BRIGHTON CORPORATION

FORM U-1 MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS

As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

PM Plant # 1

172

1. Manufactured by BRIGHTON CORPORATION, 11861 MOSTELLER RD. CINCINNATI, OHIO 45241 (Name and address of manufacturer)
2. Manufactured for Zoecon Corp., 1990 Bay Rd., East Palo Alto, CA 94303 (Name and address of purchaser)
3. Location of Installation Zoecon Corp., 1990 Bay Rd., East Palo Alto, CA 94303 (Name and address)
4. Type Vertical Tank (Horiz., or vert. tank) Vessel No. C-5013 (Mfgr's Serial No.) (CRN) BC-82104-EL (Drawing)
   5078 (Nat'l Brd No.) Year Built 1983
5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction, and workmanship conform to ASME Rules, Section VIII, Division 1 1980 (Year) and Addenda to Summer 82 (Date) and Code Case no. _____

   Special service per UG-120(d) _____

   Manufacturers' Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report: _____

   _____ (Name of part, item number, mfgr's name and identifying stamp)

Items 6-11 incl. to be completed for ~~[illegible]~~ *jackets of jacketed vessels,* ~~[illegible]~~

6. Shell: Material SB-168 Inc. 600 (Spec. No., Grade) Nominal Thickness .125 in. Corrosion Allowance 0 in.
   Diam. 4 ft 4" O.D. in. Length 4 ft 6 3/4 in. 20 FT² = B

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1.

Date 1-12-83 Signed BRIGHTON CORPORATION (Manufacturer) by M. Zimmer (Representative) M. Zimmer

"U" Certificate of Authorization No. 144 expires March 31, 1983

CERTIFICATE OF SHOP INSPECTION

Vessel made by BRIGHTON CORPORATION at CINCINNATI, OHIO

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 Ohio and employed by * of Waltham, Mass have inspected the pressure vessel described in this Manufacturers' Data Report on 1-24-83 19____, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in the Manufacturers' 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 1-24-83

Signed Lawrence Gerold (Inspector) Commissions NB 5952 (Nat'l Board, State, Province and No.)

CERTIFICATE OF COMPLIANCE FOR FIELD WORK

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1.

Date _____ Signed BRIGHTON CORPORATION (Manufacturer) by _____ (Representative)

"U" Certificate of Authorization No. _____ expires _____, 19____

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 Manufacturers' 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 ASME Code, Section VIII, Division 1.

The described vessel was inspected and subjected to a hydrostatic 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 Manufacturers' 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 _____

Signed _____ (Authorized Inspector) Commissions _____ (Nat'l Board, State, Province and No.)

E-5-1-M-8-82

*Factory Mutual System, Arkwright Boston Manufacturers Mutual Insurance Company.

FORM U-1 (BACK)

7. Seams: Longitudinal Fillet Welded (Welded, Dbl., Sngl. Lap, Butt) R.T. None (Spot or Full) Efficiency ____ %
H.T. Temp ____ F. Time ____ Girth Fillet Welded (Welded, Dbl. Sngl. Lap, Butt)
R.T. ____ (Spot, Partial, or Full) No. of Courses ____

8. Heads: (a) Material SB-167 Inc. 600 (Spec. No., Grade) (b) Material ____ (Spec. No., Grade)

Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio
(a) Bottom	3"Sch.40	Half Pipe			
(b)					

Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)			Concave
(b)			

If removable, bolts used (describe other fastenings) ____ (Material, Spec. No., Gr., Size, No.)

9. Type of Jacket Half Pipe Fig.9.2 (2) Proof Test UG-101-P 450 psig
10. Jacket Closure Fillet Welded (Describe as ogee & weld, bar, etc.) If bar, give dimensions ____
If bolted, describe or sketch.
11. Constructed for max. allowable working pressure 150 psi at max. temp. 650 F Min. temp. (when less than -20 F) ____ F. Hydrostatic, [illegible] test pressure 440 psi.

