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MANGAN,C.V. Niagara Mohawk Power Corp.
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SCHWENCER,A. Licensing Branch 2

SUBJECT: Forwards responses to SER Open Items 91 & 97.W/three oversize drawings.Aperture cards available in Central Files.

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	NRR/DE/GB	28	2	2	NRR/DE/MEB	18	1	0
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	NRR/DHFS/LQB	32	1	1	NRR/DHFS/PSRB		1	0
	NRR/DL/SSPB		1	0	NRR/DSI/AEB	26	1	1
	NRR/DSI/ASB		1	0	NRR/DSI/CPB	10	1	1
	NRR/DSI/CSB	09	1	1	NRR/DSI/ICSB	16	1	1
	NRR/DSI/METB	12	1	1	NRR/DSI/PSB	19	1	1
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If there are any questions, contact Joyce

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

September 13, 1984
(NMP2L 0159)

Mr. A. Schwencer, Chief
Licensing Branch No. 2
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re: Nine Mile Point Unit 2
Docket No. 50-410

Dear Mr. Schwencer:

Enclosed for your use and information are the Nine Mile Point Unit 2 responses to the Nuclear Regulatory Commission's Safety Evaluation Report open items. This information has been previously discussed with your staff and is submitted to aid your review of the Unit 2 license application for the resolution of these open items. This information includes Safety Evaluation Report open items 91, 97.

Very truly yours,

cmangan

C. V. Mangan
Vice President
Nuclear Engineering & Licensing

NLR:ja
Enclosure
xc: Project File (2)

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)

Niagara Mohawk Power Corporation) Docket No. 50-410

(Nine Mile Point Unit 2))

AFFIDAVIT

C.V. Mangan, being duly sworn, states that he is Vice President of Niagara Mohawk Power Corporation; that he is authorized on the part of said Corporation to sign and file with the Nuclear Regulatory Commission the documents attached hereto; and that all such documents are true and correct to the best of his knowledge, information and belief.

C V Mangan

Subscribed and sworn to before me, a Notary Public in and the the State of Maryland and County of Montgomery, this 13 day of September 1984.

Ruth Eshbridge
Notary Public in and for
Montgomery County, Maryland

My Commission expires:

7/1/86

9A.3.6.2.2 Sectional Control Valves 1.10

Approved post indicator sectional control valves are 1.11
provided to isolate portions of the fire main loop for 1.12
maintenance or repair purposes.

9A.3.6.2.3 Hydrant Isolation Valves 1.14

Curb box valves are provided to isolate each hydrant from 1.15
the fire main for maintenance purposes.

9A.3.6.2.4 Fire Main System Piping 1.24

The fire main system piping is separate from service water 1.25
and sanitary water system piping.

9A.3.6.2.5 Multiunit Nuclear Power Plant Sites 1.28

Nine Mile Point Units 1 and 2 are located adjacent to each 1.29
other. Each unit has an independent fire main loop with its 1.31
own water supply and are interconnected.

9A.3.6.2.6 Fire Pumps 1.33

Unit 2 has two fire pumps, one electric motor drive and one 1.34
diesel engine drive, each rated at 2,500 gpm at 125 psig and 1.36
each capable of meeting maximum fire demand flow. The two 1.37
pumps are headered together and connected to the yard fire
main loop in four places. Two connections are adjacent to 1.38
each other, the third runs through the turbine building, and 1.39
the fourth runs through the control building and connects to
the yard loop at points remote form the first two. 1.40
connections. The pumps are located in separate rooms with 1.41
3-hr ratings.

The fire pump installation confirms to NFPA 20, Standard for 1.42
the Installation of Centrifugal Fire Pumps, except that the 1.43
electric motor driven pump uses a non-UL listed 4.16-kV 1.44
circuit breaker modified to meet the intent of NFPA
Standard 20 instead of a UL-listed controller. Because 1.46
there are no UL listed fire pump controllers (rated in
excess of 600V) UL will perform a field investigation of the 1.47
Unit 2 controller and provide a report of compliance to 1.48
NPPA 20-1983.

Recommendations submitted by UL to upgrade non-compliance 1.49
items will be incorporated into the current design. 1.50

9A.3.6.2.7 Outside Hose Installation 1.52

Unit 2 complies with the intent of this SRP guideline. The 1.54
average distance between hydrants is less than 250 ft, and
between hose houses less than 1,000 ft. Hydrants and hose 1.57
coupling threads are compatible or adapters are provided for
local fire departments. In addition, each hose house will 1.58
be equipped with 1 1.2 in and 2 1/2 in fire hose, nozzles,

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2.4

9A.3.6.2.2 Sectional Control Valves

Approved post indicator sectional control valves are provided to isolate portions of the fire main loop for maintenance or repair purposes.

