GENERAL ELECTRIC

UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING:				
APPLIED PRACTICES	SURFACES	TOLERANCES ON MACHINED DIMENSIONS: FRACTIONS	DECIMALS	ANGLES
	✓	±	±	±

920D714

TITLE REFUELING BELLOWS

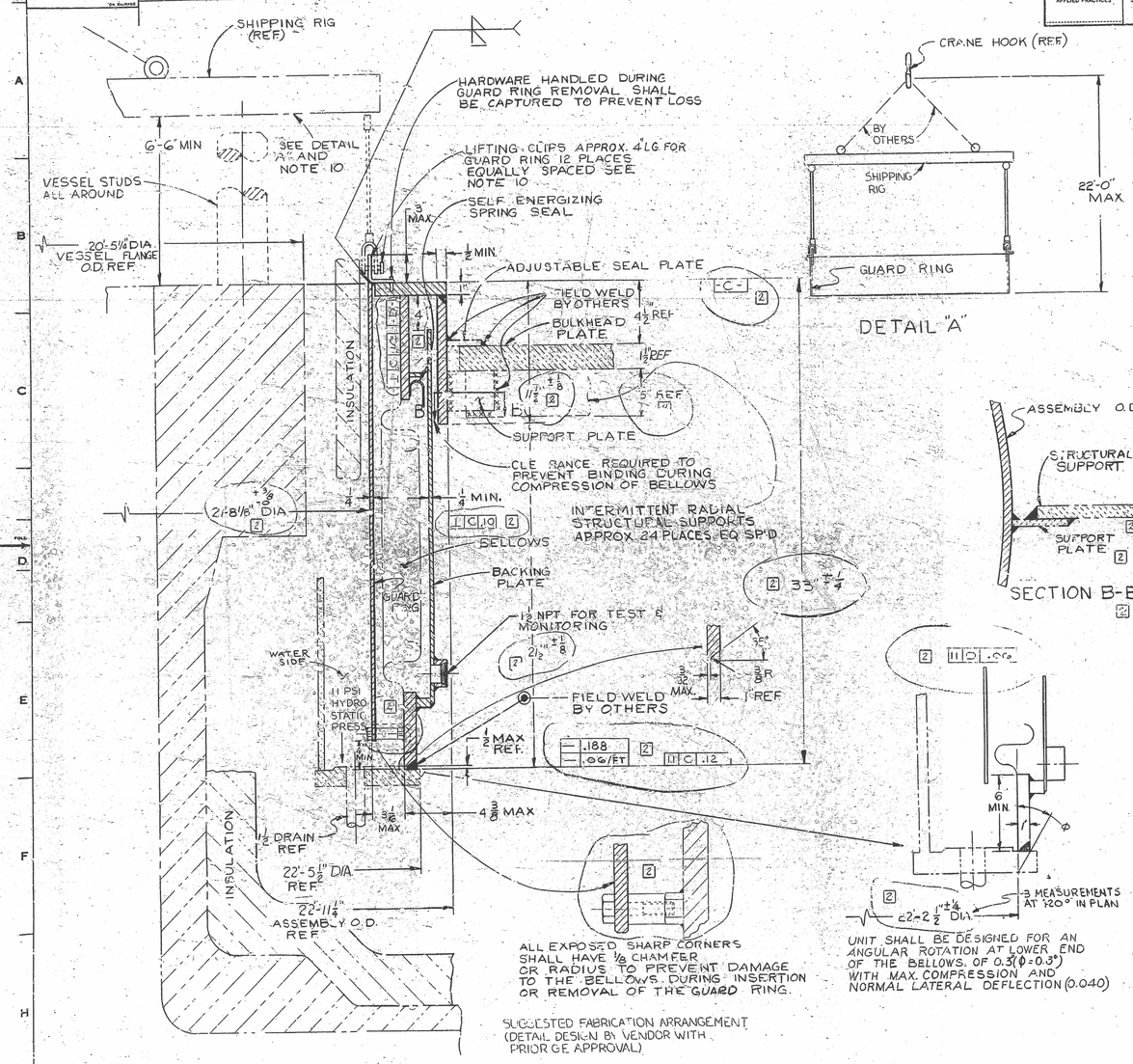
FIRST MADE FOR NUCLEAR BOILER

PURCHASED PART

PT. NO.	VENDOR	VENDOR IDENT. NO.	V.P.F. NO.	FCF
1				238X100B 2-1-94, 611-0093

JAMES A. FITZPATRICK NUCLEAR POWER PLANT
POWER AUTHORITY OF THE STATE OF NEW YORK
File No. 11825-5.10-5A
Title Refueling Bellows
Dwg. No. GE
P.O. No. BP-1
Date Received APR 02 1970
Date Mailed APR 3 1970
Date Design 3/30/70
Drawn LJP
Checked
11825-5.10-5A
Electrical
Civil
Steel
Piping
Hangers
Vessels
STATUS
APPROVED FOR DETAIL ARRANGEMENT ONLY
APPROVED AS NOTED
APPROVED
NOTED
RELEASED FOR: FABRICATION PURCHASE OF LIMITED MATERIALS
STONE & WEBSTER ENG. CORP.
Date 4/11/70 By

NOTED APR 10 1970 L.J.Pierce



NOTES:

1. BELLOWS DESIGN CONDITIONS

THERE WILL BE A TOTAL OF 1[illegible] MAIN START-UP SHUTDOWN CYCLES DURING [illegible] THE BELLOWS COMPRESSION WILL GO FROM 0 INCHES TO [illegible] DURING EACH OF THE [illegible] CYCLES. THE BELLOWS COMPRESSION WILL OSCILLATE THREE TIMES BETWEEN [illegible] AND [illegible].

