to the exact flowrate or differential pressure during pump surveillance testing. The Service Water System is dependent on seasonal Ohio River water temperatures and flow may vary from approximately 6,000 gpm in the cool winter months to approximately 14,000 gpm in the warm summer months.

In order to increase flow to a reference value during cold winter months, idle heat exchangers would need to be placed into service or additional flow would be needed through heat exchangers already in service. Increased cooling flow through primary and secondary component cooling and chiller unit heat exchangers already in service could result in a thermal transient and a potential plant trip. Clean heat exchangers may require placement into service prematurely if additional flow is required to return to a reference value. Idle heat exchangers are normally held in reserve following cleaning to improve plant reliability and safety until one of the inservice heat exchangers becomes fouled.

PUMP RELIEF REQUEST 4

Basis for Relief:

In order to throttle flow to a reference value during warm summer months, any inservice primary and secondary component cooling and chiller unit heat exchangers would need flow reduced or isolated which could interrupt flow of cooling water to Train A or Train B cooling loads resulting in a thermal transient and potential plant trip. In addition, the added thermal cycling due to placement and/or removal of heat exchangers from service for pump testing could prematurely degrade the heat exchangers.

The thermal transients created by increasing or throttling Service Water System flow to the turbine plant cooling loads raises operational concerns of stability problems. Changes in oil temperature from the turbine generator lube oil system create vibration problems. Changes in the Hydrogen gas cooler temperatures could imply problems or mask real problems with the generator. Chiller unit heat exchanger flow disturbances often result in a trip of the chiller unit causing reactor containment temperature risks of exceeding the technical specification limit.

OM-6, Paragraph 4.5, "To Establish an Additional Set of Reference Values", provides for multiple sets of reference values. A pump curve is merely a graphical representation of the fixed response of the pump to an infinite number of flow conditions which are based on some finite number of reference values verified by measurement. Relief is, therefore, requested to use a pump curve, which should provide an equivalent level of quality and safety in trending pump performance and degradation. Flow will be permitted to vary as system conditions require. Delta-P will be calculated and converted to a developed head for which OM-6 ranges will be applied.

Alternate Test:

A pump curve (developed per the guidelines in NUREG-1482, Section 5.2, "Use of Variable Reference Values for Flow Rate and Differential Pressure During Pump Testing") will be used to compare flowrate with developed pump head at the flow conditions dictated by Service Water System loads each quarter per 2OST-30.2, 2OST-30.3, and 2OST-30.6A or 6B (Service Water Pump Tests). Since normal flow varies based on Service Water System requirements due to seasonal Ohio River water temperatures, the most limiting vibration acceptance criteria will be used over this range of flows based on baseline vibration data obtained at various flow points on the pump curve.

References:

OM-6, Paragraphs 4.5 and 5.2 (including 5.2(b)).
NUREG-1482, Section 5.2.

PUMP RELIEF REQUEST 5

Pump Mark No(s): 2SWS*P21A
2SWS*P21B
2SWS*P21C

Code Class: 3

System: 30 - Service Water

Function: To provide cooling water to various reactor plant components under normal and emergency conditions, and through the Recirculation Spray Heat Exchangers following a DBA.

Test Requirement: Per OM-6, Paragraph 4.6.4(b), "Vibration Measurements", on vertical line shaft pumps, measurements shall be taken on the upper motor bearing housing in three orthogonal directions, one of which is the axial direction.

Basis for Relief: In accordance with 10CFR50.55a(f)(5)(iii), relief is requested on the basis that compliance with the code requirement is impractical at BVPS-2.

Access to the upper motor bearing housing on the vertical line shaft Service Water Pumps for the purpose of measuring vibrations in the axial direction, cannot be obtained due to the presence of a permanently installed non-rigid metal top hat covering the entire top of the motor housing. However, vibration measurements in the axial direction are accessible at the lower motor bearing housing of each pump which will provide additional information for trending of pump/motor performance. In addition, the vibration measurements in the orthogonal directions typically provide a better predictor of vibration problems for vertical line shaft pumps.

Alternate Test: Measure vibrations on the upper motor bearing housing in two orthogonal directions (excluding the axial direction), and measure vibrations on the lower motor bearing housing in three orthogonal directions (including the axial direction) each quarter per 2OST-30.2, 2OST-30.3 and 2OST-30.6A or 6B (Service Water Pump Tests).

References: OM-6, Paragraphs 4.6.4(b).

PUMP RELIEF REQUEST 6

Pump Mark No(s): 2EGF*P21A
2EGF*P21B
2EGF*P21C
2EGF*P21D

Code Class: 3

System: 36 - Diesel Fuel Oil

Function: To transfer fuel oil from the underground Emergency Diesel Generator Fuel Oil Storage Tank to the Day Tank in order to provide continuous operation of the Diesel at rated load for up to 7 days during an emergency.

Test Requirement: Per OM-6, Paragraph 4.6.5, "Flow Rate Measurement", and Table 2, "Inservice Test Parameters", flow rate shall be measured for all pumps. When measuring flow rate, use a rate or quantity meter installed in the pump test circuit. If a meter does not indicate the flow rate directly, the record shall include the method used to reduce the data.

Basis for Relief: In accordance with 10CFR50.55a(f)(5)(iii), relief is requested on the basis that compliance with the code requirement is impractical at BVPS-2.

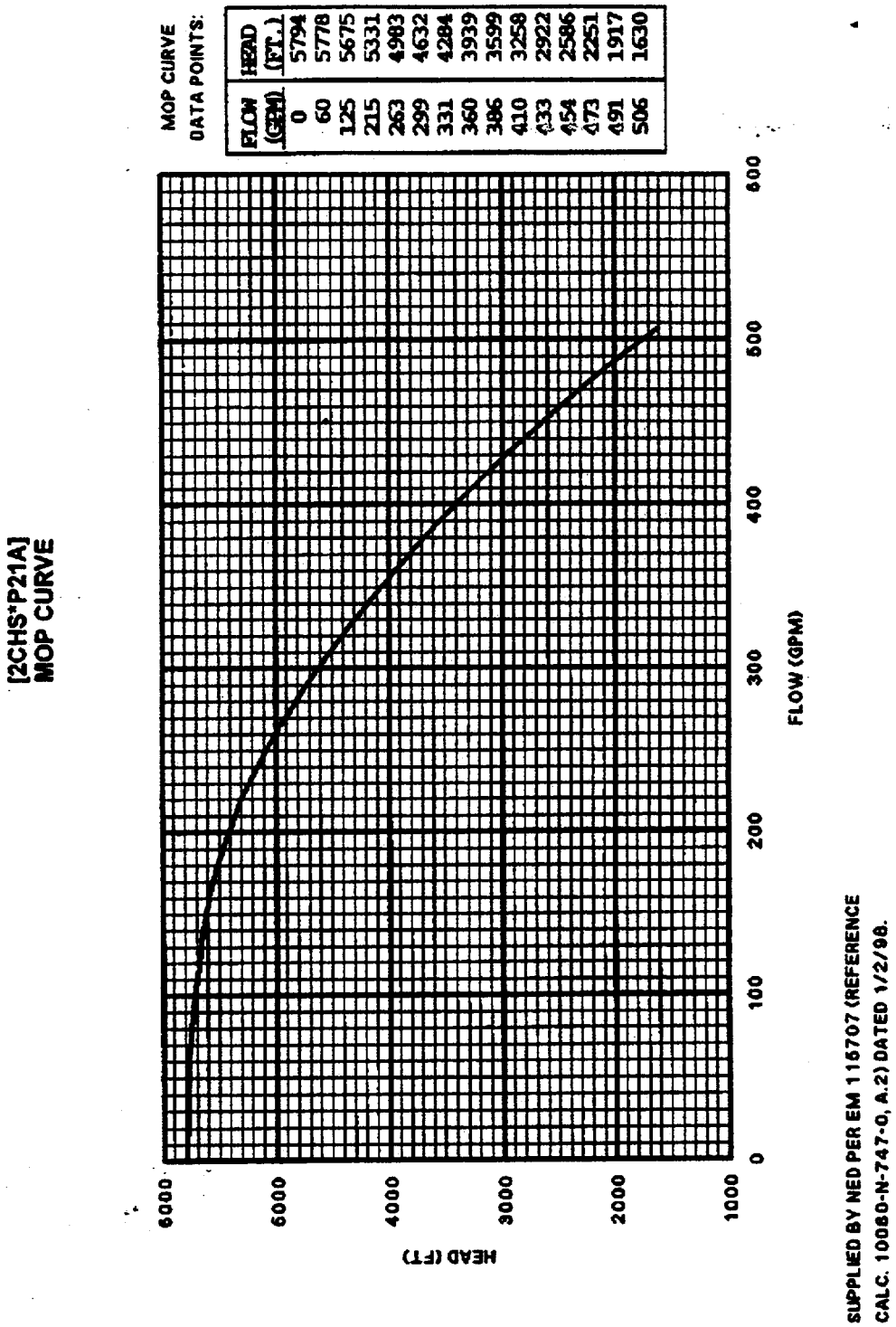
There is no installed instrumentation provided to measure flow rate for these Emergency Diesel Generator Fuel Oil Transfer Pumps. However, a level sight glass does exist on the side of the Diesel Generator Fuel Oil Day Tank which can be used to measure a change in level over time as the pumps transfer fuel oil from the underground Storage Tank to the Day Tank. The reading scale for measuring the level change over time, and the calculational method yield an accuracy within ± 2% as required by OM-6, Paragraph 4.6.1.1, "Quality", and Table 1, "Acceptable Instrument Accuracy".

Alternate Test: Flow rate will be calculated by measuring the level change over time in the Diesel Generator Fuel Oil Day Tank, and converting this data into Fuel Oil Transfer Pump flow rate at least quarterly per 2OST-36.1 and 2OST-36.2 (Emergency Diesel Generator and Fuel Oil Transfer Pump Tests).

References: OM-6, Paragraphs 4.6.1.1, 4.6.5 and 5.2, and Tables 1 and 2.

SECTION VI: PUMP MINIMUM OPERATING POINT (MOP) CURVES

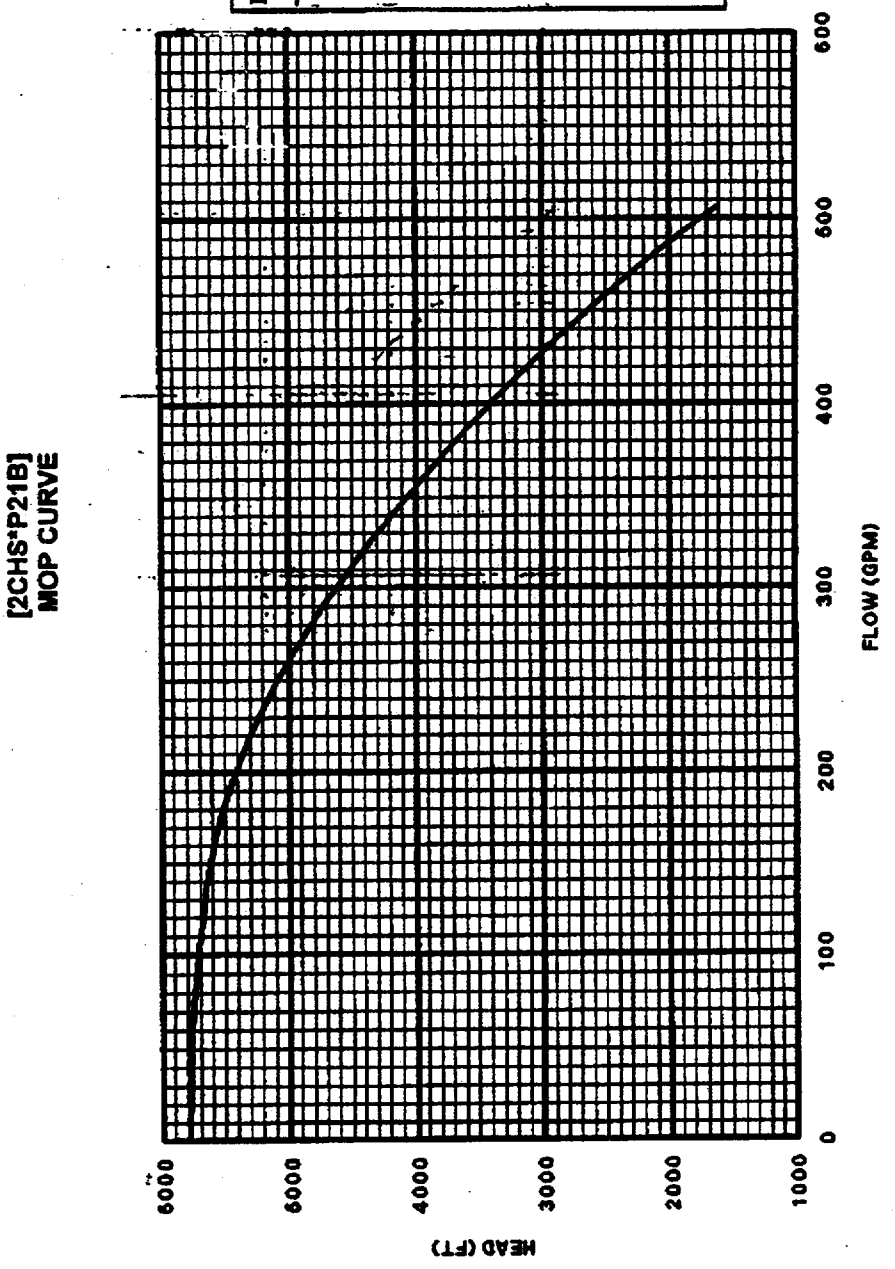
Pump Name: 21A Charging Pump **Pump Number:** 2CHS*P21A



Pump Name: 21B Charging Pump **Pump Number:** 2CHS*P21B

MOP CURVE DATA POINTS:

FLOW (GPM)	HEAD (FT.)
0	5794
60	5778
125	5675
215	5331
263	4983
299	4632
331	4284
360	3939
386	3599
410	3258
433	2922
454	2586
473	2251
491	1917
506	1630

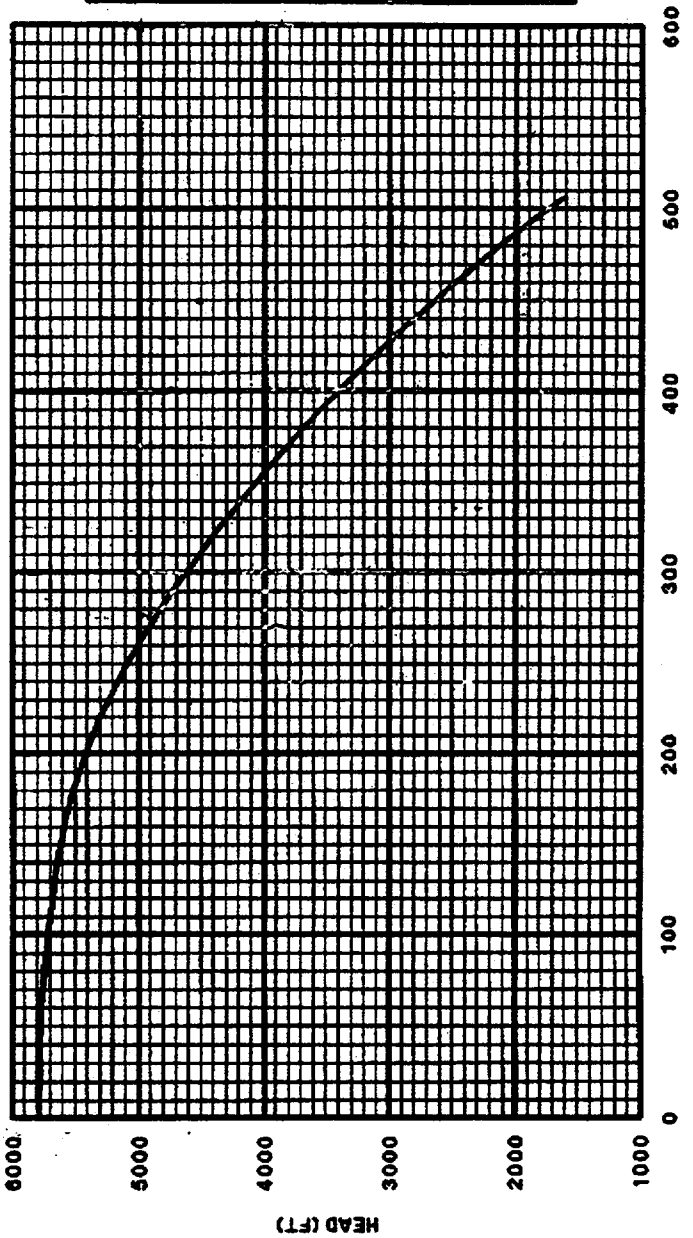


SUPPLIED BY NED PER EM 116707 (REFERENCE CALC. 10080-N-747-0, A.2) DATED 1/2/98.

Pump Name: 21C Charging Pump **Pump Number:** 2CHS*P21C

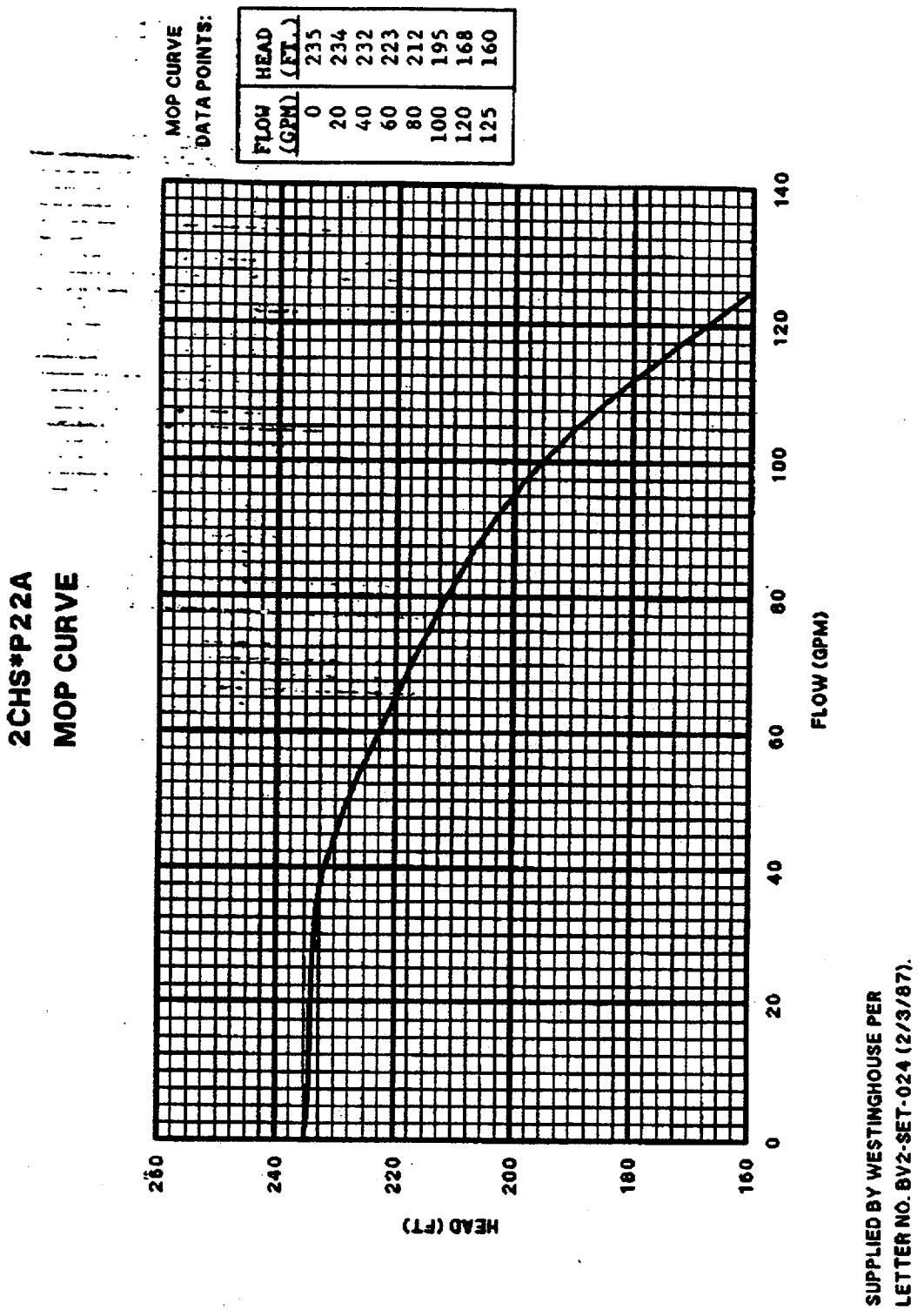
MOP CURVE DATA POINTS:

FLOW (GPM)	HEAD (FT.)
0	5794
60	5778
125	5675
215	5331
263	4983
299	4632
331	4284
360	3939
386	3599
410	3258
433	2922
454	2586
473	2251
491	1917
506	1630

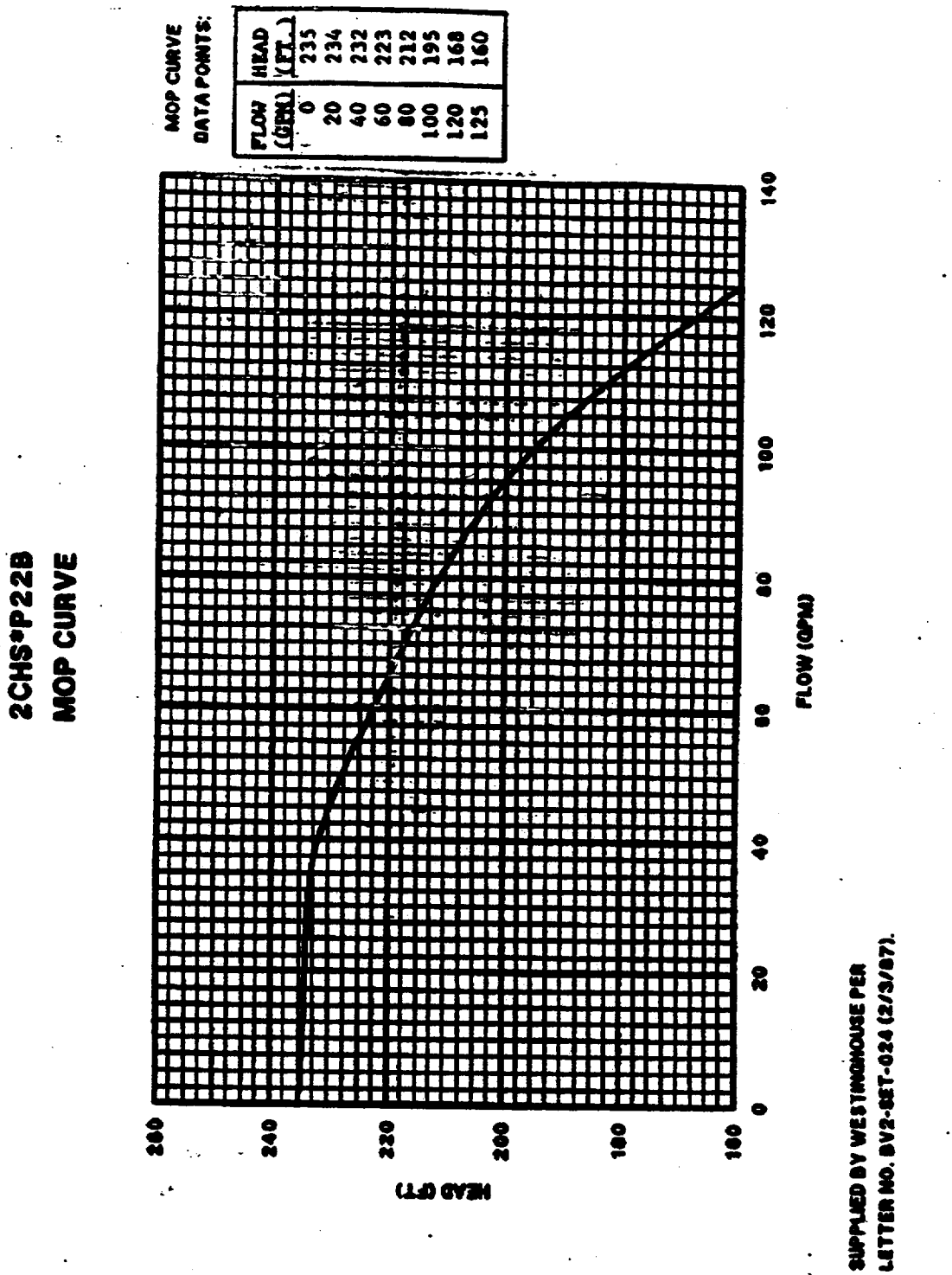


SUPPLIED BY NED PER EM 115707 (REFERENCE CALC. 10080-N-747-0, A.2) DATED 1/2/98.

