

FORM N-1 MANUFACTURERS' DATA REPORT FOR NUCLEAR VESSELS*
As required by the Provisions of the ASME Code Rules

41846

1. Manufactured by P.X. Engineering Company, Inc. 225 Merrimac St. Woburn, MA 01888
(Name and address of Manufacturer)
2. Manufactured for Washington Public Power Supply System (WPPSS No. 5) Elma, Washington
(Name and address of Purchaser)
3. Type Horiz. Kind Heat Ex. Vessel No. 556-B1 (Mfrs. Serial No.) (State & State No.) Nat'l Bd. No. 704 Yr. Built 1980
(Horiz. or Vert.) (Tank, Jacketed, Heat Ex.)
- 3a. Applicable ASME Code: Section III, Edition 1974, Addenda date Summer, 1975, Case No. _____
Class 3.

Items 4-8 incl. to be completed for single wall vessels, jackets of jacketed vessels, or shells of heat exchangers.

4. Shell: Material SA 516 GR 70 T.S. 70,000 Nominal Thickness 7/16 in. Allowance 1/8 in. Dia. 21 ft. 0 in.
(Kind & Spec. No.) (Min. of range specified)
5. Seams: Long Double Butt H.T.¹ No R.T. No Efficiency 70 %
Girth Double Butt H.T.¹ No R.T. No No. of Courses 3

6. Heads (a) Material SA516 GR70 T.S. 70,000 (b) Material _____ T.S. _____
- | Location
(Top, bottom, ends) | Thickness | Crown
Radius | Knuckle
Radius | Elliptical
Ratio | Conical
Apex Angle | Hemispherical
Radius | Flat
Diameter | Side to Press.
(Convex or Concave) |
|---------------------------------|------------|-----------------|-------------------|---------------------|-----------------------|-------------------------|------------------|---------------------------------------|
| (a) <u>End</u> | <u>1/2</u> | <u>36</u> | <u>2-1/4"</u> | | | | | <u>Concave</u> |
| (b) _____ | | | | | | | | |

If removable, bolts used _____ Other fastening _____
(Material, Spec. No., T.S., Size, Number) (Describe or attach sketch)

7. Jacket Closure _____
(Describe as ogee & weld, bar, etc. If bar give dimensions, describe or sketch)
8. Design Pressure 150 psi at 200 °F at temp. of _____ °F. Combination _____ Test Pressure 225 psi

Items 9 and 10 to be completed for tube sections.

9. Tube Sheets: Stationary. Material SA240 TP304 Dia. 42-1/4 in. Thickness 2-1/2 in. Attachment Welded
(Kind & Spec. No.) (Subject to press.) (Welded, Bolted)
- Floating. Material _____ Dia. _____ in. Thickness _____ in. Attachment _____
(Kind & Spec. No.)
10. Tubes: Material SA249 TP304 Dia. 5/8 in. Thickness .035 inches or gage 20 BWG Number 668 Type U
(Kind & Spec. No.) (Straight or U)

Items 11 to 14 incl. to be completed for inner chambers of jacketed vessels, or channels of heat exchangers.

11. Shell: Material SA240 TP304 T.S. 75,000 Nominal Thickness 3/8 in. Allowance 1/8 in. Dia. 2 ft. 11-3/4 in. Length 1 ft. 10 in.
(Kind & Spec. No.) (Min. of range specified)
12. Seams: Long Welded Dbl. H.T.¹ No R.T. No Efficiency 70 %
(Welded, Dbl., Single) (Yes or No)
- Girth Welded Dbl. H.T.¹ No R.T. No No. of Courses 1

13. Heads: (a) Material SA240 TP304 T.S. 75,000 (b) Material _____ T.S. _____ (c) Material _____ T.S. _____
- | Location | Thickness | Crown
Radius | Knuckle
Radius | Elliptical
Ratio | Conical
Apex Angle | Hemispherical
Radius | Flat
Diameter | Side to Press.
(Convex or Concave) |
|-----------------------|--------------|-----------------|-------------------|---------------------|-----------------------|-------------------------|------------------|---------------------------------------|
| (a) Top, bottom, ends | <u>2-1/2</u> | | | | | | <u>42-1/4</u> | |
| (b) Channel | | | | | | | | |
| (c) Floating | | | | | | | | |

If removable, bolts used (a) SA193 GR B7, 125,000 (b) _____ (c) _____ Other fastening _____
(Material, Spec. No., T.S., Size, Number) (Describe or attach sketch)

14. Design pressure 75 psi at 212 °F at temp. of _____ °F. Combination _____ Test Pressure 113 psi

¹ If Postweld Heat-Treated. ² List other internal or external pressures with coincident temperature when applicable.
Supplemental sheets in form of flats, sketches or drawings may be used provided (1) size is 8 1/2" x 11", (2) information on items 1-3 on this data report is included on each sheet, and (3) each sheet is numbered and number of sheets is recorded in item 19, "Remarks."

