C.R. NO. 1-5144

INSIDE REACTOR CONTAINMENT | OUTSIDE REACTOR CONTAINMENT

24" MANHOLE
VENT 8"
℄ ELEV. 640'-11"
10" OVERFLOW
10"
REFUELING WATER STORAGE TANK HEAT TRACED (UNIT NR1 ONLY) 48'-0" DIA. × 32'-3" HIGH CAP. 420,000 GALS. (TK-33)
TI 900
TA 900
1¼"
B-12
24" MANHOLE
EL 611'-11"
HEAT TRACING STOPS HERE
℄ EL. 611'-3"
SI176
4"
SI-177
SI-198
CTS108
L.O.
3"
GRADE EL 608'-0"
ISX 900
4" DRAIN
1" PLUGGED CONNS
TERMINATION
24"
3"
PIPE TUNNEL
TO FLOOR IN R.W.S.T. PIPE TUNNEL
TIS 951
TIS 950
EL. 640'0" HI
EL. 620'0" LO
EL. 613'-0" LO LO
EL. 638'-11" MIN
EL 13'-0" LO LO
2" MAKE-UP FROM BORIC ACID BLENDER. SEE DWG 1-5129A, M/6
17,800 GPM MAX.
2" FROM REACTOR COOLANT DRAIN PUMPS SEE DWG. 1-5137A, F/7
CTS137
1" VENT
2½" FROM SPENT FUEL PIT SYSTEM SEE DWG 12-5136, C/7
CTS142
CTS145
1½" FOR CONT SEE DWG 12-5156 F/8
TO & FROM FUTURE RWST HEATERS
2" RECIRCULATION LINE FROM SAFETY INJECTION PUMPS. SEE DWG. 1-5142, M/8
CTS107
1" DRAIN
CTS106
L.C.
2" TEST LINE
TO SAFETY INJECTION PUMPS. SEE DWG 1-5142, M/8 (1300 GPM MAX.)
8" REFUELING WATER RETURN. SEE DWG. 1-5143, H/7
14" TO EMERGENCY CORE COOLING SYSTEM (RHR) SEE DWG 1-5143, G/7.
TO CHARGING PUMPS (1,100 GPM MAX) SEE DWG 1-5129, M/5
3" TO REFUELING WATER PURIFICATION PUMP SEE DWG. 12-5136, G/9
12" FROM RECIRC. SUMP AND CONNECTION WITH RHR SYSTEM SEE DWG. 1-5143, F/9
ISI INSPECTION TO CL 2
9,000 GPM MAX.
16,000 GPM
3" SPRAY PUMP TEST LINE FRICTION FLOW TAPS
6400 GPM
IMO-215
SEE NOTE "A" 0/4
3200 GPM
FLUSHING CONN.
1" TYP.
TYPICAL FOR (12) SPRAY NOZZLES
FAN ROOM
MISSILE BARRIER
6" FROM CONTAINMENT SPRAY HEAT EXCHANGER "E" SEE THIS DWG. D/4
TYPICAL FOR (30) SPRAY HDRS. (4) NOZZLES PER HDR.
6" FROM CONTAINMENT SPRAY HEAT EXCHANGER "W" SEE THIS DWG. D/5.
SKETCH "A-9"
SCHEMATIC ARR'G'T OF LOWER COMPARTMENT SPRAY HEADERS