9A.3.6.2.3 Hydrant Isolation Valves

Curb box valves are provided to isolate each hydrant from the fire main for maintenance purposes.

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The fire main system piping is separate from service water and sanitary water system piping.

9A.3.6.2.5 Multiunit Nuclear Power Plant Sites

Nine Mile Point Units 1 and 2 are located adjacent to each other. Each unit has an independent fire main loop with its own water supply and are interconnected.

9A.3.6.2.6 Fire Pumps

Unit 2 has two fire pumps, one electric motor drive and one diesel engine drive, each rated at 2,500 gpm at 125 psig and each capable of meeting maximum fire demand flow. The two pumps are headered together and connected to the yard fire main loop in four places. Two connections are adjacent to each other, the third runs through the turbine building, and the fourth runs through the control building and connects to the yard loop at points remote form the first two connections. The pumps are located in separate rooms with 3-hr ratings.

The fire pump installation confirms to NFPA 20, Standard for the Installation of Centrifugal Fire Pumps, except that the electric motor driven pump uses a non-UL listed 4.16-kV circuit breaker modified to meet the intent of NFPA Standard 20 instead of a UL-listed controller. Because there are no UL listed fire pump controllers (rated in excess of 600V) UL will perform a field investigation of the Unit 2 controller and provide a report of compliance to NPPA 20-1983.

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THIS PAGE INTENTIONALLY BLANK 2.4

Certification of Fire Rated Doors

The fire-rated doors and frames for installation at Nine Mile Point Nuclear Station - Unit 2 will not be UL-labelled. Although these doors will not be qualified by actual fire testing, engineering calculations, technical evaluation, and comparison to labelled doors varifies their acceptability as fire barriers subjected to a Class A (3 hr.) fire rating. The results of these calculations, evaluations, and comparisons are summarized below:

1) These doors and frames are manufactured in accordance with the Quality Assurance requirements similar to that of any nuclear safety related component, thereby assuring the quality, traceability, and performance characteristics of the materials used.

2) These are heavy duty hollow metal blast/tornado doors, consisting of 3/16" thick face sheets securely welded to 3/16" thick stiffeners (1½ x 9/16 x 3/16 bar channel). The inside of the door is filled with superior quality fiberglass insultation. The overall door thickness is 1-7/8".

3) These doors are equipped with extra heavy duty hinges welded to the door and bolted to the frames. The bolt holes in the hinge blades are oversized to allow thermal expansion of the door with its frame.

4) These doors are equipped with a heavy duty three point latching system. The bolt throw is at least 3/4" and strike/bolt clearance is provided for thermal growth of the door within its frame.

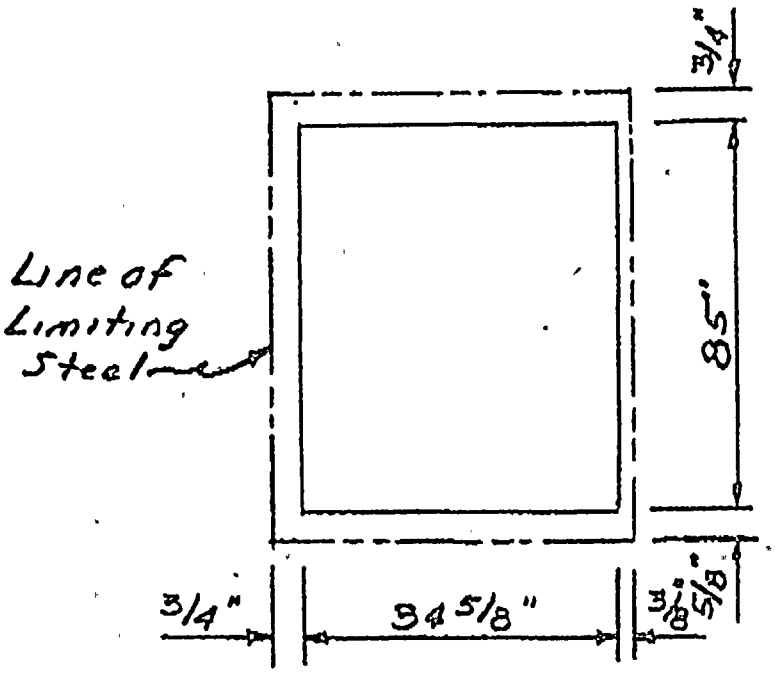
5) The door frame is constructed of 5x9# channel. It is sized to provide adequate clearance gaps for horizontal thermal expansion and designed to "grow" in the vertical direction. Because the frame will not restrict thermal expansion of the door (up to 2000°F), the door will not buckle or deform as might otherwise happen.