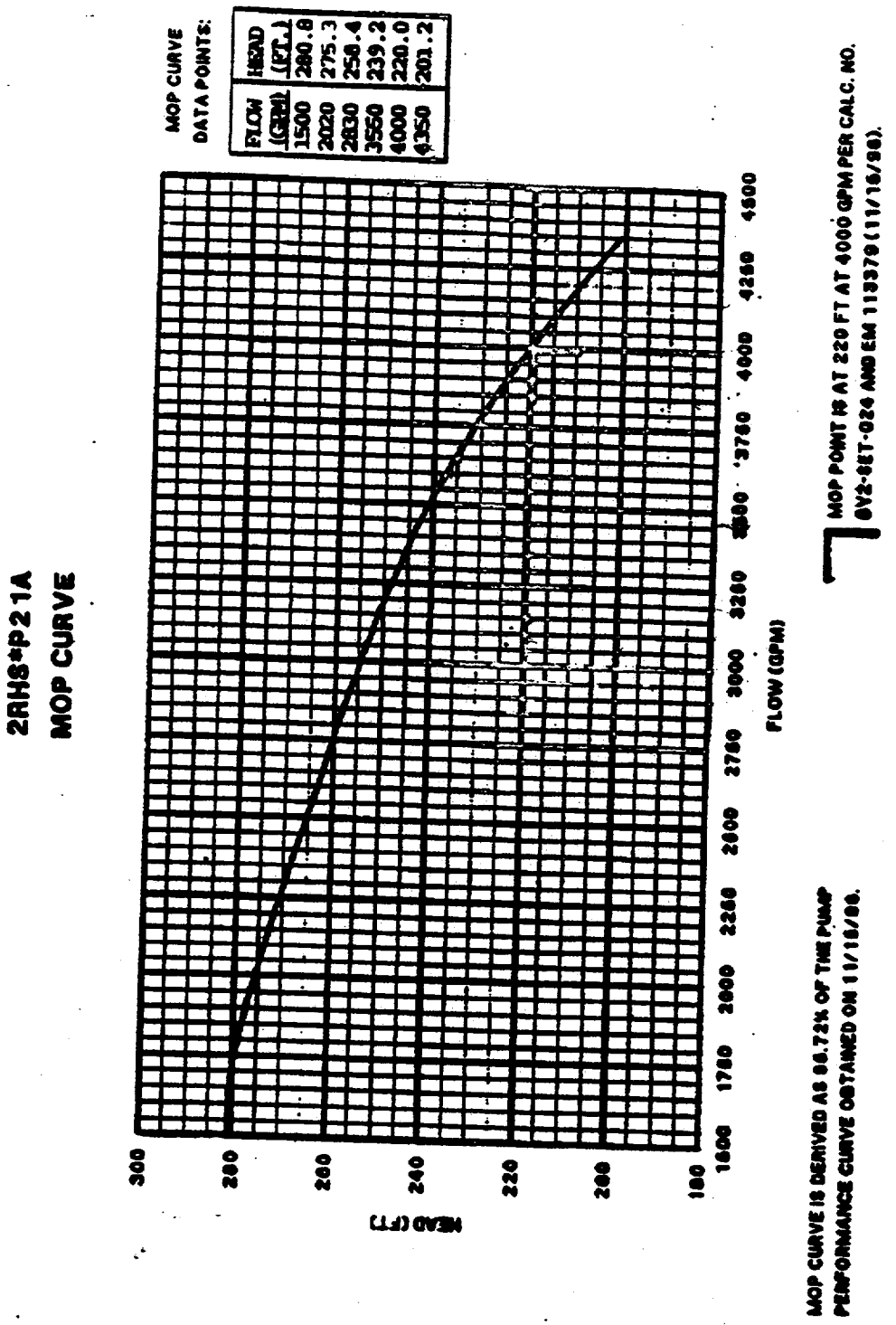
Pump Name: 22A Boric Acid Transfer Pump **Pump Number:** 2CHS*P22A



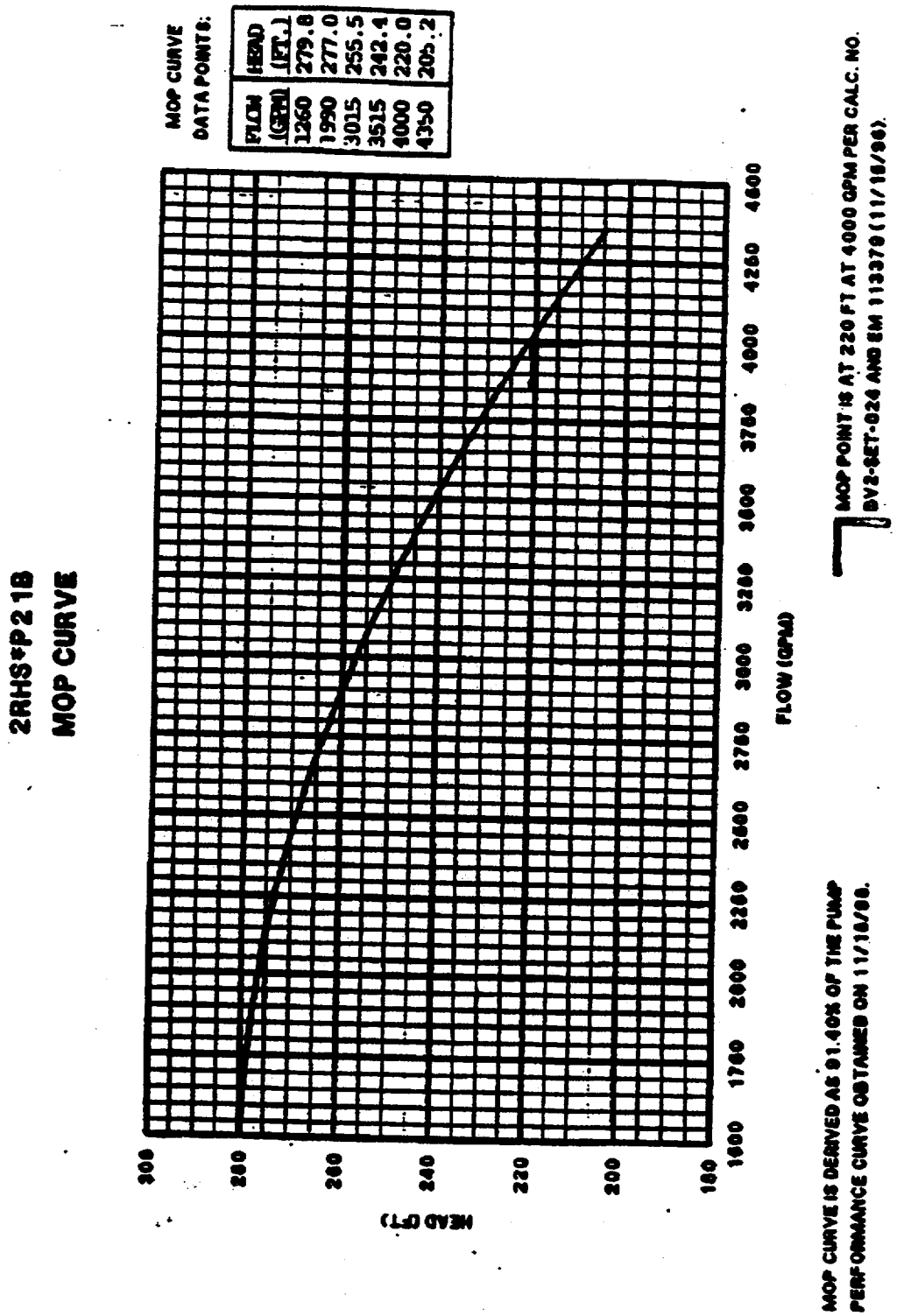
Pump Name: 22B Boric Acid Transfer Pump **Pump Number:** 2CHS*P22B



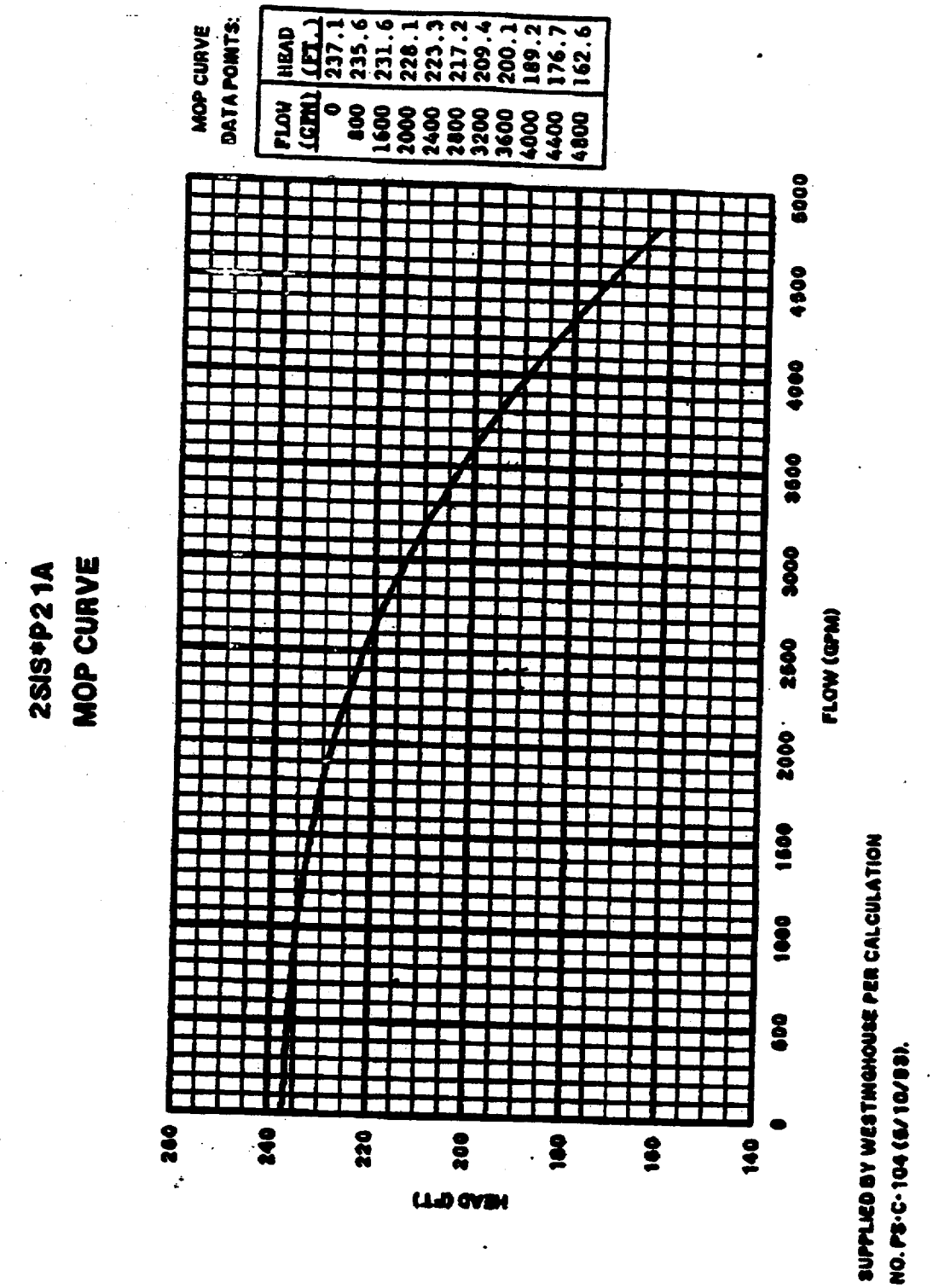
Pump Name: 21A Residual Heat Removal Pump **Pump Number:** 2RHS*P21A



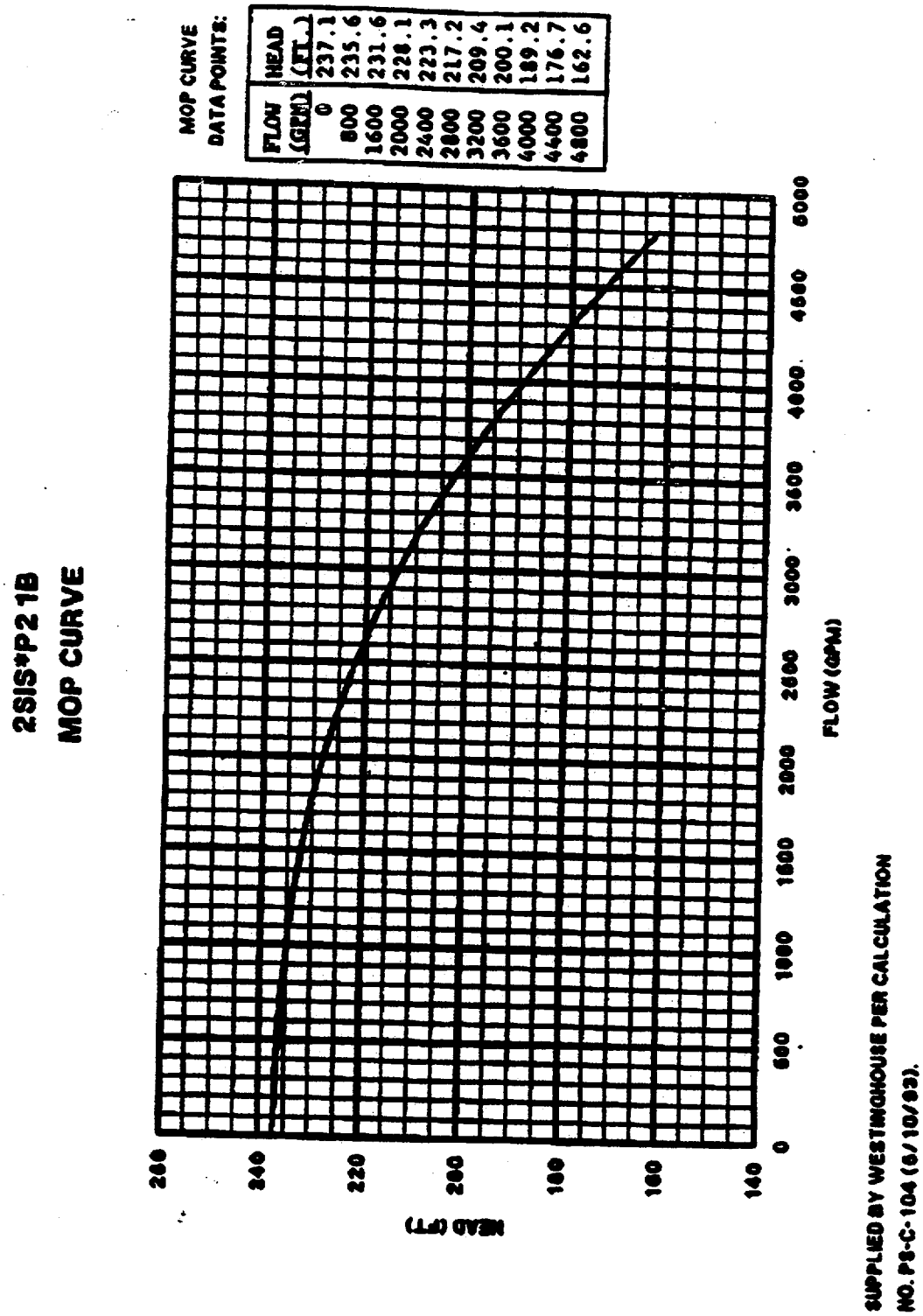
Pump Name: 21B Residual Heat Removal Pump **Pump Number:** 2RHS*P21B



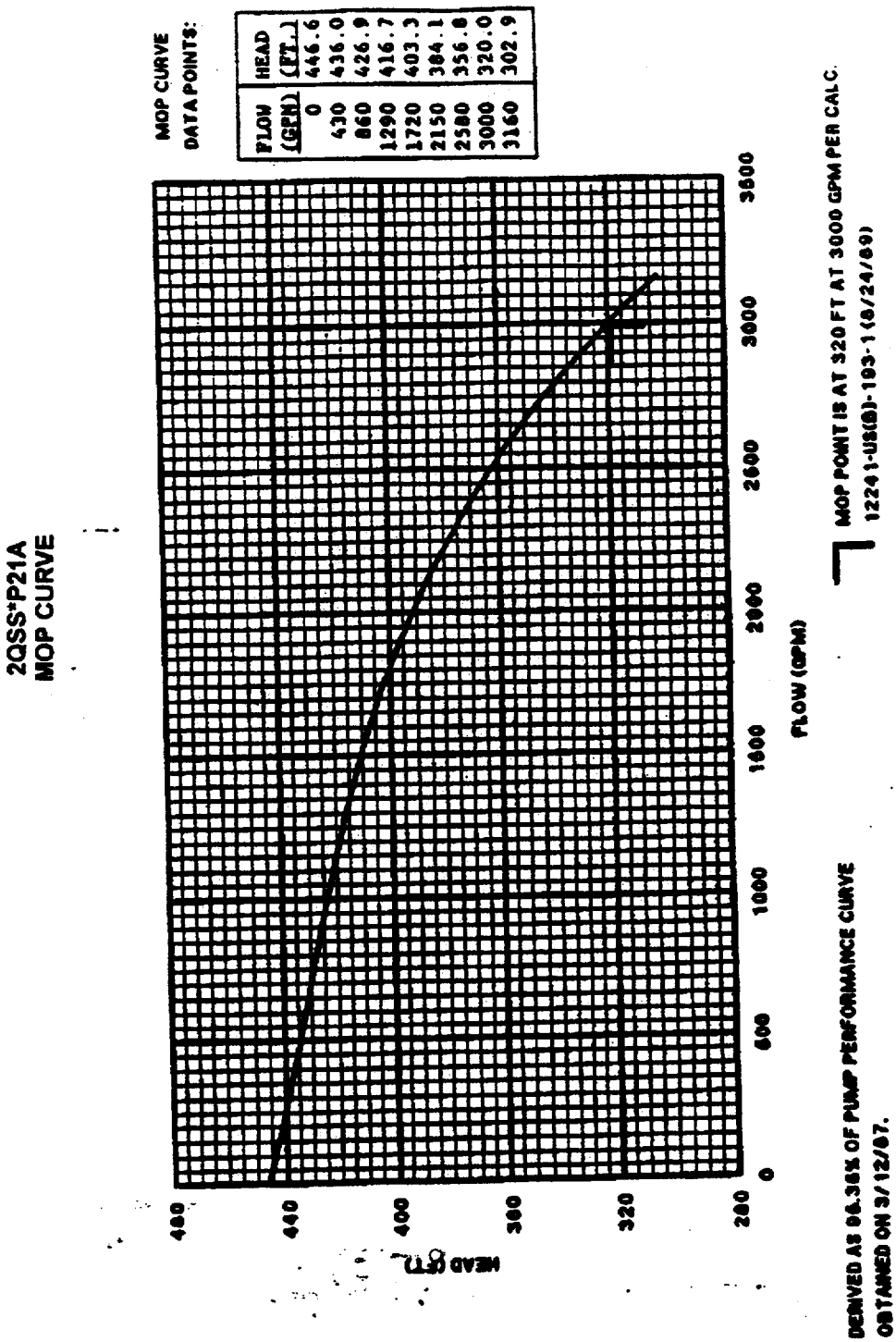
Pump Name: 21A Low Head Safety Injection Pump **Pump Number:** 2SIS*P21A



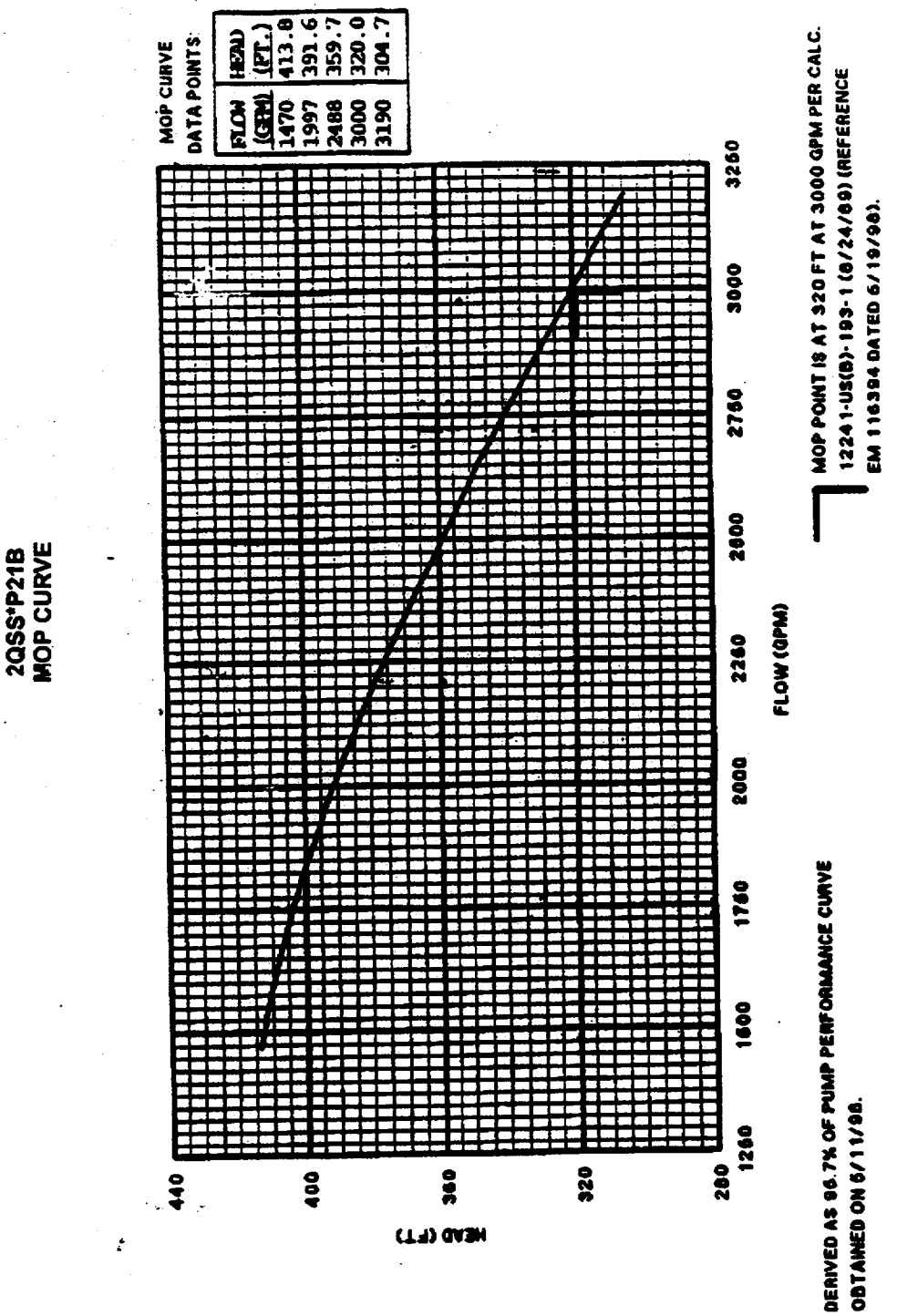
Pump Name: 21B Low Head Safety Injection Pump **Pump Number:** 2SIS*P21B



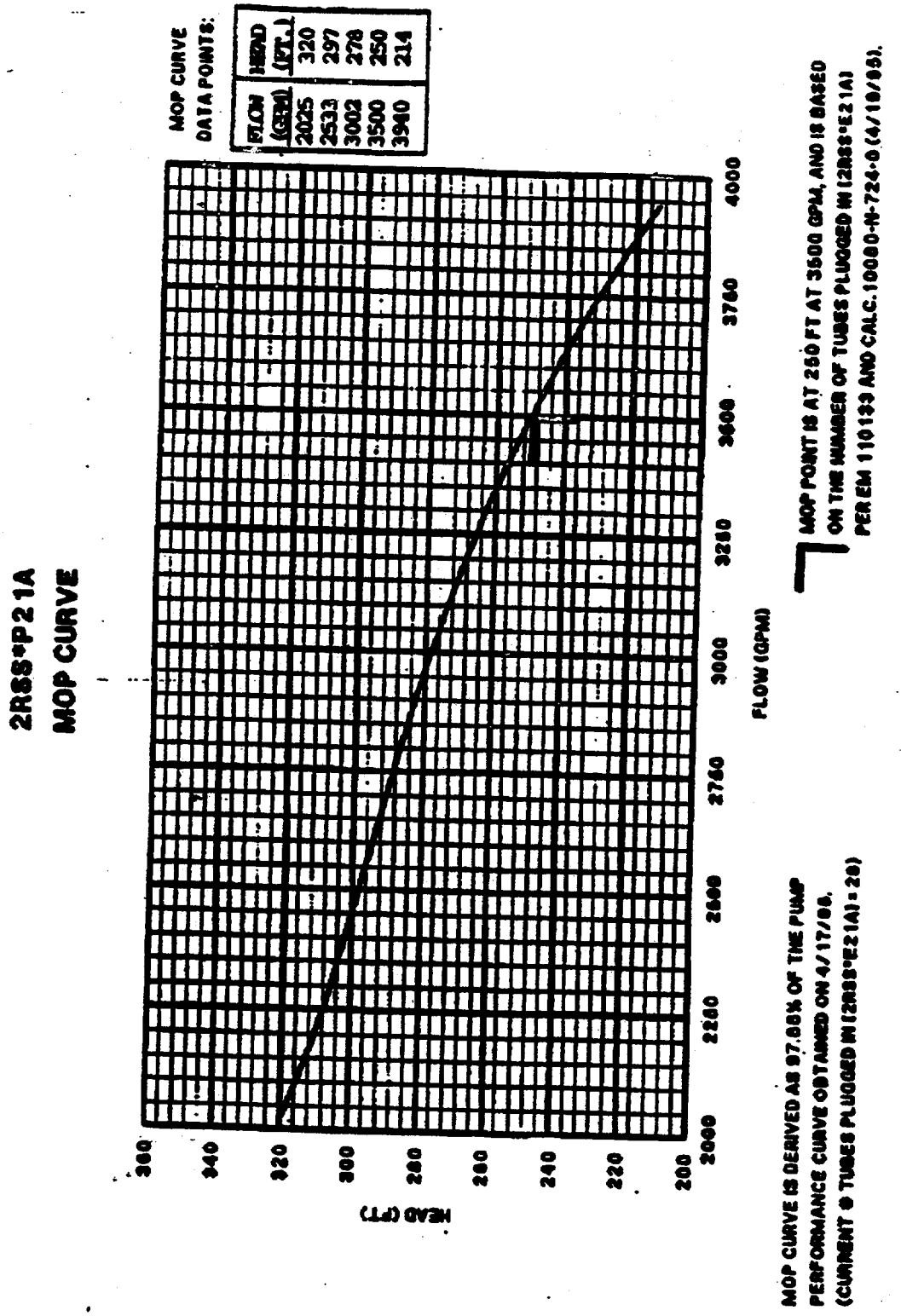
Pump Name: 21A Quench Spray Pump **Pump Number:** 2QSS*P21A



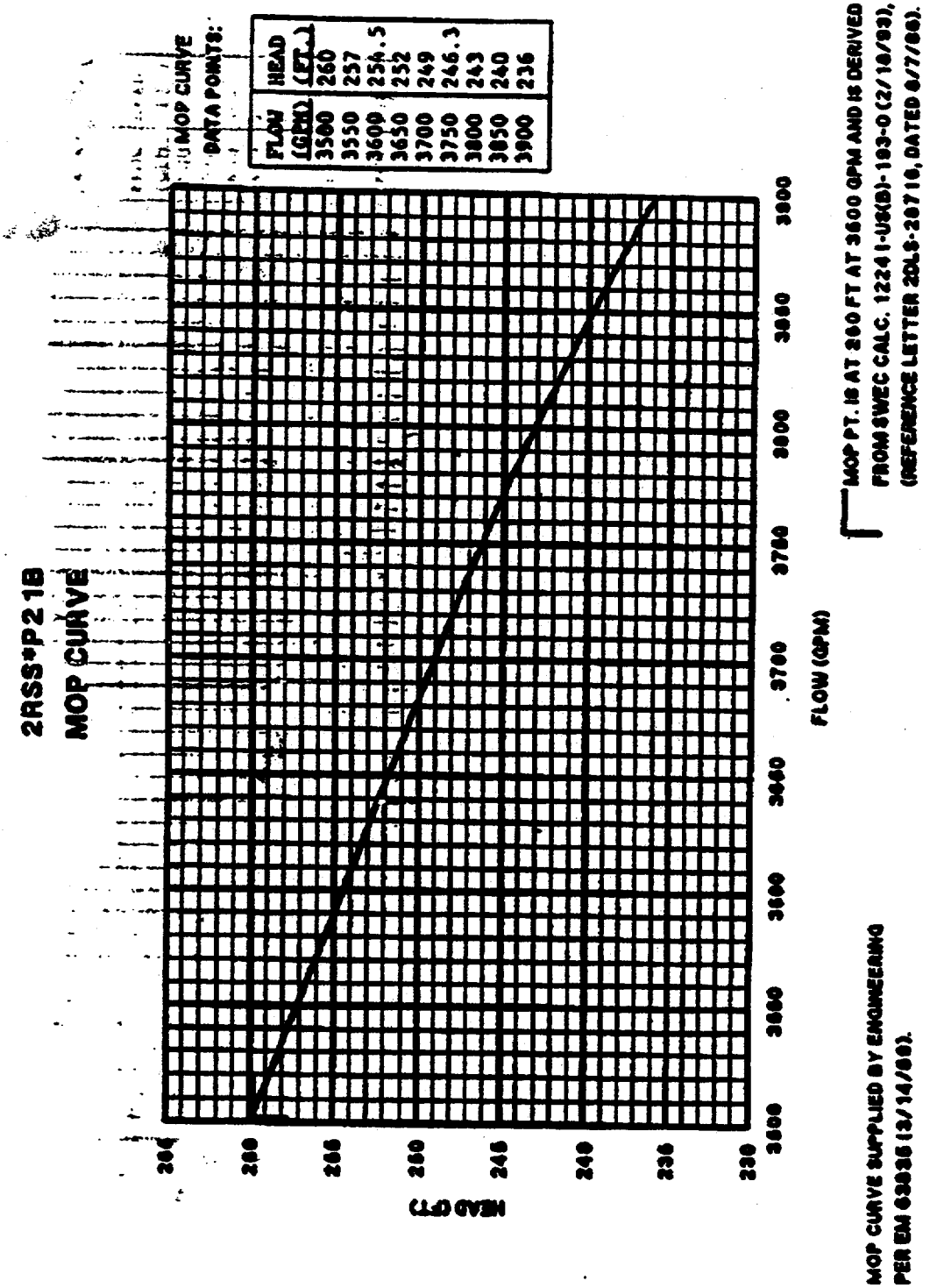
Pump Name: 21B Quench Spray Pump **Pump Number:** 2QSS*P21B



