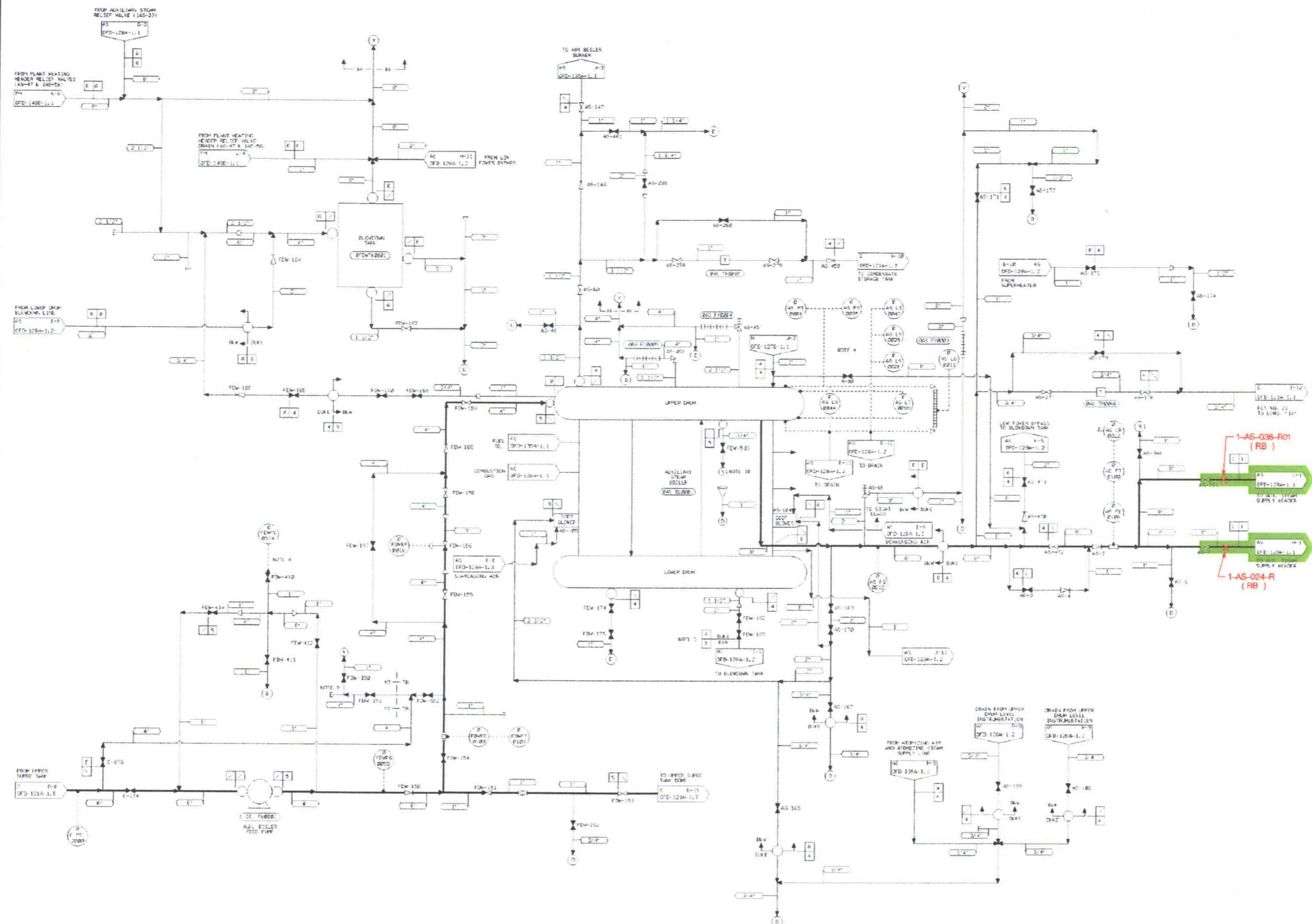


Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in.)	Pipe Thickness (in.)	Building	Layout Drawing (O-)	Floor Elev.	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-AS-001-R	128A-1.1	RB	4.5	.237	TB	401D, 403C	796'-6"	J-K	20-21	39	450
1-AS-002-R	128A-1.1	RB	1.9	.145	TB	403B, 411B	775'-0"	B-C	22-23	300	500
1-AS-003-R	128A-1.1	RB	8.625	.322	TB	403A	775'-0"	B-D	14-19	300	500
1-AS-004-R	128A-1.1	RB	2.375	.154	TB	403A, 411B	775'-0"	C-D	18-19	300	500
1-AS-005-R	128A-1.1	RB	3.5	.216	TB	401J, 403D	796'-6"	B-C	24-25	300	500
1-AS-006-R	128A-1.1	RB	2.375	.154	TB	403C, 411B	796'-6"	D-E	15-16	300	500
1-AS-007-R	128A-1.1	RB	3.5	.216	TB	401M, 403A, 403C	775'-0" – 796'-6"	C-E	14-16	300	500
1-AS-008-R	128A-1.1	RB	2.375	.154	TB	403A, 411B	775'-0"	D-E	15-16	300	500
1-AS-009-R	128A-1.1	RB	2.375	.154	TB	403C, 411B	796'-6"	L-M	17-18	300	500
1-AS-010-R	128A-1.1	RB	2.875	.203	TB	403A, 403J	775'-0"	E-F	13-14	300	500
1-AS-011-R	128A-1.1	RB	2.875	.203	TB	403C, 411B	796'-6"	K-L	18-19	300	500
1-AS-012-R	128A-1.1	RB	8.625	.322	TB	403C	796'-6"	K-M	18-19	300	500
1-AS-013-R	128A-1.1	RB	2.875	.203	TB	401J, 403C	796'-6"	L-M	14-15	300	500
1-AS-015-R	128A-1.1	RB	4.5	.237	TB	401D, 403C	796'-6"	J-M	20-21	300	500
1-AS-016-R	128A-1.1	RB	2.375	.154	TB	403C, 401J	796'-6"	L-M	14-15	300	500
1-AS-017-R	128A-1.1	RB	4.5	.237	TB	401D, 403C	796'-6"	J-K	20-21	300	500
1-AS-018-R	128A-1.1	RB	2.375	.154	TB	403B, 411B	775'-0"	H-J	29	300	500
1-AS-019-R	128A-1.1	RB	8.625	.322	TB	403C	796'-6"	L-M	14-15	300	500
1-AS-020-R	128A-1.1	RB	6.625	.28	TB	403C	796'-6"	L-M	14-15	300	500
1-AS-021-R	128A-1.1	RB	3.5	.216	TB	403C	796'-6"	L-M	14-15	300	500
1-AS-022-R	128A-1.1	RB	8.625	.322	TB	403B, 403C, 403D	775'-0" – 796'-6"	H-M	15-30	300	500
1-AS-023-R01	128A-1.1	RB	8.625	.322	TB	403A	775'-0"	H-M	13-15	300	500
1-AS-023-R02	128A-1.1	RB	8.625	.322	TB	403C	796'-6"	K-M	13-15	300	500
1-AS-024-R	128A-1.1	RB	8.625	.322	TB	403A	775'-0"	C-H	13-15	300	500
1-AS-025-R	128A-1.1	RB	4.5	.237	TB	403A, 403B, 403D	775'-0" – 796'-6"	B-D	18-25	300	500
1-AS-028-R	128A-1.1	RB	8.625	.322	TB	401D, 403C	796'-6"	J-K	20-22	39	450
1-AS-029-R	128A-1.1 148B-1.1	RB	3.5	.216	TB	403A, 403H, 403J	775'-0"	F-J	13-15	300	500
1-AS-030-R	148B-1.1	RB	4.5	.237	TB	403H	775'-0"	F-G	14-15	120	470
1-AS-031-R	148B-1.1	RB	2.375	.154	TB	403H	775'-0"	F-G	14-15	300	500
1-AS-033-R	122A-1.2 128A-1.1	RB	3.5	.3	TB	401J, 403D	796'-6"	B-C	24-25	900	595
1-AS-034-R	128A-1.1	RB	4.5	.237	TB	403B, 411D	775'-0"	J-K	24-25	300	500
1-AS-035-R	128A-1.1	RB	4.5	.237	TB	401D, 403C	796'-6"	J-K	20-21	39	450
1-AS-036-R	128A-1.1	RB	8.625	.322	TB	400A, 403A	775'-0"	D-E	13-14	300	500
1-AS-037-R	128A-1.1	RB	4.5	.237	TB	400A	775'-0"	C-D	15-16	300	500
1-AS-038-R01	128A-1.1 128A-1.2	RB	8.625	.322	TB	403A	775'-0"	C-L	13-16	300	500
1-AS-038-R02	128A-1.1	RB	8.625	.322	TB	403C	796'-6"	J-M	14-16	300	500
1-AS-039-R01	128A-1.1	RB	12.75	.375	TB	403B	775'-0"	H-M	21-29	300	500
1-AS-039-R02	128A-1.1	RB	12.75	.375	TB	403C	796'-0"	L-M	15-21	300	500
1-AS-040-R	128A-1.1	RB	4.5	.237	TB	403B	775'-0"	H-J	29-30	300	500

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in.)	Pipe Thickness (in.)	Building	Layout Drawing (O-)	Floor Elev.	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-AS-041-R	128A-1.1	RB	6.625	.28	TB	403C, 403R	796'-6"	L-M	14-15	300	500
1-AS-042-R	128A-1.1	RB	6.625	.28	TB	403C, 403R	796'-6"	L-M	14-16	300	500
1-AS-043-R	128A-1.1	RB	8.625	.322	TB	403C	796'-6"	L-M	14-17	300	500

Notes:

1. Break numbers may not be consecutive
2. Break type: RB – Running Break (Piping not analyzed for seismic), TE – Terminal End, IB – Intermediate Break
3. Building: TB – Turbine Building, AB – Auxiliary Building.
4. Each running break may contain one or more sub-breaks.
5. For the Unit 1 Auxiliary Steam System 45 Running Breaks were considered; the 42 non-excluded, Running Breaks are listed in this table.
6. For each Running Break the elevation of the floor or room that contains the Running Break is given.
7. Other Abbreviations: OD – Outer Diameter, in – inches, Op - operating



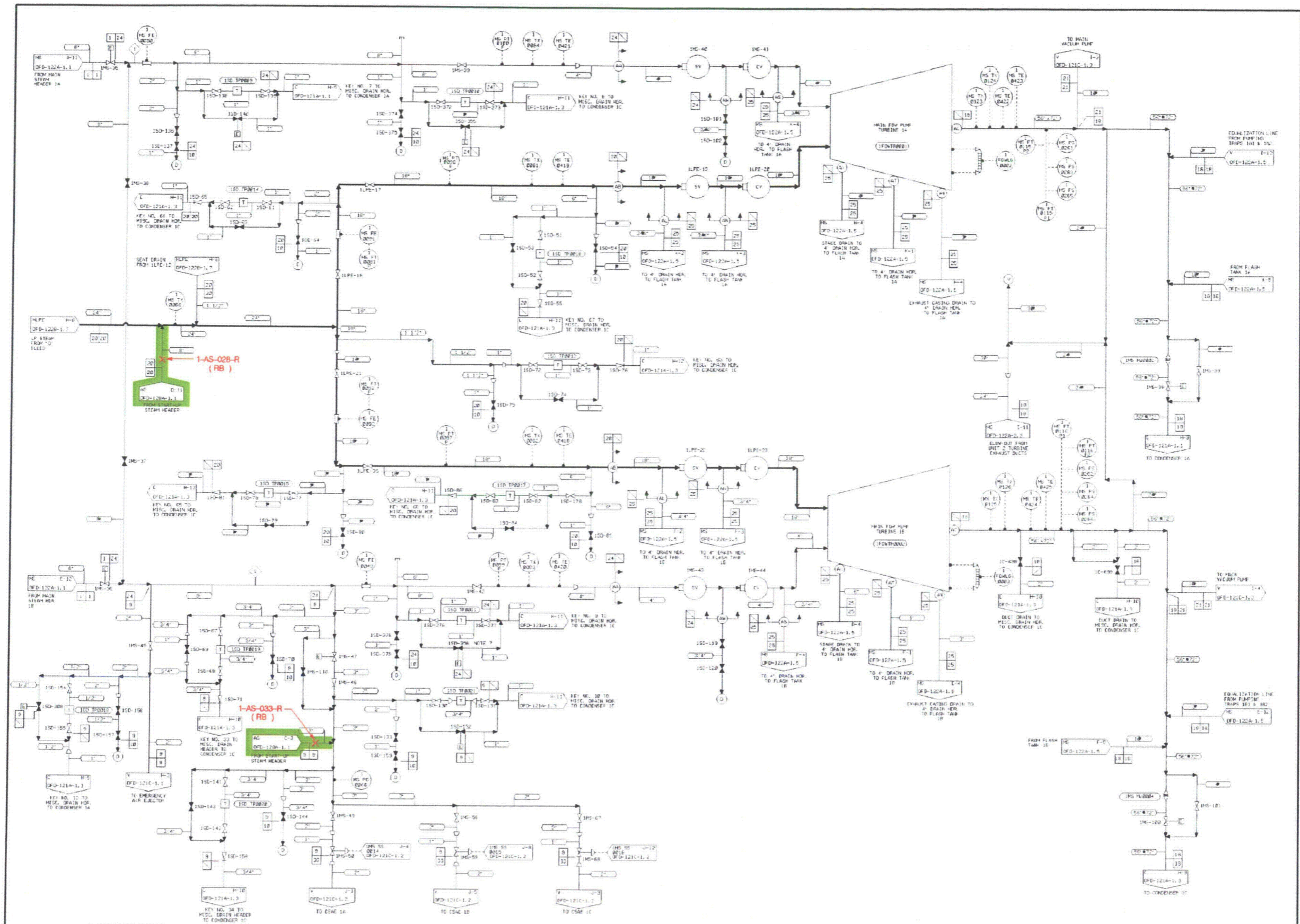
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - P - Running Break Boundary

FIGURE 4.1-1
AUXILIARY STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 2 of 5)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-128A-1.2 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-128A-01-02



LEGEND

- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- ↑ - Running Break Boundary

FIGURE 4.1-1
AUXILIARY STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 3 of 5)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122A-1.3 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122A-01-03

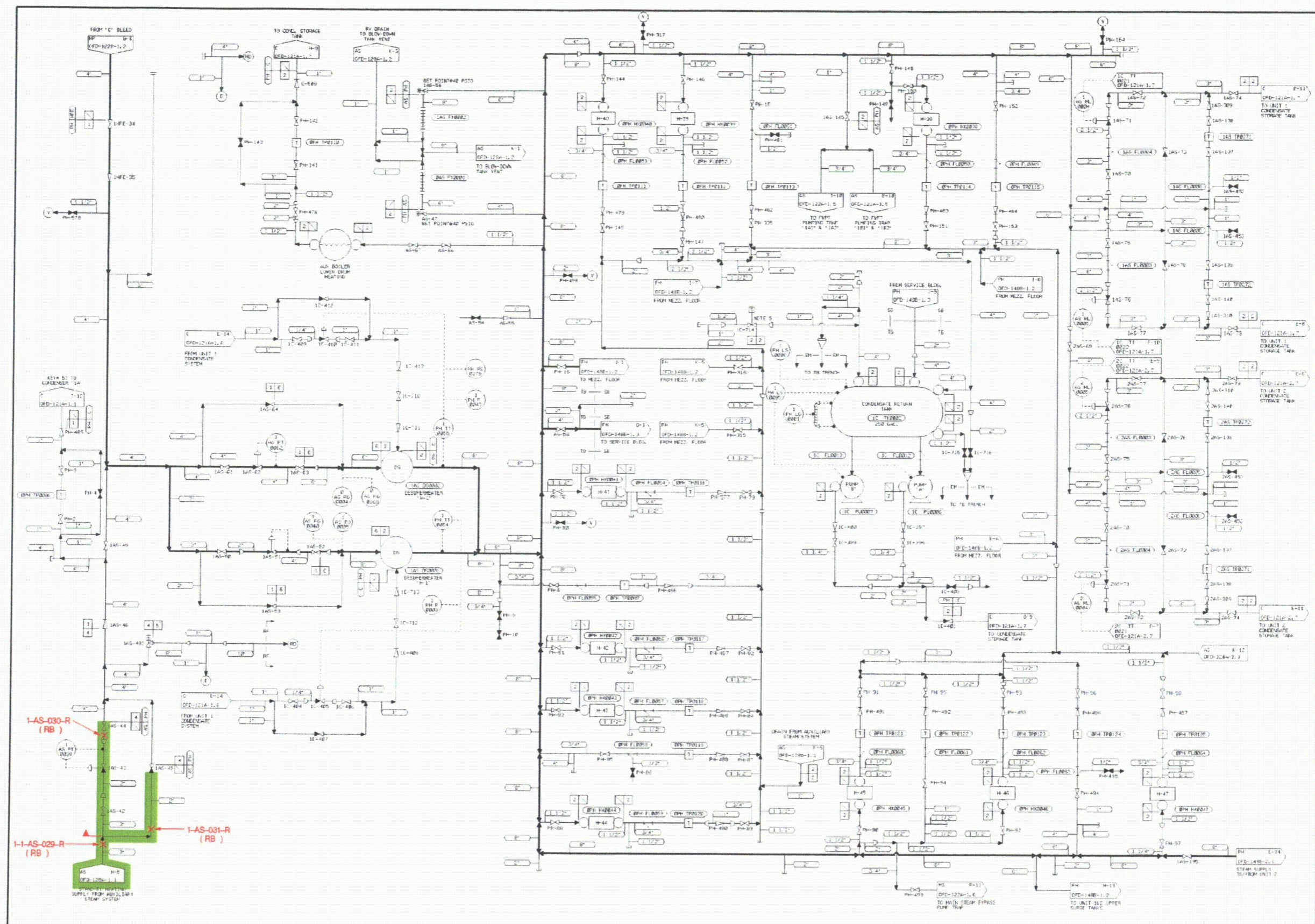
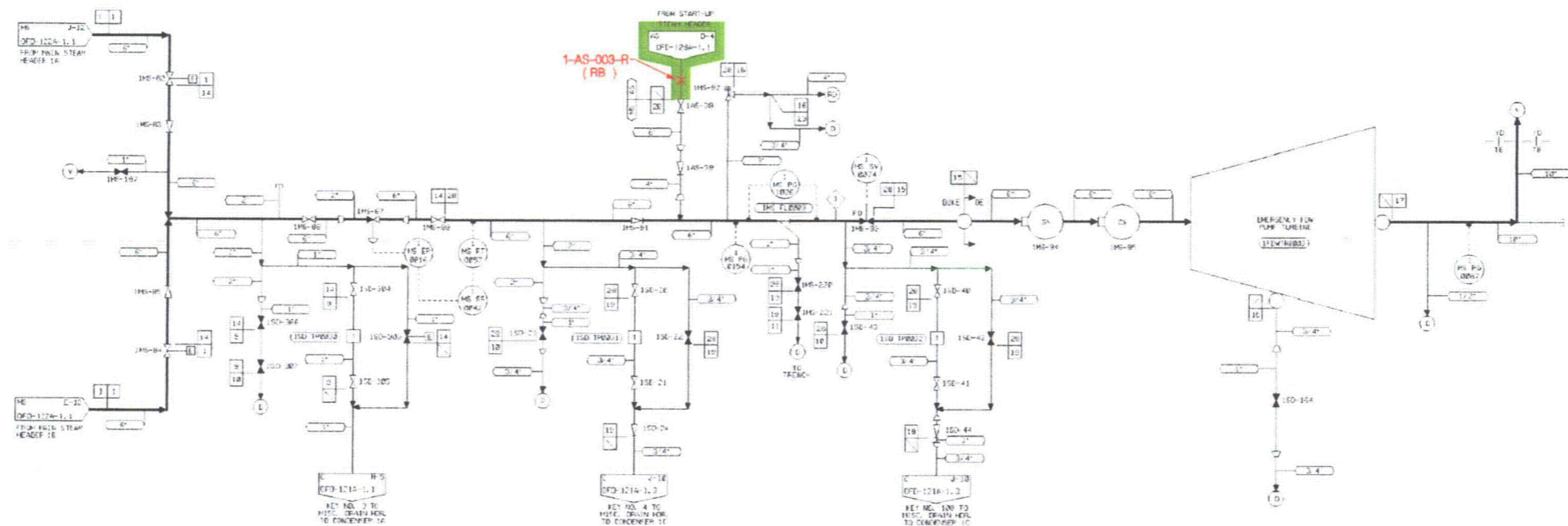


FIGURE 4.1-1
AUXILIARY STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 4 of 5)

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-148B-1.1 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.



- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ▶ - Running Break Boundary

FIGURE 4.1-1
AUXILIARY STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 5 of 5)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122A-1.4 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

Table 4.1-2
 Condensate System – High Energy Line Data – Unit 1

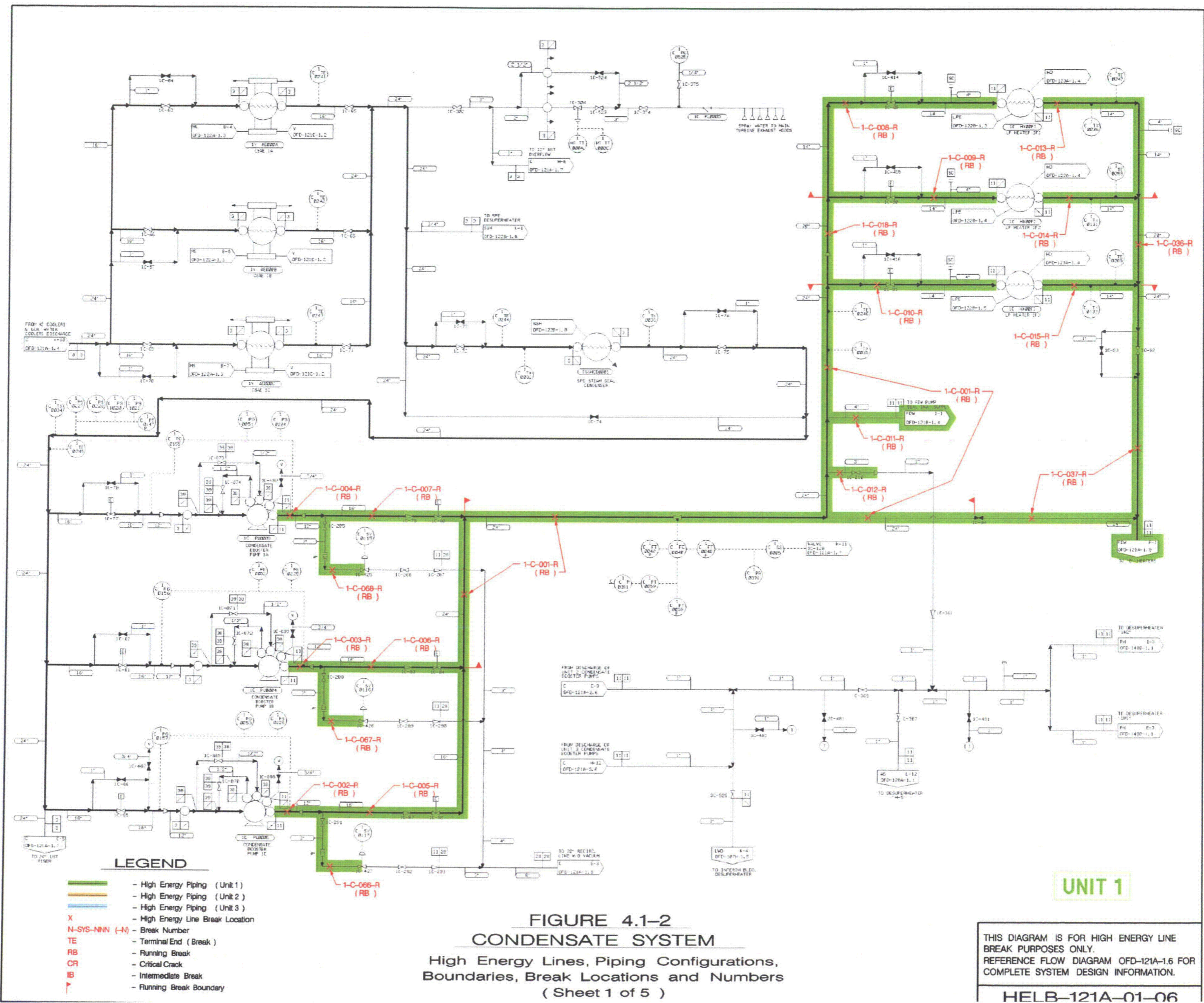
Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev.	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-C-001-R	121A-1.6	RB	24.000	0.688	TB	400A, 400B	775'-0"	F-J	19-23	520	120
1-C-002-R	121A-1.6	RB	12.750	0.375	TB	400D	775'-0"	H-J	22-23	520	120
1-C-003-R	121A-1.6	RB	12.750	0.375	TB	400D	775'-0"	G-J	21-22	520	120
1-C-004-R	121A-1.6	RB	12.750	0.375	TB	400D	775'-0"	G-J	20-21	520	120
1-C-005-R	121A-1.6	RB	16.000	0.500	TB	400D	775'-0"	G-J	21-23	520	120
1-C-006-R	121A-1.6	RB	16.000	0.500	TB	400D	775'-0"	G-J	21-22	520	120
1-C-007-R	121A-1.6	RB	16.000	0.500	TB	400D	775'-0"	G-J	20-21	520	120
1-C-008-R	121A-1.6	RB	14.000	0.375	TB	400A	775'-0"	F-G	18-20	520	120
1-C-009-R	121A-1.6	RB	14.000	0.375	TB	400A	775'-0"	F-G	20	520	120
1-C-010-R	121A-1.6	RB	14.000	0.375	TB	400B	775'-0"	F-G	22	520	120
1-C-011-R	121A-1.6	RB	4.500	0.237	TB	400B, 400P	775'-0"	C-H	22-26	520	120
1-C-012-R	121A-1.6	RB	3.500	0.216	TB	403B	775'-0"	G-H	22-23	520	120
1-C-013-R01	121A-1.6	RB	14.000	0.375	TB	400A	775'-0"	F-H	18-21	520	155
1-C-013-R02	121A-1.6	RB	14.000	0.375	TB	401A	796'-6"	F-G	18-19	520	155
1-C-014-R01	121A-1.6	RB	14.000	0.375	TB	400A	775'-0"	F-H	20-21	520	155
1-C-014-R02	121A-1.6	RB	14.000	0.375	TB	401A	796'-6"	F-G	20-21	520	155
1-C-015-R01	121A-1.6	RB	14.000	0.375	TB	400B	775'-0"	F-H	22-23	520	155
1-C-015-R02	121A-1.6	RB	14.000	0.375	TB	401B	796'-6"	F-G	22-23	520	155
1-C-016-R	121A-1.9	RB	16.000	0.500	TB	400A	775'-0"	J-L	17-19	520	155
1-C-017-R	121A-1.9	RB	16.000	0.500	TB	400A	775'-0"	K-L	17-19	520	155
1-C-018-R	121A-1.6	RB	20.000	0.500	TB	400A, 400B	775'-0"	F-G	19-22	520	120
1-C-019-R	121A-1.9	RB	24.000	0.688	TB	400A	775'-0"	K-L	17-19	520	155
1-C-020-R	121A-1.9	RB	24.000	0.688	TB	400A	775'-0"	K-L	17-18	520	215
1-C-021-R	121A-1.10	RB	18.000	0.500	TB	400A	775'-0"	J-L	16-17	520	215
1-C-022-R	121A-1.10	RB	18.000	0.500	TB	400A	775'-0"	K-L	16-17	520	215
1-C-023-R	121A-1.10	RB	18.000	0.500	TB	400A	775'-0"	J-L	15-17	520	290
1-C-024-R	121A-1.10	RB	18.000	0.500	TB	400A	775'-0"	K-L	15-17	520	290
1-C-025-R01	121A-1.10	RB	24.000	0.688	TB	400A	775'-0"	J-L	15-16	520	290
1-C-025-R02	121A-1.10	RB	24.000	0.688	TB	401A	796'-6"	J-K	14-16	520	290
1-C-026-R01	121A-1.10	RB	24.000	0.688	TB	400A	775'-0"	K-L	15-16	520	290
1-C-026-R02	121A-1.10	RB	24.000	0.688	TB	401A	796'-6"	K-L	14-16	520	290
1-C-027-R	121A-1.10	RB	24.000	0.688	TB	400A	775'-0"	J-K	14-15	520	370
1-C-028-R	121A-1.10	RB	24.000	0.688	TB	400A	775'-0"	K-L	14-15	520	370
1-C-029-R	121A-1.10	RB	24.000	0.688	TB	400A	775'-0"	K-L	15-16	520	290
1-C-030-R	121A-1.10	RB	30.000	0.689	TB	400A	775'-0"	K-L	14-16	520	290
1-C-031-R	121A-1.10	RB	24.000	0.688	TB	400A	775'-0"	J-L	13-15	520	370
1-C-032-R	121A-1.10	RB	24.000	0.688	TB	400A	775'-0"	K-L	13-15	520	370
1-C-033-R01	121A-1.10	RB	30.000	0.689	TB	400A	775'-0"	D-L	13-15	520	370
1-C-033-R02	121A-1.10	RB	30.000	0.689	TB	401A	796'-6"	B-E	13-18	520	370

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev.	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-C-036-R	121A-1.6	RB	20.000	0.500	TB	400B	775'-0"	G-H	20-23	520	155
1-C-037-R	121A-1.6	RB	24.000	0.688	TB	400A, 400B	775'-0"	G-L	17-23	520	155
1-C-039-R	121A-1.9	RB	16.000	0.500	TB	400A	775'-0"	J-L	17-18	520	215
1-C-040-R	121A-1.9	RB	16.000	0.500	TB	400A	775'-0"	K-L	17-18	520	215
1-C-041-R	121A-1.9	RB	24.000	0.688	TB	400A	775'-0"	K-L	16-18	520	215
1-C-042-R	121A-1.10	RB	24.000	0.688	TB	400A	775'-0"	K-L	16-17	520	215
1-C-043-R	121A-1.10	RB	24.000	0.688	TB	400A	775'-0"	K-L	15-17	520	290
1-C-044-R	121A-1.10	RB	30.000	0.689	TB	400A	775'-0"	K-L	14-15	520	290
1-C-045-R	121A-1.10	RB	30.000	0.689	TB	400A	775'-0"	K-L	13-15	520	370
1-C-046-R	121A-1.10	RB	30.000	0.689	TB	400C	775'-0"	F-G	13-14	520	370
1-C-047-R	121A-1.10	RB	30.000	0.689	TB	401J	796'-6"	B-C	13-14	520	370
1-C-052-R	121B-1.4	RB	2.375	0.154	TB	400P	775'-0"	C-D	23-24	520	120
1-C-053-R	121B-1.4	RB	2.375	0.154	TB	400P	775'-0"	C-D	23-24	520	120
1-C-058-R	121B-1.4	RB	2.375	0.154	TB	400P	775'-0"	C-D	25-26	520	120
1-C-059-R	121B-1.4	RB	2.375	0.154	TB	400P	775'-0"	C-D	25-26	520	120
1-C-065-R01	121A-1.10	RB	18.000	0.500	TB	400A	775'-0"	J-K	13-15	520	370
1-C-065-R02	121A-1.10	RB	18.000	0.500	TB	401A	796'-6"	J-K	14-15	520	370
1-C-066-R	121A-1.6	RB	3.500	0.216	TB	400D	775'-0"	G-H	22-23	520	120
1-C-067-R	121A-1.6	RB	3.500	0.216	TB	400D	775'-0"	G-H	21-22	520	120
1-C-068-R	121A-1.6	RB	3.500	0.216	TB	400D	775'-0"	G-H	20-21	520	120
1-C-069-R	121B-1.4	RB	2.875	0.203	TB	400P	775'-0"	D-E	25-26	520	120
1-C-070-R	121B-1.4	RB	2.875	0.203	TB	400P	775'-0"	C-D	25-26	520	120
1-C-071-R	121B-1.4	RB	2.875	0.203	TB	400P	775'-0"	C-D	24-26	520	120
1-C-072-R	121B-1.4	RB	2.875	0.203	TB	400P	775'-0"	D-E	25-26	520	120
1-C-073-R	121B-1.4	RB	4.500	0.237	TB	400P	775'-0"	C-D	24-26	520	120
1-C-074-R	121B-1.4	RB	4.500	0.237	TB	400P	775'-0"	C-D	24-25	520	120
1-C-075-R	121B-1.4	RB	4.500	0.237	TB	400P	775'-0"	C-D	24-25	520	120
1-C-076-R	121B-1.4	RB	2.875	0.203	TB	400P	775'-0"	C-D	23-25	520	120
1-C-077-R	121B-1.4	RB	2.875	0.203	TB	400P	775'-0"	C-D	25-26	520	120
1-C-078-R	121B-1.4	RB	3.500	0.216	TB	400P	775'-0"	C-D	24-25	520	120
1-C-079-R	121B-1.4	RB	3.500	0.216	TB	400P	775'-0"	C-D	24-25	520	120
1-C-080-R	121B-1.4	RB	2.875	0.203	TB	400P	775'-0"	C-D	23-25	520	120
1-C-081-R	121B-1.4	RB	2.875	0.203	TB	400P	775'-0"	C-D	25-26	520	120
1-C-082-R	121B-1.4	RB	1.900	0.145	TB	400P	775'-0"	C-D	23-24	520	120
1-C-083-R	121B-1.4	RB	1.900	0.145	TB	400P	775'-0"	C-D	23-24	520	120
1-C-084-R	121B-1.4	RB	1.900	0.145	TB	400P	775'-0"	C-D	25-26	520	120
1-C-085-R	121B-1.4	RB	1.900	0.145	TB	400P	775'-0"	C-D	25-26	520	120
1-C-086-R	121B-1.4	RB	2.875	0.203	TB	400P	775'-0"	C-D	25-26	520	120
1-C-087-R01	121B-1.1	RB	24.000	0.688	TB	401A, 401B	796'-6"	B-C	17-24	520	370
1-C-087-R02	121B-1.1	RB	24.000	0.688	TB	400B	775'-0"	B-D	23-25	520	370

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev.	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-C-088-R01	121B-1.1	RB	24.000	0.688	TB	401A, 401B	796'-6"	B-C	17-24	520	370
1-C-088-R02	121B-1.1	RB	24.000	0.688	TB	400B	775'-0"	B-E	23-27	520	370
1-C-089-R	121B-1.1	RB	20.000	0.500	TB	400F	775'-0"	C-D	23-24	520	370
1-C-090-R	121B-1.1	RB	20.000	0.500	TB	400F	775'-0"	C-D	25-26	520	370

Notes:

1. Break numbers may not be consecutive
2. Break type: RB – Running Break (Piping not analyzed for seismic), TE – Terminal End, IB – Intermediate Break
3. Building: TB – Turbine Building, AB – Auxiliary Building.
4. Each running break may contain one or more sub-breaks.
5. For the Unit 1 Condensate System 99 Running Breaks were considered; the 83 non-excluded, Running Breaks are listed in this table.
6. For each Running Break the elevation of the floor or room that contains the Running Break is given.
7. Other Abbreviations: OD – Outer Diameter, in – inches, Op - operating



LEGEND

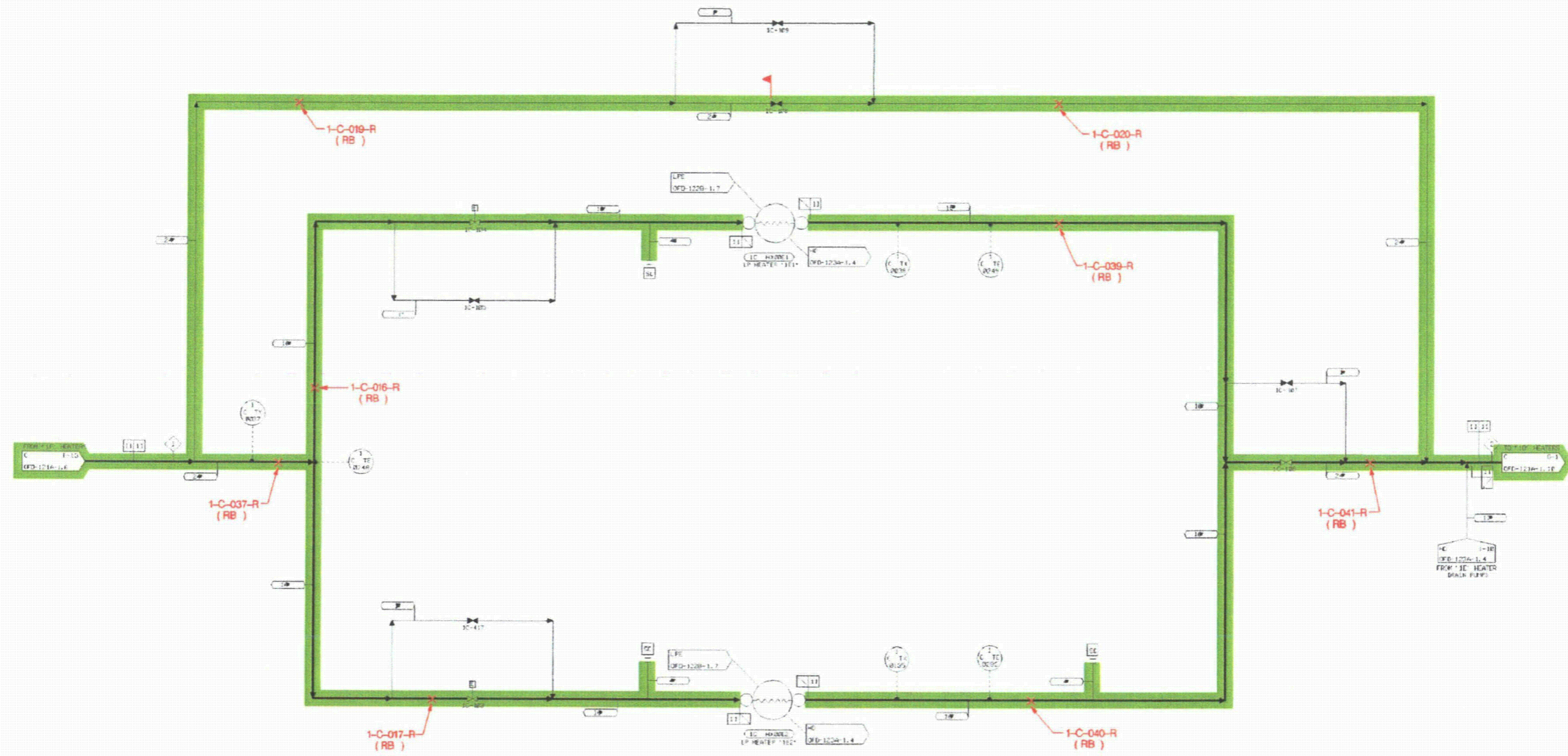
- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- ↑ - Running Break Boundary

**FIGURE 4.1-2
CONDENSATE SYSTEM**

High Energy Lines, Piping Configurations,
Boundaries, Break Locations and Numbers
(Sheet 1 of 5)

THIS DIAGRAM IS FOR HIGH ENERGY LINE
BREAK PURPOSES ONLY.
REFERENCE FLOW DIAGRAM OFD-121A-1.6 FOR
COMPLETE SYSTEM DESIGN INFORMATION.