6) Calculations indicate that perpendicular deflection of the door as a result of differential growth of the "hot-side" and "cold-side" face plates should not exceed 50 percent of the overall door thickness (at 2000°F, hot-side) and consequently flame propagation is prevented.

CALCULATION OF THE EXPANSION OF THE WATERTIGHT DOORS

PROJECT: NINE MILE STATION - UNIT #2

DOOR NUMBERS: SA 175-3; SA 175-4; NA 175-2; R 175-4; R 175-5 & R 175-7



The method of calculating expansion is based on the size of the door times the temperature rise (2000°F - 70°) or 1930 times the coefficient of steel expansion (0.0000065)

Width of door = 34-5/8" - Total clearance = 1-1/8"
Minimum clearance = 3/8" (0.375")

Expansion in width = 34.625 x 1930 x 0.0000065 = $\frac{0.434}{2}$ = 0.217"
NOTE: 0.217"is less than 0.375"

Height of door = 85" - Total clearance = 1-3/8"
Minimum clearance = 5/8" (0.625")

Expansion in height = 85" x 1930 x 0.0000065 = $\frac{1.066"}{2}$ = 0.533"
NOTE: 0.533"is less than 0.625"

COMPARISON BETWEEN 3 PSI TORNADO DOOR (TYPE III, V, & VI) AND AN EXISTING U.L. LABELED 3 HOUR FIRE DOOR.

The purpose of the following analysis is to compare the Type III, Type V, and Type VI, 3 PSI Tornado Doors with an Existing Fire Labeled Door which was tested in accordance with the Standard for Safety, Fire Test of Door Assemblies - UL 10B for 3 hour fire rating.

CLEARANCE FOR THERMAL EXPANSION

The combined clearance between the door and the associated frame in the area of the labyrinth formed by the 1" x 5/8" bar stop (see figure 1) for door expansion during a fire, is given in the table below, along with the overall door dimensions.

Door	DESCRIPTION	OVERALL DOOR DIMENSIONS	TOTAL DOOR/FRAME GAP		
			HORIZONTAL	VERTICAL	DIAG.
Type III	Tornado, Single Leaf	35-3/4"x83¼"	.50	1.13	1.24
Type V	Utility, Single Leaf	35-3/8"x59-7/16"	.50	1.13	1.24
Type VI	Tornado, Double Leaf	71½"x83¼"	.88	1.13	1.24

The following calculations verify that there would be no appreciable interference (contact force) between the door and frame during a fire where the temperature of the door reached 1930°F.

HORIZONTAL EXPANSION (Type III & V)

$35.75\text{-in} \times 1930°F \times 6.33 \times 10^{-6}°F^{-1} = .44\text{-in}$

HORIZONTAL EXPANSION (Type VI)

$71.5\text{-in} \times 1930°F \times 6.33 \times 10^{-6}°F^{-1} = .87\text{-in}$

VERTICAL EXPANSION (Type III & VI)

$83.25\text{-in} \times 1930°F \times 6.33 \times 10^{-6}°F^{-1} = 1.02\text{-in}$

VERTICAL EXPANSION (Type V)

$59.44\text{-in} \times 1930°F \times 6.33 \times 10^{-6}°F^{-1} = .73\text{-in}$

DIAGONAL EXPANSION (Type III, V, & VI)

