

**GENERAL NOTES:**

- QUALITY CONTROL PROGRAM NUMBER: AQP-1317(S)
- WELDING PROCEDURE REGISTRATION NUMBER: WP1970.2
- HEAD, SHELL & REPAID MATERIAL: SA-516-70N, IMPACTS EXEMPT AS PER TABLE UCS-66 CURVE D
- FLANGE MATERIAL: SA-350-LF2 CL.1, IMPACTS EXEMPT AS PER UCS-66(g)
- PIPE MATERIAL: SA-333-GR6, IMPACTS EXEMPT AS PER UCS-66(g)
- BOLTING MATERIALS: SA-193-B7M / SA-194-2HM, IMPACTS EXEMPT AS PER FIG. UCS-66 NOTE (c)
- PRODUCTION IMPACTS: EXEMPT AS PER UCS-67(a)(3), FILLER QUALIFIED AS IMPACT TESTED AT TEMPERATURE <= -49°F
- ULTRASONIC TESTING: 100% CAT D WELDS PRIOR TO PWHT ONLY
- MAGNETIC PARTICLE TESTING: WFMT OF BACKGOUGES, WFMT OF INTERNAL FILLETS BEFORE & AFTER PWHT, WFMT OF TEMP. ATTACHMENTS
- AIR SOAP LEAK TEST: N/A
- PWHT: YES, AS PER UCS-56  
 -HEAT FROM AMBIENT TO 800°F AT A MODERATE RATE  
 -HEAT FROM 800°F TO 1150°F @ RATE OF 400°F/HR MAX  
 -SOAK (HOLD TIME) AT 1150°F ±25°F FOR 60 MINUTES  
 -COOL TO 800°F @ RATE OF 500°F/HR MAX
- HARDNESS TESTING: YES, AS PER KDA-0800-MEC-SPC-CB4-0000-00004 REV. B1  
 HARDNESS TEST - MIC 10, 200 HBW MAX. ONE HARDNESS TEST SHALL BE PERFORMED ON EACH WELD OR EACH 3m(10 FT) OF WELD, WHICHEVER IS MORE FREQUENT.
- ALL WEAR PADS & REPAIRS TO HAVE 1/4" NPT WEEP HOLE LOCATED AT LOWEST ELEVATION PLUGGED WITH STIFF GREASE.
- EXTERNAL SANDBLAST: SSPC-SP6
- EXTERNAL COATING:  
 PRIMER: EPOXY PRIMER  
 TOPCOAT: URETHANE TOPCOAT, QC8315 TAN COLOUR, ON UNINSULATED AREAS ONLY
- INTERNAL SANDBLAST: SSPC-SP5
- INTERNAL COATING: DEVOE 253 AS PER MANUFACTURER'S SPECS: 10 - 18 MILS DFT
- INSULATION: 1-1/2" TAN RIGID URETHANE INSULATION BETWEEN VESSEL SADDLES,  
 2" MINERAL WOOL C/W S.E.A. CLADDING ON VESSEL
- ALL BOLT HOLES TO STRADDLE CENTERLINE
- ALL OUTSIDE PROJECTIONS ARE TO BE MEASURED ALONG CENTERLINE OF NOZZLE
- ALL INSIDE PROJECTIONS ARE TO BE MEASURED ALONG THE SHORTSIDE OF THE NOZZLE
- FABRICATION TOLERANCES AS PER BW&ML DWG: TOL2002
- VESSEL REGISTRATION: N/A
- VESSEL SERIAL NUMBER: 18061
- AS PER KDA-0800-MEC-SPC-CBU-0000-00004 7.11 POINT 15, DIE STAMPING OF WELDS IS NOT PERMITTED. ONLY LOW STRESS STAMPS USED.
- MARKING/STAMPING SHALL MEET ASME SECTION VIII DIVISION 1 REQUIREMENTS
- MATERIALS ARE NACE MR0175 AS PER CHEVRON SELECT CHEMISTRY (SOUR SERVICE) AND PER AML REQ'T.

