

REVISIONS	
78	EC 13556 DWN: JWP 12-22-08 CHK: BAL 12-22-08 APPR: MH 1-5-09
79	EC 12704 DWN: JWP 10-9-09 CHK: BAL 10-12-09 APPR: BH 10-12-09
80	EC 16616 DWN: JWP 1-3-11 CHK: BAL 1-4-11 APPR: JWP 1-6-11
81	EC 19070 DWN: JWP 9-11-12 CHK: BAL 9-12-12 APPR: JWP 9-13-12
82	EC 25011 PAGE 3 ADDED TO .PDF DOC. DWN: JWP 1-28-15 CHK: BAL 1-28-15 APPR: RAD 1-28-15
83	EC 23857 DWN: JWP 4-13-15 CHK: ESS 5-2-15 APPR: MJW 5-2-15

- REFERENCE DRAWINGS**
- CRD HYDRAULIC SYSTEM F.C.D. (GE 729F449) 5828-APED-3-28
  - CRD HYDRAULIC SYSTEM PROCESS FLOW DIAG. (GE 729E259) 5828-APED-3-21-2
  - NX-7866-32 FOR ADDITIONAL PIPING
- NOTES:**
- ALL SCREWED CAPS SHOWN S.W. MUST BE SEAL WELDED FOLLOWING FLUSH AND CHECKOUT TESTS.
  - FOR TYPICAL INDIVIDUAL HYDRAULIC CONTROL UNIT SEE DRAWING No. M-119, NH-36245

COLOR LEGEND	
<span style="background-color: black; width: 10px; height: 10px; display: inline-block;"></span>	ASME CLASS 1/QUALITY GROUP A
<span style="background-color: gray; width: 10px; height: 10px; display: inline-block;"></span>	ASME CLASS 2/QUALITY GROUP B
<span style="background-color: lightgray; width: 10px; height: 10px; display: inline-block;"></span>	ASME CLASS 3/QUALITY GROUP C
<span style="border: 1px solid black; width: 10px; height: 10px; display: inline-block;"></span>	QUALITY GROUP D
<span style="border: 2px solid black; width: 10px; height: 10px; display: inline-block;"></span>	SAFETY RELATED MECHANICAL
<span style="border: 2px dashed black; width: 10px; height: 10px; display: inline-block;"></span>	SAFETY RELATED ELECTRICAL
<span style="border: 2px dotted black; width: 10px; height: 10px; display: inline-block;"></span>	SPECIAL CONCERNS ITEM

This map/drawing is to assist employees in the performance of their jobs. Your personal safety is provided for by using safety practices, procedures and equipment as described in safety training programs, manuals and SPAR's.

**M-118**  
MONTICELLO CAD DWG 'AL'

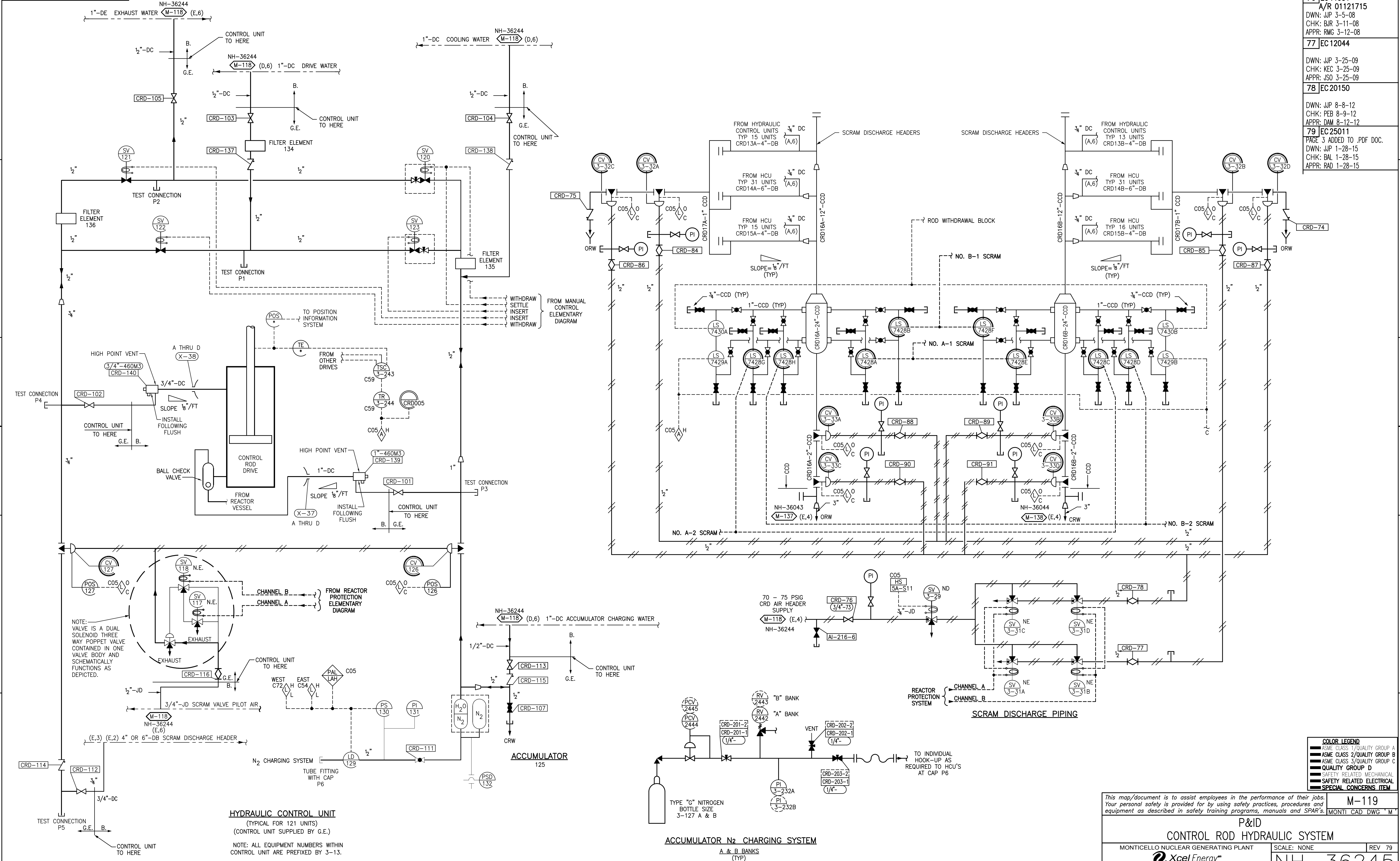
**CONTROL ROD HYDRAULIC SYSTEM**  
P&ID

MONTICELLO NUCLEAR GENERATING PLANT  
Xcel Energy  
NORTHERN STATES POWER COMPANY

SCALE: NONE      REV 83

NH-36244

76	EC 11951
A/R 01121715	
DWN: JJP 3-5-08	
CHK: BJR 3-11-08	
APPR: RMG 3-12-08	
77	EC 12044
DWN: JJP 3-25-09	
CHK: KEC 3-25-09	
APPR: JSO 3-25-09	
78	EC 20150
DWN: JJP 8-8-12	
CHK: PEB 8-9-12	
APPR: DAM 8-12-12	
79	EC 25011
PAGE 3 ADDED TO .PDF DOC.	
DWN: JJP 1-28-15	
CHK: BAL 1-28-15	
APPR: RAD 1-28-15	



**COLOR LEGEND**

- ASME CLASS 1/QUALITY GROUP A
- ASME CLASS 2/QUALITY GROUP B
- ASME CLASS 3/QUALITY GROUP C
- QUALITY GROUP D
- SAFETY RELATED MECHANICAL
- SAFETY RELATED ELECTRICAL
- SPECIAL CONCERNS ITEM

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M-119  
MONTICELLO CAD DWG 'M'

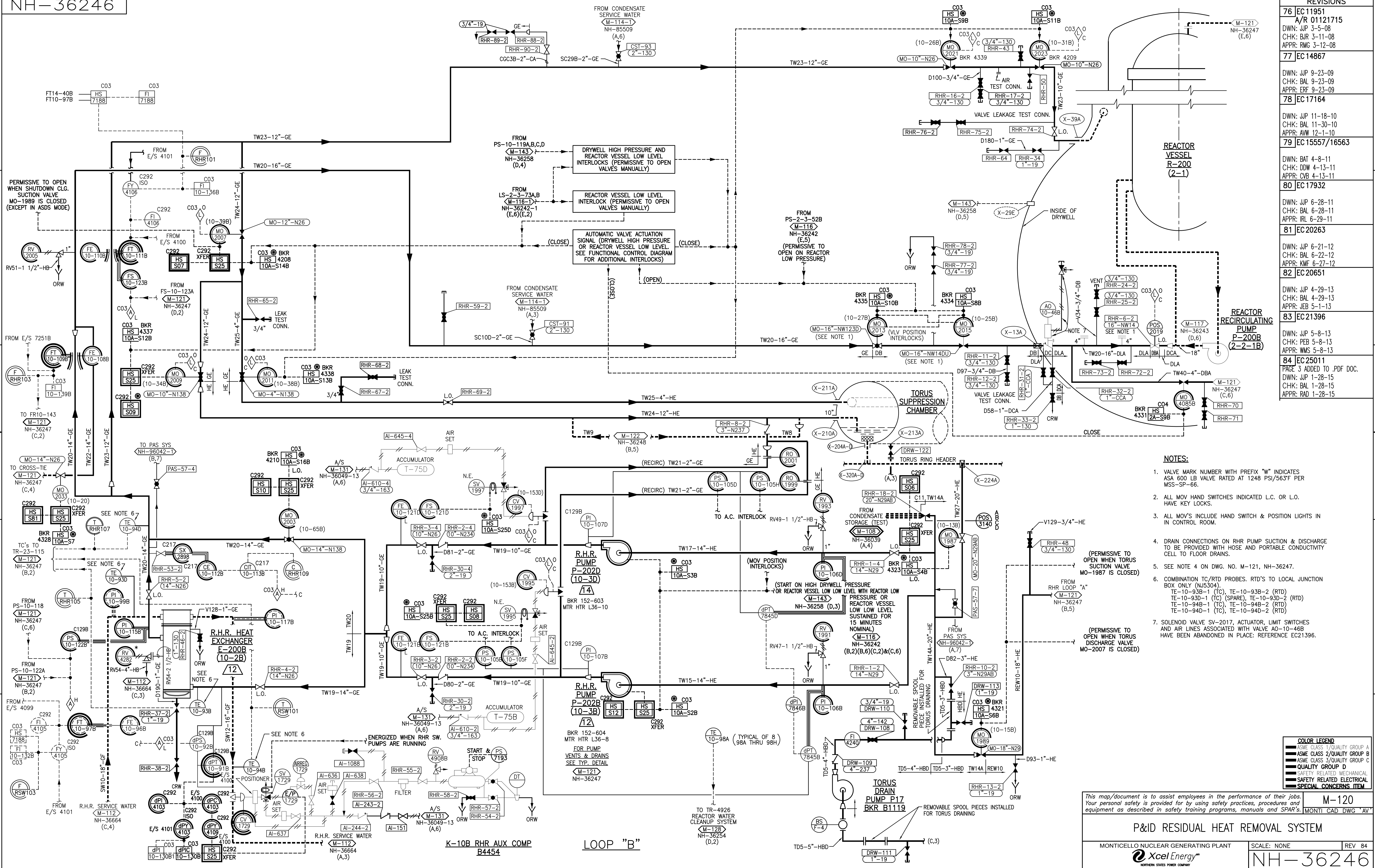
**P&ID  
CONTROL ROD HYDRAULIC SYSTEM**

MONTICELLO NUCLEAR GENERATING PLANT      SCALE: NONE      REV 79

**Xcel Energy**  
NORTHERN STATES POWER COMPANY

**NH-36245**





REVISIONS	
76	EC 11951 A/R 01121715 DWN: JWP 3-5-08 CHK: BJR 3-11-08 APPR: RMG 3-12-08
77	EC 14867 DWN: JWP 9-23-09 CHK: BAL 9-23-09 APPR: ERF 9-23-09
78	EC 17164 DWN: JWP 11-18-10 CHK: BAL 11-30-10 APPR: AWM 12-1-10
79	EC 15557/16563 DWN: BAT 4-8-11 CHK: DW 4-13-11 APPR: CVB 4-13-11
80	EC 17932 DWN: JWP 6-28-11 CHK: BAL 6-28-11 APPR: IRL 6-29-11
81	EC 20263 DWN: JWP 6-21-12 CHK: BAL 6-22-12 APPR: KMF 6-27-12
82	EC 20651 DWN: JWP 4-29-13 CHK: BAL 4-29-13 APPR: JEB 5-1-13
83	EC 21396 DWN: JWP 5-8-13 CHK: PEB 5-8-13 APPR: WMS 5-8-13
84	EC 25011 PAGE 3 ADDED TO .PDF DOC. DWN: JWP 1-28-15 CHK: BAL 1-28-15 APPR: RAD 1-28-15

- NOTES:**
1. VALVE MARK NUMBER WITH PREFIX "W" INDICATES ASA 600 LB VALVE RATED AT 1248 PSI/563°F PER MSS-SP-66.
  2. ALL MOV HAND SWITCHES INDICATED L.C. OR L.O. HAVE KEY LOCKS.
  3. ALL MOV'S INCLUDE HAND SWITCH & POSITION LIGHTS IN CONTROL ROOM.
  4. DRAIN CONNECTIONS ON RHR PUMP SUCTION & DISCHARGE TO BE PROVIDED WITH HOSE AND PORTABLE CONDUCTIVITY CELL TO FLOOR DRAINS.
  5. SEE NOTE 4 ON DWG. NO. M-121, NH-36247.
  6. COMBINATION TC/RTD PROBES. RTD'S TO LOCAL JUNCTION BOX ONLY (NUS304).  
TE-10-93B-1 (TC), TE-10-93B-2 (RTD)  
TE-10-93D-1 (TC) (SPARE), TE-10-93D-2 (RTD)  
TE-10-94B-1 (TC), TE-10-94B-2 (RTD)  
TE-10-94D-1 (TC), TE-10-94D-2 (RTD)
  7. SOLENOID VALVE SV-2017, ACTUATOR, LIMIT SWITCHES AND AIR LINES ASSOCIATED WITH VALVE AO-10-46B HAVE BEEN ABANDONED IN PLACE. REFERENCE EC21396.

COLOR LEGEND	
—	ASME CLASS 1/QUALITY GROUP A
—	ASME CLASS 2/QUALITY GROUP B
—	ASME CLASS 3/QUALITY GROUP C
—	QUALITY GROUP D
—	SAFETY RELATED MECHANICAL
—	SAFETY RELATED ELECTRICAL
—	SPECIAL CONCERNS ITEM

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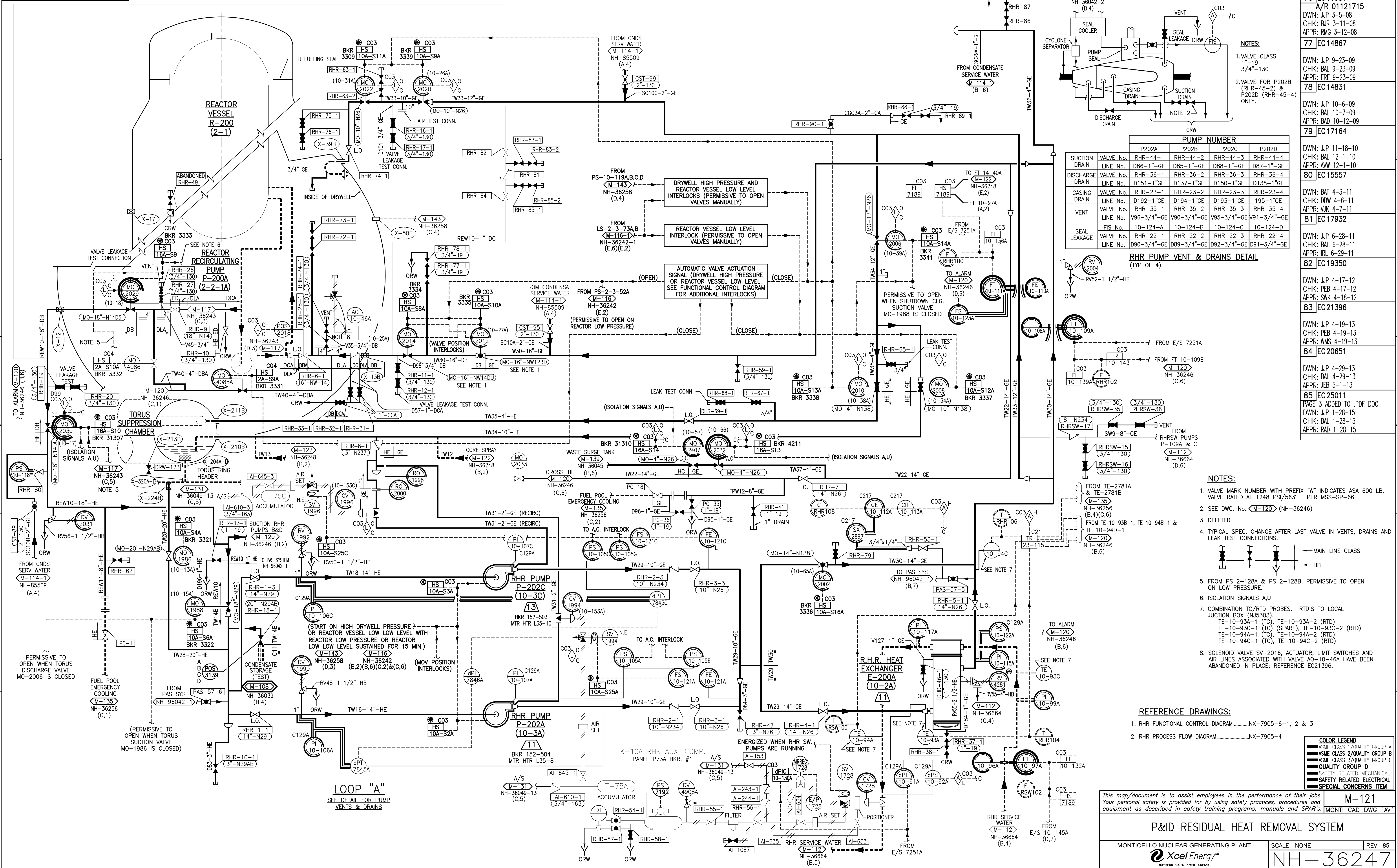
M-120  
MONTICELLO CAD DWG 'AV'

**P&ID RESIDUAL HEAT REMOVAL SYSTEM**

MONTICELLO NUCLEAR GENERATING PLANT      SCALE: NONE      REV 84

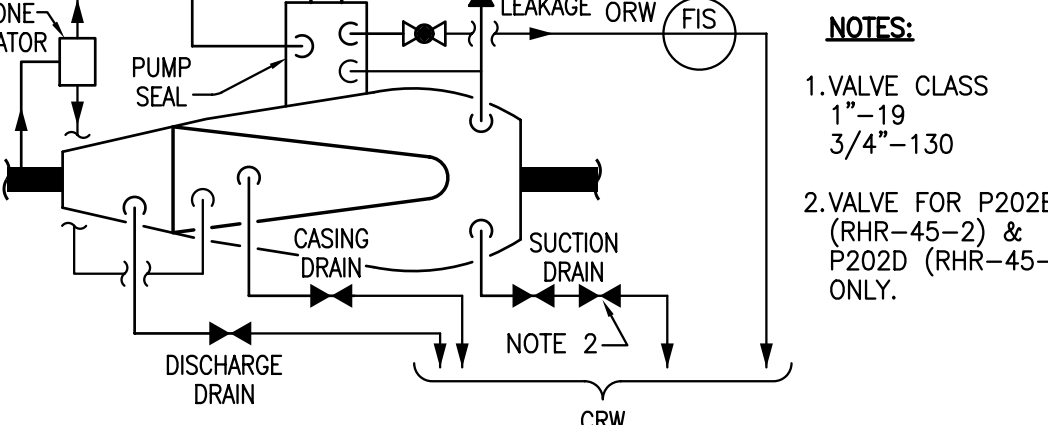
**XcelEnergy**  
NORTHERN STATES POWER COMPANY

**NH-36246**



**REVISIONS**

76	EC 11951	A/R 01121715
DWN: JWP 3-5-08 CHK: BJR 3-11-08 APPR: RMG 3-12-08		
77	EC 14867	
DWN: JWP 9-23-09 CHK: BAL 9-23-09 APPR: ERF 9-23-09		
78	EC 14831	
DWN: JWP 10-6-09 CHK: BAL 10-7-09 APPR: BAD 10-12-09		
79	EC 17164	
DWN: JWP 11-18-10 CHK: BAL 12-1-10 APPR: ANW 12-1-10		
80	EC 15557	
DWN: BAT 4-3-11 CHK: DW 4-6-11 APPR: VJK 4-7-11		
81	EC 17932	
DWN: JWP 6-28-11 CHK: PEB 6-28-11 APPR: RLL 6-29-11		
82	EC 19350	
DWN: JWP 4-17-12 CHK: PEB 4-17-12 APPR: WMS 4-19-13		
83	EC 21396	
DWN: JWP 4-19-13 CHK: BAL 4-29-13 APPR: JEB 5-1-13		
84	EC 20651	
DWN: JWP 4-29-13 CHK: BAL 4-29-13 APPR: JEB 5-1-13		
85	EC 25011	
PAGE 3 ADDED TO .PDF DOC. DWN: JWP 1-28-15 CHK: BAL 1-28-15 APPR: RAD 1-28-15		



**RHR PUMP VENT & DRAINS DETAIL**  
(TYP OF 4)

	P202A	P202B	P202C	P202D
SUCTION DRAIN	VALVE No. RHR-44-1	RHR-44-2	RHR-44-3	RHR-44-4
DISCHARGE DRAIN	VALVE No. RHR-36-1	RHR-36-2	RHR-36-3	RHR-36-4
CASING DRAIN	VALVE No. RHR-23-1	RHR-23-2	RHR-23-3	RHR-23-4
VENT	LINE No. V96-3/4"-GE	V90-3/4"-GE	V95-3/4"-GE	V91-3/4"-GE
SEAL LEAKAGE	FIS VALVE No. 10-124-A	10-124-B	10-124-C	10-124-D
	VALVE No. RHR-22-1	RHR-22-2	RHR-22-3	RHR-22-4
	LINE No. D90-3/4"-GE	D89-3/4"-GE	D92-3/4"-GE	D91-3/4"-GE

- NOTES:**
- VALVE MARK NUMBER WITH PREFIX "M" INDICATES ASA 600 LB. VALVE RATED AT 1248 PSI/563" F PER MSS-SP-66.
  - SEE DWG. NO. M-120 (NH-36246)
  - DELETED
  - TYPICAL SPEC. CHANGE AFTER LAST VALVE IN VENTS, DRAINS AND LEAK TEST CONNECTIONS.
  - FROM PS 2-128A & PS 2-128B, PERMISSIVE TO OPEN ON LOW PRESSURE.
  - ISOLATION SIGNALS A/U
  - COMBINATION TC/RTD PROBES. RTD'S TO LOCAL JUNCTION BOX (N45303).  
TE-10-93A-1 (TC), TE-10-93A-2 (RTD)  
TE-10-93C-1 (TC) (SPARE), TE-10-93C-2 (RTD)  
TE-10-94A-1 (TC), TE-10-94A-2 (RTD)  
TE-10-94C-1 (TC), TE-10-94C-2 (RTD)
  - SOLENOID VALVE SV-2016, ACTUATOR, LIMIT SWITCHES AND AIR LINES ASSOCIATED WITH VALVE AO-10-46A HAVE BEEN ABANDONED IN PLACE; REFERENCE EC21396.