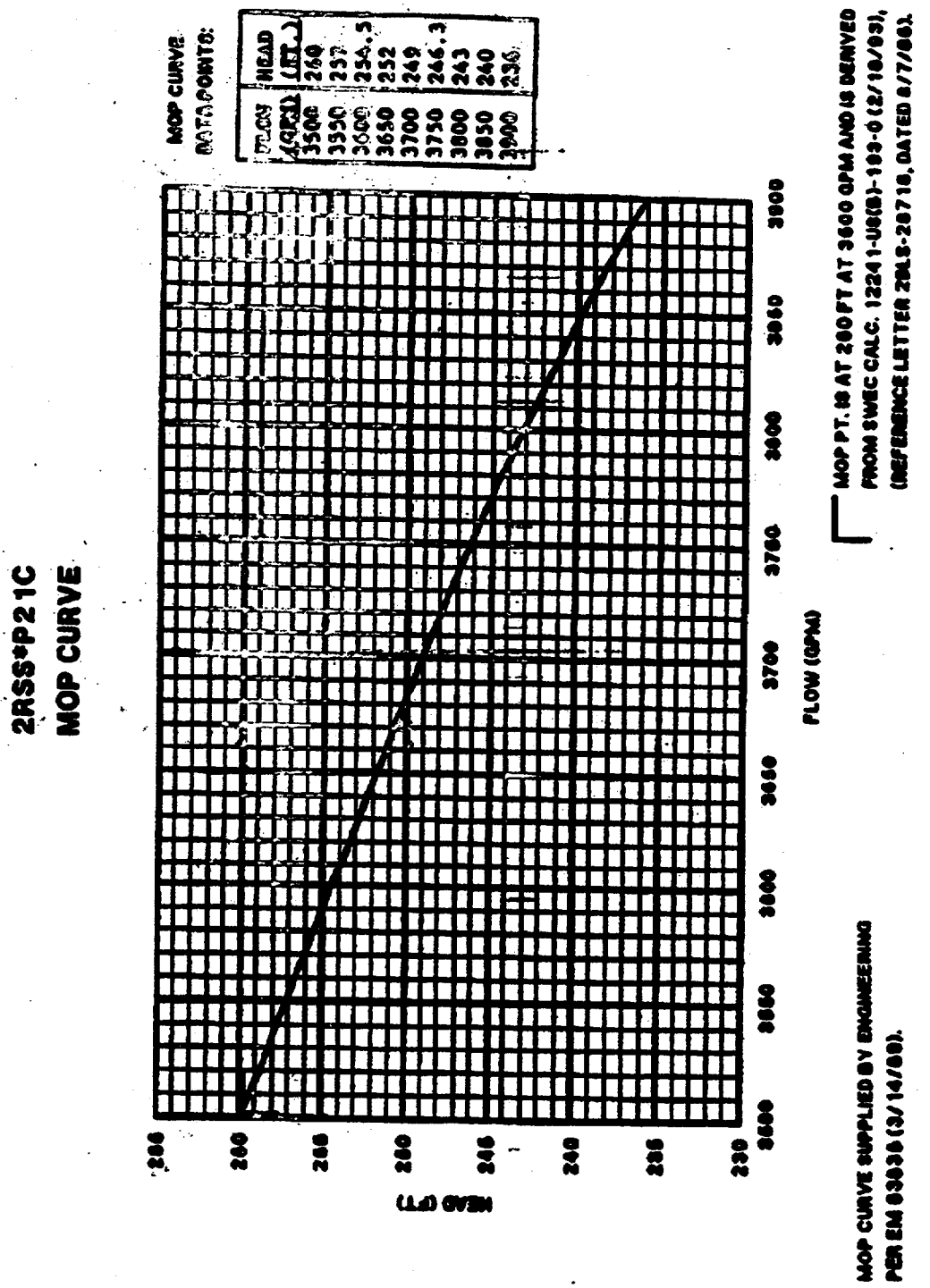
Pump Name: 21A Recirculation Spray Pump **Pump Number:** 2RSS*P21A



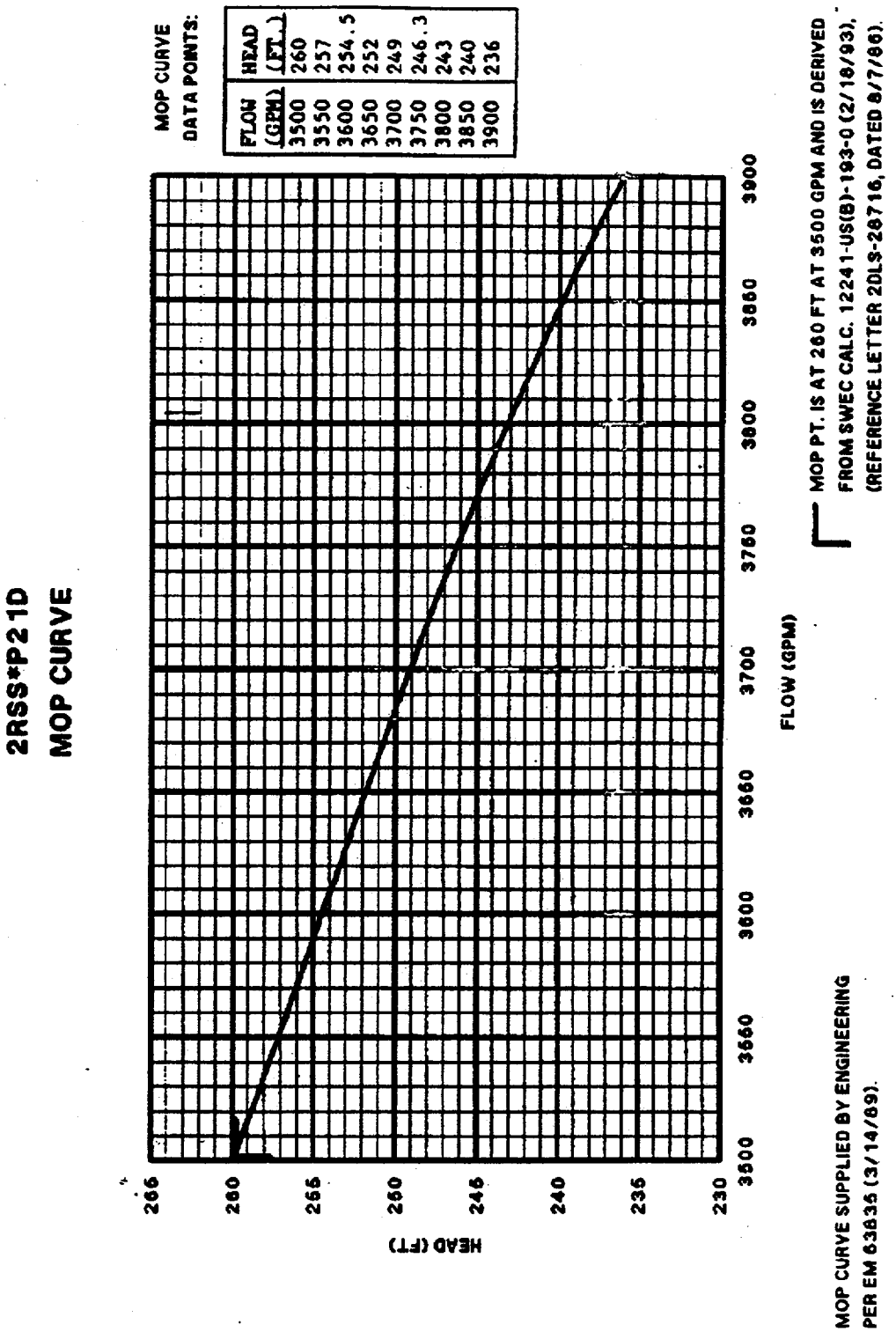
Pump Name: 21B Recirculation Spray Pump **Pump Number:** 2RSS*P21B



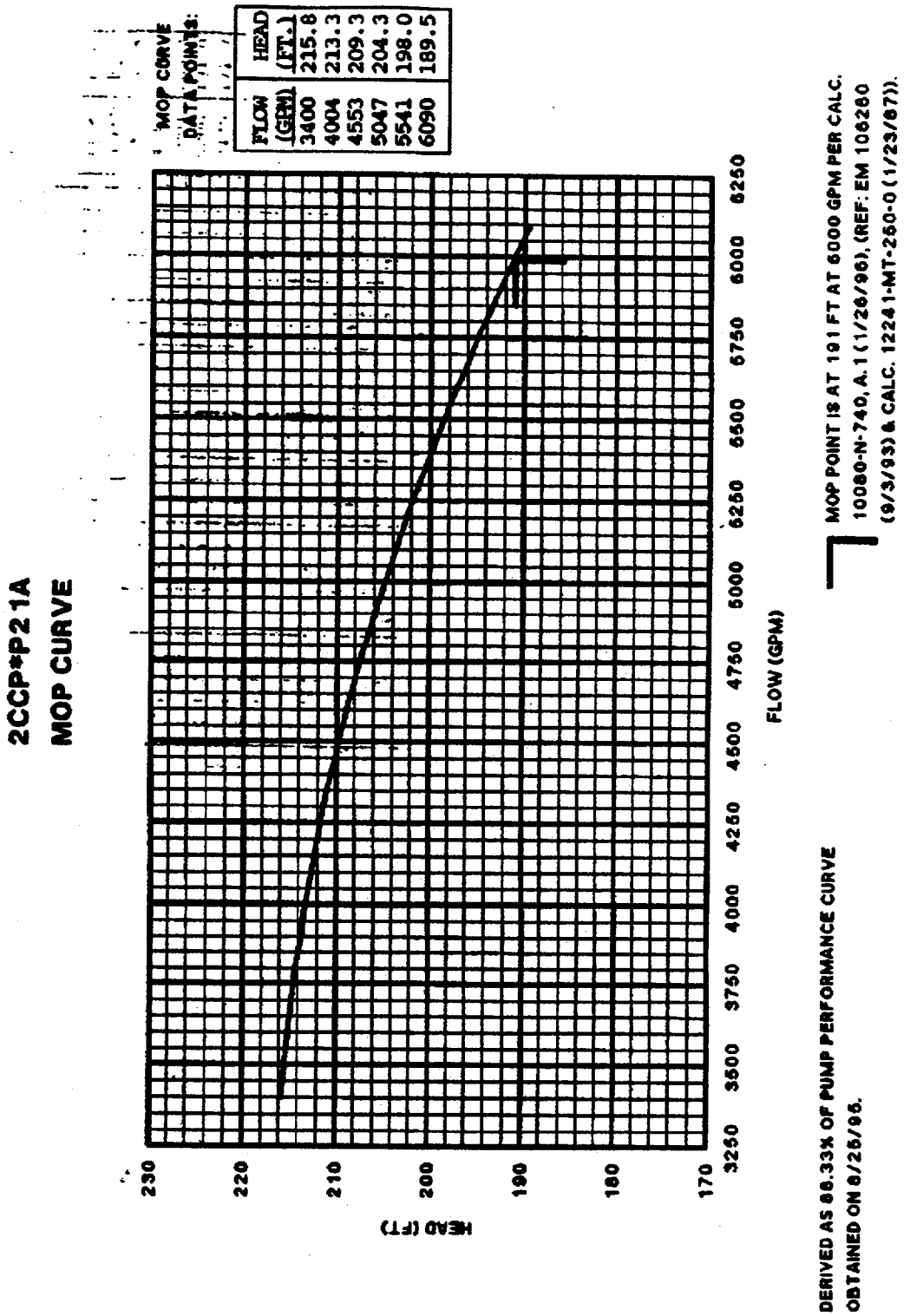
Pump Name: 21C Recirculation Spray Pump **Pump Number:** 2RSS*P21C



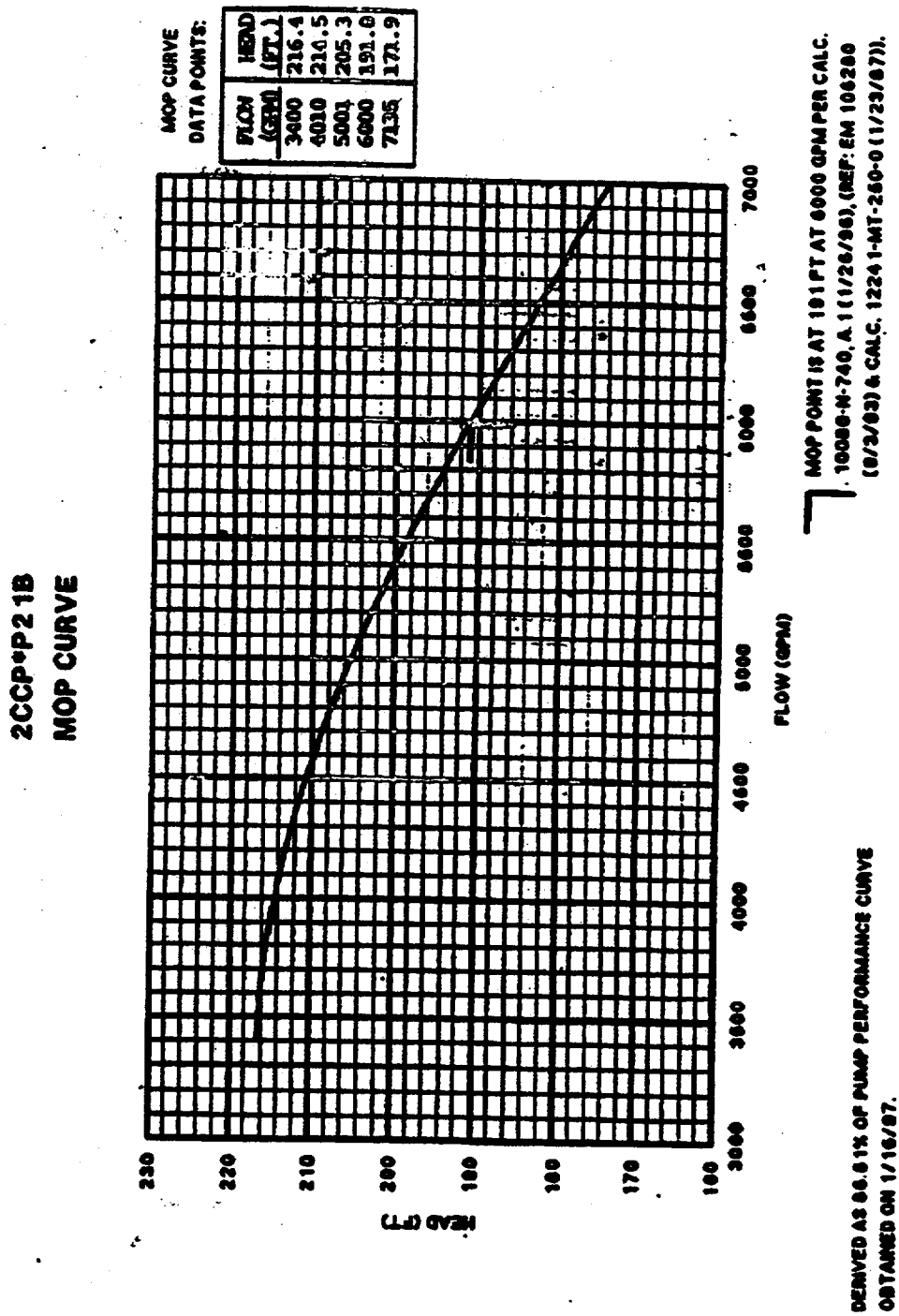
Pump Name: 21D Recirculation Spray Pump **Pump Number:** 2RSS*P21D



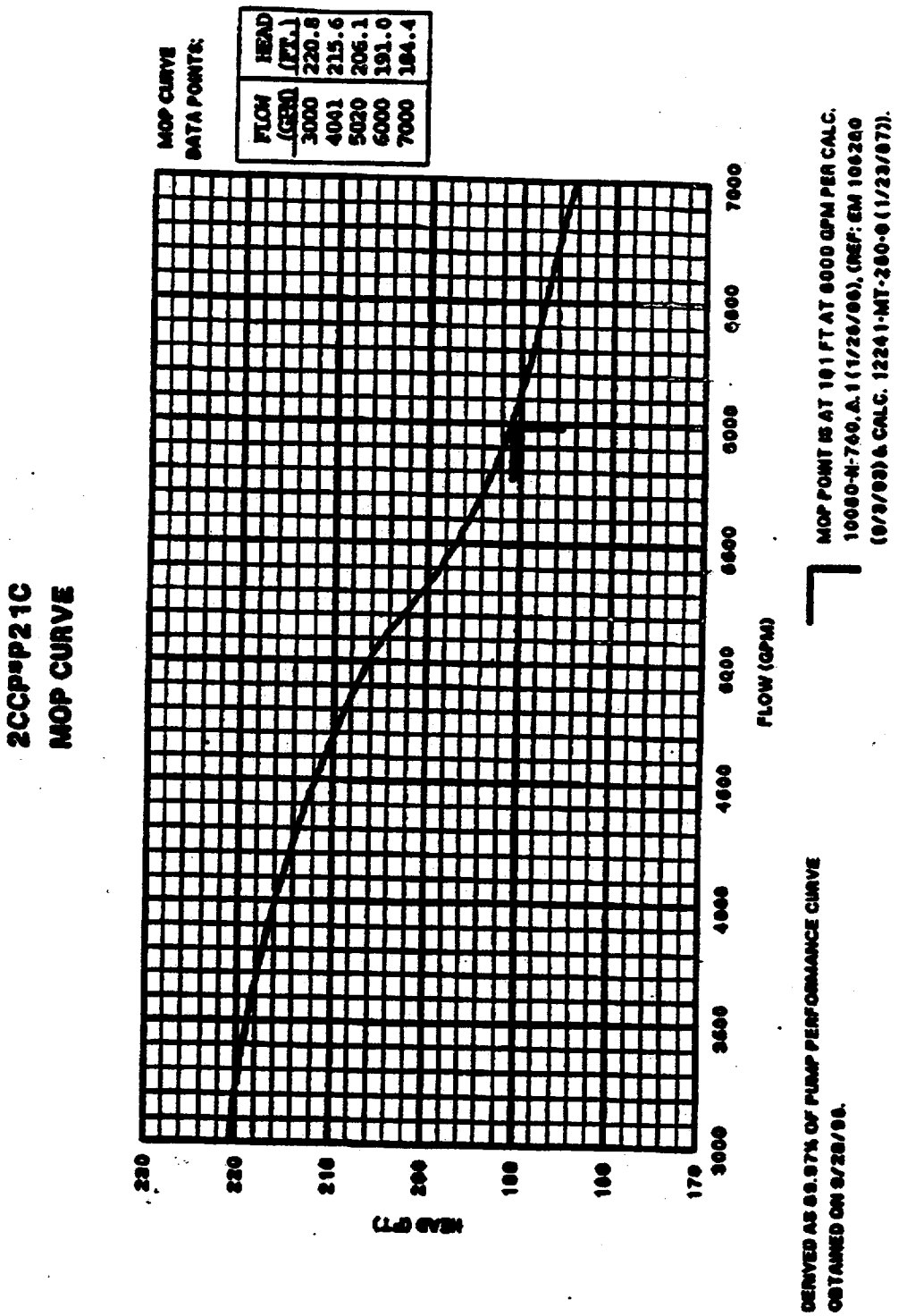
Pump Name: 21A Component Cooling Water Pump **Pump Number:** 2CCP*P21A



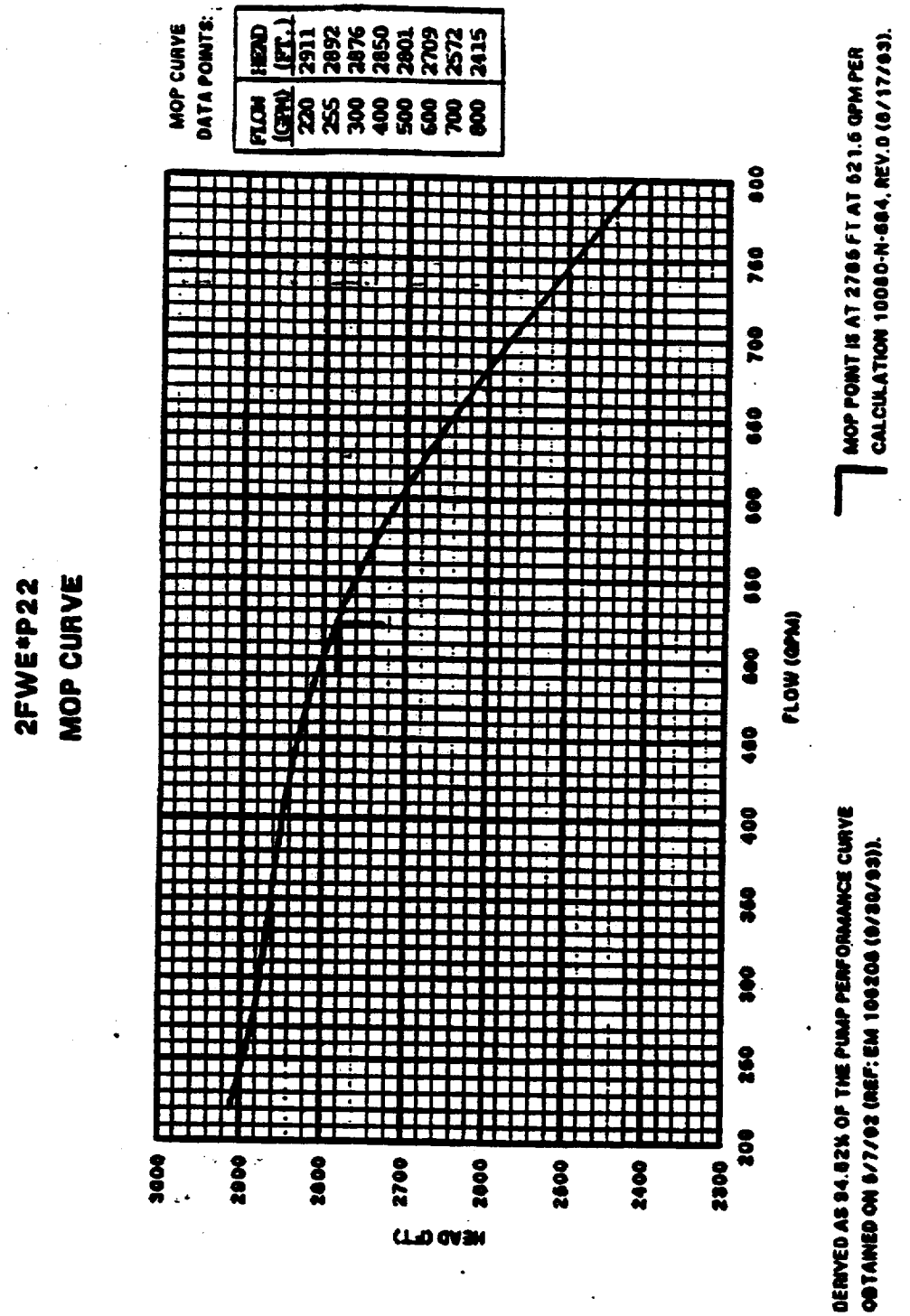
Pump Name: 21B Component Cooling Water Pump **Pump Number:** 2CCP*P21B



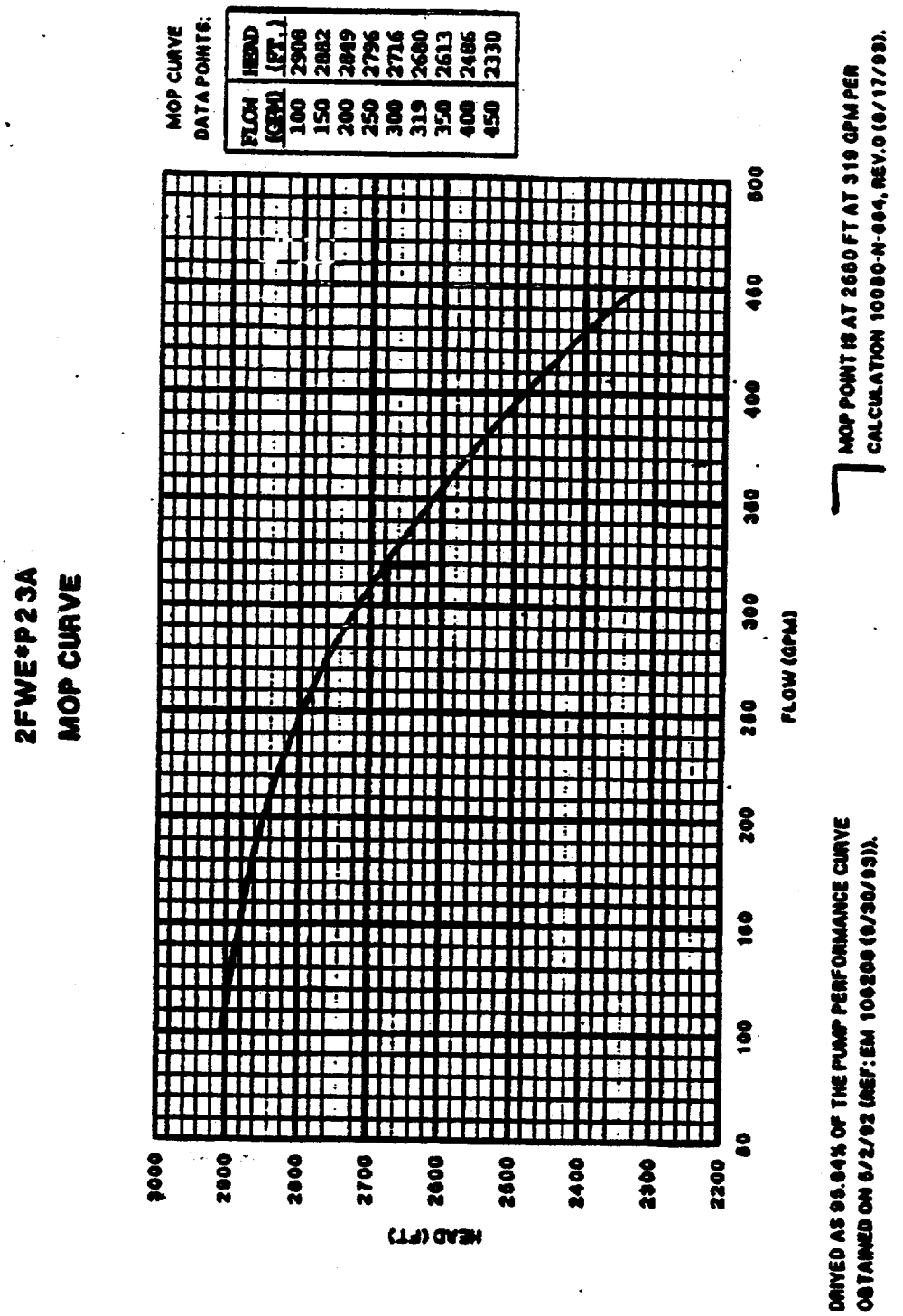
Pump Name: 21C Component Cooling Water Pump **Pump Number:** 2CCP*P21C



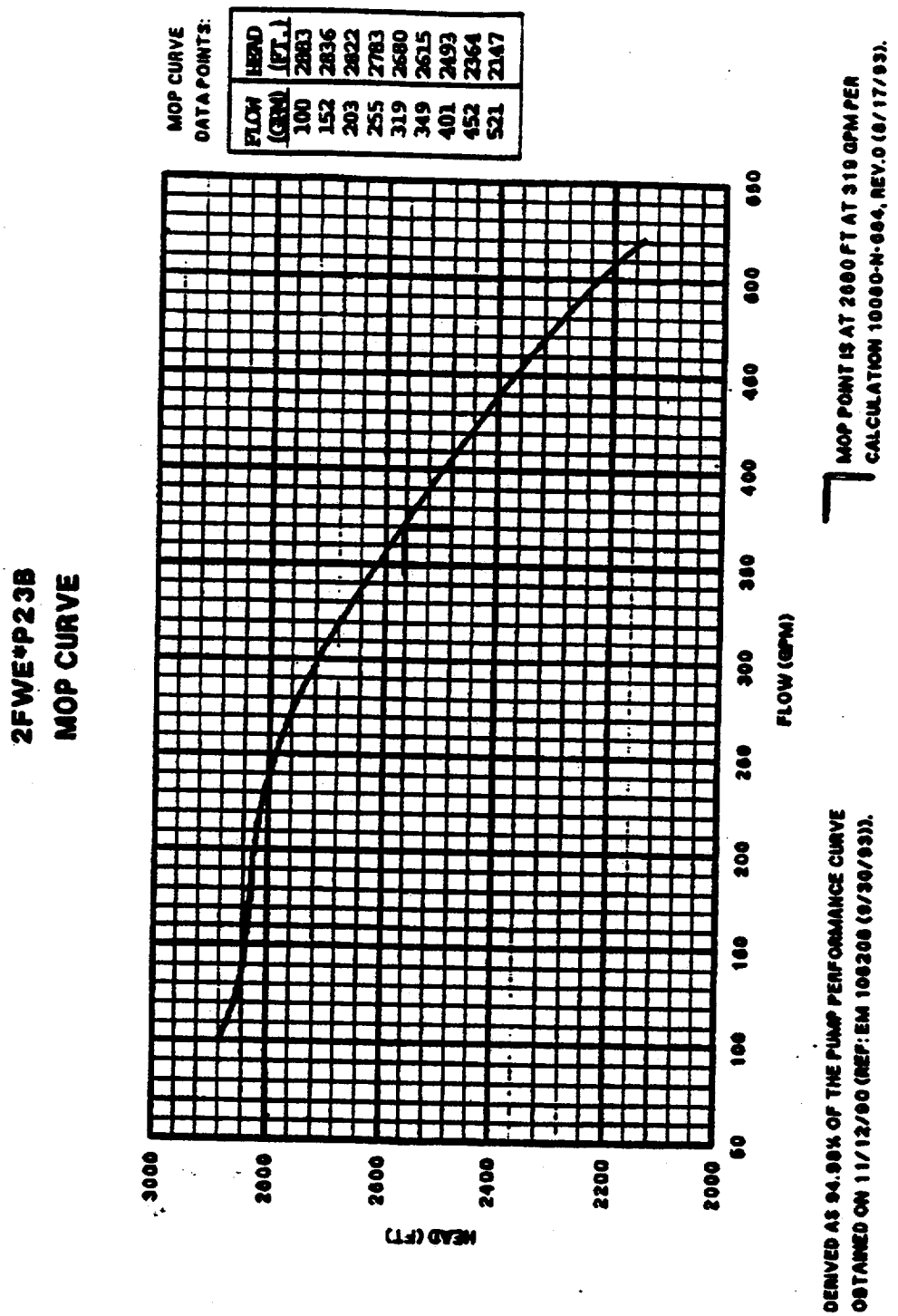
Pump Name: Turbine Driven Auxiliary Feedwater Pump **Pump Number:** 2FWE*P22