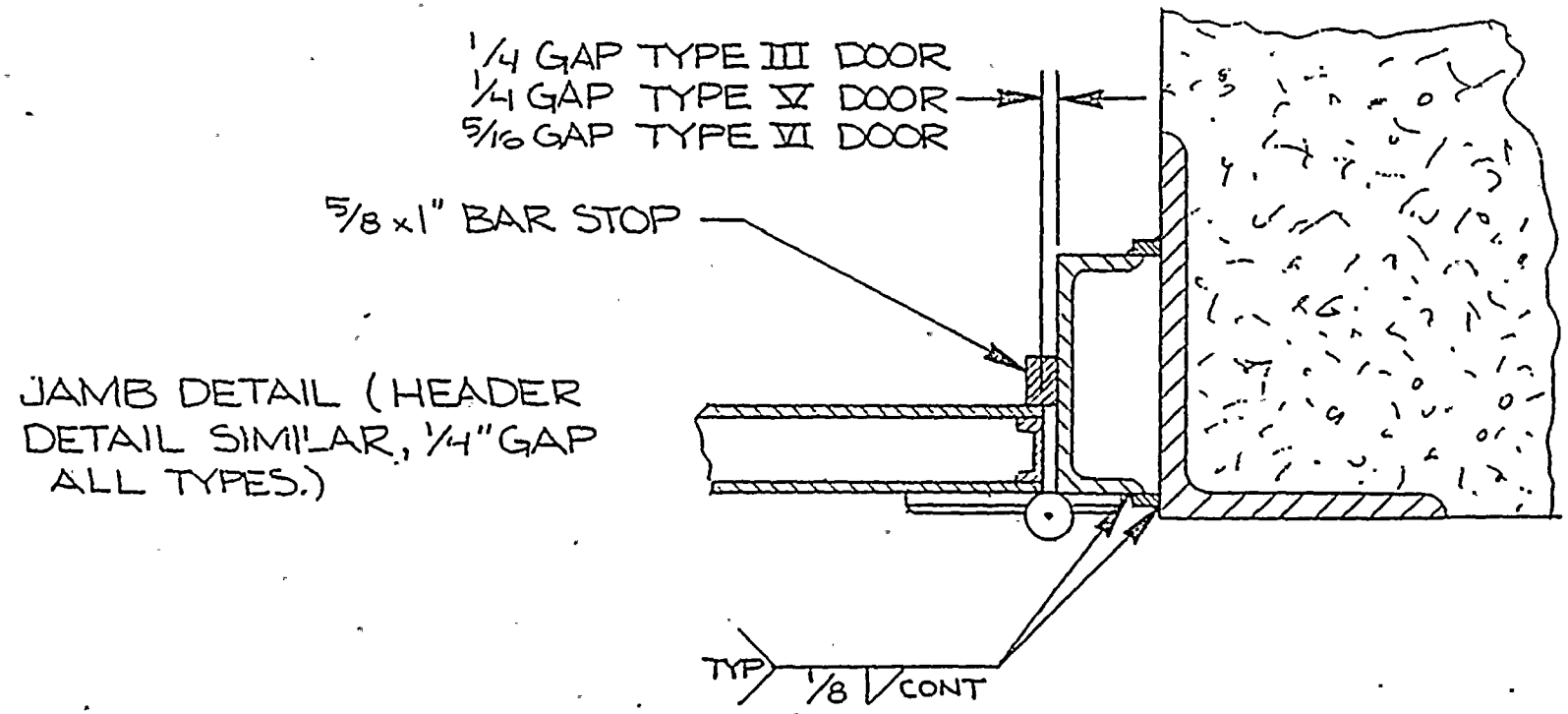
$90.6\text{-in} \times 1930°F \times 6.33 \times 10^{-6}°F^{-1} = 1.11\text{-in}$

The door and frame descriptions outlined in the following Comparison Chart show that the door is secured against unacceptable warpage by a two or three point latching system and two extra heavy duty hinges. The door and frame are also shown to be much stronger than the existing fire rated door.

COMPARISON CHART

ITEM	UL-LABELED 3 HOUR DOOR. RGF.# R 3658 (CLASS A HOLLOW METAL)	SPECIAL PURPOSE DOORS (WATERTIGHT & RAD.SHIED)	SPECIAL PURPOSE DOORS (PRESS.TIGHT & MISS.PROT.)
DOOR CONSTRUCTION	COMPOSITE CONSTRUCTION-$1\frac{3}{4}$" THICK 16 GA. COVER SHEETS WITH $1\frac{5}{8}$" THK. MINERAL WOOL INSULATION AND 20 GA. REINFORCING ZEES (6" O.C.)	$1\frac{1}{4}$" SOLID STEEL PLATE WITH SEAL CHANNELS AROUND PERIPHERY.	COMPOSITE CONSTRUCTION - $1\frac{7}{8}$" THK. 2-$\frac{3}{16}$" COVER SHEETS OF A-36 WITH $1\frac{1}{2}$" THK. FIBERGLASS INSULATN AND $1\frac{1}{2}$" x $\frac{9}{16}$" x $\frac{3}{16}$" BAR CHANNELS ALL AROUND THE PERIPHERY OF THE DOORS.
LOCK BOLTS	MORTISED LOCK OR LATCH SETS WITH ONE SINGLE POINT SPRING ACTUATED BOLT, ($\frac{5}{8}$" x 1"), NOTCHED FOR NYLON INSERTS ($\frac{5}{8}$" OR $\frac{3}{4}$" THROW).	6-$1\frac{1}{4}$" SQUARE CF 1018 STEEL BOLTS WITH A $2\frac{1}{2}$" THROW; TWO AT EACH JAMB AND ONE EACH AT HEAD & SILL. BOLT HOUSINGS OF 3" x 4$\frac{3}{4}$" x 2" A36 STEEL STOCK.	2-1"ϕ LOCK BOLTS, ASTM A 1215 UNS G 1215 STEEL - MIN. TENSILE 76 KSI, 1" THROW. LATCH STRIKE MADE OF SUPER OILITE AT OPER TEMP. OF UPTO 200°F. BUSHING ON THE LOCK ARE BRONZE IN EXCESS OF 50 KSI
HINGES	$1\frac{1}{2}$ OR 2 PAIRS OF $4\frac{1}{2}$" x $4\frac{1}{2}$" x 0.180" BALL BEARING BUTT HINGES - WITH $\frac{1}{4}$" OR $\frac{5}{16}$" PINS	2-HINGES WITH 1" DIAMETER PIN AND THRUST BEARING, WELDED TO STRUCTURAL STEEL ANGLE FRAME	2-HEAVY DUTY HINGE ASSEMBLIES, WELDED TO DOOR FRAME AND SECURED TO THE DOORS WITH BOLTS.
FRAME	14 GA. PRESSED STEEL FRAME WITH ADJUSTABLE ANCHORS.	A-36 STEEL ANGLES FOR SILL, HEAD & JAMBS WELDED TOGETHER AND STIFFENED WITH GUSSET PLATES	A-36 STEEL CHANNELS THREE SIDES WITH BAR STOPS WELDE TO THE CHANNELS TO PREVEN FLAME PROPAGATION.
FIELD INSTALLATION	PRESSED STEEL FRAME ANCHORED TO WALL WITH 14 GA. ADJUSTABLE TOMB ANCHORS @ 24" O.C.	A-36 STEEL ANGLE FRAME CONTINUOUSLY FILLET WELDED TO EXISTING EMBEDDED FRAME.	CHANNEL FRAME INTERMITTENT WELDED TO THE EXISTING EMBE FRAME.