41846

Items below to be completed for all vessels where applicable.

15. Safety Valve Outlets: Number 2 Size 3/4" Location Shell Side and Tube Side

16. Nozzles:

Purpose (Inlet, Outlet, Drain)	Number	Dia. or Size	Type	Material	Thickness	Reinforcement Material	How Attached
Shell Inlet	1	10"	Special	SA106 GR B	1/2"	SA 516 GR 70	Welded Full
Shell Outlet	1	10"	Special	SA106 GR B	1/2"	SA 516 GR 70	Welded Full
Chan. Inlet	1	12"	150#	SA312 TP	304 .406	SA 516 GR 70	Welded Full
Chan. Outlet	1	12"	150#	SA312 TP	304 .406	SA 516 GR 70	Welded Full

17. Inspection Manholes, No. _____ Size _____ Location _____
 Openings: Handholes, No. _____ Size _____ Location _____
 Threaded, No. _____ Size _____ Location _____

18. Supports: Skirt _____ Lugs _____ Legs _____ Other Saddle Attached Shell/Welded
 (Yes or No) (Number) (Number) (Describe) (Where & How)

19. Remarks: Heat Exchanger is to remove residual decay heat from the water before returning it to the Spent Fuel Pool in the Washington Public Power Supply System Nuclear Project
No. 5

(Brief description of service for which vessel was designed)

CERTIFICATION OF DESIGN

Design information on file at P.X. Engineering Company, Inc.
 Stress analysis report on file at P.X. Engineering Company, Inc.
 Design specifications certified by P.J. Hannaway Prof. Eng. State _____ Reg. No. _____
 Stress analysis report certified by George S. Scruton Prof. Eng. State MA Reg. No. 15417

We certify that the statements made in this report are correct and that this nuclear vessel conforms to the rules of construction of the ASME Code, Section III.

Date May 12 1980 Signed P.X. Engineering Co. By Larry Mawell
 (Manufacturer)

Certificate of authorization Expires April 7, 1981 Certificate of Authorization No. 2078