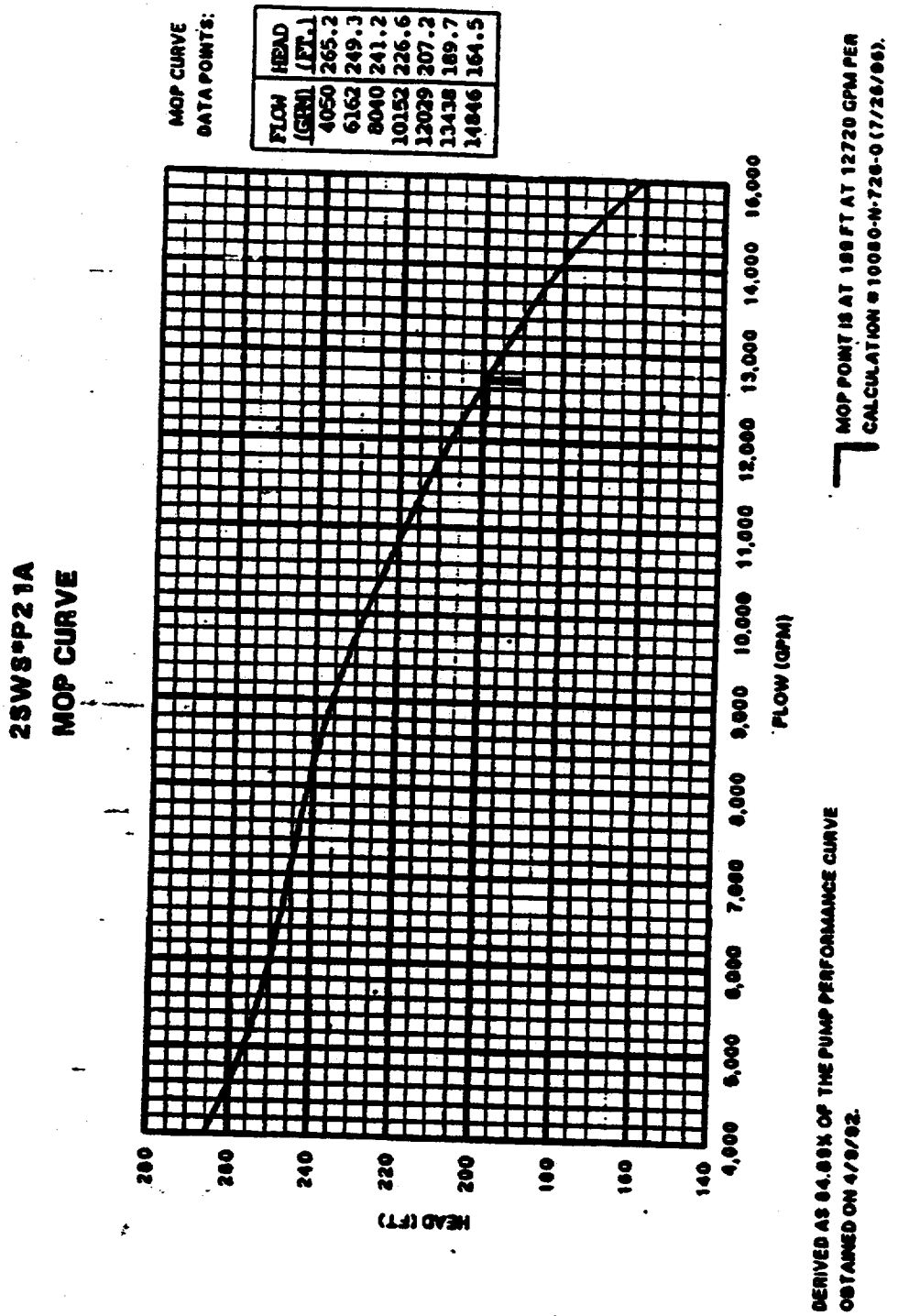
Pump Name: 23A Motor Driven Auxiliary Feedwater Pump **Pump Number:** 2FWE*P23A



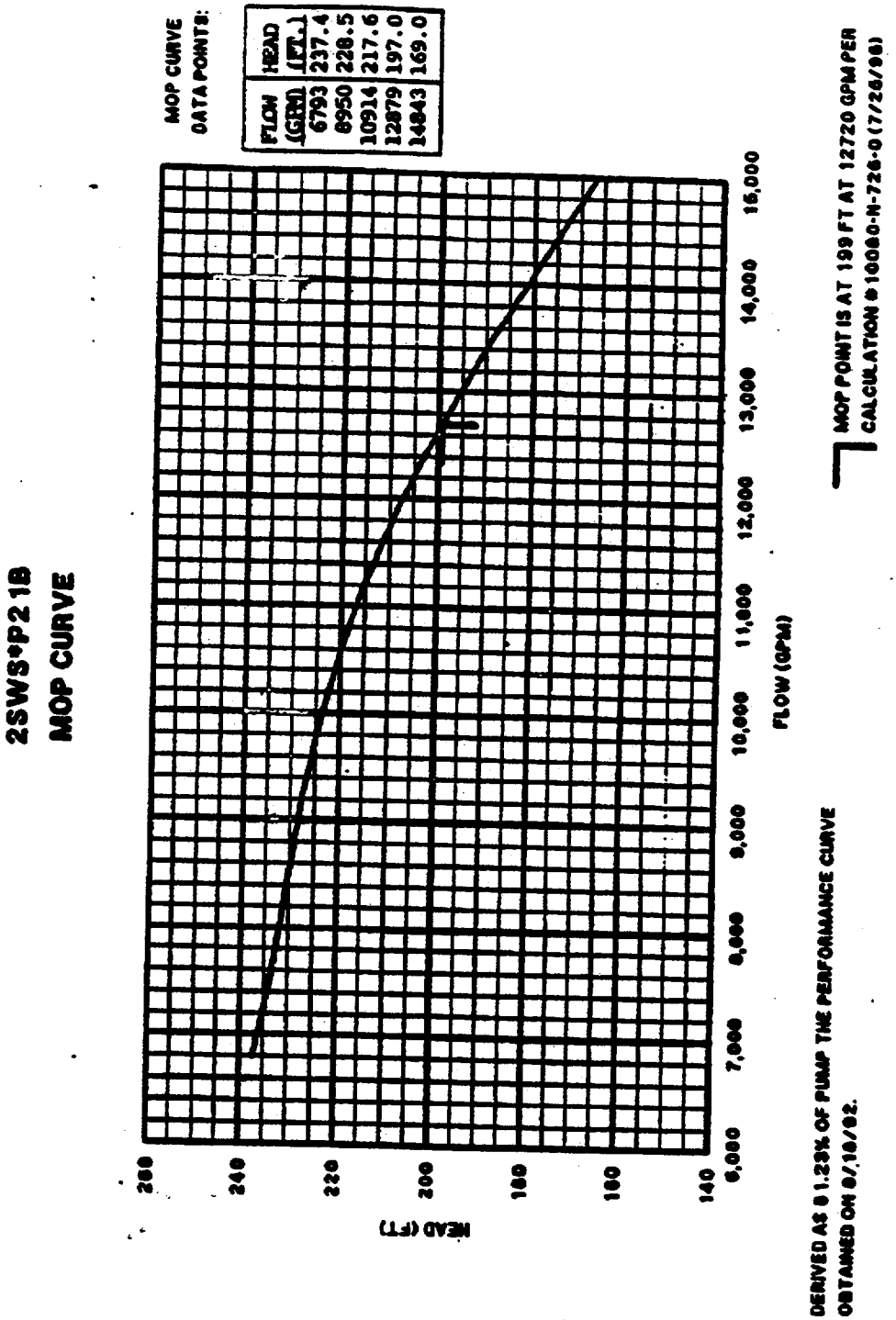
Pump Name: 23B Motor Driven Auxiliary Feedwater Pump **Pump Number:** 2FWE*P23B



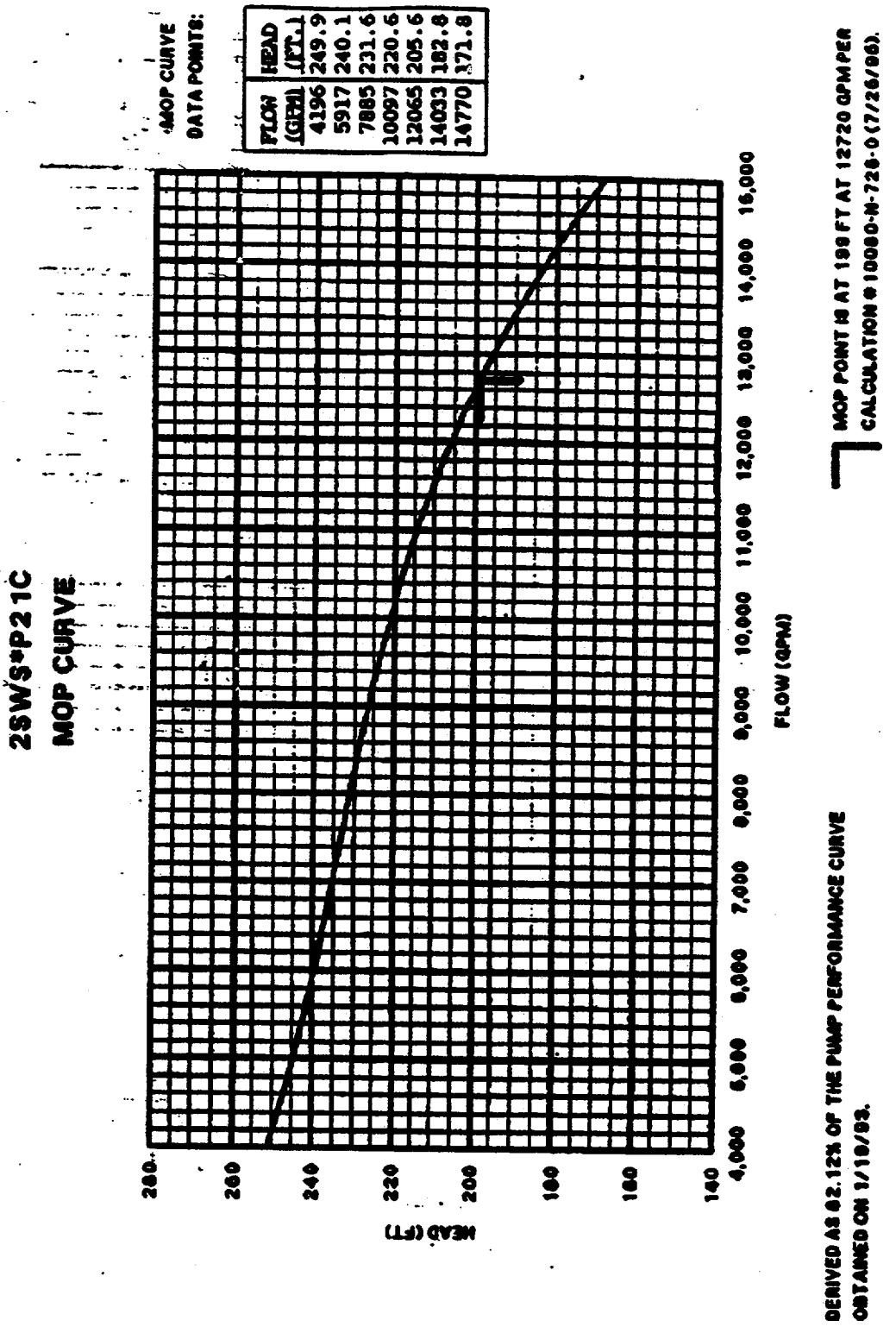
Pump Name: 21A Service Water Pump **Pump Number:** 2SWS*P21A



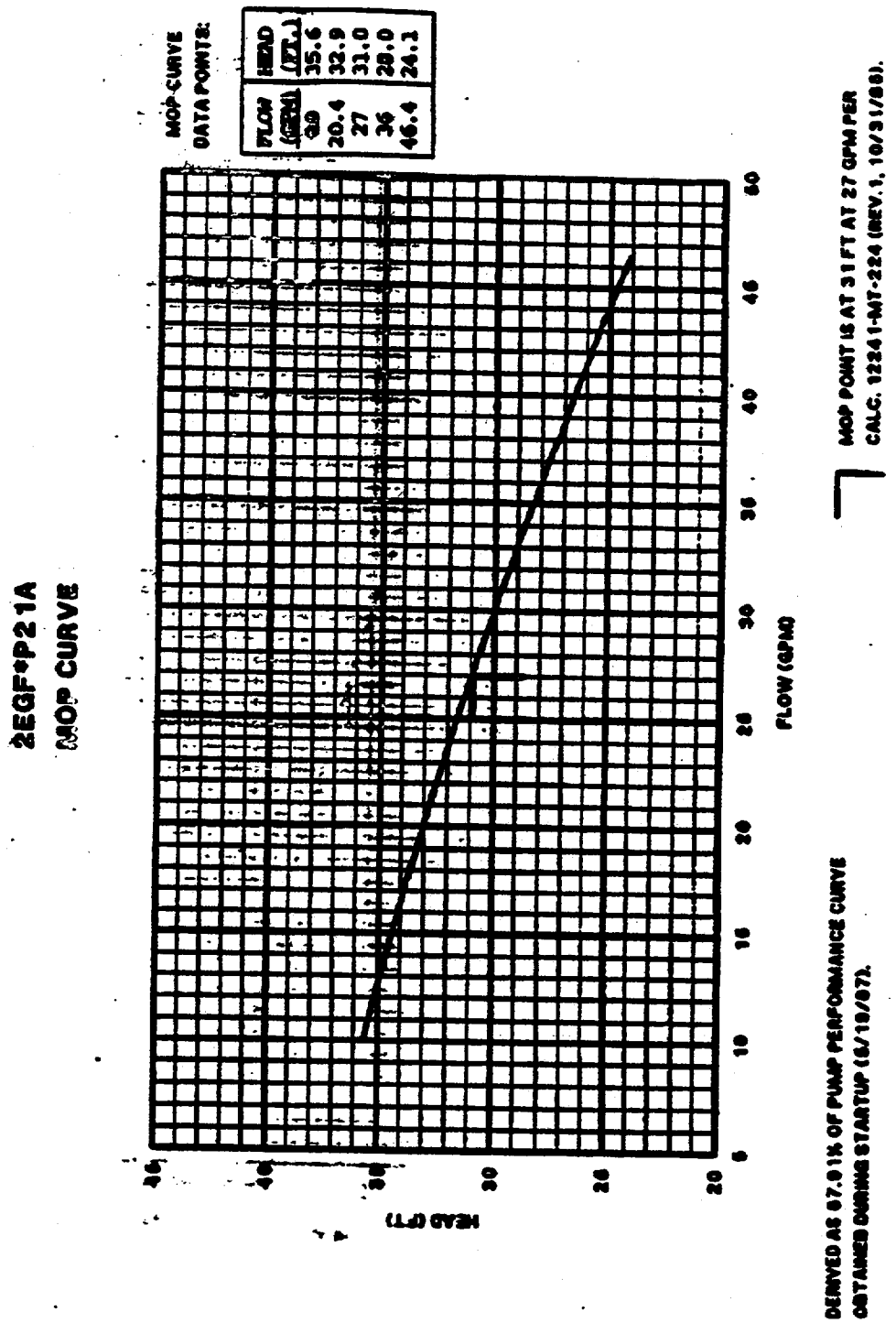
Pump Name: 21B Service Water Pump **Pump Number:** 2SWS*P21B



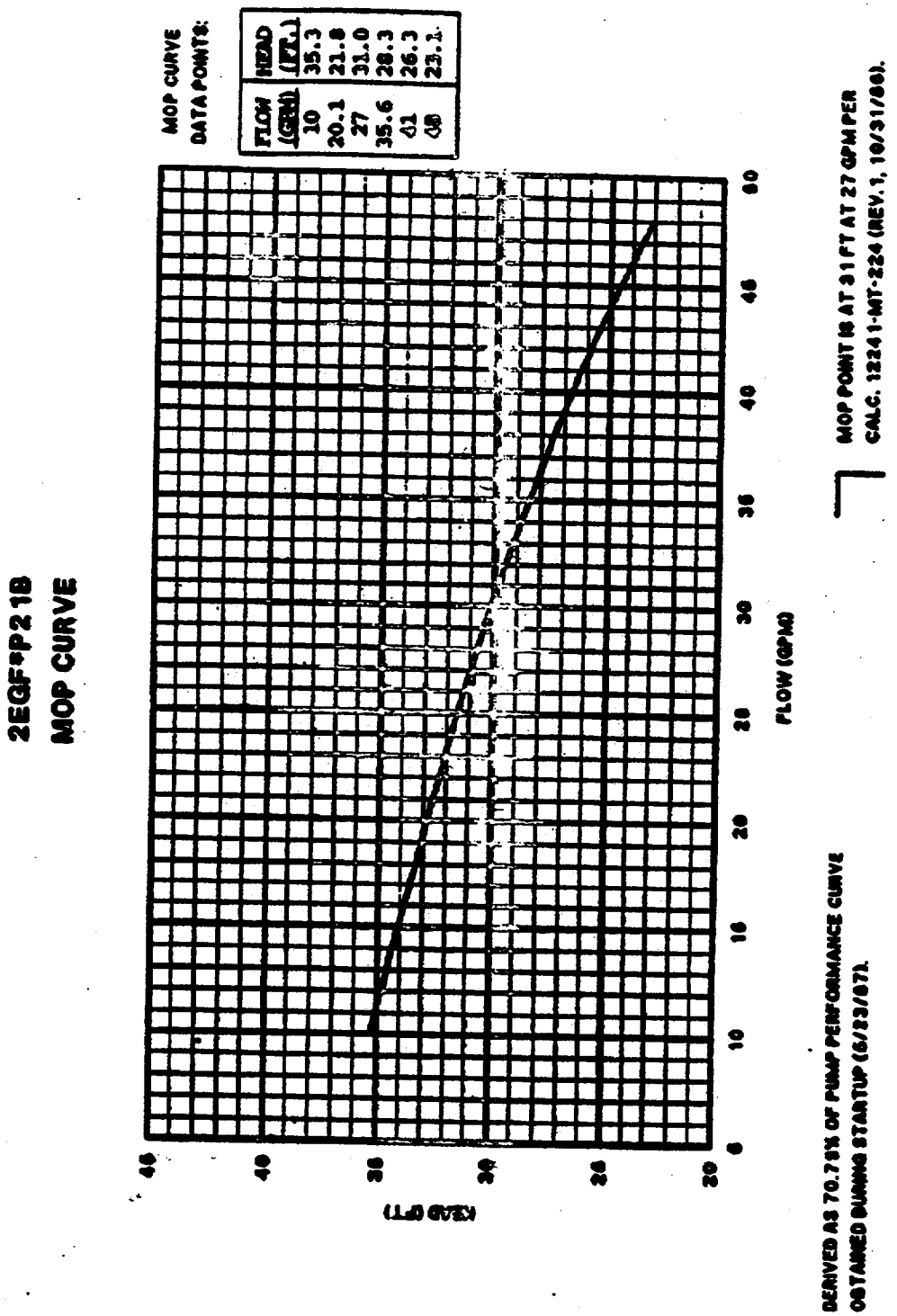
Pump Name: 21C Service Water Pump **Pump Number:** 2SWS*P21C



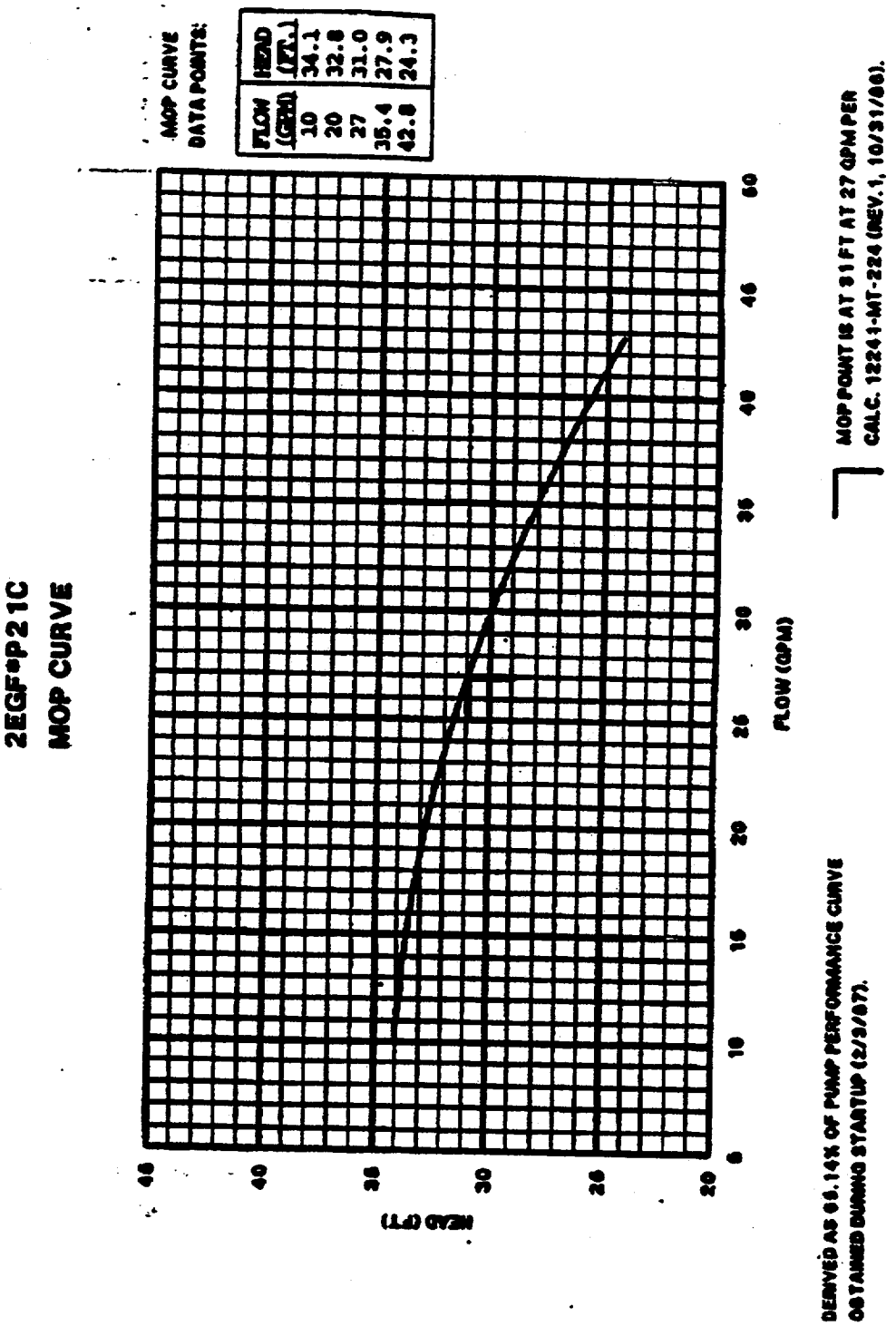
Pump Name: 21A Fuel Oil Transfer Pump **Pump Number:** 2EGF*P21A



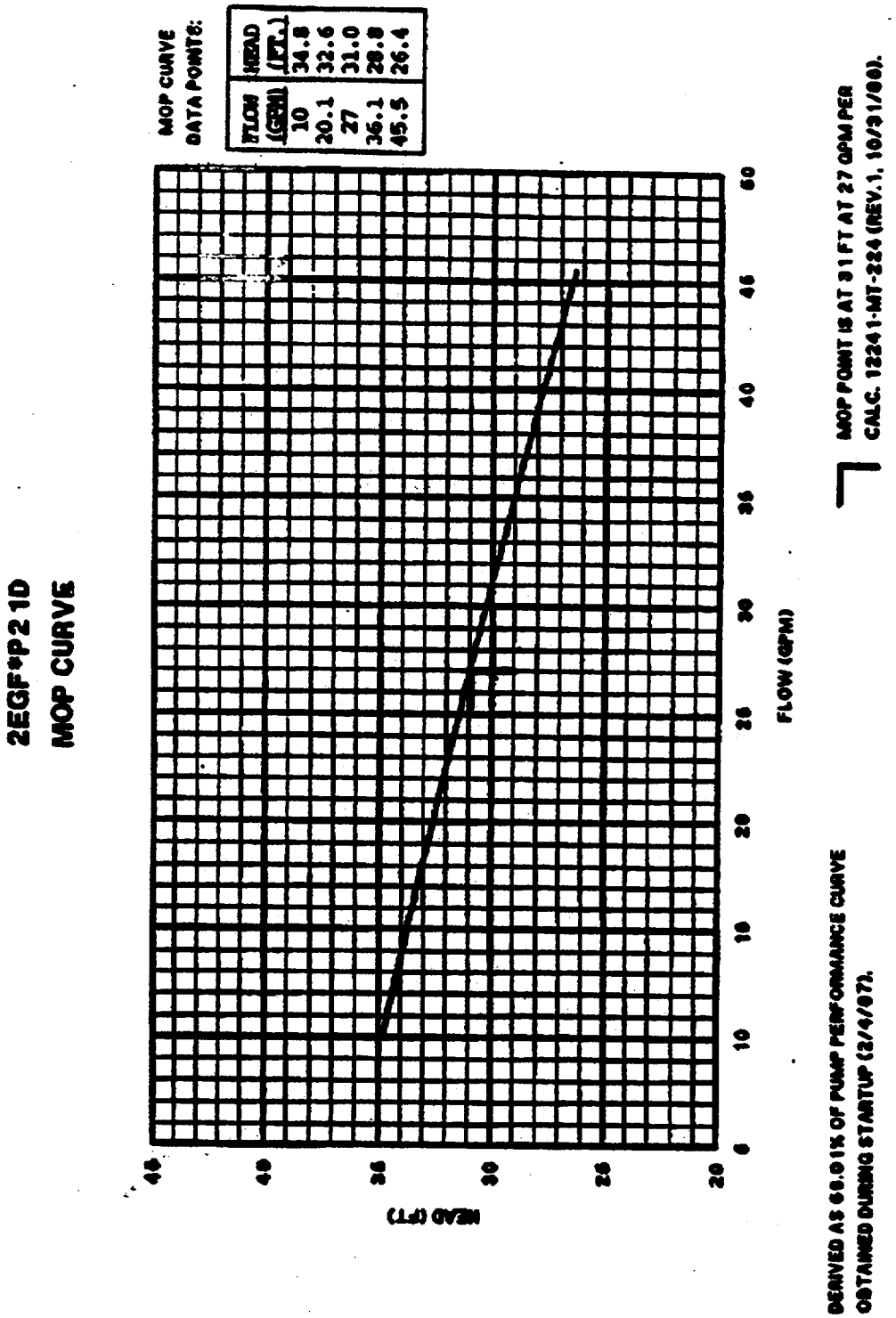
Pump Name: 21B Fuel Oil Transfer Pump **Pump Number:** 2EGF*P21B



Pump Name: 21C Fuel Oil Transfer Pump **Pump Number:** 2EGF*P21C



Pump Name: 21D Fuel Oil Transfer Pump **Pump Number:** 2EGF*P21D



SECTION VII: VALVE TESTING REQUIREMENTS

The Inservice Test (IST) Program for valves at Beaver Valley Power Station (BVPS), Unit 2, is based on the following:

- American Society of Mechanical Engineers (ASME) / American National Standards Institute (ANSI) Operations and Maintenance (OM) Standard, Part 10, "Inservice Testing of Valves in Light Water Reactor Power Plants" (OM-10), OMa-1988 addenda to the OM-1987 Edition, in accordance with the ASME Boiler and Pressure Vessel Code, Section XI, 1989 edition (the Code).