- REFERENCE DRAWINGS:**
- RHR FUNCTIONAL CONTROL DIAGRAM NX-7905-6-1, 2 & 3
  - RHR PROCESS FLOW DIAGRAM NX-7905-4

**COLOR LEGEND**

(Symbol)	ASME CLASS 1/QUALITY GROUP A
(Symbol)	ASME CLASS 2/QUALITY GROUP B
(Symbol)	ASME CLASS 3/QUALITY GROUP C
(Symbol)	QUALITY GROUP D
(Symbol)	SAFETY RELATED MECHANICAL
(Symbol)	SAFETY RELATED ELECTRICAL
(Symbol)	SPECIAL CONCERN ITEM

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**P&ID RESIDUAL HEAT REMOVAL SYSTEM**

MONTICELLO NUCLEAR GENERATING PLANT

Xcel Energy  
NORTHERN STATES POWER COMPANY

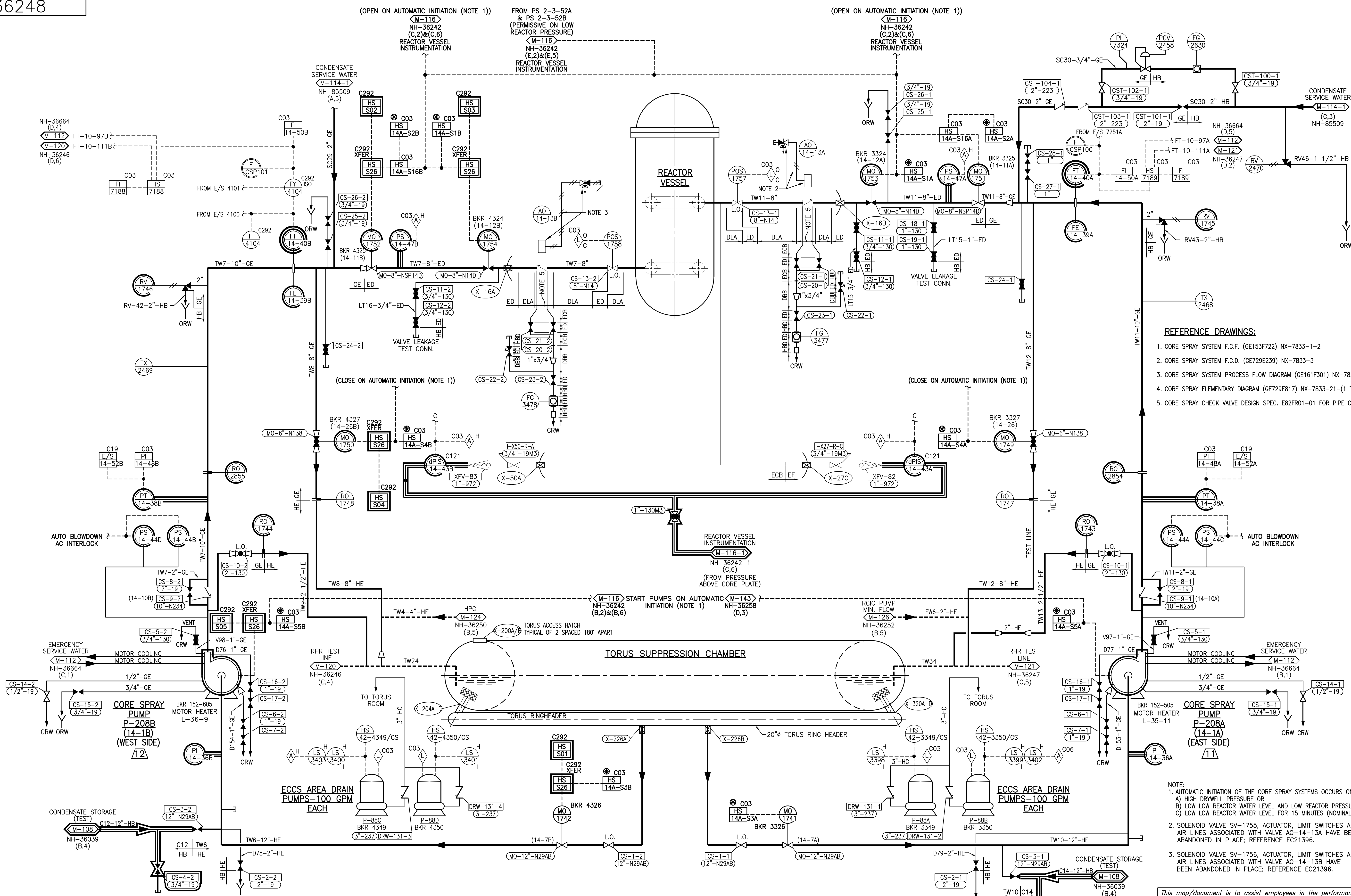
SCALE: NONE

REV 85

NH-36247



76	EC 10785
DWN: JJP 5-29-07 CHK: BAL 6-14-07 APPR: EAN 6-15-07	
77	EC 11310
A/R 01099604 DWN: JJP 8-16-07 CHK: BAL 8-20-07 APPR: JIH 8-20-07	
78	EC 11951
A/R 01121715 DWN: JJP 3-5-08 CHK: BUR 3-11-08 APPR: RMG 3-12-08	
79	EC 12433
A/R 01125736 DWN: JJP 4-21-08 CHK: BAL 4-21-08 APPR: JIH 4-21-08	
80	EC 18998
DWN: JJP 10-31-11 CHK: BAL 11-11-11 APPR: KMF 11-7-11	
81	EC 16693
DWN: JJP 3-21-12 CHK: PEB 3-21-12 APPR: KF 3-21-12	
82	EC 20651
DWN: JJP 4-29-13 CHK: BAL 4-29-13 APPR: JEB 5-1-13	
83	EC 21396
DWN: JJP 5-7-13 CHK: PEB 5-7-13 APPR: WMS 5-7-13	
84	EC 22928
DWN: JJP 12-2-13 CHK: BAL 12-2-13 APPR: WMS 12-2-13	
85	EC 25011
PAGE 3 ADDED TO .PDF DOC. DWN: JJP 1-28-15 CHK: BAL 1-28-15 APPR: RAD 1-28-15	



- REFERENCE DRAWINGS:**
1. CORE SPRAY SYSTEM F.C.F. (GE153F722) NX-7833-1-2
  2. CORE SPRAY SYSTEM F.C.D. (GE729E239) NX-7833-3
  3. CORE SPRAY SYSTEM PROCESS FLOW DIAGRAM (GE161F301) NX-7833-4
  4. CORE SPRAY ELEMENTARY DIAGRAM (GE729E817) NX-7833-21-(1 THRU 5)
  5. CORE SPRAY CHECK VALVE DESIGN SPEC. E82FR01-01 FOR PIPE CLASS

- NOTE:**
1. AUTOMATIC INITIATION OF THE CORE SPRAY SYSTEMS OCCURS ON:
    - A) HIGH DRYWELL PRESSURE OR
    - B) LOW LOW REACTOR WATER LEVEL AND LOW REACTOR PRESSURE OR
    - C) LOW LOW REACTOR WATER LEVEL FOR 15 MINUTES (NOMINAL).
  2. SOLENOID VALVE SV-1755, ACTUATOR, LIMIT SWITCHES AND AIR LINES ASSOCIATED WITH VALVE AO-14-13A HAVE BEEN ABANDONED IN PLACE; REFERENCE EC21396.
  3. SOLENOID VALVE SV-1756, ACTUATOR, LIMIT SWITCHES AND AIR LINES ASSOCIATED WITH VALVE AO-14-13B HAVE BEEN ABANDONED IN PLACE; REFERENCE EC21396.

**COLOR LEGEND**

—	ASME CLASS 1/QUALITY GROUP A
—	ASME CLASS 2/QUALITY GROUP B
—	ASME CLASS 3/QUALITY GROUP C
—	QUALITY GROUP D
—	SAFETY RELATED MECHANICAL
—	SAFETY RELATED ELECTRICAL
—	SPECIAL CONCERNS ITEM

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**P&ID CORE SPRAY SYSTEM**

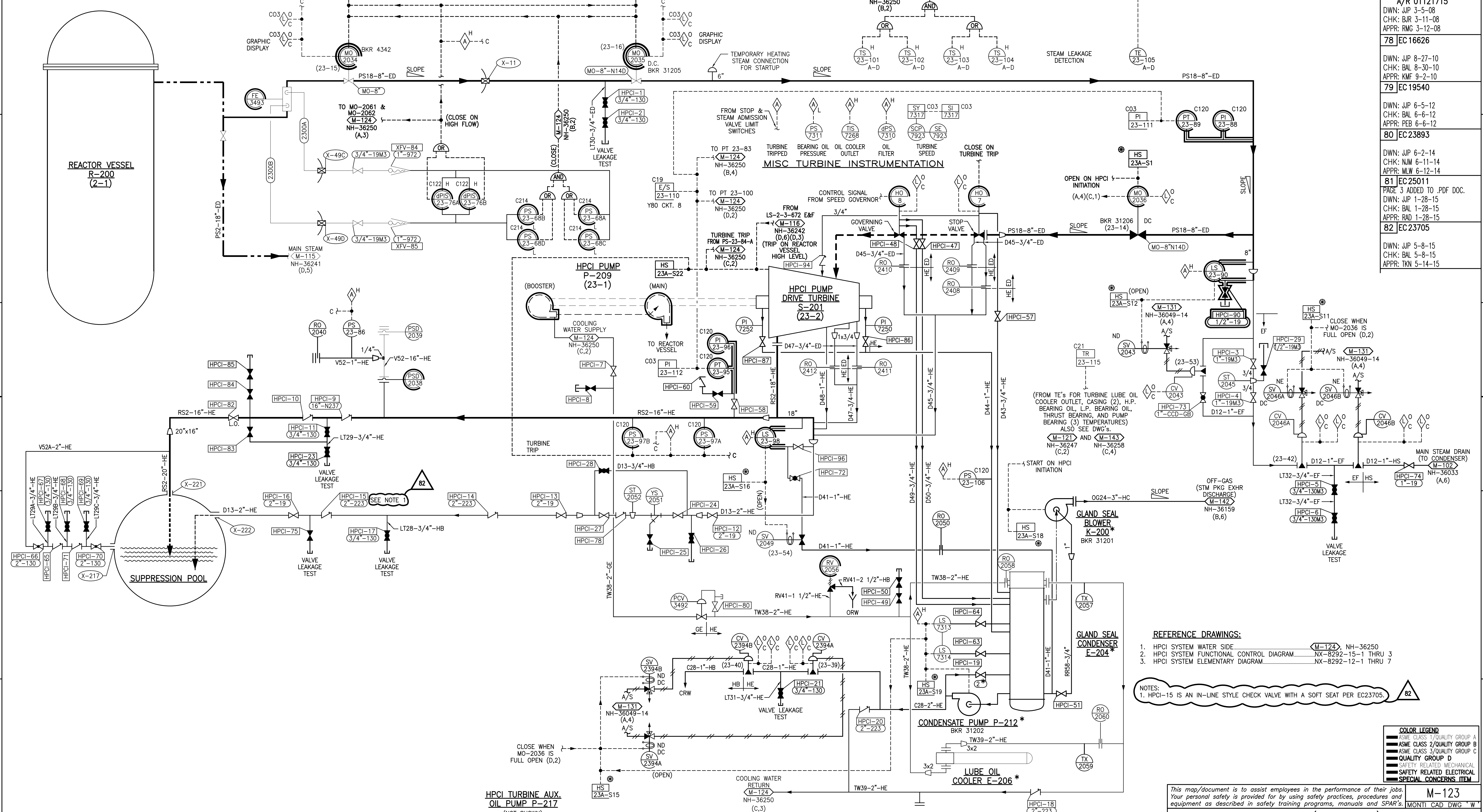
MONTICELLO NUCLEAR GENERATING PLANT

Xcel Energy  
NORTHERN STATES POWER COMPANY

SCALE: NONE    REV 85

NH-36248

REVISIONS	
076	EC 924 A/R . DWN: JWP 3-7-06 CHK: BAL 3-10-06 APPR: RES 3-10-06
77	EC 11951 A/R 01121715 DWN: JWP 3-5-08 CHK: BJR 3-11-08 APPR: RMG 3-12-08
78	EC 16626 DWN: JWP 8-27-10 CHK: BAL 8-30-10 APPR: KMF 9-2-10
79	EC 19540 DWN: JWP 6-5-12 CHK: BAL 6-6-12 APPR: PEB 6-12-12
80	EC 23893 DWN: JWP 6-2-14 CHK: NJM 6-11-14 APPR: MLW 6-12-14
81	EC 25011 PAGE 3 ADDED TO .PDF DOC. DWN: JWP 1-28-15 CHK: BAL 1-28-15 APPR: RAD 1-28-15
82	EC 23705 DWN: JWP 5-8-15 CHK: BAL 5-8-15 APPR: TKN 5-14-15



- REFERENCE DRAWINGS:**
- HPCI SYSTEM WATER SIDE. M-124, NH-36250
  - HPCI SYSTEM FUNCTIONAL CONTROL DIAGRAM. NX-8292-15-1 THRU 3
  - HPCI SYSTEM ELEMENTARY DIAGRAM. NX-8292-12-1 THRU 7

**NOTES:**

- HPCI-15 IS AN IN-LINE STYLE CHECK VALVE WITH A SOFT SEAT PER EC23705.

COLOR LEGEND	
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<span style="background-color: gray; color: black;"> </span>	ASME CLASS 2/QUALITY GROUP B
<span style="background-color: lightgray; color: black;"> </span>	ASME CLASS 3/QUALITY GROUP C
<span style="border: 1px solid black; color: black;"> </span>	QUALITY GROUP D
<span style="border: 1px dashed black; color: black;"> </span>	SAFETY RELATED MECHANICAL
<span style="border: 1px dotted black; color: black;"> </span>	SAFETY RELATED ELECTRICAL
<span style="border: 1px solid black; border-radius: 50%; color: black;"> </span>	SPECIAL CONCERNS ITEM

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M-123  
MONTICELLO CAD DWG "W"

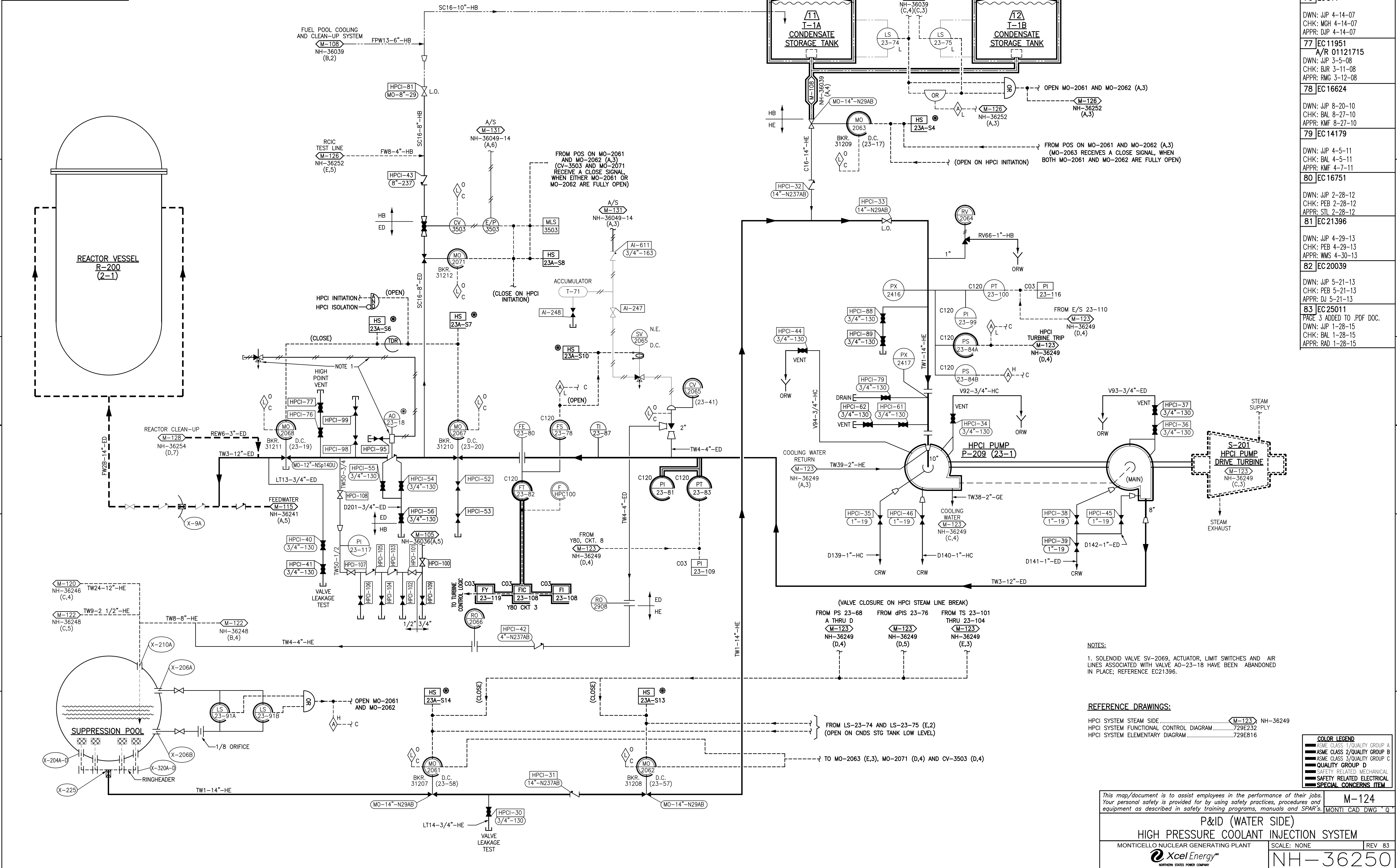
**P&ID (STEAM SIDE)**  
**HIGH PRESSURE COOLANT INJECTION SYSTEM**

MONTICELLO NUCLEAR GENERATING PLANT      SCALE: NONE      REV 82

**Xcel Energy**  
NORTHERN STATES POWER COMPANY

**NH-36249**

76	EC 811	DWN: JJP 4-14-07 CHK: MGH 4-14-07 APPR: DJP 4-14-07
77	EC 11951 A/R 01121715	DWN: JJP 3-5-08 CHK: BUR 3-11-08 APPR: RMG 3-12-08
78	EC 16624	DWN: JJP 8-20-10 CHK: BAL 8-27-10 APPR: KMF 4-7-11
79	EC 14179	DWN: JJP 4-5-11 CHK: BAL 4-5-11 APPR: KMF 4-7-11
80	EC 16751	DWN: JJP 2-28-12 CHK: PEB 2-28-12 APPR: STL 2-28-12
81	EC 21396	DWN: JJP 4-29-13 CHK: PEB 4-29-13 APPR: WMS 4-30-13
82	EC 20039	DWN: JJP 5-21-13 CHK: PEB 5-21-13 APPR: DJ 5-21-13
83	EC 25011	PAGE 3 ADDED TO .PDF DOC. DWN: JJP 1-28-15 CHK: BAL 1-28-15 APPR: RAD 1-28-15



NOTES:  
1. SOLENOID VALVE SV-2069, ACTUATOR, LIMIT SWITCHES AND AIR LINES ASSOCIATED WITH VALVE AO-23-18 HAVE BEEN ABANDONED IN PLACE; REFERENCE EC21396.