REV. _____ PAGE _____ OF _____



JAMB DETAIL (HEADER DETAIL SIMILAR, 1/4" GAP ALL TYPES.)

FIGURE 1

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

September 13, 1984
(NMP2L 0159)

Mr. A. Schwencer, Chief
Licensing Branch No. 2
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re: Nine Mile Point Unit 2
Docket No. 50-410

Dear Mr. Schwencer:

Enclosed for your use and information are the Nine Mile Point Unit 2 responses to the Nuclear Regulatory Commission's Safety Evaluation Report open items. This information has been previously discussed with your staff and is submitted to aid your review of the Unit 2 license application for the resolution of these open items. This information includes Safety Evaluation Report open items 91, 97.

Very truly yours,

cmangan

C. V. Mangan
Vice President
Nuclear Engineering & Licensing

NLR:ja
Enclosure
xc: Project File (2)

NOTE: PROPRIETARY DRAWINGS TO:
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M. HAUghey - 5 cys

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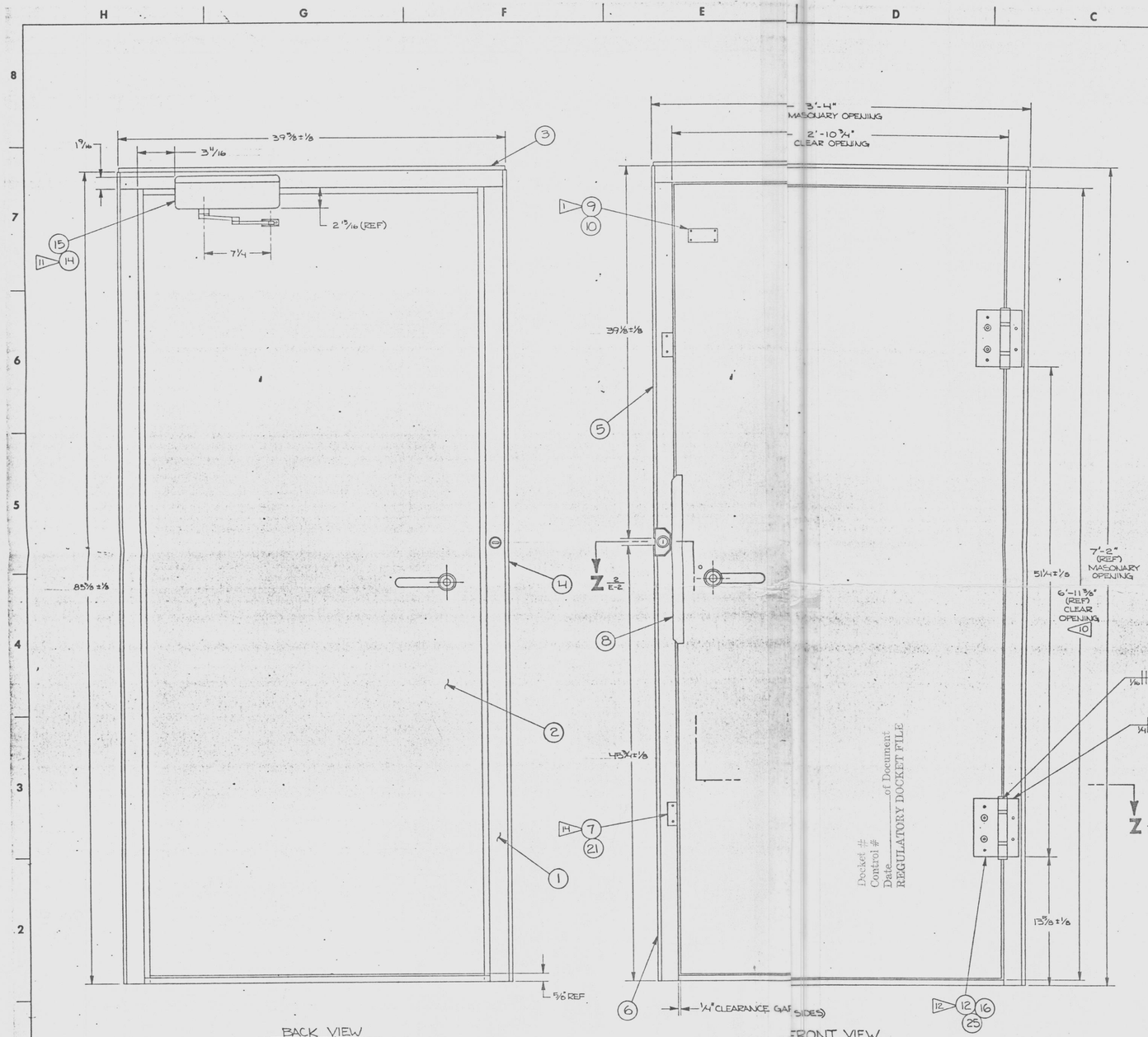