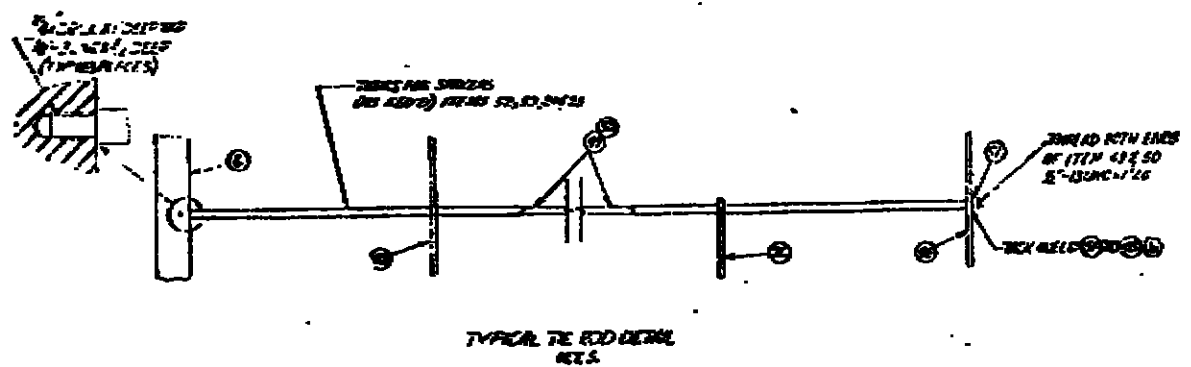
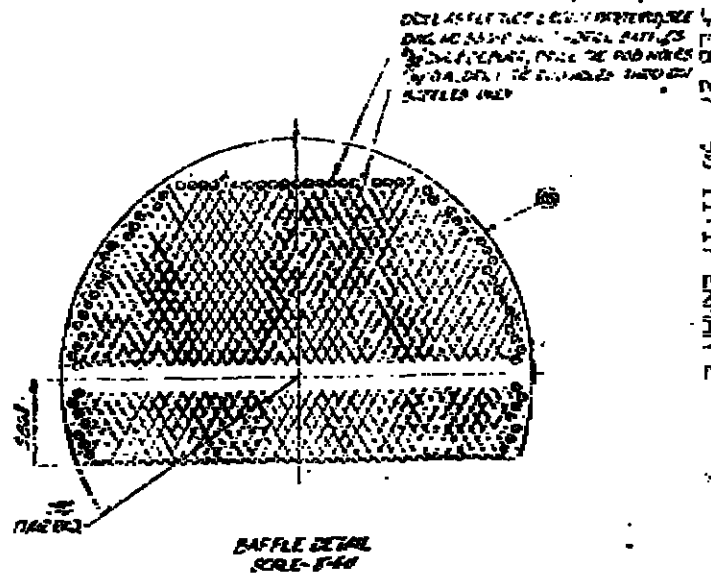
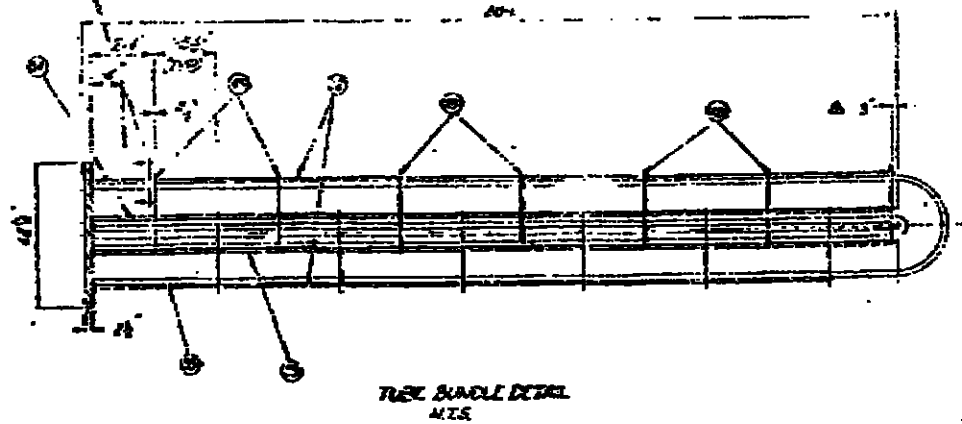
CERTIFICATE OF SHOP INSPECTION

VESEL MADE BY P.X. Engineering Co., Inc. at Woburn, MA
 I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Massachusetts and employed by Factory Mutual * of Massachusetts
 have inspected the pressure vessel described in this Manufacturer's Data Report on May 12, 1980, and state that to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with the ASME Code, Section III.
 By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.
 Date May 12 1980
Donald J. Chmura Commissions N.B. 6065
 Inspector's Signature National Board, State, Province and No.

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of _____ and employed by _____ of _____
 have compared the statements in this Manufacturer's Data Report with the described pressure vessel and state that parts referred to as data items _____, not included in the certificate of shop inspection have been inspected by me and that to the best of my knowledge and belief the manufacturer has constructed and assembled this pressure vessel in accordance with the ASME Code, Section III. The described vessel was inspected and subjected to a hydrostatic test and/or Pneumatic Test of _____ psi.
 By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.
 Date _____ 19 _____
 _____ Commissions _____
 Inspector's Signature National Board, State, Province and No.

94814



ITEM	DESCRIPTION	QTY	UNIT	PRICE	TOTAL
1
2
3
4
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6
7
8
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10

ITEM	DESCRIPTION	QTY	UNIT	PRICE	TOTAL
1
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10

THIS IS TO CERTIFY THAT THE
 SHOWN ON THIS DETAIL
 SECTION IS OF THE
 DATE, INCLUDING ADDL.
 OF THE VESSEL
 IN ACCORDANCE WITH
 THE A.S.M.E.
 CODE 1975

[Signature]
 [Signature]
 [Signature]
 [Signature]

ITEM	DESCRIPTION	QTY	UNIT	PRICE	TOTAL
1
2
3
4
5
6
7
8
9
10