REFERENCE DRAWINGS:  
HPCI SYSTEM STEAM SIDE \_\_\_\_\_ M-123 NH-36249  
HPCI SYSTEM FUNCTIONAL CONTROL DIAGRAM \_\_\_\_\_ 729E232  
HPCI SYSTEM ELEMENTARY DIAGRAM \_\_\_\_\_ 729E816

COLOR LEGEND

ASME CLASS 1/QUALITY GROUP A	—
ASME CLASS 2/QUALITY GROUP B	—
ASME CLASS 3/QUALITY GROUP C	—
QUALITY GROUP D	—
SAFETY RELATED MECHANICAL	—
SAFETY RELATED ELECTRICAL	—
SPECIAL CONCERNS ITEM	—

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M-124  
MONTICELLO CAD DWG

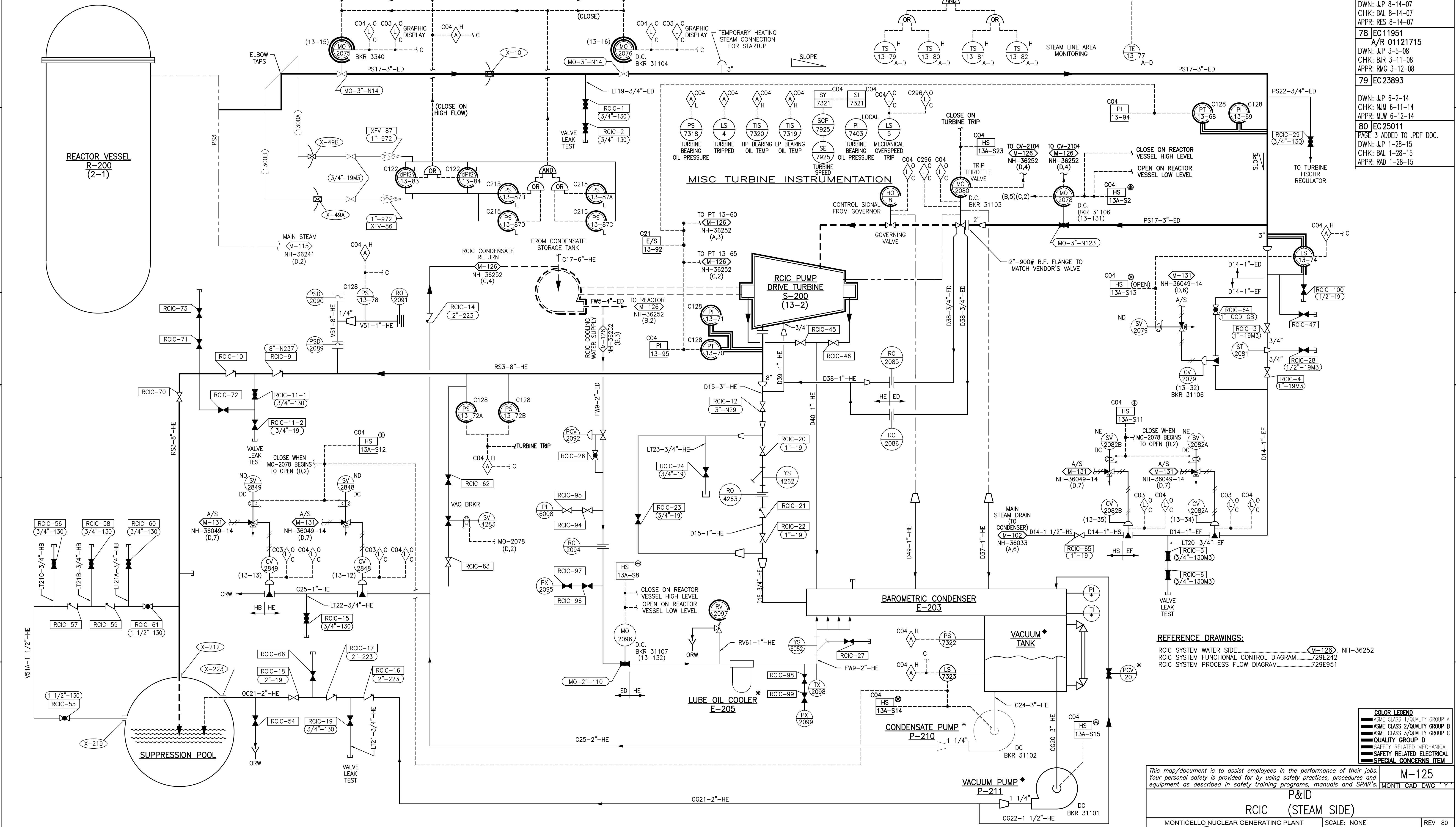
P&ID (WATER SIDE)  
HIGH PRESSURE COOLANT INJECTION SYSTEM

MONTICELLO NUCLEAR GENERATING PLANT  
Xcel Energy  
NORTHERN STATES POWER COMPANY

SCALE: NONE  
REV 83  
NH-36250



REVISIONS	
76	EC 9957 A/R 01054616 DWN: JWP 2-5-07 CHK: BAL 2-6-07 APPR: MH 2-26-07
77	EC 834 DWN: JWP 8-14-07 CHK: BAL 8-14-07 APPR: RES 8-14-07
78	EC 11951 A/R 01121715 DWN: JWP 3-5-08 CHK: BUR 3-11-08 APPR: RMG 3-12-08
79	EC 23893 DWN: JWP 6-2-14 CHK: NJM 6-11-14 APPR: MLW 6-12-14
80	EC 25011 PAGE 3 ADDED TO .PDF DOC. DWN: JWP 1-28-15 CHK: BAL 1-28-15 APPR: RAD 1-28-15



**REFERENCE DRAWINGS:**  
 RCIC SYSTEM WATER SIDE M-126, NH-36252  
 RCIC SYSTEM FUNCTIONAL CONTROL DIAGRAM 729E242  
 RCIC SYSTEM PROCESS FLOW DIAGRAM 729E951

COLOR LEGEND	
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<span style="background-color: gray; color: black;"> </span>	ASME CLASS 2/QUALITY GROUP B
<span style="background-color: lightgray; color: black;"> </span>	ASME CLASS 3/QUALITY GROUP C
<span style="background-color: yellow; color: black;"> </span>	QUALITY GROUP D
<span style="background-color: lightyellow; color: black;"> </span>	SAFETY RELATED MECHANICAL
<span style="background-color: lightcyan; color: black;"> </span>	SAFETY RELATED ELECTRICAL
<span style="background-color: lightmagenta; color: black;"> </span>	SPECIAL CONCERNS ITEM

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M-125  
MONTICELLO CAD DWG

P&ID  
RCIC (STEAM SIDE)

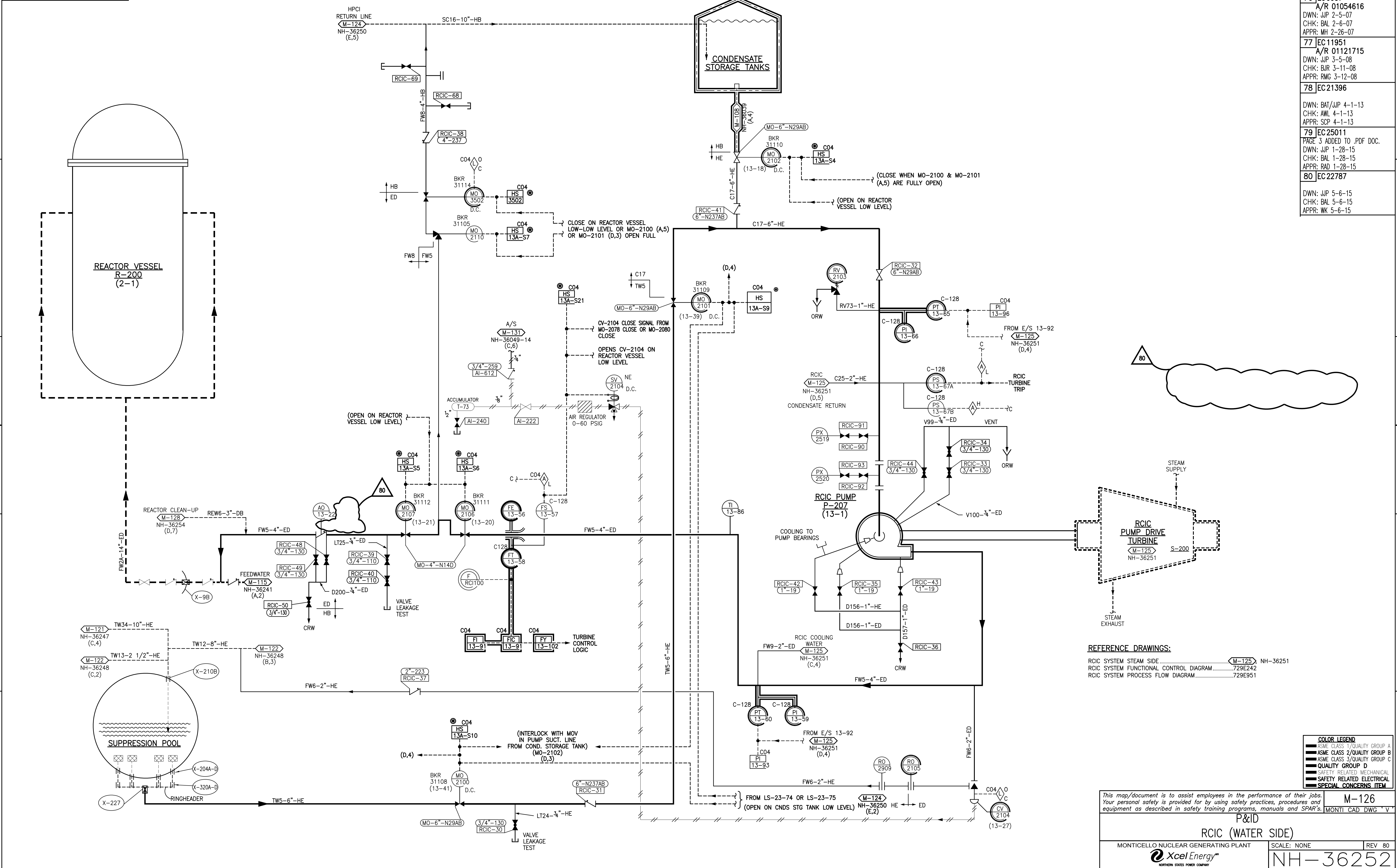
MONTICELLO NUCLEAR GENERATING PLANT SCALE: NONE REV 80

**Xcel Energy**  
NORTHERN STATES POWER COMPANY

**NH-36251**



REVISIONS	
76	EC9957 A/R 01054616 DWN: JJP 2-5-07 CHK: BAL 2-6-07 APPR: MH 2-26-07
77	EC11951 A/R 01121715 DWN: JJP 3-5-08 CHK: BJR 3-11-08 APPR: RMG 3-12-08
78	EC21396  DWN: BAT/JJP 4-1-13 CHK: AWL 4-1-13 APPR: SCP 4-1-13
79	EC25011 PAGE 3 ADDED TO .PDF DOC. DWN: JJP 1-28-15 CHK: BAL 1-28-15 APPR: RAD 1-28-15
80	EC22787  DWN: JJP 5-6-15 CHK: BAL 5-6-15 APPR: WK 5-6-15



**REFERENCE DRAWINGS:**  
 RCIC SYSTEM STEAM SIDE M-125 NH-36251  
 RCIC SYSTEM FUNCTIONAL CONTROL DIAGRAM M-125 NH-36251  
 RCIC SYSTEM PROCESS FLOW DIAGRAM M-125 NH-36251

COLOR LEGEND	
<span style="background-color: black; color: black;"> </span>	ASME CLASS 1/QUALITY GROUP A
<span style="background-color: gray; color: black;"> </span>	ASME CLASS 2/QUALITY GROUP B
<span style="background-color: lightgray; color: black;"> </span>	ASME CLASS 3/QUALITY GROUP C
<span style="background-color: white; color: black;"> </span>	QUALITY GROUP D
<span style="border: 1px solid black; color: black;"> </span>	SAFETY RELATED MECHANICAL
<span style="border: 1px dashed black; color: black;"> </span>	SAFETY RELATED ELECTRICAL
<span style="border: 1px dotted black; color: black;"> </span>	SPECIAL CONCERNS ITEM

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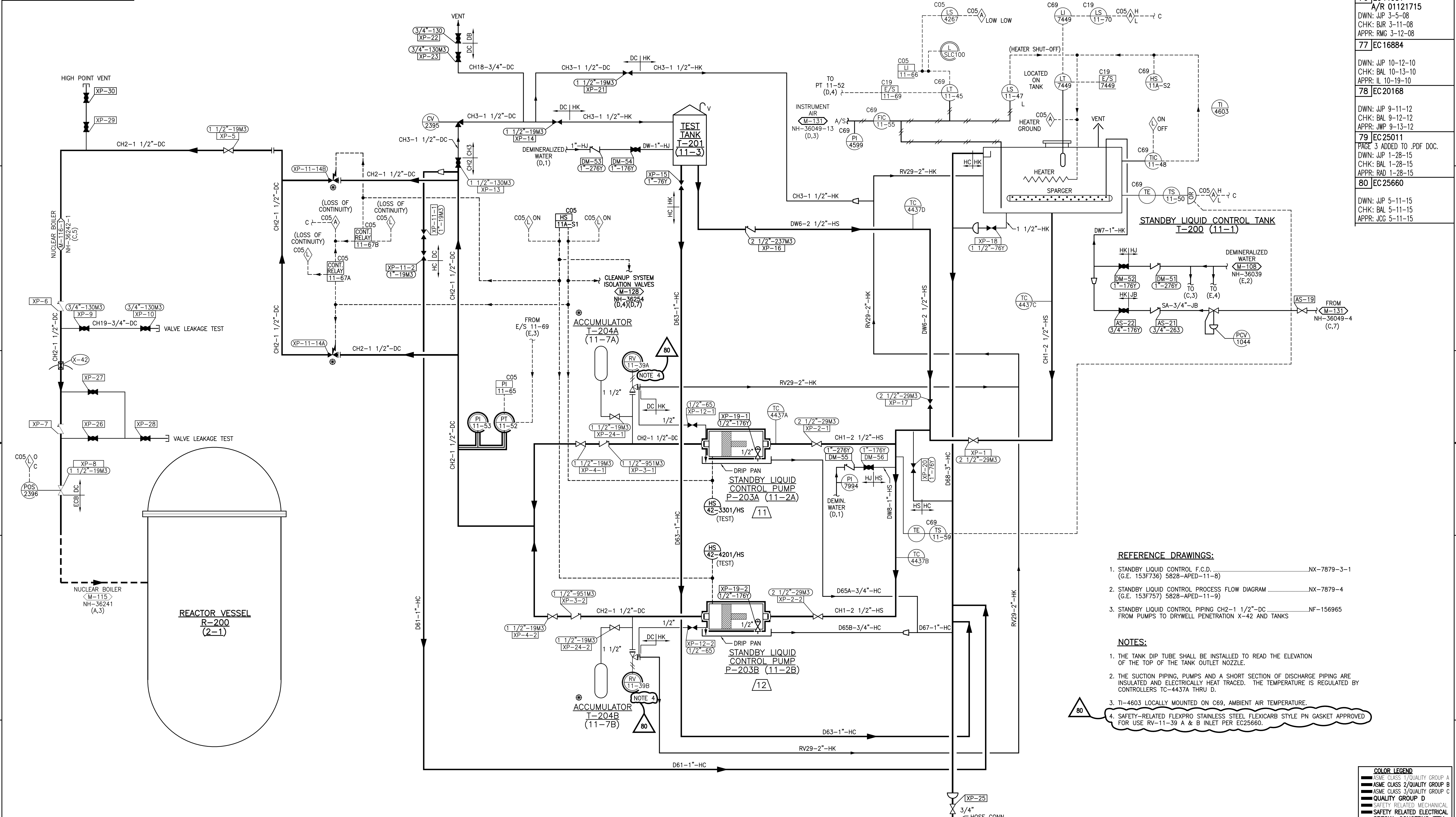
M-126  
MONTICELLO CAD DWG

**P&ID  
RCIC (WATER SIDE)**

MONTICELLO NUCLEAR GENERATING PLANT SCALE: NONE REV 80  
 Xcel Energy  
 NORTHERN STATES POWER COMPANY

NH-36252

REVISIONS	
76	EC 11951 A/R 01121715 DWN: JJP 3-5-08 CHK: BJR 3-11-08 APPR: RMG 3-12-08
77	EC 16884  DWN: JJP 10-12-10 CHK: BAL 9-12-10 APPR: IL 10-19-10
78	EC 20168  DWN: JJP 9-11-12 CHK: BAL 9-12-12 APPR: JWP 9-12-12
79	EC 25011 PAGE 3 ADDED TO .PDF DOC. DWN: JJP 1-28-15 CHK: BAL 1-28-15 APPR: RAD 1-28-15
80	EC 25660  DWN: JJP 5-11-15 CHK: BAL 5-11-15 APPR: JCG 5-11-15



- REFERENCE DRAWINGS:**
- STANDBY LIQUID CONTROL F.C.D. \_\_\_\_\_ NX-7879-3-1 (G.E. 153F736) 5828-APED-11-8
  - STANDBY LIQUID CONTROL PROCESS FLOW DIAGRAM \_\_\_\_\_ NX-7879-4 (G.E. 153F757) 5828-APED-11-9
  - STANDBY LIQUID CONTROL PIPING CH2-1 1/2"-DC FROM PUMPS TO DRYWELL PENETRATION X-42 AND TANKS \_\_\_\_\_ NF-156965
- NOTES:**
- THE TANK DIP TUBE SHALL BE INSTALLED TO READ THE ELEVATION OF THE TOP OF THE TANK OUTLET NOZZLE.
  - THE SUCTION PIPING, PUMPS AND A SHORT SECTION OF DISCHARGE PIPING ARE INSULATED AND ELECTRICALLY HEAT TRACED. THE TEMPERATURE IS REGULATED BY CONTROLLERS TC-4437A THRU D.
  - TI-4603 LOCALLY MOUNTED ON C69, AMBIENT AIR TEMPERATURE.
  - SAFETY-RELATED FLEXPRO STAINLESS STEEL FLEXICARB STYLE PN GASKET APPROVED FOR USE RV-11-39 A & B INLET PER EC25660.

COLOR LEGEND	
	ASME CLASS 1/QUALITY GROUP A
	ASME CLASS 2/QUALITY GROUP B
	ASME CLASS 3/QUALITY GROUP C
	QUALITY GROUP D
	SAFETY RELATED MECHANICAL
	SAFETY RELATED ELECTRICAL
	SPECIAL CONCERNS ITEM

This map/document is to assist employees in the performance of their jobs. Your personal safety is provided for by using safety practices, procedures and equipment as described in safety training programs, manuals and SPAR's.

M-127  
MONTICELLO CAD DWG "P"

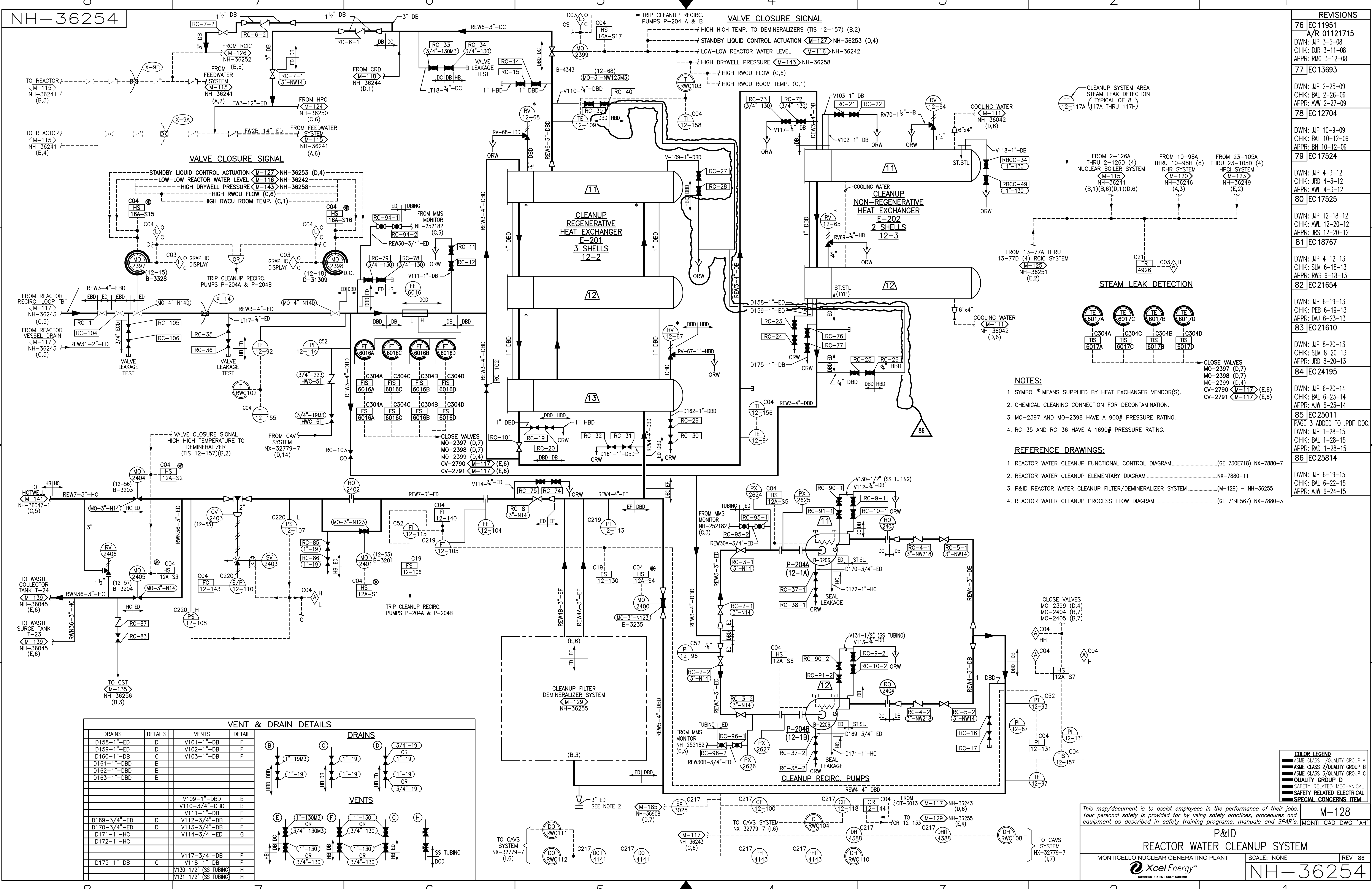
**P&ID  
STANDBY LIQUID CONTROL SYSTEM**