INSIDE REACTOR CONTAINMENT
1" (TYP.)
SPRAY NOZZLES (SPRACO TYPE 1713A TOTAL-91 NOZZLES PER 8" HEADER)
CTS131W
CPN-52
2000 GPM
CTS132W
SCREW PLUGGED TYPICAL
TYPICAL FOR BOTH
CTS132E
CTS131E
RH142
CPN-53
RH143
CPN-50
TEST CONN.
QP-15 (TYP.)
SPRAY NOZZLES (SPRACO TYPE 1713A TOTAL-151 NOZZLES PER 8" HEADER)
RH144
CPN-51
RH141
UPPER COMPARTMENT
TO RING HEADERS SEE SK "A-8"
CTS127W
CPN-54
CTS146W
NOTE: FOR TEST REMOVE VALVE & INSERT TEST PIECE SEE DETAIL "M-1"
TO RING HEADERS SEE SK "A-8"
CTS127E
CTS146E
CPN-55
LOWER COMPARTMENT
IFX 215
IFX 225
IFX 210
IFX 220
B-14 E-14
OUTSIDE REACTOR CONTAINMENT
SEE DETAIL "M-3" (FOR REF SEE DWG 5427A)
CTS128W
(4) 1" ISOLATION TEST CONN'S.
CTS130W
CTS129W
CTS128E
CTS129E
CTS130E
ISI INSPECTION CL-2
FROM WEST RHR HT. EXCH. SEE 1-5143, K/4
CTS126W
"R" ORIFICE RO-18W
CTS124W
CTS125W
CTS126E
CTS124E
"R" ORIFICE RO-18E
1200 GPM
3200 GPM
(SEE NOTE "A" 0/4)
IPX 225
1" DRAIN
CTS135E
(2) CONTAINMENT SPRAY HEAT EXCHANGER
HE-18E
HE-18W
IPX 215
TO AND FROM ESSENTIAL SERVICE WATER SUPPLY HEADER. SEE DWG. 1-5113, A/4, B/4.
ISI INSPECTION TO CL-3
3200 GPM
CTS123W
CTS123E
CTS121E
REACH ROD REQUIRED
CTS122E
ITI 211
ITI 210
CTS136E
CTS122W
ITI 221
ITI 220
CTS136W
GTS135W
TO & FROM ESSENTIAL SERVICE WATER SUPPLY HEADER SEE DWG. 5113, B/4, C/4
CTS121W
REACH ROD REQUIRED
ISI INSPECTION TO CL-2
ELEV 609'-0"
2" FROM FILL LINE SEE DWG 2-5144 N/S
1"ø SV-107 SET AT 10 PSI
TO ATMOS
EL. 589'-9"
ILS 200
EL. 585'-6" MIN
EL. 585'-8" LO LO
ILA 202
B-14 B-3
CTS110
CTS109
CTS111
½" VENT
ITX 200
½" TO UNIT Nº 2 TANK
SEE DWG. 2-5144 K/6
12-GRX-330
1" FROM NITROGEN MANIFOLD. SEE DWG. 12-5118B, D/3
VALVES TO DISCHARGE UPWARDS
1" VACUUM BREAKERS
N104
IPI 200
IMO-202
IMO-204
CTS118
1" VENT
CTS116
CTS117
CTS113
1" DRAIN
CTS115
ISX 202
SI181
SI182
EL. 587'-0"
SPRAY ADDITIVE TANK 10'-6" O.D. X 6'-0" STRAIGHT 4900 GALS. (TK-36)
IPX 200
IFI 200
REACH ROD REQ'D
CTS119E
CTS120E
CTS119W
CTS120W
8.5 GPM
3200 GPM
183 GPM
IMO-211
IMO-210
EDUCTOR OME-17OE
EDUCTOR OME-17OW
25.5 GPM
IPA 210
IPA 220
IFI 245
IMO-212
IMO-221
IMO-222
IMO-220
CTS105E
CTS104E
CTS102E
CTS101E
CTS103E
CTS104W
CTS102W
CTS101W
CTS103W
CTS105W
VENT TO ATMOS.
¾" SEAL LEAKAGE VENT TO ATMOS. CTS102W
REACH ROD REQ'D 1" FLEXHOSE QP-48-E2
REACH ROD REQUIRED
QP-48W2
IPX 211
IPX 212
IPX 221
IPX 222
IPX 210
IPX 220
IMO-225
CTS138E
CTS138W
PP-9E
PP-9W
REACH ROD REQ'D
REACH ROD REQUIRED
½" TO & FROM CONN'S AT MECH. SEAL HEAT EXCHANGER SEE DWG. 1-5135A, K/9 (TYPICAL)
EL. 573'-0"
FLUSHING CONNECTION
QP-48-E1
1-5023A, D/4
(2) CONTAINMENT SPRAY PUMPS
3200 GPM 490 FT. TDH
1800 RPM 600 HP
MAX. PUMP DISCHARGE PRESSURE 315 PSIG
12-5123 D/4
1-5123A, D/9
SD 10
SD 32
SD 29
CH

231'E' 232'W'
4"
PERMANENT PIPING
IPX
CTS133-2
CTS133-1
TEMPORARY PIPING FOR START-UP ONLY
PVC
6" SPECIAL TEST LINE TO CONTAINMENT RECIRC. SUMP SEE DWG. 1-5427A
241'E' 242'W'
DETAIL "M-1" SPECIAL PIPING FOR TESTING