HELB-121A-01-06



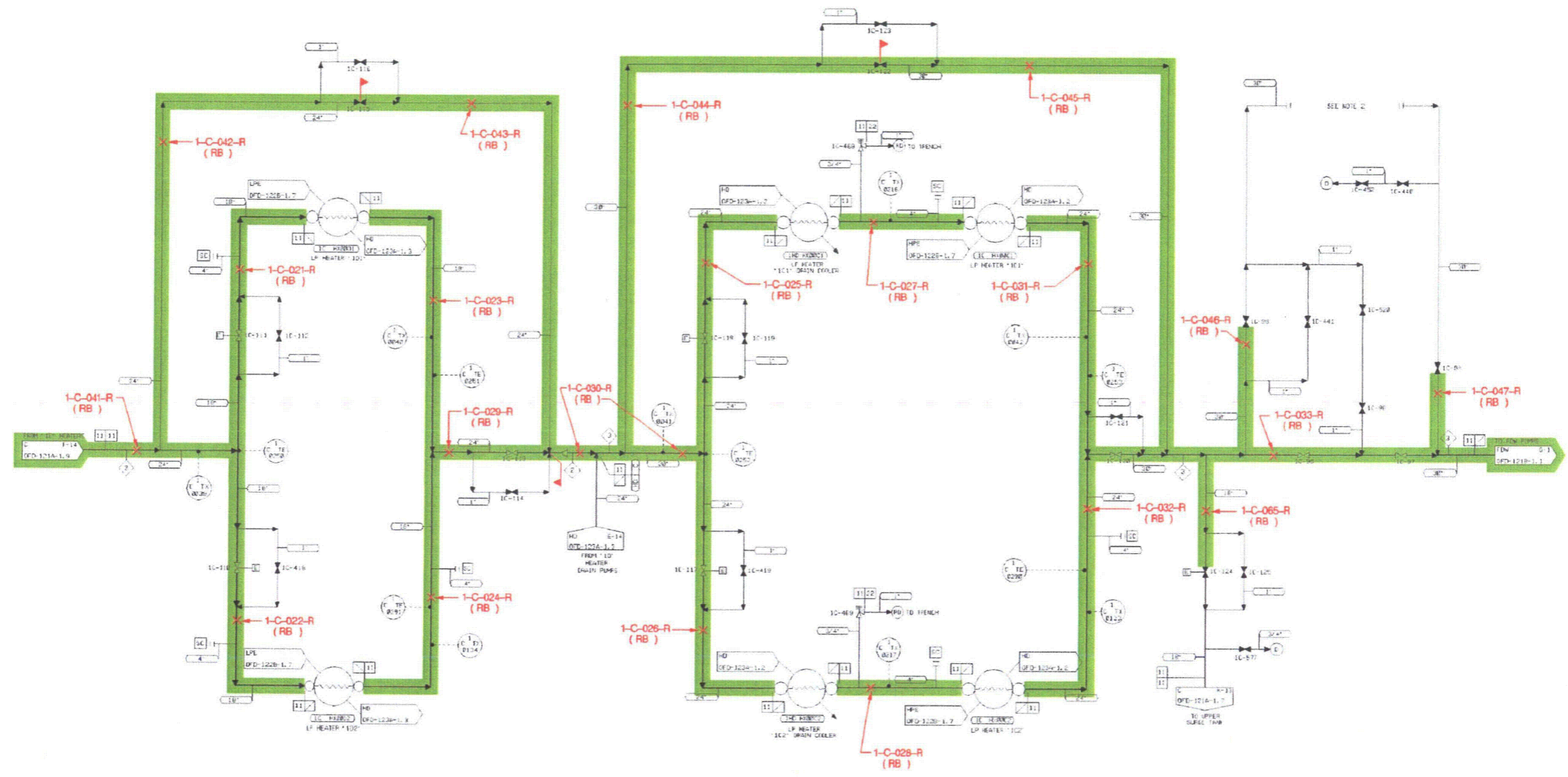
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - - Running Break Boundary

FIGURE 4.1-2
CONDENSATE SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 2 of 5)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-121A-1.9 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-121A-01-09



LEGEND

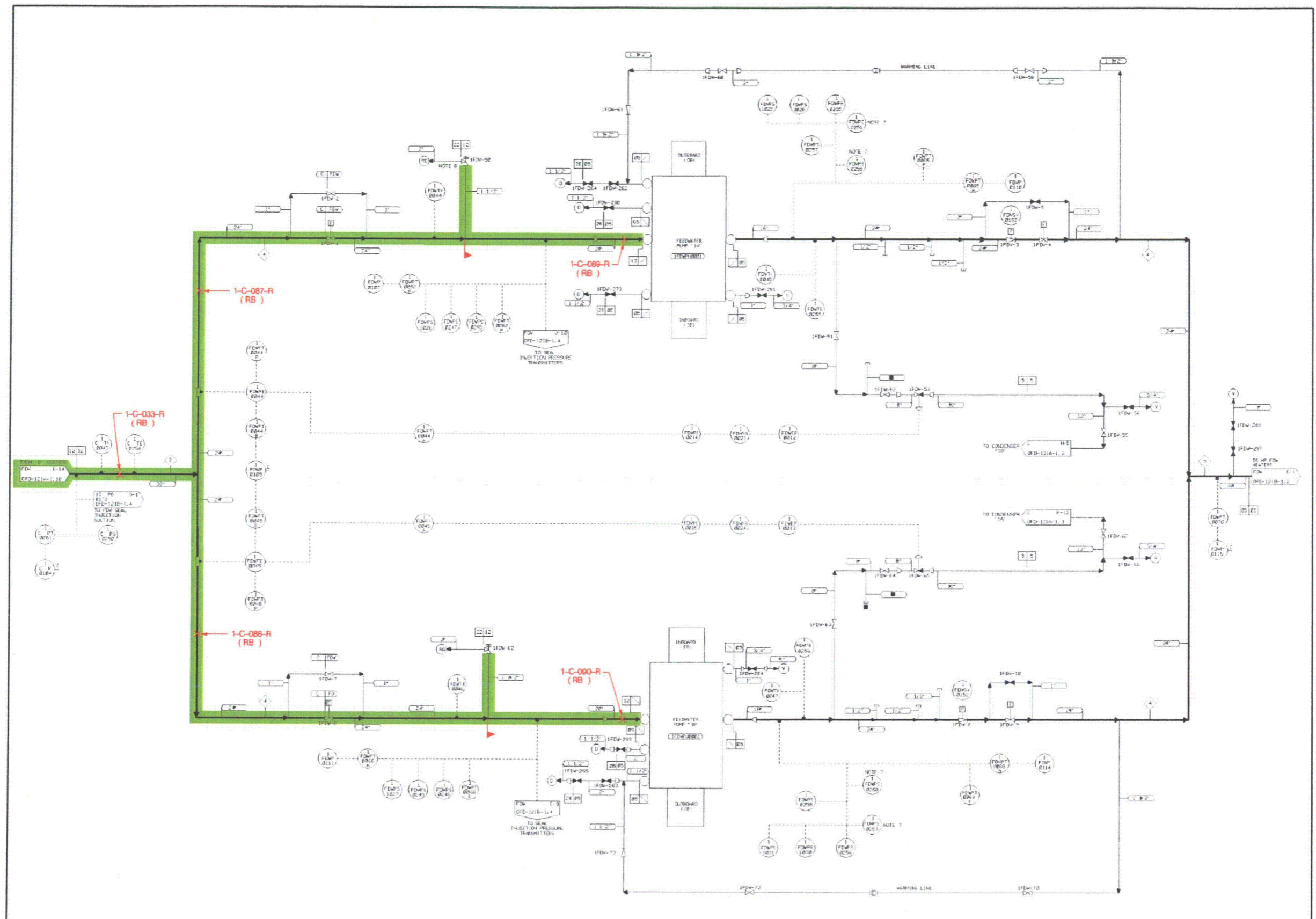
- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- |— (with arrow) - Running Break Boundary

FIGURE 4.1-2
CONDENSATE SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 3 of 5)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-121A-1.10 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HFI B-121A-01-10



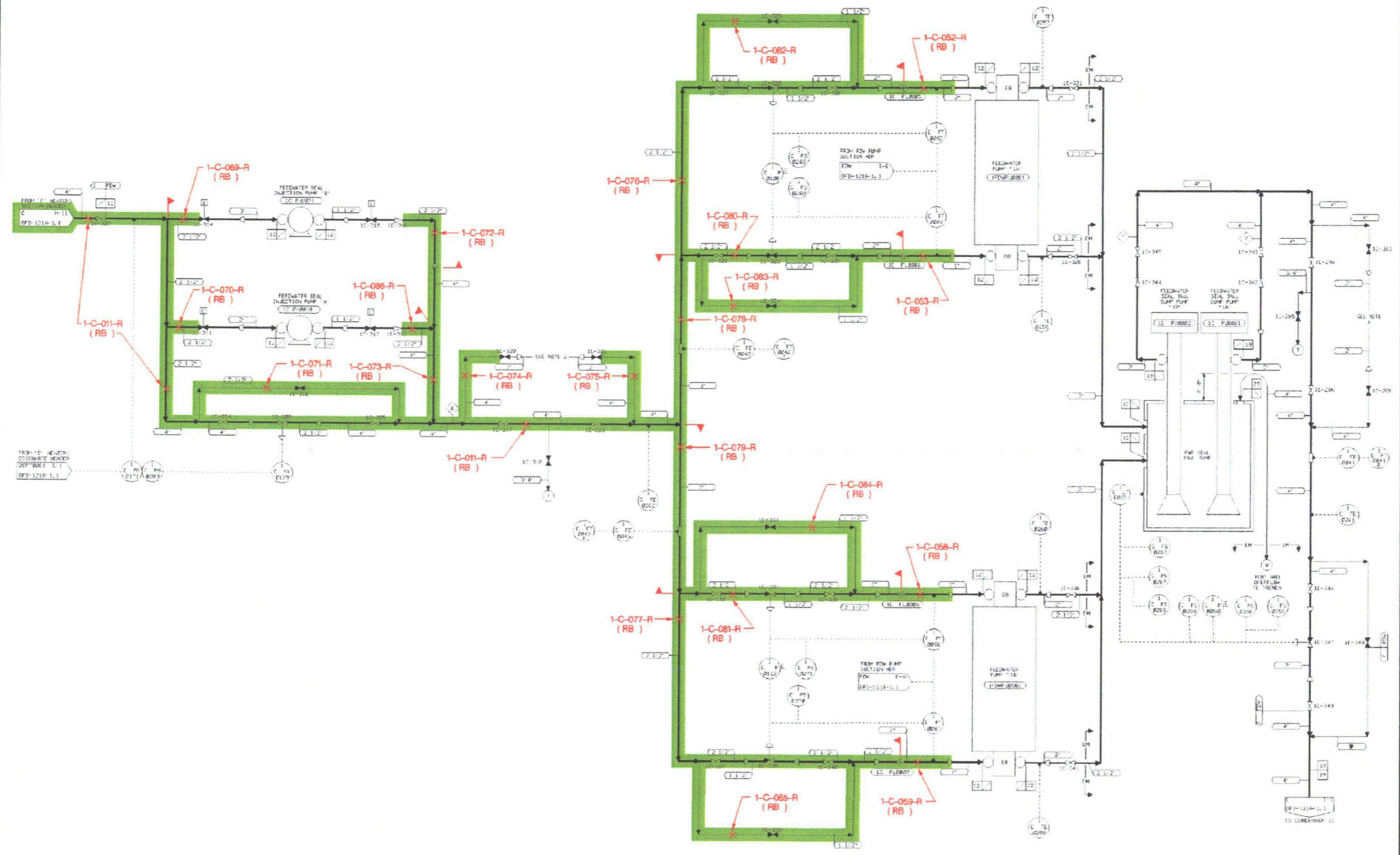
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N SYS NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ▶ - Running Break Boundary

FIGURE 4.1-2
CONDENSATE SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 4 of 5)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-121B-1.1 FOR
 COMPLETE SYSTEM DESIGN INFORMATION

HELB-121B-01-01



LEGEND

- High Energy Piping (Unit 1)
- High Energy Piping (Unit 2)
- High Energy Piping (Unit 3)
- X High Energy Line Break Location
- N-SYS-NNN (-N) Break Number
- TE Terminal End (Break)
- RB Running Break
- CR Critical Crack
- IB Intermediate Break
- ▶ Running Break Boundary

FIGURE 4.1-2
CONDENSATE SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 5 of 5)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-121B-1.4 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-121B-01-04

Table 4.1-3
 Extraction Steam System – High Energy Line Data – Unit 1

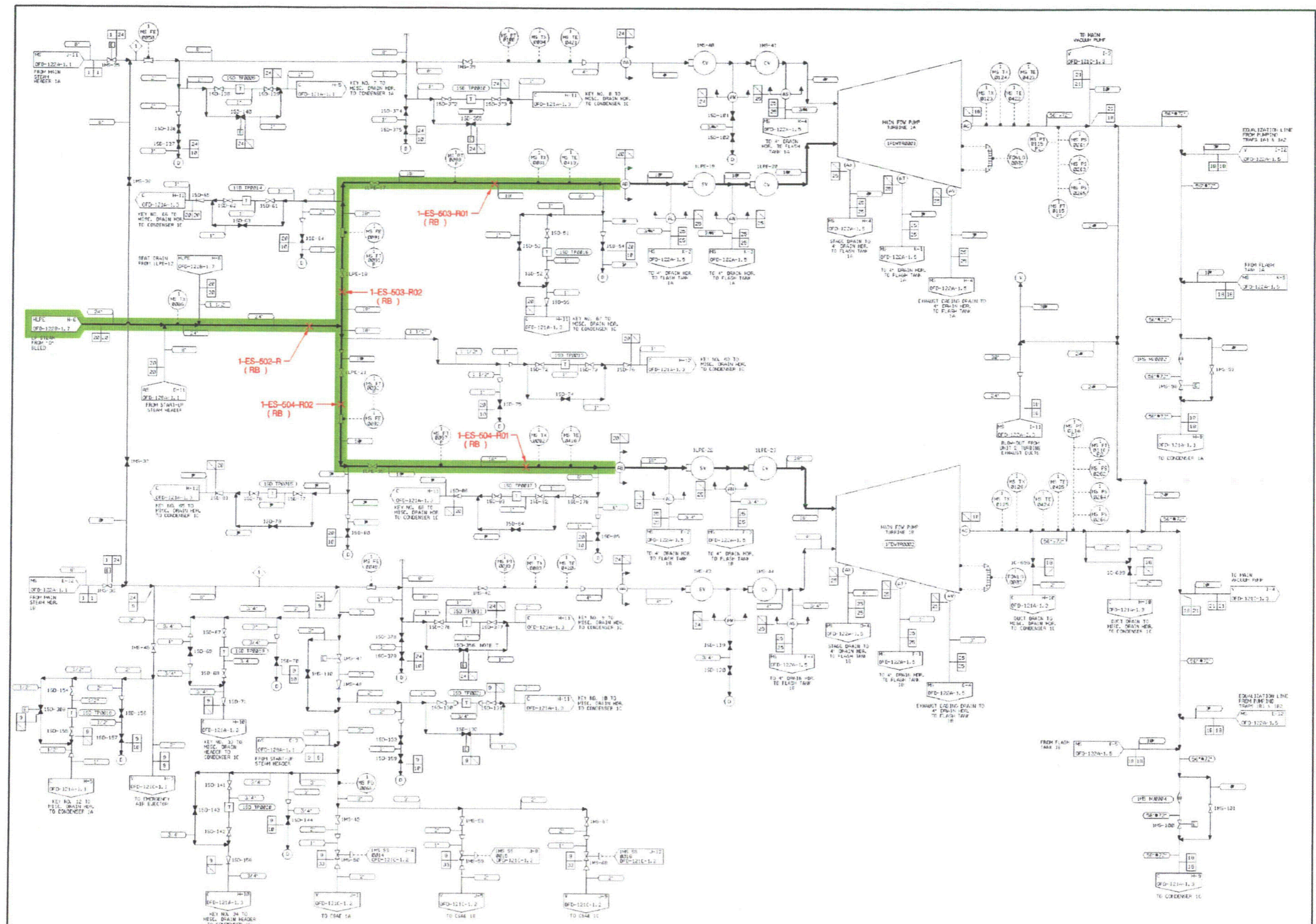
Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-) See Note 6	Floor Elev.	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-ES-001-R	122B-1.2	RB	14.000	0.375	TB	401C	796'-6"	E-F	16-17	455	465
1-ES-002-R	122B-1.2	RB	16.000	0.375	TB	401D	796'-6"	J-K	17-18	455	465
1-ES-003-R	122B-1.2	RB	20.000	0.500	TB	401A	796'-6"	E-K	16-18	455	465
1-ES-004-R	122B-1.2 122C-1.1	RB	16.000	0.500	TB	410A	796'-6"	G-K	13-17	460	480
1-ES-005-R	122B-1.2 122B-1.6	RB	1.900	0.145	TB	401A	796'-6"	J-K	16-17	455	465
1-ES-006-R	122B-1.2	RB	12.750	0.375	TB	401C	796'-6"	E-F	16-17	275	420
1-ES-007-R	122B-1.2 122B-1.6	RB	18.000	0.375	TB	401A	796'-6"	E-L	16-20	275	420
1-ES-008-R	122B-1.2	RB	1.660	0.140	TB	403C	796'-6"	F-G	16-17	275	420
1-ES-009-R	122B-1.2	RB	1.900	0.145	TB	403C	796'-6"	F-G	16-17	275	420
1-ES-010-R	122B-1.2	RB	42.000	0.625	TB	401A	796'-6"	E-H	15-17	165	375
1-ES-011-R	122B-1.2	RB	24.000	0.375	TB	401A	796'-6"	E-F	15-16	165	375
1-ES-012-R	122B-1.2 122B-1.7	RB	30.000	0.375	TB	401A	796'-6"	E-K	13-16	165	375
1-ES-013-R	122B-1.2 148B-1.1	RB	4.500	0.237	TB	403C	796'-6"	F-G	14-15	165	375
1-ES-014-R	122B-1.2	RB	42.000	0.625	TB	401A	796'-6"	C-F	15-17	165	375
1-ES-015-R	122B-1.2	RB	42.000	0.625	TB	401A	796'-6"	E-J	16-17	165	375
1-ES-016-R	122B-1.2 122B-1.3	RB	30.000	0.500	TB	401A	796'-6"	C-D	14-16	155	510
1-ES-017-R	122B-1.2 122B-1.4	RB	36.000	0.500	TB	401A	796'-6"	C-E	15-20	155	510
1-ES-018-R	122B-1.2 122B-1.3	RB	30.000	0.500	TB	401A	796'-6"	G-H	14-16	155	510
1-ES-019-R	122B-1.2 122B-1.4	RB	36.000	0.500	TB	401A	796'-6"	F-H	15-20	155	510
1-ES-020-R	122B-1.2 122B-1.5	RB	36.000	0.500	TB	401A	796'-6"	F-J	15-22	155	510
1-ES-021-R	122B-1.2 122B-1.3	RB	30.000	0.500	TB	401A	796'-6"	G-J	14-16	155	510
1-ES-022-R	122B-1.2 122B-1.5	RB	36.000	0.500	TB	401A	796'-6"	B-E	15-22	155	510
1-ES-023-R	122B-1.2 122B-1.3	RB	30.000	0.500	TB	401A	796'-6"	B-D	14-16	155	510
1-ES-024-R	122B-1.2	RB	42.000	0.625	TB	401A	796'-6"	B-F	16-17	165	375
1-ES-025-R	122B-1.3	RB	18.000	0.375	TB	OM-200-27	796'-6"	D-E	17-18	155	510
1-ES-026-R	122B-1.3	RB	18.000	0.375	TB	OM-200-27	796'-6"	F-G	17-18	155	510
1-ES-027-R	122B-1.3	RB	36.000	0.500	TB	401A	796'-6"	C-E	15-18	155	510
1-ES-028-R	122B-1.3	RB	36.000	0.500	TB	401A	796'-6"	F-H	15-18	155	510
1-ES-031-R	122B-1.3 122B-1.7	RB	20.000	0.375	TB	401A	796'-6"	E-H	17-19	45	295

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-) See Note 6	Floor Elev.	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-ES-032-R	122B-1.3 122B-1.7	RB	20.000	0.375	TB	401A	796'-6"	E-H	18-19	45	295
1-ES-033-R	122B-1.3	RB	2.875	0.203	TB	401K	796'-6"	F-G	17-18	45	295
1-ES-034-R	122B-1.3	RB	2.875	0.203	TB	401K	796'-6"	F-G	18-19	45	295
1-ES-041-R	122B-1.4	RB	18.000	0.375	TB	OM-200-27	796'-6"	F-G	19-20	155	510
1-ES-042-R	122B-1.4	RB	18.000	0.375	TB	OM-200-27	796'-6"	D-E	19-20	155	510
1-ES-045-R	122B-1.4 122B-1.7	RB	20.000	0.375	TB	401A	796'-6"	E-H	19-20	45	295
1-ES-046-R	122B-1.4 122B-1.7	RB	20.000	0.375	TB	401A	796'-6"	E-H	20-21	45	295
1-ES-047-R	122B-1.4	RB	2.875	0.203	TB	401K	796'-6"	F-G	19-20	45	295
1-ES-048-R	122B-1.4	RB	2.875	0.203	TB	401K	796'-6"	F-G	20-21	45	295
1-ES-055-R	122B-1.5	RB	18.000	0.375	TB	OM-200-27	796'-6"	D-E	21-22	155	510
1-ES-056-R	122B-1.5	RB	18.000	0.375	TB	OM-200-27	796'-6"	F-G	21-22	155	510
1-ES-059-R	122B-1.5 122B-1.7	RB	20.000	0.375	TB	401B	796'-6"	E-H	21-22	45	295
1-ES-060-R	122B-1.5 122B-1.7	RB	20.000	0.375	TB	401B	796'-6"	E-H	21-23	45	295
1-ES-061-R	122B-1.5	RB	2.875	0.203	TB	401K	796'-6"	F-G	21-22	45	295
1-ES-062-R	122B-1.5	RB	2.875	0.203	TB	401K	796'-6"	F-G	22-23	45	295
1-ES-073-R	122B-1.2 122B-1.6	RB	16.000	0.375	TB	401A	796'-6"	H-L	17-21	455	465
1-ES-074-R	122B-1.6	RB	12.750	0.375	TB	401A	796'-6"	J-L	20-22	455	465
1-ES-075-R	122B-1.6	RB	12.750	0.375	TB	401A	796'-6"	J-L	18-20	275	420
1-ES-076-R	122B-1.6	RB	14.000	0.375	TB	401A	796'-6"	J-K	19-20	275	420
1-ES-077-R	122B-1.6	RB	14.000	0.375	TB	401A	796'-6"	K-L	19-20	275	420
1-ES-078-R	122B-1.7	RB	30.000	0.375	TB	401C	796'-6"	G-H	18-20	45	295
1-ES-079-R	122B-1.7	RB	30.000	0.375	TB	401C	796'-6"	G-H	20-22	45	295
1-ES-080-R	122B-1.7	RB	48.000	0.375	TB	401C	796'-6"	G-H	19-21	45	295
1-ES-081-R	122B-1.7	RB	48.000	0.375	TB	401A	796'-6"	G-J	19-20	45	295
1-ES-082-R	122B-1.7	RB	42.000	0.375	TB	401A	796'-6"	H-L	15-20	45	295
1-ES-083-R	122B-1.7	RB	30.000	0.375	TB	401A	796'-6"	J-L	15-17	45	295
1-ES-084-R	122B-1.6	RB	2.875	0.203	TB	401A	796'-6"	K-L	20-21	455	465
1-ES-085-R	122B-1.7	RB	2.375	0.154	TB	401A	796'-6"	K-L	16-17	45	295
1-ES-086-R	122B-1.7	RB	2.375	0.154	TB	401A	796'-6"	J-K	15-16	165	375
1-ES-087-R	122B-1.7	RB	24.000	0.375	TB	401A	796'-6"	K-L	14-16	165	375
1-ES-094-R	122C-1.1	RB	12.750	0.375	TB	OM-200-113 OM-200-115	796'-6"	G-C	13-14	460	480
1-ES-095-R	122C-1.1	RB	8.625	0.322	TB	OM-200-113	796'-6"	G-J	13-15	460	480
1-ES-096-R	122C-1.1	RB	10.750	0.365	TB	OM-200-113	796'-6"	H-J	14-15	460	480

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-) See Note 6	Floor Elev.	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-ES-097-R	122C-1.1	RB	10.750	0.365	TB	OM-200-113	796'-6"	G-H	13-14	460	480
1-ES-098-R	122C-1.1	RB	8.625	0.322	TB	OM-200-115	796'-6"	B-D	13-15	460	480
1-ES-099-R	122C-1.1	RB	10.750	0.365	TB	OM-200-115	796'-6"	B-C	14-15	460	480
1-ES-100-R	122C-1.1	RB	10.750	0.365	TB	OM-200-115	796'-6"	C-D	13-14	460	480
1-ES-211-R	122B-1.2	RB	24.000	0.375	TB	401A	796'-6"	E-F	15-17	165	375
1-ES-274-R	122B-1.6	RB	12.750	0.375	TB	401A	796'-6"	K-M	20-22	455	465
1-ES-275-R	122B-1.6	RB	12.750	0.375	TB	401A	796'-6"	K-M	18-20	275	420
1-ES-283-R	122B-1.7	RB	30.000	0.375	TB	401A	796'-6"	K-L	15-17	45	295
1-ES-287-R	122B-1.7	RB	24.000	0.375	TB	401A	796'-6"	K-L	14-16	165	375
1-ES-501-R	122B-1.7	RB	24.000	0.375	TB	401A	796'-6"	H-K	19-21	45	295
1-ES-502-R	122A-1.3	RB	24.000	0.375	TB	401B	796'-6"	G-K	21-23	45	295
1-ES-503-R01	122A-1.3	RB	18.000	0.375	TB	400B	775'-0"	B-Dd	23-24	45	295
1-ES-503-R02	122A-1.3	RB	18.000	0.375	TB	401B	796'-6"	D-H	23-24	45	295
1-ES-504-R01	122A-1.3	RB	18.000	0.375	TB	400B	775'-0"	B-Dd	23-26	45	295
1-ES-504-R02	122A-1.3	RB	18.000	0.375	TB	401B	796'-6"	D-H	23-24	45	295
1-ES-505	122B-1.7	RB	4.500	0.237	TB	401J	796'-6"	H-J	17-18	45	295

Notes:

1. Break numbers may not be consecutive
2. Break type: RB – Running Break (Piping not analyzed for seismic), TE – Terminal End, IB – Intermediate Break
3. Building: TB – Turbine Building, AB – Auxiliary Building.
4. Each running break may contain one or more Sub-breaks.
5. For the Unit 1 Extraction Steam System 108 Running Breaks were considered; the 78 non-excluded, Running Breaks are listed in this table.
6. Layout of piping system may be shown on vendor supplied drawings (OM-)
7. For each Running Break the elevation of the floor or room that contains the Running Break is given.
8. Other Abbreviations: OD – Outer Diameter, in – inches, Op - operating



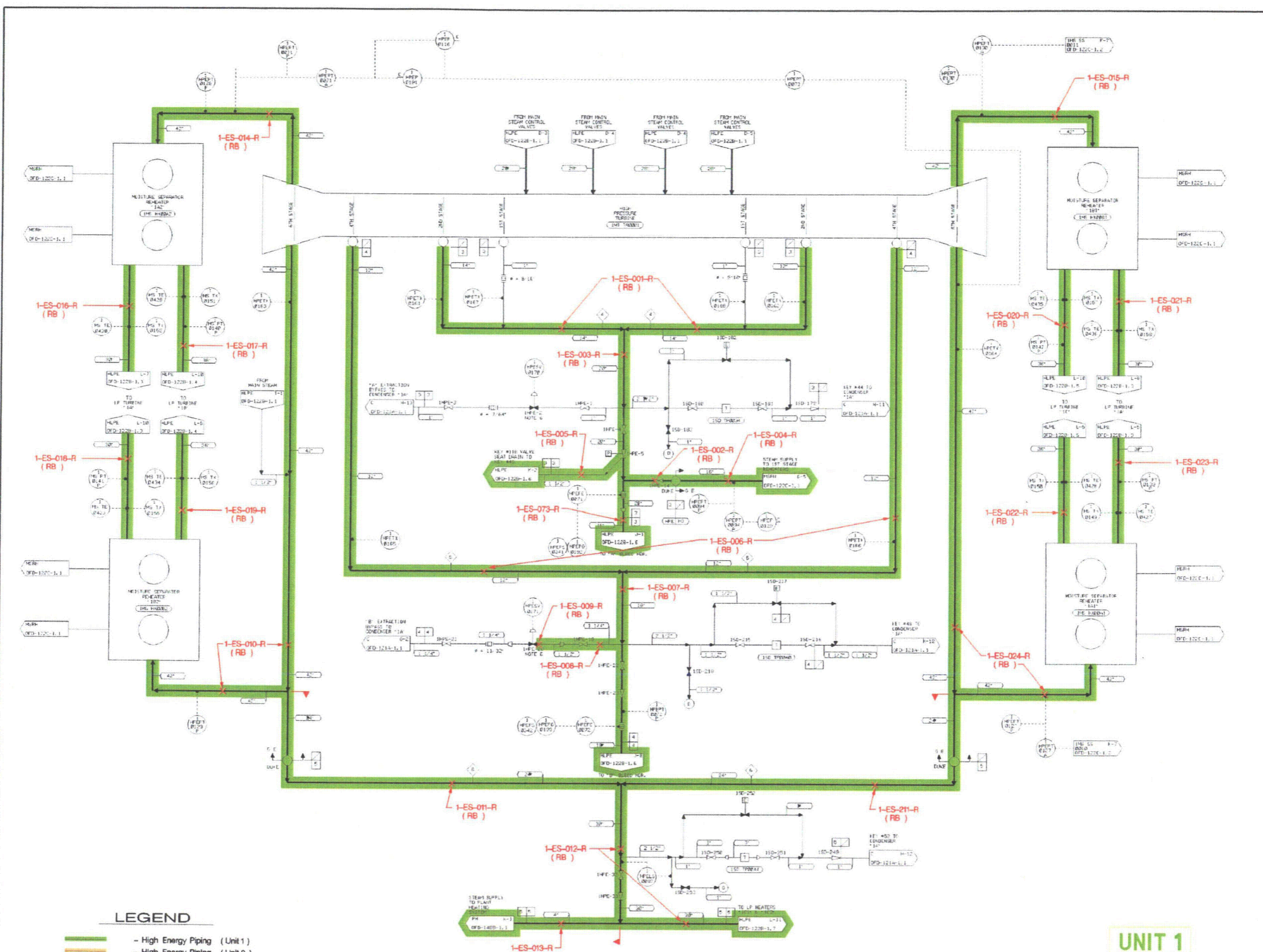
LEGEND

- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- ▬ - Running Break Boundary

FIGURE 4.1-3
EXTRACTION STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 1 of 9)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122A-1.3 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.



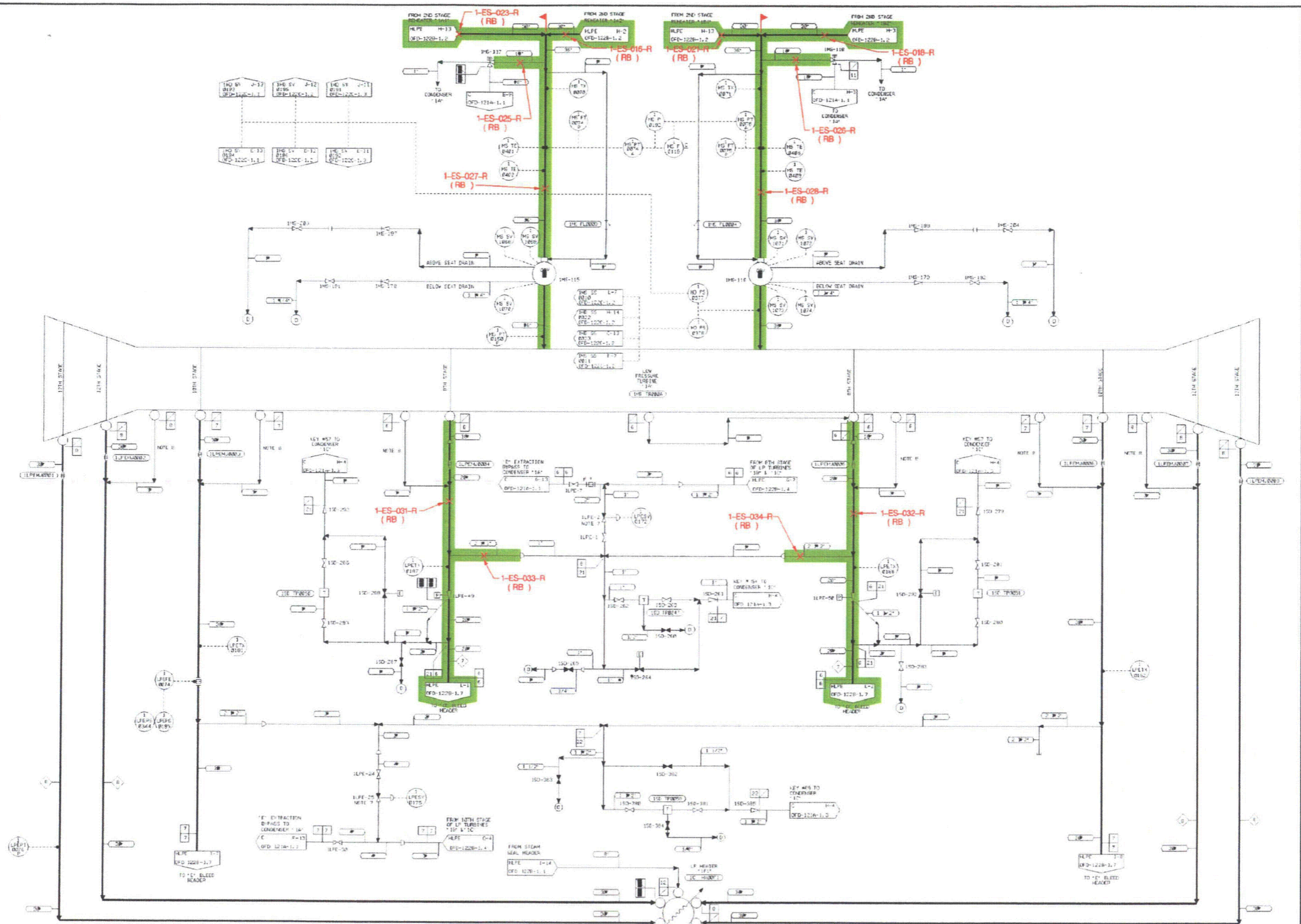
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ▶ - Running Break Boundary

FIGURE 4.1-3
EXTRACTION STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 2 of 9)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122B-1.2 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122B-01-02



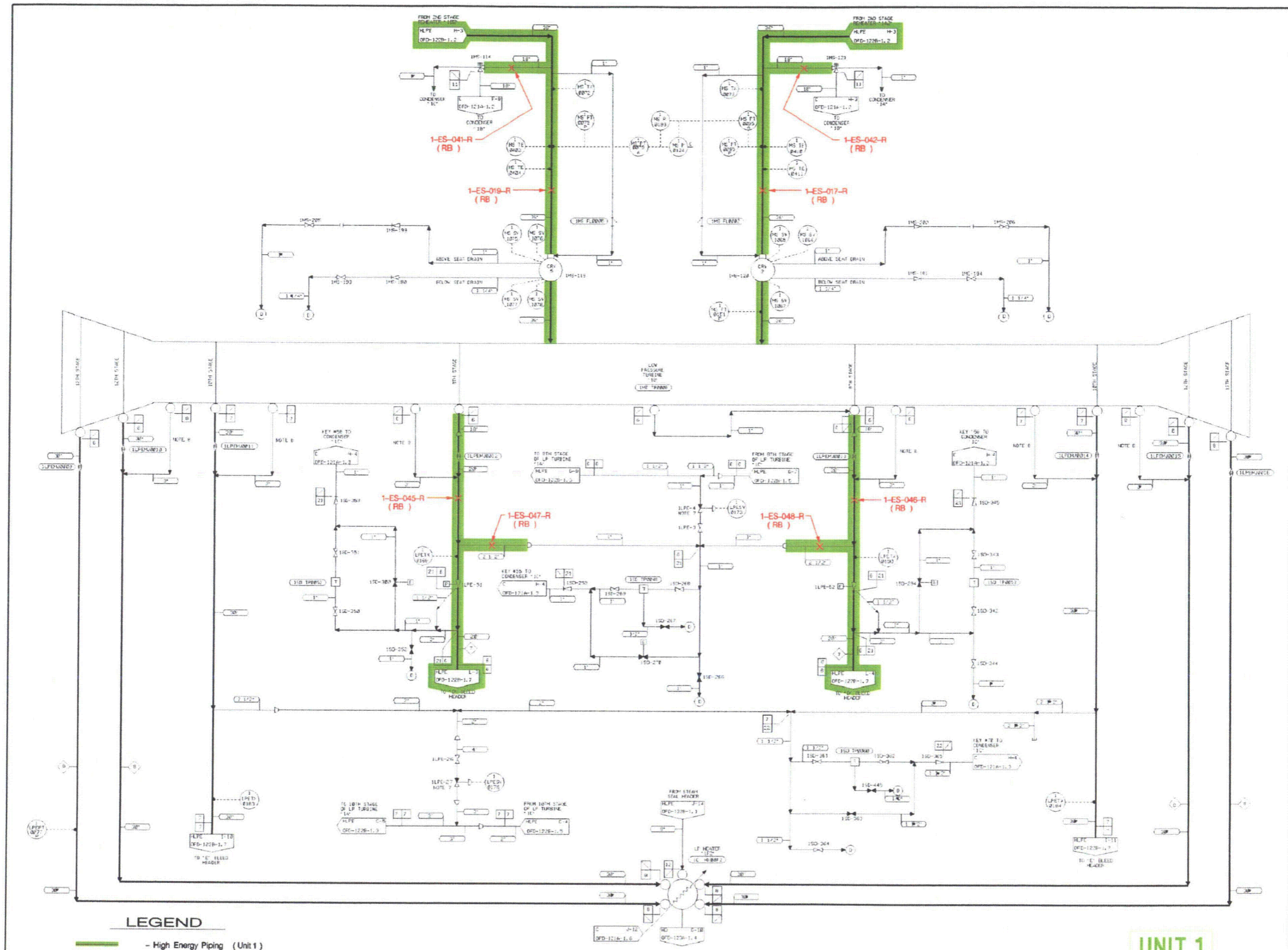
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ↑ - Running Break Boundary