DURING THE SHUTDOWN PORTION OF THE MAIN START-UP SHUTDOWN CYCLE [illegible] WILL BE APPLIED TO THE I.D. OF THE BELLOWS. WHEN THE BELLOWS [illegible] TO [illegible] - 0.80 WATER PRESSURE WILL BE MAINTAINED THROUGH [illegible]

RADIAL EXPANSION 0.25 (BOTTOM RELATIVE TO TOP)

NORMAL LATERAL DEFLECTION: [illegible] INCHE.
CENTERLINE OF BOTTOM [illegible] RELATIVE [illegible]

MAXIMUM LATERAL DEFLECTION: [illegible]
OCCURS ONCE DURING BELLOWS LIFE [illegible]
MOVEMENT POSSIBLE AT ANY TIME DURING [illegible]

MAXIMUM AMBIENT AIR: [illegible] °F

WATER (DEMINERALIZED): [illegible] °F MAXIMUM

2. MATERIALS

BELLOWS SHALL BE TYPE 304 STAINLESS STEEL PER ASTM-[illegible] ALL OTHER [illegible] SPECIFIED PER ASTM STANDARD". CARBON STEEL SHALL BE PER ASTM [illegible] OR EQUIVALENT, [illegible] APPROVED BY THE BUYER.

3. FINISH

STAINLESS STEEL SHALL BE CLEANED PER ASTM A380 OR EQUIVALENT. [illegible] SURFACES SHALL BE PAINTED, AFTER WELDING, WITH AEROLAT [illegible] EPOXY 1 COAT 2 MILS THICK AND FAL FINISH #7231 [illegible] 3 MILS THICK, OR ENGINEERING APPROVED EQUIVALENT. INACCESSIBLE AREAS TO BE [illegible]

4. WELDING

ALL WELDER PERFORMANCE QUALIFICATIONS ARE TO BE IN ACCORDANCE WITH [illegible]