MONTICELLO NUCLEAR GENERATING PLANT      SCALE: NONE      REV 80

Xcel Energy  
NORTHERN STATES POWER COMPANY

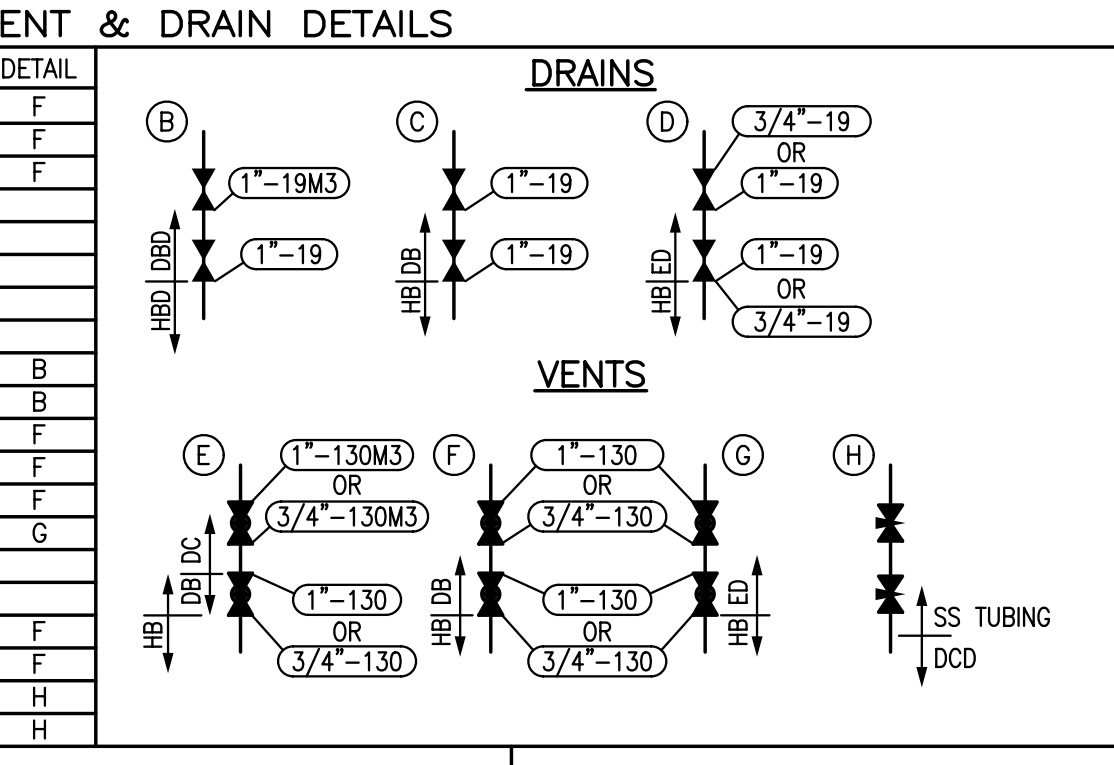
NH-36253





**VENT & DRAIN DETAILS**

DRAINS	DETAILS	VENTS	DETAIL
D158-1"-ED	D	V101-1"-DB	F
D159-1"-ED	D	V102-1"-DB	F
D160-1"-ED	C	V103-1"-DB	F
D161-1"-DBD	B		
D162-1"-DBD	B		
D163-1"-DBD	B		
		V109-1"-DBD	B
		V110-3/4"-DBD	B
		V111-1"-DB	F
D169-3/4"-ED	D	V112-3/4"-DB	F
D170-3/4"-ED	D	V113-3/4"-DB	F
D171-1"-HC		V114-3/4"-ED	G
D172-1"-HC			
		V117-3/4"-DB	F
D175-1"-DB	C	V118-1"-DB	F
		V130-1/2" (SS TUBING)	H
		V131-1/2" (SS TUBING)	H



- NOTES:**
- SYMBOL \* MEANS SUPPLIED BY HEAT EXCHANGER VENDOR(S).
  - CHEMICAL CLEANING CONNECTION FOR DECONTAMINATION.
  - MO-2397 AND MO-2398 HAVE A 900# PRESSURE RATING.
  - RC-35 AND RC-36 HAVE A 1690# PRESSURE RATING.
- REFERENCE DRAWINGS:**
- REACTOR WATER CLEANUP FUNCTIONAL CONTROL DIAGRAM (GE 730E178) NX-7880-7
  - REACTOR WATER CLEANUP ELEMENTARY DIAGRAM NX-7880-11
  - P&ID REACTOR WATER CLEANUP FILTER/DEMINERALIZER SYSTEM (M-129) - NH-36255
  - REACTOR WATER CLEANUP PROCESS FLOW DIAGRAM (GE 719E567) NX-7880-3

**REVISIONS**

76	EC 11951	A/R 01121715
DWN: JUP 3-5-08 CHK: BJR 3-11-08 APPR: RMG 3-12-08		
77	EC 13693	
DWN: JUP 2-25-09 CHK: BAL 2-26-09 APPR: AWW 2-27-09		
78	EC 12704	
DWN: JUP 10-9-09 CHK: BAL 10-12-09 APPR: BH 10-12-09		
79	EC 17524	
DWN: JUP 4-3-12 CHK: JRD 4-3-12 APPR: ANL 4-3-12		
80	EC 17525	
DWN: JUP 12-18-12 CHK: ANL 12-20-12 APPR: JRS 12-20-12		
81	EC 18767	
DWN: JUP 4-12-13 CHK: SLM 6-18-13 APPR: RWS 6-18-13		
82	EC 21654	
DWN: JUP 6-19-13 CHK: PEB 6-19-13 APPR: DAJ 6-23-13		
83	EC 21610	
DWN: JUP 8-20-13 CHK: SLM 8-20-13 APPR: JRD 8-20-13		
84	EC 24195	
DWN: JUP 6-20-14 CHK: BAL 6-23-14 APPR: AJW 6-23-14		
85	EC 25011	
PAGE 3 ADDED TO .PDF DOC. DWN: JUP 1-28-15 CHK: BAL 1-28-15 APPR: RAD 1-28-15		
86	EC 25814	
DWN: JUP 6-19-15 CHK: BAL 6-22-15 APPR: AJW 6-24-15		

**COLOR LEGEND**

- ASME CLASS 1/QUALITY GROUP A
- ASME CLASS 2/QUALITY GROUP B
- ASME CLASS 3/QUALITY GROUP C
- QUALITY GROUP D
- SAFETY RELATED MECHANICAL
- SAFETY RELATED ELECTRICAL
- SPECIAL CONCERNS ITEM

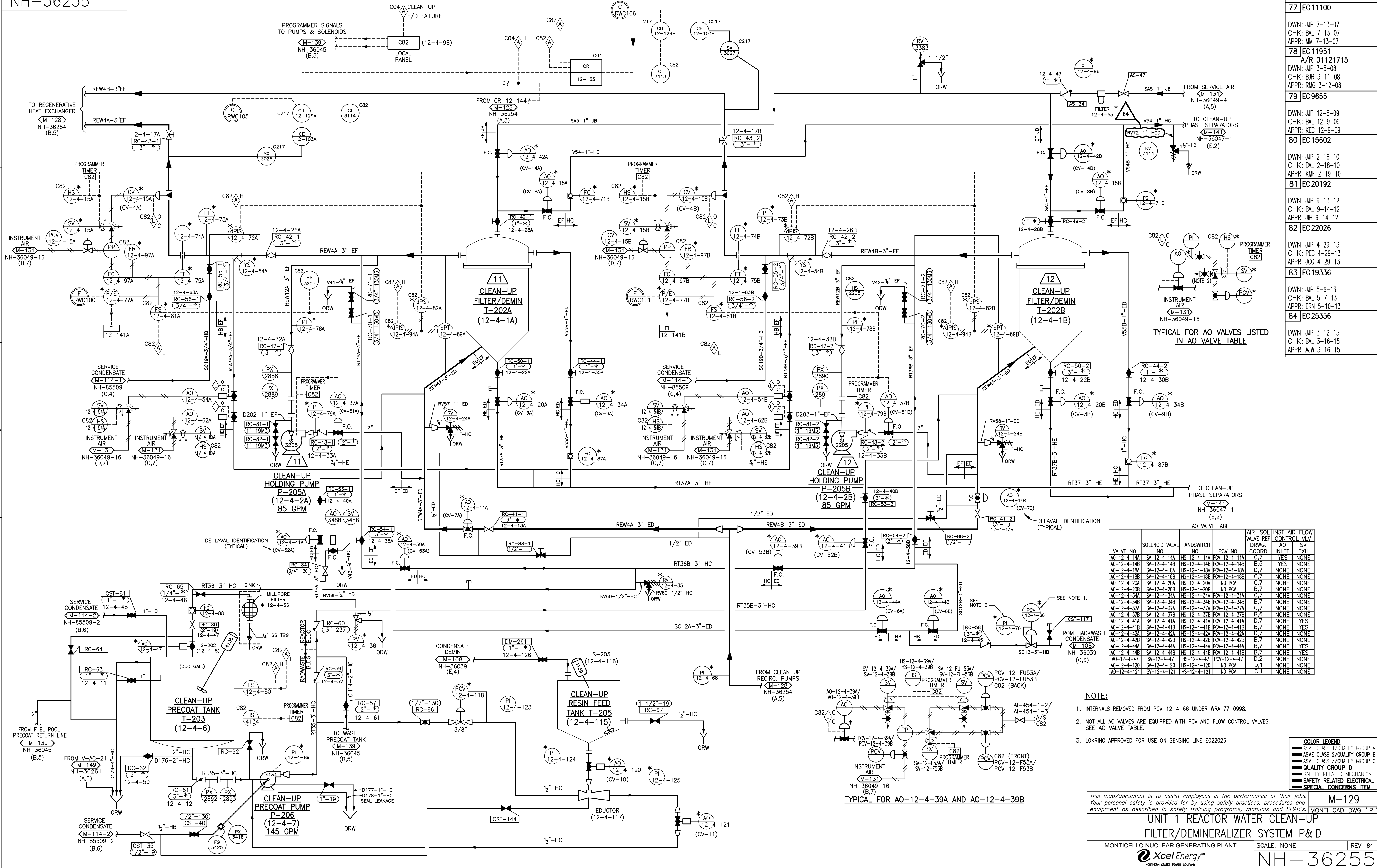
This map/document is to assist employees in the performance of their jobs. Your personal safety is provided for by using safety practices, procedures and equipment as described in safety training programs, manuals and SPAR's.

**M-128**  
MONTICELLO CAD DWG 'AH'

**P&ID REACTOR WATER CLEANUP SYSTEM**  
MONTICELLO NUCLEAR GENERATING PLANT  
Xcel Energy  
SCALE: NONE  
REV 86

**NH-36254**

REVISIONS	
77	EC11100 DWN: JWP 7-13-07 CHK: BAL 7-13-07 APPR: MM 7-13-07
78	EC11951 A/R 01121715 DWN: JWP 3-5-08 CHK: BUR 3-11-08 APPR: RMG 3-12-08
79	EC9655 DWN: JWP 12-8-09 CHK: BAL 12-9-09 APPR: KEC 12-9-09
80	EC15602 DWN: JWP 2-16-10 CHK: BAL 2-18-10 APPR: KMF 2-19-10
81	EC20192 DWN: JWP 9-13-12 CHK: BAL 9-14-12 APPR: JH 9-14-12
82	EC22026 DWN: JWP 4-29-13 CHK: PEB 4-29-13 APPR: JCG 4-29-13
83	EC19336 DWN: JWP 5-6-13 CHK: BAL 5-7-13 APPR: ERN 5-10-13
84	EC25356 DWN: JWP 3-12-15 CHK: BAL 3-16-15 APPR: AJW 3-16-15



TYPICAL FOR AO VALVES LISTED IN AO VALVE TABLE

VALVE NO.	SOLENOID VALVE NO.	HANDSWITCH NO.	PCV NO.	AIR ISOL DRWG. COORD.	INST AIR FLOW CONTROL VLV
AO-12-4-14A	SV-12-4-14A	HS-12-4-14A	PCV-12-4-14A	C,7	YES NONE
AO-12-4-14B	SV-12-4-14B	HS-12-4-14B	PCV-12-4-14B	B,6	YES NONE
AO-12-4-18A	SV-12-4-18A	HS-12-4-18A	PCV-12-4-18A	D,7	NONE NONE
AO-12-4-18B	SV-12-4-18B	HS-12-4-18B	PCV-12-4-18B	C,7	NONE NONE
AO-12-4-20A	SV-12-4-20A	HS-12-4-20A	NO PCV	C,7	NONE NONE
AO-12-4-20B	SV-12-4-20B	HS-12-4-20B	NO PCV	B,7	NONE NONE
AO-12-4-34A	SV-12-4-34A	HS-12-4-34A	PCV-12-4-34A	C,7	NONE NONE
AO-12-4-34B	SV-12-4-34B	HS-12-4-34B	PCV-12-4-34B	C,7	NONE NONE
AO-12-4-37A	SV-12-4-37A	HS-12-4-37A	PCV-12-4-37A	B,7	NONE NONE
AO-12-4-37B	SV-12-4-37B	HS-12-4-37B	PCV-12-4-37B	B,7	NONE NONE
AO-12-4-41A	SV-12-4-41A	HS-12-4-41A	PCV-12-4-41A	D,7	NONE YES
AO-12-4-41B	SV-12-4-41B	HS-12-4-41B	PCV-12-4-41B	B,7	NONE YES
AO-12-4-42A	SV-12-4-42A	HS-12-4-42A	PCV-12-4-42A	D,7	NONE NONE
AO-12-4-42B	SV-12-4-42B	HS-12-4-42B	PCV-12-4-42B	B,7	NONE NONE
AO-12-4-44A	SV-12-4-44A	HS-12-4-44A	PCV-12-4-44A	B,7	NONE YES
AO-12-4-44B	SV-12-4-44B	HS-12-4-44B	PCV-12-4-44B	B,7	NONE YES
AO-12-4-47	SV-12-4-47	HS-12-4-47	PCV-12-4-47	D,2	NONE NONE
AO-12-4-120	SV-12-4-120	HS-12-4-120	NO PCV	A,1	NONE NONE
AO-12-4-121	SV-12-4-121	HS-12-4-121	NO PCV	C,1	NONE NONE

- NOTE:**
1. INTERNALS REMOVED FROM PCV-12-4-66 UNDER WRA 77-0998.
  2. NOT ALL AO VALVES ARE EQUIPPED WITH PCV AND FLOW CONTROL VALVES. SEE AO VALVE TABLE.
  3. LOKRING APPROVED FOR USE ON SENSING LINE EC22026.
- COLOR LEGEND**
- ASME CLASS 1/QUALITY GROUP A
  - ASME CLASS 2/QUALITY GROUP B
  - ASME CLASS 3/QUALITY GROUP C
  - QUALITY GROUP D
  - SAFETY RELATED MECHANICAL
  - SAFETY RELATED ELECTRICAL
  - SPECIAL CONCERNS ITEM

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M-129  
MONTICELLO CAD DWG 'P'

**UNIT 1 REACTOR WATER CLEAN-UP FILTER/DEMINERALIZER SYSTEM P&ID**

MONTICELLO NUCLEAR GENERATING PLANT

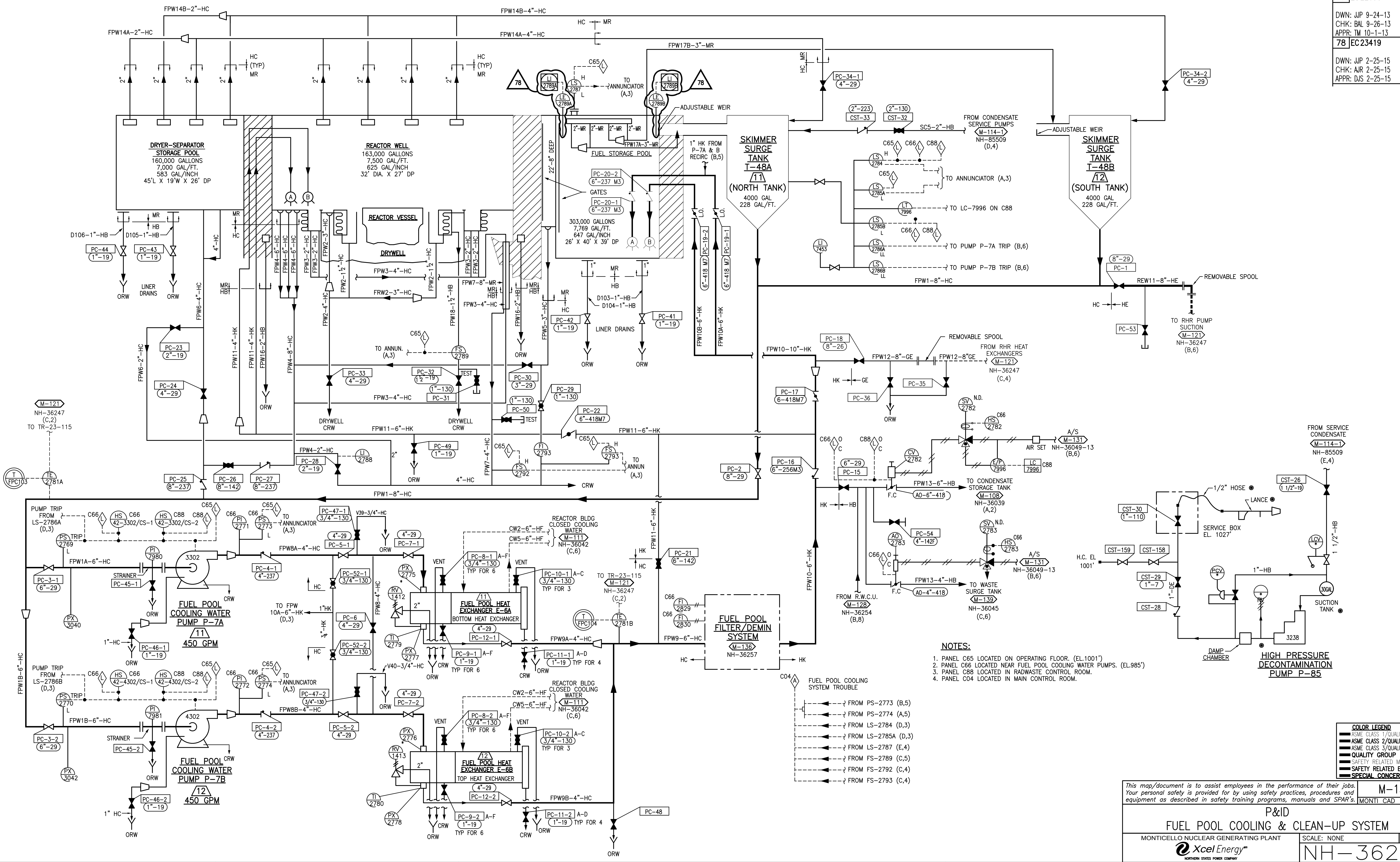
SCALE: NONE

REV 84

**NH-36255**



REVISIONS	
76	EC11951 A/R 01121715 DWN: JJP 3-5-08 CHK: BUR 3-11-08 APPR: RMG 3-12-08
77	EC22690 DWN: JJP 9-24-13 CHK: BAL 9-26-13 APPR: TM 10-1-13
78	EC23419 DWN: JJP 2-25-15 CHK: AJR 2-25-15 APPR: DJS 2-25-15



- NOTES:**
- PANEL C65 LOCATED ON OPERATING FLOOR. (EL.1001')
  - PANEL C66 LOCATED NEAR FUEL POOL COOLING WATER PUMPS. (EL.985')
  - PANEL C88 LOCATED IN RADWASTE CONTROL ROOM.
  - PANEL C04 LOCATED IN MAIN CONTROL ROOM.