243'E' CTS 244'W' CTS 341'E' RHR 342'W' RHR
235'E' CTS 236'W' CTS
233'E' CTS 234'W' CTS 331'E' RHR 332'W' RHR
CTS-134-4
CTS-134-3
CTS-134-2
CTS-134-1
2" VENT
6" FROM OTHER TEST PIPING
8"-8"-6" TEMP. REDUCING TEE
TEMP. PIPING FOR START-UP ONLY FLANGED PERMANENT PIPING AFTER TEST
PERMANENT PIPING
2"
6"
12"
12" TEMPORARY DRAIN TO CONTAINMENT RECIRC. SUMP SEE DWG. 1-5427A
CTS141
DETAIL "M-3" SPECIAL PIPING FOR TESTING

GENERAL NOTES

LEGEND
MAIN FLOW
AUXILIARY FLOW

FOR VALVE, INSTRUMENT, SAMPLING, PIPE MATERIAL AND OTHER SYMBOLS NOT EXPLAINED ON THIS DWG., AND FOR MARK NUMBER CODES, SEE DWG. 12-5103 AND 12-5104.

ALL EQUIPMENT IS SEISMIC CLASS I EXCEPT AS NOTED

(W) BY WESTINGHOUSE

DRAINS FROM SPRAY ADDITIVE TANKS TO SPRAY ADDITIVE TANK SUMP 12-5137, H/9

NOTE "A" G/5, F/9, FLOWS SHOWN ARE REDUCED BY 25.5 GPM WHEN NaOH EDUCTORS ARE IN SERVICE.

NOTE "B" REFER TO DWG. 2-5123C FOR PORTIONS OF PIPING CONTAINED WITHIN LEAK DETECTION ENCLOSURES.

THE UNIT PREFIX DESIGNATION FOR EACH COMPONENT IDENTIFICATION NUMBER IS "1" UNLESS OTHERWISE NOTED.

① FOR CODE CLASS 1, 2 & 3 INSTRUMENT CONNS., THE ISI "P" DRY EXTENDS TO & INCLUDES THE FIRST NORMALLY CLOSED VALVE.
② FOR CODE CLASS 1 VENT & DRAIN LINES, THE ISI BOUNDRY EXTENDS TO & INCLUDES THE SECOND NORMALLY CLOSED VALVE, OR EXTENDS TO & INCLUDES THE BLIND FLG. OR CAP AFTER A NORMALLY CLOSED VALVE.
③ FOR CODE CLASS 2 & 3 VENTS & DRAINS, THE ISI BOUNDRY EXTENDS TO & INCLUDES THE FIRST NORMALLY CLOSED VALVE.

NOTE: THIS DWG. MADE UNIQUE FOR UNIT #1 AND SUPERSEDES DWG. 1-2-5144 REV 18.

HAND OPERATED VALVE IDENTIFICATION NUMBERS
1. ONLY "UNIQUE VALVE NUMBERS" APPEAR ON THIS DRAWING. SEE SEPARATE VALVE IDENTIFICATION LIST FOR EQUIVALENT DESIGN (MCR) NUMBERS.
2. "TAG" NUMBERS MODIFIED FOR DRAWING USE AS FOLLOWS:
TAG Nº: 2-NSW-V105-W
APPEARS AS: NSW105W
3. INSTRUMENT ROOT VALVE MARK Nº'S NOT SHOWN ON DRAWING (SEE VALVE IDENTIFICATION LIST) DERIVED BY ADDING TO INSTRUMENT NUMBER:
FOR SINGLE IMPULSE: V1
FOR DOUBLE IMPULSE: V1(UPSTREAM) V2(DOWNSTR)

MF FOR MICROFILM STATUS SEE REVISION RECORD FOR THIS DWG.

DATE	NO.	APPROVED
9-2-88	31	

FOR REVISION DESCRIPTION SEE SEPARATE REVISION RECORD FOR THIS DRAWING

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INDIANA & MICHIGAN ELECTRIC CO.
DONALD C. COOK NUCLEAR PLANT
BRIDGMAN MICHIGAN

FLOW DIAGRAM CONTAINMENT SPRAY UNIT Nº 1

DR. NO. 1-5144-31

SCALE: NONE
DR. BY: D.M. Williams
DES. BY: E.P. Smith
CH. BY: R.C. Lee
DATE: 2-9-88

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SI APERTURE CARD

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