FIGURE 4.1-3
EXTRACTION STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 3 of 9)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122B-1.3 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122B-01-03

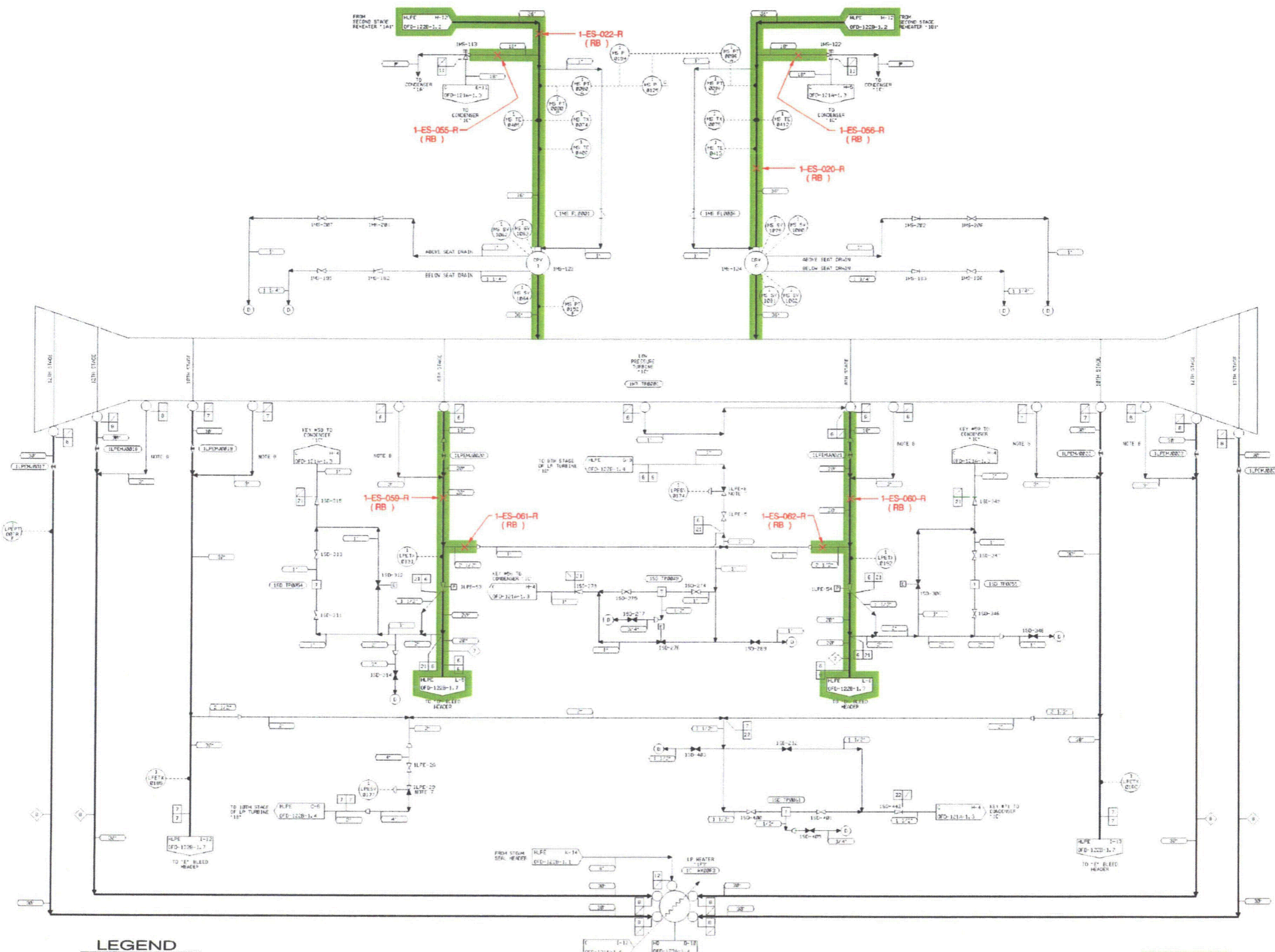


LEGEND

- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- ▶ - Running Break Boundary

FIGURE 4.1-3
EXTRACTION STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 4 of 9)

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122B-1.4 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

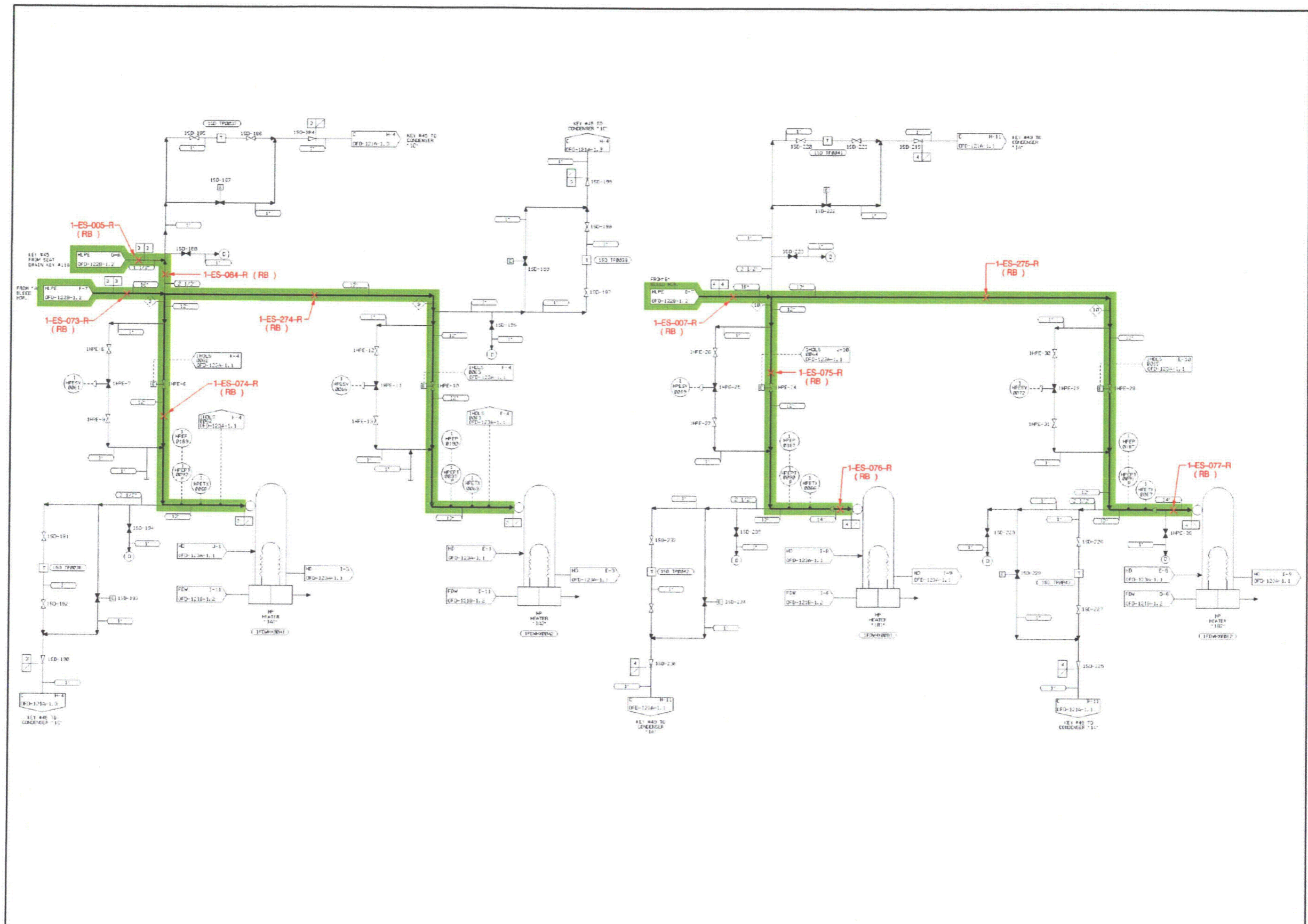


- LEGEND**
- High Energy Piping (Unit 1)
 - High Energy Piping (Unit 2)
 - High Energy Piping (Unit 3)
 - X High Energy Line Break Location
 - N-SYS-NNN (-N) Break Number
 - TE Terminal End (Break)
 - RB Running Break
 - CR Critical Crack
 - IB Intermediate Break
 - ▶ Running Break Boundary

FIGURE 4.1-3
EXTRACTION STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 5 of 9)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122B-1.5 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.



LEGEND

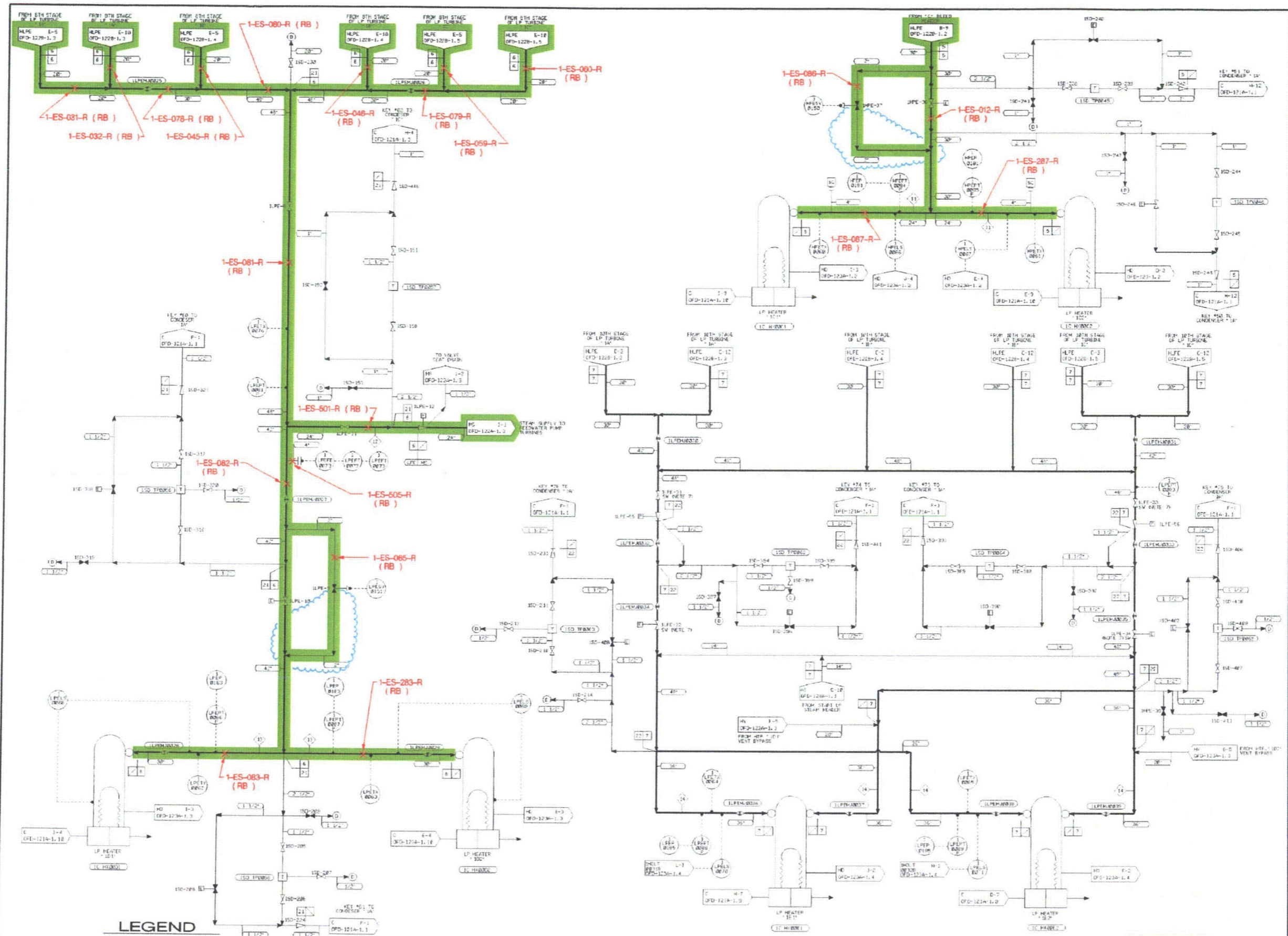
- █ - High Energy Piping (Unit 1)
- █ - High Energy Piping (Unit 2)
- █ - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- - Running Break Boundary

FIGURE 4.1-3
EXTRACTION STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 6 of 9)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122B-1.6 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122B-01-06



- LEGEND**
- High Energy Piping (Unit 1)
 - High Energy Piping (Unit 2)
 - High Energy Piping (Unit 3)
 - X High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - B - Intermediate Break
 - ↑ - Running Break Boundary

FIGURE 4.1-3
EXTRACTION STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 7 of 9)

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122B-1.7 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

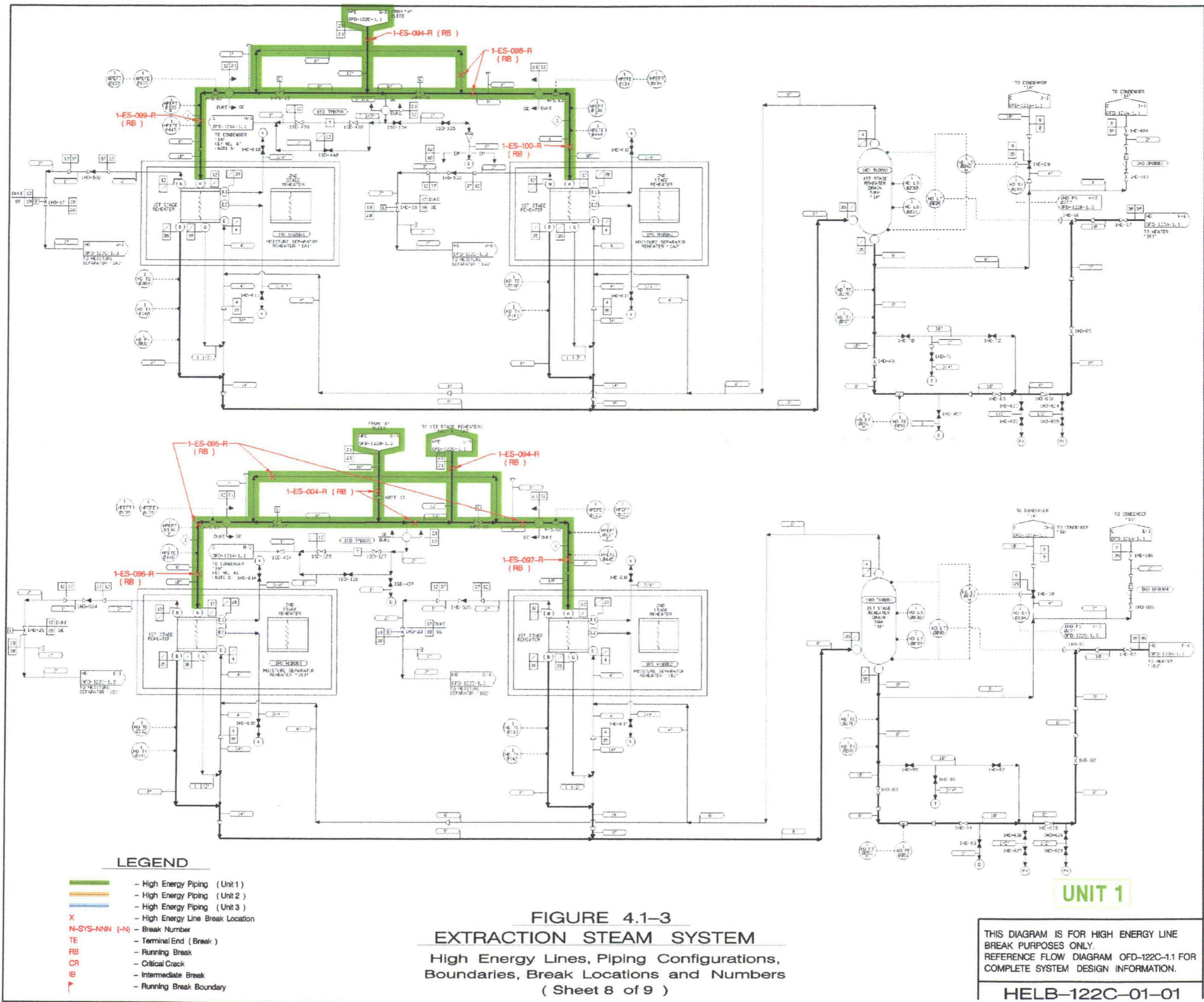
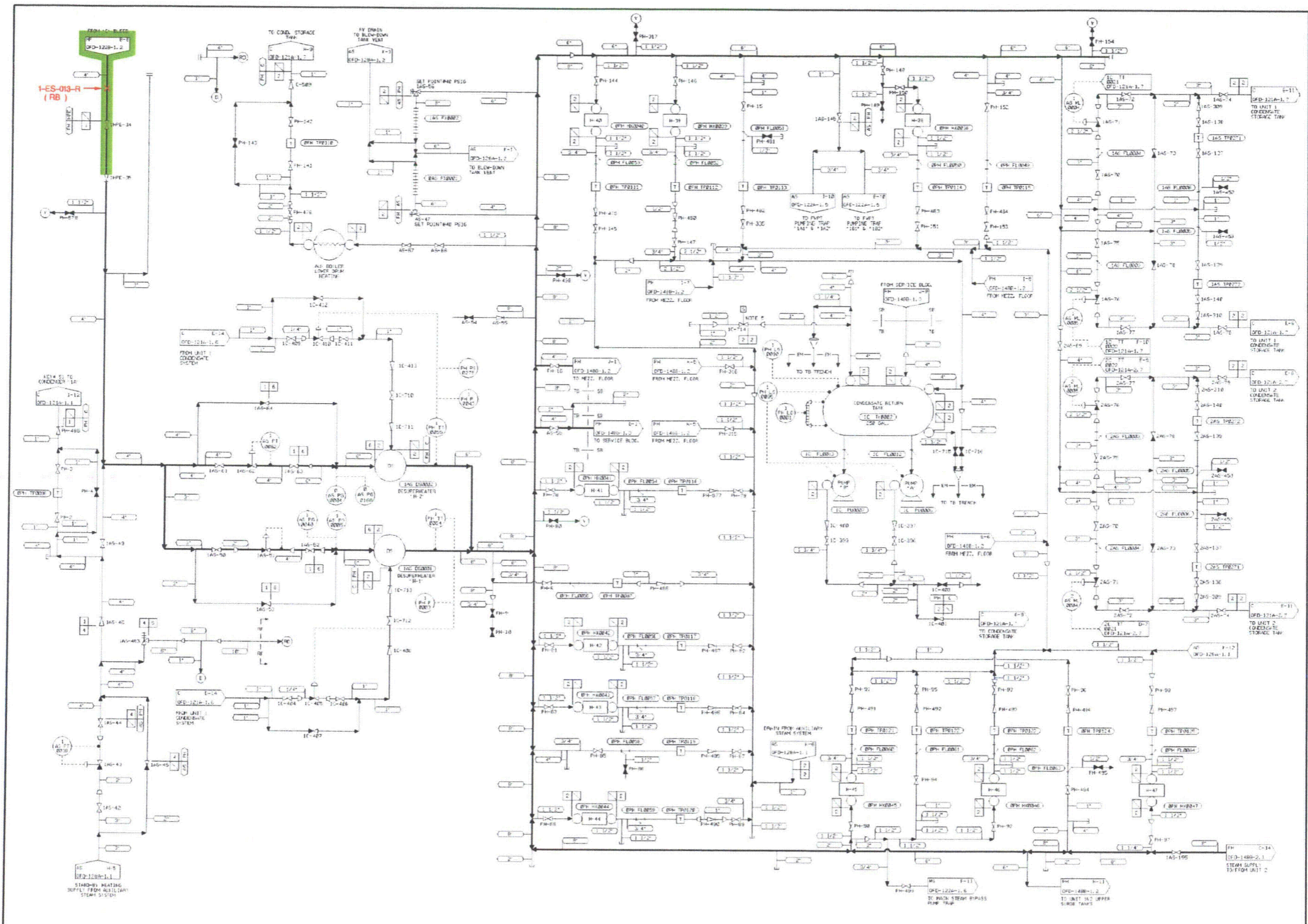


FIGURE 4.1-3
EXTRACTION STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 8 of 9)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122C-1.1 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122C-01-01



LEGEND

- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- ↑ - Running Break Boundary

FIGURE 4.1-3
EXTRACTION STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 9 of 9)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-148B-1.1 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

Table 4.1-4
 Main Feedwater System – High Energy Line Data – Unit 1

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. or Break Elev. (See Note 6)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-FDW-001	121B-1.2	TE	24	1.219	TB	400A	782'-0"	J-K	20-21	1020	454
1-FDW-002	121B-1.2	TE	24	1.219	TB	400A	782'-0"	J-K	20-21	1020	408
1-FDW-003	121B-1.2	TE	24	1.219	TB	400A	782'-0"	K-L	20-21	1020	454
1-FDW-004	121B-1.2	TE	24	1.219	TB	400A	782'-0"	K-L	20-21	1020	408
1-FDW-005-R	121B-1.2	RB	24	1.219	TB	400A	775'-0"	J-K	19-20	1020	365
1-FDW-006-R	121B-1.2	RB	24	1.219	TB	400A	775'-0"	H-K	19-21	1020	408
1-FDW-007-R	121B-1.2	RB	24	1.219	TB	400A	775'-0"	L-M	19-20	1020	365
1-FDW-008-R	121B-1.2	RB	24	1.219	TB	400A	775'-0"	K-M	19-21	1020	408
1-FDW-009	121B-1.1	TE	8.625	0.5	TB	400F	788'-0"	C-D	24-25	1020	365
1-FDW-010	121B-1.1	TE	8.625	0.5	TB	400E	784'-11"	C-D	25-26	1020	365
1-FDW-011-R	121B-1.1	RB	1.9	0.2	TB	400B	775'-0"	B-D	23-25	1020	365
1-FDW-012-R	121B-1.1	RB	1.9	0.2	TB	400B	775'-0"	B-D	25-26	1020	365
1-FDW-013-R	121B-1.1	RB	1.9	0.2	TB	400B	775'-0"	C-D	23-24	1020	365
1-FDW-014-R	121B-1.1	RB	1.9	0.2	TB	400B	775'-0"	C-D	25-26	1020	365
1-FDW-018-R	121B-1.1	RB	2.375	0.218	TB	400B	775'-0"	C-D	25-26	1020	365
1-FDW-019-R	121B-1.1	RB	1.9	0.2	TB	400B	775'-0"	C-D	23-24	1020	365
1-FDW-020-R	121B-1.1	RB	1.9	0.2	TB	400B	775'-0"	C-D	25-26	1020	365
1-FDW-021-R	121B-1.1	RB	16	0.844	TB	400F	775'-0"	B-D	23-24	1020	365
1-FDW-022-R	121B-1.1	RB	16	0.844	TB	400F	775'-0"	B-D	25-26	1020	365
1-FDW-023	121B-1.3	TE	6.625	0.432	TB	401B	805'-0"	K-L	21-22	1020	454
1-FDW-024	121B-1.3	TE	6.625	0.432	TB	401B	812'-1"	L-M	21-22	1020	454
1-FDW-025	121B-1.3	TE	6.625	0.432	TB	401B	805'-0"	K-L	22-23	1020	454
1-FDW-026	121B-1.3	TE	6.625	0.432	TB	401B	816'-6"	L-M	22-23	1020	454
1-FDW-027	121B-1.3	TE	24	1.218	AB-EPR	439B	828'-6"	Q-R	67-68	1020	454
1-FDW-028	121B-1.3	TE	24	1.218	AB-EPR	439B	828'-6"	Q-R	69-70	1020	454
1-FDW-029-R	121B-1.1	RB	24	1.218	TB	400B, 401B	775'-0"	B-E	23-27	1020	365
1-FDW-030-R	121B-1.1	RB	24	1.218	TB	400B, 401B	796'-6"	B-E	24-26	1020	365
1-FDW-031-R	121B-1.2	RB	30	1.157	TB	401A, 401B	796'-6"	D-L	19-25	1020	365
1-FDW-032-R	121B-1.2	RB	20	1.031	TB	400A	775'-0"	H-K	19-20	1020	408
1-FDW-033-R	121B-1.1	RB	1.9	0.20	TB	400B	775'-0"	C-D	23-24	1020	365
1-FDW-034-R	121B-1.2	RB	20	1.031	TB	400A	775'-0"	L-M	19-20	1020	408
1-FDW-035-R	121B-1.2	RB	24	1.218	TB	400A, 401G	796'-6"	J-L	19-20	1020	365
1-FDW-036-R	121B-1.2	RB	24	1.218	TB	400A, 401G	796'-6"	K-M	19-20	1020	365
1-FDW-037-R	121B-1.3	RB	2.375	0.218	TB	401D	796'-6"	K-L	22-23	1020	454

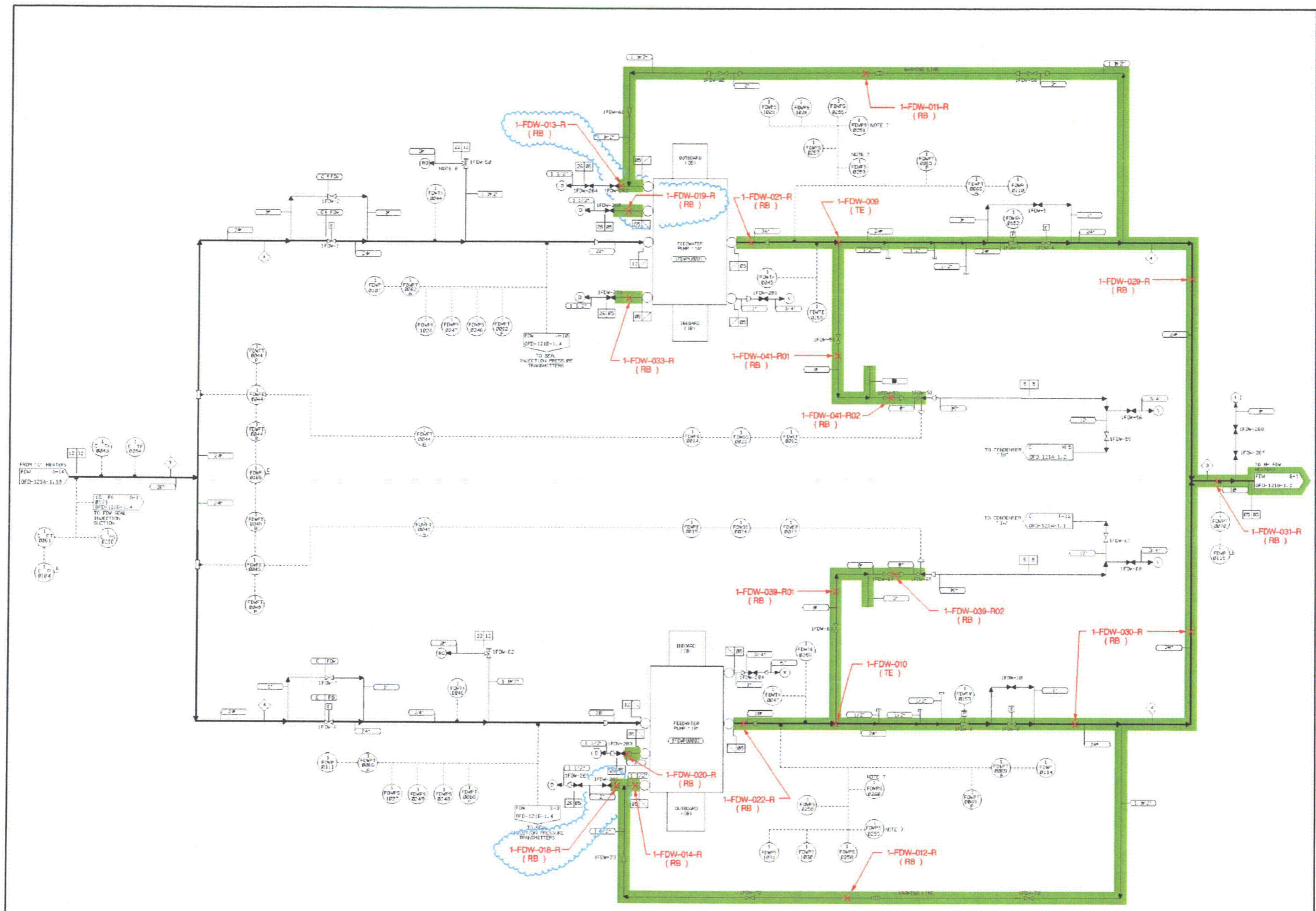
Table 4.1-4
 Main Feedwater System – High Energy Line Data – Unit 1

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. or Break Elev. (See Note 6)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-FDW-039-R01	121B-1.1	RB	8.625	0.5	TB	400A, 400B	775'-0"	B-D	17-26	1020	365
1-FDW-39-R02	121B-1.1	RB	8.625	0.5	TB	401A	796'-6"	B-E	17-18	1020	365
1-FDW-041-R01	121B-1.1	RB	8.625	0.5	TB	400A, 400B	775'-0"	B-D	17-25	1020	365
1-FDW-041-R02	121B-1.1	RB	8.625	0.5	TB	401A	796'-6"	B-E	19-20	1020	365
1-FDW-042-R	121B-1.3	RB	12.75	0.687	TB	401B	796'-6"	K-L	21-22	1020	454
1-FDW-043-R	121B-1.3	RB	12.75	0.687	TB	401B	796'-6"	K-M	22-23	1020	454
1-FDW-044-CR	121B-1.3	CR	30.0	1.157	TB	401B	796'-6"	H-J	21-23	1020	454
1-FDW-045-CR	121B-1.2	CR	24.0	1.218	TB	400G	775'-0"	K-L	20-21	1020	454
1-FDW-046-CR	121B-1.2	CR	24.0	1.218	TB	400G	775'-0"	K-L	20-21	1020	454
1-FDW-047-CR	121B-1.3	CR	6.625	0.432	TB	401B, 401D	796'-6"	L-M	22-23	1020	454
1-FDW-048-CR	121B-1.3	CR	6.625	0.432	TB	401D	796'-6"	K-M	22-23	1020	454
1-FDW-049-CR	121B-1.3	CR	6.625	0.432	TB	401D	796'-6"	K-L	22-24	1020	454
1-FDW-050-CR	121D-1.1	CR	6.625	0.432	TB	401B	796'-6"	G-J	22-24	1020	454
1-FDW-051-CR	121D-1.1	CR	6.625	0.432	TB	400H	775'-0"	B-C	19-20	1020	454
1-FDW-052-CR	121D-1.1	CR	6.625	0.432	TB	401A	796'-6"	B-C	19-20	1020	454
1-FDW-053-CR	121D-1.1	CR	6.625	0.432	TB	401A	796'-6"	B-C	13-14	1020	454
1-FDW-054-CR	121B-1.3 121D-1.1	CR	6.625	0.432	TB	401B	796'-6"	K-L	21-22	1020	454
1-FDW-055-CR	121B-1.3	CR	6.625	0.432	TB	401B	796'-6"	K-M	21-22	1020	454
1-FDW-056-CR	121B-1.3	CR	6.625	0.432	TB	401B, 401D	796'-6"	L-M	21-22	1020	454
1-FDW-057-CR	121B-1.3	CR	24.0	1.218	AB-EPR	439B	828'-6"	Q-R	69-70	1020	454
1-FDW-058-CR	121B-1.3	CR	24.0	1.218	AB-EPR	439A	816'-6"	P-Q	67-68	1020	454

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. or Break Elev. (See Note 6)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-FDW-059-CR	121B-1.3	CR	24	1.218	TB	401B	805'-0"	K-L	21-22	1020	454
1-FDW-060-CR	121B-1.3	CR	24	1.218	TB	401B	805'-0"	K-L	22-23	1020	454
1-FDW-061-CR	121B-1.3	CR	24	1.218	TB	401D	796'-6"	L-M	21-22	1020	454
1-FDW-062-CR	121B-1.3	CR	24	1.218	TB	401G	796'-6"	L-M	22-23	1020	454

Notes:

1. Break numbers may not be consecutive
2. Break type: RB – Running Break (Piping not analyzed for seismic), TE – Terminal End, IB – Intermediate Break, CR – Critical Cracks
3. Building: TB – Turbine Building, AB – Auxiliary Building, EPR – East Penetration Room.
4. Each Running Break may contain one or more sub-breaks.
5. For the Unit 1 Main Feedwater System 14 Terminal End Breaks, 19 Critical Cracks, and 30 Running Breaks were considered; the non-excluded breaks listed in this table include 12 Terminal End Breaks, 19 Critical Cracks, and 28 Running Breaks.
6. For Terminal End and Intermediate Break locations the elevation of the break location is given. For Running Breaks the elevation of floor or room that contains Running Break is given. For Critical Cracks with a single break point or has all locations on the same elevation, the elevation is given, and for Critical Cracks with multiple elevations, the elevation of floor or room that contains Critical Crack is given.
7. Other Abbreviations: OD – Outer Diameter, in – inches, Op - operating



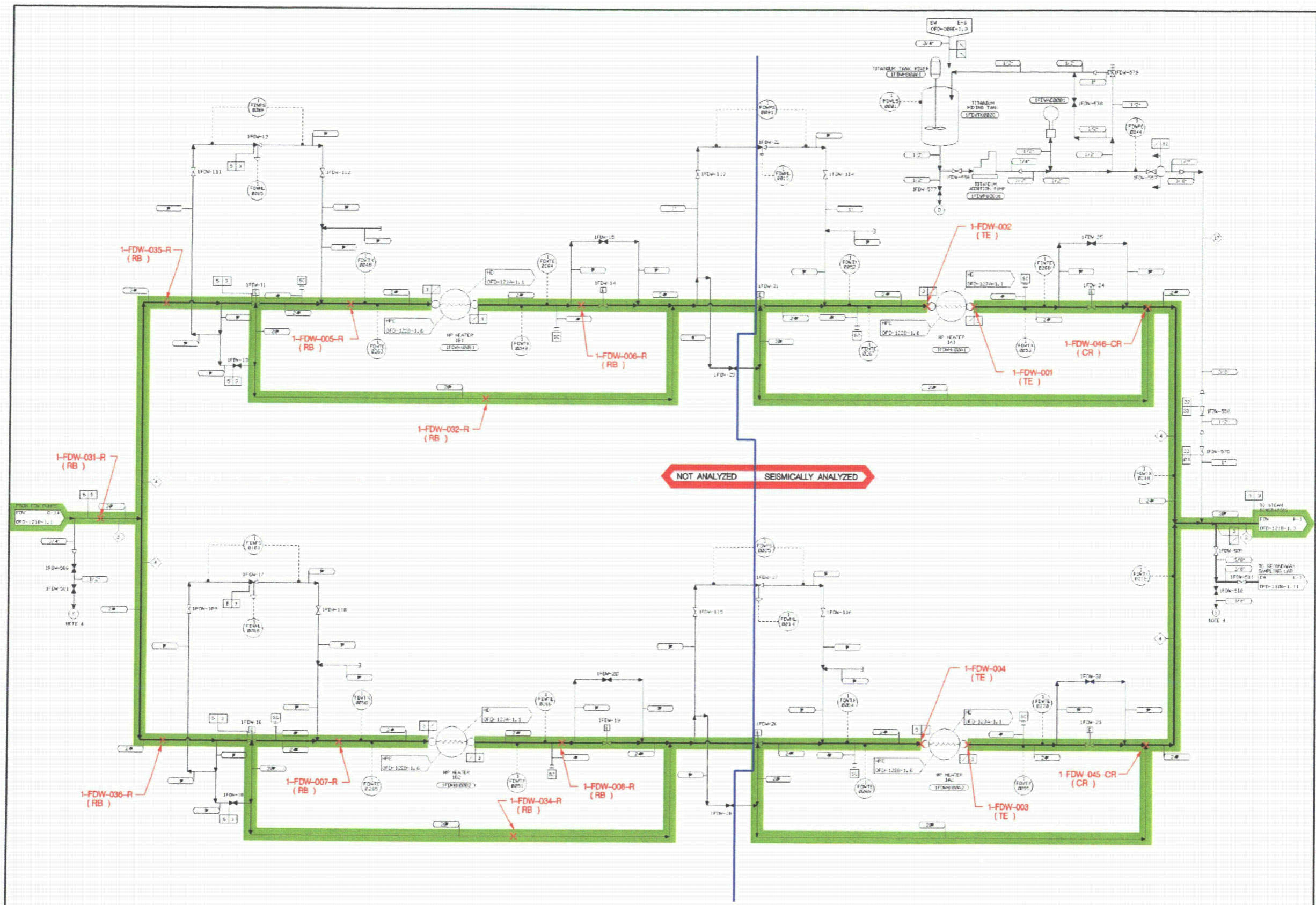
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal/End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - |— - Running Break Boundary

FIGURE 4.1-4
MAIN FEEDWATER SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 1 of 4)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-121B-1.1 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HFI B-121B-01-01



LEGEND

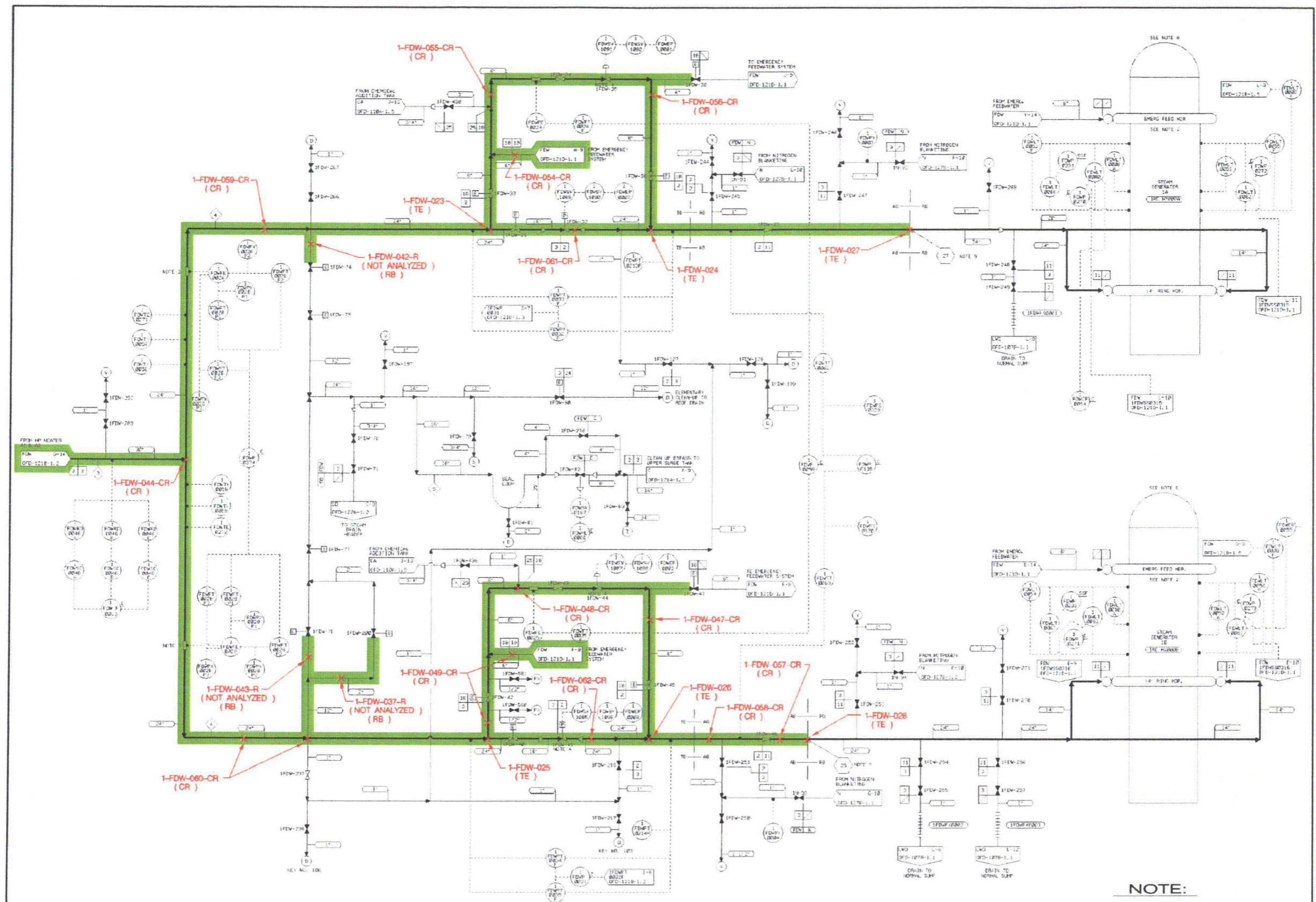
- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- | - Running Break Boundary

NOT ANALYZED SEISMICALLY ANALYZED

UNIT 1

FIGURE 4.1-4
MAIN FEEDWATER SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 2 of 4)

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-121B-1.2 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.



