

| DESIGN DATA  | SHELL      | TUBE                 |                       |
|--|------------|----------------------|-----------------------|
| DESIGN PRESSURE P.S.I.G.   | 675        | 525                  |                       |
| VACUUM PRESSURE P.S.I.G.   | FV         | FV                   |                       |
| TEST PRESSURE P.S.I.G.   | 1067       | 684                  |                       |
| DESIGN TEMP. Deg.F.  | 725        | 425                  |                       |
| MDMT Deg. F.   | -20        | -20                  |                       |
| CORROSION ALLOWANCE  | 1/8"       | 1/8"                 |                       |
| NUMBER OF PASSES   | 1          | 2                    |                       |
| RADIOGRAPHY  | FULL       | FULL                 |                       |
| HEAT TREAT REQUIRED  | NONE       | YES                  |                       |
| ESTIMATED WEIGHTS, LBS.  |            |                      |                       |
| DRY: 40150   | WEI: 51800 | CHANNEL: 18700       |                       |
| SPECIFICATIONS   |            |                      |                       |
| ASME CODE SECT. VIII DIV.1, 2015 EDD (STAMP YES)   |            |                      |                       |
| TEMA CLASS R and API-660 8TH EDITION APPLIES   |            |                      |                       |
| NATIONAL BOARD REGISTRATION REQUIRED   |            |                      |                       |
| PRODUCTION IMPACT TESTING NOT REQUIRED PER UG-20(f), UCS-66(adc)   |            |                      |                       |
| CHANNEL:   | SA-516-70  | SHELL: SA-516-70N    |                       |
| TUBESHEETS:  | SA-350-LF2 | BAFFLES:             | SA-36                 |
| ( 313 )  | 1" 1/4"    | 0.0X                 | .109" MW X 20'-0" LG. |
| TUBE PITCH   | 1 1/4" ◇   | SURFACE 31.89 SQ.FT. |                       |
| GENERAL NOTES  |            |                      |                       |
| MAWP (HOT AND CORRODED):<br>SHELLSIDE: 675 P.S.I.G. LIMITED BY BODY FLANGE<br>TUBESIDE: 526 P.S.I.G. LIMITED BY CHANNEL TO COVER FLANGE (NEW AND COLD);  |            |                      |                       |
| MAWP (HOT AND CORRODED):<br>SHELLSIDE: 714 P.S.I.G. LIMITED BY BODY FLANGE<br>TUBESIDE: 526 P.S.I.G. LIMITED BY CHANNEL TO COVER FLANGE  |            |                      |                       |
| ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES.<br>TUBE JOINT: STRENGTH WELDED / DOUBLE-GROOVED & EXPANDED<br>GASKETS: .125" THK. GMCC FLEXPRO STYLE PN, TWO SPARE SETS PROVIDED.<br>SURFACE PREP. & PAINT: PER CUSTOMER SPECIFICATION SEE DWG (1203-04-A0) |            |                      |                       |
| INSULATION: SHELLSIDE & TUBESIDE 3.5" SUPPLIED BY OTHERS<br>INSULATION SUPPORTS: SUPPLIED BY TFE<br>BUNDLE REMOVAL CLEARANCE: 21'-6"<br>SEE DRAWING 1203-04-A0 FOR ADDITIONAL NOTES.   |            |                      |                       |
| CUST: KP ENGINEERING / HOLLY FRONTIER  |            |                      |                       |
| P.O. NO.: J1422-B-007  |            |                      |                       |
| ITEM NO.: 374-E-C221   |            |                      |                       |
| SERVICE: DEBUTANIZER STEAM REBOILER  |            |                      |                       |
| SHIP TO: TULSA, OK   |            |                      |                       |
| <b>CODE</b>  |            |                      |                       |
| ASSEMBLY AND SPECIFICATIONS FOR  |            |                      |                       |
| ONE 40-240 A E U   |            |                      |                       |