**COLOR LEGEND**

ASME CLASS 1/QUALITY GROUP A
ASME CLASS 2/QUALITY GROUP B
ASME CLASS 3/QUALITY GROUP C
QUALITY GROUP D
SAFETY RELATED MECHANICAL
SAFETY RELATED ELECTRICAL
SPECIAL CONCERNS ITEM

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M-135  
MONTE CAD DWG 'X'

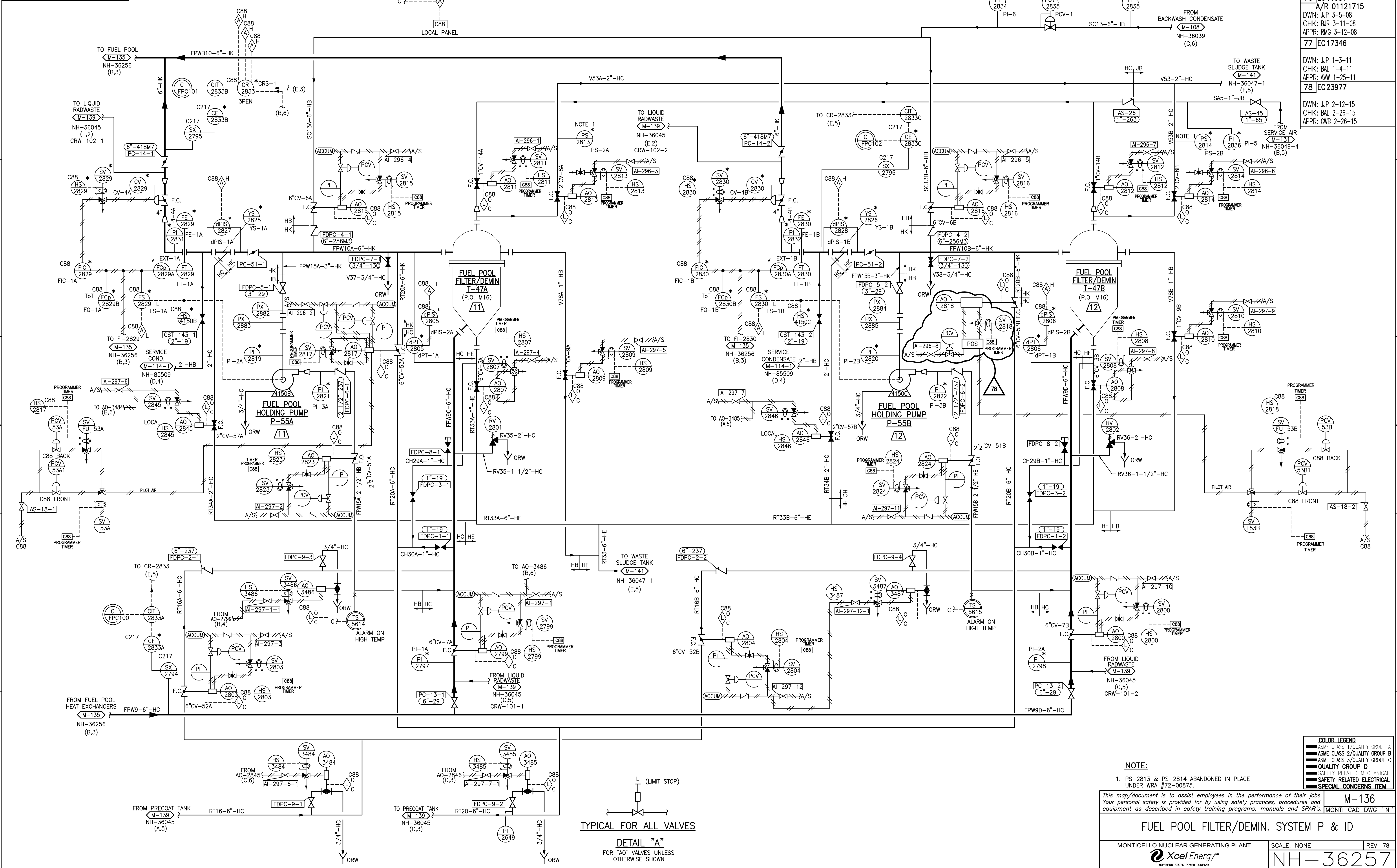
**P&ID  
FUEL POOL COOLING & CLEAN-UP SYSTEM**

MONTECELLO NUCLEAR GENERATING PLANT      SCALE: NONE      REV 78

**Xcel Energy**  
NORTHERN STATES POWER COMPANY

**NH-36256**

REVISIONS	
76	EC 11951 A/R 01121715 DWN: JWP 3-5-08 CHK: BJR 3-11-08 APPR: RMG 3-12-08
77	EC 17346 DWN: JWP 1-3-11 CHK: BAL 1-4-11 APPR: AWW 1-25-11
78	EC 23977 DWN: JWP 2-12-15 CHK: BAL 2-26-15 APPR: CWB 2-26-15



COLOR LEGEND	
	ASME CLASS 1/QUALITY GROUP A
	ASME CLASS 2/QUALITY GROUP B
	ASME CLASS 3/QUALITY GROUP C
	QUALITY GROUP D
	SAFETY RELATED MECHANICAL
	SAFETY RELATED ELECTRICAL
	SPECIAL CONCERN ITEM

**NOTE:**

- PS-2813 & PS-2814 ABANDONED IN PLACE UNDER WRA #72-00875.

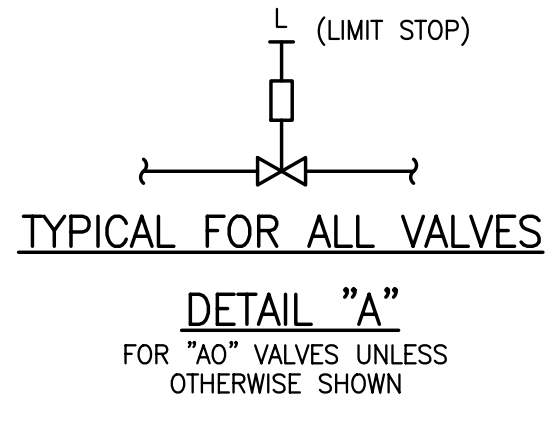
This map/document is to assist employees in the performance of their jobs. Your personal safety is provided for by using safety practices, procedures and equipment as described in safety training programs, manuals and SPAR's.

**M-136**  
MONTICELLO CAD DWG 'N'

**FUEL POOL FILTER/DEMIN. SYSTEM P & ID**

MONTICELLO NUCLEAR GENERATING PLANT  
 Xcel Energy  
NORTHERN STATES POWER COMPANY

SCALE: NONE  
REV 78  
**NH-36257**



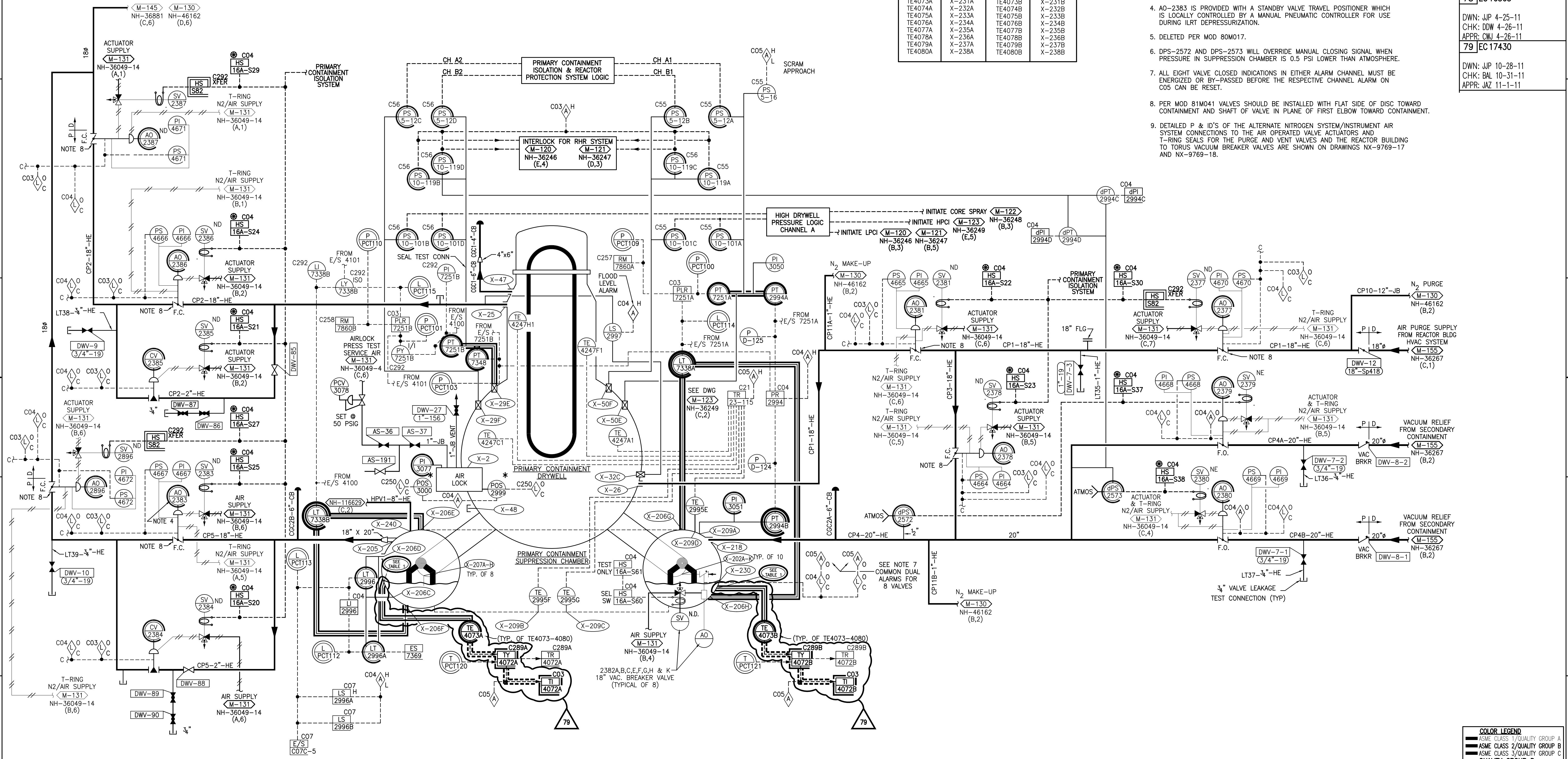


REVISIONS	
76	EC 11951 A/R 01121715 DWN: JJP 3-5-08 CHK: BJR 3-11-08 APPR: RMG 3-12-08
77	EC 12558 A/R 01123311 DWN: JJP 5-20-08 CHK: JT 5-22-08 APPR: DCA 5-22-08
78	EC 16563 DWN: JJP 4-25-11 CHK: DWJ 4-26-11 APPR: CWJ 4-26-11
79	EC 17430 DWN: JJP 10-28-11 CHK: BAL 10-31-11 APPR: JAZ 11-1-11

TABLE 1

SPOTMOS DIV. I		SPOTMOS DIV. II	
TEMP. SENSOR DESIGNATION	PENETRATION DESIGNATION	TEMP. SENSOR DESIGNATION	PENETRATION DESIGNATION
TE4073A	X-231A	TE4073B	X-231B
TE4074A	X-232A	TE4074B	X-232B
TE4075A	X-233A	TE4075B	X-233B
TE4076A	X-234A	TE4076B	X-234B
TE4077A	X-235A	TE4077B	X-235B
TE4078A	X-236A	TE4078B	X-236B
TE4079A	X-237A	TE4079B	X-237B
TE4080A	X-238A	TE4080B	X-238B

- NOTES:
- DELETED
  - DELETED
  - DELETED AS A RESULT OF MOD 81M041.
  - AO-2383 IS PROVIDED WITH A STANDBY VALVE TRAVEL POSITIONER WHICH IS LOCALLY CONTROLLED BY A MANUAL PNEUMATIC CONTROLLER FOR USE DURING ILLT DEPRESSURIZATION.
  - DELETED PER MOD 80M017.
  - DPS-2572 AND DPS-2573 WILL OVERRIDE MANUAL CLOSING SIGNAL WHEN PRESSURE IN SUPPRESSION CHAMBER IS 0.5 PSI LOWER THAN ATMOSPHERE.
  - ALL EIGHT VALVE CLOSED INDICATIONS IN EITHER ALARM CHANNEL MUST BE ENERGIZED OR BY-PASSED BEFORE THE RESPECTIVE CHANNEL ALARM ON C05 CAN BE RESET.
  - PER MOD 81M041 VALVES SHOULD BE INSTALLED WITH FLAT SIDE OF DISC TOWARD CONTAINMENT AND SHAFT OF VALVE IN PLANE OF FIRST ELBOW TOWARD CONTAINMENT.
  - DETAILED P & ID'S OF THE ALTERNATE NITROGEN SYSTEM/INSTRUMENT AIR SYSTEM CONNECTIONS TO THE AIR OPERATED VALVE ACTUATORS AND T-RING SEALS FOR THE PURGE AND VENT VALVES AND THE REACTOR BUILDING TO TORUS VACUUM BREAKER VALVES ARE SHOWN ON DRAWINGS NX-9769-17 AND NX-9769-18.



COLOR LEGEND

ASME CLASS 1/QUALITY GROUP A
ASME CLASS 2/QUALITY GROUP B
ASME CLASS 3/QUALITY GROUP C
QUALITY GROUP D
SAFETY RELATED MECHANICAL
SAFETY RELATED ELECTRICAL
SPECIAL CONCERN ITEM

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M-143  
MONTICELLO CAD DWG 'AR'

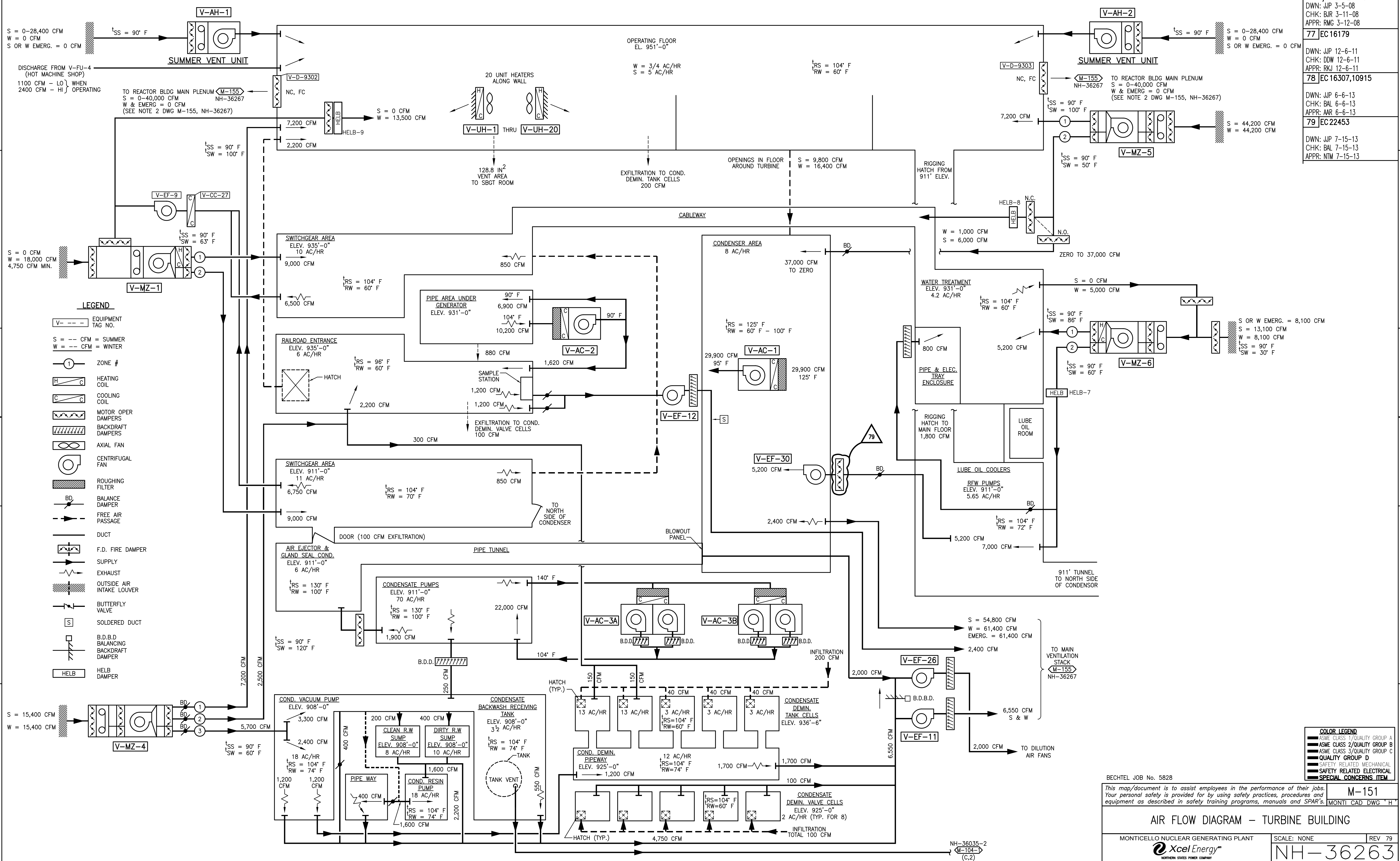
P&ID PRIMARY CONTAINMENT & ATMOSPHERIC CONTROL SYSTEM

MONTICELLO NUCLEAR GENERATING PLANT SCALE: NONE REV 79

Xcel Energy  
NORTHERN STATES POWER COMPANY

NH-36258

76	EC 11951	A/R 01121715
DWN: JJP 3-5-08		
CHK: BJR 3-11-08		
APPR: RMG 3-12-08		
77	EC 16179	
DWN: JJP 12-6-11		
CHK: DDW 12-6-11		
APPR: RKJ 12-6-11		
78	EC 16307,10915	
DWN: JJP 6-6-13		
CHK: BAL 6-6-13		
APPR: AMR 6-6-13		
79	EC 22453	
DWN: JJP 7-15-13		
CHK: BAL 7-15-13		
APPR: NTM 7-15-13		



BECHTEL JOB No. 5828

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**AIR FLOW DIAGRAM - TURBINE BUILDING**

MONTICELLO NUCLEAR GENERATING PLANT

SCALE: NONE

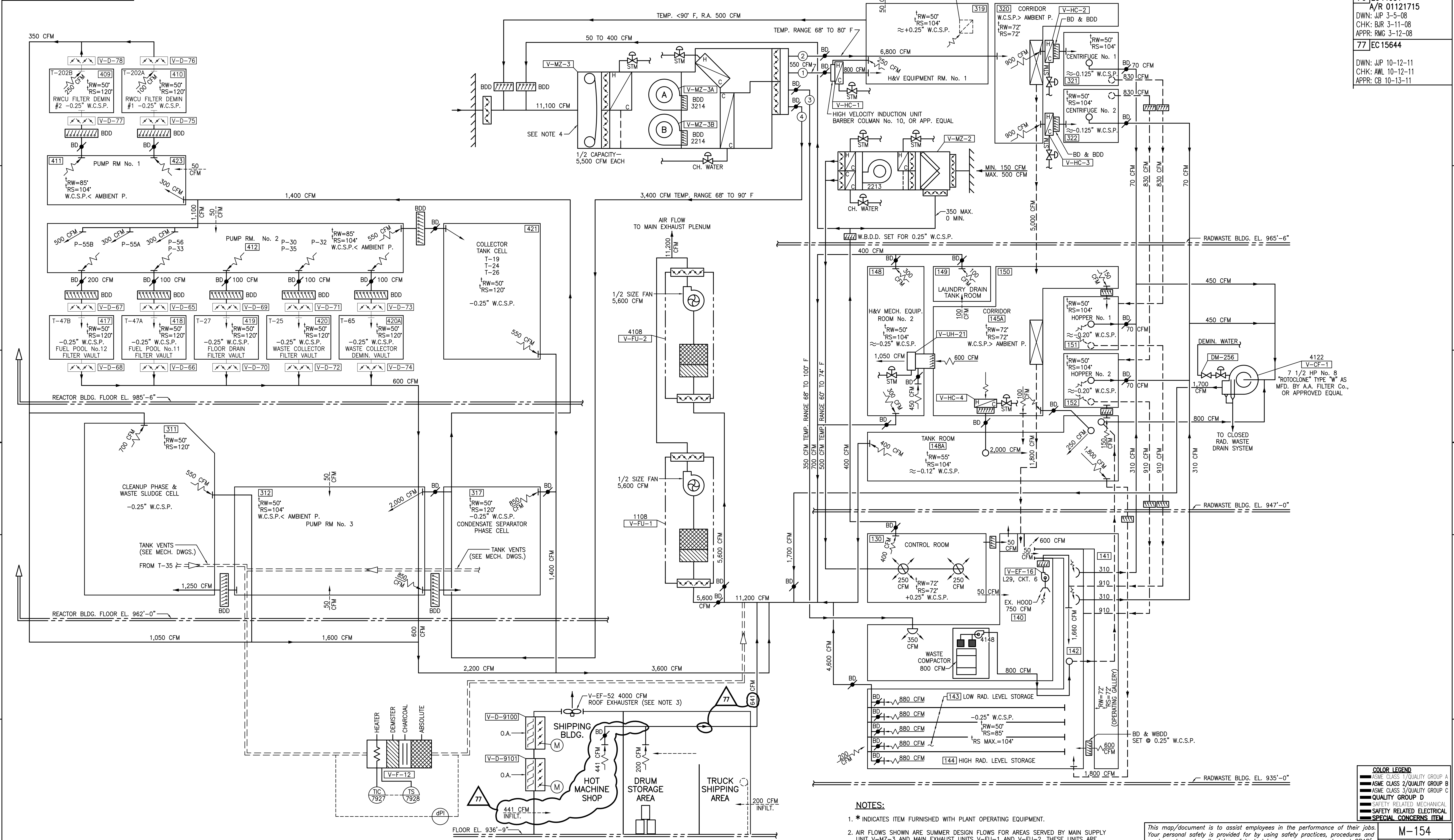
REV 79

NH-36263

M-151

MONTI CAD DWG 'H'

REVISIONS	
76	EC 11951 A/R 01121715 DWN: JJP 3-5-08 CHK: BJR 3-11-08 APPR: RMG 3-12-08
77	EC 15644 DWN: JJP 10-12-11 CHK: ANL 10-12-11 APPR: CB 10-13-11



- NOTES:**
- \* INDICATES ITEM FURNISHED WITH PLANT OPERATING EQUIPMENT.
  - AIR FLOWS SHOWN ARE SUMMER DESIGN FLOWS FOR AREAS SERVED BY MAIN SUPPLY UNIT V-MZ-3 AND MAIN EXHAUST UNITS V-FU-1 AND V-FU-2, THESE UNITS ARE DESIGNED FOR OPERATION AT HALF CAPACITY UNDER WINTER CONDITIONS OR AS REQUIRED IN THE INTERMEDIATE SEASONS.
  - REQUIRES SPECIAL PERMISSION TO RUN DUE TO CONCERNS OVER UNMONITORED RADIOACTIVE RELEASES.
  - FILTER MAY BE REMOVED AND REINSTALLED BY PROCEDURE.