NOTES:

1. IMPRESSION STAMP: DATE, SERIAL NO. AND ASSEMBLY NO.
2. WEIGHT OF DOOR AND FRAME ASSEMBLY: 580 LBS. APPROX.
3. PRIOR TO PAINTING, BRUSH-OFF BLAST CLEAN PER SSPC-SP7.
4. PRIME WITH MOBILE CHEMICAL CO. VAL-CHEM ZINC CHROMATE EPOXY PRIMER 13-R-56, MINIMUM THICKNESS 2.0 MILS.
5. LOCATE HINGES AT ASSEMBLY, USE PRESRAY HINGE ALIGNMENT TOOL PR 9343 TO ALIGN HINGES, PIN AND WELD.
6. INSTALL OIL HOLE HINGE PLUG IN TOP OF KNUCKLE, INSTALL HINGE PIN AND SECURITY WELD.
7. ELECTRIC DEADBOLT LOCK SPECIFICATION:
   R.R. BRINK #2050-RHR-FSE-LSS-RC-PC-BEST CYLINDER OUTSIDE-SARGENT CYLINDER (THUMB) TURN LEVER INSIDE-630. OMIT STRIKE PLATE. CYLINDERS AND FRAME MOCK-UP TO BE SUPPLIED BY PRESRAY FOR FACTORY PRE-ASS'Y.
8. MASK BEFORE OR INSTALL AFTER BLASTING AND PRIMING DOOR.
9. FOR INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS SEE PRESRAY MANUAL IMPR 9314.
10. CLEAR OPENING DIMENSION NEGLECTING DOOR SADDLE.
11. FOR INSTALLATION OF DOOR CLOSER SEE PRESRAY DRAWING PR 9344.
12. TORQUE SCREWS TO 275 IN-LBS, TACK WELD TO HINGE BLADE. COUNTERDRILL SOCKET 3/16 DIA x 1/8 DP.
13. ALL STEEL PLATES, FLATS AND STRUCTURAL SHAPES SHALL CONFORM TO ASTM A36 SPECIFICATIONS.
14. AT ASSEMBLY, LINE DRILL 1/8 DIA THRU DETAIL 7 AND DETAIL 1, PRESS IN DETAIL 21, (2 PLC'S TYP)