- Generic Letter No. 89-04, "Guidance on Developing Acceptable Inservice Testing Programs"

- NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants"

The valves included in this program are all ASME Class 1, 2 or 3 required to perform a specific function in shutting down a reactor to the cold shutdown condition, in maintaining the cold shutdown condition, or in mitigating the consequences of an accident. The pressure-relief devices covered are those for protecting systems or portions of systems which perform a required function in shutting down a reactor to the cold shutdown condition, in maintaining the cold shutdown condition, or in mitigating the consequences of an accident, at BVPS, Unit 2.

The requirements of the Code and Generic Letter No. 89-04 including Supplement 1 (NUREG-1482) will be followed at all times unless specific relief has been granted by the NRC.

A. Category A valves are valves for which seat leakage in the closed position is limited to a specific maximum amount for fulfillment of their function. Category B valves are valves for which seat leakage in the closed position is inconsequential for fulfillment of their function. Active Category A and B valves shall be full-stroke exercised nominally every three months to the position required to fulfill their function unless such operation is not practicable during plant operation. If only limited operation is practicable during plant operation, the valves may be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. If exercising is not practicable during plant operation, the valves may be limited to full-stroke exercising during cold shutdowns. If exercising is not practicable during plant operation and full-stroke during cold shutdowns is also not practicable, the valves may be limited to part-stroke exercising during cold shutdowns, and full-stroke exercising during refueling outages. If exercising is not practicable during plant operation or cold shutdowns, it may be limited to full-stroke exercising during refueling outages. Exception is taken to part-stroke exercising motor-operated valves, unless specifically stated. This is necessary because the motor-operated valve circuitry prevents throttling of these valves. Under normal operation, the valves must travel to either the full open or shut position prior to reversing direction. In the case of frequent cold shutdowns, these valves need not be exercised more often than once every three months. All valve exercising required to be performed during a refueling outage shall be completed prior to returning the plant to operation. For a valve in a system declared inoperable or not required to be operable, the exercising test schedule need not be followed. Within 3 months prior to placing the system in an operable status, the valves shall be exercised and the schedule resumed.

The stroke time of all power-operated valves shall be measured to at least the nearest second. Full-stroke time is the time interval from initiation of the actuating signal to the end of the actuating stroke. The time to full-stroke exercise each power-operated valve will be measured and compared to a reference value (baseline time) and/or an ASME limiting stroke time as follows:

1. Motor-operated valves (MOVs) with reference stroke times greater than 10 seconds shall exhibit no more than a ± 15% change in stroke time when compared to the reference time. MOVs with reference stroke times less than or equal to 10 seconds shall exhibit no more than a ± 25% or ± 1 second change in stroke time, whichever is greater, when compared to the reference time.

2. All other power-operated valves with reference stroke times greater than 10 seconds shall exhibit no more than a ± 25% change in stroke time when compared to the reference time. All other power-operated valves with reference stroke times less than or equal to 10 seconds shall exhibit no more than a ± 50% change in stroke time when compared to the reference time.

3. Valves that stroke in less than 2 seconds may be exempted from 1 and 2 above. In such cases the maximum limiting stroke time shall be 2.0 seconds.

4. The ASME limiting stroke time is based on the following:

   a. The Technical Specification value.

   b. ESF response time requirements.

   c. The reference stroke time times 2 for valves with reference stroke times less than or equal to 10 seconds.

   d. The reference stroke time times 1.5 for valves with reference stroke times greater than 10 seconds.

   e. The design time listed in the UFSAR.

The necessary valve disk movement shall be determined by exercising the valve while observing an appropriate indicator, such as indicating lights which signal the required change of disk position, or by observing other evidence, such as changes in system pressure, flow rate, level, or temperature, which reflect disk position. Control Room position indicating lights (or arrows for modulating valves) are used for valve stroke indication for all testing of power-operated valves with remote position indicators on the Control Board. In addition, valves with remote position indicators will be observed locally at least once every 2 years to verify that valve operation is accurately indicated in the direction required to fulfill its function. Where practicable, this local observation may be supplemented by other indications such as use of flow meters or other suitable instrumentation to verify disk position. However, these observations need not be concurrent. Where local observation is not possible other indications shall be used for verification of valve operation.

All valves with fail-safe actuators (e.g., solenoid operated valves, air operated valves or air operated control valves) shall be tested by observing the operation of the actuator upon loss of valve actuating power. Solenoid operated valves (SOVs) are tested from the Control Room by their remote operating (control) switch. Placing the control switch to the fail-safe position de-energizes the solenoid thus positioning the valve in the fail-safe position. Air operated valves (AOVs) are tested from the Control Room by their remote operating (control) switch. Placing the control switch to the fail-safe position de-energizes the control power to the solenoid which vents air from the valve actuator thus positioning the valve in the fail-safe position. Air operated control valves may be tested in a similar fashion, or the valve actuating power (e.g., electrical or air supply) may be removed to position the valve in the fail-safe position.

Corrective action shall be taken if necessary, using the following:

1. If a valve fails to exhibit the required change of valve disk position or exceeds its specified ASME limiting value of full-stroke time, then the valve shall be declared inoperable immediately. An evaluation of the valve's condition with respect to system operability and technical specifications shall be made as follows:

    a. If the inoperable valve is specifically identified in the technical specifications, then the applicable technical specification action statements shall be followed.

    b. If the inoperable valve is in a system covered by a technical specification, an assessment of its condition shall be made to determine if it makes the system inoperable. If the condition of the valve renders the system inoperable, then the applicable system technical specification action statements shall be followed.

    c. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supercede the requirements of any technical specification.

2. Valves with measured stroke times which do not meet the acceptance criteria in OM-10, Paragraph 4.2.1.8 (i.e., % change when compared to the baseline time) shall be immediately retested or declared inoperable as follows:

    a. If the valve is retested and the second set of data meets the acceptance criteria of OM-10, Paragraph 4.2.1.8, the cause of the initial deviation shall be analyzed and the results documented in the test.

    b. If the valve is retested and the second set of data also does not meet the acceptance criteria of OM-10, Paragraph 4.2.1.8, the data shall be analyzed within 96 hours to verify that the new stroke time represents acceptable valve operation, or the valve shall be declared inoperable. Valve operability based on analysis shall have the results of the analysis documented in the test.

3. Valves declared inoperable may be repaired, replaced, or the data may be analyzed to determine the cause of the deviation and the valve shown to be operating acceptably. Valve operability based on analysis shall have the results of the analysis documented in the test.

4. When a valve or its control system has been replaced, repaired or has undergone maintenance that could affect the valve's performance, a new reference value shall be determined or the previous value reconfirmed by an inservice test run prior to the time it is returned to service or immediately if not removed from service, to demonstrate that the performance parameter which could be affected by the replacement, repair or maintenance is within acceptable limits. Deviations between the previous and new reference values shall be identified and analyzed. Verification that the new values represent acceptable operation shall be documented in the test. Examples of maintenance that could affect valve performance parameters are adjustment of stem packing, limit switches, or control system valves, and removal of the bonnet, stem assembly, actuator, obturator, or control system components.

   In addition, Category A valves shall be leak rate tested at least once every two years normally, but not necessarily, at refueling outages. The Category A valves that are tested in accordance with Option B of 10CFR50, Appendix J, Type C, per relief, are leak rate tested at the frequency specified in Option B of 10CFR50, Appendix J. If the leak rate exceeds the allowable limit, the valves will be repaired or replaced. A retest demonstrating acceptable operation will be performed following any required corrective action before the valve is returned to service.

B. Category C valves are valves which are self-actuating in response to some system characteristic, such as pressure (relief valves) or flow direction (check valves) for fulfillment of their function. Category C valves are divided into two groups; safety or relief valves and check valves.

   ASME Class 1, 2 and 3 safety and relief valves are tested in accordance with ASME/ANSI Operations and Maintenance (OM) Standard, Part 1, "Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices" (OM-1). All Main Steam Safety Valves and ASME Class 1 safety and relief valves are tested at least once every 5 years, with at least 20% of the valves in each "group" (i.e., same manufacturer, type, system application and service media per NUREG-1482, Section 4.3.9, "Clarifications in OM-1") included in the BVPS-2 IST Program tested within any 24 months. All ASME Class 2 and 3 safety and relief valves are tested at least once every 10 years, with at least 20% of the valves in each "group" included in the BVPS-2 IST Program tested with any 48 months. A test is defined as a set pressure test and a seat tightness test. If any safety or relief valves fail their set pressure test, additional valves shall be set pressure tested on the basis of 2 additional valves to be tested for each valve failure up to the total number of valves from the same group. If any of the additional valves fail, then all remaining valves in the same group shall be set pressure tested. Any safety or relief valve which exceeds its set pressure acceptance criteria shall be repaired or replaced, the cause of failure shall be determined and corrected, and the valve shall successfully pass a retest before it is returned to service. Per NUREG-1482, Section 4.3.6, "Safety/Relief Valve Setpoint Adjustments", the NRC has determined that a setpoint adjustment is an acceptable means of corrective action in lieu of repair or replacement. In addition, a seat tightness test shall be based on a quantitative or qualitative acceptance criteria specified by the owner for gross determination of the as-found seat tightness of a safety or relief valve.

Check valves shall be exercised or examined nominally every three months in a manner which verifies obturator (disk) travel to the closed, full-open or partially open position required to fulfill their function unless such operation is not practicable during plant operation. If full-stroke exercising during plant operation is not practicable, it may be limited to part-stroke during plant operation and full-stroke during cold shutdowns. If exercising is not practicable during plant operation, it may be limited to full-stroke exercising during cold shutdowns. If exercising is not practicable during plant operation and full-stroke during cold shutdowns is also not practicable, it may be limited to part-stroke during cold shutdowns, and full-stroke during refueling outages. If exercising is not practicable during plant operation or cold shutdowns, it may be limited to full-stroke during refueling outages. In the case of frequent cold shutdowns, these check valves need not be exercised more often than once every three months. All check valve testing required to be performed during a refueling outage shall be completed prior to returning the plant to operation. For a check valve in a system declared inoperable or not required to be operable, the exercising test schedule need not be followed. Within 3 months prior to placing the system in an operable status, the valves shall be exercised and the schedule resumed.

Check valves that are normally open during plant operation and whose function is to prevent reversed flow shall be tested in a manner that proves that the disk travels to the seat on cessation or reversal of flow. Check valves that are normally closed during plant operation and whose function is to open shall be tested by proving that the disk opens to the position required to fulfill its function when flow through the valve is initiated, or when a mechanical opening force is applied to the disk. As an alternative to the testing described above a check valve may be disassembled and inspected per the requirements of Generic Letter No. 89-04. These check valves will normally, but not necessarily be inspected during refueling outages.

If a check valve fails to exhibit the required change of disk position by this testing, then the check valve shall be declared inoperable immediately. An evaluation of the check valve's condition with respect to system operability and technical specifications shall be made as follows:

1. If the inoperable check valve is specifically identified in the technical specifications, then the applicable technical specification action statements shall be followed.

2. If the inoperable check valve is in a system covered by a technical specification, an assessment of its condition shall be made to determine if it makes the system inoperable. If the condition of the check valve renders the system inoperable, then the applicable system technical specification action statements shall be followed.

3. Corrective action (i.e., MWR) shall be initiated immediately for the check valve's repair or replacement.

4. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supercede the requirements of any technical specification.

Before returning the check valve to service after corrective action, a retest showing acceptable performance shall be run.

C. Category D valves are valves which are actuated by an energy source capable of only one operation, such as rupture disks or explosively actuated valves. There are no ASME Class 1, 2, or 3 Category D valves in the Beaver Valley Power Station, Unit 2, IST Program.

All the inservice testing requirements for each different category of valve in the IST Program are summarized in Table 1 of OM-10. This table lists the paragraphs of OM-10 that apply to each different type of valve.

TABLE 1
INSERVICE TEST REQUIREMENTS FROM OM-10

Category (See Para. 1.4)	Valve Function	Leakage Test Procedure	Exercise Test Procedure	Special Test Procedure [Note (1)]	Position Indication Verification
A	Active	See para. 4.2.2	See para. 4.2.1	None	See para. 4.1
A	Passive	See para. 4.2.2	None	None	See para. 4.1
B	Active	None	See para. 4.2.1	None	See para. 4.1
B	Passive	None	None	None	See para. 4.1
C (Safety and Relief)	Active	None [Note (2)]	See para. 4.3.1	None	See para. 4.1
C (Check)	Active	None [Note (2)]	See para. 4.3.2	None	See para. 4.1
D	Active	None	None	See para. 4.4	None

NOTES:
(1) Note additional requirement for fail-safe valves, para. 4.2.1.6.
(2) When more than one distinguishing category, characteristic is applicable, all requirements of each of the individual categories are applicable, although duplication or repetition of common testing requirements is not necessary.

Passive valves are valves which maintain obturator position and are not required to change obturator position to accomplish a required function. As stated in the table, passive valves are not required to be exercised. Therefore, relief is not required from exercising any passive valve and no testing requirement is listed in the Valve Outline Section except where remote position verification is required.

Certain exemptions from the valve testing requirements of the ASME code defined by Paragraph 1.2 of OM-10 are listed below:

1. Valves used only for operating convenience (i.e., manual vent, drain, instrument and test valves);

2. Valves used only for system control (i.e., pressure, temperature or flow regulating valves);

3. Valves used only for system or component maintenance; and

4. External control and protection systems responsible for sensing plant conditions and providing signals for valve operation.

Manufacturer supplied skid-mounted valves (i.e., check valves, SOV's, TCV's, relief valves) which are integral sub-components of, and are required to support the operation of a parent pump or other component, are often times not designed to be tested in accordance with the ASME XI Code, regardless of their ASME Code class. Therefore, ASME Code class manufacturer supplied skid-mounted valves are not included in the BVPS Unit 2 IST Program because it has been recognized by the NRC in NUREG-1482, Section 3.4, that the test of the parent pump or other component itself challenges the operability of the sub-components. This ensures that the skid-mounted valves operate acceptably commensurate with their safety functions, provided satisfactory performance of the parent pump or other component is demonstrated by an applicable surveillance test or the valve is examined separately by a preventive maintenance activity.

Records of the results of inservice tests and corrective actions as required by Paragraph 6 of OM-10 are maintained in computerized or in tabular form. Stroke times of valves will be reviewed for developing trends.

If a question on valve testability exists, the IST program should be the controlling document since each component is individually assessed for testability and inclusion in the IST Program. If a valve is specifically called out in the Tech. Specs. (i.e., specific valve mark number or uniquely specified by valve nomenclature) to be tested at one frequency and the IST Program endorses another frequency, then the more restrictive test frequency would be applicable.

The following four sections of this document are the "Valve Outlines", "Valve Cold Shutdown Justifications", "Valve Refueling Outage Justifications" and "Valve Relief Requests" sections.

The "Valve Outlines" section is a listing of all the valves in the IST Program, their system code class, category, size, type, NSA, drawing number and coordinates, testing requirements, specific cold shutdown justification, refueling outage justifications and/or relief request reference numbers, and test procedure numbers and comments.

1. The valve class will be 1, 2 or 3, corresponding to the safety classifications.

2. The category of the valve will be A, B, C or D in accordance with the guidelines in Paragraph 1.4 of OM-10. In addition, combinations of categories may be utilized. If the valve is not required to change obturator position to accomplish a required function, the fact that it is Passive (P) will also be indicated. For example, a containment isolation check valve that does not change position would be a category A/C/P valve.

3. From the valve mark number given, the valve actuator can be determined from the list of abbreviations below:

   AOV - Air Operated Valve
   FCV - Flow Control Valve
   HCV - Hand Control Valve
   HYV - Hydraulic Valve
   LCV - Level Control Valve
   MOD - Motor Operated Damper
   MOV - Motor Operated Valve
   PCV - Pressure Control Valve
   RV - Relief Valve
   SOV - Solencid Operated Valve
   SV - Safety Valve
   DMP - Damper (Manual)

4. The normal system arrangement (NSA) will be listed using the abbreviations below:

   O - Open
   S - Shut
   A - Automatic
   T - Throttled
   LO - Locked Open
   LS - Locked Shut
   SS - Sealed Shut

5. The drawing numbers and coordinates will be the ones used in the Operating Manuals.

6. The test requirements will be listed using the abbreviations below:

   QS - Quarterly Stroke
   QST - Quarterly Stroke & Time
   LT - Leak Rate Test
   LTJ - Leak Rate Test per 10CFR50, Appendix J (Option B)
   SPT - Set Point Test
   LM - Leakage Monitoring
   POS - Position Verification
   NA - Not Applicable

7. The specific Valve Cold Shutdown Justification (VCSJ), Valve Refueling Outage Justification (VROJ) and/or Valve Relief Request (VRR) reference number(s) will be listed.

8. The specific test procedure number, required frequency, type of testing, and any comments will be listed using the abbreviations below:

   2OM - Operating Manual (Unit 2)
   2BVT - Beaver Valley Test (Unit 2)
   2OST - Operating Surveillance Test (Unit 2)
   CMP - Corrective Maintenance Procedure
   2 YR - Required every 2 years, but normally done at refueling
   5 YR - Required every 5 years, but normally done at refueling
   10 YR - Required every 10 years, but normally done at refueling
   CSD - Cold Shutdown Frequency
   R - Refueling Frequency
   SP - Special Frequency
   Q - Quarterly Frequency
   M - Monthly Frequency
   FS - Full Stroke
   PS - Partial Stroke
   FD - Forward Direction
   RD - Reverse Direction
   RPV - Remote Position Verification (Required every 2 years, but normally done at refueling)

The "Valve Cold Shutdown Justification" section contains the detailed technical description of conditions prohibiting the required testing of safety-related valves and an alternate test method to be performed during cold shutdowns. Beaver Valley Unit 2 reactor containment is maintained subatmospheric as required by technical specifications. The subatmospheric condition presents a hazardous working environment for station personnel and is considered inaccessible for surveillance testing. Surveillance testing that requires a reactor containment entry will be performed at cold shutdown and refueling. Per OM-10, Paragraphs 4.2.1.2(g) and 4.3.2.2(g), valve exercising during cold shutdown shall commence within 48 hours of achieving cold shutdown, and continue until all testing is complete or the plant is ready to return to power. Attempts will be made to complete testing prior to entering Mode 4, however, completion will not be a Mode 4 requirement. The testing will resume where left off when next entering Mode 5, but need not be completed more often than once every 92 days. For planned or extended cold shutdowns, where ample time is available to complete testing on all valves identified for the cold shutdown test frequency, exceptions to the 48 hour requirement can be taken, provided all valves required to be tested during cold shutdown are tested prior to plant startup.

The "Valve Refueling Outage Justifications" section contains the detailed technical description of conditions prohibiting the required testing of safety-related valves and an alternate test method to be performed during refueling outages.

The "Valve Relief Requests" section contains the detailed technical description of particular conditions and equipment installations prohibiting the testing of some of the characteristics of safety-related valves. An alternate test method and the frequency of revised testing is also included to meet the intent of 10CFR50.55a.

SECTION VIII: VALVE OUTLINES

BVPS-2 IST
VALVE OUTLINE

SYSTEM NAME: Reactor Coolant **SYSTEM NUMBER:** 6

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ Or Relief Requests	Comments
						OM No.	Coord.			
2RCS*68	2	A/C	2 ½	Check		6-2	E-2	QS	VROJ52	2BVT 1.47.3-FS,RD by observation of mechanical weight loaded swing arm (R)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2RCS*72	2	A/C	3	Check		6-2	F-2	QS	VROJ53	2BVT 1.47.3-FS,RD by observation of mechanical observation of mechanical weight loaded swing arm (R)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2RCS*RV100	2	A/C	¾	Relief		6-2	G-2	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2RCS*AOV101	2	A	¾	Globe	S	6-2	E-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2RCS*SOV200A	1	B	1	Globe	S	6-2	E-6	QST	VROJ1	2OST-6.9-Stroke & Time Open/Closed (R),(RPV)
2RCS*SOV200B	1	B	1	Globe	S	6-2	F-6	QST	VROJ1	2OST-6.9-Stroke & Time Open/Closed (R),(RPV)
2RCS*SOV201A	1	B	1	Globe	S	6-2	E-6	QST	VROJ1	2OST-6.9-Stroke & Time Open/Closed (R),(RPV)
2RCS*SOV201B	1	B	1	Globe	S	6-2	F-6	QST	VROJ1	2OST-6.9-Stroke & Time Open/Closed (R),(RPV)
2RCS*HCV250A	2	B	1	Globe	S	6-2	G-6	QST	VROJ1	2OST-6.9-Stroke & Time Open/Closed and Fail Closed (R),(RPV)
2RCS*HCV250B	2	B	1	Globe	S	6-2	G-6	QST	VROJ1	2OST-6.9-Stroke & Time Open/Closed and Fail Closed (R),(RPV)
2RCS*PCV455C	1	B	3	Globe	S(A)	6-1	F-1	QST	VCSJ3	2OST-6.8-Stroke & Time Open and Fail Closed (CSD),(RPV)
2RCS*PCV455D	1	B	3	Globe	S(A)	6-1	F-1	QST	VCSJ3	2OST-6.8-Stroke & Time Open and Fail Closed (CSD),(RPV)
2RCS*PCV456	1	B	3	Globe	S(A)	6-1	E-1	QST	VCSJ3	2OST-6.8-Stroke & Time Open and Fail Closed (CSD),(RPV)

BVPS-2 IST
VALVE OUTLINE

SYSTEM NAME: Reactor Coolant **SYSTEM NUMBER:** 6

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ Or Relief Requests	Comments
						OM No.	Coord.			
2RCS*AOV519	2	A	3	Globe	S	6-2	F-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2RCS*MOV535	1	B	1	Gate	O	6-1	F-2	QST		2OST-6.6-Stroke & Time Open/Closed (Q),(RPV)
2RCS*MOV536	1	B	1	Gate	O	6-1	E-2	QST		2OST-6.6-Stroke & Time Open/Closed (Q),(RPV)
2RCS*MOV537	1	B	1	Gate	O	6-1	F-2	QST		2OST-6.6-Stroke & Time Open/Closed (Q),(RPV)
2RCS*RV551A	1	C	6x6	Safety		6-1	D-3	SPT		2BVT 1.60.5-(5 YR)
2RCS*RV551B	1	C	6x6	Safety		6-1	D-3	SPT		2BVT 1.60.5-(5 YR)
2RCS*RV551C	1	C	6x6	Safety		6-1	D-4	SPT		2BVT 1.60.5-(5 YR)

BVPS-2 IST
VALVE OUTLINE

SYSTEM NAME: Chemical and Volume Control — **SYSTEM NUMBER: 7**

Valve Mark Number	Valve Class	Valve Category	Valve Size (In.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ Or Relief Requests	Comments
						OM No.	Coord.			
2CHS*22	2	C	3	Check		7-1A	E-3	QS		2OST-7.4-PS,FD (Q)
								QS	VROJ2	2OST-7.5(6)-FS,RD (Q) 2OST-11.14B-FS,RD (R)
								QS	VROJ2	2OST-11.14B-FS,FD (R)
2CHS*23	2	C	3	Check		7-1A	C-3	QS		2OST-7.5-PS,FD (Q)
								QS	VROJ2	2OST-7.4(6)-FS,RD (Q) 2OST-11.14B-FS,RD (R)
								QS	VROJ2	2OST-11.14B-FS,FD (R)
2CHS*24	2	C	3	Check		7-1A	D-3	QS		2OST-7.6-PS,FD (Q)
								QS	VROJ2	2OST-7.4(5)-FS,RD (Q) 2OST-11.14B-FS,RD (R)
								QS	VROJ2	2OST-11.14B-FS,FD (R)
2CHS*31	2	A/C	3	Check		7-1A	C-1	QS	VROJ3	2BVT-1.47.11-FS,RD by observation of mechanical weight loaded swing arm (R)
								QS		2OST-7.4(5)(6)-FS,FD(Q)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2CHS*75	3	C	2	Check		7-2	B-3	QS		2OST-7.1-FS,FD (Q)
2CHS*76	3	C	2	Check		7-2	F-3	QS		2OST-7.2-FS,FD (Q)
2CHS*84	3	C	2	Check		7-2	E-7	QS	VCSJ4	2OST-7.13-FS,FD (CSD)
2CHS*FCV113A	3	B	2	Globe	S(A)	7-2	E-7	QST		2OST-47.3B-Stroke, Time & Fail Open (Q),(RPV)
2CHS*FCV114A	3	B	2	Globe	S(A)	7-2	E-8	QST		2OST-47.3B-Stroke, Time & Fail closed (Q),(RPV)
2CHS*LCV115B	2	A	8	Gate	S(A)	7-1A	E-5	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2CHS*LCV115C	2	B	4	Gate	O(A)	7-1A	F-5	QST	VROJ4	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)

BVPS-2 IST
VALVE OUTLINE

SYSTEM NAME: Chemical and Volume Control — **SYSTEM NUMBER: 7**

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ Or Relief Requests	Comments
						OM No.	Coord.			
2CHS*LCV115D	2	A	8	Gate	S(A)	7-1A	C-5	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2CHS*LCV115E	2	B	4	Gate	O(A)	7-1A	F-5	QST	VROJ4	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
2CHS*136	2	C	2	Check		7-2	F-8	QS	VCSJ4	2OST-7.13-FS,FD (CSD)
2CHS*141	2	C	2	Check		7-2	F-9	QS	VCSJ4	2OST-7.13-FS,FD (CSD)
2CHS*HCV142	2	A	2	Globe	S	7-1A	A-9	QST		2OST-47.3B-Stroke & Time Closed (Q), (RPV)
								QST	VCSJ1	2OST-1.10 - Fail Closed (CSD)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CHS*152	2	C	2	Check		7-1A	E-3	QS		2OST-7.4-FS,FD (Q)
2CHS*153	2	C	2	Check		7-1A	C-3	QS		2OST-7.5-FS,FD (Q)
2CHS*154	2	C	2	Check		7-1A	D-3	QS		2OST-7.6-FS,FD (Q)
2CHS*FCV160	2	A/P	2	Globe	S	7-1A	G-3	POS		2OST-47.3B-(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2CHS*RV160	2	C	¾x1	Relief		7-1A	G-2	SPT		2BVT 1.60.5-(10 YR)
2CHS*AOV200A	2	A	2	Globe	S	7-1A	A-6	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CHS*AOV200B	2	A	2	Globe	O	7-1A	A-7	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CHS*AOV200C	2	A	2	Globe	S	7-1A	A-8	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CHS*RV203	2	A/C	2x3	Relief		7-1A	A-8	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CHS*AOV204	2	A	2	Globe	O	7-1A	A-10	QST	VROJ5	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)