**COLOR LEGEND**

- ASME CLASS 1/QUALITY GROUP A
- ASME CLASS 2/QUALITY GROUP B
- ASME CLASS 3/QUALITY GROUP C
- QUALITY GROUP D
- SAFETY RELATED MECHANICAL
- SAFETY RELATED ELECTRICAL
- SPECIAL CONCERNS ITEM

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M-154  
MONTICELLO CAD DWG 'G'

**AIR FLOW DIAGRAM RADWASTE AREA**

MONTICELLO NUCLEAR GENERATING PLANT

Xcel Energy  
NORTHERN STATES POWER COMPANY

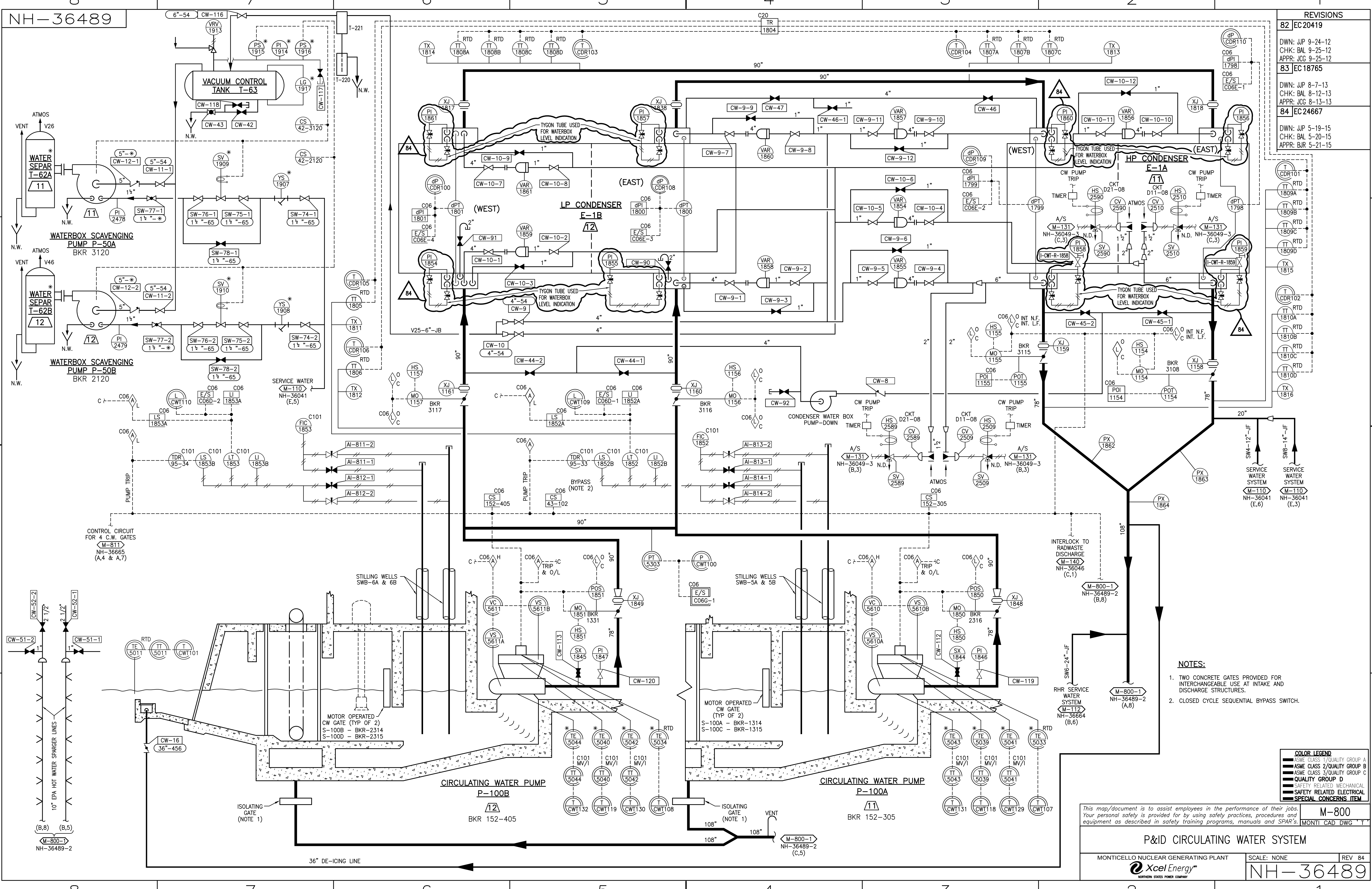
SCALE: NONE

REV 77

NH-36266



82	EC 20419
DWN: JJP 9-24-12 CHK: BAL 9-25-12 APPR: JCC 9-25-12	
83	EC 18765
DWN: JJP 8-7-13 CHK: BAL 8-12-13 APPR: JCC 8-13-13	
84	EC 24667
DWN: JJP 5-19-15 CHK: BAL 5-20-15 APPR: BJR 5-21-15	



- NOTES:**
- TWO CONCRETE GATES PROVIDED FOR INTERCHANGEABLE USE AT INTAKE AND DISCHARGE STRUCTURES.
  - CLOSED CYCLE SEQUENTIAL BYPASS SWITCH.

**COLOR LEGEND**

(Solid Black)	ASME CLASS 1/QUALITY GROUP A
(Hatched)	ASME CLASS 2/QUALITY GROUP B
(Dotted)	ASME CLASS 3/QUALITY GROUP C
(Horizontal Lines)	QUALITY GROUP D
(Vertical Lines)	SAFETY RELATED MECHANICAL
(Diagonal Lines)	SAFETY RELATED ELECTRICAL
(Cross-hatched)	SPECIAL CONCERNS ITEM

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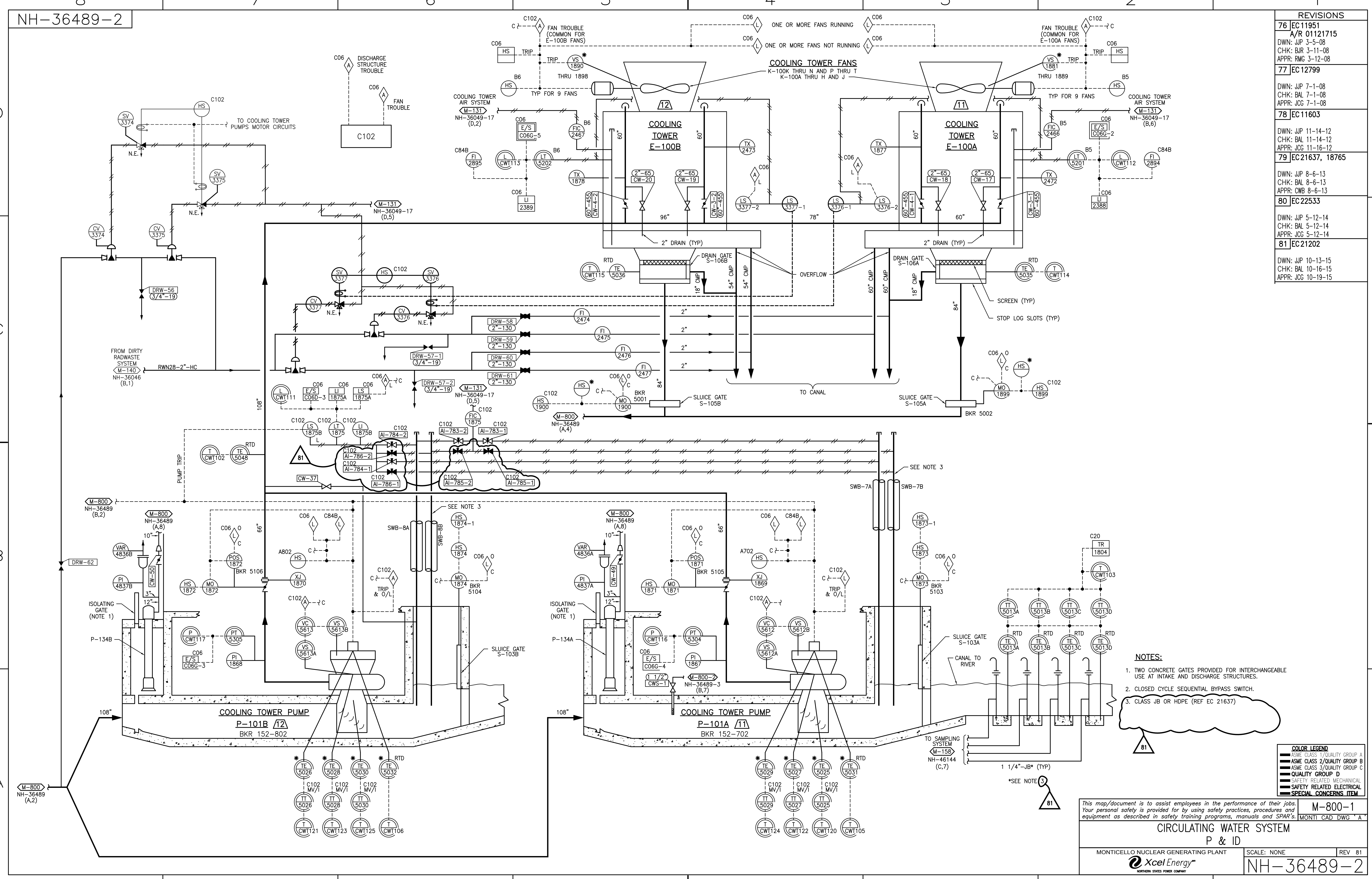
**M-800**  
MONTICELLO CAD DWG

**P&ID CIRCULATING WATER SYSTEM**

MONTICELLO NUCLEAR GENERATING PLANT  
Xcel Energy  
NORTHERN STATES POWER COMPANY

SCALE: NONE  
REV 84  
**NH-36489**

REVISIONS	
76	EC11951 A/R 01121715 DWN: JJP 3-5-08 CHK: BJR 3-11-08 APPR: RMG 3-12-08
77	EC12799 DWN: JJP 7-1-08 CHK: BAL 7-1-08 APPR: JCG 7-1-08
78	EC11603 DWN: JJP 11-14-12 CHK: BAL 11-14-12 APPR: JCG 11-16-12
79	EC21637, 18765 DWN: JJP 8-6-13 CHK: BAL 8-6-13 APPR: CWB 8-6-13
80	EC22533 DWN: JJP 5-12-14 CHK: BAL 5-12-14 APPR: JCG 5-12-14
81	EC21202 DWN: JJP 10-13-15 CHK: BAL 10-16-15 APPR: JCG 10-19-15



- NOTES:**
- TWO CONCRETE GATES PROVIDED FOR INTERCHANGEABLE USE AT INTAKE AND DISCHARGE STRUCTURES.
  - CLOSED CYCLE SEQUENTIAL BYPASS SWITCH.
  - CLASS JB OR HDPE (REF EC 21637)

COLOR LEGEND	
<span style="background-color: black; color: black;"> </span>	ASME CLASS 1/QUALITY GROUP A
<span style="background-color: gray; color: black;"> </span>	ASME CLASS 2/QUALITY GROUP B
<span style="background-color: lightgray; color: black;"> </span>	ASME CLASS 3/QUALITY GROUP C
<span style="background-color: white; color: black;"> </span>	QUALITY GROUP D
<span style="background-color: yellow; color: black;"> </span>	SAFETY RELATED MECHANICAL
<span style="background-color: orange; color: black;"> </span>	SAFETY RELATED ELECTRICAL
<span style="background-color: red; color: black;"> </span>	SPECIAL CONCERNS ITEM

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M-800-1  
MONTI CAD DWG 'A'

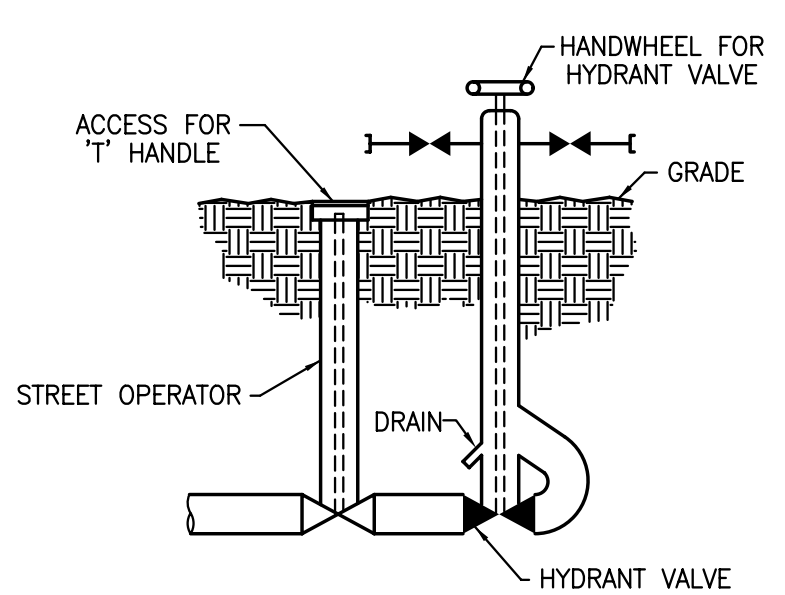
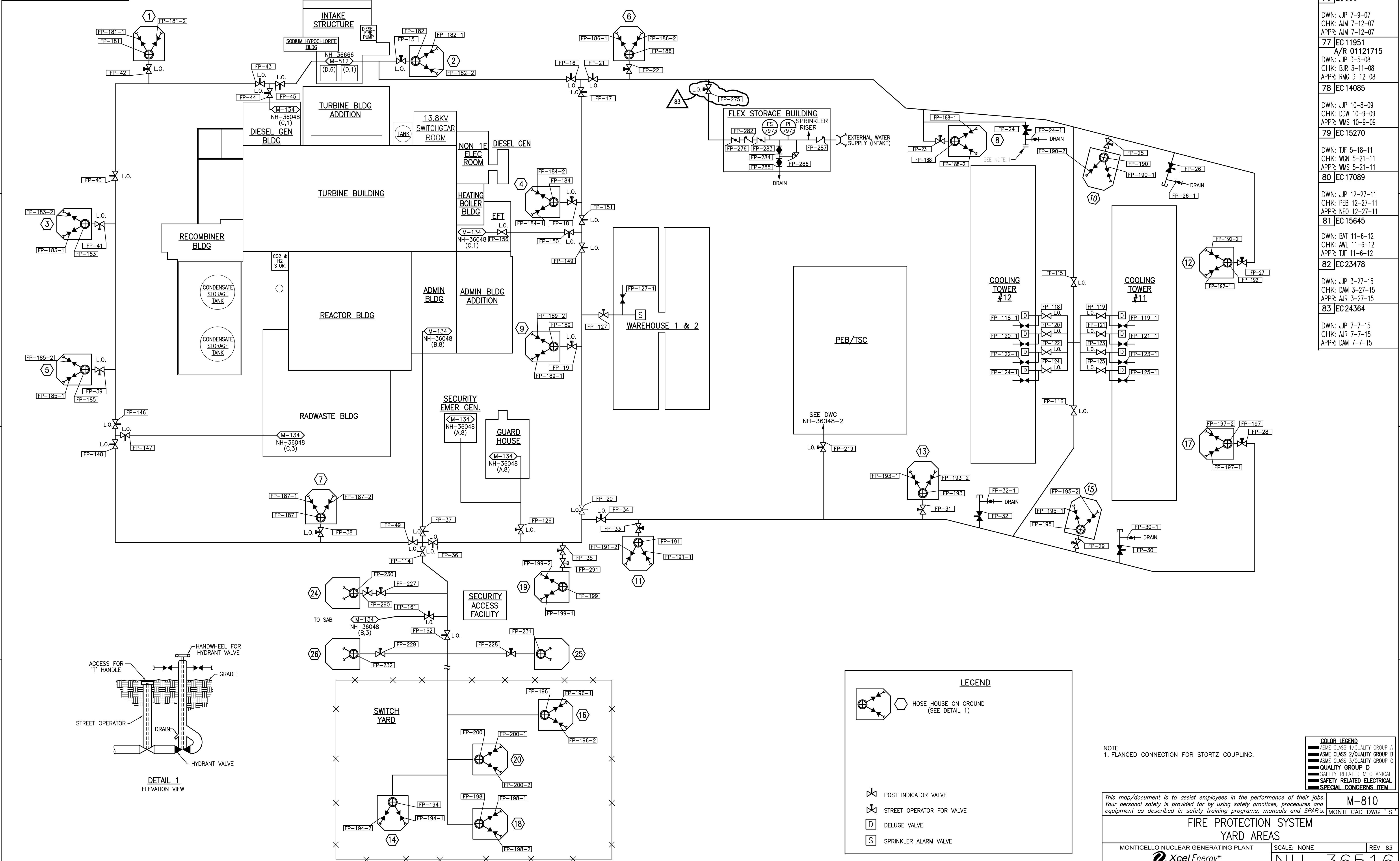
**CIRCULATING WATER SYSTEM**  
P & ID

MONTICELLO NUCLEAR GENERATING PLANT SCALE: NONE REV 81

**Xcel Energy**  
NORTHERN STATES POWER COMPANY

NH-36489-2

76	EC 906	DWN: JJP 7-9-07 CHK: AJM 7-12-07 APPR: AJM 7-12-07
77	EC 11951 A/R 01121715	DWN: JJP 3-5-08 CHK: BJR 3-11-08 APPR: RMC 3-12-08
78	EC 14085	DWN: JJP 10-8-09 CHK: DW 10-9-09 APPR: WMS 10-9-09
79	EC 15270	DWN: TJF 5-18-11 CHK: WON 5-21-11 APPR: WMS 5-21-11
80	EC 17089	DWN: JJP 12-27-11 CHK: PEB 12-27-11 APPR: NEO 12-27-11
81	EC 15645	DWN: BAT 11-6-12 CHK: AWL 11-6-12 APPR: TJF 11-6-12
82	EC 23478	DWN: JJP 3-27-15 CHK: DAM 3-27-15 APPR: AJR 3-27-15
83	EC 24364	DWN: JJP 7-7-15 CHK: AJR 7-7-15 APPR: DAM 7-7-15



**LEGEND**

- HOSE HOUSE ON GROUND (SEE DETAIL 1)
- POST INDICATOR VALVE
- STREET OPERATOR FOR VALVE
- DELUGE VALVE
- SPRINKLER ALARM VALVE

**NOTE**  
1. FLANGED CONNECTION FOR STORTZ COUPLING.

**COLOR LEGEND**

- ASME CLASS 1/QUALITY GROUP A
- ASME CLASS 2/QUALITY GROUP B
- ASME CLASS 3/QUALITY GROUP C
- QUALITY GROUP D
- SAFETY RELATED MECHANICAL
- SAFETY RELATED ELECTRICAL
- SPECIAL CONCERNS ITEM

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M-810  
MONTICELLO CAD DWG 'S'

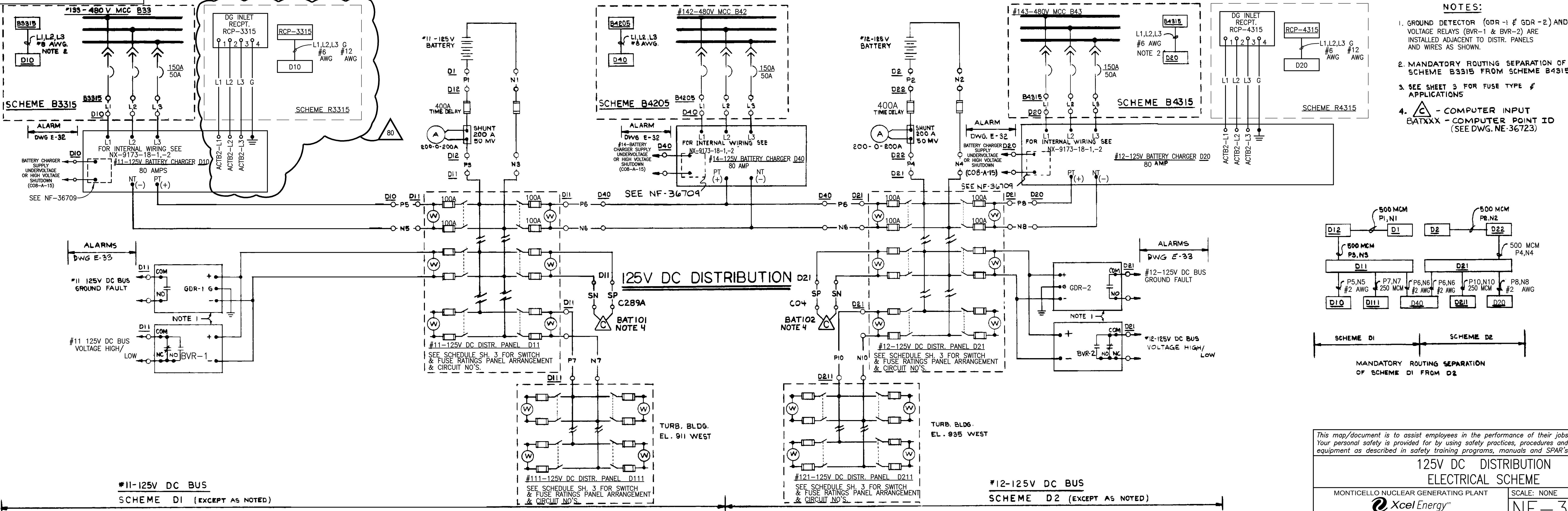
**FIRE PROTECTION SYSTEM  
YARD AREAS**

MONTICELLO NUCLEAR GENERATING PLANT  
 Xcel Energy  
NORTHERN STATES POWER COMPANY

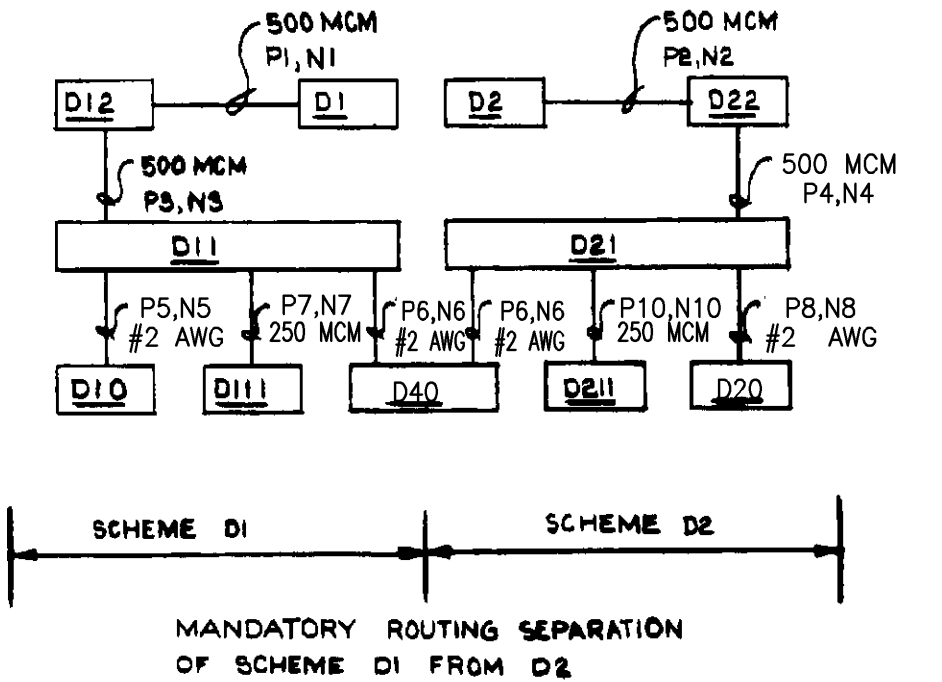
SCALE: NONE  
REV 83

NH-36516





- NOTES:**
1. GROUND DETECTOR (GDR-1 & GDR-2) AND VOLTAGE RELAYS (BVR-1 & BVR-2) ARE INSTALLED ADJACENT TO DISTR. PANELS AND WIRES AS SHOWN.
  2. MANDATORY ROUTING SEPARATION OF SCHEME B3315 FROM SCHEME B4315
  3. SEE SHEET 3 FOR FUSE TYPE & APPLICATIONS
  4. **C** - COMPUTER INPUT  
BATXXX - COMPUTER POINT ID (SEE DWG. NE-36723)