NINE MILE POINT NUCLEAR STATION
NIAGARA MOHAWK POWER CORP.
J.O. NO. 12177, P.O. NO. NMP2-52084
DOOR OPENING: SW 261-14

4	25	UNBRAKO #20097-6C-20	LOW HD SOC HD CAP SCR.
1	24	5/8 x 1 x 3 3/4 LG STEEL FLAT	HEADER BAR STOP
2	23	5/8 x 1 x 8 LG STEEL FLAT	JAMB BAR STOP
3	22	1/4-20 UNC-3A x 3/4 LG	SOC. HD FLAT HD SCR
4	21	CEM # 1/8 x 1 3/16 LBR	SPIROL PIN
3	20	RED HEAD # FS-10125	CONCRETE ANCHOR
1	19	SARGENT #124-41-32D	CYLINDER TURN LEVER
1	18	BEST #1E-6-HH-C4-RP2-626	CYLINDER
7	1	17	BRINK #2050	ELECTRIC DEADBOLT, 1" THROW
8	16	CEM # 1/8 x 9/16 LBR	SPIROL PIN
1	15	SARGENT #280-B	MOUNTING PLATE
1	14	SARGENT #EN 2501L-OE	DOOR CLOSURE
1	13	ZERO #560 ALUM	WEATHERSTRIPPED DOOR SADDLE
2	12	PR 9326	HINGE
4	11	SEE FIELD	THREADED PLATE
4	10	PARKER-KALON #0 x 3/16 LG	DRIVE SCREW
1	9	PRES 865	DATA PLATE
1	8	SEE FIELD	SECURITY ASTRAGAL
2	7	SEE FIELD	SLAM LATCH STRIKE
1	6	1/4 x 1/2 x 45 3/4 LG STEEL FLAT	LOWER JAMB SPLICE BAR
1	5	1/4 x 1/2 x 39 1/8 LG STEEL FLAT	UPPER JAMB SPLICE BAR
3	4	1/4 x 1/2 x 83/8 LG STEEL FLAT	JAMB SPLICE BAR
2	3	1/4 x 1/2 x 39 3/8 LG STEEL FLAT	HEADER SPLICE BAR
1	2	SEE FIELD	DOOR WELDMENT
1	1	SEE FIELD	FRAME WELDMENT
		PR 9314-1	ASSEMBLY

QTY	DETAIL	STOCK SIZE / PART NO.	DESCRIPTION

DRAWING NOT REMADE UNTIL DATED AND APPD. BELOW.

DATE	APPR.
BREAK ALL SHARP CORNERS 1/32	
DO NOT SCALE DRAWING	

MATERIAL: NOTED 13

PART/FINISH: 3

TOLERANCE UNLESS NOTED

FRACTIONS	± 1/32
2 DECIMAL PLACES	± .010
3 DECIMAL PLACES	± .03
ANGLES	± 1°

SCALE: 1/4 — 6 METER

THE PRESRAY CORP.
PAWLING, NEW YORK

NAME: 3 PSI TORNADO DOOR TYPE III A, RHR

BR. | CHK. | APPR. | REV.

SHEET NO. 1 OF 6

INFORMATION ONLY
NOT FOR PRODUCTION

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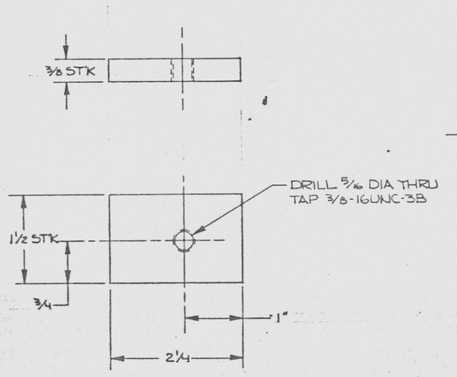
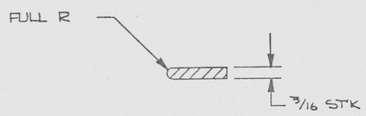
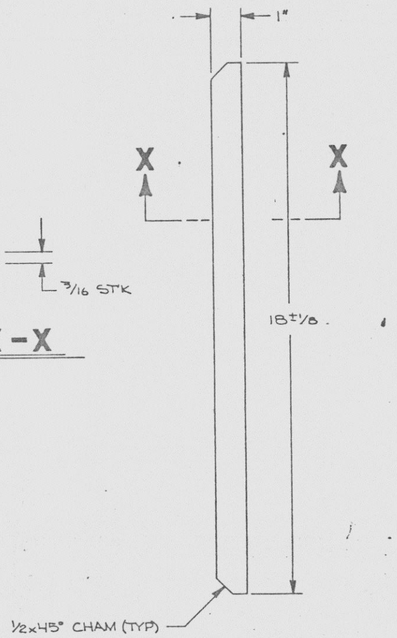
C