LEGEND

- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- ▶ - Running Break Boundary

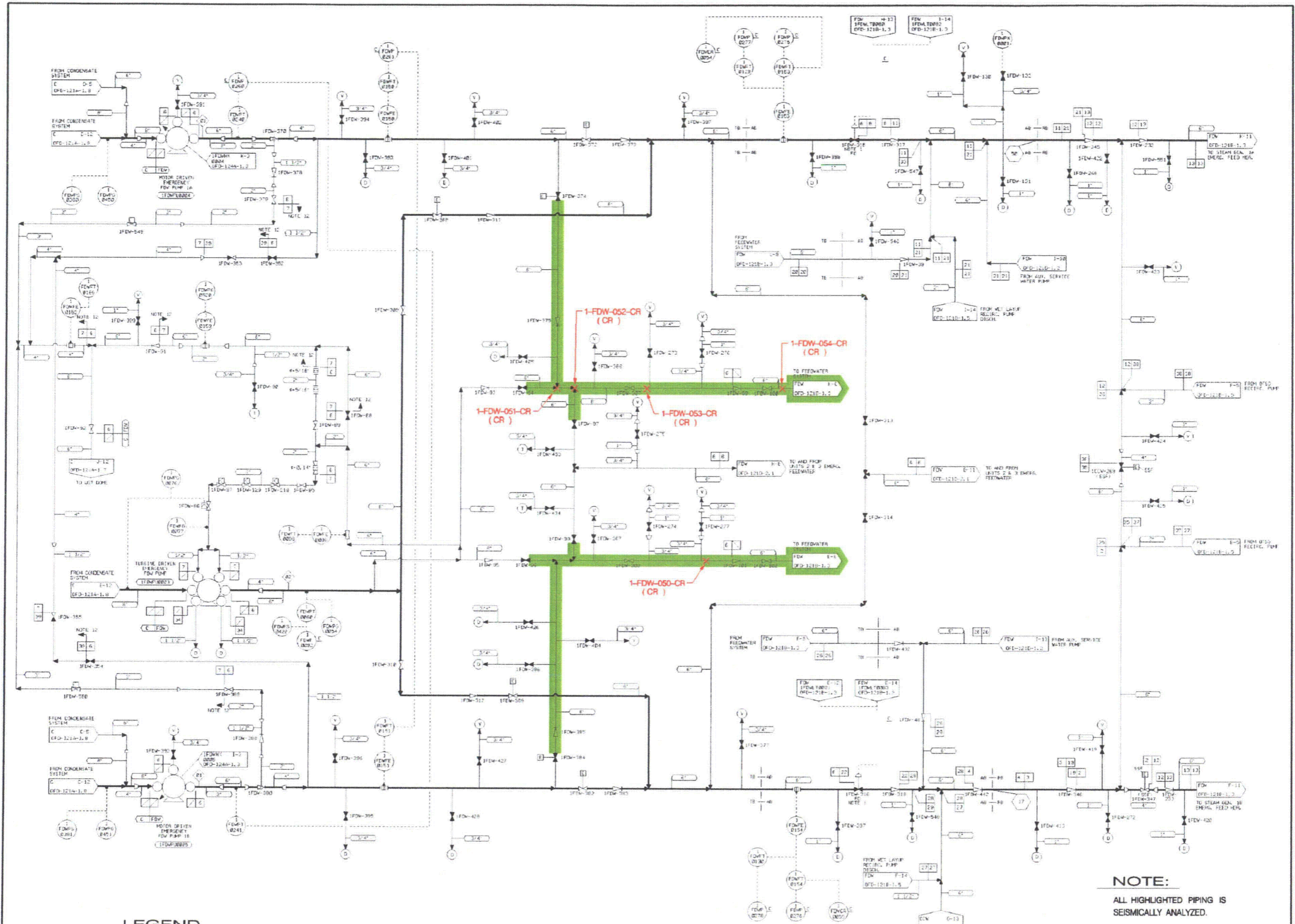
NOTE:
ALL HIGHLIGHTED PIPING IS ANALYZED EXCEPT AS NOTED.

UNIT 1

FIGURE 4.1-4
MAIN FEEDWATER SYSTEM
High Energy Lines, Piping Configurations,
Boundaries, Break Locations and Numbers
(Sheet 3 of 4)

THIS DIAGRAM IS FOR HIGH ENERGY LINE BREAK PURPOSES ONLY.
REFERENCE FLOW DIAGRAM OFD-121B-1.3 FOR COMPLETE SYSTEM DESIGN INFORMATION.

HELB-121B-01-03



- LEGEND**
- █ - High Energy Piping (Unit 1)
 - █ - High Energy Piping (Unit 2)
 - █ - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ↑ - Running Break Boundary

FIGURE 4.1-4
MAIN FEEDWATER SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 4 of 4)

NOTE:
 ALL HIGHLIGHTED PIPING IS
 SEISMICALLY ANALYZED.

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-121D-1.1 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. Or Break Elev. (See Note 5)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-HD-001-R	121A-1.1 123A-1.4	RB	12.750	0.375	TB	410A	775'-0"	K-L	17-18	520	215
1-HD-002-R	123A-1.4	RB	8.625	0.322	TB	410A	775'-0"	J-L	17-19	520	215
1-HD-003-R	123A-1.4	RB	4.500	0.237	TB	410A	775'-0"	J-K	18-19	520	215
1-HD-004-R	123A-1.4	RB	4.500	0.237	TB	410A	775'-0"	J-K	18-19	625	190
1-HD-005-R	123A-1.4	RB	4.500	0.237	TB	410A	775'-0"	J-K	18-19	625	190
1-HD-006-R	123A-1.4	RB	8.625	0.322	TB	410A 410D	775'-0"	J-K	17-19	625	190
1-HD-007-R	123A-1.4	RB	8.625	0.322	TB	410A	775'-0"	H-K	18-20	625	190
1-HD-008-R	123A-1.4	RB	8.625	0.322	TB	410A 410D	775'-0"	H-K	17-18	625	190
1-HD-009-R	123A-1.4	RB	2.375	0.154	TB	410D	775'-0"	J-K	17-18	625	190
1-HD-010-R	123A-1.4	RB	2.375	0.154	TB	410D	775'-0"	J-K	17-18	625	190
1-HD-011-R	123A-1.4	RB	8.625	0.322	TB	410A	775'-0"	K-L	17-19	520	215
1-HD-012-R	123A-1.4	RB	4.500	0.237	TB	410A	775'-0"	K-M	18-19	520	215
1-HD-013-R	123A-1.4	RB	4.500	0.237	TB	410A	775'-0"	L-M	18-19	625	190
1-HD-014-R	123A-1.4	RB	4.500	0.237	TB	410A	775'-0"	L-M	18-19	625	190
1-HD-015-R	123A-1.4	RB	8.625	0.322	TB	410A 410C	775'-0"	L-M	17-19	625	190
1-HD-016-R	123A-1.4	RB	8.625	0.322	TB	410A	775'-0"	L-M	18-20	625	190
1-HD-017-R	123A-1.4	RB	8.625	0.322	TB	410A 410C	775'-0"	L-M	17-18	625	190
1-HD-018-R	123A-1.4	RB	2.375	0.154	TB	410D	775'-0"	L-M	17-18	625	190
1-HD-019-R	123A-1.4	RB	2.375	0.154	TB	410D	775'-0"	L-M	17-18	625	190
1-HD-020-R	121A-1.1 123A-1.3	RB	24.000	0.688	TB	410A	775'-0"	K-L	15-18	520	290
1-HD-021-R	123A-1.3	RB	18.000	0.500	TB	410A	775'-0"	J-L	16-18	520	290
1-HD-022-R	123A-1.3	RB	10.750	0.365	TB	410A	775'-0"	J-K	17	520	290
1-HD-023-R	123A-1.3	RB	10.750	0.365	TB	410A	775'-0"	H-J	17-18	610	275
1-HD-024-R	123A-1.3	RB	10.750	0.365	TB	410A	775'-0"	J-K	17-18	610	275
1-HD-025-R	123A-1.3	RB	18.000	0.500	TB	410A	775'-0"	H-K	17-19	610	275
1-HD-026-R	123A-1.3	RB	6.625	0.280	TB	410A	775'-0"	H-K	16-18	610	275
1-HD-027-R	123A-1.3	RB	4.500	0.237	TB	410A	775'-0"	H-J	16-17	610	275
1-HD-028-R	123A-1.3	RB	4.500	0.237	TB	410A	775'-0"	H-J	16-17	45	275
1-HD-029-R	123A-1.3	RB	6.625	0.280	TB	410A	775'-0"	H-J	16-17	45	275
1-HD-030-R	123A-1.3	RB	18.000	0.375	TB	410A	775'-0"	J-K	16-18	45	275
1-HD-031-R	123A-1.3	RB	16.000	0.375	TB	410A	775'-0"	G-K	17-20	45	275
1-HD-032-R	123A-1.3	RB	18.000	0.500	TB	410A	775'-0"	K-M	17-18	520	290
1-HD-033-R	123A-1.3	RB	10.750	0.365	TB	410A	775'-0"	K-M	17-18	520	290
1-HD-034-R	123A-1.3	RB	10.750	0.365	TB	410A	775'-0"	L-M	17-18	610	275
1-HD-035-R	123A-1.3	RB	10.750	0.356	TB	410A	775'-0"	L-M	17-18	610	275

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. Or Break Elev. (See Note 5)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-HD-036-R	123A-1.3	RB	18.000	0.500	TB	410A	775'-0"	L-M	17-19	610	275
1-HD-037-R	123A-1.3	RB	6.625	0.280	TB	410A	775'-0"	L-M	16-18	610	275
1-HD-038-R	123A-1.3	RB	4.500	0.237	TB	410A	775'-0"	L-M	16-17	610	275
1-HD-039-R	123A-1.3	RB	4.500	0.237	TB	410A	775'-0"	L-M	16-17	45	275
1-HD-040-R	123A-1.3	RB	6.625	0.280	TB	410A	775'-0"	L-M	16-17	45	275
1-HD-041-R	123A-1.3	RB	18.000	0.375	TB	410A	775'-0"	L-M	16-18	45	275
1-HD-042-R	123A-1.3	RB	16.000	0.375	TB	410A	775'-0"	G-M	17-19	45	275
1-HD-043-R	123A-1.3	RB	12.750	0.375	TB	410A	775'-0"	J-L	16-17	45	275
1-HD-044-R	123A-1.3	RB	12.750	0.375	TB	410A	775'-0"	K-L	16-17	45	275
1-HD-045-R	123A-1.3	RB	20.000	0.375	TB	410D 410G 410I	796'-6"	J-K	15-17	45	275
1-HD-046-R	123A-1.3	RB	8.625	0.322	TB	410D 410I	775'-0" 796'-6"	J-K	16-17	45	275
1-HD-047-R	123A-1.3	RB	20.000	0.375	TB	410C 410G 410I	796'-6"	K-M	15-17	45	275
1-HD-048-R	123A-1.3	RB	8.625	0.322	TB	410C 410I	775'-0" 796'-6"	L-M	16-17	45	275
1-HD-049-R	123A-1.3	RB	30.000	0.375	TB	410A	775'-0"	H-K	16-17	45	275
1-HD-050-R	123A-1.2 123A-1.3	RB	30.000	0.375	TB	410A	775'-0"	J-K	15-17	45	275
1-HD-051-R	123A-1.2 123A-1.3	RB	30.000	0.375	TB	410A	775'-0"	L-M	15-17	45	275
1-HD-052-R	123A-1.3	RB	30.000	0.375	TB	410A	775'-0"	L-M	16-17	45	275
1-HD-053-R	123A-1.2	RB	6.625	0.280	TB	410A	775'-0"	L-M	15-16	45	275
1-HD-054-R	123A-1.2	RB	6.625	0.280	TB	410A	775'-0"	L-M	15-16	160	295
1-HD-055-R	123A-1.2	RB	6.625	0.280	TB	410A	775'-0"	L-M	15-16	160	295
1-HD-056-R	123A-1.2	RB	16.000	0.375	TB	410A 410E 410L	775'-0" 796'-6"	H-M	13-16	160	295
1-HD-057-R	123A-1.2	RB	16.000	0.375	TB	410A 410E	775'-0"	L-M	13-14	160	295
1-HD-058-R	123A-1.2	RB	16.000	0.375	TB	410A 410E	775'-0"	L-M	13-14	160	295
1-HD-059-R	123A-1.2	RB	6.625	0.280	TB	410A	775'-0"	H-K	15-16	45	275
1-HD-060-R	123A-1.2	RB	6.625	0.280	TB	410A	775'-0"	J-K	15-16	160	295
1-HD-061-R	123A-1.2	RB	6.625	0.280	TB	410A	775'-0"	J-K	15-16	160	295
1-HD-062-R	123A-1.2	RB	16.000	0.375	TB	410A 410E 410L	775'-0" 796'-6"	F-K	13-16	160	295
1-HD-063-R	123A-1.2	RB	16.000	0.375	TB	410A 410E	775'-0"	H-J	13-14	160	295
1-HD-064-R	123A-1.2	RB	16.000	0.375	TB	410A 410E	775'-0"	J-K	13-14	160	295
1-HD-065-R	123A-1.2	RB	24.000	0.375	TB	410A	775'-0"	K-M	14-15	160	365
1-HD-066-R	123A-1.2	RB	24.000	0.375	TB	410A	775'-0"	H-K	14-15	160	365
1-HD-067-R	123A-1.2	RB	18.000	0.375	TB	410A	775'-0"	K-M	13-15	160	365
1-HD-068-R	123A-1.2	RB	18.000	0.375	TB	410A	775'-0"	H-K	13-15	160	365

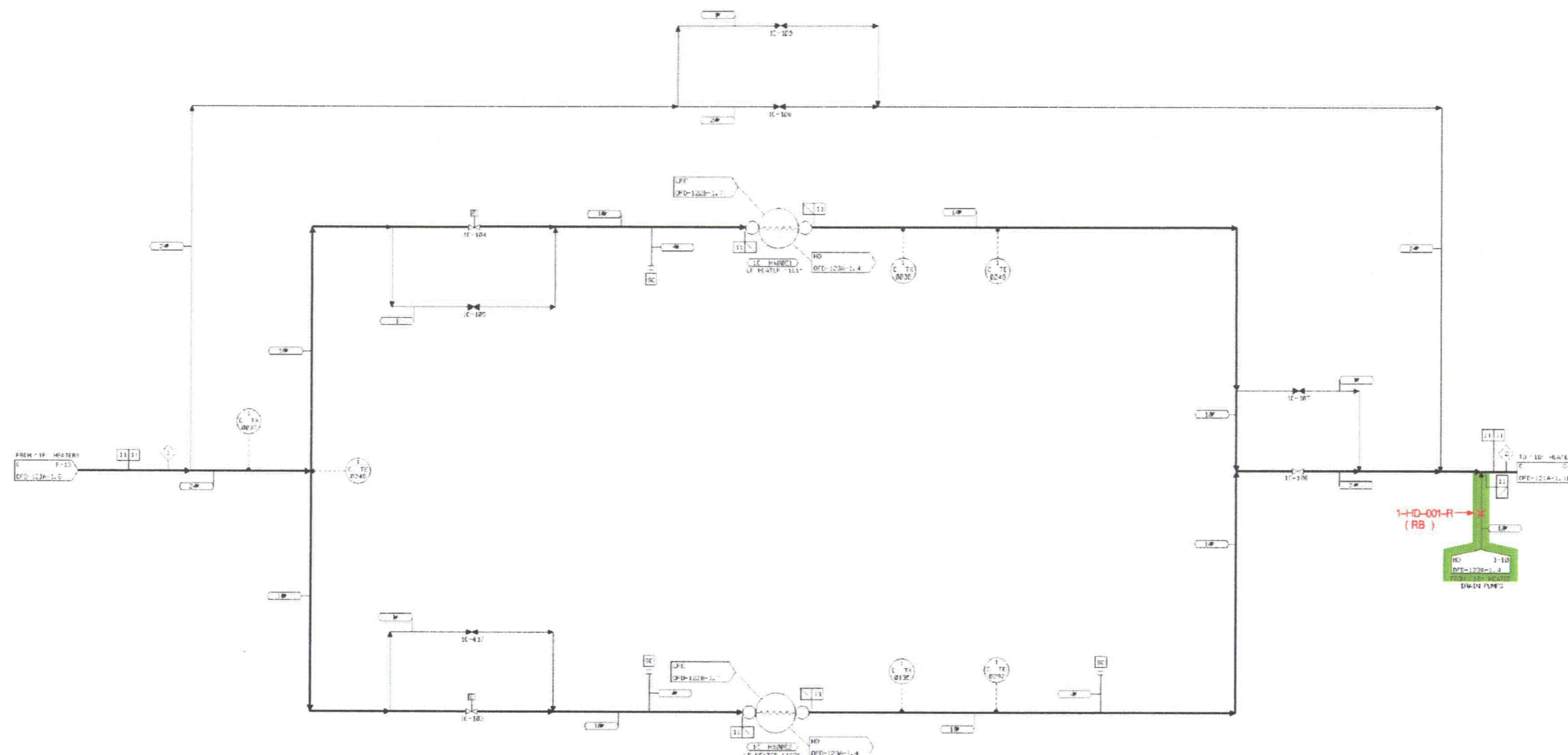
Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. Or Break Elev. (See Note 5)	Location		Op Pres. (psig)	Op Temp. (°F)
								(Room No. or Column Numbers)			
1-HD-069-R	123A-1.2	RB	18.000	0.375	TB	410L 410G	796'-6"	K-M	14-15	160	365
1-HD-070-R	123A-1.2	RB	18.000	0.375	TB	410L 410G	796'-6"	H-K	14-15	160	365
1-HD-071-R	123A-1.2	RB	6.625	0.280	TB	410A	775'-0"	L-M	13-16	160	365
1-HD-072-R	123A-1.2	RB	6.625	0.280	TB	410A	775'-0"	L-M	15-16	45	275
1-HD-073-R	123A-1.2	RB	6.625	0.280	TB	410A	775'-0"	H-J	14-16	160	365
1-HD-074-R	123A-1.2	RB	6.625	0.280	TB	410A	775'-0"	H-J	15-16	45	275
1-HD-075-R	123A-1.1	RB	16.000	0.375	TB	410A 410C 410I	775'-0" 796'-6"	K-M	15-19	280	380
1-HD-076-R	123A-1.1	RB	10.750	0.365	TB	410A	775'-0"	L-M	18-19	280	380
1-HD-077-R	123A-1.1	RB	10.750	0.365	TB	410A	775'-0"	K-M	18-19	280	380
1-HD-078-R	123A-1.1	RB	10.750	0.365	TB	410A	775'-0"	K-M	18-19	280	380
1-HD-079-R	123A-1.1	RB	18.000	0.375	TB	410A	775'-0"	K-L	19-20	280	380
1-HD-080-R	123A-1.1	RB	16.000	0.375	TB	410A 410D 410I	775'-0" 796'-6"	H-K	15-19	280	380
1-HD-081-R	123A-1.1	RB	10.750	0.365	TB	410A	775'-0"	H-K	18-19	280	380
1-HD-082-R	123A-1.1	RB	10.750	0.365	TB	410A	775'-0"	J-K	18-19	280	380
1-HD-083-R	123A-1.1	RB	10.750	0.365	TB	410A	775'-0"	H-L	18-19	280	380
1-HD-084-R	123A-1.1	RB	18.000	0.375	TB	410A	775'-0"	J-K	19-20	280	380
1-HD-085-R	123A-1.2	RB	8.625	0.322	TB	410G	796'-6"	J-K	14-15	160	365
1-HD-086-R	123A-1.1	RB	10.750	0.365	TB	410A 410C	775'-0"	K-M	18-21	470	425
1-HD-087-R	123A-1.1	RB	10.750	0.365	TB	410A	775'-0"	K-L	20-21	470	425
1-HD-088-R	123A-1.1	RB	14.000	0.375	TB	410A	775'-0"	K-L	20-21	470	425
1-HD-089-R	123A-1.2	RB	10.750	0.365	TB	410L	775'-0" 796'-6"	H-J	14-15	160	365
1-HD-090-R	123A-1.1	RB	10.750	0.365	TB	410A 410D	792'-0"	H-L	18-21	470	425
1-HD-091-R	123A-1.1	RB	10.750	0.365	TB	410A	775'-0"	J-K	20-21	470	425
1-HD-092-R	123A-1.1	RB	14.000	0.375	TB	410A	775'-0"	J-K	20-21	470	425
1-HD-093	123A-1.1	TE	18.000	0.375	TB	410G	799'-6"	J-K	19-20	280	410
1-HD-094	123A-1.1	TE	18.000	0.375	TB	410G	799'-6"	K-L	19-20	280	410
1-HD-095	123A-1.2	TE	24.000	0.375	TB	410G	803'-3"	K-L	14-15	160	295
1-HD-096	123A-1.2	TE	24.000	0.375	TB	410G	803'-3"	J-K	14-15	160	295
1-HD-097-R	123A-1.2	RB	8.625	0.322	TB	410G	796'-6"	K-L	14-15	160	365
1-HD-098-R	123A-1.2	RB	10.750	0.365	TB	410L	775'-0" 796'-6"	L-M	14-15	160	365
1-HD-099-R	123A-1.5	RB	2.375	0.154	TB	410A	775'-0"	J-K	20-21	470	425
1-HD-100-R	123A-1.5	RB	2.375	0.154	TB	410A	775'-0"	J-K	20-21	470	425
1-HD-101-R	123A-1.5	RB	2.375	0.218	TB	410A	775'-0"	J-K	20-21	470	425
1-HD-102-R	123A-1.5	RB	2.375	0.218	TB	410A	775'-0"	J-K	20-21	470	425
1-HD-103-R	123A-1.5	RB	1.900	0.200	TB	410A	775'-0"	J-K	20-21	470	425

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. Or Break Elev. (See Note 5)	Location		Op Pres. (psig)	Op Temp. (°F)
								(Room No. or Column Numbers)			
1-HD-104-R	123A-1.5	RB	2.375	0.218	TB	410A	775'-0"	K-L	20-21	470	425
1-HD-105-R	123A-1.5	RB	2.375	0.154	TB	410A	775'-0"	J-K	19-20	280	410
1-HD-106-R	123A-1.5	RB	2.375	0.154	TB	410A	775'-0"	J-K	19-20	280	410
1-HD-107-R	123A-1.5	RB	2.375	0.218	TB	410A	775'-0"	J-K	19-20	280	410
1-HD-108-R	123A-1.5	RB	1.900	0.200	TB	410A	775'-0"	J-K	19-20	280	410
1-HD-109-R	123A-1.5	RB	2.375	0.218	TB	410A	775'-0"	J-K	19-20	280	410
1-HD-110-R	123A-1.5	RB	2.375	0.154	TB	410A	775'-0"	K-L	19-20	280	410
1-HD-111-R	123A-1.5	RB	2.375	0.154	TB	410A	775'-0"	K-L	19-20	280	410
1-HD-112-R	123A-1.5	RB	1.900	0.200	TB	410A	775'-0"	K-L	19-20	280	410
1-HD-113-R	123A-1.5	RB	2.375	0.218	TB	410A	775'-0"	K-L	19-20	280	410
1-HD-114-R	123A-1.5	RB	2.375	0.218	TB	410A	775'-0"	K-L	19-20	280	410
1-HD-115-R	123A-1.1 123A-1.2	RB	18.000	0.375	TB	410A 410C	775'-0"	L-M	14-15	160	365
1-HD-116-R	123A-1.2	RB	18.000	0.375	TB	410A 410C	775'-0"	L-M	14-16	160	365
1-HD-117-R	123A-1.1 123A-1.2	RB	16.000	0.375	TB	410C	775'-0"	L-M	14-15	160	365
1-HD-118-R	123A-1.1	RB	6.625	0.280	TB	410A 410C	775'-0"	L-M	14-16	280	380
1-HD-119-R	123A-1.1	RB	10.750	0.365	TB	410A 410C	775'-0"	L-M	15-16	280	380
1-HD-120-R	123A-1.1	RB	16.000	0.375	TB	410C	775'-0"	L-M	14-16	280	380
1-HD-121-R	123A-1.1 123A-1.2	RB	18.000	0.375	TB	410A 410D	775'-0"	H-J	14-15	160	365
1-HD-122-R	123A-1.2	RB	18.000	0.375	TB	410A 410D	775'-0"	H-K	14-16	160	365
1-HD-123-R	123A-1.1 123A-1.2	RB	16.000	0.375	TB	410D	775'-0"	H-J	14-15	160	365
1-HD-124-R	123A-1.1	RB	6.625	0.280	TB	410A 410D	775'-0"	H-J	14-16	280	380
1-HD-125-R	123A-1.1	RB	10.750	0.365	TB	410A 410D	775'-0"	H-J	15-16	280	380
1-HD-126-R	123A-1.1	RB	16.000	0.375	TB	410D	775'-0"	H-J	14-16	280	380
1-HD-127-R	123A-1.3 123A-1.2	RB	18.000	0.375	TB	410A 410C	775'-0"	L-M	15-17	45	275
1-HD-128-R	123A-1.3 123A-1.2	RB	18.000	0.375	TB	410A 410D	775'-0"	H-K	15-17	45	275
1-HD-129-R	123A-1.5	RB	2.375	0.218	TB	410A	775'-0"	J-K	20-21	470	425
1-HD-130-R	123A-1.1	RB	16.000	0.375	TB	410G	796'-6"	J-K	18-19	470	425
1-HD-131-R	123A-1.1	RB	4.500	0.237	TB	410G	796'-6"	J-K	18-19	470	425
1-HD-132-R	123A-1.1	RB	10.750	0.365	TB	410G	796'-6"	J-K	18-19	470	425
1-HD-133-R	123A-1.1	RB	4.500	0.237	TB	410G	796'-6"	J-K	18-19	470	425
1-HD-134-R	123A-1.1	RB	16.000	0.375	TB	410G	796'-6"	J-K	18-19	470	425
1-HD-135-R	123A-1.1	RB	16.000	0.375	TB	410I	796'-6"	J-K	18-19	470	425
1-HD-136-R	123A-1.1	RB	16.000	0.375	TB	410G	796'-6"	K-L	18-20	470	425
1-HD-137-R	123A-1.1	RB	4.500	0.237	TB	410G	796'-6"	K-L	18-19	470	425

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. Or Break Elev. (See Note 5)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-HD-138-R	123A-1.1	RB	10.750	0.365	TB	410G	796'-6"	K-L	18-19	470	425
1-HD-139-R	123A-1.1	RB	4.5	0.237	TB	410G	796'-6"	K-L	18-19	470	425
1-HD-140-R	123A-1.1	RB	16.000	0.375	TB	410G	796'-6"	K-L	18-19	470	425
1-HD-141-R	123A-1.1	RB	16.000	0.375	TB	410I	796'-6"	K-L	18-19	470	425

Notes:

1. Break numbers may not be consecutive
2. Break type: RB – Running Break (Piping not analyzed for seismic), TE – Terminal End, IB – Intermediate Break
3. Building: TB – Turbine Building, AB – Auxiliary Building.
- 4.- Each running break may contain one or more sub-breaks. For the Unit 1 Heater Drain System 4 Terminal End Breaks and 137 Running Breaks were considered; the non-excluded breaks listed in this table include 4 Terminal End Breaks and 137 Running Breaks.
5. For Terminal End Break locations the elevation of the break location is given. For each Running Break the elevation of the floor or room that contains the Running Break is given.
6. Other Abbreviations: OD – Outer Diameter, in – inches, Op - operating



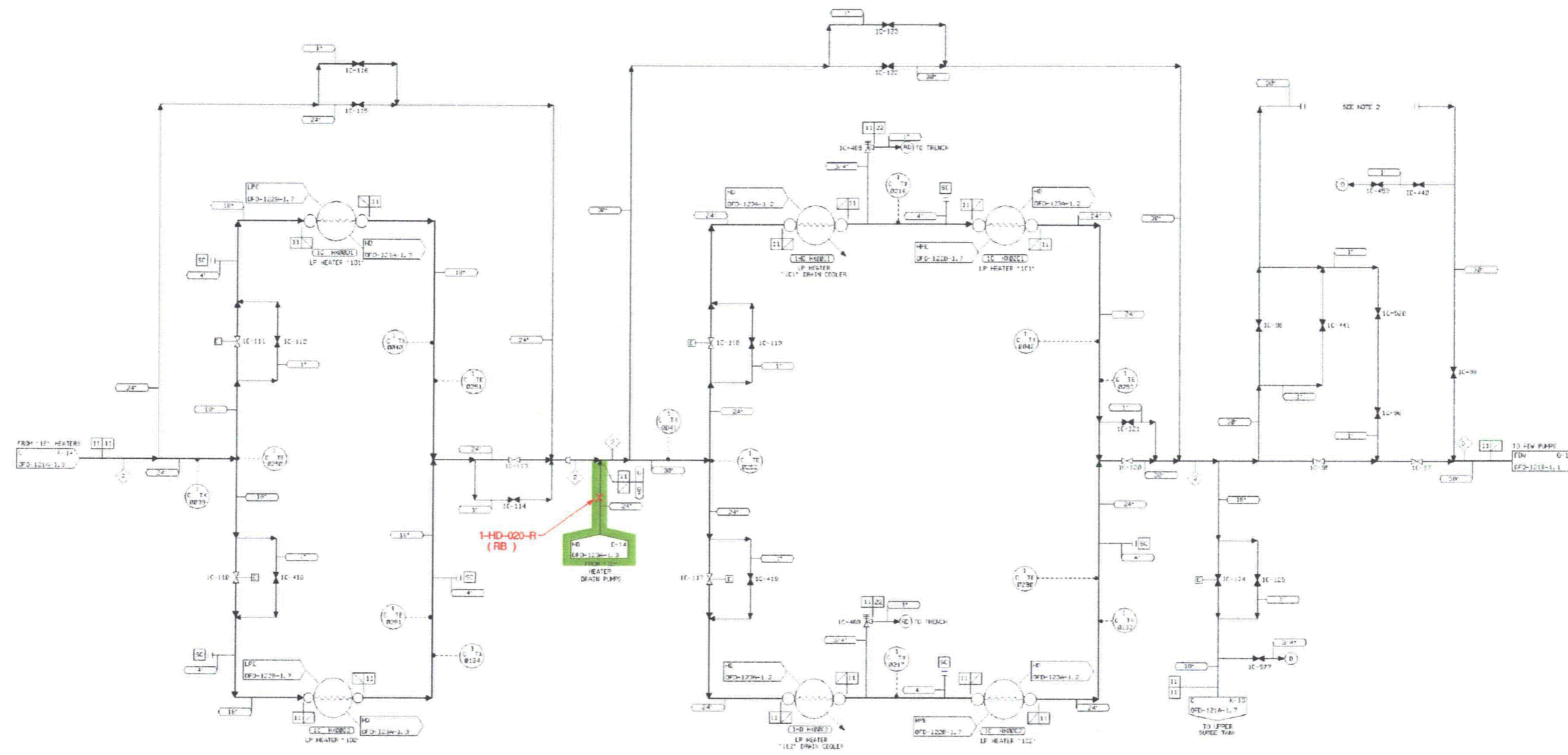
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ↑ - Running Break Boundary

FIGURE 4.1-5
HEATER DRAIN SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 1 of 7)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-121A-1.9 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-121A-01-09



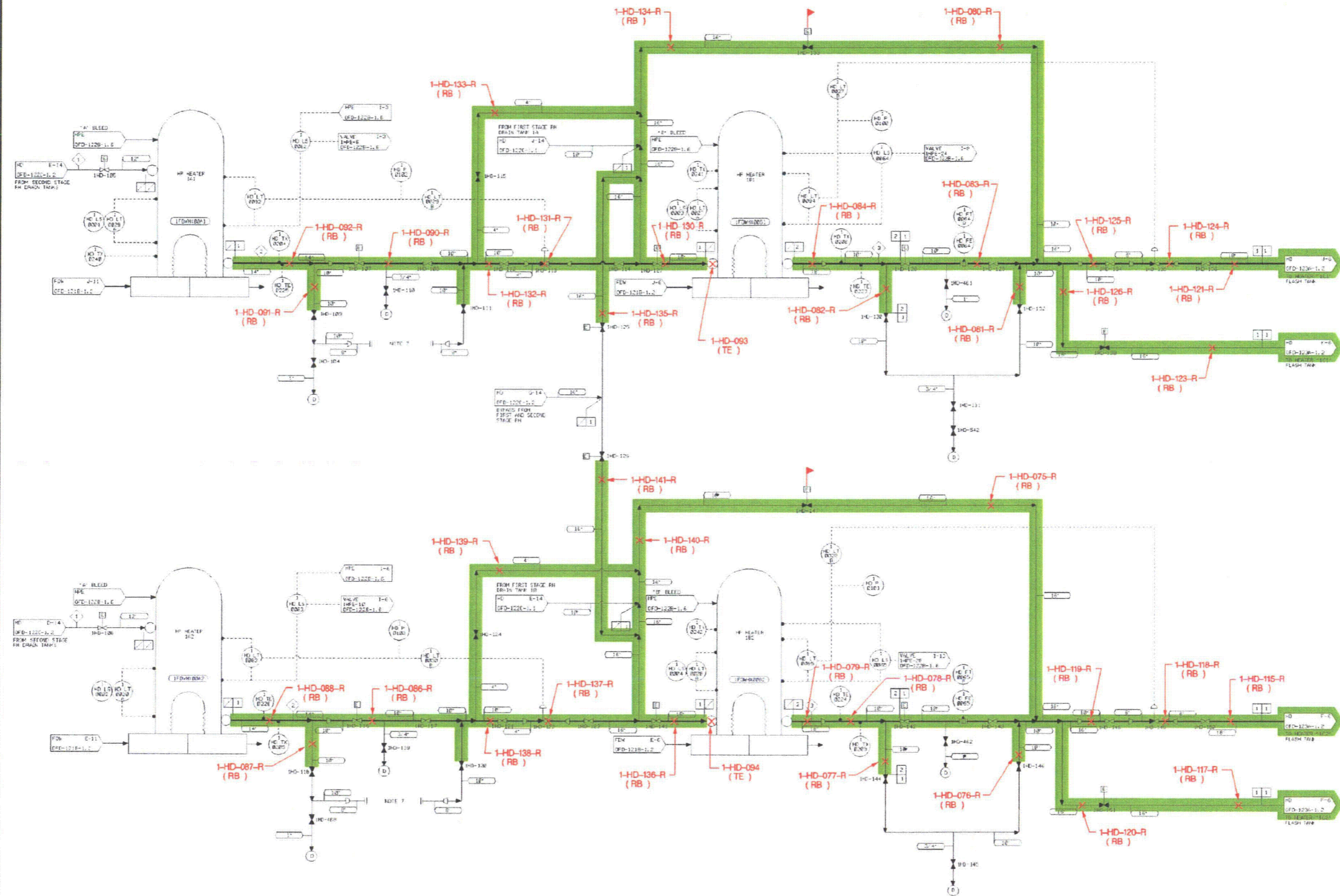
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - |— - Running Break Boundary

FIGURE 4.1-5
HEATER DRAIN SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 2 of 7)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-121A-1.10 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-121A-01-10