BVPS-2 IST
VALVE OUTLINE

SYSTEM NAME: Chemical and Volume Control — **SYSTEM NUMBER: 7**

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ Or Relief Requests	Comments
						OM No.	Coord.			
2CHS*SOV206	2	B	1	Globe	S	7-2	E-8	QST		2OST-47.3B-Stroke & Time Open (Q) 2OST-7.13-(RPV)
2CHS*RV260A	2	C	¾x1	Relief		7-3	B-4	SPT		2BVT 1.60.5-(10 YR)
2CHS*RV260B	2	C	¾x1	Relief		7-3	E-4	SPT		2BVT 1.60.5-(10 YR)
2CHS*RV260C	2	C	¾x1	Relief		7-3	G-4	SPT		2BVT 1.60.5-(10 YR)
2CHS*MOV289	2	A	3	Gate	O	7-1A	D-1	QST	VROJ6	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2CHS*MOV308	2	A	2	Gate	O	7-3	B-3	QST	VROJ7	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2CHS*MOV308B	2	A	2	Gate	O	7-3	D-3	QST	VROJ7	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2CHS*MOV308C	2	A	2	Gate	O	7-3	G-3	QST	VROJ7	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2CHS*MOV310	2	B	3	Gate	O	7-1A	B-2	QST	VROJ8	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
2CHS*MOV350	2	B	2	Globe	S	7-2	F-8	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2CHS*MOV378	2	A	3	Gate	O	7-3	E-8	QST	VROJ9	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CHS*MOV381	2	A	3	Gate	O	7-3	F-8	QST	VROJ9	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CHS*RV382A	2	C	2x3	Relief		7-3	C-8	SPT		2BVT 1.60.5-(10 YR)
2CHS*RV382B	2	C	2x3	Relief		7-3	E-10	SPT		2BVT 1.60.5-(10 YR)
2CHS*LCV460A	1	B	2	Globe	O	7-1A	A-1	QST	VROJ10	2OST-1.10-Stroke, Time & Fail Closed (CSD or R),(RPV)
2CHS*LCV460B	1	B	2	Globe	O	7-1A	A-2	QST	VROJ10	2OST-1.10-Stroke, Time & Fail Closed (CSD or R),(RPV)

BVPS-2 IST
VALVE OUTLINE

SYSTEM NAME: Chemical and Volume Control — **SYSTEM NUMBER: 7**

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ Or Relief Requests	Comments
						OM No.	Coord.			
2CHS*472	2	A/C/P	2½	Check		7-1A	G-3	LT		2BVT 1.47.11-Leak Test (2 YR)
2CHS*473	2	A/C	2½	Check		7-3	E-8	QS	VROJ11	2OST-1.10-FS,FD,RD by Mechanical Exerciser (CSD or R)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CHS*474	2	A/C	2½	Check		7-3	B-4	QS	VROJ12	2BVT-1.47.11-FS,RD by observation of mechanical weight loaded swing arm (R)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2CHS*475	2	A/C	2½	Check		7-3	G-4	QS	VROJ12	2BVT-1.47.11-FS,RD by observation of mechanical weight loaded swing arm (R)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2CHS*476	2	A/C	2½	Check		7-3	D-4	QS	VROJ12	2BVT-1.47.11-FS,RD by observation of mechanical weight loaded swing arm (R)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2CHS*870	1	C	3	Check		7-1A	B-1	QS		2OST-7.4(5)(6)-FS,FD(Q)
2CHS*871	1	C	3	Check		7-1A	B-2	QS		2OST-7.4(5)(6)-FS,FD(Q)
2CHS*MOV8130A	2	B	8	Gate	LO	7-1A	D-5	QST	VROJ13	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
2CHS*MOV8130B	2	B	8	Gate	LO	7-1A	D-5	QST	VROJ13	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
2CHS*MOV8131A	2	B	8	Gate	LO	7-1A	D-5	QST	VROJ13	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
2CHS*MOV8131B	2	B	8	Gate	LO	7-1A	C-5	QST	VROJ13	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
2CHS*MOV8132A	2	B	4	Gate	LO	7-1A	D-2	QST	VROJ13	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
2CHS*MOV8132B	2	B	4	Gate	LO	7-1A	D-2	QST	VROJ13	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
2CHS*MOV8133A	2	B	4	Gate	LO	7-1A	C-2	QST	VROJ13	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
2CHS*MOV8133B	2	B	4	Gate	LO	7-1A	C-2	QST	VROJ13	2OST-1.10-Stroke & Time Closed (CSD or R),(RPV)
2CHS*RV8144	2	C	¾x1	Relief		7-1A	C-1	SPT		2BVT 1.60.5-(10 YR)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Reactor Plant Vents and Drains (Aerated Drains) **SYSTEM NUMBER:** 9

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2DAS*AOV100A	2	A	2	Globe	S	9-1	F-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2DAS*AOV100B	2	A	2	Globe	O	9-1	F-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2DAS*RV110	2	A/C	1½x2½	Relief		9-1	F-3	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Reactor Plant Vents and Drains (Hydrogenated Drains) **SYSTEM NUMBER:** 9

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2DGS*AOV108A	2	A	2	Globe	S	9-1	F-10	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2DGS*AOV108B	2	A	2	Globe	O	9-1	E-10	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2DGS*RV115	2	A/C	1½x2	Relief		9-1	E-9	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Reactor Plant Vents and Drains (Hydrogenated Gaseous Vents) **SYSTEM NUMBER:** 9

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2VRS*AOV109A1	2	A	1½	Globe	O	9-1	C-9	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2VRS*AOV109A2	2	A	1½	Globe	O	9-1	C-9	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Residual Heat Removal **SYSTEM NUMBER:** 10

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2RHS*3	2	C	10	Check		10-1	B-3	QS	VCSJ5	2OST-10.1-FS,FD (CSD)
								QS	VCSJ5	2OST-10.3-FS,RD (CSD)
2RHS*4	2	C	10	Check		10-1	E-3	QS	VCSJ5	2OST-10.2-FS,FD (CSD)
								QS	VCSJ5	2OST-10.4-FS,RD (CSD)
2RHS*15	2	A/P	6	Globe	LS	10-1	D-8	LTJ		2BVT 1.47.5-Leak Test (SP)
2RHS*RV100	2	A/C	¾x1	Relief		10-1	D-8	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2RHS*107	2	A/P	6	Globe	LS	10-1	D-7	LTJ		2BVT 1.47.5-Leak Test (SP)
2RHS*FCV605A	2	B	8	Butterfly	T	10-1	C-5	QST	VCSJ6	2OST-10.3-Stroke, Time & Fail Closed (CSD), (RPV)
2RHS*FCV605B	2	B	8	Butterfly	T	10-1	F-5	QST	VCSJ6	2OST-10.4-Stroke, Time & Fail Closed (CSD),(RPV)
2RHS*MOV701A	1	A	12	Gate	S	10-1	C-1	QST	VCSJ7	2OST-10.3-Stroke & Time Open/Closed (CSD),(RPV)
								LT		2OST-10.5-Leak Test (2 YR)(R per Tech Specs)
2RHS*MOV701B	1	A	12	Gate	S	10-1	E-1	QST	VCSJ7	2OST-10.4-Stroke & Time Open/Closed (CSD),(RPV)
								LT		2OST-10.5-Leak Test (2 YR)(R per Tech Specs)
2RHS*MOV702A	1	A	12	Gate	S	10-1	D-1	QST	VCSJ7	2OST-10.3-Stroke & Time Open/Closed (CSD),(RPV)
								LT		2OST-10.5-Leak Test (2 YR)(R per Tech Specs)
2RHS*MOV702B	1	A	12	Gate	S	10-1	D-1	QST	VCSJ7	2OST-10.4-Stroke & Time Open/Closed (CSD),(RPV)
								LT		2OST-10.5-Leak Test (2 YR)(R per Tech Spec)
2RHS*MOV720A	1	A	10	Gate	S	10-1	C-8	QST	VCSJ7	2OST-10.3-Stroke & Time Open/Closed (CSD),(RPV)
								LM		Continuously Monitored by 2OM-54.3, Station Log L5-120
2RHS*MOV720B	1	A	10	Gate	S	10-1	F-8	QST	VCSJ7	2OST-10.4-Stroke & Time Open/Closed (CSD),(RPV)
								LM		Continuously Monitored by 2OM-54.3, Station Log L5-120
2RHS*RV721A	2	C	3x4	Relief		10-1	C-1	SPT		2BVT 1.60.5-(10 YR)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Residual Heat Removal **SYSTEM NUMBER:** 10

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2RHS*RV721B	2	C	3x4	Relief		10-1	E-1	SPT		2BVT 1.60.5-(10 YR)
2RHS*HCV758A	2	B	10	Butterfly	T	10-1	C-5	QST	VCSJ8	2OST-10.3-Stroke, Time & Fail Open (CSD),(RPV)
2RHS*HCV758B	2	B	10	Butterfly	T	10-1	F-5	QST	VCSJ8	2OST-10.4-Stroke, Time & Fail Open (CSD),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Safety Injection — **SYSTEM NUMBER:** 11

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SIS*6	2	A/C	10	Check		11-1	E-4	QS		2OST-11.2-FS,RD (Q)
								QS	VROJ14	2OST-11.14A-FS,FD (R)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2SIS*7	2	A/C	10	Check		11-1	G-4	QS		2OST-11.1-FS,RD (Q)
								QS	VROJ14	2OST-11.14A-FS,FD (R)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2SIS*27	2	A/C	8	Check		11-1	F-1	QS	VROJ15	2OST-1.10-PS,FD (CSD) 2OST-11.14B-FS,FD (R)
								QS	VROJ15	2BVT 1.47.11-FS,RD by Leak Test (R)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2SIS*41	2	A/P	1	Globe	LS	11-2	C-2	LTJ		2BVT 1.47.5-Leak Test (SP)
2SIS*42	2	A/C	2½	Check		11-2	D-2	QS	VROJ16	2BVT-1.47.3-FS,RD by observation of mechanical weight loaded swing arm (R)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SIS*46	2	C	10	Check		11-1	G-5	QS	VROJ17	2OST-1.10-FS,FD by Mechanical Exerciser (R)
2SIS*47	2	C	10	Check		11-1	E-5	QS	VROJ17	2OST-1.10-FS,FD by Mechanical Exerciser (R)
2SIS*83	2	A/C	3	Check		11-1	A-4	QS	VROJ18	2OST-11.14B-FS,FD,RD (R)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2SIS*84	2	A/C	3	Check		11-1	B-4	QS	VROJ18	2OST-11.14B-FS,FD,RD (R)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2SIS*94	2	A/C	3	Check		11-1	D-6	QS	VROJ18	2OST-11.14B-FS,FD,RD (R)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2SIS*95	2	A/C	3	Check		11-1	C-6	QS	VROJ18	2OST-11.14B-FS,FD,RD (R)
								LT		2BVT 1.47.11-Leak Test (2 YR)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Safety Injection — **SYSTEM NUMBER:** 11

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SIS*107	1	A/C	6	Check		11-1	G-9	QS	VROJ19	2OST-11.14A-FS,FD (R)
								LT		2OST-11.16-Leak Test (2 YR)(CSD or R per Tech Specs)
2SIS*108	1	A/C	6	Check		11-1	E-9	QS	VROJ19	2OST-11.14A-FS,FD (R)
								LT		2OST-11.16-Leak Test (2 YR)(CSD or R per Tech Specs)
2SIS*109	1	A/C	6	Check		11-1	F-9	QS	VROJ19	2OST-11.14A-FS,FD (R)
								LT		2OST-11.16-Leak Test (2 YR)(CSD or R per Tech Specs)
2SIS*122	1	C	2	Check		11-1	A-7	QS	VROJ20	2OST-11.14B-FS,FD (R)
2SIS*123	1	C	2	Check		11-1	A-7	QS	VROJ20	2OST-11.14B-FS,FD (R)
2SIS*124	1	C	2	Check		11-1	A-7	QS	VROJ20	2OST-11.14B-FS,FD (R)
2SIS*125	1	C	2	Check		11-1	B-7	QS	VROJ20	2OST-11.14B-FS,FD (R)
2SIS*126	1	C	2	Check		11-1	B-7	QS	VROJ20	2OST-11.14B-FS,FD (R)
2SIS*127	1	C	2	Check		11-1	B-7	QS	VROJ20	2OST-11.14B-FS,FD (R)
2SIS*128	1	A/C	6	Check		11-1	B-9	QS	VROJ21	2OST-11.14A-FS,FD (R)
								LT		2OST-11.16-Leak Test (2 YR)(R per Tech Specs)
2SIS*129	1	A/C	6	Check		11-1	B-9	QS	VROJ21	2OST-11.14A-FS,FD (R)
								LT		2OST-11.16-Leak Test (2 YR)(R per Tech Specs)
2SIS*130	2	A/C	10	Check		11-1	F-9	QS	VROJ22	2OST-11.14A -FS,FD,RD (R)
								LT		2OST-11.16-Leak Test (2 YR)(R per Tech Specs)
2SIS*RV130	2	A/C	¾x1	Relief		11-2	D-2	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SIS*132	2	A/C	10	Check		11-1	G-9	QS	VROJ23	2OST-11.14A-FS,FD,RD (R)
								LT		2OST-11.16-Leak Test (2 YR)(CSD or R per Tech Specs)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Safety Injection — **SYSTEM NUMBER:** 11

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SIS*133	2	A/C	10	Check		11-1	E-9	QS	VROJ23	2OST-11.14A-FS,FD,RD (R)
								LT		2OST-11.16-Leak Test (2 YR)(CSD or R per Tech Specs)
2SIS*134	1	C	2	Check		11-1	C-9	QS	VROJ24	2OST-11.14B-FS,FD (R)
2SIS*135	1	C	2	Check		11-1	D-9	QS	VROJ24	2OST-11.14B-FS,FD (R)
2SIS*136	1	C	2	Check		11-1	D-9	QS	VROJ24	2OST-11.14B-FS,FD (R)
2SIS*137	1	C	2	Check		11-1	C-9	QS	VROJ24	2OST-11.14B-FS,FD (R)
2SIS*138	1	C	2	Check		11-1	C-9	QS	VROJ24	2OST-11.14B-FS,FD (R)
2SIS*139	1	C	2	Check		11-1	C-9	QS	VROJ24	2OST-11.14B-FS,FD (R)
2SIS*141	1	A/C	12	Check		6-1	E-6	QS	VROJ50	2OST-10.1-PS,FD(CSD) 2BVT 1.11.3-FS,FD (R)
								LT		2OST-11.4-Leak Test (2 YR)(CSD or R per Tech Specs)
2SIS*142	1	A/C	12	Check		11-2	F-9	QS	VROJ50	2BVT 1.11.3-FS,FD (R)
								LT		2OST-11.5-Leak Test (2 YR)(R per Tech Specs)
2SIS*145	1	A/C	12	Check		6-1	D-6	QS	VROJ50	2OST-10.2-PS,FD(CSD) 2BVT 1.11.3-FS,FD (R)
								LT		2OST-11.4-Leak Test (2 YR)(CSD or R per Tech Specs)
2SIS*147	1	A/C	12	Check		11-2	F-7	QS	VROJ50	2BVT 1.11.3-FS,FD (R)
								LT		2OST-11.5-Leak Test (2 YR)(R per Tech Specs)
2SIS*148	1	A/C	12	Check		11-2	F-4	QS	VROJ50	2BVT 1.11.3-FS,FD (R)
								LT		2OST-11.5-Leak Test (2 YR)(R per Tech Specs)
2SIS*151	1	A/C	12	Check		6-1	D-5	QS	VROJ50	2BVT 1.11.3-FS,FD (R)
								LT		2OST-11.4-Leak Test (2 YR)(R per Tech Specs)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Safety Injection — **SYSTEM NUMBER:** 11

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SIS*RV175	2	A/C	¾x1	Relief		11-2	F-1	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SIS*545	1	A/C	6	Check		11-1	A-9	QS	VROJ25	2OST-11.14A-FS,FD (R)
								LM		See NOTE 1 below.
2SIS*546	1	A/C	6	Check		11-1	A-9	QS	VROJ25	2OST-11.14A-FS,FD (R)
								LM		See NOTE 1 below.
2SIS*547	1	A/C	6	Check		11-1	A-9	QS	VROJ26	2OST-11.14B-FS,FD (R)
								LM		See NOTE 1 below.
2SIS*548	1	A/C	6	Check		11-1	A-10	QS	VROJ27	2OST-11.14A-FS,FD (R)
								LM		See NOTE 1 below.
2SIS*550	1	A/C	6	Check		11-1	A-10	QS	VROJ27	2OST-11.14A-FS,FD (R)
								LM		See NOTE 1 below.
2SIS*MOV836	2	A	3	Gate	S	11-1	D-5	QST	VROJ28	2OST-1.10-Stroke & Time Open/Closed (CSD or R),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2SIS*MOV840	2	A	1	Globe	S	11-1	D-6	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
								LT		BVT 1.47.11-Leak Test (2 YR)
2SIS*MOV841	2	B	3	Gate	O	11-1	B-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SIS*MOV842	2	A	2	Globe	S	11-2	F-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SIS*RV858A	2	C	1x2	Relief		11-2	D-4	SPT		2BVT 1.60.5-(10 YR)
2SIS*RV858B	2	C	1x2	Relief		11-2	D-7	SPT		2BVT 1.60.5-(10 YR)

NOTE 1: Each check valve is monitored approximately monthly during RCP operation. Some check valves may also be additionally monitored when maximum d/p conditions exist during cold shutdown(s) when RCP(s) are shutdown (per 2OM-51.4.C) and started up (per 2OM-50.4.A) in the course of normal plant shutdown and startup, with each check valve being monitored when maximum d/p conditions exist at least during a refueling outage.

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Safety Injection — **SYSTEM NUMBER:** 11

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SIS*RV858C	2	C	1x2	Relief		11-2	D-9	SPT		2BVT 1.60.5-(10 YR)
2SIS*MOV863A	2	B	8	Gate	S	11-1	E-7	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2SIS*MOV863B	2	B	8	Gate	S	11-1	F-6	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2SIS*MOV865A	2	B	12	Gate	O	11-2	F-4	QST	VCSJ9	2OM-51.4.C & 2OST-1.10-Stroke & Time Closed (CSD) 2BVT 1.11.3-(RPV)
2SIS*MOV865B	2	B	12	Gate	O	11-2	F-7	QST	VCSJ9	2OM-51.4.C & 2OST-1.10-Stroke & Time Closed (CSD) 2BVT 1.11.3-(RPV)
2SIS*MOV865C	2	B	12	Gate	O	11-2	F-9	QST	VCSJ9	2OM-51.4.C & 2OST-1.10-Stroke & Time Closed (CSD) 2BVT 1.11.3-(RPV)
2SIS*MOV867A	2	B	3	Gate	S	11-1	B-2	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2SIS*MOV867B	2	B	3	Gate	S	11-1	C-2	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2SIS*MOV867C	2	A	3	Gate	S	11-1	C-5	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2SIS*MOV867D	2	A	3	Gate	S	11-1	C-4	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2SIS*HCV868A	2	B	1	Globe	S	11-1	D-5	QST	VCSJ10	2OST-1.10-Stroke & Time Open/Closed and Fail Closed (CSD) (RPV)
2SIS*HCV868B	2	B	1	Globe	S	11-1	B-3	QST	VCSJ10	2OST-1.10-Stroke & Time Open/Closed and Fail Closed (CSD) (RPV)
2SIS*MOV869A	2	A	3	Gate	S	11-1	A-3	QST	VROJ29	2OST-1.10-Stroke & Time Open/Closed (CSD or R),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2SIS*MOV869B	2	A	3	Gate	S	11-1	B-3	QST	VROJ29	2OST-1.10-Stroke & Time Open/Closed (CSD or R),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Safety Injection — **SYSTEM NUMBER:** 11

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SIS*AOV889	2	A	3/4	Globe	S	11-2	F-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SIS*894	2	C	4	Check		11-1	E-3	QS		2OST-11.1-FS,FD (Q)
								QS		2OST-11.2-FS,RD (Q)
2SIS*895	2	C	4	Check		11-1	G-4	QS		2OST-11.2-FS,FD (Q)
								QS		2OST-11.1-FS,RD (Q)
2SIS*MOV8809A	2	A	14	Gate	O	11-1	E-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2SIS*MOV8809B	2	A	14	Gate	O	11-1	G-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2SIS*MOV8811A	2	B	10	Gate	S	11-1	E-5	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2SIS*MOV8811B	2	B	10	Gate	S	11-1	F-5	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2SIS*RV8864A	2	C	¾x1	Relief		11-1	F-7	SPT		2BVT 1.60.5-(10 YR)
2SIS*RV8864B	2	C	¾x1	Relief		11-1	G-6	SPT		2BVT 1.60.5-(10 YR)
2SIS*RV8865	2	C	¾x1	Relief		11-1	F-7	SPT		2BVT 1.60.5-(10 YR)
2SIS*MOV8887A	2	B	10	Gate	O	11-1	F-7	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
2SIS*MOV8887B	2	B	10	Gate	O	11-1	F-8	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
2SIS*MOV8888A	2	A	10	Gate	O	11-1	E-8	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
								LT		2OST-11.16 - Leak Test (2 YR)
2SIS*MOV8888B	2	A	10	Gate	O	11-1	G-8	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
								LT		2OST-11.16 - Leak Test (2 YR)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Safety Injection — **SYSTEM NUMBER:** 11

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SIS*MOV8889	2	A	10	Gate	S	11-1	F-8	QST	VROJ30	2OST-1.10-Stroke & Time Open/Closed (CSD or R),(RPV)
								LT		2OST-11.16 - Leak Test (2 YR)
2SIS*MOV8890A	2	A	4	Gate	S	11-1	E-4	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)
2SIS*MOV8890B	2	A	4	Gate	S	11-1	F-4	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
								LT		2BVT 1.47.11-Leak Test (2 YR)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Safety Injection (Gaseous Nitrogen) **SYSTEM NUMBER: 11**

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2GNS*AOV101-1	2	A	1	Globe	O	11-2	B-3	QST		2OST-47.3B-Stroke & Time Closed (Q) 2OST-1.10-(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2GNS*AOV101-2	2	A	1	Globe	O	11-2	C-3	QST		2OST-47.3B-Stroke & Time Closed (Q) 2OST-1.10-(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2GNS*SOV853A	2	B	1	Globe	S	11-2	C-4	QST		2OST-47.3B-Stroke & Time Open (Q) 2OST-1.10-(RPV)
2GNS*SOV853B	2	B	1	Globe	S	11-2	C-6	QST		2OST-47.3B-Stroke & Time Open (Q) 2OST-1.10-(RPV)
2GNS*SOV853C	2	B	1	Globe	S	11-2	C-9	QST		2OST-47.3B-Stroke & Time Open (Q) 2OST-1.10-(RPV)
2GNS*SOV853D	2	B	1	Globe	S	11-2	C-4	QST		2OST-47.3B-Stroke & Time Open (Q) 2OST-1.10-(RPV)
2GNS*SOV853E	2	B	1	Globe	S	11-2	D-6	QST		2OST-47.3B-Stroke & Time Open (Q) 2OST-1.10-(RPV)
2GNS*SOV853F	2	B	1	Globe	S	11-2	D-9	QST		2OST-47.3B-Stroke & Time Open (Q) 2OST-1.10-(RPV)
2GNS*SOV854A	2	B	1	Globe	S	11-2	C-2	QST		2OST-47.3B-Stroke & Time Open (Q) 2OST-1.10-(RPV)
2GNS*SOV854B	2	B	1	Globe	S	11-2	C-2	QST		2OST-47.3B-Stroke & Time Open (Q) 2OST-1.10-(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Containment Vacuum — **SYSTEM NUMBER:** 12

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2CVS*93	2	A/C	1	Check		12-1	E-2	QS		2OM-54.3-FS,FD by Station Log L5-133 in accordance with OM-10, Paragraph 4.2.1.5 (Q); (Also see VROJ31)
								QS	VROJ31	2BVT 1.47.5-FS,RD by Leak Test (R)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CVS*SOV102	2	A	1	Globe	O	12-1	E-3	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2CVS*151	2	A/P	8	Butterfly	LS	12-1	A-2	LTJ		2BVT 1.47.5-Leak Test (SP)
2CVS*151-1	2	A/P	8	Butterfly	LS	12-1	A-3	LTJ		2BVT 1.47.5-Leak Test (SP)
2CVS*SOV151A	2	A	2	Globe	O	12-1	B-4	QST		2OST-47.3B-Stroke & Time Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2CVS*SOV151B	2	A	2	Globe	O	12-1	D-4	QST		2OST-47.3B-Stroke & Time Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2CVS*SOV152A	2	A	2	Globe	O	12-1	B-4	QST		2OST-47.3B-Stroke & Time Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2CVS*SOV152B	2	A	2	Globe	O	12-1	D-4	QST		2OST-47.3B-Stroke & Time Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2CVS*SOV153A	2	A	1	Globe	O	12-1	F-3	QST		2OST-47.3B-Stroke & Time Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2CVS*SOV153B	2	A	1	Globe	O	12-1	F-2	QST		2OST-47.3B-Stroke & Time Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Leakage Monitoring — **SYSTEM NUMBER:** 12

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2LMS*51	2	A/P	½	Globe/Sealed	SS	12-2	E-6	LTJ		2BVT 1.47.5-Leak Test (SP)
2LMS*52	2	A/P	½	Globe/Sealed	SS	12-2	E-6	LTJ		2BVT 1.47.5-Leak Test (SP)
2LMS*SOV950	2	B	¾	Globe	O	12-1	F-9	QST		2OST-47.3B-Stroke & Time Open/Closed (Q) 2OST-47.105(RPV)
2LMS*SOV951	2	B	¾	Globe	O	12-1	E-9	QST		2OST-47.3B-Stroke & Time Open/Closed (Q) 2OST-47.105(RPV)
2LMS*SOV952	2	B	¾	Globe	O	12-1	C-9	QST		2OST-47.3B-Stroke & Time Open/Closed (Q) 2OST-47.105(RPV)
2LMS*SOV953	2	B	¾	Globe	O	12-1	B-9	QST		2OST-47.3B-Stroke & Time Open/Closed (Q) 2OST-47.105(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Containment Depressurization (Quench Spray) **SYSTEM NUMBER:** 13

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2QSS*3	2	A/C	10	Check		13-2	D-10	QS	VROJ32	2OST-1.10-FS,FD,RD by Mechanical Exerciser (R)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2QSS*4	2	A/C	10	Check		13-2	C-9	QS	VROJ32	2OST-1.10-FS,FD,RD by Mechanical Exerciser (R)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2QSS*MOV100A	2	B	12	Gate	O	13-2	A-8	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2QSS*MOV100B	2	B	12	Gate	O	13-2	G-8	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2QSS*SOV100A	2	A	2	Globe	S	13-2	D-7	QST	VCSJ12	2OST-1.10-Strike & Time Open/Closed (CSD)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2QSS*SOV100B	2	A	2	Globe	S	13-2	E-7	QST	VCSJ12	2OST-1.10-Stroke & Time Open/Closed (CSD)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2QSS*MOV101A	2	A	10	Gate	O	13-2	C-9	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2QSS*MOV101B	2	A	10	Gate	O	13-2	D-9	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2QSS*RV101A	2	A/C	¾x1	Relief		13-2	C-9	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2QSS*RV101B	2	A/C	¾x1	Relief		13-2	E-9	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2QSS*SOV101A	2	B	2	Globe	O	13-2	D-7	QST		2OST-47.3B-Stroke & Time Open/Closed (Q) 2OST-13.10A-(RPV-Open) 2BVT 1.47.5-(RPV-Closed)
2QSS*SOV101B	2	B	2	Globe	O	13-2	E-7	QST		2OST-47.3B-Stroke & Time Open/Closed (Q) 2OST-13.10B-(RPV-Open) 2BVT 1.47.5-(RPV-Closed)
2QSS*MOV102A	2	B	6	Gate	S	13-2	C-5	QST	VROJ33	2OST-1.10-Stroke & Time Open (R),(RPV)
2QSS*MOV102B	2	B	6	Gate	S	13-2	E-5	QST	VROJ33	2OST-1.10-Stroke & Time Open (R),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Containment Depressurization (Quench Spray) **SYSTEM NUMBER:** 13