REVISIONS	
76	EC720
DWN: JJP 8-14-08 CHK: PEB 8-15-08 APPR: RES 8-15-08	
77	EC12877
DWN: JJP 12-5-08 CHK: RES 12-9-08 APPR: MFP 12-10-08	
78	EC13284
DWN: JJP 4-8-10 CHK: BAL 4-8-10 APPR: RES 4-8-10	
79	EC25350
DWN: NJM 4-6-15 CHK: AJR 4-6-15 APPR: NJF 4-6-15	
80	EC23475
DWN: JJP 4-9-15 CHK: BAL 4-9-15 APPR: DJS 4-9-15	

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E-110-2  
MONTI CAD DWG 'F'

**125V DC DISTRIBUTION ELECTRICAL SCHEME**

MONTICELLO NUCLEAR GENERATING PLANT

**Xcel Energy**  
NORTHERN STATES POWER COMPANY

SCALE: NONE      REV 80

**NE-36640-2**

NE-36640-3

PERMANENT NOTE: ANY ADDITIONS OR CHANGES TO THIS DRAWING MUST ALSO BE MADE ON NH-105940 FOR USE WITH SPARE GENERATOR TRANSFORMER INSTALLATION

REVISIONS table with 84 EC 21152, 21159 and other revision details.

#11-125V DC DISTRIBUTION PANEL D11 (F.P. #5828-E12-1)

#12-125V DC DISTRIBUTION PANEL D21 (F.P. #5828-E12-1)

#111-125V DC DISTRIBUTION PANEL D111 (F.P. #5828-E12-2)

#121-125V DC DISTRIBUTION PANEL D211 (F.P. #5828-E12-2)

Table with columns: SCHEME NUMBER, CKT NO, SWITCH RATING AMPS, FUSE AMPS NOTE 2, DESCRIPTION, LOC., ROUTING SEPERATION NOTE-1, WIRE SIZE. Rows include D1, D1103, D1104, etc.

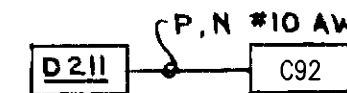
Table with columns: SCHEME NUMBER, CKT NO, SWITCH RATING AMPS, FUSE AMPS NOTE 2, DESCRIPTION, LOC., ROUTING SEPERATION NOTE-1, WIRE SIZE. Rows include D2, D2103, D2104, etc.

Table with columns: SCHEME NUMBER, CKT NO, SWITCH RATING AMPS, FUSE AMPS NOTE 2, DESCRIPTION, LOC., ROUTING SEPERATION NOTE-1, WIRE SIZE. Rows include D11101, D11102, D11103, etc.

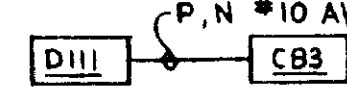
Table with columns: SCHEME NUMBER, CKT NO, SWITCH RATING AMPS, FUSE AMPS NOTE 2, DESCRIPTION, LOC., ROUTING SEPERATION NOTE-1, WIRE SIZE. Rows include D21101, D21102, D21103, etc.

NOTE: CURRENT ON CKT D2128 LIMITED TO 200 AMPS DUE TO FIREPROOFING OF CONDUIT. SEE ENGINEERING EVALUATION 86-044

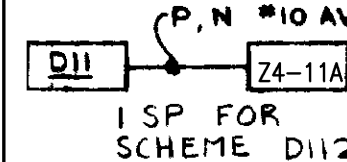
- NOTES: 1. MANDATORY ROUTING SEPERATION FROM SCHEME NUMBERS LISTED. 2. MAIN BATTERY FUSES SHALL BE DUAL ELEMENT TIME DELAY. 3. FIELD TO DISCONNECT STAND-BY 125 VDC CONTROL POWER TO 4KV BUS AND TAPE THE LEADS...



SCHEME D21105 TYPICAL BLOCK DIAGRAM FOR ALL D211XX SCHEMES (SEE TABLE FOR LOC. NOS & CONDUCTOR SIZES)



SCHEME D11103 TYPICAL BLOCK DIAGRAM FOR ALL D111XX SCHEMES (SEE TABLE FOR LOC. NOS & CONDUCTOR SIZES)

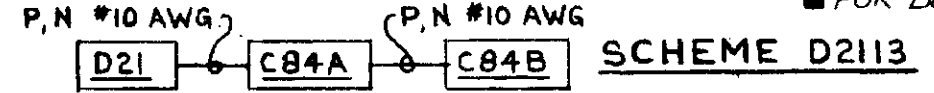


SCHEME D1103 TYPICAL BLOCK DIAGRAM FOR ALL D11XX SCHEMES (SEE TABLE FOR LOC. NOS & CONDUCTOR SIZES)

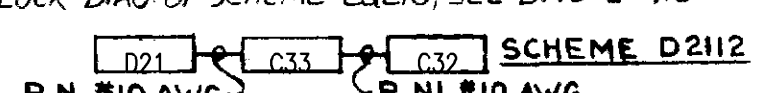


SCHEME D2103

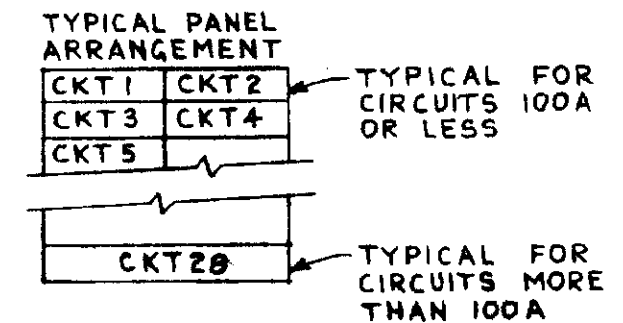
TYPICAL BLOCK DIAGRAM FOR ALL D21XX SCHEMES EXCEPT D2112 & D2113 BELOW (SEE TABLE FOR LOC. NOS & CONDUCTOR SIZES) FOR SCHEMES D-11109 & D-21109 SEE NE-36640-9



SCHEME D2113



SCHEME D2112

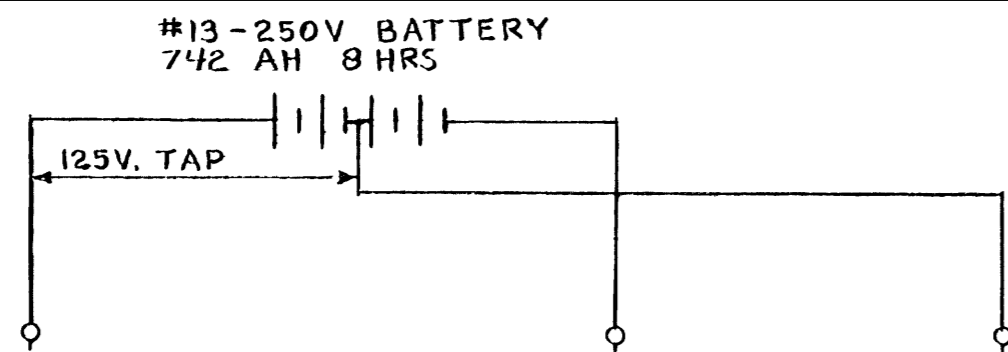


TYPICAL PANEL ARRANGEMENT TYPICAL FOR CIRCUITS 100A OR LESS TYPICAL FOR CIRCUITS MORE THAN 100A

(\* SCHEMES D11111, D11112, D21111 & D21112 CONTINUED ON E-103, SH 3) \* 60 AMP. TR60R GOULD-SHAWMUT OR EQUIVALENT.

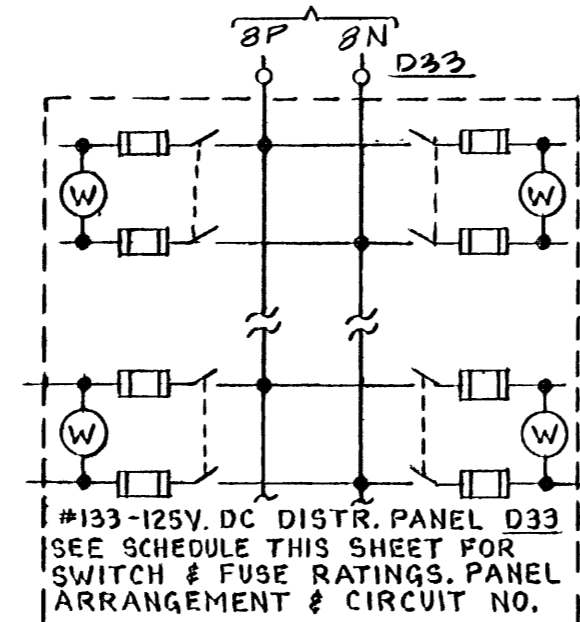
This map/document is to assist employees in the performance of their jobs. Your personal safety is provided for by using safety practices, procedures and equipment as described in safety training programs, manuals and SPAR's.

Bottom right corner containing project title 'SCHEMATIC DIAGRAMS 125, 250 & 24 VOLT DC SYSTEMS', company logo 'Xcel Energy', and drawing number 'NE-36640-3'.



D3A & D3B  
 \*13-250V & 125V DC DISTRIBUTION (CHANNEL 1)  
 (SCHEMES SHOWN ON DWG. #110, SH. 4A, 4B, 4C)

TO CKT. #8, PANEL D31  
 SEE #110, SH. 4B  
 (NE-36640-4B)



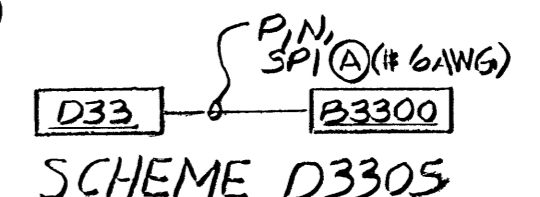
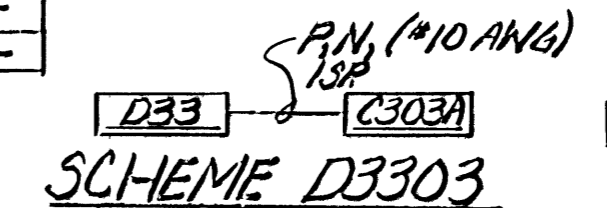
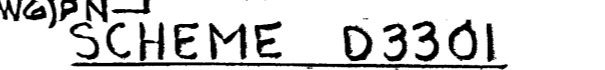
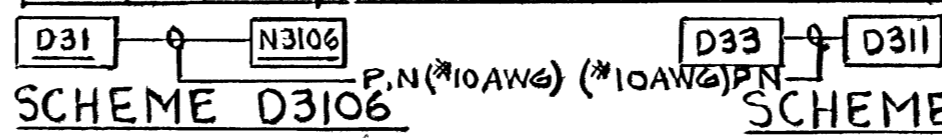
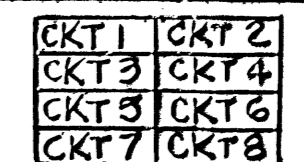
#13-250V DC DISTRIBUTION PANEL D31

SCHEME NO	CKT NO	BREAKER		DESCRIPTION	LOC.	WIRE SIZE
		AF	AT			
D3	1	400	225	125V BATTERY CHARGER #D54	D54	2-#10
D3	2	400	225	125V BATTERY CHARGER #D52	D52	2-#10
D3	3	400	225	BATTERY CHARGER #D54	D54	—
D3	4	400	225	BATTERY CHARGER #D53	D53	2-#10
	5	150	35	SPARE		
D3106	6	150	35	PLANT EVACUATION SIREN POWER	N3106	#10
	7	150	35	SPARE		
D3	8	150	100	125V DC DISTRIBUTION PANEL D32	D33	#1/0
	9	400	150	SPARE		
D3110	10	400	225	#131-250V MCC (RCLC)	D311	250MCM
D3111	11	400	225	#133-250V MCC (REACT. BLDG. EAST)	D313	250MCM
D3112	12	400	225	DIVISION I 120VAC UPS Y71	Y71	250MCM
	13	400	250	SPARE		
	14	—	—	SPACE		
	15	—	—	SPACE		
	16	—	—	SPACE		

NOTES

1. SEPARATION SHALL BE IN ACCORDANCE WITH DESIGN SPEC. NSP48-034.

D33 PANEL ARRANGEMENT



#133-125 DC DISTRIBUTION PANEL D33 (F.P #5828-E12-6)

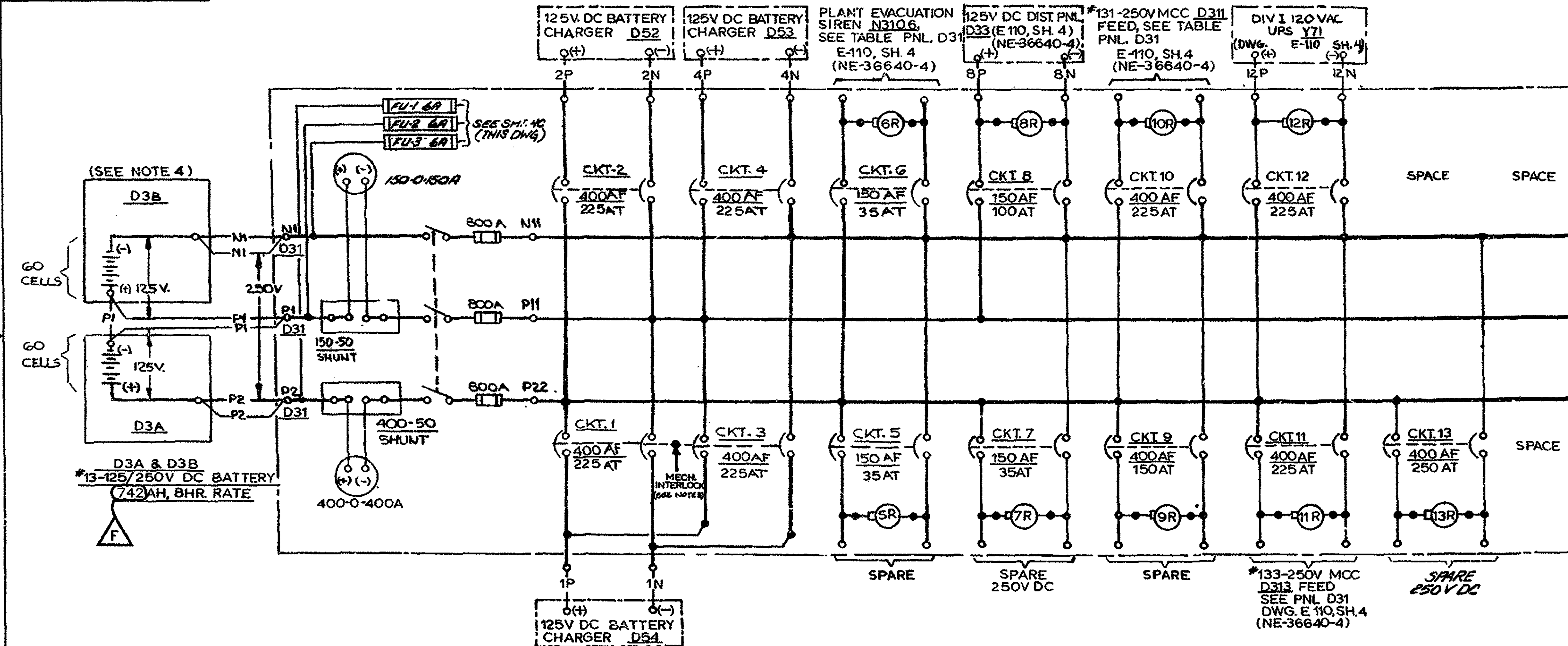
SCHEME NO.	CKT NO.	SWITCH RATING AMPS	FUSE RATING AMPS	DESCRIPTION	LOC.	WIRE SIZE	MANDATORY ROUTING SEPARATION REQUIREMENT
D3301	1	30	30	#131-250V DC MCC	D311	#10	—
D3302	2	30	30	#133-250V DC MCC	D313	#10	—
D3303	3	30	30	ECCS ANALOG TRIP UNIT	C303A	#10	—
D3304	4	30	30	SRV LOW LOW SET CONTROL DIV. I	C253A	#10	SEE NOTE 1
D3305	5	60	35	ACB 52-3300 CONT. POWER @ MCC133B	B3300	#6	—
	6	30	30	SPARE			
	7	30	15	SPARE			
	8	30	15	SPARE			

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E-110 SH. 4  
 MONTI CAD DWG 'K'

250V DC DISTRIBUTION & PANEL SCHEDULE D31, D33

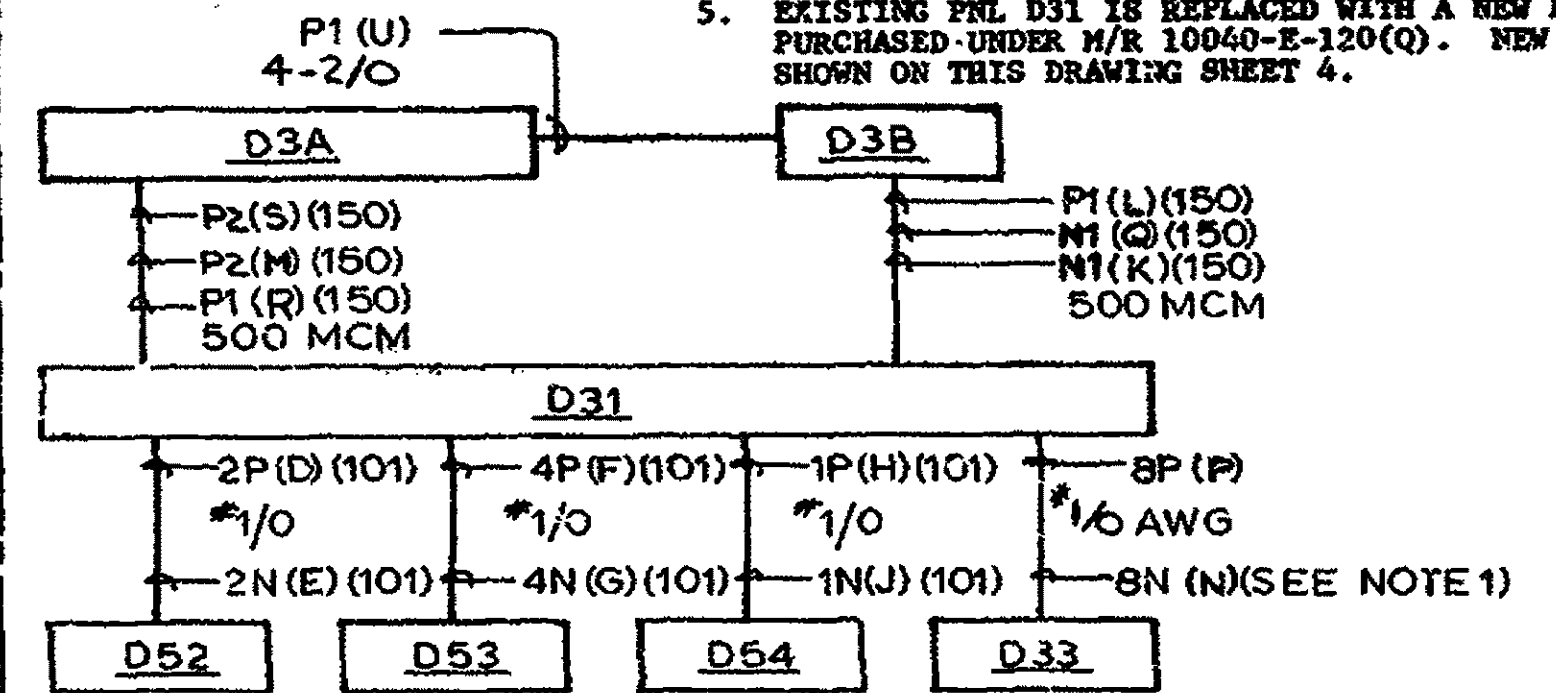




125/250V DC DISTRIBUTION CABINET D31  
SCHEME NO. D3 (CHANNEL 1)

NOTES:

1. FIELD TO RETAG, REROUTE AND RECONNECT EXISTING CABLE SCHEME D3 FROM PANEL D3 TO PANEL D34 AS SHOWN FROM PANEL D31 TO PANEL D33 WIRE NUMBERS 8P AND 8N. FIELD TO ENSURE THAT EXISTING CABLE IS FREE OF DEFECTS AND SUITABLE FOR USE.
2. CABLES BETWEEN PANEL D31 AND BATTERY CHARGERS D52, D53 AND D54 ARE NEW CABLES. CABLES BETWEEN BATTERIES D3A, D3B AND PNL D31 MAY REQUIRE NEW CABLES IN CASE THE EXISTING CABLES ARE DAMAGED OR DOES NOT HAVE ENOUGH LENGTH. TAG ALL CABLES USING THIS DRAWING AND E-811.
3. CIRCUITS #1 AND #3 SHALL BE MECHANICALLY INTERLOCKED WITH A "WALKING BAR" (KEY TYPE LOCK NOT ACCEPTABLE) SO THAT IF ONE BREAKER IS CLOSED, THE OTHER IS BLOCKED IN THE OPEN POSITION.
4. FIELD TO RETAG BATTERY D3 AS D3A AND D3B AS SHOWN.
5. EXISTING PNL D31 IS REPLACED WITH A NEW PNL D31 BEING PURCHASED UNDER M/R 10040-E-120(Q). NEW PANEL TABLE SHOWN ON THIS DRAWING SHEET 4.