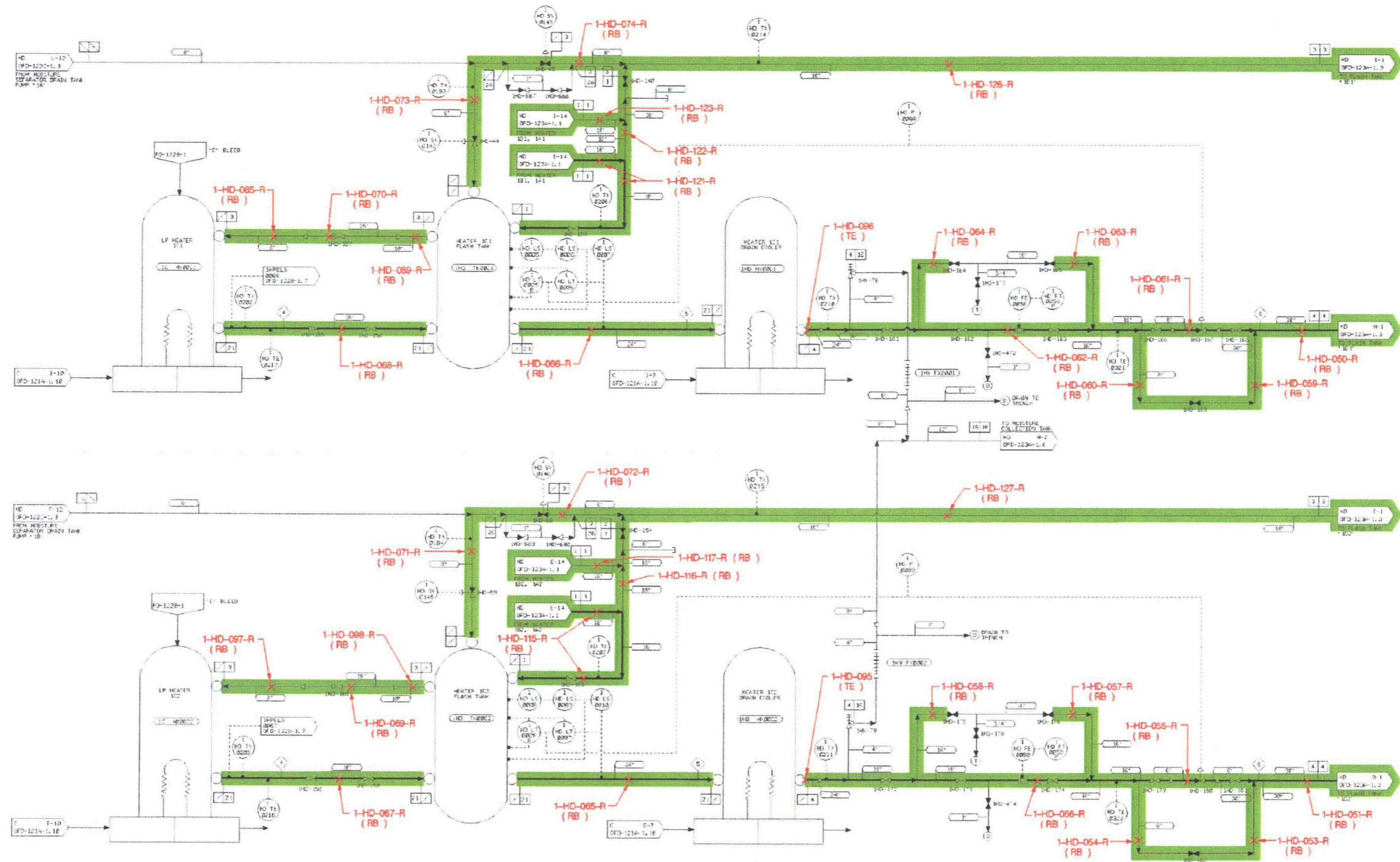
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ▶ - Running Break Boundary

FIGURE 4.1-5
HEATER DRAIN SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 3 of 7)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-123A-1.1 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-123A-01-01

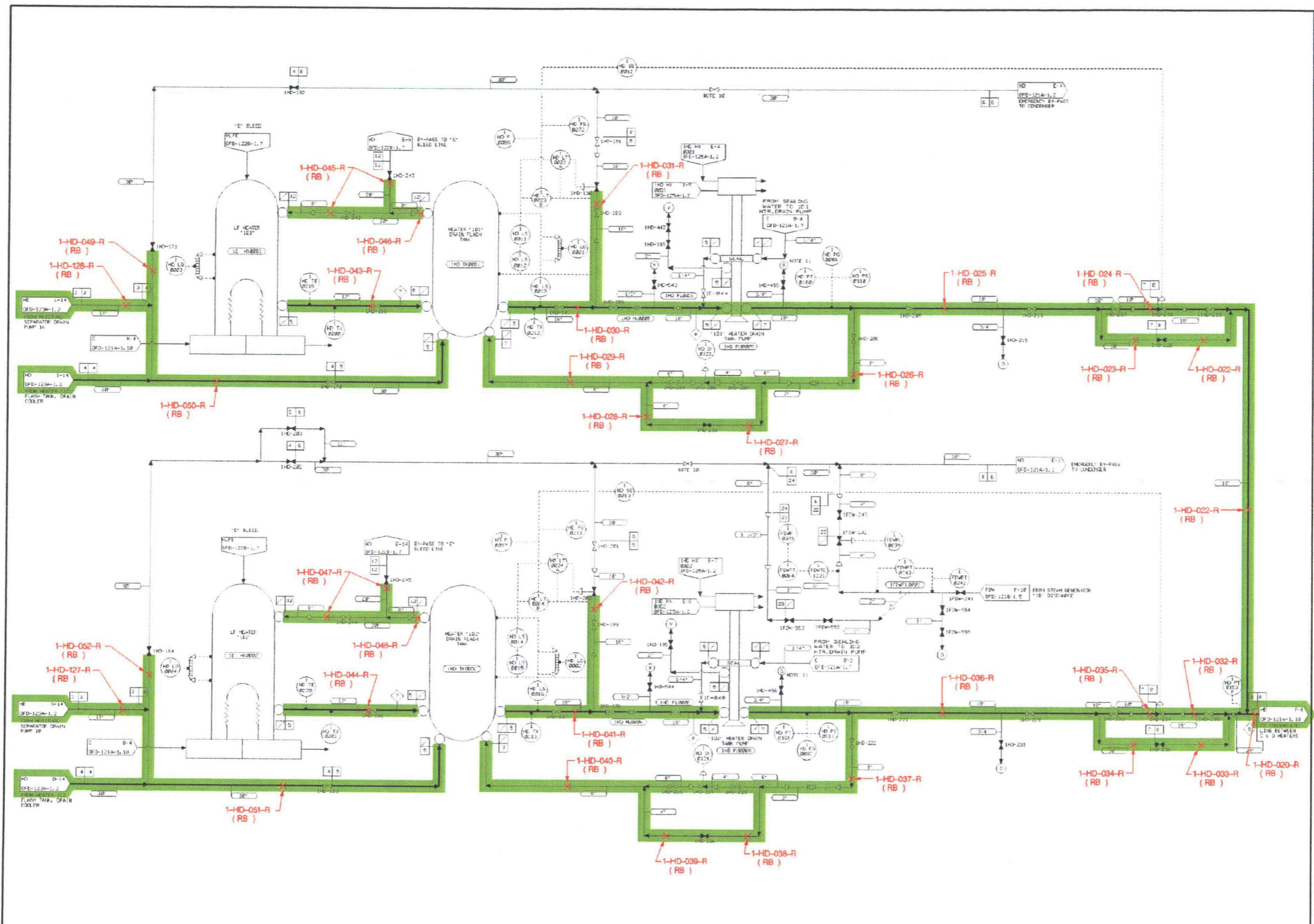


- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ▶ - Running Break Boundary

FIGURE 4.1-5
HEATER DRAIN SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 4 of 7)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-123A-1.2 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.



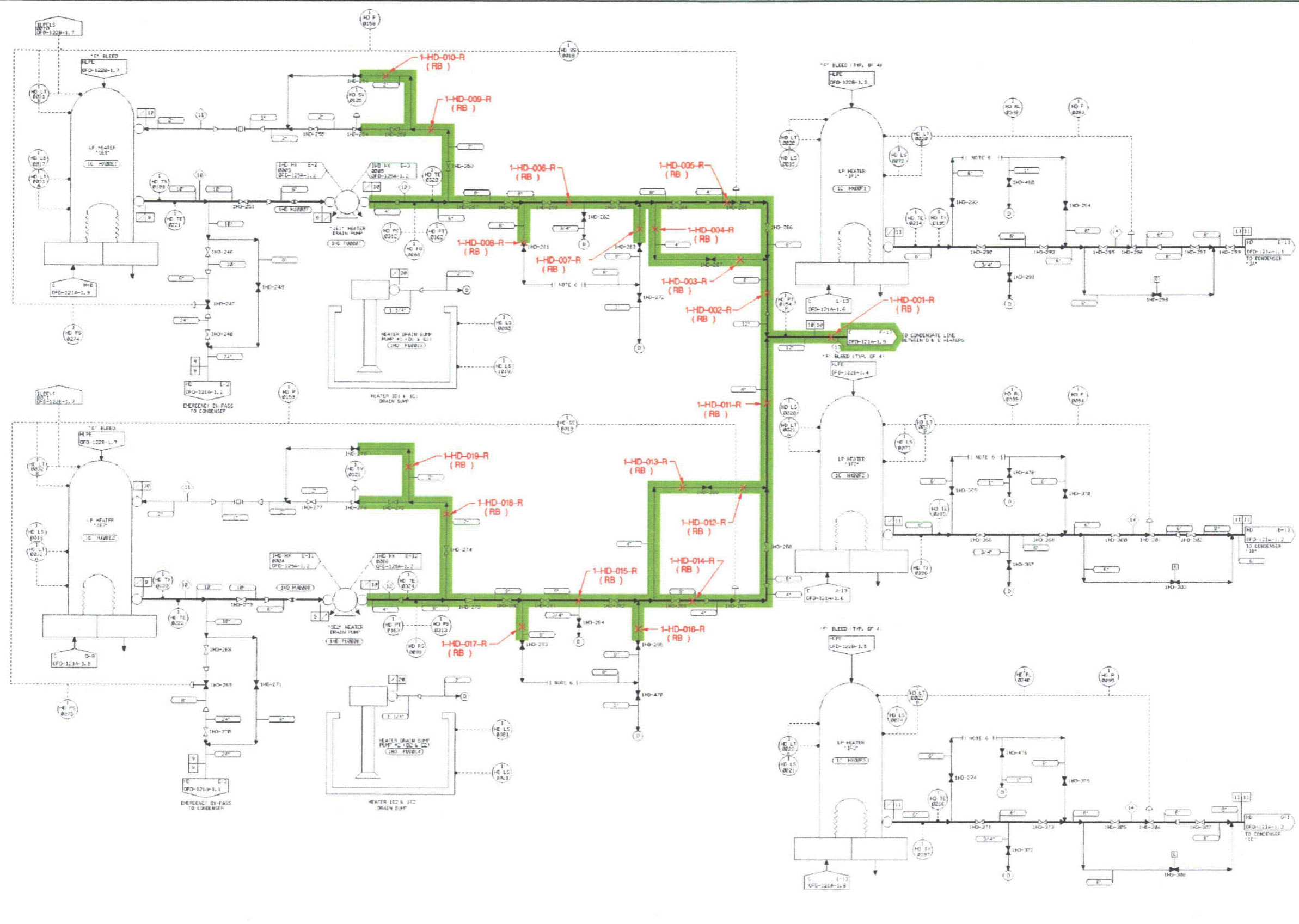
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ↑ - Running Break Boundary

FIGURE 4.1-5
HEATER DRAIN SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 5 of 7)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-123A-1.3 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-123A-01-03



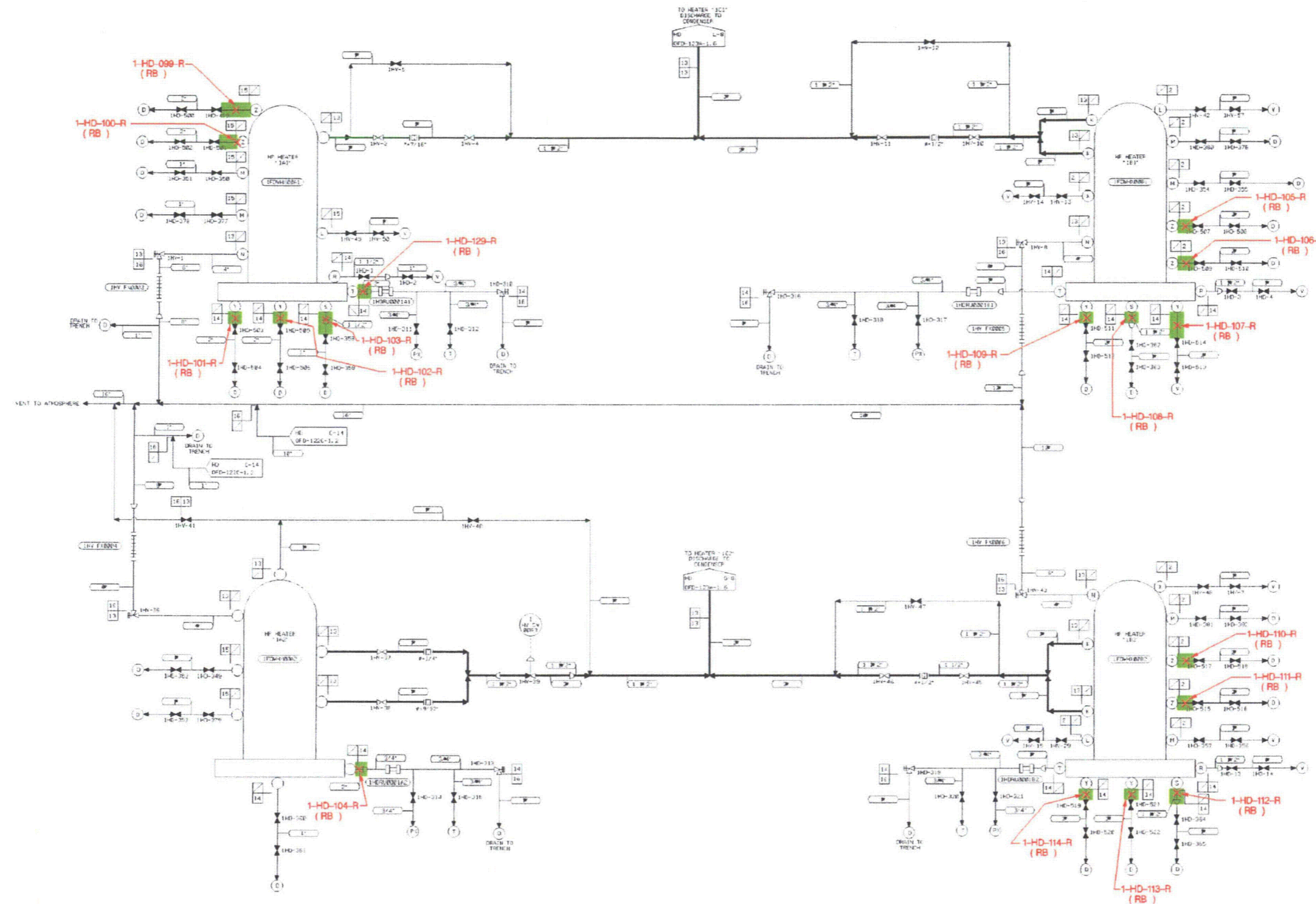
LEGEND

- High Energy Piping (Unit 1)
- High Energy Piping (Unit 2)
- High Energy Piping (Unit 3)
- X High Energy Line Break Location
- N-SYS-ANN (-N) Break Number
- TE Terminal End (Break)
- RB Running Break
- CR Critical Crack
- IB Intermediate Break
- ▶ Running Break Boundary

**FIGURE 4.1-5
HEATER DRAIN SYSTEM**
High Energy Lines, Piping Configurations,
Boundaries, Break Locations and Numbers
(Sheet 6 of 7)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
BREAK PURPOSES ONLY.
REFERENCE FLOW DIAGRAM OFD-123A-1.4 FOR
COMPLETE SYSTEM DESIGN INFORMATION.



- LEGEND**
- █ - High Energy Piping (Unit 1)
 - █ - High Energy Piping (Unit 2)
 - █ - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNIN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ▶ - Running Break Boundary

**FIGURE 4.1-5
HEATER DRAIN SYSTEM**
High Energy Lines, Piping Configurations,
Boundaries, Break Locations and Numbers
(Sheet 7 of 7)

UNIT 1

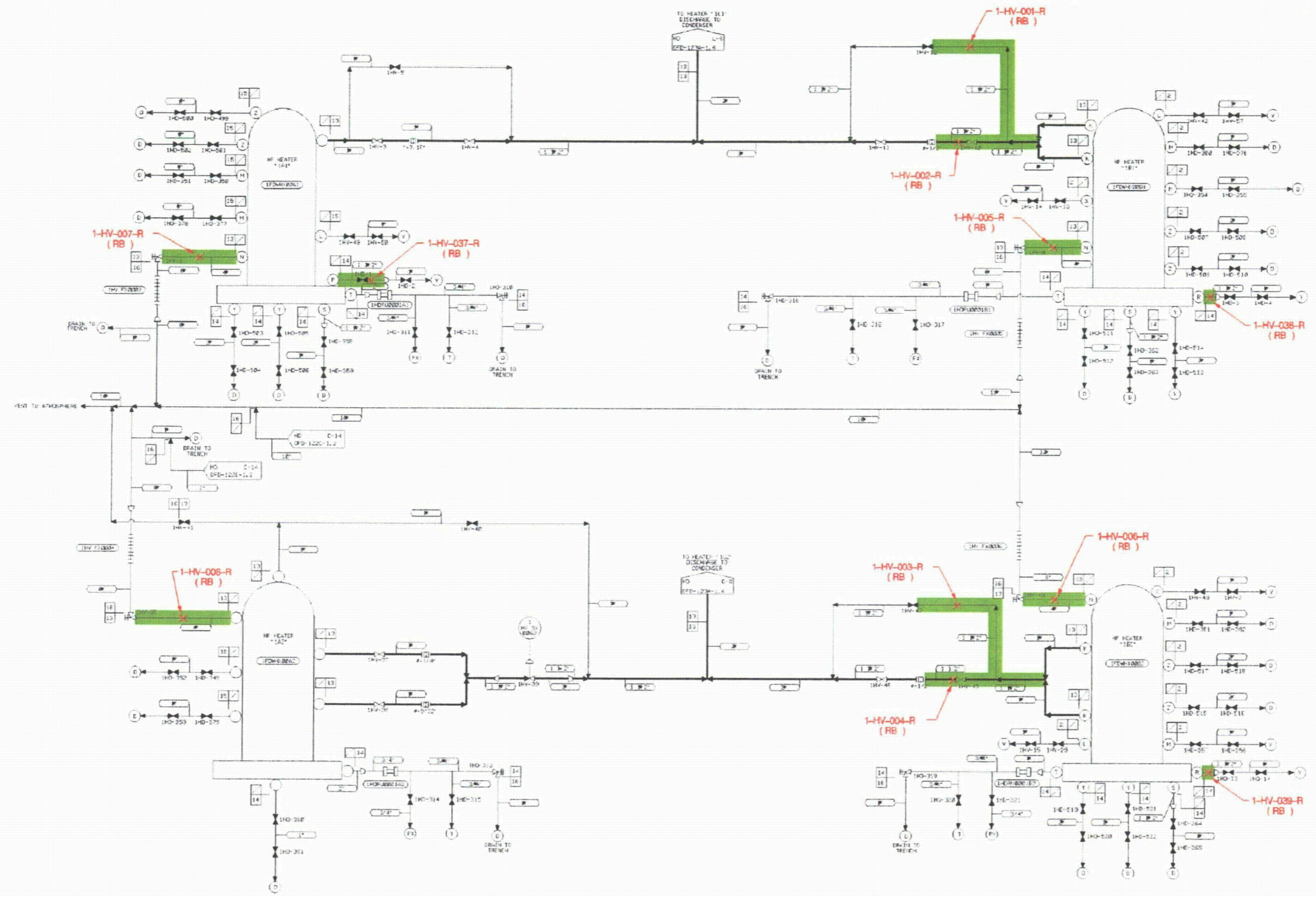
THIS DIAGRAM IS FOR HIGH ENERGY LINE
BREAK PURPOSES ONLY.
REFERENCE FLOW DIAGRAM OFD-123A-1.5 FOR
COMPLETE SYSTEM DESIGN INFORMATION.

HFI R-123A-01-05

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev.	Location (Room No. or Column Numbers)	Op Pres. (psig)	Op Temp. (°F)
1-HV-001-R	123A-1.5	RB	1.900	0.145	TB	410M	796'-6"	J-K 19-20	280	410
1-HV-002-R	123A-1.5	RB	1.900	0.145	TB	410M	796'-6"	J-K 19-20	280	410
1-HV-003-R	123A-1.5	RB	1.900	0.145	TB	410M	796'-6"	L 19-20	280	410
1-HV-004-R	123A-1.5	RB	1.900	0.145	TB	410M	796'-6"	L 19-20	280	410
1-HV-005-R	123A-1.5	RB	4.500	0.237	TB	410G	796'-6"	J-K 19-20	280	410
1-HV-006-R	123A-1.5	RB	4.500	0.237	TB	410G	796'-6"	K-L 19-20	280	410
1-HV-007-R	123A-1.5	RB	4.500	0.237	TB	410G	796'-6"	J-K 20-21	470	425
1-HV-008-R	123A-1.5	RB	4.500	0.237	TB	410G	796'-6"	K-L 20-21	470	425
1-HV-009-R	123A-1.6	RB	4.500	0.237	TB	410G	796'-6"	J-K 14-15	160	365
1-HV-010-R	123A-1.6	RB	4.500	0.237	TB	410G	796'-6"	K-L 14-15	160	365
1-HV-011-R	123A-1.6	RB	6.625	0.280	TB	410G	796'-6"	J-K 16-17	45	275
1-HV-012-R	123A-1.6	RB	6.625	0.280	TB	410G	796'-6"	K-L 16-17	45	275
1-HV-013-R	123A-1.6	RB	3.500	0.216	TB	410M	796'-6"	J-K 14-15	160	365
1-HV-014-R	123A-1.6	RB	3.500	0.216	TB	410M	775'-0" 796'-6"	J-K 14-15	160	365
1-HV-015-R	123A-1.6	RB	3.500	0.216	TB	410M	796'-6"	J-K 16-17	45	275
1-HV-016-R	123A-1.6	RB	3.500	0.216	TB	410M	775'-0" 796'-6"	J-K 16-17	45	275
1-HV-017-R	123A-1.6	RB	3.500	0.216	TB	410T	796'-6"	K-L 14-15	160	365
1-HV-018-R	123A-1.6	RB	3.500	0.216	TB	410T	775'-0" 796'-6"	K-L 14-15	160	365
1-HV-019-R	123A-1.6	RB	3.500	0.216	TB	410T	796'-6"	K-L 16-17	45	275
1-HV-020-R	123A-1.6	RB	3.500	0.216	TB	410T	775'-0" 796'-6"	K-L 16-17	45	275
1-HV-021-R	123A-1.2	RB	4.500	0.237	TB	410G	796'-6"	J-K 14-15	160	295
1-HV-022-R	123A-1.2	RB	4.500	0.237	TB	410G	796'-6"	L 14-15	160	295
1-HV-037-R	123A-1.5	RB	1.900	0.200	TB	410M	775'-0"	J-K 20-21	470	425
1-HV-038-R	123A-1.5	RB	1.900	0.200	TB	410M	775'-0"	J-K 19-20	280	410
1-HV-039-R	123A-1.5	RB	1.900	0.200	TB	410M	775'-0"	K-L 19-20	280	410

Notes:

1. Break numbers may not be consecutive
2. Break type: RB – Running Break (Piping not analyzed for seismic), TE – Terminal End, IB – Intermediate Break
3. Building: TB – Turbine Building, AB – Auxiliary Building
4. Each running break may contain one or more sub-breaks. For the Unit 1 Heater Vent System 39 Running Breaks were considered; the 25 non-excluded, Running Breaks are listed in this table.
5. For each Running Break the elevation of the floor or room that contains the Running Break is given.
6. Other Abbreviations: OD – Outer Diameter, in – inches, Op - operating

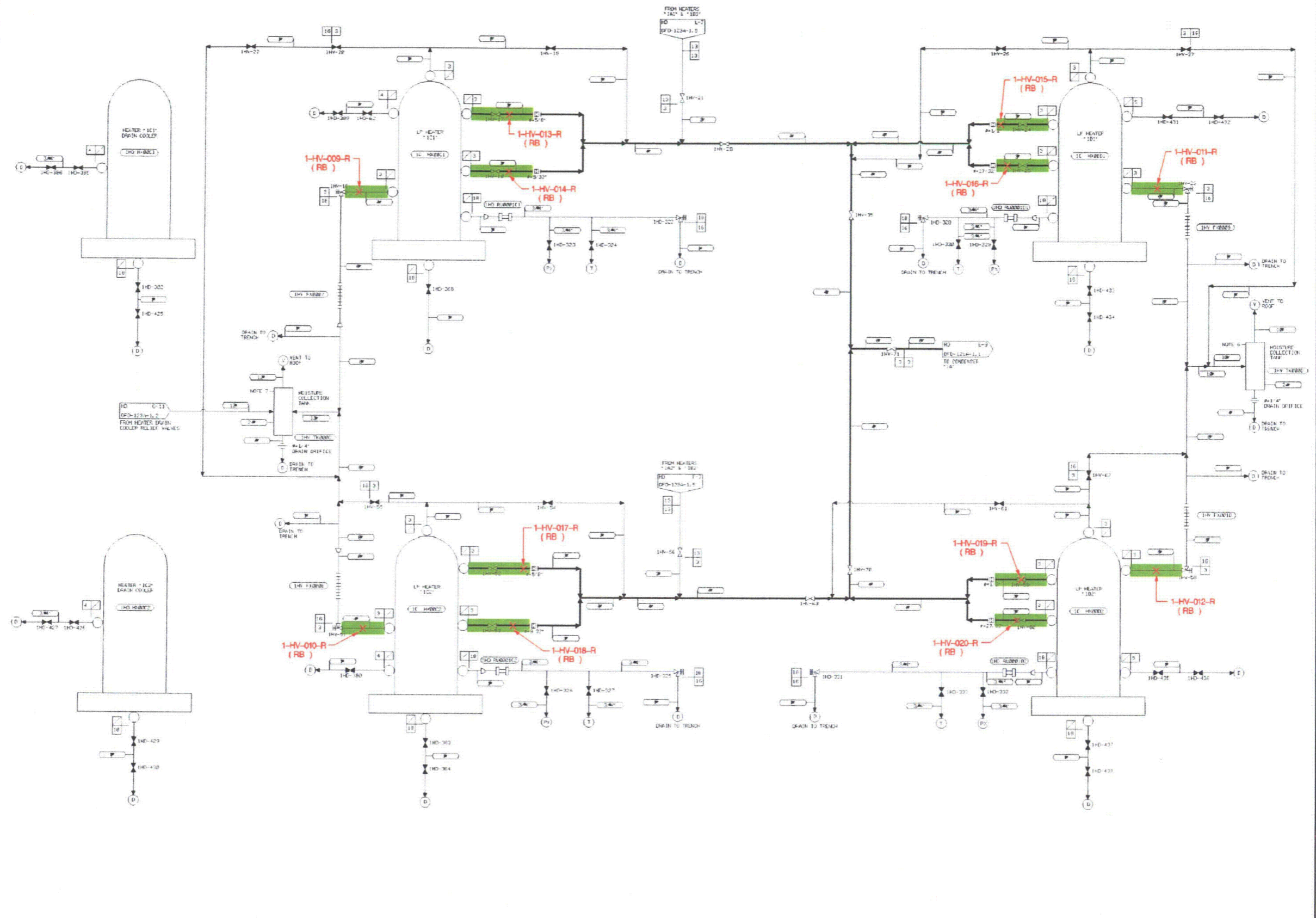


- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ▶ - Running Break Boundary

FIGURE 4.1-6
HEATER VENT SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 1 of 3)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-123A-1.5 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.



LEGEND

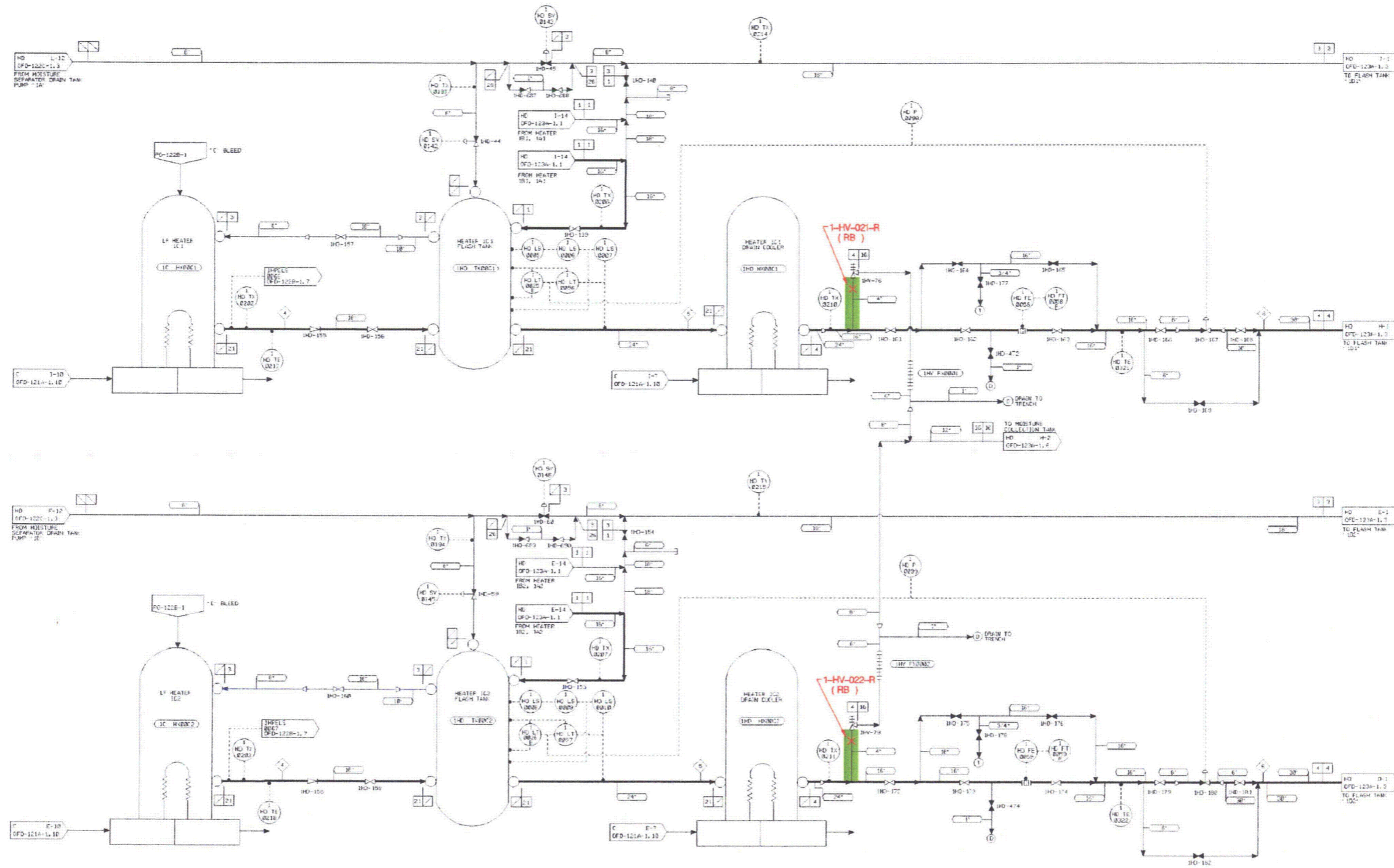
- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- ▶ - Running Break Boundary

FIGURE 4.1-6
HEATER VENT SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 2 of 3)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-123A-1.6 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-123A-01-06



LEGEND

- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- ↑ - Running Break Boundary

**FIGURE 4.1-6
HEATER VENT SYSTEM**

High Energy Lines, Piping Configurations,
Boundaries, Break Locations and Numbers
(Sheet 3 of 3)

UNIT 1

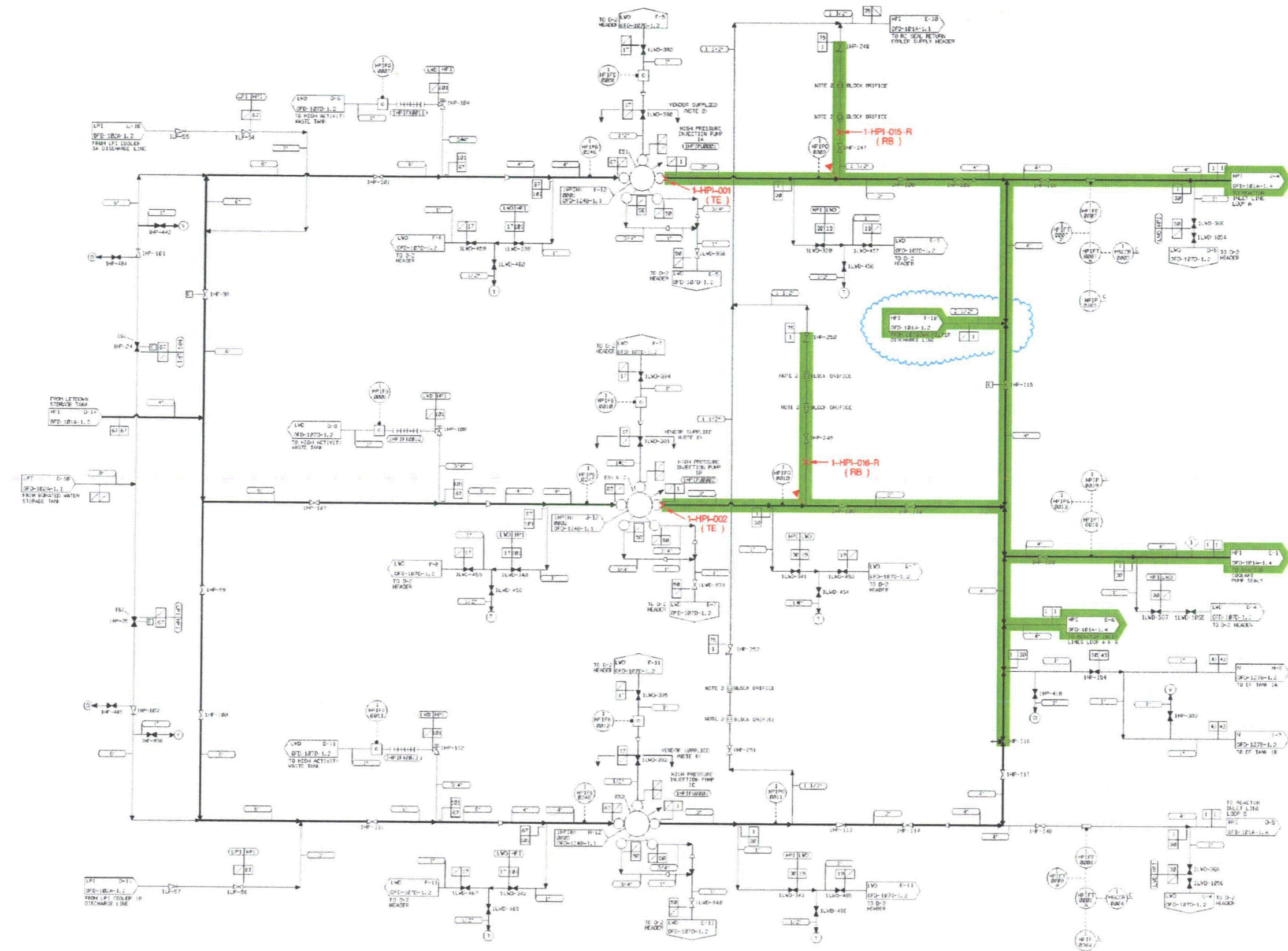
THIS DIAGRAM IS FOR HIGH ENERGY LINE
BREAK PURPOSES ONLY.
REFERENCE FLOW DIAGRAM OFD-123A-1.2 FOR
COMPLETE SYSTEM DESIGN INFORMATION.

