Mechanical Design Calculations
FABSCO SHELL & TUBE, LLC
Sapulpa, Oklahoma, USA

Item/Tag no: 18-X-375 **Doc. No: S21-13258-12-CP** **P.O. no: 4505600058**

Certified Correct for Fabrication
by Fabsco Shell & Tube, LLC

By: *Eric Gerschutz* Date: *2021,Dec. 16th,*

-Jurisdictional Code Requirements: Design, Materials, Fabrication, Inspection, Testing and Documentation in accordance with the ASME Code Section VIII, Division 1, 2021 Edition and so stamped.
-Impact test requirements: Exempt from Impact Testing per UCS-66(a),(c), (g), Fig. UCS-66 general note (c) and UCS-67.
-Loadings per ASME code para. UG-22 that have been defined by the user or his designated agent have been considered in the design process.
-This design has been reviewed for compliance with the requirements of UG-120(d).

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Customer: WORLD ENERGY PARAMOUNT                              HORIZONTAL
Service : DEPROPANIZER OVERHEAD CONDENSER                     U-TUBE
No. Shells: 1  Par. 1  Ser. 1   Surface:    2873 Each     2873 TotalSq.Ft.
Size:   34 x  240 "     Type: A E U

 372 Tubes x 0.750 OD x 0.083 Thk  min  x   240 "  Lg 1.0000 SQUARE  Pitch
Tubes         : SA-334-6
Shell         : SA-516-70N
Channel       : SA-516-70N
Tubesheets    : SA-350LF2CL1
Cross Baffles : SA-516-70  No. 16 Pitch 13.375 Cut  0.25  SGL SEG  VERT

Code requirements: SHELL SECT VIII STAMP YES   CHANNEL SECT VIII STAMP YES
Natl. Board #YES          Canadian Reg. #                       Tema R
Weight Ea Dry:   20550 Lbs     Wet   28900 Lbs     Bundle   11750 Lbs
                                Shell                   Tubes
Design Press/Ext            360.0 / 15.0 psig       280.0 /  0.0 psig
M.A.W.P.                       364 psig                307 psig
LIMITED BY                  2:1 ELLIP. HEAD          CHANNEL COVER
M.A.P.                         404 psig                316 psig
LIMITED BY                   TUBESHEET              CHANNEL COVER
Test Pressure (field)          473 psig                399 psig
Design Temp/MDMT             400 /  -45 deg.F        150 /   32 deg.F
Corrosion Allowance          0.1250"                 0.1250"
No. of Passes                     1                       4
Radiograph                  SPOT/UW-11(a)(5)(b)     SPOT/UW-11(a)(5)(b)
Stress Relieve                    0     deg.F       0 deg.F / U-Bends 1150
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Revisions to this Document					
No.	Detailed Description of the Revision	By	Date	Apvd.	Date
1	Rev./Cust. Comments	EG	5/19/22	GS	5/19/22
2	Rev./Cust. Comments	EG	7/25/22	GS	7/25/22
3	Rev./Cust. Comments	EG	10/14/22	GS	10/14/22
4	Add Pad Edge Calc.	EG	11/17/22	GS	11/17/22
5	Rev. Pad Edge Calcs.	EG	1/17/23	GS	1/17/23