**SELECT CHEMISTRY: CHEMISTRY LIMITS (Max. wt %):**

**VESSEL PLATE PRODUCTS SELECT CHEM:**  
 MUST MEET CHEVRON AML KDA-0300-PUR-LST-CBU-0000-00001 AML REV3  
 SELECT CHEM: As per KDA-0800-PIP-SPC-CBU-0000-00004 RB1  
 DILLINGER PLATE SHALL BE PROVIDED FOR HEAD & SHELL MATERIAL  
 VALUES ARE MAX %  
 CE = 0.42 MAX, C = 0.23, B = 0.0005, V + Nb = 0.020, P = 0.010, S = 0.003

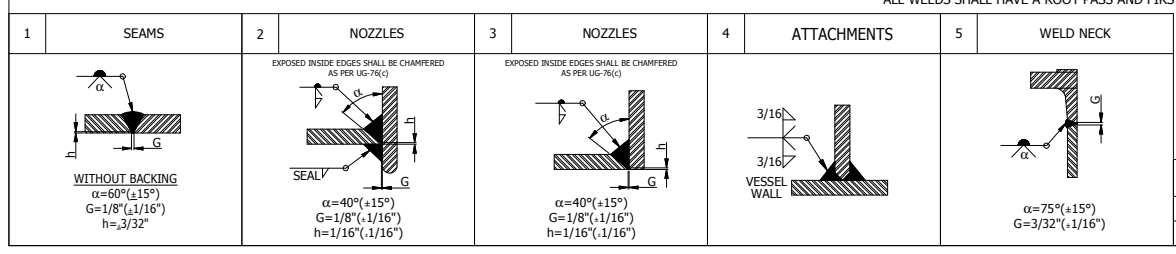
**VESSEL FORGED PRODUCTS SELECT CHEM:**  
 MUST MEET CHEVRON AML KDA-0300-PUR-LST-CBU-0000-00001 AML REV3  
 SELECT CHEM: As per KDA-0800-PIP-SPC-CBU-0000-00004 RB1  
 MUST MEET NACE MR0175/ISO 15156 VALUES ARE MAX%  
 CE = 0.43, C = 0.23, B = 0.0005  
 V max = See Table 2 of KDA-0800-PIP-SPC-CBU-0000-00004 RB1  
 Nb max = See Table 2 of KDA-0800-PIP-SPC-CBU-0000-00004 RB1  
 P = 0.020, S = 0.025

**VESSEL SEAMLESS PRODUCTS SELECT CHEM:**  
 MUST MEET CHEVRON AML KDA-0300-PUR-LST-CBU-0000-00001 AML REV3  
 SELECT CHEM: As per KDA-0800-PIP-SPC-CBU-0000-00004 RB1  
 MUST MEET NACE MR0175/ISO 15156 VALUES ARE MAX%  
 CE = 0.43, C = 0.23, B = 0.0005  
 V max = See Table 2 of KDA-0800-PIP-SPC-CBU-0000-00004 RB1  
 Nb max = See Table 2 of KDA-0800-PIP-SPC-CBU-0000-00004 RB1  
 P = 0.020, S = 0.010

Table 2: Allowable Microalloying with Nb and V for forged and seamless products

| CE (IIW) | Maximum wt% |       |       |                |
|----------|-------------|-------|-------|----------------|
|          | V           | Nb    | V     | Nb             |
| ≤ 0.38   |             |       | 0.050 | 0.020          |
| 0.39     | 0.050       | 0.005 | or    | 0.025          |
| 0.40     | 0.040       | 0.005 | or    | 0.015          |
| 0.41     | 0.030       | 0.005 | or    | V + Nb ≤ 0.020 |
| 0.42     | 0.020       | 0.005 |       |                |

| WELD DETAIL | ROOT   | HOT PASS | FILL AND CAP | GOUGE/BACKWELD |
|-------------|--------|----------|--------------|----------------|
| 1           | BWM-16 | BWM-10   | BWM-10       | YES            |
| 2,3,5       | BWM-16 | BWM-16   | BWM-16       | YES            |
| 4           | BWM-16 | BWM-16   | BWM-16       | N/A            |
| 4 (SS)      | BMW-32 | BMW-32   | BMW-32       | N/A            |