HELB-123A-01-02

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in.)	Pipe Thickness (in.)	Building	Layout Drawing (O-)	Floor Elev. Or Break Elev. (See Note 5)	Location (Room No.)	Op Pres. (psig)	Op Temp. (°F)
1-HPI-001	101A-1.3	TE	3.5	.438	AB	435D	760'-2"	54	3028	150
1-HPI-002	101A-1.3	TE	3.5	.438	AB	435D	760'-2"	54	3028	150
1-HPI-003	101A-1.4	TE	1.9	.4	AB	439A	816'-0"	402	3028	150
1-HPI-004	101A-1.4	TE	1.9	.4	AB	439C	812'-0"	409	3028	150
1-HPI-005	101A-1.4	TE	1.9	.4	AB	439C	812'-0"	409	3028	150
1-HPI-006	101A-1.4	TE	1.9	.4	AB	439A	816'-0"	402	3028	150
1-HPI-007	101A-1.4	TE	4.5	.674	AB	439A	812'-0"	402	3028	150
1-HPI-008	101A-1.1	TE	2.875	.552	AB	439A	812'-0"	402	2263	142
1-HPI-015-R	101A-1.3	RB	1.9	.281	AB	435D	758'-0"	54	3028	150
1-HPI-016-R	101A-1.3	RB	1.9	.281	AB	435D	758'-0"	54	3028	150

Notes:

1. Break numbers may not be consecutive
2. Break type: RB – Running Break (Piping not analyzed for seismic), TE – Terminal End, IB – Intermediate Break, CR – Critical Crack
3. Building: TB – Turbine Building, AB – Auxiliary Building.
4. Each running break may contain one or more sub-breaks. For the Unit 1 High Pressure Injection System the eight (8) non-excluded, Terminal End Breaks and the two (2) non-excluded, Running Breaks are listed in this table.
5. For Terminal End Break locations the elevation of the break location is given. For each Running Break the elevation of the floor or room that contains the Running Break is given.
6. Other Abbreviations: OD – Outer Diameter, in – inches, Op - operating



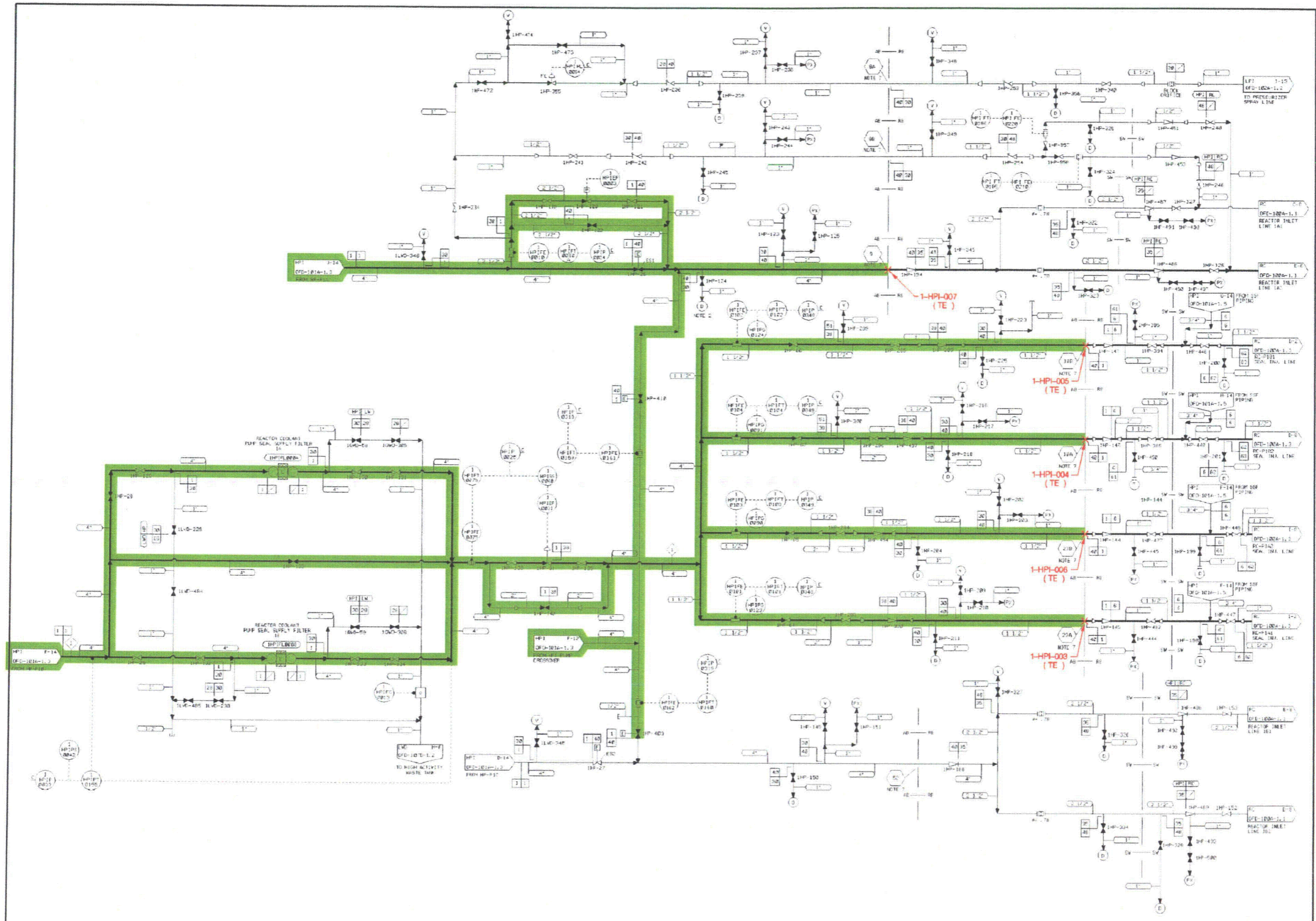
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - |— - Running Break Boundary

FIGURE 4.1-7
HIGH PRESSURE INJECTION SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 1 of 4)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-101A-1.3 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-101A-01-03



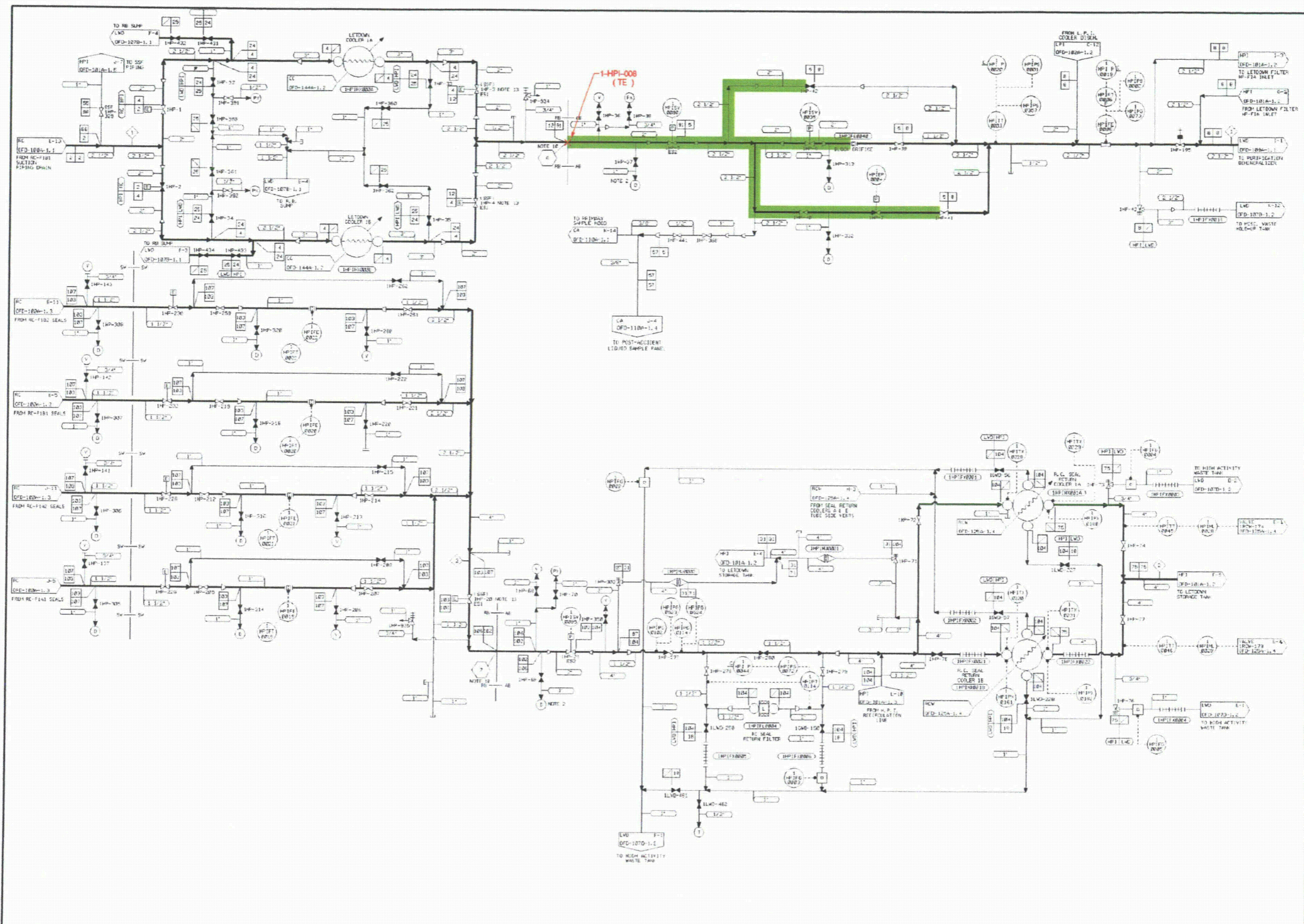
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - P - Running Break Boundary

FIGURE 4.1-7
HIGH PRESSURE INJECTION SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 2 of 4)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-101A-1.4 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-101A-01-04



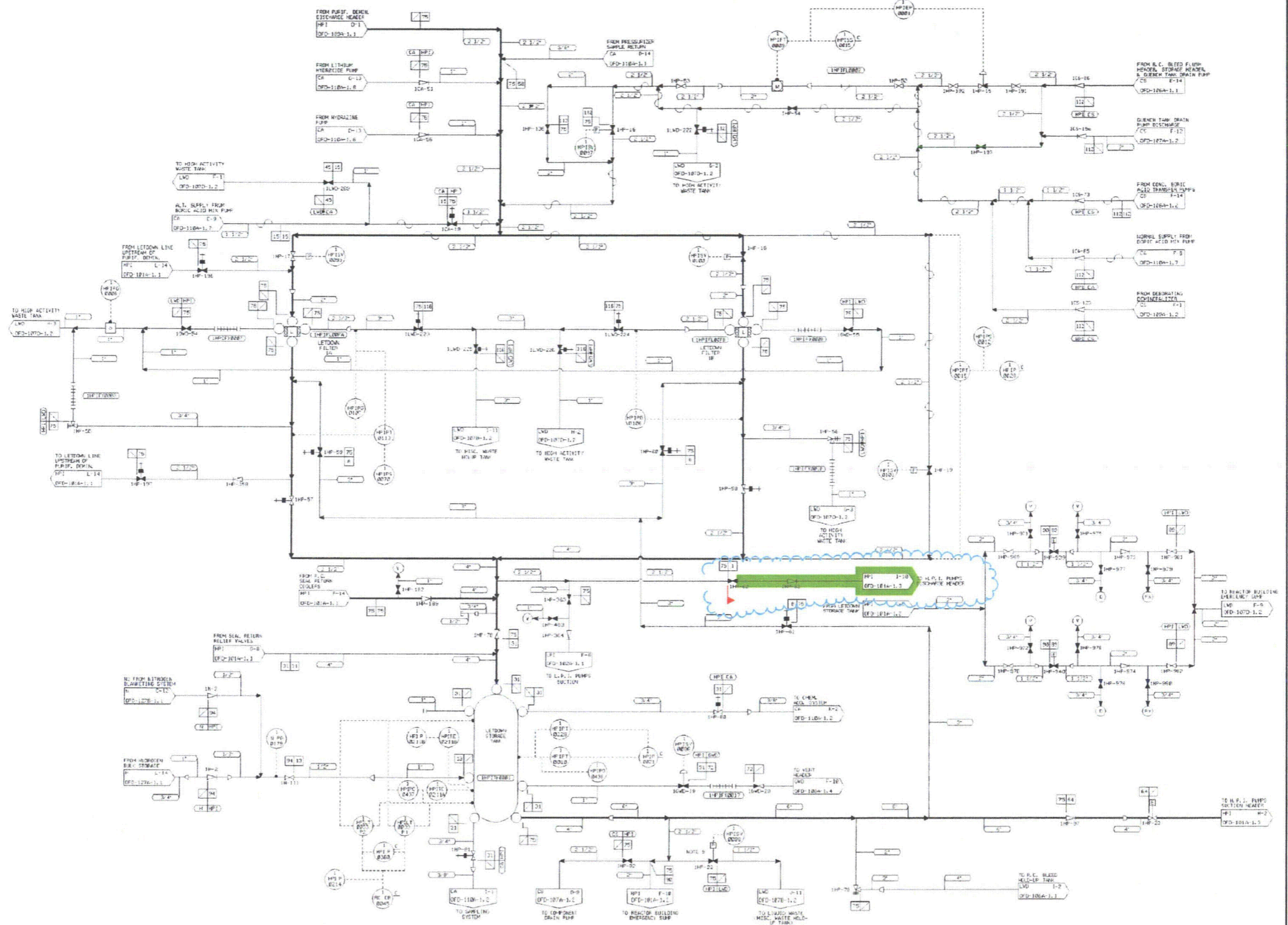
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ▶ - Running Break Boundary

FIGURE 4.1-7
HIGH PRESSURE INJECTION SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 3 of 4)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-101A-1.1 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HFI R-101A-01-01



LEGEND

- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- P - Running Break Boundary

FIGURE 4.1-7
HIGH PRESSURE INJECTION SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers

(Sheet 4 of 4)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-101A-1.2 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-101A-01-02

Table 4.1-8
 Main Steam System – High Energy Line Data – Unit 1

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-) See Note 6	Floor Elev. or Break Elev. (See Note 5)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-MS-001	122B-1.2	TE	28.000	1.400	TB	401A	830'-0"	F-E	16-17	900	595
1-MS-002	122B-1.2	TE	28.000	1.400	TB	401A	820'-9"	F-E	16-17	900	595
1-MS-003	122B-1.2	TE	28.000	1.400	TB	401A	830'-0"	F-E	16-17	900	595
1-MS-004	122B-1.2	TE	28.000	1.400	TB	401A	820'-9"	F-E	16-17	900	595
1-MS-008	122A-1.1	TE	12.750	0.562	TB	401A	813'-0"	L-M	17-18	900	595
1-MS-009	122A-1.1	TE	12.750	0.562	TB	401A	813'-0"	L-M	16-17	900	595
1-MS-010	122C-1.2	TE	8.625	0.500	TB	410H	806'-9"	H-J	14-15	900	595
1-MS-011	122C-1.2	TE	8.625	0.500	TB	410H	806'-9"	H-G	13-14	900	595
1-MS-012	122A-1.1	TE	12.750	0.562	TB	401H	812'-0"	F-G	13-14	900	595
1-MS-013	122C-1.2	TE	8.625	0.500	TB	410H	806'-8"	B-C	14-15	900	595
1-MS-014	122C-1.2	TE	8.625	0.500	TB	410H	806'-8"	C-D	13-14	900	595
1-MS-015	122A-1.1	TE	12.750	0.562	TB	401H	812'-0"	F-E	13-14	900	595
1-MS-016	122A-1.4	TE	6.625	0.280	TB	400H	777'-8"	C-D	19-20	310	507
1-MS-017	122A-1.1	TE	6.625	0.432	TB	401H	812'-0"	F-E	13-14	900	595
1-MS-018	122A-1.1	TE	6.625	0.432	TB	401H	812'-0"	F-E	13-14	900	595
1-MS-019	122A-1.1	TE	8.625	0.500	TB	401H	812'-0"	F-G	13-14	900	595
1-MS-020	122A-1.1	TE	8.625	0.500	TB	401H	812'-0"	F-E	13-14	900	595
1-MS-021	122A-1.3	TE	4.500	0.337	TB	400B	782'-0"	C	23-24	900	595
1-MS-022	122A-1.3	TE	4.500	0.337	TB	400B	782'-0"	C	25-26	900	595
1-MS-023	122A-1.1	TE	12.750	0.562	TB	441	827'-0"	M-N	62-63	900	595
1-MS-024	122A-1.1	TE	12.750	0.562	TB	441	827'-0"	L-M	63-64	900	595
1-MS-037-R	121C-1.1 122A-1.3	RB	2.375	0.218	TB	403C 400J	796'-6" 775'-0"	D-E	16-18	900	595
1-MS-038-R	122A-1.3	RB	3.500	0.300	TB	401M	796'-6"	B-C	23-25	900	595
1-MS-064	122A-1.1	TE	36.500	1.125	Yard	441	853'-9"	X-W	64-65	900	595
1-MS-065	122A-1.1	TE	36.500	1.125	AB-EPR	441	835'-0"	R-S	64-65	900	595
1-MS-077-R	122A-1.3	RB	2.375	.218	TB	401F	796'-6"	F-H	25-26	900	595
1-MS-078-R	122A-1.3	RB	2.375	.218	TB	401F	796'-6"	F-G	25-26	900	595
1-MS-079-R	122A-1.3	RB	2.375	.218	TB	401F	796'-6"	G-H	25-26		
1-MS-080-R	122A-1.3	RB	3.500	0.300	TB	403D	796'-6"	B-H	24-27	300	505
1-MS-081-R	121C-1.2 122A-1.3	RB	2.375	0.218	TB	401F	796'-6"	G-H	25-26	300	505
1-MS-082-R	121C-1.2 122A-1.3	RB	2.375	0.218	TB	401F	796'-6"	G-F	25-26	300	505
1-MS-083-R	121C-1.2 122A-1.3	RB	2.375	0.218	TB	401F	796'-6"	G-H	25-26	300	505
1-MS-084-R	121C-1.2	RB	2.375	0.218	TB	403J	796'-6"	G-F	25-26	300	505
1-MS-085-R	121C-1.2	RB	2.375	0.218	TB	403J	796'-6"	G-H	25-26	300	505

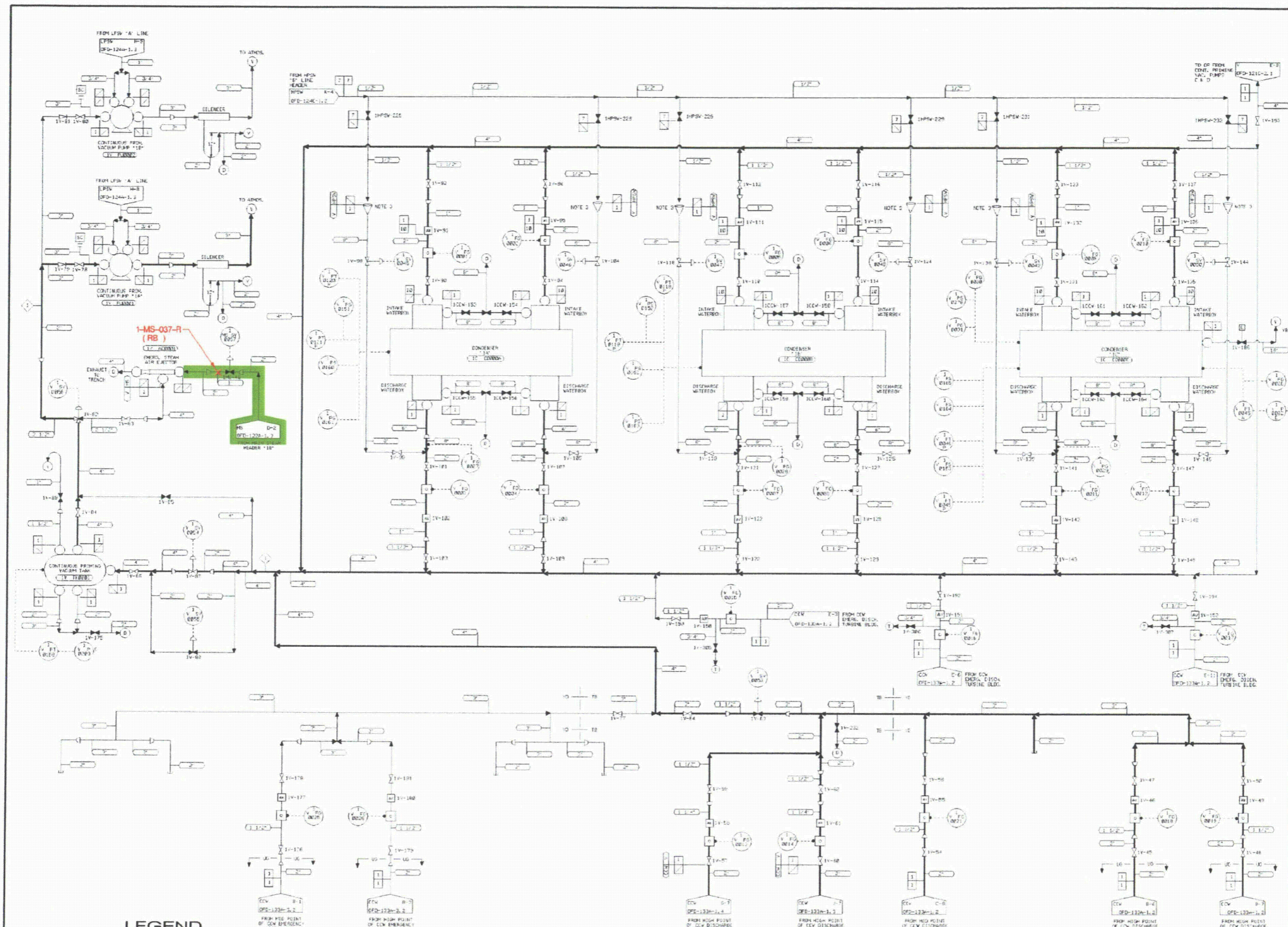
Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-) See Note 6	Floor Elev. or Break Elev. (See Note 5)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-MS-086-R	121C-1.2	RB	2.375	0.218	TB	403J	796'-6"	G-H	25-26	300	505
1-MS-087-R	121C-1.2	RB	2.375	0.218	TB	403D	796'-6"	G-F	25-26	300	505
1-MS-088-R	121C-1.2	RB	2.375	0.218	TB	403D	796'-6"	G-F	25-26	300	505
1-MS-089-R	121C-1.2	RB	2.375	0.218	TB	403D	796'-6"	G-H	25-26	300	505
1-MS-090-R	121C-1.2	RB	2.375	0.218	TB	403D	796'-6"	G-H	25-26	300	505
1-MS-091-R	121C-1.2	RB	2.375	0.218	TB	403D	796'-6"	G-H	25-26	300	505
1-MS-092-R	121C-1.2	RB	2.375	0.218	TB	403D	796'-6"	G-H	25-26	300	505
1-MS-093-R	122B-1.1	RB	3.5	.3	TB	OM-200-94	796'-6"	D-E	14-15	900	595
1-MS-094-R	122A-1.2 128A-1.1	RB	8.625	0.500	TB	403C	796'-6"	L-M	15-17	900	595
1-MS-095-R	128A-1.1	RB	6.625	0.432	TB	403C	796'-6"	L-M	14-15	900	595
1-MS-096-R	128A-1.1	RB	6.625	0.432	TB	403C	796'-6"	L-M	15-16	900	595
1-MS-097-R	128A-1.1	RB	2.375	0.218	TB	403C	796'-6"	L-M	14-16	900	595
1-MS-098-R	121C-1.2	RB	2.875	0.203	TB	403D OM-202-0009	796'-6"	F-G	25-26	300	505
1-MS-099-R	121C-1.2	RB	2.875	0.203	TB	403D OM-202-0009	796'-6"	G-H	25-26	300	505
1-MS-100-R	121C-1.2	RB	2.875	0.203	TB	403D OM-202-0009	796'-6"	G-H	25-26	300	505
1-MS-201	122A-1.1	IB	12.750	0.562	TB	401G	813'-0"	L-M	17-18	900	595
1-MS-202	122A-1.1	IB	12.750	0.562	TB	401G	813'-0"	L-M	17-18	900	595
1-MS-203	122A-1.2	IB	6.625	0.432	TB	401G	813'-0"	L-M	17-18	900	595
1-MS-204	122A-1.2	IB	6.625	0.432	TB	401G	811'-1"	L-M	17-18	900	595
1-MS-205	122A-1.2	IB	6.625	0.432	TB	401A	805'-0"	L-M	16-17	900	595
1-MS-206	122C-1.2	IB	8.625	0.5	TB	410H	807'-0"	H-G	13-14	900	595
1-MS-207	122C-1.2	IB	8.625	0.5	TB	410H	807'-0"	C-D	13-14	900	595
1-MS-208	122C-1.2	IB	8.625	0.5	TB	410H	807'-0"	C-D	13-14	900	595
1-MS-209	122C-1.2	IB	8.625	0.5	TB	410H	808'-0"	C-D	13-14	900	595
1-MS-210-CR	122A-1.1	CR	36.5	1.125	Yard	441	827'-0"	N-P	63-64	900	595
1-MS-211-CR	122A-1.1	CR	36.5	1.125	TB	441, 401G	827'-0"	L-M	17-18	900	595
1-MS-212-CR	122A-1.1	CR	36.5	1.125	TB	401A	812'-0"	L-M	17-18	900	595
1-MS-213-CR	122A-1.1	CR	36.5	1.125	TB	401A	812'-0"	E-F	13-14	900	595
1-MS-214-CR	122A-1.1	CR	36.5	1.125	Yard	441	827'-0"	N-Q	62-63	900	595
1-MS-215-CR01	122A-1.1	CR	36.5	1.125	TB	441, 401G	812'-7"	L-M	16-17	900	595
1-MS-215-CR02	122A-1.1	CR	36.5	1.125	TB	441	827'-0"	L-M	16-17	900	595
1-MS-216-CR	122A-1.1	CR	36.5	1.125	TB	401A	812'-8"	L-M	13-14	900	595
1-MS-217-CR	122A-1.1	CR	36.5	1.125	TB	401A	812'-0"	E-F	13-14	900	595
1-MS-218-CR	122A-1.1 122B-1.1	CR	24	0.969	TB	401A	812'-0"	E-F	13-15	900	595

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-) See Note 6	Floor Elev. or Break Elev. (See Note 5)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-MS-219-CR	122A-1.1 122B-1.1	CR	24	0.969	TB	401A	812'-0"	E-F	13-15	900	595
1-MS-220-CR	122B-1.1 122B-1.2	CR	28	1.4	TB	401A	813'-5"	E-F	16-17	900	595
1-MS-221-CR	122A-1.2	CR	12.75	.562	TB	401A, 401G	805'-0"	L-M	16-17	900	595
1-MS-222-CR	122A-1.2	CR	8.625	0.5	TB	401G	798'-0"	L-M	19-20	900	595
1-MS-223-CR	122A-1.2	CR	12.75	.562	TB	401G	805'-0"	L-M	19-20	900	595
1-MS-224-CR	122A-1.2	CR	8.625	.5	TB	401A, 401G	813'-9"	L-M	19-20	900	595
1-MS-225-CR	122A-1.2	CR	8.625	.5	TB	401G	798'-0"	L-M	19-20	900	595
1-MS-226-CR	122A-1.2	CR	12.75	.562	TB	401A, 401G	807'-0"	L-M	17-18	900	595
1-MS-227-CR	122A-1.2	CR	8.625	.5	TB	401G	798'-0"	L-M	18-19	900	595
1-MS-228-CR	122A-1.2	CR	6.625	.432	TB	403C, 401G	810'-4"	L-M	17-18	900	595
1-MS-230-CR	122A-1.2	CR	6.625	.432	TB	401A, 401G	805'-0"	L-M	16-17	900	595
1-MS-231-CR	122A-1.1	CR	12.75	.562	TB	401H	817'-6"	F-G	13-14	900	595
1-MS-232-CR	122C-1.2	CR	6.625	.432	TB	401A	817'-6"	G-H	13-14	900	595
1-MS-233-CR	122C-1.2	CR	8.625	.5	TB	410H	796'-6"	H-J	13-15	900	595
1-MS-234-CR	122C-1.2	CR	6.625	.432	TB	401A	817'-6"	G-H	13-14	900	595
1-MS-235-CR	122C-1.2	CR	8.625	.5	TB	410H	796'-6"	G-H	13-14	900	595
1-MS-236-CR	122C-1.2	CR	8.625	.5	TB	410H OM-200-115	796'-6"	B-C	13-15	900	595
1-MS-237-CR	122C-1.2	CR	6.625	.432	TB	401A OM-200-115	817'-9"	C-D	13-14	900	595
1-MS-238-CR	122C-1.2	CR	8.625	.5	TB	410H OM-200-115	817'-9"	C-D	13-14	900	595
1-MS-241-CR	122A-1.1	CR	6.625	.432	TB	401H	812'-0"	E-F	13-14	900	595
1-MS-242-CR	122A-1.3	CR	8.625	.5	TB	401A	817'-6"	D-E	13-14	900	595
1-MS-243-CR	122A-1.3	CR	8.625	.5	TB	401B, 401H	804'-6"	B-C	23-24	900	595
1-MS-244-CR	122A-1.3	CR	8.625	.5	TB	401B, 401H	804'-6"	B-C	23-24	900	595
1-MS-245-CR	122A-1.3	CR	8.625	.5	TB	400E	775'-0"	B-C	23-24	900	595
1-MS-246-CR	122A-1.3	CR	4.5	.337	TB	400B	782'-0"	C	23-24	900	595
1-MS-247-CR	122A-1.4	CR	6.625	.432	TB	403C	817'-6"	E-F	13-14	900	595
1-MS-248-CR	122A-1.3	CR	4.5	.337	TB	400B	782'-0"	C	25-26	900	595
1-MS-249-CR	122A-1.3	CR	8.625	.5	TB	401A	804'-6"	D-E	14-15	900	595
1-MS-250-CR	122A-1.3	CR	8.625	.5	TB	401B, 401J	808'-8"	B-C	25-26	900	595
1-MS-251-CR	122A-1.3	CR	8.625	.5	TB	401B, 401J	808'-8"	B-C	25-26	900	595
1-MS-252-CR	122A-1.3	CR	8.625	.5	TB	400E	775'-0"	B-C	25-26	900	595
1-MS-253-CR	122A-1.4	CR	6.625	.432	TB	403C	804'-6"	D-E	14-15	900	595
1-MS-254-CR	122A-1.4	CR	2.375	.218	TB	403C	804'-6"	D-E	14-15	900	595

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-) See Note 6	Floor Elev. or Break Elev. (See Note 5)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-MS-255-CR	122A-1.4	CR	6.625	.432	TB	403A	783'-6"	C-D	19-20	900	595
1-MS-256-CR	122A-1.4	CR	4.5	.237	TB	403A	787'-0"	C-D	19-20	900	595
1-MS-257-CR	122A-1.4	CR	6.625	.432	TB	400K	775'-0"	C-D	19-20	900	595
1-MS-258-CR	122A-1.4	CR	3.5	.216	TB	400K	783'-0"	C-D	19-20	900	595
1-MS-259-CR	122A-1.1	CR	12.75	.562	TB	441	831'-0"	M-N	16-17	900	595
1-MS-260-CR	122A-1.1	CR	12.75	.562	TB	441	831'-0"	L-M	17-18	900	595
1-MS-261-CR	122A-1.2	CR	8.625	.5	TB	401G	812'-0"	L-M	19-20	900	595
1-MS-262-CR	122A-1.2	CR	8.625	.5	TB	401G	813'-9"	L-M	18-19	900	595
1-MS-263-CR	122A-1.2	CR	8.625	.5	TB	401G	807'-0"	L-M	18-19	900	595
1-MS-264-CR	122A-1.2	CR	12.75	.562	TB	401G	807'-0"	L-M	18-19	900	595
1-MS-265-CR	122A-1.2	CR	8.625	.5	TB	401G	798'-0"	L-M	18-19	900	595
1-MS-266-CR	122A-1.2	CR	8.625	.5	TB	401G	807'-0"	L-M	18-19	900	595
1-MS-267-CR	122A-1.2	CR	8.625	.5	TB	401A, 401G	813'-9"	L-M	18-19	900	595

Notes:

1. Break numbers may not be consecutive
2. Break type: RB – Running Break (Piping not analyzed for seismic), TE – Terminal End, IB – Intermediate Break, CR – Critical Cracks
3. Building: TB – Turbine Building, AB – Auxiliary Building, EPR – East Penetration Room, Yard.
4. Each running break may contain one or more sub-breaks. For the Unit 1 Main Steam System 26 Terminal End Breaks, 9 Intermediate Breaks, 56 Critical Cracks, and 26 Running Breaks were considered; the non-excluded breaks listed in this table include 23 Terminal End Breaks, 9 Intermediate Breaks, 56 Critical Cracks, and 26 Running Breaks.
5. For Terminal End and Intermediate Break locations the elevation of the break location is given. For Running Breaks the elevation of floor or room that contains running break is given. For Critical Cracks with a single elevation, the elevation of the CR is given. For Critical Cracks with multiple elevations, the elevation of the floor or room containing the CR is given.
6. Layout of piping system may be shown on vendor supplied drawings (OM-)
7. Other Abbreviations: OD – Outer Diameter, in – inches, Op - operating



LEGEND

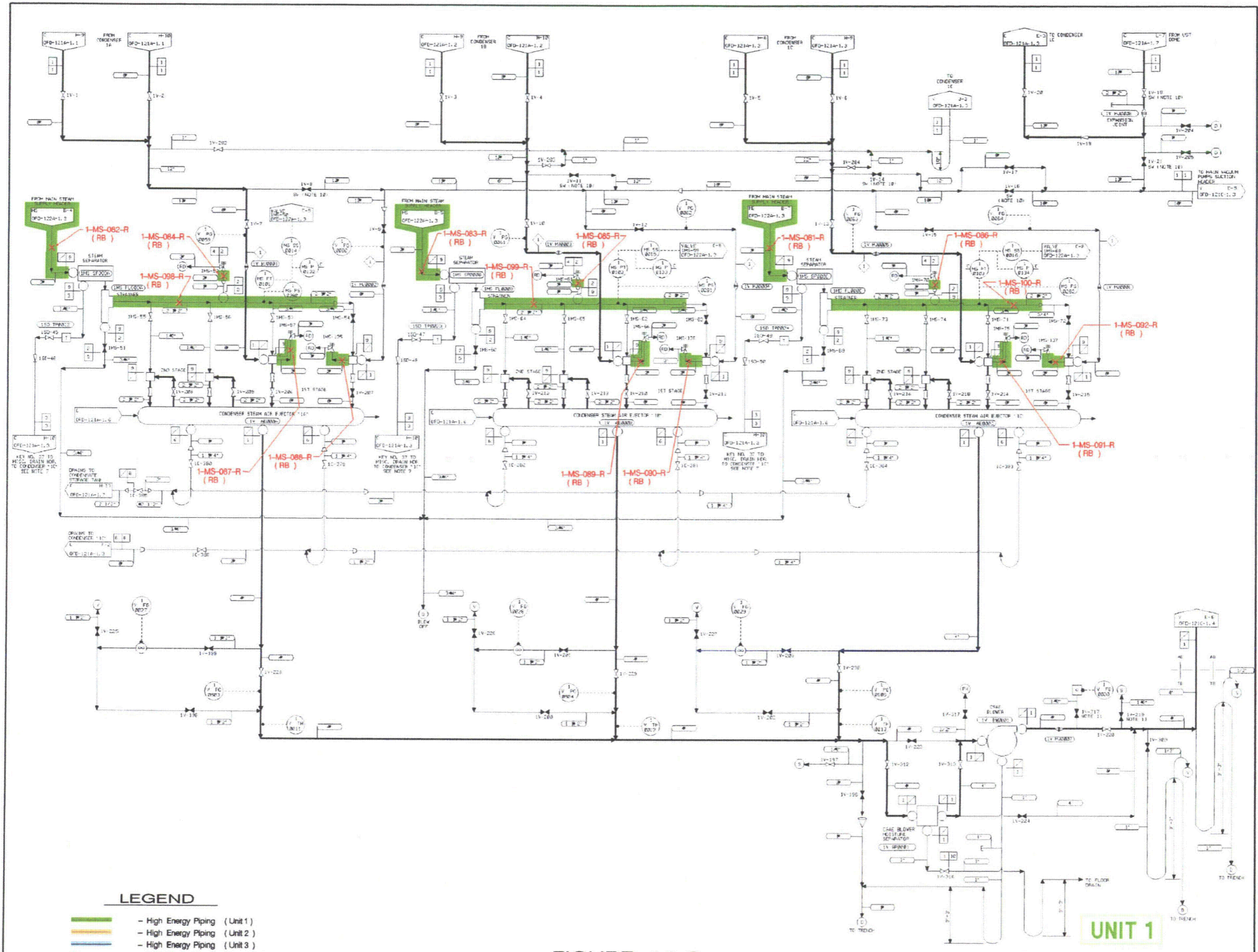
- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- ▶ - Running Break Boundary

**FIGURE 4.1-8
MAIN STEAM SYSTEM**

High Energy Lines, Piping Configurations, Boundaries, Break Locations and Numbers (Sheet 1 of 10)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE BREAK PURPOSES ONLY. REFERENCE FLOW DIAGRAM OFD-121C-1.1 FOR COMPLETE SYSTEM DESIGN INFORMATION.