Items 12 and 13 to be completed for tube sections

12. Tubesheets: Stationary—Material ____ (Spec. No. Gr.) Diam ____ (Subject to pressure) in.
Nominal Thickness ____ in. Corrosion Allowance ____ in. Attachment ____ (Welded, Bolted)
Floating—Material ____ (Spec. No., Gr.) Diam. ____ in.
Nominal Thickness ____ in. Corrosion Allowance ____ in.
Attachment ____
13. Tubes: Material ____ (Spec. No., Gr.) O.D. ____ in. Nominal Thickness ____ in. or gauge
Number ____ Type ____ (Straight or "U")

Items 14-17 incl. to be completed for inner chambers of jacketed vessels [illegible]

14. Shell: Material SB-575 C-276 (Spec. No. Gr.) Nominal Thickness .250 in. Corrosion Allowance .0625 in.
Diam. 4 ft 0" I.D. in. Length 4 ft 10 in.
15. Seams: Longitudinal Welded Double Butt (Welded, Dbl. Sngl. Lap, Butt) R.T. Full (Spot or Full) Efficiency 100 %
H.T. Temp ____ F Time ____ Girth Welded Double Butt (Welded, Dbl. Sngl. Lap, Butt)
R.T. Full (Spot, Partial or Full) No. of courses 2
16. Heads: (a) Material SB-575 C-276 (Spec. No., Grade) (b) Material SB-575 C-276 (Spec. No., Grade)

Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio
(a) Top	.222	.0625			2:1
(b) Bottom	.222	.0625			2:1

Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)			Both
(b)			Both

If removable, bolts used (describe other fastenings) ____ (Material, Spec. No., Gr., Size, No.)

17. Constructed for max. allowable working pressure FV & 150 psi at max temp. 650 F. Min. temp. (when less than -20 F) ____ F. Hydrostatic [illegible] test pressure 244 psi.

Items below to be completed for all vessels where applicable

18. Safety Valve Outlets: Number ____ Size ____ Location ____
19. Nozzles:

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Nominal Thickness	Reinforcement Material	How Attached
See Form U-4							

20. Inspection Openings:
Manholes No 1 Size 12 x 16 Location Top Head
Handholes No ____ Size ____ Location ____
Threaded No. ____ Size ____ Location ____
21. Supports: Skirt ____ (Yes or no) Lugs ____ (No.) Legs 4 (No.) Other None (Describe)
Attached Bottom Head-Welded (Where and How)
22. Remarks: See Form U-4

FORM U-4 MANUFACTURERS' DATA REPORT SUPPLEMENTARY SHEET

As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

PM — Plant # 1

1. Manufactured by Brighton Corporation.,11861 Mosteller Rd.,Cincinnati, Ohio 45241 (Name and address of manufacturer)
2. Manufactured for Zoecon Corp.,1990 Bay Rd.,East Palo Alto, CA 94303 (Name and address of purchaser)
3. Location of Installation Zoecon Corp.,1990 Bay Rd.,East Palo Alto,CA 94303 (Name and address)
4. Type Vertical (Horiz, Vert) Tank (Tank, etc.) Vessel Number C-5013 (Mfgr. serial) EC-82104-EL (CRN) 5078 (Nat'l. Brd. No.)

Year Built 1983

Data Report Item Number	Purpose	No.	Size	Type	Material	Nom. Thk	Reinf. Mat'l	Attached
# 19	Agitator	1	10"	Flg.	C-276	.250	C-276	Welded
	Inlet	1	6"	Flg.	C-276	.250	C-276	Welded
	SG/Inlet	3	4"	Flg.	C-276	Sch.40	C-276	Welded
	Inlet	5	2"	Flg.	C-276	Sch.160	Integral	Welded
	Drain	1	3"	Flg.	C-276	Sch.160	C-276	Welded
	Hot Oil In	3	3"	Flg.	Inc. 600	Sch.40		Welded
	Hot Oil Out	3	3"	Flg.	Inc. 600	Sch.40		Welded
	Water In	1	3"	Flg.	Inc. 600	Sch.40		Welded
	Water Out	1	3"	Flg.	Inc. 600	Sch.40		Welded

Remarks

#22 Zoecon Corporation P.O. No. B-6002

Vessel is a vertical reactor with half-pipe jacket on shell and bottom head.

An adequately sized relief device for service conditions must be installed on vessel and tested by customer prior to vessel start up.

Date 1-12-83 Brighton Corporation (Manufacturer) Signed M. Zimmer M. Zimmer

Date 1-24-83 Authorized Inspector's Signature Lawrence Herold Commissions NB 5952 (Natl. Board, State, Province and No.)

This form (E00118) is available from the Order Dept., ASME, 345 E. 47 St., New York, N.Y. 10017