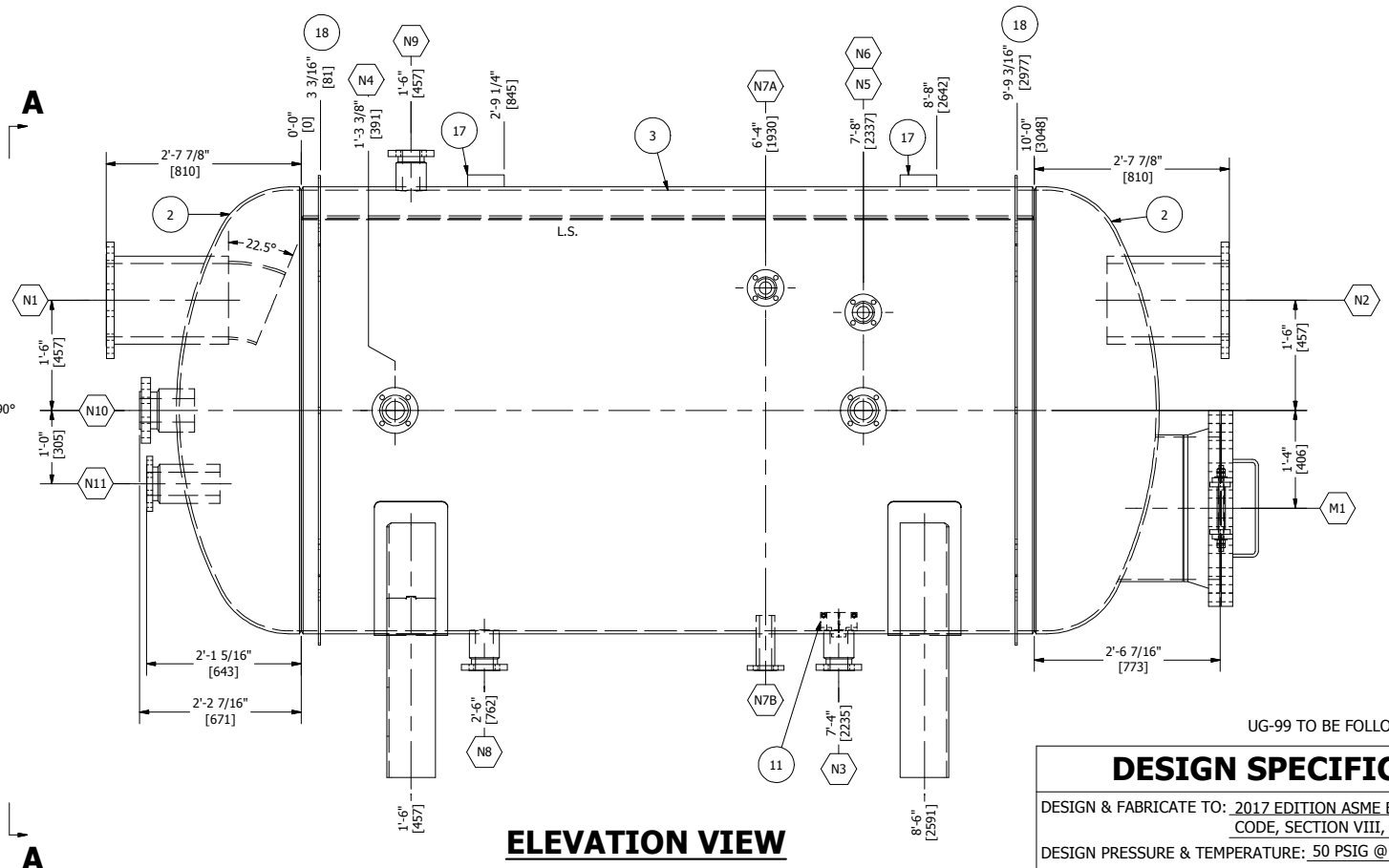


| NOZZLE SCHEDULE |     |                |     |       |       |         |         |        |        |        |          |          |           |
|-----------------|-----|----------------|-----|-------|-------|---------|---------|--------|--------|--------|----------|----------|-----------|
| MARK            | QTY | DESCRIPTION    | NPS | CLASS | TYPE  | IS PROJ | OS PROJ | DETAIL | WELD A | WELD B | REPAID C | REPAID D | BOM ITEM  |
| N1              | 1   | INLET          | 12  | 150   | RFLWN | *0"     | 14"     | 2      | 3/8"   | -      | -        | -        | 9,10      |
| N2              | 1   | OUTLET         | 12  | 150   | RFLWN | *0"     | 14"     | 2      | 3/8"   | -      | -        | -        | 9         |
| N3              | 1   | DRAIN          | 3   | 150   | RFHB  | FLUSH   | 6"      | 3      | 3/8"   | -      | -        | -        | 11,12     |
| N4              | 1   | FUEL GAS INLET | 3   | 150   | RFLWN | *1"     | 6"      | 2      | 3/8"   | -      | -        | -        | 13        |
| N5              | 1   | LEVEL SWITCH   | 3   | 150   | RFLWN | *1"     | 6"      | 2      | 3/8"   | -      | -        | -        | 13        |
| N6              | 1   | SPARE          | 2   | 150   | RFLWN | *1"     | 6"      | 2      | 3/8"   | -      | -        | -        | 14        |
| N7A             | 1   | LG             | 2   | 150   | RFLWN | *1"     | 6"      | 2      | 3/8"   | -      | -        | -        | 14        |
| N7B             | 1   | LG             | 2   | 150   | RFLWN | *1"     | 6"      | 2      | 3/8"   | -      | -        | -        | 14        |
| N8              | 1   | FUTURE DRAIN   | 3   | 150   | RFHB  | FLUSH   | 6"      | 3      | 3/8"   | -      | -        | -        | 12        |
| N9              | 1   | VENT           | 3   | 150   | RFHB  | FLUSH   | 6"      | 3      | 3/8"   | -      | -        | -        | 12        |
| N10             | 1   | INLET          | 4   | 600   | RFHB  | *1"     | 6"      | 2      | 3/8"   | -      | -        | -        | 15        |
| N11             | 1   | INLET          | 4   | 150   | RFHB  | *1"     | 6"      | 2      | 3/8"   | -      | -        | -        | 16        |
| M1              | 1   | MANWAY         | 24  | 150   | RFLWN | FLUSH   | 12"     | 3,5    | 1/4"   | -      | -        | -        | 4,5,6,7,8 |

\* INSIDE PROJECTIONS MAY BE LONGER

| BILL OF MATERIALS |     |          |          |  |        |                 |              |  |  |  |
|-------------------|-----|----------|----------|--|--------|-----------------|--------------|--|--|--|
| ITEM              | QTY | REF.     | PART No. | DESCRIPTION  | LENGTH | MATERIAL        | WEIGHT (lbs) |  |  |  |
| 1                 | 1   | -        | -        | SADDLE ASSEMBLIES (SEE DRAWING -203 FOR DETAILS)                 |        |                 | 666.31       |  |  |  |