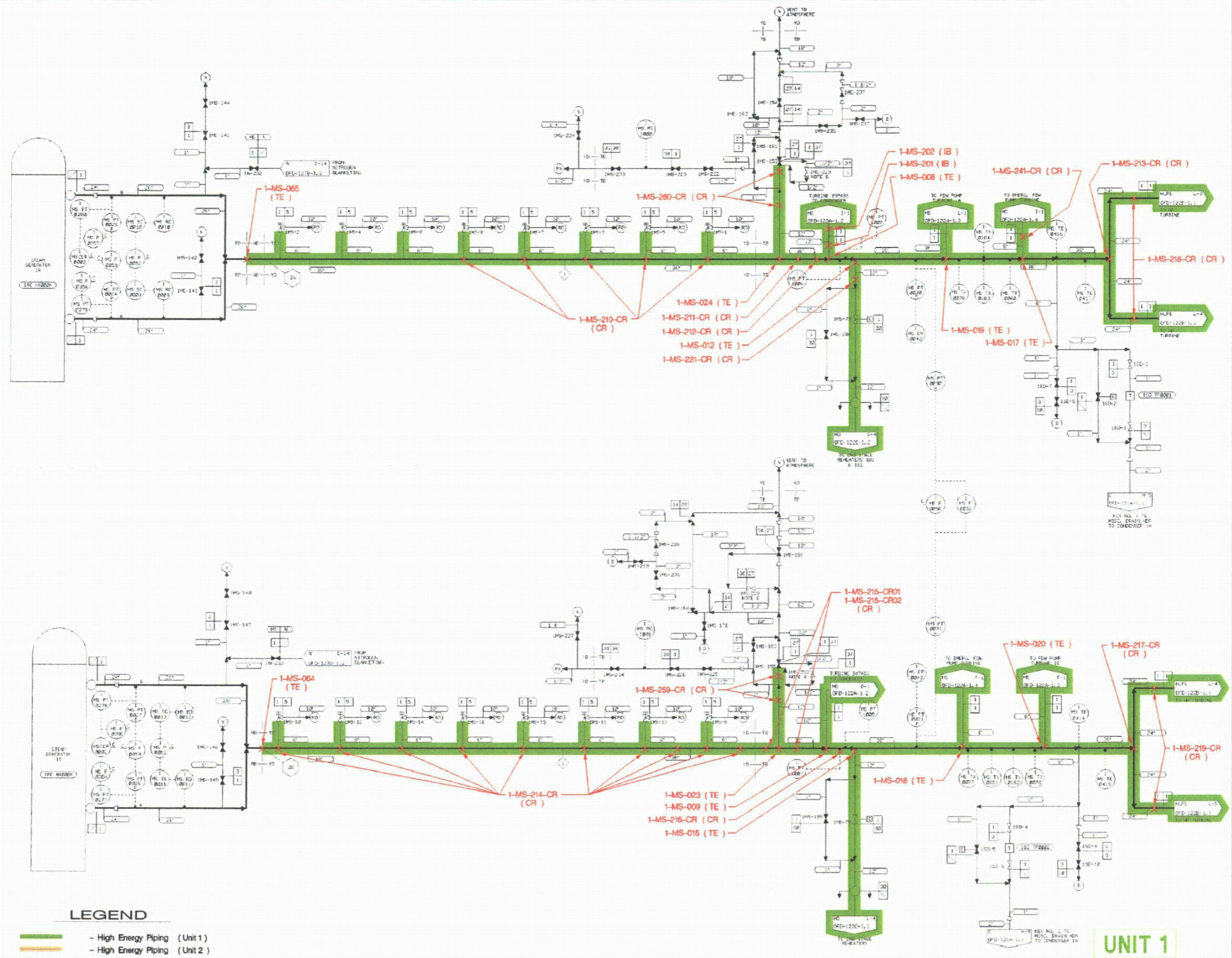
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ↑ - Running Break Boundary

FIGURE 4.1-8
MAIN STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 2 of 10)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-121C-1.2 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-121C-01-02



LEGEND

- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- |— - Running Break Boundary

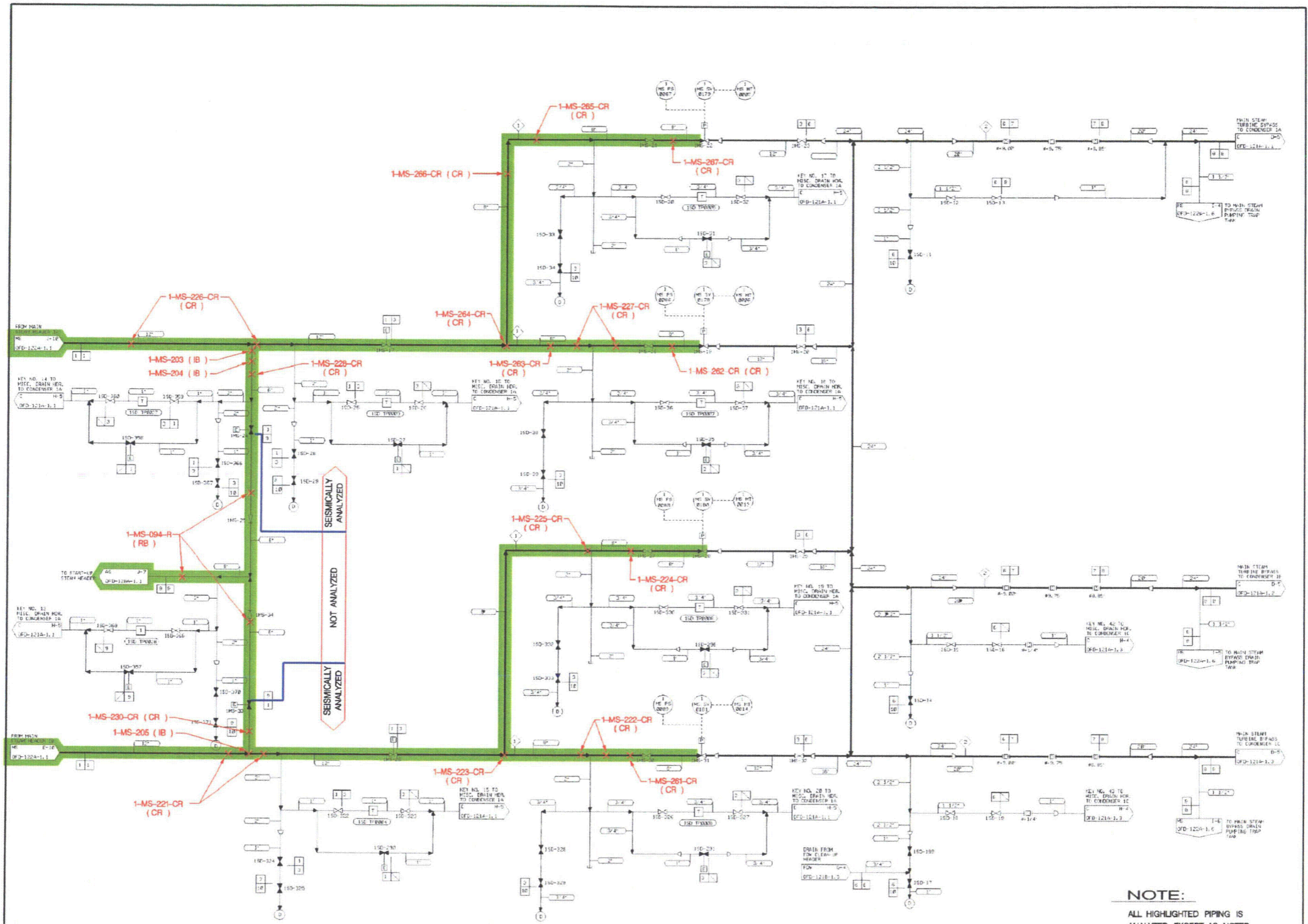
**FIGURE 4.1-8
MAIN STEAM SYSTEM**

High Energy Lines, Piping Configurations,
Boundaries, Break Locations and Numbers
(Sheet 3 of 10)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
BREAK PURPOSES ONLY.
REFERENCE FLOW DIAGRAM OFD-122A-1.1 FOR
COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122A-01-01



LEGEND

- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- ▶ - Running Break Boundary

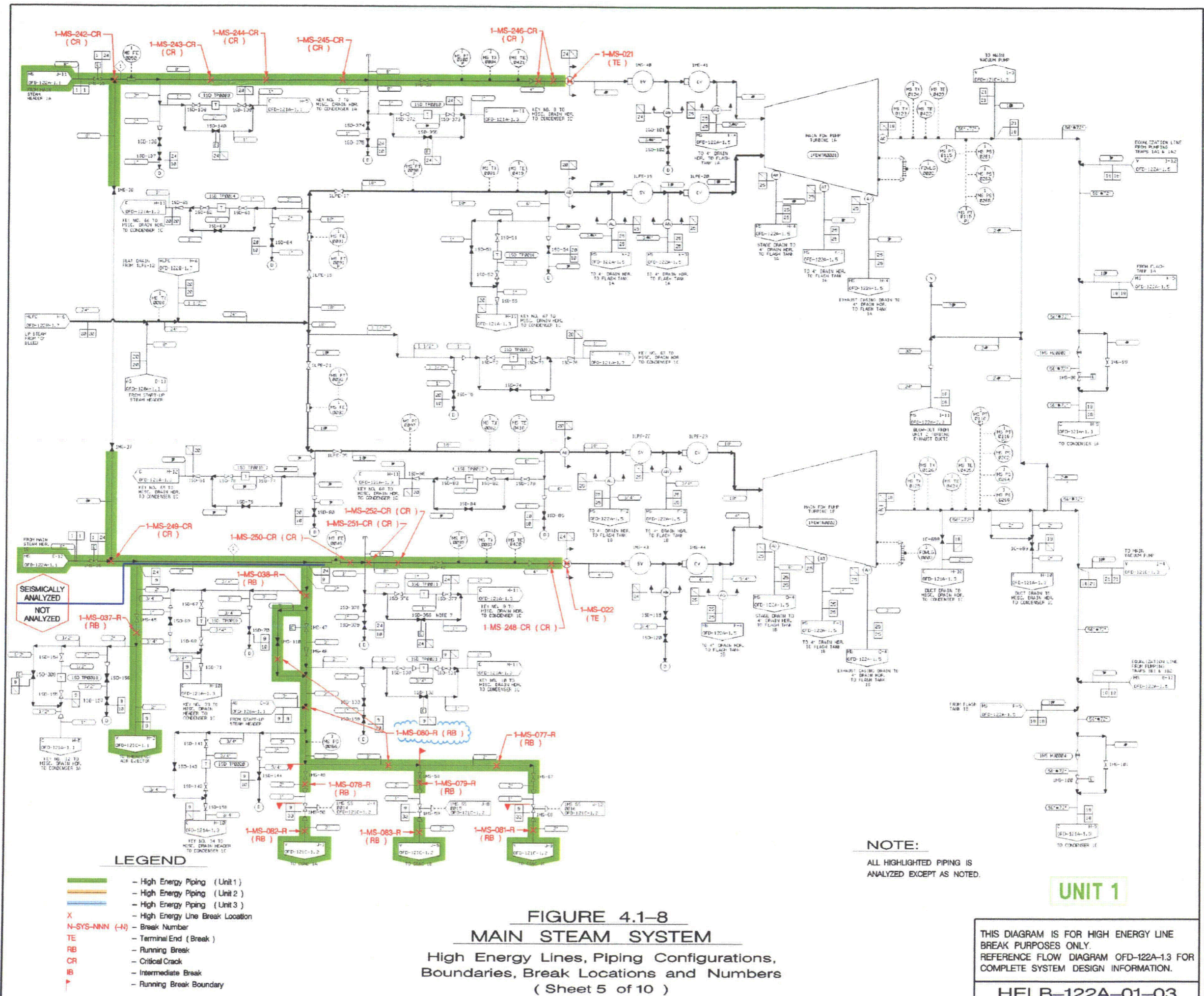
NOTE:
ALL HIGHLIGHTED PIPING IS ANALYZED EXCEPT AS NOTED.

UNIT 1

FIGURE 4.1-8
MAIN STEAM SYSTEM
High Energy Lines, Piping Configurations,
Boundaries, Break Locations and Numbers
(Sheet 4 of 10)

THIS DIAGRAM IS FOR HIGH ENERGY LINE BREAK PURPOSES ONLY. REFERENCE FLOW DIAGRAM OFD-122A-1.2 FOR COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122A-01-02



SEISMICALLY ANALYZED
NOT ANALYZED

- LEGEND**
- High Energy Piping (Unit 1)
 - High Energy Piping (Unit 2)
 - High Energy Piping (Unit 3)
 - X High Energy Line Break Location
 - N-SYS-NNN (-N) Break Number
 - TE Terminal End (Break)
 - RB Running Break
 - CR Critical Crack
 - IB Intermediate Break
 - ▴ Running Break Boundary

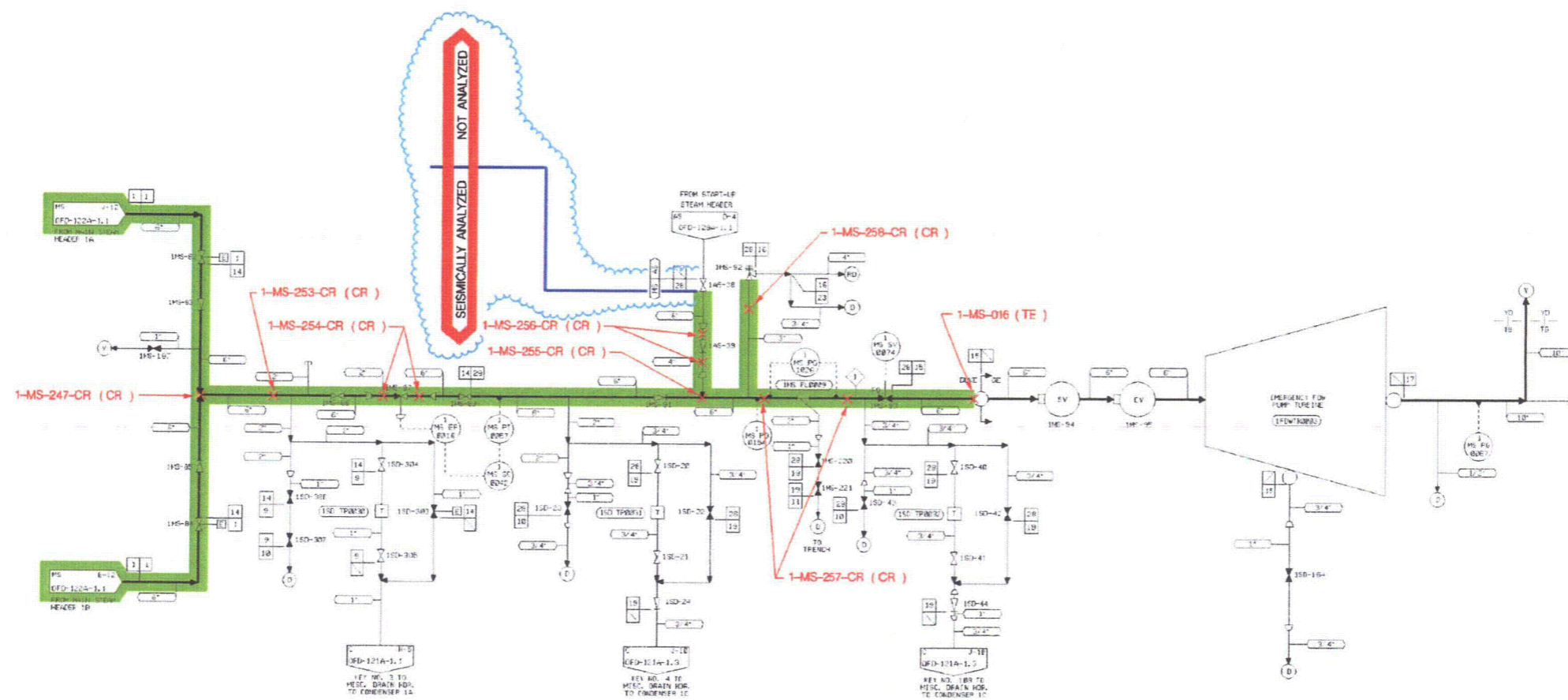
FIGURE 4.1-8
MAIN STEAM SYSTEM
High Energy Lines, Piping Configurations,
Boundaries, Break Locations and Numbers
(Sheet 5 of 10)

NOTE:
ALL HIGHLIGHTED PIPING IS ANALYZED EXCEPT AS NOTED.

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE BREAK PURPOSES ONLY. REFERENCE FLOW DIAGRAM OFD-122A-1.3 FOR COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122A-01-03



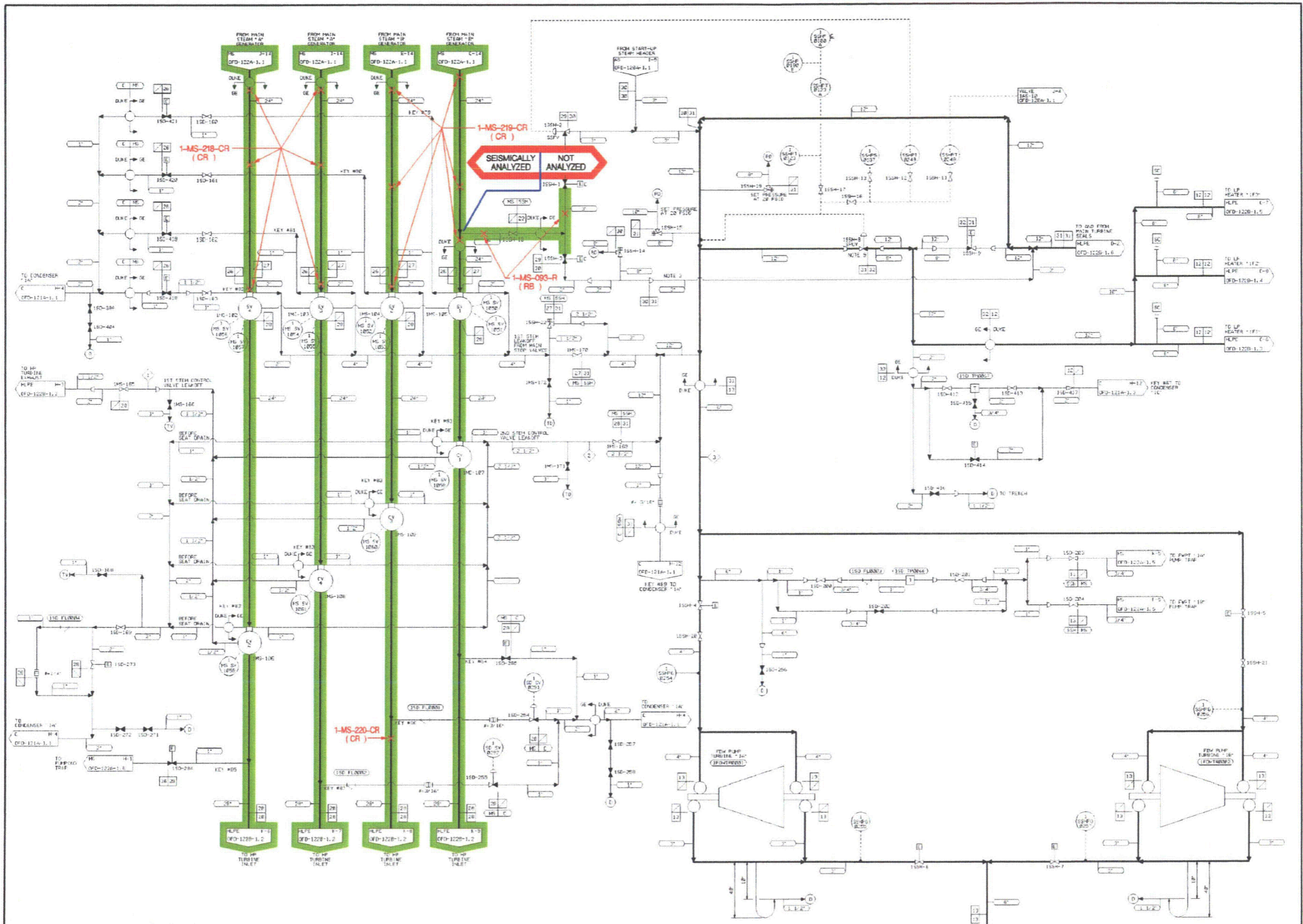
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - ↑ - Running Break Boundary

FIGURE 4.1-8
MAIN STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 6 of 10)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122A-1.4 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122A-01-04



LEGEND

- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NIN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- ↑ - Running Break Boundary

**FIGURE 4.1-8
MAIN STEAM SYSTEM**

High Energy Lines, Piping Configurations,
Boundaries, Break Locations and Numbers
(Sheet 7 of 10)

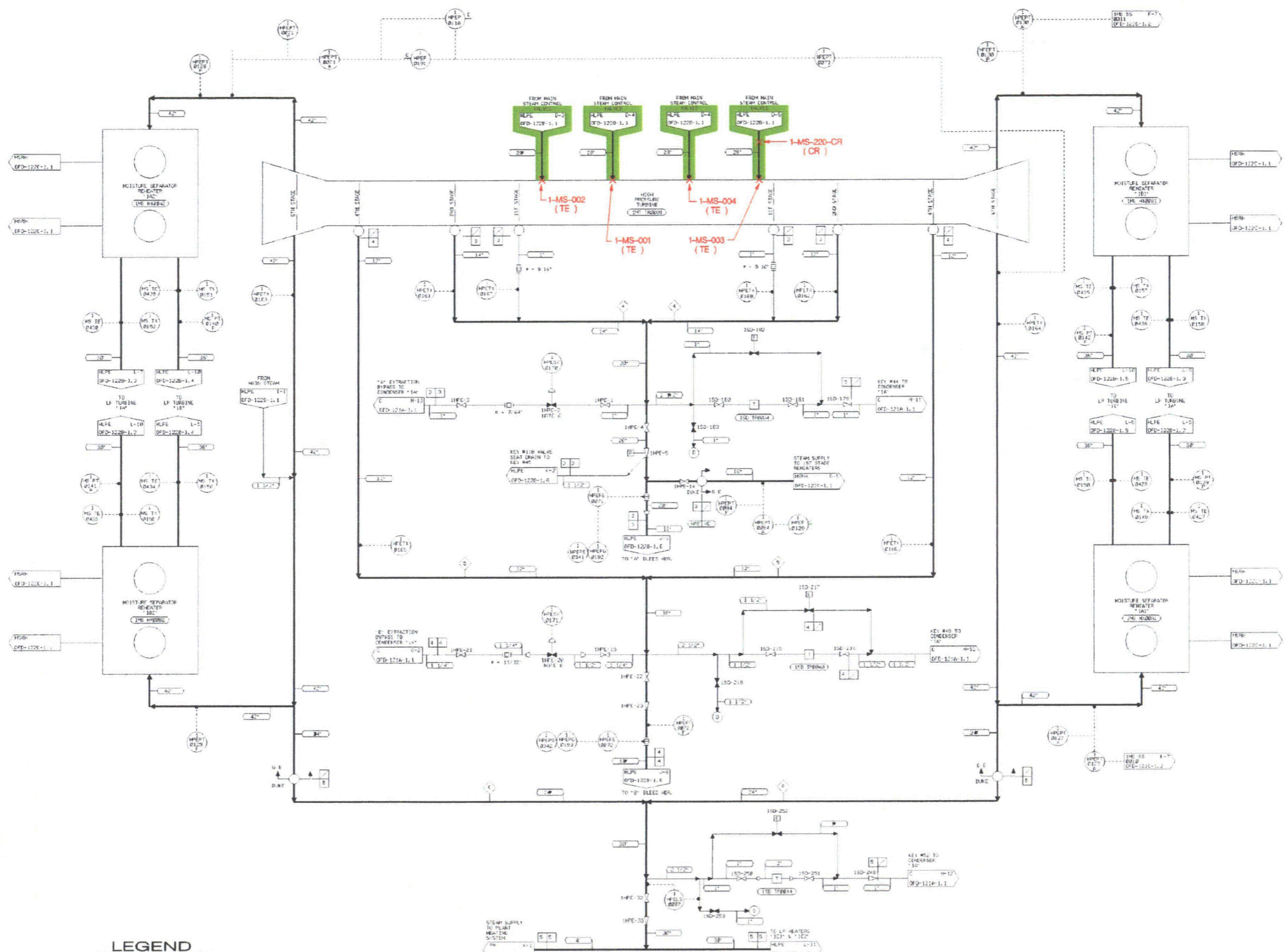
NOTE:

ALL HIGHLIGHTED PIPING IS ANALYZED EXCEPT AS NOTED.

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE BREAK PURPOSES ONLY. REFERENCE FLOW DIAGRAM OFD-122B-1.1 FOR COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122B-01-01



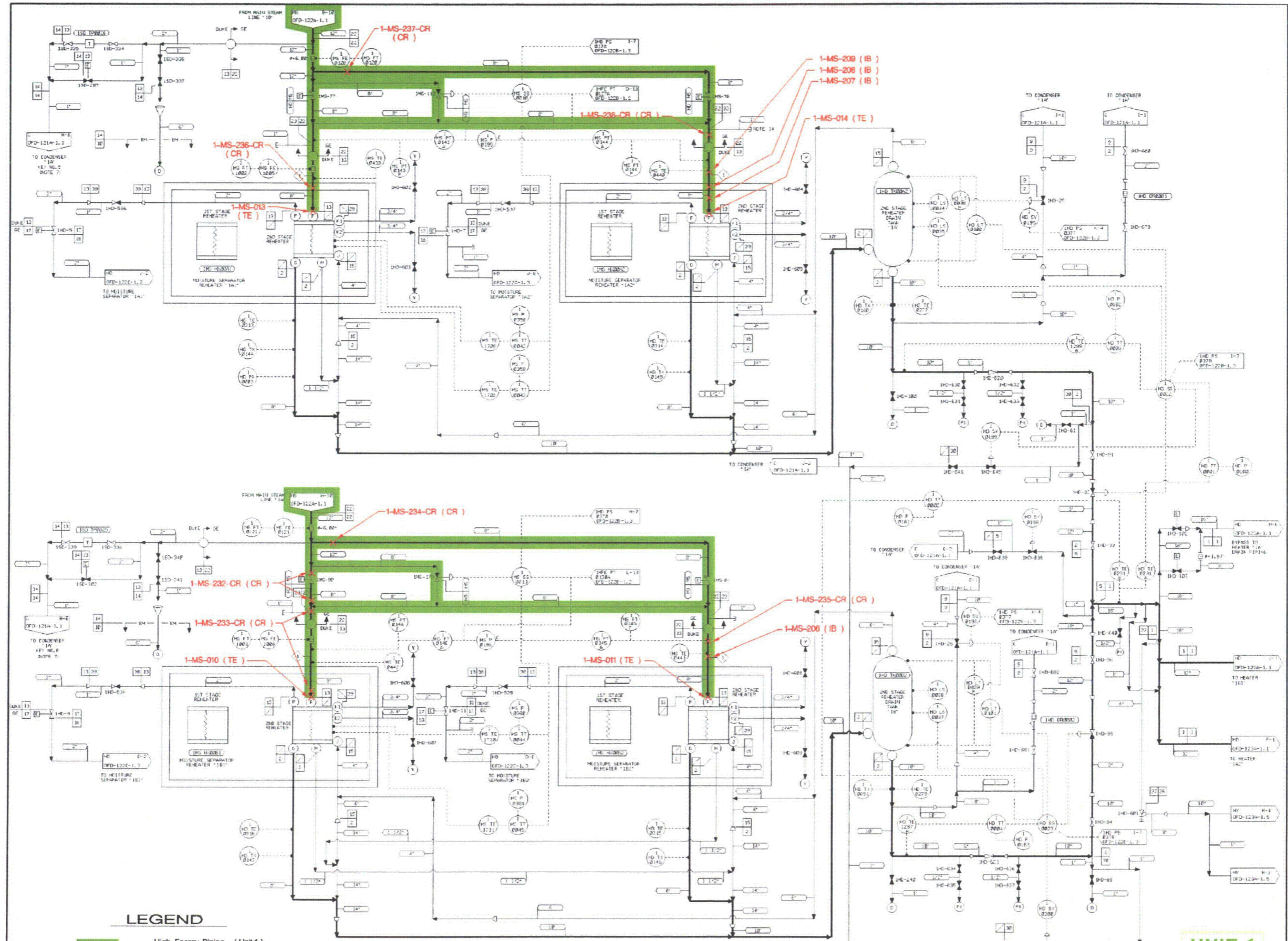
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - P - Running Break Boundary

FIGURE 4.1-8
MAIN STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 8 of 10)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122B-1.2 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122B-01-02



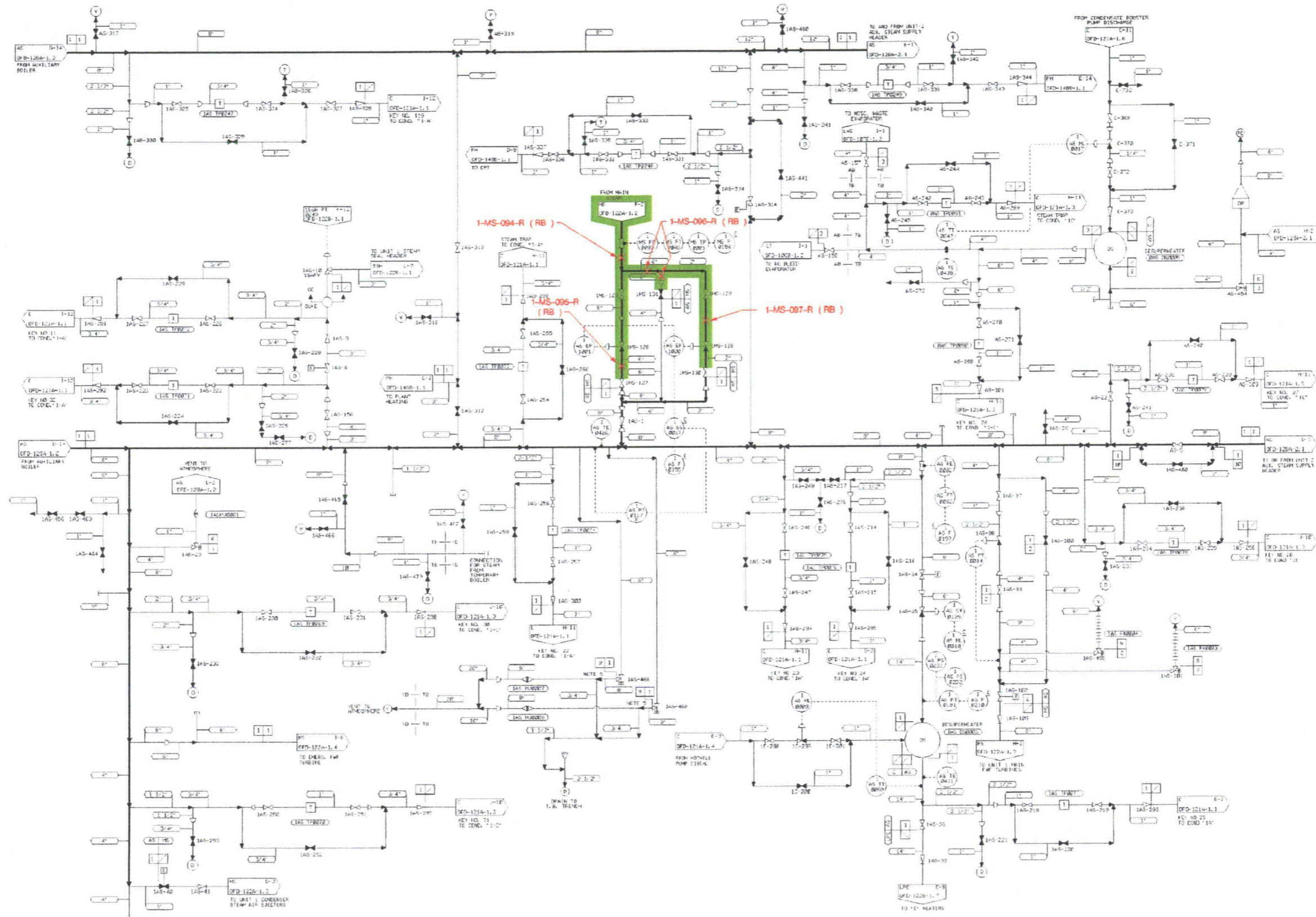
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - |— - Running Break Boundary

FIGURE 4.1-8
MAIN STEAM SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 9 of 10)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122C-12 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122C-01-02



LEGEND

- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- ▶ - Running Break Boundary

**FIGURE 4.1-8
MAIN STEAM SYSTEM**

High Energy Lines, Piping Configurations,
Boundaries, Break Locations and Numbers
(Sheet 10 of 10)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
BREAK PURPOSES ONLY.
REFERENCE FLOW DIAGRAM OFD-128A-1.1 FOR
COMPLETE SYSTEM DESIGN INFORMATION.

HELB-128A-01-01

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. or Break Elev. (See Note 6)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-MSRD-001	122C-1.1	TE	8.625	0.322	TB	410H	798'	B-C	14	460	460
1-MSRD-002-R	122C-1.1	RB	1.900	0.145	TB	410H 410L	790'-8" - 798'	B-C	14-15	460	460
1-MSRD-003	122C-1.1	TE	4.500	0.237	TB	410H	800'	B-C	14	460	460
1-MSRD-004	122C-1.1	TE	8.625	0.322	TB	410H	798'	C-D	14	460	460
1-MSRD-005-R	122C-1.1	RB	1.900	0.145	TB	410H 410L	790'-2" - 798'	B-D	13-15	460	460
1-MSRD-006	122C-1.1	TE	4.500	0.237	TB	410H	800'	C-D	14	460	460
1-MSRD-007	122C-1.1	TE	8.625	0.322	TB	410Q	784'	D-E	16-17	460	460
1-MSRD-008	122C-1.1	TE	6.625	0.280	TB	410Q	791'-6"	D-E	16-17	460	460
1-MSRD-009	122C-1.1	TE	8.625	0.322	TB	410Q	784'	D-E	16-17	460	460
1-MSRD-010	122C-1.1	TE	8.625	0.322	TB	410H	798'	H-J	14	460	460
1-MSRD-011-R	122C-1.1	RB	1.900	0.145	TB	410H 410L	790'-6" - 798'	H-J	14-15	460	460
1-MSRD-012	122C-1.1	TE	4.500	0.237	TB	410H	800'	H-J	14	460	460
1-MSRD-013	122C-1.1	TE	8.625	0.322	TB	410H	798'	G-H	14	460	460
1-MSRD-014-R	122C-1.1	RB	1.900	0.145	TB	410H 410L	790'-6" - 798'	G-J	14-15	460	460
1-MSRD-015	122C-1.1	TE	4.500	0.237	TB	410G	800'	G-H	14	460	460
1-MSRD-016	122C-1.1	TE	8.625	0.322	TB	410Q	784'	F-G	16-17	460	460
1-MSRD-017	122C-1.1	TE	6.625	0.280	TB	410Q	791'-6"	F-G	16-17	460	460
1-MSRD-018	122C-1.1	TE	8.625	0.322	TB	410Q	784'	F-G	16-17	460	460
1-MSRD-019-R	122C-1.2	RB	6.625	0.280	TB	410G	806'-6" - 811'-3"	K-L	20	470	460
1-MSRD-020-R	122C-1.2	RB	18.000	0.375	TB	410G	804'-6" - 811'-3"	K-M	19-21	470	460
1-MSRD-021-R	122C-1.3	RB	6.625	0.280	TB	410B 410H 410Q	791'-6" - 809'-10"	B-E	14-17	160	380
1-MSRD-022	122C-1.2	TE	6.625	0.432	TB	410I	809'-3"	L-M	20-21	470	460
1-MSRD-023	122C-1.2	TE	8.625	0.322	TB	410H	803'	B-C	14	900	540
1-MSRD-024-R	122C-1.2	RB	1.900	0.145	TB	410H 410L	790'-2" - 803'	B-C	14-15	900	540
1-MSRD-025	122C-1.2	TE	4.500	0.237	TB	410H	805'	B-C	14	900	540
1-MSRD-026	122C-1.2	TE	8.625	0.322	TB	410H	803'	C-D	14	900	540
1-MSRD-027-R	122C-1.2	RB	1.900	0.145	TB	410H 410L	790'-2" - 803'	B-D	13-15	900	540
1-MSRD-028	122C-1.2	TE	4.500	0.237	TB	410H	805'	C-D	14	900	540
1-MSRD-029	122C-1.2	TE	10.750	0.365	TB	410Q	785'-6"	C-D	16-17	900	540
1-MSRD-030	122C-1.2	TE	6.625	0.280	TB	410Q	793'	C-D	16-17	900	540

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. or Break Elev. (See Note 6)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-MSRD-031	122C-1.2	TE	10.750	0.365	TB	410Q	785'-6"	C-D	16-17	900	540
1-MSRD-032	122C-1.2	TE	8.625	0.322	TB	410H	803'	H-J	14	900	540
1-MSRD-033-R	122C-1.2	RB	1.900	0.145	TB	410H 410L	790'-6" - 803'	H-J	14-15	900	540
1-MSRD-034	122C-1.2	TE	4.500	0.237	TB	410H	805'	H-J	14	900	540
1-MSRD-035	122C-1.2	TE	8.625	0.322	TB	410H	803'	G-H	14	900	540
1-MSRD-036-R	122C-1.2	RB	1.900	0.145	TB	410H 410L	790'-6" - 803'	G-H	14-15	900	540
1-MSRD-037	122C-1.2	TE	4.500	0.237	TB	410H	805'	G-H	14	900	540
1-MSRD-038	122C-1.2	TE	10.750	0.365	TB	410Q	785'-6"	G-H	16-17	900	540
1-MSRD-039	122C-1.2	TE	6.625	0.280	TB	410Q	793'	G-H	16-17	900	540
1-MSRD-040	122C-1.2	TE	10.750	0.365	TB	410Q	785'-6"	G-H	16-17	900	540
1-MSRD-041-R	122C-1.2	RB	4.500	0.237	TB	410L 410H	792'-0" - 808'-9"	B-C	14-15	900	540
1-MSRD-042-R	122C-1.2	RB	4.500	0.237	TB	410L 410H	791'-3" - 808'-9"	B-D	14-15	900	540
1-MSRD-043-R	122C-1.2	RB	4.500	0.237	TB	410L 410H	792'-0" - 808'-0"	G-J	14-15	900	540
1-MSRD-044-R	122C-1.2	RB	4.500	0.237	TB	410L 410H	793'-0" - 808'-0"	G-J	14-15	900	540
1-MSRD-045	122C-1.2	TE	18.000	0.375	TB	410G	808'-6"	L-M	20	470	460
1-MSRD-046-R	123A-1.1 122C-1.2	RB	12.750	0.375	TB	410G	799'-6" - 804'-6"	K-M	20-21	470	460
1-MSRD-047-R	123A-1.1 122C-1.2	RB	12.750	0.375	TB	410G	799'-6" - 804'-6"	J-L	20-21	470	460
1-MSRD-048-R	122C-1.1	RB	2.375	0.154	TB	410H	800'-0" - 809'-4"	B-C	14-15	460	480
1-MSRD-049-R	122C-1.1	RB	2.375	0.154	TB	410H	800'-0" - 808'-6"	C-D	14-15	460	480
1-MSRD-050-R	122C-1.1	RB	2.375	0.154	TB	410G	800'-0" - 810'-10"	H-J	14-15	460	480
1-MSRD-051-R	122C-1.1	RB	2.375	0.154	TB	410G	800'-0" - 810'-3"	G-H	14-15	460	480
1-MSRD-052-R	122C-1.1 122C-1.3	RB	2.375	0.154	TB	410H	808'-0" - 809'-4"	B-C	14-15	170	480
1-MSRD-053-R	122C-1.1 122C-1.3	RB	2.375	0.154	TB	410H	808'-0" - 808'-6"	C-D	14-15	170	480
1-MSRD-054-R	122C-1.1 122C-1.3	RB	2.375	0.154	TB	410G	808'-0" - 810'-10"	H-J	14-15	170	480
1-MSRD-055-R	122C-1.1 122C-1.3	RB	2.375	0.154	TB	410G	808'-0" - 810'-3"	G-H	14-15	170	480
1-MSRD-056-R	122C-1.2	RB	2.375	0.218	TB	410H	805'-0" - 809'-4"	B-C	14-15	900	595

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. or Break Elev. (See Note 6)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-MSRD-057-R	122C-1.2	RB	2.375	0.218	TB	410H	805'-0" - 808'-6"	C-D	14-15	900	595
1-MSRD-058-R	122C-1.2	RB	2.375	0.218	TB	410H	805'-0" - 809'-10"	H-J	14-15	900	595
1-MSRD-059-R	122C-1.2	RB	2.375	0.218	TB	410H	805'-0" - 811'-3"	G-H	14-15	900	595
1-MSRD-060-R	122C-1.2 122C-1.3	RB	2.375	0.218	TB	410H	809'-4" - 808'-0"	B-C	14-15	170	595
1-MSRD-061-R	122C-1.2 122C-1.3	RB	2.375	0.218	TB	410H	808'-6" - 808'-0"	C-D	14-15	170	595
1-MSRD-062-R	122C-1.2 122C-1.3	RB	2.375	0.218	TB	410H	809'-10" - 808'-0"	H-J	14-15	170	595
1-MSRD-063-R	122C-1.2 122C-1.3	RB	2.375	0.218	TB	410H	811'-3" - 808'-0"	G-H	14-15	170	595
1-MSRD-067	122C-1.1	IB	3.500	0.216	TB	410A	776'-8"	J-K	18-19	280	410
1-MSRD-068	122C-1.1	IB	8.625	0.322	TB	410Q	781'-4"	F-G	16-17	460	460
1-MSRD-069-R	122C-1.3	RB	6.625	0.280	TB	410B 410G 410Q	791'-6" - 809'-10"	F-J	14-17	160	380
1-MSRD-070-R	122C-1.3	RB	20.000	0.375	TB	410B 410H	791'-6" - 797'-6"	H-J	14-16	160	380
1-MSRD-071-R	122C-1.3	RB	12.000	0.375	TB	410B	777'-0" - 791'-6"	H-J	15-16	160	380
1-MSRD-072-R	122C-1.3	RB	6.625	0.280	TB	410B	776'-0" - 782'-6"	G-H	15-16	160	380
1-MSRD-073-R	122C-1.3	RB	12.750	0.375	TB	410B	777'-0" - 791'-6"	G-H	15-16	160	380
1-MSRD-074-R	122C-1.3	RB	20.000	0.375	TB	410B 410H	791'-6" - 797'-6"	G-H	14-16	160	380
1-MSRD-075-R	122C-1.3	RB	6.625	0.280	TB	410B	776'-0" - 782'-6"	G-H	15-16	160	380
1-MSRD-076-R	122C-1.3	RB	8.625	0.322	TB	410B	782'-6" - 784'-0"	F-H	15-17	160	380
1-MSRD-077-R	122C-1.3	RB	20.000	0.375	TB	410B	791'-6" - 797'-6"	B-D	14-16	160	380
1-MSRD-078-R	122C-1.3	RB	12.750	0.375	TB	410B	777'-0" - 791'-6"	C-D	15-16	160	380
1-MSRD-079-R	122C-1.3	RB	6.625	0.280	TB	410B	776'-0" - 782'-6"	C-D	15-16	160	380
1-MSRD-080-R	122C-1.3	RB	20.000	0.375	TB	410B	791'-6" - 797'-6"	C-D	14-16	160	380