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2QSS*RV102A	2	C	1½x2	Relief		13-2	C-6	SPT		2BVT 1.60.5-(10 YR)
2QSS*RV102B	2	C	1½x2	Relief		13-2	E-6	SPT		2BVT 1.60.5-(10 YR)
2QSS*SOV102A	2	B	2	Globe	O	13-2	D-7	QST		2OST-47.3B-Stroke & Time Open/Closed (Q) 2OST-13.10A-(RPV-Open) 2BVT 1.47.5-(RPV-Closed)
2QSS*SOV102B	2	B	2	Globe	O	13-2	E-7	QST		2OST-47.3B-Stroke & Time Open/Closed (Q) 2OST-13.10B-(RPV-Open) 2BVT 1.47.5-(RPV-Closed)
2QSS*AOV120A	2	B	6	Globe	O	13-2	E-3	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2QSS*AOV120B	2	B	6	Globe	O	13-2	D-3	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2QSS*227	2	C	2	Check		13-2	C-6	QS		2OST-13.10A-FS,FD (Q)
								QS		2OST-13.10B-FS,RD (Q)
2QSS*228	2	C	2	Check		13-2	E-6	QS		2OST-13.10B-FS,FD (Q)
								QS		2OST-13.10A-FS,RD (Q)
2QSS*267	2	A/C	2½	Check		13-2	C-10	QS	VROJ34	2OST-1.10-FS,FD,RD by Mechanical Exerciser (R)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2QSS*303	2	C	2	Check		13-2	A-8	QS		2OST-13.10A-FS,FD (Q)
								QS	VCSJ13	2OST-1.10-FS,RD (CSD)
2QSS*304	2	C	2	Check		13-2	F-8	QS		2OST-13.10B-FS,FD (Q)
								QS	VCSJ13	2OST-1.10-FS,RD (CSD)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Containment Depressurization (Recirculation Spray) **SYSTEM NUMBER:** 13

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2RSS*3	2	A/P	4	Gate	LS	13-1	B-3	LT		2BVT 1.13.6-Leak Test (2 YR)
2RSS*4	2	A/P	4	Gate	LS	13-1	C-8	LT		2BVT 1.13.6-Leak Test (2 YR)
2RSS*5	2	A/P	4	Gate	LS	13-1	E-1	LT		2BVT 1.13.6-Leak Test (2 YR)
2RSS*6	2	A/P	4	Gate	LS	13-1	E-10	LT		2BVT 1.13.6-Leak Test (2 YR)
2RSS*9	2	A/P	1½	Gate	S	13-1	F-2	LT		2BVT 1.13.6-Leak Test (2 YR)
2RSS*10	2	A/P	1½	Gate	S	13-1	E-9	LT		2BVT 1.13.6-Leak Test (2 YR)
2RSS*11	2	A/P	1½	Gate	S	13-1	E-4	LT		2BVT 1.13.6-Leak Test (2 YR)
2RSS*12	2	A/P	1½	Gate	S	13-1	E-7	LT		2BVT 1.13.6-Leak Test (2 YR)
2RSS*27	2	A/P	4	Gate	LS	13-1	C-2	LT		2BVT 1.13.5-Leak Test (2 YR)
2RSS*28	2	A/P	4	Gate	LS	13-1	C-9	LT		2BVT 1.13.5-Leak Test (2 YR)
2RSS*29	2	C	12	Check		13-1	B-2	QS	VCSJ14	2OST-1.10-FS,FD,RD by Mechanical Exerciser (CSD)
2RSS*30	2	C	12	Check		13-1	B-9	QS	VCSJ14	2OST-1.10-FS,FD,RD by Mechanical Exerciser (CSD)
2RSS*31	2	C	12	Check		13-1	B-4	QS	VCSJ14	2OST-1.10-FS,FD,RD by Mechanical Exerciser (CSD)
2RSS*32	2	C	12	Check		13-1	B-7	QS	VCSJ14	2OST-1.10-FS,FD,RD by Mechanical Exerciser (CSD)
2RSS*RV101C	2	C	¾x1	Relief		13-1	C-4	SPT		2BVT 1.60.5-(10 YR)
2RSS*RV101D	2	C	¾x1	Relief		13-1	C-7	SPT		2BVT 1.60.5-(10 YR)
2RSS*MOV154C	2	B	3	Gate	S	13-1	C-4	QST	VROJ55	2BVT 1.13.5-Stroke & Time Open/Closed (R)
2RSS*MOV154D	2	B	3	Gate	S	13-1	C-7	QST	VROJ55	2BVT 1.13.5-Stroke & Time Open/Closed (R)
2RSS*MOV155A	2	B	12	Butterfly	O	13-1	G-4	QST		2OST.47.3B-Stroke & Time Open/Closed (Q),(RPV)
2RSS*MOV155B	2	B	12	Butterfly	O	13-1	G-7	QST		2OST.47.3B-Stroke & Time Open/Closed (Q),(RPV)
2RSS*MOV155C	2	B	12	Butterfly	O	13-1	F-5	QST		2OST.47.3B-Stroke & Time Open/Closed (Q),(RPV)
2RSS*MOV155D	2	B	12	Butterfly	O	13-1	F-6	QST		2OST.47.3B-Stroke & Time Open/Closed (Q),(RPV)
2RSS*MOV156A	2	B	12	Gate	O	13-1	B-2	QST		2OST.47.3B-Stroke & Time Open/Closed (Q),(RPV)
2RSS*MOV156B	2	B	12	Gate	O	13-1	B-9	QST		2OST.47.3B-Stroke & Time Open/Closed (Q),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Containment Depressurization (Recirculation Spray) **SYSTEM NUMBER:** 13

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2RSS*MOV156C	2	B	12	Gate	O	13-1	B-4	QST		2OST.47.3B-Stroke & Time Open/Closed (Q),(RPV)
2RSS*MOV156D	2	B	12	Gate	O	13-1	B-7	QST		2OST.47.3B-Stroke & Time Open/Closed (Q),(RPV)
2RSS*RV156A	2	C	¾x1	Relief		13-1	B-2	SPT		2BVT 1.60.5-(10 YR)
2RSS*RV156B	2	C	¾x1	Relief		13-1	B-9	SPT		2BVT 1.60.5-(10 YR)
2RSS*RV156C	2	C	¾x1	Relief		13-1	B-4	SPT		2BVT 1.60.5-(10 YR)
2RSS*RV156D	2	C	¾x1	Relief		13-1	B-7	SPT		2BVT 1.60.5-(10 YR)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Reactor Plant Sample — **SYSTEM NUMBER:** 14A

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SSR*AOV100A1	2	A	¾	Globe	O	14A-1	C-9	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SSR*AOV100A2	2	A	¾	Globe	O	14A-1	D-9	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SSR*AOV102A1	2	A	¾	Globe	S	14A-2	C-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SSR*AOV102A2	2	A	¾	Globe	S	14A-2	D-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SSR*AOV109A1	2	A	¾	Globe	O	14A-1	C-7	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SSR*AOV109A2	2	A	¾	Globe	O	14A-1	D-7	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SSR*AOV112A1	2	A	¾	Globe	O	14A-1	C-8	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SSR*AOV112A2	2	A	¾	Globe	O	14A-1	D-8	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SSR*AOV117A	2	B	¾	Globe	O	14A-1	B-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SSR*AOV117B	2	B	¾	Globe	O	14A-1	B-3	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SSR*AOV117C	2	B	¾	Globe	O	14A-1	B-5	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SSR*RV117	2	A/C	¾x1	Relief		14A-1	D-6	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SSR*RV118	2	A/C	¾x1	Relief		14A-2	C-1	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Reactor Plant Sample — **SYSTEM NUMBER:** 14A

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SSR*RV119	2	A/C	¾x1	Relief		14A-1	D-9	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SSR*RV120	2	A/C	¾x1	Relief		14A-2	C-2	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SSR*RV121	2	A/C	¾x1	Relief		14A-1	D-8	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SSR*RV122	2	A/C	¾x1	Relief		14A-2	C-2	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SSR*SOV128A1	2	A	⅜	Globe	S	14A-2	B-3	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2SSR*SOV128A2	2	A	⅜	Globe	S	14A-2	D-2	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2SSR*SOV129A1	2	A	⅜	Globe	S	14A-2	B-4	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2SSR*SOV129A2	2	A	⅜	Globe	S	14A-2	D-2	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2SSR*SOV130A1	2	A	⅜	Globe	O	14A-2	B-10	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2SSR*SOV130A2	2	A	⅜	Globe	O	14A-2	C-10	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Post-Accident Sample **SYSTEM NUMBER:** 14C

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2PAS*SOV105A1	2	A	¾	Globe	S	14C-2	A-2	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2PAS*SOV105A2	2	A	¾	Globe	S	14C-2	A-3	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Primary Component Cooling Water — **SYSTEM NUMBER:** 15

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2CCP*4	3	C	20	Check		15-1	B-5	QS		2OST-15.1-PS,FD & FS,RD (Q)
								QS	VROJ35	2OST-15.1-FS,FD (CSD or R)
2CCP*5	3	C	20	Check		15-1	F-5	QS		2OST-15.2-PS,FD & FS,RD (Q)
								QS	VROJ35	2OST-15.2-FS,FD (CSD or R)
2CCP*6	3	C	20	Check		15-1	D-5	QS		2OST-15.3-PS,FD & FS,RD (Q)
								QS	VROJ35	2OST-15.3-FS,FD (CSD or R)
2CCP*27A	3	B	20	Butterfly	O	15-1	D-6	QS	VCSJ15	2OST-1.10-Stroke Only Closed (CSD)
2CCP*27B	3	B	20	Butterfly	O	15-1	D-6	QS	VCSJ15	2OST-1.10-Stroke Only Closed (CSD)
2CCP*RV102	2	A/C	¾x1	Relief		15-2	D-4	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CCP*RV103	2	A/C	¾x1	Relief		15-2	E-5	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CCP*RV104	2	A/C	¾x1	Relief		15-2	D-4	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CCP*RV105	2	A/C	¾x1	Relief		15-2	E-4	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CCP*AOV107A	3	A	2	Globe	O	15-3	C-5	QST	VROJ36	2OST-1.10-Stroke & Time Closed (CSD or R), (RPV)
								LT		2BVT 1.60.6-Leak Test (2 YR)
2CCP*AOV107B	3	A	2	Globe	O	15-3	F-5	QST	VROJ36	2OST-1.10-Stroke & Time Closed (CSD or R), (RPV)
								LT		2BVT 1.60.6-Leak Test (2 YR)
2CCP*AOV107C	3	A	2	Globe	O	15-3	F-10	QST	VROJ36	2OST-1.10-Stroke & Time Closed (CSD or R), (RPV)
								LT		2BVT 1.60.6-Leak Test (2 YR)
2CCP*RV109	3	C	¾x1	Relief		15-5	D-5	SPT		2BVT 1.60.5-(10 YR)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Primary Component Cooling Water — **SYSTEM NUMBER:** 15

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2CCP*RV110	3	C	¾x1	Relief		15-5	D-3	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV111A	3	C	¾x1	Relief		15-5	B-1	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV111B	3	C	¾x1	Relief		15-5	B-3	SPT		2BVT 1.60.5-(10 YR)
2CCP*MOV112A	3	B	18	Butterfly	S	15-2	D-9	QST	VCSJ2	2OST-15.1(3)-Stroke & Time Open (Q), 2OST-10.3-Stroke & Time Open (CSD),(RPV)
2CCP*MOV112B	3	B	18	Butterfly	S	15-2	F-9	QST	VCSJ2	2OST-15.2(3)-Stroke & Time Open (Q), 2OST-10.4-Stroke & Time Open (CSD),(RPV)
2CCP*RV113A	3	C	¾x1	Relief		15-4	C-3	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV113B	3	C	¾x1	Relief		15-4	C-7	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV113C	3	C	¾x1	Relief		15-4	B-9	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV115A	3	C	¾x1	Relief		15-2	D-8	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV115B	3	C	¾x1	Relief		15-2	F-6	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV115C	3	C	¾x1	Relief		15-2	G-9	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV116A	3	C	¾x1	Relief		15-3	C-2	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV116B	3	C	¾x1	Relief		15-3	F-1	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV116C	3	C	¾x1	Relief		15-3	F-6	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV117	3	C	¾x1	Relief		15-3	B-8	SPT		2BVT 1.60.5-(10 YR)
2CCP*MOV118	3	B	2	Ball	O	15-2	C-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*RV118	3	C	¾x1	Relief		15-2	D-6	SPT		2BVT 1.60.5-(10 YR)
2CCP*MOV119	3	B	2	Ball	O	15-2	C-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*RV119A	3	C	¾x1	Relief		15-2	B-10	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV119B	3	C	¾x1	Relief		15-2	E-10	SPT		2BVT 1.60.5-(10 YR)
2CCP*MOV120	3	B	2	Ball	O	15-2	A-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*RV120A	3	C	¾x1	Relief		15-2	C-2	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV136A	3	C	¾x1	Relief		15-2	B-9	SPT		2BVT 1.60.5-(10 YR)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Primary Component Cooling Water — **SYSTEM NUMBER:** 15

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2CCP*RV136B	3	C	¾x1	Relief		15-2	E-9	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV139B	3	C	¾x1	Relief		15-2	G-3	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV139D	3	C	¾x1	Relief		15-2	F-3	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV139E	3	C	¾x1	Relief		15-2	F-3	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV139F	3	C	¾x1	Relief		15-2	E-3	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV139G	3	C	¾x1	Relief		15-2	A-3	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV139H	3	C	¾x1	Relief		15-2	A-3	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV139I	3	C	¾x1	Relief		15-2	B-3	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV139J	3	C	¾x1	Relief		15-2	B-3	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV139K	3	C	¾x1	Relief		15-2	C-3	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV139L	3	C	¾x1	Relief		15-2	C-3	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV140	3	C	¾x1	Relief		15-2	E-7	SPT		2BVT 1.60.5-(10 YR)
2CCP*RV141	3	C	¾x1	Relief		15-2	B-7	SPT		2BVT 1.60.5-(10 YR)
2CCP*MOV150-1	2	A	18	Butterfly	O	15-2	D-3	QST	VROJ37	2OST-1.10-Stroke & Time Open/Closed (R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CCP*MOV150-2	2	A	18	Butterfly	O	15-2	D-4	QST	VROJ37	2OST-1.10-Stroke & Time Open/Closed (R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CCP*MOV151-1	2	A	18	Butterfly	O	15-2	E-3	QST	VROJ37	2OST-1.10-Stroke & Time Open/Closed (R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CCP*MOV151-2	2	A	18	Butterfly	O	15-2	E-5	QST	VROJ37	2OST-1.10-Stroke & Time Open/Closed (R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CCP*MOV156-1	2	A	18	Butterfly	O	15-2	D-3	QST	VROJ37	2OST-1.10-Stroke & Time Open/Closed (R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Primary Component Cooling Water — **SYSTEM NUMBER:** 15

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2CCP*MOV156-2	2	A	18	Butterfly	O	15-2	D-5	QST	VROJ37	2OST-1.10-Stroke & Time Open/Closed (R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CCP*MOV157-1	2	A	18	Butterfly	O	15-2	E-3	QST	VROJ37	2OST-1.10-Stroke & Time Open/Closed (R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CCP*MOV157-2	2	A	18	Butterfly	O	15-2	E-4	QST	VROJ37	2OST-1.10-Stroke & Time Open/Closed (R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2CCP*AOV171	3	B	3	Globe	O	15-2	E-7	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*AOV172	3	B	3	Globe	O	15-2	D-7	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*AOV173	3	B	3	Globe	O	15-2	C-7	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*AOV174	3	B	3	Globe	O	15-2	B-7	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*MOV175-1	3	B	10	Butterfly	O	15-5	A-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*MOV175-2	3	B	10	Butterfly	O	15-5	A-5	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*MOV176-1	3	B	10	Butterfly	O	15-5	A-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*MOV176-2	3	B	10	Butterfly	O	15-5	A-5	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*MOV177-1	3	B	10	Butterfly	O	15-5	G-5	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*MOV177-2	3	B	10	Butterfly	O	15-5	G-5	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*MOV178-1	3	B	10	Butterfly	O	15-5	G-5	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*MOV178-2	3	B	10	Butterfly	O	15-5	G-5	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2CCP*289	3	A/C	2	Check		15-3	C-1	QS	VROJ38	2BVT 1.60.6-FS,RD By Leak Test (R)
								LT		2BVT 1.60.6-Leak Test (2 YR)
2CCP*290	3	A/C	2	Check		15-3	F-1	QS	VROJ38	2BVT 1.60.6-FS,RD By Leak Test (R)
								LT		2BVT 1.60.6-Leak Test (2 YR)
2CCP*291	3	A/C	2	Check		15-3	F-6	QS	VROJ38	2BVT 1.60.6-FS,RD By Leak Test (R)
								LT		2BVT 1.60.6-Leak Test (2 YR)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Primary Component Cooling Water **SYSTEM NUMBER:** 15

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2CCP*321	3	B	2	Butterfly	LO	15-1	B-3	QS		2OST-15.1-Stroke Only Closed (Q)
2CCP*322	3	B	2	Butterfly	LO	15-1	F-3	QS		2OST-15.2-Stroke Only Closed (Q)
2CCP*323	3	B	2	Gate	LO	15-1	C-3	QS		2OST-15.1-Stroke Only Closed (Q)
2CCP*324	3	B	20	Butterfly	O	15-1	E-3	QS		2OST-15.2-Stroke Only Closed (Q)
2CCP*325	3	B	20	Butterfly	O	15-1	C-3	QS		2OST-15.1-Stroke Only Closed (Q)
2CCP*326	3	B	2	Butterfly	LO	15-1	E-3	QS		2OST-15.2-Stroke Only Closed (Q)
2CCP*352	3	C	2	Check		15-2	A-1	QS	VROJ39	2BVT 1.60.6-FS,RD By Leak Test (R)
2CCP*354	3	B	20	Butterfly	O	15-1	E-8	QS	VCSJ15	2OST-1.10-Stroke Only Closed (CSD)
2CCP*355	3	B	20	Butterfly	O	15-1	D-8	QS	VCSJ15	2OST-1.10-Stroke Only Closed (CSD)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Fuel Pool Cooling & Purification **SYSTEM NUMBER:** 20

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2FNC*9	2	A/P	6	Ball	LS	20-1	E-2	LTJ		2BVT 1.47.5-Leak Test (SP)
2FNC*38	2	A/P	6	Ball	LS	20-1	E-2	LTJ		2BVT 1.47.5-Leak Test (SP)
2FNC*121	2	A/P	6	Ball	LS	20-1	D-2	LTJ		2BVT 1.47.5-Leak Test (SP)
2FNC*122	2	A/P	6	Ball	LS	20-1	F-2	LTJ		2BVT 1.47.5-Leak Test (SP)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Main Steam **SYSTEM NUMBER:** 21

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2MSS*18	3	C	3	Check		21-2	A-3	QS		2OST-24.4-PS,FD (Q)
								QS	VCSJ16	2OST-24.4A-FS,FD (CSD)
								QS	VROJ40	2BVT 1.60.6-FS,RD By Leak Test (R)
2MSS*19	3	C	3	Check		21-2	C-2	QS		2OST-24.4-PS,FD (Q)
								QS	VCSJ16	2OST-24.4A-FS,FD (CSD)
								QS	VROJ40	2BVT 1.60.6-FS,RD By Leak Test (R)
2MSS*20	3	C	3	Check		21-2	D-2	QS		2OST-24.4-PS,FD (Q)
								QS	VCSJ16	2OST-24.4A-FS,FD (CSD)
								QS	VROJ40	2BVT 1.60.6-FS,RD By Leak Test (R)
2MSS*AOV101A	2	B	32	Globe	O	21-1	G-7	QS		2OST-21.1 Partial Stroked Closed Only (Q)
								QST	VCSJ17	2OST-21.7-Stroke, Time & Fail Closed (CSD),(RPV)
2MSS*AOV101B	2	B	32	Globe	O	21-1	D-7	QS		2OST-21.2-Partial Stroked Closed Only (Q)
								QST	VCSJ17	2OST-21.7-Stroke, Time & Fail Closed (CSD),(RPV)
2MSS*AOV101C	2	B	32	Globe	O	21-1	B-7	QS		2OST-21.3-Partial Stroked Closed Only (Q)
								QST	VCSJ17	2OST-21.7-Stroke, Time & Fail Closed (CSD),(RPV)
2MSS*SV101A	2	C	6x10	Safety		21-1	F-5	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*SV101B	2	C	6x10	Safety		21-1	C-5	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*SV101C	2	C	6x10	Safety		21-1	A-5	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*AOV102A	2	B	2	Globe	S	21-1	G-7	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2MSS*AOV102B	2	B	2	Globe	S	21-1	E-7	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2MSS*AOV102C	2	B	2	Globe	S	21-1	C-7	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2MSS*SV102A	2	C	6x10	Safety		21-1	F-5	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*SV102B	2	C	6x10	Safety		21-1	C-5	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*SV102C	2	C	6x10	Safety		21-1	A-5	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Main Steam **SYSTEM NUMBER:** 21

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2MSS*SV103A	2	C	6x10	Safety		21-1	F-4	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*SV103B	2	C	6x10	Safety		21-1	C-4	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*SV103C	2	C	6x10	Safety		21-1	A-4	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*SV104A	2	C	6x10	Safety		21-1	F-4	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*SV104B	2	C	6x10	Safety		21-1	C-4	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*SV104C	2	C	6x10	Safety		21-1	A-4	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*SOV105A	2	B	3	Globe	S	21-2	D-1	QST		2OST-24.4(4A)-Stroke & Time Open/Closed (Q),(RPV) 2OST-47.3B-Stroke & Time Open/Closed (Q in Modes 4-6)
2MSS*SOV105B	2	B	3	Globe	S	21-2	C-1	QST		2OST-24.4(4A)-Stroke & Time Open/Closed (Q),(RPV) 2OST-47.3B-Stroke & Time Open/Closed (Q in Modes 4-6)
2MSS*SOV105C	2	B	3	Globe	S	21-2	A-1	QST		2OST-24.4(4A)-Stroke & Time Open/Closed (Q),(RPV) 2OST-47.3B-Stroke & Time Open/Closed (Q in Modes 4-6)
2MSS*SOV105D	2	B	3	Globe	S	21-2	D-2	QST		2OST-24.4(4A)-Stroke & Time Open/Closed (Q),(RPV) 2OST-47.3B-Stroke & Time Open/Closed (Q in Modes 4-6)
2MSS*SOV105E	2	B	3	Globe	S	21-2	C-2	QST		2OST-24.4(4A)-Stroke & Time Open/Closed (Q),(RPV) 2OST-47.3B-Stroke & Time Open/Closed (Q in Modes 4-6)
2MSS*SOV105F	2	B	3	Globe	S	21-2	A-2	QST		2OST-24.4(4A)-Stroke & Time Open/Closed (Q),(RPV) 2OST-47.3B-Stroke & Time Open/Closed (Q in Modes 4-6)
2MSS*SV105A	2	C	6x10	Safety		21-1	F-3	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*SV105B	2	C	6x10	Safety		21-1	C-3	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*SV105C	2	C	6x10	Safety		21-1	A-3	SPT		2BVT 1.60.5 & 2BVT 1.21.2-(5 YR)
2MSS*SOV120	2	B	¾	Globe	S	21-2	G-5	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Main Steam **SYSTEM NUMBER:** 21

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2MSS*196	3	C	3	Check		21-2	D-3	QS		2OST-24.4-PS,FD (Q)
								QS	VCSJ16	2OST-24.4A-FS,FD (CSD)
								QS	VROJ40	2BVT 1.60.6-FS,RD By Leak Test (R)
2MSS*199	3	C	3	Check		21-2	C-3	QS		2OST-24.4-PS,FD (Q)
								QS	VCSJ16	2OST-24.4A-FS,FD (CSD)
								QS	VROJ40	2BVT 1.60.6-FS,RD By Leak Test (R)
2MSS*352	3	C	3	Check		21-2	A-2	QS		2OST-24.4-PS,FD (Q)
								QS	VCSJ16	2OST-24.4A-FS,FD (CSD)
								QS	VROJ40	2BVT 1.60.6-FS,RD By Leak Test (R)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Main Steam (Drains) **SYSTEM NUMBER:** 21

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SDS*AOV111A1	2	B	1½	Globe	O	21-3	A-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SDS*AOV111A2	2	B	1½	Globe	O	21-3	B-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SDS*AOV111B1	2	B	1½	Globe	O	21-3	A-6	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SDS*AOV111B2	2	B	1½	Globe	O	21-3	B-6	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SDS*AOV111C1	2	B	1½	Globe	O	21-3	B-8	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SDS*AOV111C2	2	B	1½	Globe	O	21-3	B-8	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SDS*AOV129A	2	B	1	Globe	O	21-3	C-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SDS*AOV129B	2	B	1	Globe	O	21-3	B-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Main Steam (Vents) **SYSTEM NUMBER:** 21

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SVS*80	2	C	6	Check		21-2	F-8	QS	VROJ51	Sample Disassembly & Inspection per 1/2 CMP-75-ENERTECH CHECK-1M-FS, FD(R)
								QS	VROJ41	2BVT 1.60.6-FS,RD By Leak Test (R)
2SVS*81	2	C	6	Check		21-2	F-9	QS	VROJ51	Sample Disassembly & Inspection per 1/2 CMP-75-ENERTECH CHECK-1M-FS, FD(R)
								QS	VROJ41	2BVT 1.60.6-FS,RD By Leak Test (R)
2SVS*82	2	C	6	Check		21-2	F-10	QS	VROJ51	Sample Disassembly & Inspection per 1/2 CMP-75-ENERTECH CHECK-1M-FS, FD(R)
								QS	VROJ41	2BVT 1.60.6-FS,RD By Leak Test (R)
2SVS*PCV101A	2	B	10	Globe	S	21-1	F-4	QST		2OST-47.3B - Stroke & Time Open/Closed and Fail Closed (Q),(RPV)
2SVS*PCV101B	2	B	10	Globe	S	21-1	D-4	QST		2OST-47.3B - Stroke & Time Open/Closed and Fail Closed (Q),(RPV)
2SVS*PCV101C	2	B	10	Globe	S	21-1	B-4	QST		2OST-47.3B - Stroke & Time Open/Closed and Fail Closed (Q),(RPV)
2SVS*HCV104	2	B	10	Globe	S	21-2	F-7	QST		2OST-47.3B - Stroke & Time Open/Closed and Fail Closed (Q),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Main Feedwater **SYSTEM NUMBER:** 24

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2FWS*28	2	C	16	Check		24-2A	F-7	QS	VROJ42	2OST-24.8-FS,RD By Leak Test (R)
2FWS*29	2	C	16	Check		24-2A	D-7	QS	VROJ42	2OST-24.8-FS,RD By Leak Test (R)
2FWS*30	2	C	16	Check		24-2A	B-7	QS	VROJ42	2OST-24.8-FS,RD By Leak Test (R)
2FWS*HYV157A	2	B	16	Gate	O	24-2A	F-6	QST	VCSJ21	2OST-1.10-Stroke & Time Closed (CSD),(RPV)
2FWS*HYV157B	2	B	16	Gate	O	24-2A	D-6	QST	VCSJ21	2OST-1.10-Stroke & Time Closed (CSD),(RPV)
2FWS*HYV157C	2	B	16	Gate	O	24-2A	B-6	QST	VCSJ21	2OST-1.10-Stroke & Time Closed (CSD),(RPV)
2FWS*FCV478	3	B	16	Globe	T	24-2A	F-3	QST	VCSJ22	2OST-1.10-Stroke, Time & Fail Closed (CSD),(RPV)
2FWS*FCV479	2	B	6	Globe	S	24-2A	E-3	QST		2OST-47.3B-Stroke, Time & Fail Closed (Q),(RPV)
2FWS*FCV488	3	B	16	Globe	T	24-2A	D-3	QST	VCSJ22	2OST-1.10-Stroke, Time & Fail Closed (CSD),(RPV)
2FWS*FCV489	2	B	6	Globe	S	24-2A	C-3	QST		2OST-47.3B-Stroke, Time & Fail Closed (Q),(RPV)
2FWS*FCV498	3	B	16	Globe	T	24-2A	B-3	QST	VCSJ22	2OST-1.10-Stroke, Time & Fail Closed (CSD),(RPV)
2FWS*FCV499	2	B	6	Globe	S	24-2A	A-3	QST		2OST-47.3B-Stroke, Time & Fail Closed (Q),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Auxiliary Feedwater **SYSTEM NUMBER:** 24