| 2                 | 2   | HEAD     | 1-023224 | 1/2" THK x 72" ID 2:1 S.E. HEAD (0.4375 MIN)                     |        | SA-516-70N      | 1769.34      |  |  |  |
| 3                 | 1   | SHELL    | 1-023225 | 1/2" THK x 120" W, ROLLED TO 72" ID                              |        | SA-516-70N      | 3870.18      |  |  |  |
| 4                 | 1   | M1       | 1-000077 | 1/2" MANWAY HANDLE ASSEMBLY                                      |        | SA-36           | 1.27         |  |  |  |
| 5                 | 1   | M1       | 1-015153 | 24" x CLASS 150 MANWAY HINGE ASSEMBLY                            |        | SA-36           | 13.91        |  |  |  |
| 6                 | 1   | M1       | 1-001002 | 24 x CLASS 150 RF BLIND FLG                                      |        | SA-350-LF2 CL.1 | 408.55       |  |  |  |
| 7                 | 1   | M1       | 1-001001 | 24" x CLASS 150 RFWN FLG SCH STD                                 |        | SA-350-LF2 CL.1 | 261.68       |  |  |  |
| 8                 | 1   | M1       | 1-003449 | 24" PIPE SCH STD/20 (BOE,COE)                                    | 1'-0"  | SA-333-GR6      | 55.30        |  |  |  |
| 9                 | 2   | N1,N2    | 1-024284 | 12" x CLASS 150 RFLWN FLG  | 1'-8"  | SA-350-LF2 CL.1 | 640.69       |  |  |  |
| 10                | 1   | N1       | 1-014851 | 12" x 45° LR BW ELBOW SCH STD (TRIM TO 22.5°)                    |        | SA-420-WPL6     | 58.95        |  |  |  |
| 11                | 1   | N3       | 1-004298 | 3" 304SS REMOVABLE VORTEX BREAKER ASSEMBLY                       |        |                 | 1.83         |  |  |  |
| 12                | 3   | N3,N8,N9 | 1-019020 | 3" x CLASS 150 RFHB FLG x TRIM TO 6-5/8" LG                      | 6 5/8" | SA-350-LF2 CL.1 | 85.10        |  |  |  |
| 13                | 2   | N4,N5    | 1-008319 | 3" x CLASS 150 RFLWN FLG   | 9"     | SA-350-LF2 CL.1 | 51.70        |  |  |  |
| 14                | 3   | N6,N7A/B | 1-018995 | 2" x CLASS 150 RFLWN FLG   | 9"     | SA-350-LF2 CL.1 | 44.74        |  |  |  |
| 15                | 1   | N10      | 1-021880 | 4" x CLASS 600 RFHB FLG x 9" LG                                  | 9"     | SA-350-LF2 CL.1 | 85.40        |  |  |  |
| 16                | 1   | N11      | 1-019021 | 4" x CLASS 150 RFHB FLG x 12" LG                                 |        | SA-350-LF2 CL.1 | 76.58        |  |  |  |
| 17                | 2   | INS      | 2-014693 | ENCLOSURE CLIP 1/4" THK x 2" W x 6" LG                           |        | SA-516-70N      | 1.71         |  |  |  |
| 18                | 8   | INS      | 2-021498 | INSULATION RING SEGMENT 3/8" THK x 60/1 4/4" LG (4 PCS PER RING) |        | SA-516-70N      | 22.95        |  |  |  |
|                   |     |          |          |  |        |                 | 8116.19      |  |  |  |