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. or Break Elev. (See Note 6)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-MSRD-081-R	122C-1.3	RB	12.750	0.375	TB	410B	777'-0" - 791'-6"	C-D	15-16	160	380
1-MSRD-082-R	122C-1.3	RB	6.625	0.280	TB	410B	776'-0" - 782'-6"	C-D	15-16	160	380
1-MSRD-083-R	122C-1.3	RB	8.625	0.322	TB	410B	782'-6" - 784'-0"	C-E	15-17	160	380
1-MSRD-084-R	122C-1.3	RB	2.375	0.154	TB	403A	779'-6" - 783'-0"	D-E	16-17	160	380
1-MSRD-085-R	122C-1.3	RB	1.900	0.145	TB	410B	796'-6" - 775'-0"	E-J	14-17	160	380
1-MSRD-086-R	122C-1.3	RB	2.375	0.154	TB	410B	796'-6" - 775'-0"	E-F	16-17	160	380
1-MSRD-087-R	122C-1.3	RB	1.900	0.145	TB	410B	796'-6" - 775'-0"	E-H	14-17	160	380
1-MSRD-088-R	122C-1.3	RB	2.375	0.154	TB	410B	796'-6" - 775'-0"	H-J	16-17	160	380
1-MSRD-089-R	122C-1.3	RB	2.375	0.154	TB	410B	796'-6" - 775'-0"	B-F	14-17	160	380
1-MSRD-090-R	122C-1.3	RB	2.375	0.154	TB	410B	796'-6" - 775'-0"	D-F	16-17	160	380
1-MSRD-091-R	122C-1.3	RB	2.375	0.154	TB	410B	796'-6" - 775'-0"	D-F	16-17	160	380
1-MSRD-092-R	122C-1.3	RB	2.375	0.154	TB	410B	796'-6" - 775'-0"	C-F	14-17	160	380
1-MSRD-093-R	122C-1.3	RB	2.375	0.154	TB	403A	779'-6" - 783'-0"	F-G	15-17	160	380
1-MSRD-094-R	122C-1.3	RB	2.375	0.154	TB	403A	779'-6" - 783'-0"	F-G	15-16	200	380
1-MSRD-095-R	122C-1.3	RB	6.625	0.280	TB	410A 410B 410F	774'-0" - 791'-2"	F-M	13-16	200	380
1-MSRD-096-R	122C-1.3	RB	6.625	0.280	TB	410B	781'-0" - 783'-3"	F-G	15-16	160	380
1-MSRD-097-R	122C-1.3 123A-1.2	RB	6.625	0.280	TB	410A	791'-2"	L-M	13-14	160	365
1-MSRD-098-R	122C-1.3	RB	2.375	0.154	TB	403A	779'-6" - 783'-0"	D-E	15-16	200	380
1-MSRD-099-R	122C-1.3	RB	6.625	0.280	TB	410A 410B 410P	774'-0" - 791'-2"	D-J	13-16	200	380
1-MSRD-100-R	122C-1.3 123A-1.2	RB	6.625	0.280	TB	410A	791'-2"	H-J	14	160	365
1-MSRD-101-R	122C-1.3	RB	6.625	0.280	TB	410B	782'-0" - 783'-3"	D-E	15-16	160	380
1-MSRD-102-R	122C-1.3	RB	6.625	0.280	TB	410B	782'-0" - 786'-1"	D-F	16-18	160	380

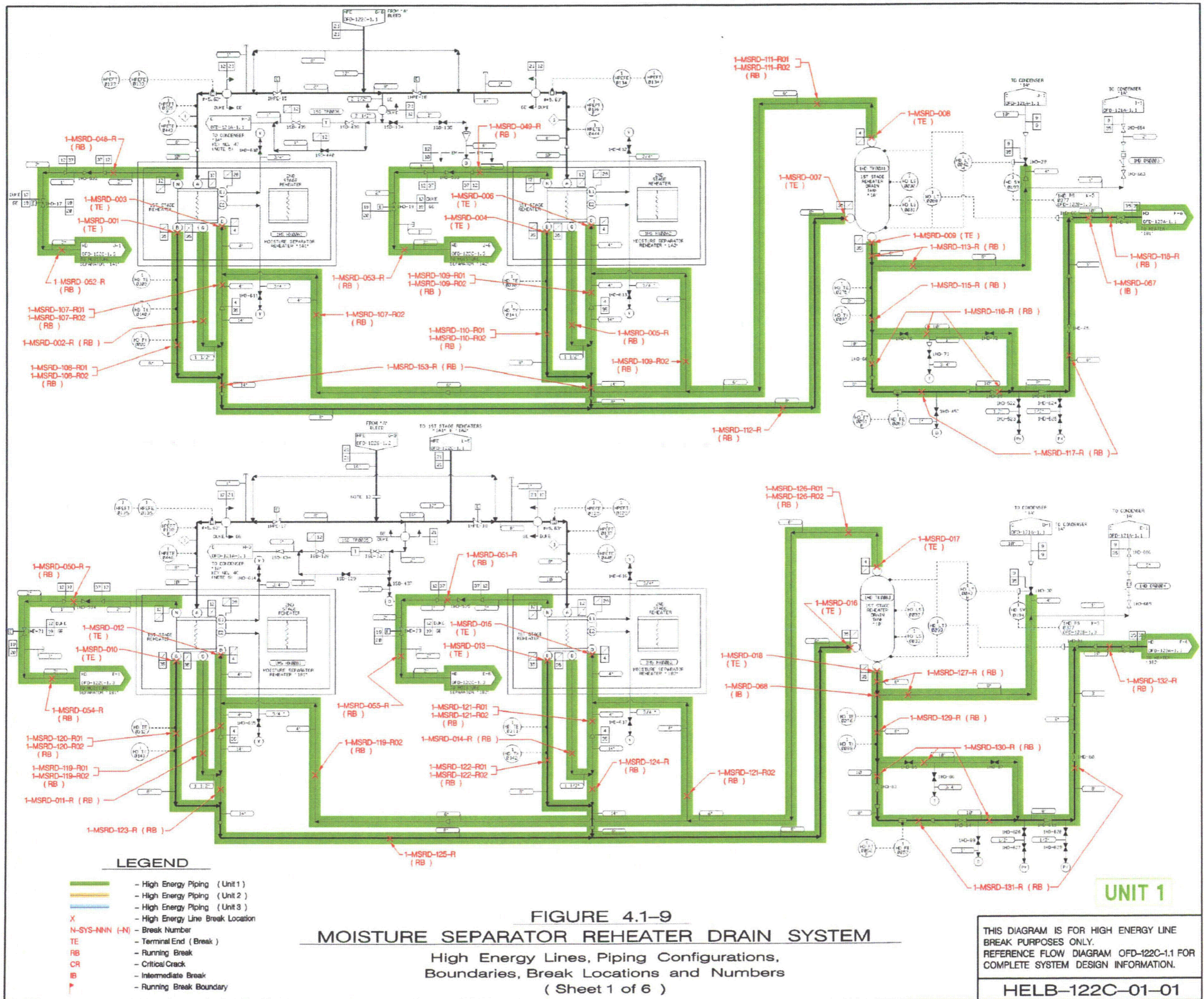
Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. or Break Elev. (See Note 6)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-MSRD-103-R	122C-1.3	RB	8.625	0.322	TB	410B 410P	774'-0" - 784'-0"	D-E	15-17	160	380
1-MSRD-104-R	122C-1.3	RB	6.625	0.280	TB	410B	781'-0" - 785'-9"	E-G	16-18	160	380
1-MSRD-105-R	122C-1.3	RB	8.625	0.322	TB	410B, 410F	774'-0" - 784'-0"	F-G	15-17	160	380
1-MSRD-106-R	122C-1.4 122C-1.3	RB	2.375	0.154	TB	410B	783'-3"	F-H	15-16	200	380
1-MSRD-107-R01	122C-1.1	RB	4.500	0.237	TB	410L	775'-0"	B-C	13-15	460	460
1-MSRD-107-R02	122C-1.1	RB	4.500	0.237	TB	410H	796'-0"	B-C	13-15	460	460
1-MSRD-108-R01	122C-1.1	RB	8.625	0.322	TB	410L	775'-0"	B-C	14-15	460	460
1-MSRD-108-R02	122C-1.1	RB	8.625	0.322	TB	410H	796'-0"	B-C	13-15	460	460
1-MSRD-109-R01	122C-1.1	RB	4.500	0.237	TB	410L	775'-0"	B-D	13-15	460	460
1-MSRD-109-R02	122C-1.1	RB	4.500	0.237	TB	410H	796'-0"	B-D	13-15	460	460
1-MSRD-110-R01	122C-1.1	RB	8.625	0.322	TB	410L	775'-0"	B-C	14-15	460	460
1-MSRD-110-R02	122C-1.1	RB	8.625	0.322	TB	410H	796'-0"	B-D	13-15	460	460
1-MSRD-111-R01	122C-1.1	RB	6.625	0.280	TB	410B, 410L	775'-0"	B-E	13-17	460	460
1-MSRD-111-R02	122C-1.1	RB	6.625	0.280	TB	410H	796'-0"	B-D	13-15	460	460
1-MSRD-112-R	122C-1.1	RB	8.625	0.322	TB	410B	775'-0"	B-E	14-17	460	460
1-MSRD-113-R	122C-1.1	RB	8.625	0.322	TB	410B	775'-0"	D-CI	16-17	460	460
1-MSRD-115-R	122C-1.1	RB	8.625	0.322	TB	410B, 410A	775'-0"	D-H	16-18	460	460
1-MSRD-116-R	122C-1.1	RB	10.750	0.365	TB	410A	775'-0"	G-J	17-19	460	460
1-MSRD-117-R	122C-1.1	RB	8.625	0.322	TB	410A	775'-0"	H-K	18-19	460	460
1-MSRD-118-R	122C-1.1 123A-1.1	RB	10.750	0.365	TB	410A	775'-0"	J-K	18-19	460	460
1-MSRD-119-R01	122C-1.1	RB	4.500	0.237	TB	410L	775'-0"	H-J	14-15	460	460
1-MSRD-119-R02	122C-1.1	RB	4.500	0.237	TB	410G	796'-0"	H-J	14-15	460	460
1-MSRD-120-R01	122C-1.1	RB	8.625	0.322	TB	410L	775'-0"	H-J	14-15	460	460

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. or Break Elev. (See Note 6)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-MSRD-120-R02	122C-1.1	RB	8.625	0.322	TB	410G	796'-0"	H-J	13-15	460	460
1-MSRD-121-R01	122C-1.1	RB	4.500	0.237	TB	410L	775'-0"	H-J	14-15	460	460
1-MSRD-121-R02	122C-1.1	RB	4.500	0.237	TB	410G	796'-0"	G-J	13-15	460	460
1-MSRD-122-R01	122C-1.1	RB	8.625	0.322	TB	410L	775'-0"	H-J	14-15	460	460
1-MSRD-122-R02	122C-1.1	RB	8.625	0.322	TB	410G	796'-0"	G-J	13-15	460	460
1-MSRD-123-R	122C-1.1	RB	14.000	0.375	TB	410L	775'-0"	H-J	14-15	460	460
1-MSRD-124-R	122C-1.1	RB	14.000	0.375	TB	410L	775'-0"	H-J	14-15	460	460
1-MSRD-125-R	122C-1.1	RB	8.625	0.322	TB	410B	775'-0"	F-J	14-17	460	460
1-MSRD-126-R01	122C-1.1	RB	6.625	0.280	TB	410B	775'-0"	F-J	14-17	460	460
1-MSRD-126-R02	122C-1.1	RB	6.625	0.280	TB	410H	796'-0"	G-J	14-15	460	460
1-MSRD-127-R	122C-1.1	RB	8.625	0.322	TB	410B	775'-0"	CI-G	16-17	460	460
1-MSRD-129-R	122C-1.1	RB	8.625	0.322	TB	410B	775'-0"	F-J	16-17	460	460
1-MSRD-130-R	122C-1.1	RB	10.750	0.365	TB	410B	775'-0"	G-J	16-18	460	460
1-MSRD-131-R	122C-1.1	RB	8.625	0.322	TB	410A, 410B	775'-0"	H-K	16-19	460	460
1-MSRD-132-R	122C-1.1 123A-1.1	RB	10.750	0.365	TB	410A	775'-0"	J-L	18-19	460	460
1-MSRD-133-R01	122C-1.2	RB	8.625	0.322	TB	410L	775'-0"	B-C	14-15	900	540
1-MSRD-133-R02	122C-1.2	RB	8.625	0.322	TB	410H	796'-0"	B-C	13-15	900	540
1-MSRD-134-R01	122C-1.2	RB	8.625	0.322	TB	410L	775'-0"	B-C	14-15	900	540
1-MSRD-134-R02	122C-1.2	RB	8.625	0.322	TB	410H	796'-0"	B-D	13-15	900	540
1-MSRD-135-R01	122C-1.2	RB	6.625	0.280	TB	410B	775'-0"	C-E	15-17	900	540
1-MSRD-135-R02	122C-1.2	RB	6.625	0.280	TB	410H	796'-0"	B-D	13-16	900	540
1-MSRD-136-R	122C-1.2	RB	10.750	0.365	TB	410B, 410L	775'-0"	B-D	14-17	900	540
1-MSRD-137-R	122C-1.2	RB	10.750	0.365	TB	410B	775'-0"	C-CI	16-17	900	540
1-MSRD-139-R	122C-1.2	RB	10.750	0.365	TB	410B	775'-0"	C-G	15-17	900	540

Break ID	Flow Diagram (OFD-)	Break Type	Pipe OD (in)	Pipe Thickness (in)	Building	Layout Drawing (O-)	Floor Elev. or Break Elev. (See Note 6)	Location (Room No. or Column Numbers)		Op Pres. (psig)	Op Temp. (°F)
1-MSRD-140-R	122C-1.2	RB	12.750	0.688	TB	410B	775'-0"	F-G	16-17	900	540
1-MSRD-141-R01	122C-1.2	RB	8.625	0.322	TB	410L	775'-0"	H-J	14-15	900	540
1-MSRD-141-R02	122C-1.2	RB	8.625	0.322	TB	410H	796'-0"	H-J	13-15	900	540
1-MSRD-142-R01	122C-1.2	RB	8.625	0.322	TB	410L	775'-0"	H-J	14-15	900	540
1-MSRD-142-R02	122C-1.2	RB	8.625	0.322	TB	410H	796'-0"	G-J	13-15	900	540
1-MSRD-143-R01	122C-1.2	RB	6.625	0.280	TB	410B	775'-0"	G-H	16-17	900	540
1-MSRD-143-R02	122C-1.2	RB	6.625	0.280	TB	410G	796'-0"	F-J	13-17	900	540
1-MSRD-144-R	122C-1.2	RB	14.000	0.750	TB	410L	775'-0"	H-J	14-15	900	540
1-MSRD-145-R	122C-1.2	RB	14.000	0.750	TB	410L	775'-0"	H-J	14-15	900	540
1-MSRD-146-R	122C-1.2	RB	10.750	0.365	TB	410B	775'-0"	G-J	14-17	900	540
1-MSRD-147-R	122C-1.2	RB	10.750	0.365	TB	410B	775'-0"	E-H	16-17	900	540
1-MSRD-149-R	122C-1.2	RB	10.750	0.365	TB	410B	775'-0"	D-H	15-17	900	540
1-MSRD-150-R	122C-1.2	RB	12.750	0.688	TB	410B	775'-0"	D-F	16-17	900	540
1-MSRD-151-R01	122C-1.2	RB	18.000	0.375	TB	410B	775'-0"	E-H	16-17	470	460
1-MSRD-151-R02	122C-1.2	RB	18.000	0.375	TB	410G	796'-0"	H-M	16-20	470	460
1-MSRD-152-R	122C-1.2	RB	6.625	0.432	TB	410I	796'-0"	L-M	20-21	470	460
1-MSRD-153-R	122C-1.1	RB	14.000	0.438	TB	410L	775'-0"	B-C	14-15	460	460
1-MSRD-154-R	122C-1.2	RB	14.000	0.438	TB	410L	775'-0"	B-C	14-15	460	460

Notes:

1. Break numbers may not be consecutive
2. Break type: RB – Running Break (Piping not analyzed for seismic), TE – Terminal End, IB – Intermediate Break, CR – Critical Cracks
3. Building: TB – Turbine Building, AB – Auxiliary Building, EPR – East Penetration Room, Yard.
4. Each running break may contain one or more sub-breaks. For the Unit 1 Moisture Separator Reheater Drain System 30 Terminal End Breaks, two (2) Intermediate Breaks and 138 Running Breaks were considered; the non-excluded breaks listed in this table include 30 Terminal End Breaks, two (2) Intermediate Breaks, & 132 Running Breaks
5. CI indicates Centerline of Turbine/Generator
6. For Terminal End and Intermediate Break locations the elevation of the break location is given. For Running Breaks with a single elevation the elevation of the RB is given, and for Running Breaks with multiple elevations the elevation of the floor or room containing the RB is given.
7. Other Abbreviations: OD – Outer Diameter, in – inches, Op - operating



LEGEND

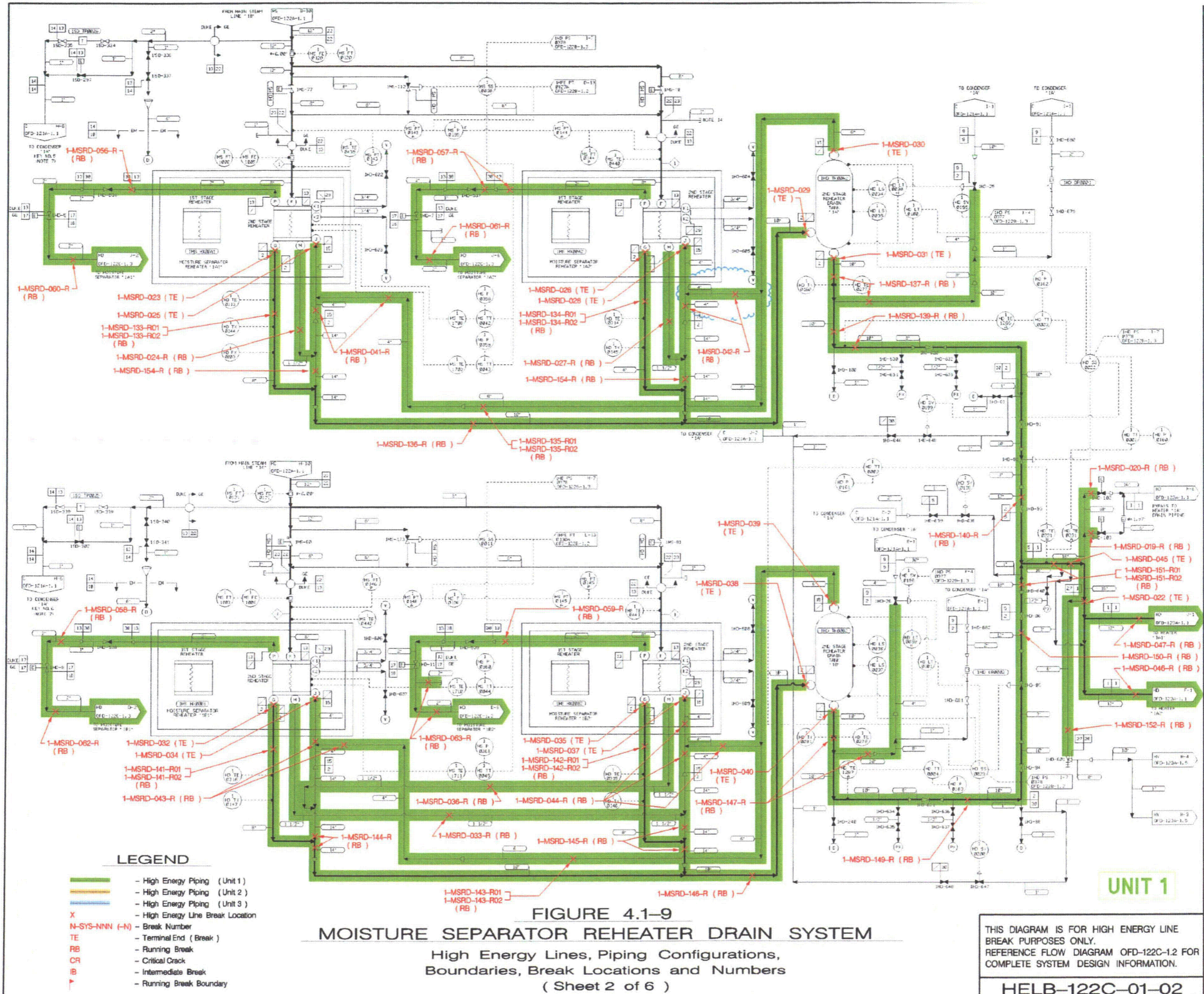
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- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-MNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- |— - Running Break Boundary

FIGURE 4.1-9
MOISTURE SEPARATOR REHEATER DRAIN SYSTEM

High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 1 of 6)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122C-1.1 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.



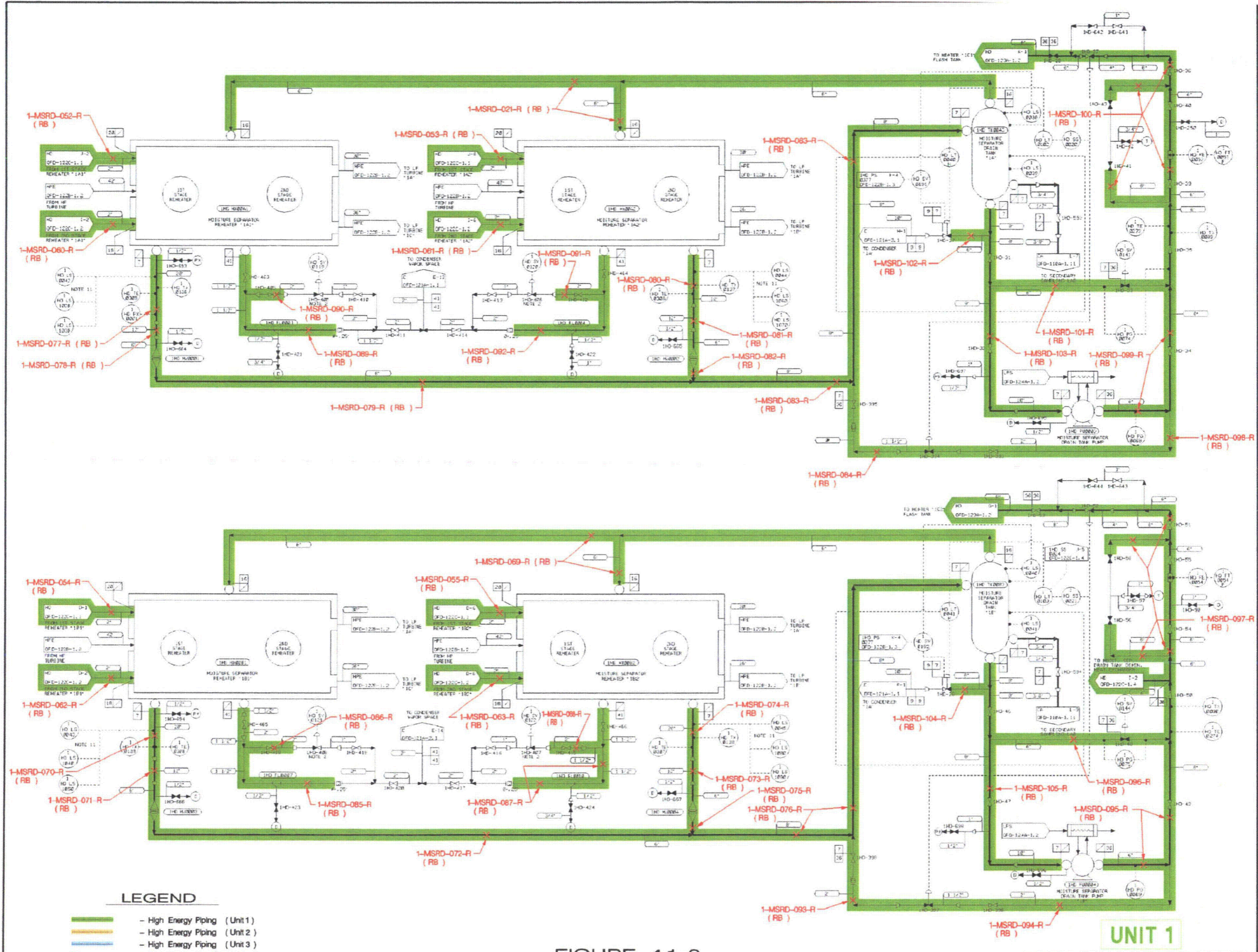
LEGEND

- High Energy Piping (Unit 1)
- High Energy Piping (Unit 2)
- High Energy Piping (Unit 3)
- X High Energy Line Break Location
- N-SYS-NNN (-N) Break Number
- TE Terminal End (Break)
- RB Running Break
- CR Critical Crack
- IB Intermediate Break
- ▬ Running Break Boundary

FIGURE 4.1-9
MOISTURE SEPARATOR REHEATER DRAIN SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 2 of 6)

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122C-1.2 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122C-01-02



LEGEND

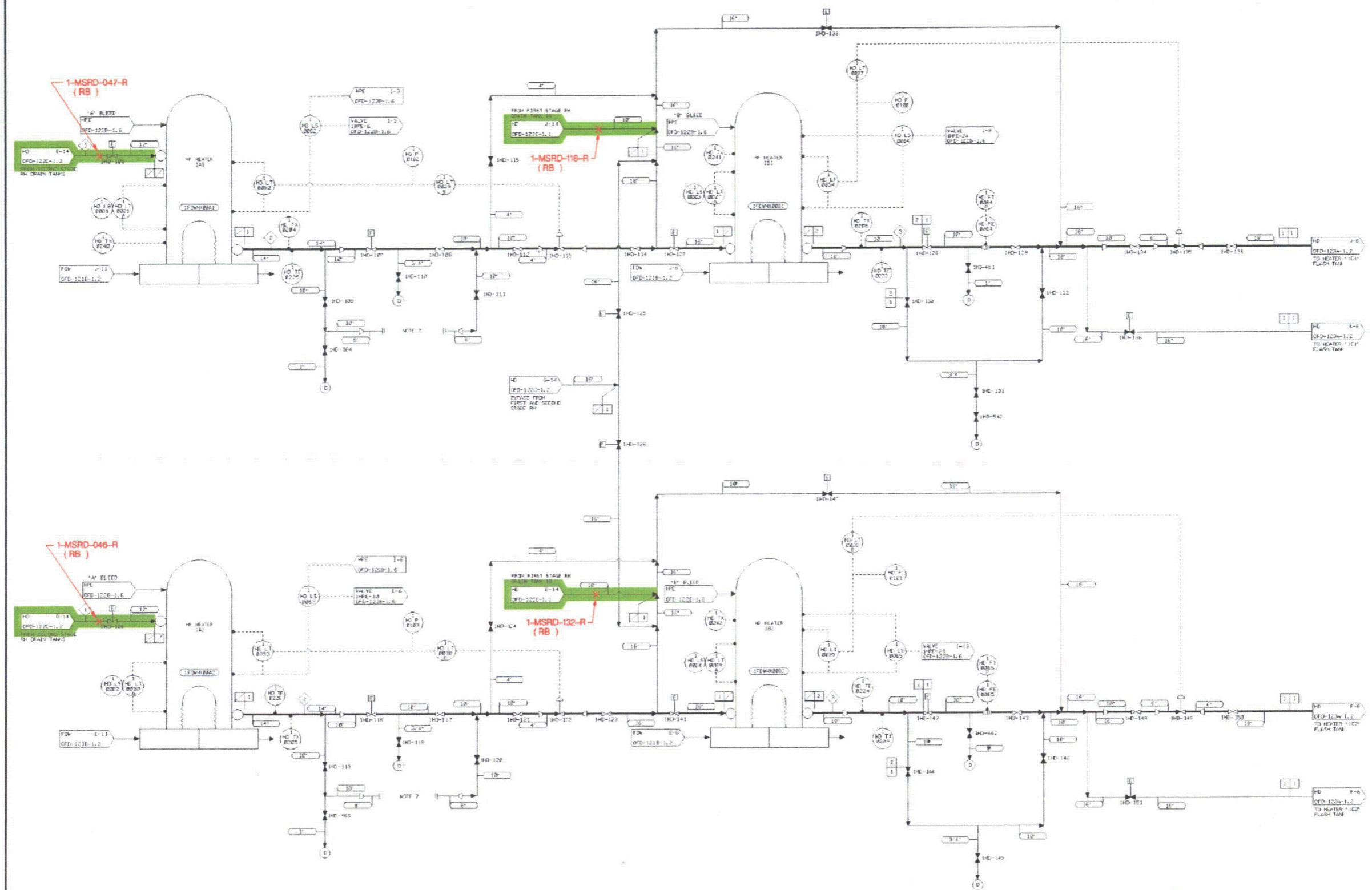
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- High Energy Piping (Unit 2)
- High Energy Piping (Unit 3)
- X High Energy Line Break Location
- N-SYS-NNN (-N) Break Number
- TE Terminal/End (Break)
- RB Running Break
- CR Critical Crack
- IB Intermediate Break
- ▶ Running Break Boundary

FIGURE 4.1-9
MOISTURE SEPARATOR REHEATER DRAIN SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 3 of 6)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122C-1.3 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122C-01-03



LEGEND

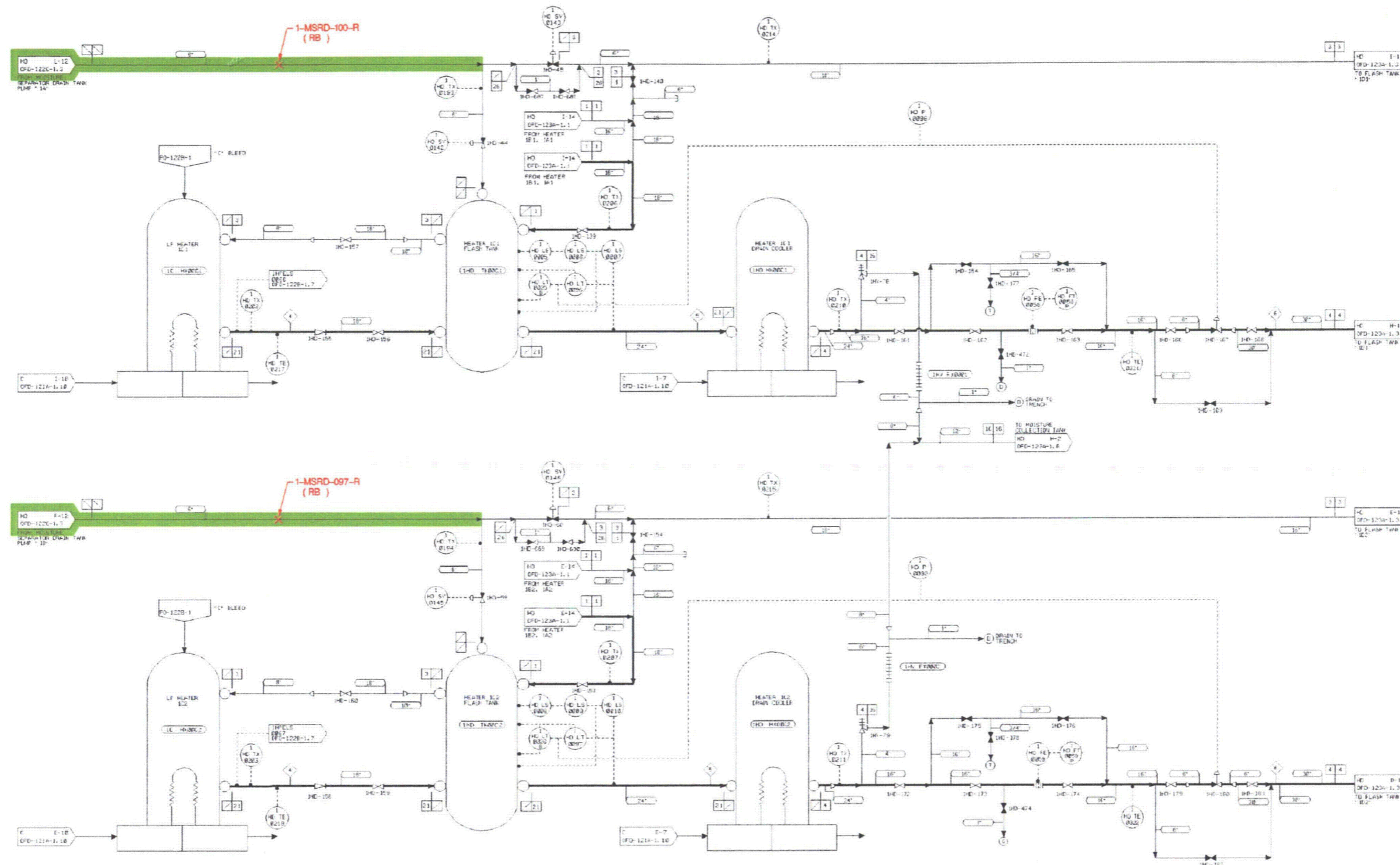
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- High Energy Piping (Unit 2)
- High Energy Piping (Unit 3)
- X High Energy Line Break Location
- N-SYS-NNN (-N) Break Number
- TE Terminal End (Break)
- RB Running Break
- CR Critical Crack
- IB Intermediate Break
- ↑ Running Break Boundary

FIGURE 4.1-9
MOISTURE SEPARATOR REHEATER DRAIN SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 4 of 6)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-123A-1.1 FOR COMPLETE SYSTEM DESIGN INFORMATION.

HELB-123A-01-01



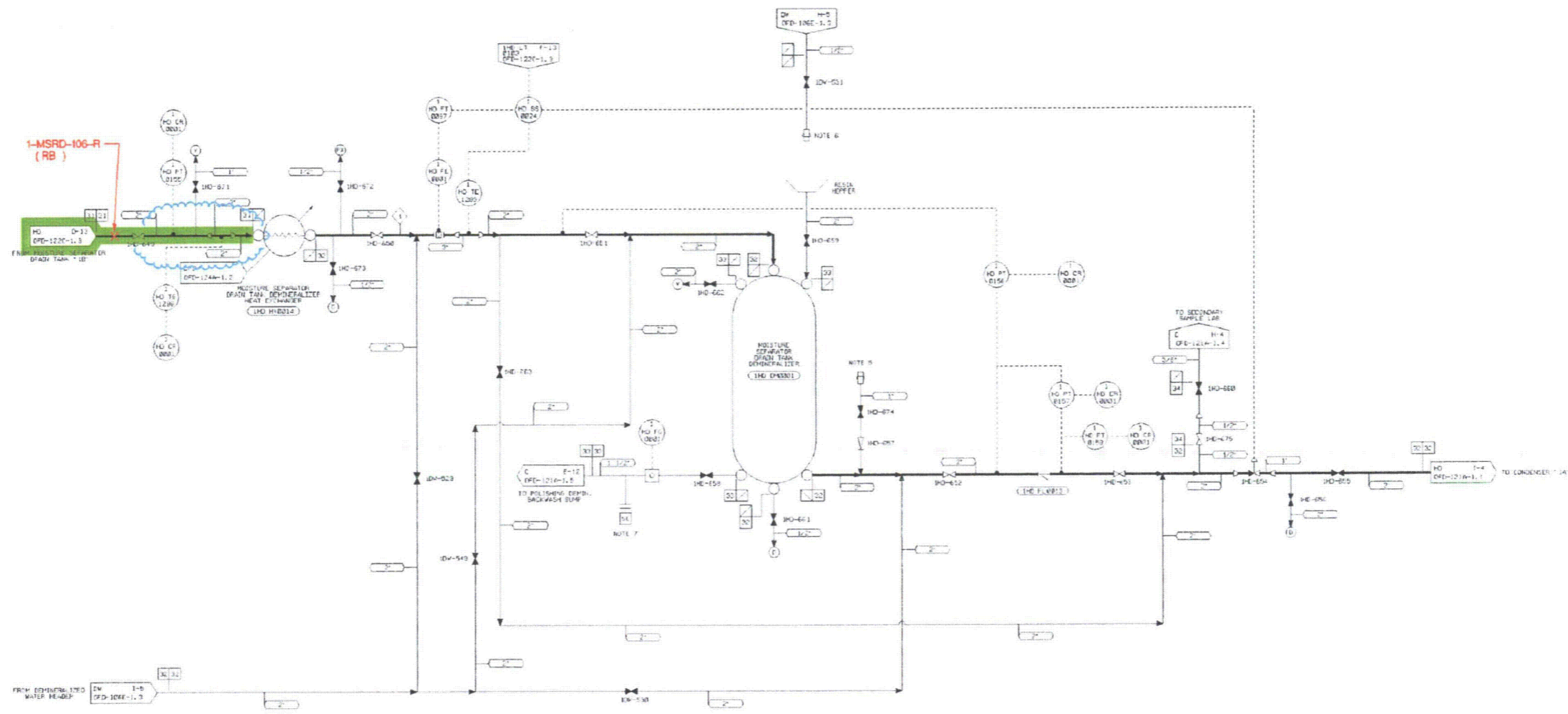
- LEGEND**
- - High Energy Piping (Unit 1)
 - - High Energy Piping (Unit 2)
 - - High Energy Piping (Unit 3)
 - X - High Energy Line Break Location
 - N-SYS-NNN (-N) - Break Number
 - TE - Terminal End (Break)
 - RB - Running Break
 - CR - Critical Crack
 - IB - Intermediate Break
 - |— - Running Break Boundary

FIGURE 4.1-9
MOISTURE SEPARATOR REHEATER DRAIN SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 5 of 6)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-123A-1.2 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-123A-01-02



LEGEND

- - High Energy Piping (Unit 1)
- - High Energy Piping (Unit 2)
- - High Energy Piping (Unit 3)
- X - High Energy Line Break Location
- N-SYS-NNN (-N) - Break Number
- TE - Terminal End (Break)
- RB - Running Break
- CR - Critical Crack
- IB - Intermediate Break
- ▬ - Running Break Boundary

FIGURE 4.1-9
MOISTURE SEPARATOR REHEATER DRAIN SYSTEM
 High Energy Lines, Piping Configurations,
 Boundaries, Break Locations and Numbers
 (Sheet 6 of 6)

UNIT 1

THIS DIAGRAM IS FOR HIGH ENERGY LINE
 BREAK PURPOSES ONLY.
 REFERENCE FLOW DIAGRAM OFD-122C-1.4 FOR
 COMPLETE SYSTEM DESIGN INFORMATION.

HELB-122C-01-04