(11) THREADED PLATE



SECTION X-X
SCALE: 1/1



(8) SECURITY ASTRAGAL
SCALE: 1/2
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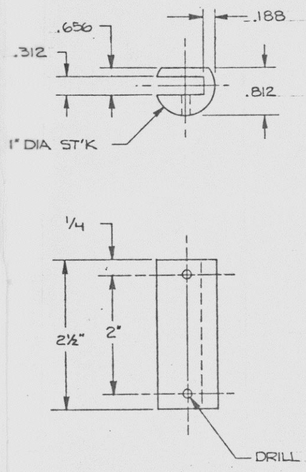
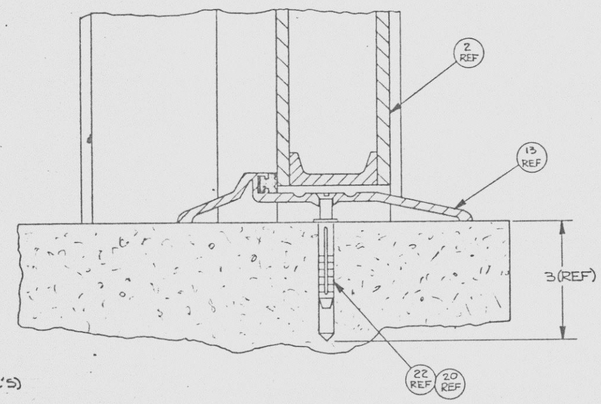
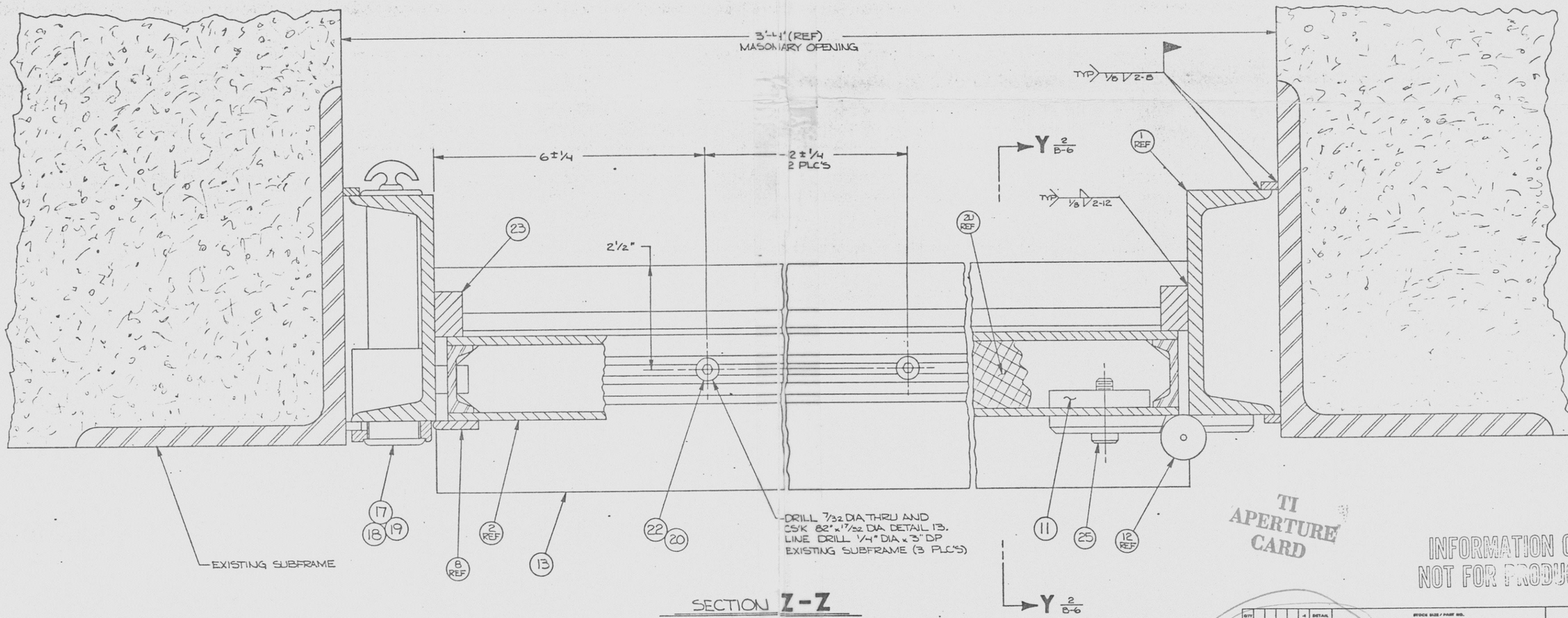


(7) SLAM LATCH STRIKE
SCALE: 1/1
MAKE FROM OILITE #SSS-1000 (MATL FOR 2)
(2 REQ'D)



SECTION Y-Y 2/C-3
SCALE: 1/1



SECTION Z-Z

QTY	DETAIL	STOCK SIZE / PART NO.	DESCRIPTION
4			

DRAWING NOT ENLARGED OVER DATED AND APVD. REVNS.

DATE APV'D.

ISSUE ALL READY COMPARE YES

DO NOT SCALE DRAWING

MATERIAL

PAINT/FINISH

TOLERANCE UNLESS NOTED

FRACTIONS ± 1/32
2 DECIMAL PLACES ± .010
3 DECIMAL PLACES ± .03
ANG ± 1°

SCALE 1/1

THE PRESRAY CORP.
PAWLING, NEW YORK

NAME DETAILS 7, 8, 11

DR.
CKD.
APV'D.

ENG. ISSUE

SHEET NO 2 OF 6

REV