ALL WELDS IN THE CONVOLUTED SECTION AND ATTACHMENT WELDS TO THE CONVOLUTED SECTION SHALL BE INSPECTED BY DYE PENETRANT METHODS AND PROVED LEAK TIGHT BY HELIUM LEAK DETECTOR TEST OR BY HYDROSTATIC TEST AT 11 PSI PRESSURE OR BY SOAP BUBBLE TEST WITH SOAP SOLUTION ON ONE SIDE AND SHOP AIR JET OPPOSITE SIDE. WHERE FULL PENETRATION WELDS ARE USED, BOTH SIDES OF THE WELD SHALL BE INSPECTED. TO FACILITATE DECONTAMINATION ALL WELDS ON THE WATER SIDE OF THE BELLOWS SHALL BE FREE OF ANY CRACKS OR PITS.

ALL WELDS WITHIN CONVOLUTED SECTION SHALL BE FULL PENETRATION BUTT WELDS.

5. SECONDARY SEAL

SPRING SEAL SHALL BE DESIGNED TO LIMIT WATER LOSS IN THE EVENT OF A BELLOWS RUPTURE BY YIELDING TO MAKE A TIGHT FIT TO THE BACKING PLATE WHEN SUBJECTED TO FULL HYDROSTATIC PRESSURE. ADEQUATE CONSIDERATION WILL BE GIVEN TO WEAR BETWEEN MEMBERS.

6. FABRICATION

PRIOR TO FABRICATION ALL DRAWINGS, FABRICATIONS AND TEST PROCEDURES SHALL BE SUBMITTED TO GENERAL ELECTRIC FOR REVIEW AND APPROVAL.

7. CONSTRUCTION

PRIOR TO FORMING, STAINLESS STEEL SHALL BE IN THE SOLUTION HEAT TREATED CONDITION. THE BELLOWS VENDOR SHALL TAKE ADEQUATE ACCOUNT OF THE FIELD WELDING REQUIREMENTS INDICATED TO ASSURE NO DETRIMENTAL DISTORTION OF THE BELLOWS DURING INSTALLATION. BUYER SHALL BE INFORMED OF ANY SPECIAL FIELD INSTALLATION REQUIREMENTS.

8. MAXIMUM FORCE REQUIRED FOR MAXIMUM COMPRESSION OF BELLOWS SHALL BE LIMITED TO APPROXIMATELY 60 POUNDS PER LINEAR INCH OF CIRCUMFERENCE.

9. PARTS SHOWN IN PHANTOM SUPPLIED BY OTHERS.

10. TOOLS AND SPECIAL HANDLING EQUIPMENT TO BE SUPPLIED BY VENDOR

SHIPPING RIG SHALL BE ADEQUATE TO PERMIT HANDLING OF THE ASSEMBLY DURING INITIAL FIELD INSTALLATION WITH STUDS IN PLACE AS SHOWN. SUITABLE PROVISIONS SHALL BE MADE ON THE GUARD RING AND SHIPPING RIG TO PERMIT USE OF THE SHIPPING RIG FOR PERIODIC REMOVAL OF THE GUARD RING AS REQUIRED FOR INSPECTION OF THE BELLOWS. CABLE AND FITTINGS TO LIFT GUARD RING AS REQ'D SHALL BE SUPPLIED BY VENDOR. SEE DETAIL "A" (C-7).

11. ONLY THE PTS LISTED AND IDENTIFIED BY VENDOR'S NAME AND IDENT NOS. HAVE BEEN APPROVED. A SUBSTITUTE SHALL NOT BE USED WITHOUT PRIOR APPROVAL BY APED ENGINEERING.

✳ TO BE DEPENDENT ON LOCAL SEISMIC REQUIREMENTS.

APPROVED CIBI [illegible]

REVISIONS	PRINTS TO
2 [illegible] NE-22481-2727 3 [illegible]	

11825-5.10-5A

MADE BY [illegible]	UNDERWRITER [illegible]	APED SAN JOSE	920D714
ISSUED [illegible]			CONT ON SHEET

D-02