**CHEVRON DOC # KDU-FKOD440003-TEC-REC-BIL-4400-00096**



UG-99 TO BE FOLLOWED

**STANTEC DOCUMENT PROCESSING STAMP**

A - PROCEED       I/O - DATA ACCEPTED FOR INFORMATION ONLY

B - PROCEED, CHANGE AS NOTED AND RESUBMIT BY: \_\_\_\_\_       C - DO NOT PROCEED, CHANGE AS NOTED AND RESUBMIT BY: \_\_\_\_\_

RESUBMITTAL DATE FOR STATUS B: \_\_\_\_\_      RESUBMITTAL DATE FOR STATUS C: \_\_\_\_\_

SIGN: M.Y.      DATE SIGNED: 2019-11-11

VDDR CODE(S): DM02

AUTHORIZATION TO PROCEED DOES NOT WAIVE SUPPLIER'S RESPONSIBILITY OR LIABILITY UNDER THE CONTRACT/PURCHASE ORDER FOR COMPLIANCE WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS

FOR AML SEE CHEVRON DOC# KDA-0300-PUR-LST-CBU-0000-00001  
 NOTE: INSPECTION PER UG-90

**SOUR SERVICE**

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**DESIGN SPECIFICATIONS**

DESIGN & FABRICATE TO: 2017 EDITION ASME BOILER & PRESSURE VESSEL CODE, SECTION VIII, DIVISION 1

DESIGN PRESSURE & TEMPERATURE: 50 PSIG @ 60°C (345kPag @ 140°F)

DESIGN EXTERNAL PRESSURE: FULL VACUUM @ 60°C

MINIMUM DESIGN METAL TEMP: -45°C @ 50 PSIG (-49°F @ 345 kPag)

IMPACT TESTS: SEE NOTES 3 - 7

RADIOGRAPHY: 100% BEFORE PWHT

POST WELD HEAT TREATMENT: YES, AS PER UCS-56

HYDROSTATIC TEST PRESSURE: 75 PSIG (517 kPag)      PREHEAT: 100°F

CORROSION ALLOWANCE: 1/8" (3.175 mm)      MAWP: 14.9PSI@140°F (103kPa@60°C)

HEAD THK. MIN.: 0.438" MIN      VOLUME: 9.8m³

WEIGHT EMPTY: 8,050 LBS (3651 kg)      WEIGHT FULL: 29,650 LBS (13449 kg)

**CHEVRON CANADA LTD.**

|  |                    |
|--|--------------------|
| 72" ID x 10' S/S 60 BBL FKOD - TAG: FKOD-4400<br>VESSEL ASSEMBLY |                    |
| QUOTE NUMBER: 107948   | SALE ORDER: 005676 |
| PURCHASE ORDER: 11862693   | JOB ORDER:         |
| LOCATION: 06-07-062-23 WSM (WASX-W039)                           | <b>D5250</b>       |
| DATE: 11/4/2019  | SIZE <b>D</b>      |
| SHEET: 3 OF 8  | DRAWING NO.:       |
| CRN DWG: BMW-688-18 R2   | <b>D5250-201</b>   |
| CRN NUMBER: Y6379.2  | REV. <b>0</b>      |

**CHEVRON DOC # KDU-FKOD440003-TEC-REC-BIL-4400-00066**