SCHEME D3  
CLASS 1E CABLES  
(CHANNEL 1)

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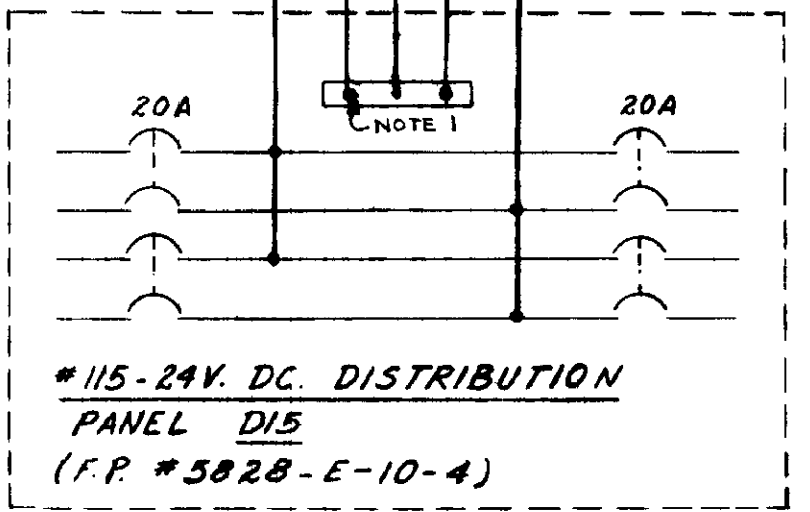
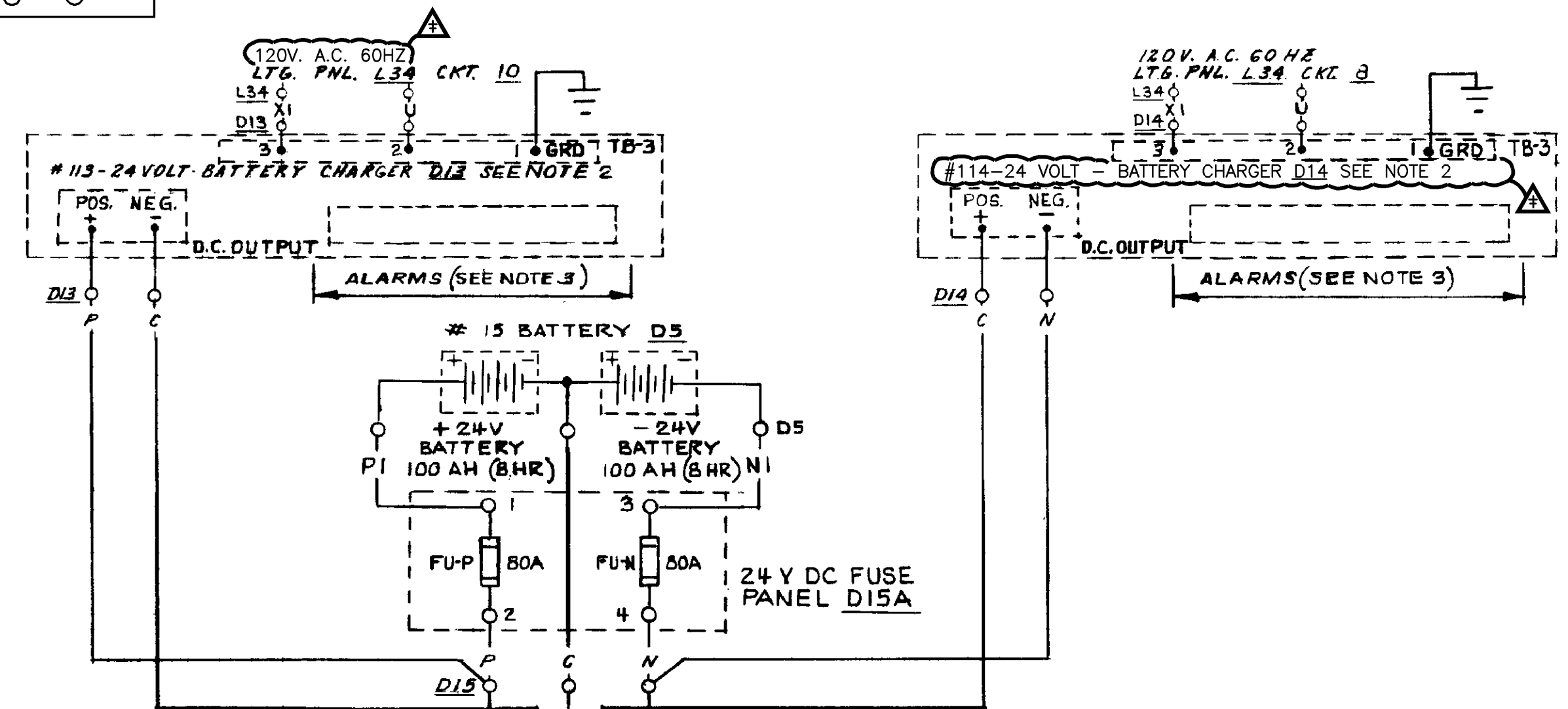
SIGNIFICANT NUMBER	8700	RX	1	3200	1	125
GROUP	1	2	3	4	5	6
MONTICELLO NUCLEAR GENERATING PLANT 125/250V DC DISTRIBUTION CAB. D31 SCHEME NO. D3						

NORTHERN STATES POWER COMPANY  
MINNEAPOLIS  
SCALE: NONE  
REV F  
NE-36640-4-2

REVISIONS	
D	AS-BUILT. REPLACEMENT/UPGRADE DIV. 1 250V DC BATTERY. BATTERY CAPACITY INCREASED. BATTERY RACK LENGTH INCREASED & GROUND DETECTION PANEL RELOCATED. REVISED SHTS. 4-2 & 4-3 PER DRR: MO-87-259 DWN: DS 1-5-88 CHK: JN 1-15-88 MOD: 87M014 FILED: 2-11-88
E	AS-BUILT. NON-CLASS 1E POWER SUPPLY REVISED SHEETS 4 AND 4-2 PER CRR/DRR: MO-89-116 DWN: KB 10-25-89 CHK: JDS 11-8-89 MOD: 89Z006 FILED: 1-23-90
F	AS-BUILT. REVISED TO REFLECT THE BATTERY UPGRADE PROJECT PER DRR: MO-04-0228 DWN: JJP 11-1-04 CHK: JF 11-02-04 MOD: 87M014 FILED: 11-12-04

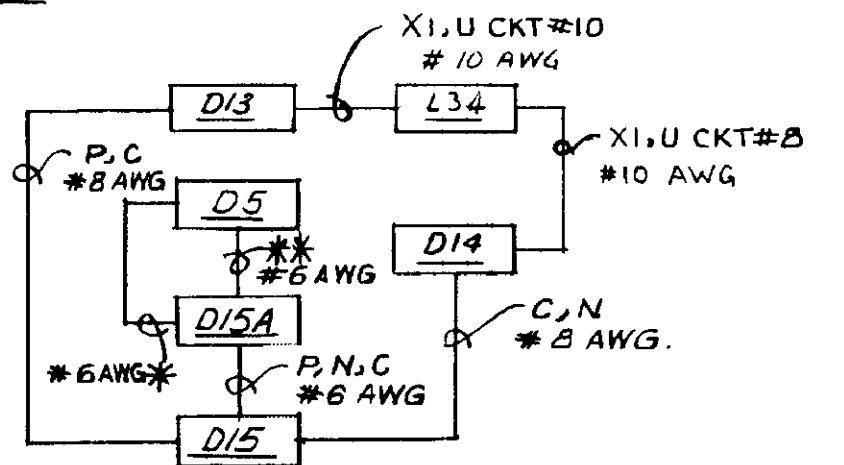
E-110 SH.4B  
MONTICELLO NUCLEAR GENERATING PLANT

REVISIONS	
76	EC 18483
ENHANCEMENTS INDICATED BY	
DWN: JJP 7-22-11	
CHK: BAL 7-22-11	
APPR: PSN 7-22-11	



± 24V D.C. DISTRIBUTION SCHEME D15

SCHEME NO.	120 V. AC. POWER SUPPLY	CHARGER NO.	± 24V. BATTERY	LOCATIONS
D15	(PNL. L34) CKT. 10 (PNL. L34) CKT. 3	# 113 # 114	* 15	D13 D14 D5 D15 D15A
D25	(PNL. L38) CKT. 9 (PNL. L38) CKT. 24	# 123 # 124	* 14	D23 D24 D4 D25 D25A



MANDATORY ROUTING SEPARATION OF SCHEME D15 FROM D25

# 115 - 24 V. DC. DISTRIBUTION PANEL D15 (F.P. # 5828-E-10-4)

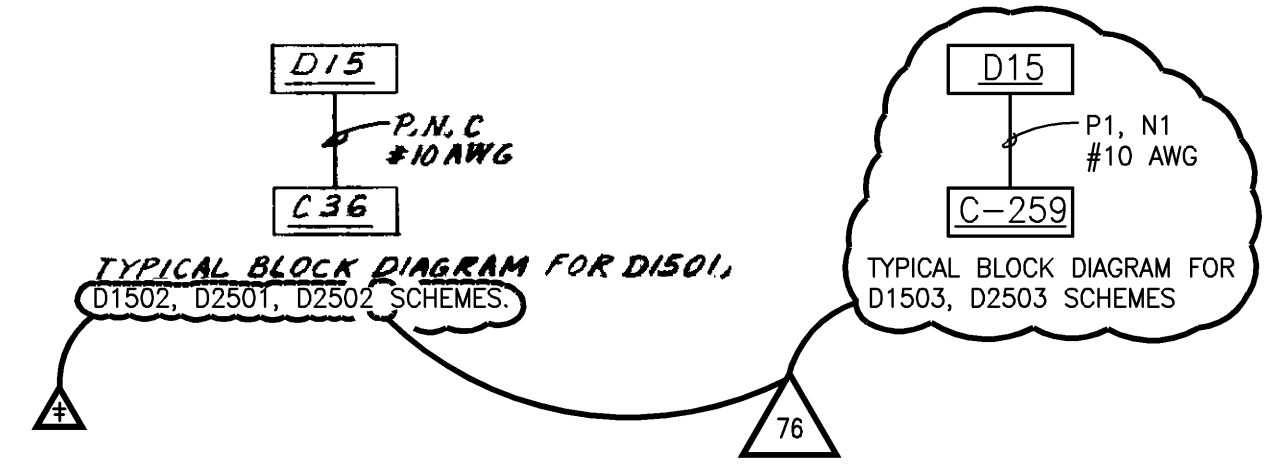
SCHEME NO.	CKT. NO.	BKR. RATING AMPS	DESCRIPTION	LOCATION	ROUTING SEPARATION FROM SCHEME	WIRE SIZE
D1501	1	20A	SOURCE & INTERMEDIATE RANGE MONITORS & AUXILIARIES	C36	D2501 & D25	# 10
D1502	2	20A	PROCESS RADIATION MONITORS & AUXILIARIES	C10	D2502 & D25	# 10
D1503	3	20A	CONTAINMENT ATMOSPHERE MONITORING ISOLATION VALVE IND.	C259	D2503 & D25	# 10
-	4	20A	SPARE			

# 125 - 24 V. DC. DISTRIBUTION PANEL D25 (F.P. # 5828-E-10-4)

SCHEME NO.	CKT. NO.	BKR. RATING AMPS	DESCRIPTION	LOCATION	ROUTING SEPARATION FROM SCHEME	WIRE SIZE
D2501	1	20A	SOURCE & INTERMEDIATE RANGE MONITORS & AUXILIARIES	C36	D1501 & D15	# 10
D2502	2	20A	PROCESS RADIATION MONITORS & AUXILIARIES	C10	D1502 & D15	# 10
D2503	3	20A	CONTAINMENT ATMOSPHERE MONITORING ISOLATION VALVE IND.	C260	D1503 & D15	# 10
-	4	20A	SPARE			

TYPICAL PANEL ARRANGEMENT D15

CKT. 1	CKT. 2
CKT. 3	CKT. 4



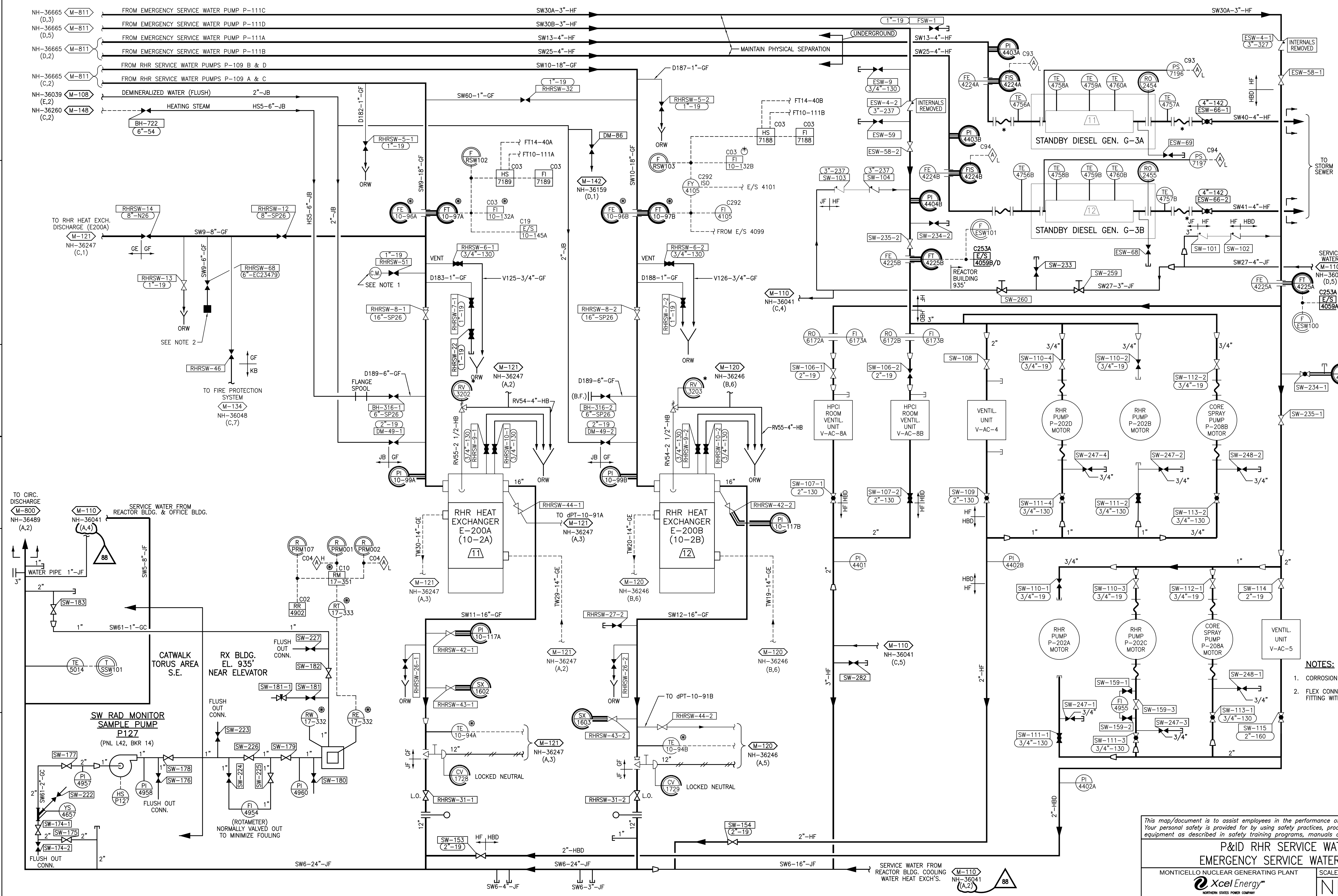
NOTES:

- THE NEUTRAL BARS (C) IN D15 & D25 SHALL NOT BE GROUNDED IN THE PANELS THE CIRCUITS ARE GROUNDED AT THE LOAD (C36 & C10) END ONLY.
- FOR VENDOR SCHEMATIC SEE DWG. NX-28922-3.
- FOR ANNUNCIATOR SCHEMATIC SEE DWG. NE-36640-7.
- SCHEMES D1501 AND D2501 EACH HAVE THREE CONDUCTORS ROUTED TO PANEL C-36. WIRES P AND N ARE CONNECTED TO THE LOAD SIDE OF BREAKERS D1501 AND D2501 AND WIRE C (COMMON WIRE) IS CONNECTED TO THE COMMON (NEUTRAL) BAR.
- SCHEMES D1502 AND D2502 EACH HAVE THREE CONDUCTORS ROUTED TO PANEL C-10. WIRES P AND N ARE CONNECTED TO THE LOAD SIDE OF BREAKERS D1502 AND D2502 AND WIRE C (COMMON WIRE) IS CONNECTED TO THE COMMON (NEUTRAL) BAR.
- SCHEME D1503 HAS TWO CONDUCTORS ROUTED TO PANEL C-259. WIRE P1 IS CONNECTED TO THE LOAD SIDE OF BREAKER D1503 AND WIRE N1 (COMMON WIRE) IS CONNECTED TO THE COMMON (NEUTRAL) BAR.
- SCHEME D2503 HAS TWO CONDUCTORS ROUTED TO PANEL C-260. WIRE P1 IS CONNECTED TO THE LOAD SIDE OF BREAKER D2503 AND WIRE N1 (COMMON WIRE) IS CONNECTED TO THE COMMON (NEUTRAL) BAR.
- BREAKERS D1501, D1502, D1503, D1504, D2501, D2502, D2503, D2504 ARE BOLTED DIRECTLY TO THE POSITIVE AND NEGATIVE BUS BARS (REF NX-9238-3).

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24V DC DISTRIBUTION - PANEL D15, D25

81	EC 12920	DWN: JWP 8-6-08 CHK: PEB 8-15-08 APPR: WK 8-15-08
82	EC 9411	DWN: JWP 8-22-08 CHK: DAN 8-27-08 APPR: DZ 8-27-08
83	EC 14036	DWN: JWP 4-15-09 CHK: BAL 4-15-09 APPR: KC 4-15-09
84	EC 13285	DWN: JWP 5-20-09 CHK: BAL 5-20-09 APPR: DM 5-20-09
85	EC 16121	DWN: JWP 1-3-11 CHK: BAL 1-4-11 APPR: CER 1-24-11
86	EC 23675	DWN: JWP 10-30-14 CHK: BAL 10-31-14 APPR: NED 11-3-14
87	EC 23479	DWN: JWP 12-16-14 CHK: AJR 12-16-14 APPR: DAM 12-17-14
88	EC 26170	DWN: JWP 10-6-15 CHK: SDP 10-6-15 APPR: NIM 10-6-15



- NOTES:**
- CORROSION MONITOR COUPON IS ABANDONED.
  - FLEX CONNECTION (5" STORZ FIRE HOSE FITTING WITH CAP).

**COLOR LEGEND**

(Solid Black)	ASME CLASS 1/QUALITY GROUP A
(Diagonal Lines)	ASME CLASS 2/QUALITY GROUP B
(Horizontal Lines)	ASME CLASS 3/QUALITY GROUP C
(Vertical Lines)	QUALITY GROUP D
(Dashed)	SAFETY RELATED MECHANICAL
(Dotted)	SAFETY RELATED ELECTRICAL
(Stippled)	SPECIAL CONCERNS ITEM

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**M-112**  
MONTICELLO CAD DWG "AE"

**P&ID RHR SERVICE WATER & EMERGENCY SERVICE WATER SYSTEMS**

MONTICELLO NUCLEAR GENERATING PLANT

**Xcel Energy**  
NORTHERN STATES POWER COMPANY

SCALE: NONE

REV 88

**NH-36664**