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2FWE*42A	2	A/C	4	Check		24-3	A-8	QS	VCSJ23	2OST-24.6-FS,FD,RD (CSD)
								LM		Monitored shiftly by 2OM-54.3, Station Log PAB 2
2FWE*42B	2	A/C	4	Check		24-3	B-8	QS	VCSJ23	2OST-24.6-FS,FD,RD (CSD)
								LM		Monitored shiftly by 2OM-54.3, Station Log PAB 2
2FWE*43A	2	A/C	4	Check		24-3	C-8	QS	VCSJ23	2OST-24.6-FS,FD,RD (CSD)
								LM		Monitored shiftly by 2OM-54.3, Station Log PAB 2
2FWE*43B	2	A/C	4	Check		24-3	C-8	QS	VCSJ23	2OST-24.6-FS,FD,RD (CSD)
								LM		Monitored shiftly by 2OM-54.3, Station Log PAB 2
2FWE*44A	2	A/C	4	Check		24-3	D-8	QS	VCSJ23	2OST-24.6-FS,FD,RD (CSD)
								LM		Monitored shiftly by 2OM-54.3, Station Log PAB 2
2FWE*44B	2	A/C	4	Check		24-3	E-8	QS	VCSJ23	2OST-24.6-FS,FD,RD (CSD)
								LM		Monitored shiftly by 2OM-54.3, Station Log PAB 2
2FWE*90	3	B	6	Butterfly	LS	24-3	D-2	QS		2OST-24.1-Stroke Only Open (Q)(M per Tech Specs)
2FWE*91	3	B	4	Butterfly	LS	24-3	E-2	QS		2OST-24.1-Stroke Only Open (Q)(M per Tech Specs)
2FWE*92	3	B	4	Butterfly	LS	24-3	F-2	QS		2OST-24.1-Stroke Only Open (Q)(M per Tech Specs)
2FWE*99	2	C	4	Check		24-3	B-10	QS	VCSJ24	2OST-24.6-FS,FD (CSD)
								QS	VROJ43	2OST-24.8A-FS,RD By Leak Test (R)
2FWE*100	2	C	4	Check		24-3	C-10	QS	VCSJ24	2OST-24.6-FS,FD (CSD)
								QS	VROJ43	2OST-24.8A-FS,RD By Leak Test (R)
2FWE*HCV100A	2	B	3	Globe	O	24-3	D-7	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
2FWE*HCV100B	2	B	3	Globe	O	24-3	E-7	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
2FWE*HCV100C	2	B	3	Globe	O	24-3	C-7	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
2FWE*HCV100D	2	B	3	Globe	O	24-3	C-7	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Auxiliary Feedwater — **SYSTEM NUMBER:** 24

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2FWE*HCV100E	2	B	3	Globe	O	24-3	A-7	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
2FWE*HCV100F	2	B	3	Globe	O	24-3	B-7	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
2FWE*SOV100A	3	B	2	Globe	O	24-3	D-2	QST		2OST-47.3B-Stroke & Time Closed (Q) 2OST-1.10-(RPV)
2FWE*SOV100B	3	B	2	Globe	O	24-3	D-2	QST		2OST-47.3B-Stroke & Time Closed (Q) 2OST-1.10-(RPV)
2FWE*101	2	C	4	Check		24-3	E-10	QS	VCSJ24	2OST-24.6-FS,FD (CSD)
								QS	VROJ43	2OST-24.8A-FS,RD By Leak Test (R)
2FWE*RV101	3	C	3x4	Relief		24-3	D-5	SPT		2BVT 1.60.5-(10 YR)
2FWE*RV102	3	C	¾x1	Relief		24-3	E-2	SPT		2BVT 1.60.5-(10 YR)
2FWE*FCV122	3	B	6	(NOTE 1)		24-3	E-5	QS		2OST-24.4-Stroke Only Open (Q)
								QS	VCSJ25	2OST-24.4A-Stroke Only Closed (CSD)
	3	C	6	Check		24-3	E-5	QS	VCSJ25	2OST-24.4A-FS,FD (CSD)
								QS	VCSJ25	2OST-24.6-FS,RD (CSD)
2FWE*FCV123A	3	B	4	(NOTE 1)		24-3	F-6	QS		2OST-24.2-Stroke Only Open (Q)
								QS	VCSJ25	2OST-24.6-Stroke Only Closed (CSD)
	3	C	4	Check		24-3	F-6	QS	VCSJ25	2OST-24.6-FS,FD (CSD)
								QS	VCSJ25	2OST-24.6-FS,RD (CSD)
2FWE*FCV123B	3	B	4	(NOTE 1)		24-3	G-6	QS		2OST-24.3-Stroke Only Open (Q)
								QS	VCSJ25	2OST-24.6-Stroke Only Closed (CSD)
	3	C	4	Check		24-3	G-6	QS	VCSJ25	2OST-24.6-FS,FD (CSD)
								QS	VCSJ25	2OST-24.6-FS,RD (CSD)

NOTE 1: Yarway automatic recirculation control valve acts as both a manual automatic flow control valve and check valve.

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Steam Generator Blowdown **SYSTEM NUMBER:** 25

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2BDG*AOV100A1	2	B	3	Globe	O	25-1	G-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2BDG*AOV100B1	2	B	3	Globe	O	25-1	E-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2BDG*AOV100C1	2	B	3	Globe	O	25-1	B-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2BDG*AOV101A1	2	B	3	Globe	O	25-1	G-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2BDG*AOV101A2	2	B	3	Globe	O	25-1	G-3	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2BDG*AOV101B1	2	B	3	Globe	O	25-1	E-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2BDG*AOV101B2	2	B	3	Globe	O	25-1	E-3	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2BDG*AOV101C1	2	B	3	Globe	O	25-1	B-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2BDG*AOV101C2	2	B	3	Globe	O	25-1	B-3	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Auxiliary Steam — **SYSTEM NUMBER:** 27

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2ASS*AOV130A	3	B	8	Globe	O	27A-1	F-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2ASS*AOV130B	3	B	8	Globe	O	27A-1	F-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Service Water **SYSTEM NUMBER:** 30

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SWS*57	3	C	30	Check		30-1	C-3	QS		2OST-30.2-PS,FD (Q)
								QS	VROJ44	2OST-30.2-FS,FD (Q or R) 2OST-30.13A-FS,FD (R)
								QS	VCSJ26	2OST-30.6A-FS,RD (Q or CSD)
2SWS*58	3	C	30	Check		30-1	D-4	QS		2OST-30.3-PS,FD (Q)
								QS	VROJ44	2OST-30.3-FS,FD (Q or R) 2OST-30.13B-FS,FD (R)
								QS	VCSJ26	2OST-30.6B-FS,RD (Q or CSD)
2SWS*59	3	C	30	Check		30-1	G-3	QS		2OST-30.6A or 6B-PS,FD (Q)
								QS	VROJ44	2OST-30.6A or 6B-FS,FD (Q or R) 2OST-30.13A(B)-FS,FD (R)
								QS	VCSJ26	2OST-30.6A or 6B-FS,RD (Q or CSD)
2SWS*99	3	B	3	Globe	T	30-2	B-3	QS		2OST-47.3B-Stroke Only Closed (Q)
2SWS*100	3	B	3	Globe	T	30-2	E-3	QS		2OST-47.3B-Stroke Only Closed (Q)
2SWS*RV101A	3	C	¾x1	Relief		30-3	A-1	SPT		2BVT 1.60.5-(10 YR)
2SWS*RV101B	3	C	¾x1	Relief		30-3	E-1	SPT		2BVT 1.60.5-(10 YR)
2SWS*RV101C	3	C	¾x1	Relief		30-3	B-1	SPT		2BVT 1.60.5-(10 YR)
2SWS*RV101D	3	C	¾x1	Relief		30-3	D-1	SPT		2BVT 1.60.5-(10 YR)
2SWS*MOV102A	3	B	30	Butterfly	O	30-1	C-4	QST	VCSJ27	2OST-30.6A-Stroke & Time Open (Q or CSD),(RPV)
2SWS*RV102A	3	C	¾x1	Relief		30-3	B-6	SPT		2BVT 1.60.5-(10 YR)
2SWS*MOV102B	3	B	30	Butterfly	O	30-1	D-4	QST	VCSJ27	2OST-30.6BStroke & Time Open (Q or CSD),(RPV)
2SWS*RV102B	3	C	¾x1	Relief		30-3	F-6	SPT		2BVT 1.60.5-(10 YR)
2SWS*MOV102C1	3	B	30	Butterfly	S	30-1	G-4	QST	VCSJ27	2OST-30.6A-Stroke & Time Open (Q or CSD),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Service Water **SYSTEM NUMBER:** 30

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SWS*MOV102C2	3	B	30	Butterfly	S	30-1	G-4	QST	VCSJ27	2OST-30.6B-Stroke & Time Open (Q or CSD),(RPV)
2SWS*RV102C	3	C	¾x1	Relief		30-3	D-6	SPT		2BVT 1.60.5-(10 YR)
2SWS*MOV103A	3	B	24	Butterfly	S	30-1	C-7	QST	VROJ46	2OST-30.13A-Stroke & Time Open/Closed (R),(RPV)
2SWS*MOV103B	3	B	24	Butterfly	S	30-1	C-6	QST	VROJ46	2OST-30.13B-Stroke & Time Open/Closed (R),(RPV)
2SWS*MOV104A	3	B	16	Gate	O	30-3	A-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SWS*MOV104B	3	B	16	Gate	O	30-3	E-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SWS*MOV104C	3	B	16	Gate	O	30-3	C-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SWS*MOV104D	3	B	16	Gate	O	30-3	D-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SWS*MOV105A	3	B	16	Gate	O(T)	30-3	A-3	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SWS*MOV105B	3	B	16	Gate	O(T)	30-3	E-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SWS*MOV105C	3	B	16	Gate	O(T)	30-3	C-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SWS*MOV105D	3	B	16	Gate	O(T)	30-3	D-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SWS*106	3	C	30	Check		30-1	A-7	QS		2OST-30.2(6A)-PS,FD (Q)
								QS	VROJ45	2OST-30.2(6A)-FS,FD (Q or R) 2OST-30.13A-FS,FD (R)
								QS	VROJ45	2OST-30.8A or 8B-FS,RD By Leak Test (R)
2SWS*MOV106A	3	B	30	Butterfly	O	30-1	C-7	QST	VROJ47	2OST-30.13A-Stroke & Time Open/Closed (R),(RPV)
2SWS*MOV106B	3	B	30	Butterfly	O	30-1	C-6	QST	VROJ47	2OST-30.13B-Stroke & Time Open/Closed (R),(RPV)
2SWS*107	3	C	30	Check		30-1	A-6	QS		2OST-30.3(6B)-PS,FD (Q)
								QS	VROJ45	2OST-30.3(6B)-FS,FD (Q or R) 2OST-30.13B-FS,FD (R)
								QS	VROJ45	2OST-30.8A or 8B-FS,RD By Leak Test (R)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Service Water — **SYSTEM NUMBER:** 30

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SWS*MOV107A	3	B	24	Butterfly	O	30-1	F-7	QST	VCSJ28	2OST-1.10-Stroke & Time Closed (CSD),(RPV)
2SWS*MOV107B	3	B	24	Butterfly	O	30-1	F-7	QST	VCSJ28	2OST-1.10-Stroke & Time Closed (CSD),(RPV)
2SWS*MOV107C	3	B	24	Butterfly	O	30-1	F-6	QST	VCSJ28	2OST-1.10-Stroke & Time Closed (CSD),(RPV)
2SWS*MOV107D	3	B	24	Butterfly	O	30-1	F-6	QST	VCSJ28	2OST-1.10-Stroke & Time Closed (CSD),(RPV)
2SWS*110	3	C/P	6	Check		30-2	C-8	NA		*(Internal Inspection per CMP (5 years))
2SWS*111	3	C	6	Check		30-2	C-8	QS		2OST-36.1-FS,FD (Q) *(Internal Inspection per CMP (5 years))
2SWS*112	3	C	6	Check		30-2	E-8	QS		2OST-36.2-FS,FD (Q) *(Internal Inspection per CMP (5 years))
2SWS*113	3	C/P	6	Check		30-2	E-8	NA		*(Internal Inspection per CMP (5 years))
*Not required by ASME. Performed by a mechanical maintenance CMP to verify valve integrity per NRC IE Bulletin 83-03.										
2SWS*MOV113A	3	B	6	Gate	S	30-2	C-8	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2SWS*MOV113D	3	B	6	Gate	S	30-2	E-8	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2SWS*115A	3	B	1½	Ball	S	30-1	B-2	QS		2OST-30.17A-Stroke to Open Throttled Position (Q)
2SWS*115B	3	B	1½	Ball	S	30-1	F-2	QS		2OST-30.17B-Stroke to Open Throttled Position (Q)
2SWS*AOV118A	3	B	2	Globe	O	30-1	B-1	QST		2OST-30.17A-Stroke & Time Closed (Q),(RPV)
2SWS*AOV118B	3	B	2	Globe	O	30-1	E-1	QST		2OST-30.17B-Stroke & Time Closed (Q),(RPV)
2SWS*AOV130A	3	B	2	Ball	O(A)	30-1	A-4	QST		2OST-30.17A-Stroke & Time Open (Q)
2SWS*AOV130B	3	B	2	Ball	O(A)	30-1	E-4	QST		2OST-30.17B-Stroke & Time Open (Q)
2SWS*142	3	B	3	Gate	S	30-2	A-1	QS		2OST-47.3B-Stroke Only Open (Q)
2SWS*143	3	B	3	Gate	S	30-2	F-1	QS		2OST-47.3B-Stroke Only Open (Q)
2SWS*RV152	2	A/C	¾x1	Relief		29-4	A-2	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Service Water — **SYSTEM NUMBER:** 30

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SWS*MOV152-1	2	A	8	Butterfly	O	29-4	A-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SWS*MOV152-2	2	A	8	Butterfly	O	29-4	A-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SWS*RV153	2	A/C	¾	Relief		29-4	C-2	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SWS*MOV153-1	2	A/P	8	Butterfly	LS	29-4	C-2	LTJ		2BVT 1.47.5-Leak Test (SP)
2SWS*MOV153-2	2	A/P	8	Butterfly	LS	29-4	C-2	LTJ		2BVT 1.47.5-Leak Test (SP)
2SWS*RV154	2	A/C	¾x1	Relief		29-4	D-2	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SWS*MOV154-1	2	A/P	8	Butterfly	LS	29-4	D-2	LTJ		2BVT 1.47.5-Leak Test (SP)
2SWS*MOV154-2	2	A/P	8	Butterfly	LS	29-4	D-2	LTJ		2BVT 1.47.5-Leak Test (SP)
2SWS*RV155	2	A/C	¾x1	Relief		29-4	G-2	SPT		2BVT 1.60.5-(10 YR)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SWS*MOV155-1	2	A	8	Butterfly	O	29-4	G-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SWS*MOV155-2	2	A	8	Butterfly	O	29-4	G-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2SWS*486	3	C	3	Check		30-1	C-3	QS		2OST-30.2-FS,RD (Q)
								QS	VCSJ29	2OST-30.6A-FS,FD (Q or CSD)
2SWS*487	3	C	3	Check		30-1	D-3	QS		2OST-30.3-FS,RD (Q)
								QS	VCSJ29	2OST-30.6B-FS,FD (Q or CSD)
2SWS*488	3	C	3	Check		30-1	G-3	QS		2OST-30.6A or 6B-FS,RD (Q)
								QS	VCSJ29	2OST-30.6A or 6B-FS,FD (Q or CSD)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Service Water **SYSTEM NUMBER:** 30

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SWS*1166	3	C	2	Check		30-1	B-5	QS		2OST-47.3B-FS,RD (Q)
2SWS*1167	3	C	2	Check		30-1	B-7	QS		2OST-47.3B-FS,RD (Q)

BVPS-2 IST VALVE OUTLINE										
SYSTEM NAME: Service Water (Chlorine Injection)									**SYSTEM NUMBER:** 30	
Valve Mark Number	**Valve Class**	**Valve Category**	**Valve Size (in.)**	**Valve Type**	**NSA**	**Drawing**		**Test Requirement**	**VCSJ, VROJ or Relief Requests**	**Comments**
						OM No.	**Coord.**			
2SWM*MOV562	3	B	3	Plug	S	30-1	B-7	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SWM*MOV563	3	B	3	Plug	S	30-1	B-6	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SWM*MOV564	3	B	3	Plug	S	30-1	B-6	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2SWM*MOV565	3	B	3	Plug	S	30-1	B-7	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Standby Service Water — **SYSTEM NUMBER:** 30

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SWE*MOV116A	3	B	30	Butterfly	S	30-1	A-7	QST		2OST-30.1A-Stroke & Time Open/Closed (Q),(RPV)
2SWE*MOV116B	3	B	30	Butterfly	S	30-1	A-6	QST		2OST-30.1B-Stroke & Time Open/Closed (Q),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Fire Protection **SYSTEM NUMBER:** 33

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2FPW*AOV204	2	A	2	Globe	S	33-1D	C-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2FPW*AOV205	2	A	4	Globe	S	33-1D	F-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2FPW*AOV206	2	A	6	Globe	S	33-1D	D-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2FPW*AOV221	2	A	2	Globe	S	33-1D	A-4	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2FPW*382	2	A/C	2½	Check		33-1D	C-4	QS	VCSJ30	2OST-1.10 or 2BVT 1.47.3-FS,RD by observation of mechanical weight loaded swing arm (CSD)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2FPW*388	2	A/C	2½	Check		33-1D	A-4	QS	VCSJ30	2OST-1.10 or 2BVT 1.47.3-FS,RD by observation of mechanical weight loaded swing arm (CSD)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2FPW*753	2	A/C	4	Check		33-1D	F-4	QS	VCSJ30	2OST-1.10 or 2BVT 1.47.3-FS,RD by observation of mechanical weight loaded swing arm (CSD)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2FPW*761	2	A/C	6	Check		33-1D	D-4	QS	VROJ54	2BVT 1.47.3-FS,RD by observation of mechanical weight loaded swing arm (R)
								LTJ		2BVT 1.47.5-Leak Test (SP)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Compressed Air (Containment Instrument Air) **SYSTEM NUMBER:** 34

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2IAC*22	2	A/C	3	Check		34-3	C-10	QS	VROJ49	2BVT 1.47.3-FS,RD by observation of mechanical weight loaded swing arm (R)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2IAC*MOV130	2	A	3	Plug	O	34-3	C-10	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2IAC*MOV133	2	A	4	Plug	O	34-3	C-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2IAC*MOV134	2	A	4	Plug	O	34-3	C-1	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Compressed Air (Station Air) **SYSTEM NUMBER:** 34

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2SAS*14	2	A/P	2	Globe	LS	34-1B	C-6	LTJ		2BVT 1.47.5-Leak Test (SP)
2SAS*15	2	A/P	2	Globe	LS	34-1B	C-6	LTJ		2BVT 1.47.5-Leak Test (SP)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: 4KV Station Service (Diesel Air Start) **SYSTEM NUMBER:** 36

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2EGA*100	3	C	¾	Check		36-3	E-4	QS		2OST-47.3B-FS,RD (Q)
2EGA*101	3	C	¾	Check		36-3	F-4	QS		2OST-47.3B-FS,RD (Q)
2EGA*118	3	C	½	Check (Excess Flow)		36-3	E-4	QS		2OST-47.3B-Closure Test (Q)
2EGA*119	3	C	½	Check (Excess Flow)		36-3	F-4	QS		2OST-47.3B-Closure Test (Q)
2EGA*130	3	C	¾	Check		36-3	E-9	QS		2OST-47.3B-FS,RD (Q)
2EGA*131	3	C	¾	Check		36-3	F-9	QS		2OST-47.3B-FS,RD (Q)
2EGA*155	3	C	½	Check (Excess Flow)		36-3	E-9	QS		2OST-47.3B-Closure Test (Q)
2EGA*156	3	C	½	Check (Excess Flow)		36-3	F-9	QS		2OST-47.3B-Closure Test (Q)
2EGA*SOV202-1	3	B	2	Three-way		36-3	A-5	QST	VRR2	2OST-36.1-Stroke & Time Open (Q)
2EGA*SOV202-2	3	B	2	Three-way		36-3	B-5	QST	VRR2	2OST-36.1-Stroke & Time Open (Q)
2EGA*SOV203-1	3	B	2	Three-way		36-3	A-10	QST	VRR2	2OST-36.2-Stroke & Time Open (Q)
2EGA*SOV203-2	3	B	2	Three-way		36-3	B-10	QST	VRR2	2OST-36.2-Stroke & Time Open (Q)
2EGA*RV205	3	C	½	Relief		36-3	E-4	SPT		2BVT 1.60.5-(10 YR)
2EGA*RV206	3	C	½	Relief		36-3	E-9	SPT		2BVT 1.60.5-(10 YR)
2EGA*RV207	3	C	½	Relief		36-3	F-4	SPT		2BVT 1.60.5-(10 YR)
2EGA*RV208	3	C	½	Relief		36-3	F-9	SPT		2BVT 1.60.5-(10 YR)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: 4KV Station Service (Diesel Fuel Oil) **SYSTEM NUMBER:** 36

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2EGF*7	3	C	3	Check		36-1	F-1	QS		2OST-36.1-FS,FD,RD (Q)
2EGF*8	3	C	3	Check		36-1	F-6	QS		2OST-36.2-FS,FD,RD (Q)
2EGF*9	3	C	3	Check		36-1	E-1	QS		2OST-36.1-FS,FD,RD (Q)
2EGF*10	3	C	3	Check		36-1	E-6	QS		2OST-36.2-FS,FD,RD (Q)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: 4KV Station Service (Diesel Lube Oil) **SYSTEM NUMBER:** 36

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2EGO*106	3	B	4	Gate	LO	36-5B	F-8	QS		2OST-47.3B-Stroke Only Closed (Q) 2OST-36.4-Stroke Only Closed (R)
2EGO*107	3	B	4	Gate	LO	36-5A	F-8	QS		2OST-47.3B-Stroke Only Closed (Q) OST-36.3-Stroke Only Closed (R)
2EGO*108	3	B	4	Gate	LO	36-5B	E-8	QS		2OST-47.3B-Stroke Only Closed (Q) 2OST-36.4-Stroke Only Closed (R)
2EGO*109	3	B	4	Gate	LO	36-5A	E-8	QS		2OST-47.3B-Stroke Only Closed (Q) 2OST-36.3-Stroke Only Closed (R)
2EGO*114	3	B	4	Gate	S	36-5B	F-7	QS		2OST-47.3B-Stroke Only Open (Q) 2OST-36.4-Stroke Only Open (R)
2EGO*115	3	B	4	Gate	S	36-5A	F-7	QS		2OST-47.3B-Stroke Only Open (Q) 2OST-36.3-Stroke Only Open (R)
2EGO*116	3	B	4	Gate	S	36-5B	E-7	QS		2OST-47.3B-Stroke Only Open (Q) 2OST-36.4-Stroke Only Open (R)
2EGO*117	3	B	4	Gate	S	36-5A	E-7	QS		2OST-47.3B-Stroke Only Open (Q) 2OST-36.3-Stroke Only Open (R)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Control Area Ventilation — **SYSTEM NUMBER:** 44A

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2HVC*MOD201A	3	B	36	Butterfly	O	44A-2	D-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2HVC*MOD201B	3	B	36	Butterfly	O	44A-2	D-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2HVC*MOD201C	3	B	36	Butterfly	S	44A-2	C-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2HVC*MOD201D	3	B	36	Butterfly	S	44A-2	C-2	QST		2OST-47.3B-Stroke & Time Closed (Q),(RPV)
2HVC*MOD204A	3	B	8	Butterfly	S	44A-2	F-2	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2HVC*MOD204B	3	B	8	Butterfly	S	44A-2	G-2	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Containment Area Ventilation — **SYSTEM NUMBER:** 44C

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2HVR*MOD23A	2	A	42	Butterfly	LS	44C-2	B-5	QST	VCSJ31	2OST-1.10-Stroke & Time Closed (CSD),(RPV) 2OST-44C.1-Stroke & Time Closed (R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2HVR*MOD23B	2	A	42	Butterfly	LS	44C-2	B-7	QST	VCSJ31	2OST-1.10-Stroke & Time Closed (CSD),(RPV) 2OST-44C.1-Stroke & Time Closed (R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2HVR*MOD25A	2	A	42	Butterfly	LS	44C-2	C-5	QST	VCSJ31	2OST-1.10-Stroke & Time Closed (CSD),(RPV) 2OST-44C.1-Stroke & Time Closed (R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2HVR*MOD25B	2	A	42	Butterfly	LS	44C-2	C-7	QST	VCSJ31	2OST-1.10-Stroke & Time Closed (CSD),(RPV) 2OST-44C.1-Stroke & Time Closed (R),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2HVR*DMP206	2	A/P	8	Butterfly	LS	44C-2	D-6	LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Post DBA Hydrogen Control — **SYSTEM NUMBER:** 46

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2HCS*110	2	A	2	Ball	LS	46-1	D-2	QS		2OST-47.3B-Stroke Only Open (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2HCS*111	2	A	2	Ball	LS	46-1	G-2	QS		2OST-47.3B-Stroke Only Open (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2HCS*MOV112A	2	B	2	Ball	S	46-1	C-6	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2HCS*MOV112B	2	B	2	Ball	S	46-1	F-6	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2HCS*SOV114A	2	A	2	Globe	S	46-1	B-2	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2HCS*SOV114B	2	A	2	Globe	S	46-1	F-2	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2HCS*SOV115A	2	A	2	Globe	S	46-1	C-2	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2HCS*SOV115B	2	A	2	Globe	S	46-1	F-2	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2HCS*MOV116	2	A	2	Ball	S	46-1	D-1	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2HCS*MOV117	2	A	2	Ball	S	46-1	G-1	QST		2OST-47.3B-Stroke & Time Open/Closed (Q),(RPV)
								LTJ		2BVT 1.47.5-Leak Test (SP)
2HCS*MOV120A	2	B	2	Plug	S	46-1	D-6	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2HCS*MOV120B	2	B	2	Plug	S	46-1	G-6	QST		2OST-47.3B-Stroke & Time Open (Q),(RPV)
2HCS*SOV133A	2	A	⅜	Globe	S	46-1	A-1	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2HCS*SOV133B	2	A	⅜	Globe	S	46-1	D-1	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Post DBA Hydrogen Control — **SYSTEM NUMBER:** 46

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2HCS*SOV134A	2	A	¾	Globe	S	46-1	A-3	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2HCS*SOV134B	2	A	¾	Globe	S	46-1	D-3	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2HCS*SOV135A	2	A	¾	Globe	S	46-1	E-1	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2HCS*SOV135B	2	A	¾	Globe	S	46-1	E-3	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2HCS*SOV136A	2	A	¾	Globe	S	46-1	B-1	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)
2HCS*SOV136B	2	A	¾	Globe	S	46-1	B-3	QST		2OST-47.3B-Stroke & Time Open/Closed (Q)
								LTJ		2BVT 1.47.5-Leak Test (SP),(RPV)

BVPS-2 IST VALVE OUTLINE

SYSTEM NAME: Containment **SYSTEM NUMBER:** 47

Valve Mark Number	Valve Class	Valve Category	Valve Size (in.)	Valve Type	NSA	Drawing		Test Requirement	VCSJ, VROJ or Relief Requests	Comments
						OM No.	Coord.			
2PHS*100	2	A/P	1 ½	Gate	S	47-1	E-4	LTJ		2BVT 1.47.8-Type B Leak Test (SP)
2PHS*101	2	A/P	1 ½	Gate	S	47-1	E-2	LTJ		2BVT 1.47.8-Type B Leak Test (SP)
2PHS*110	2	A/P	1 ½	Ball	S	47-1	E-4	LTJ		2BVT 1.47.8-Type B Leak Test (SP)
2PHS*111	2	A/P	1 ½	Ball	S	47-1	E-4	LTJ		2BVT 1.47.8-Type B Leak Test (SP)
2PHS*112	2	A/P	1 ½	Ball	S	47-1	E-2	LTJ		2BVT 1.47.8-Type B Leak Test (SP)
2PHS*113	2	A/P	1 ½	Ball	S	47-1	E-2	LTJ		2BVT 1.47.8-Type B Leak Test (SP)
2PHS*201	2	A/P	2	Gate	S	47-1	B-9	LTJ		2BVT 1.47.10-Type B Leak Test (SP)
2PHS*202	2	A/P	2	Gate	S	47-1	B-8	LTJ		2BVT 1.47.10-Type B Leak Test (SP)