## SURFACE PREPARATION & PAINTING REQUIREMENTS

| ITEM | BLAST | PRIMER | D.F.T. | FINISH | D.F.T. |
|---|---|---|---|---|---|
| INSULATED VESSEL EXTERIOR | N/A | N/A | N/A | N/A | N/A |
| UNINSULATED VESSEL EXTERIOR | SSPC-SP6 | N/A | N/A | DEVOE 359 GLOSS BLACK | 4-6 MILS |
| VESSEL INTERIOR UPPER 2/3 | NONE | NONE | NONE | NONE | NONE |
| VESSEL INTERIOR LOWER 1/3 | NONE | NONE | NONE | NONE | NONE |
| APPURTENANCES | - | - | - | - | - |
| PROTRUSIONS | - | - | - | - | - |
| SADDLE | SSPC-SP6 | N/A | N/A | DEVOE 359 GLOSS BLACK | 4-6 MILS |
| LADDERS | N/A | N/A | N/A | N/A | N/A |
| PLATFORMS | N/A | N/A | N/A | N/A | N/A |
| INTERNAL PIPING | - | - | - | - | - |
| EXTERNAL PIPING | N/A | N/A | N/A | N/A | N/A |
| UNINSULATED PIPING | N/A | N/A | N/A | N/A | N/A |
| SKID | N/A | N/A | N/A | N/A | N/A |

DESCRIPTIONS: SSPC-SP6 COMMERCIAL BLAST

## INSULATION REQUIREMENTS

| ITEM | INSULATION TYPE | THK. | CLAD TYP. | THK. |
|---|---|---|---|---|
| SHELL | N/A | N/A | N/A | N/A |
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NOTES:

## FIREPROOFING REQUIREMENTS

| ITEM | FIREPROOFING | THK. |
|---|---|---|
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NOTES:
NONE

## OTHER NOTES

## HEAT TREATMENT

GOVERNING COMPONENT: BOTTOM HEAD
GOVERNING WELD THICKNESS: 1"

1. TEMP. TO BE RAISED FROM 800°F TO 1165 ±15°F AT A MAXIMUM RATE OF 320°F PER HOUR.
2. TEMP. TO BE HELD AT 1150°F ±15°F FOR 75 MINUTES MINIMUM.
3. TEMP. TO BE LOWERED FROM 1150°F ±15°F TO 800°F AT A MAXIMUM RATE OF 400°F PER HOUR.

NOTES:
- THERMOCOUPLES TO BE PLACED AS PER ASME VIII, DIV 1 UW-40(c)
- PROCEDURE TO MEET ASME VIII, DIV 1 UCS-56(d)
- GOVERNING THICKNESS BASED ON UW-40(c)(d)
- HEAT TREATMENT IS OPTIONAL, BUT NOT REQUIRED AS PER UCS-56

## HYDROTEST REQUIREMENTS

1. HYDROTEST PRESSURE SHALL BE MAINTAINED FOR A MINIMUM OF ONE (1) HOUR.
2. UPON COMPLETION OF HYDROTEST, VESSEL SHALL BE COMPLETELY DRAINED OF ALL WATER.

## MARKING AND PREPARATION FOR SHIPMENT

1. ALL FLANGED OPENINGS SHALL BE PROTECTED WITH WOODEN OR STEEL BLINDS TO PREVENT THE ACCUMULATION OF DIRT AND OTHER DEBRIS DURING SHIPPING.
2. ALL REMOVABLE PIECES TO BE MARKED WITH EQUIPMENT TAG NUMBER.
3. VESSEL MUST BE COMPLETELY CLEAN AND DRY BEFORE BEING SEALED FOR SHIPMENT. (NO HYDROCARBON FILM, MILL SCALE, HEAVY RUST, SLAG, DIRT & SPLATTER.)

## PROCESS DATA

## MATERIAL REQUIREMENTS

SHELL
MATERIAL SA-516-70N

HEADS
1. MATERIAL SA-516-70N TYPE 2:1 S.E.
2. MATERIAL SA-516-70N TYPE 2:1 S.E.

FLANGE SA-105N PIPE SA-106-B SMLS
WELD FITTINGS SA-234-WPB FIRETUBE N/A
NONPRESSURE SA-36/G40.21-44W COUPLING SA182-F316L S.S.
WELDOLET N/A THREDOLET N/A
INTERNAL STUD BOLTS SA-193-B8M (316L S.S.) INTERNAL HEX NUTS SA-194-8M (316L SS)
EXTERNAL STUD BOLTS SA-193-B7 EXTERNAL HEX NUTS SA-194-2H
GASKETS SPIRAL WOUND FLEXITALLIC 316L S.S. - NON ASBESTOS

## INSPECTION AND TESTING

A. QUALIFICATIONS
1. ALL NON-DESTRUCTIVE EXAMINATIONS SHALL BE CONDUCTED AND/OR INTERPRETED BY PERSONNEL CERTIFIED IN ACCORDANCE WITH CGSB & SNT-TC-1A LEVEL II.

B. VISUAL EXAMINATION
1. EXAMINATION AND ACCEPTANCE CRITERIA SHALL BE IN ACCORDANCE WITH ASME SECTION V (ARTICLE 9) AND ASME VIII DIV.1 RESPECTIVELY.
2. 100% VISUAL EXAMINATION IS REQUIRED FOR ALL WELDING.

C. RT INSPECTION
1. RADIOGRAPHIC EXAMINATION AND ACCEPTANCE CRITERIA SHALL BE IN ACCORDANCE WITH ASME SECTION V (ARTICLE 2) AND ASME SECTION VIII, DIV.1 PARA UW-11(a)(5)(b).

D. HARDNESS REQUIREMENTS
1. HARDNESS TESTING REQUIRED AFTER PWHT AS PER MALONEY STANDARDS.

E. IMPACT TESTING EXEMPTIONS
1. SA-516-70N SHELL, HEAD AND REINFORCING PAD MATERIAL AS PER UCS-66(b)(1)(a)
2. SA-106-B PIPE MATERIAL AS PER UCS-66(1)(a)
3. SA-105 FLANGE MATERIAL AS PER UCS-66(c)

F. UT TESTING
1. SHEARWAVE UT TESTING TO BE PERFORMED ON CAT. D (NOZZLE TO SHELL WELDS) ONLY AS PER ASME SECTION VIII, DIV.1 APP. 12.

## NAMEPLATE DETAIL

## DESIGN DATA

DESIGN CODE - ASME SECTION VIII, DIVISION I 20 04, JULY 1, 2006 ADDENDA
DESIGN PRESSURE OR MAWP (HOT & CORRODED) 320 psig (2206 kPag) DESIGN TEMPERATURE 212°F (100°C)
MAWP (HOT & CORRODED) LIMITED BY HEADS OPERATING TEMPERATURE
RADIOGRAPHY RT2 AS PER UW-11(a)5(b) JOINT EFFICIENCY LONG SEAMS = 1.00, CIRC. SEAMS = 0.70
POST WELD HEAT TREATMENT NO ADDITIONAL CODES N/A
CORROSION ALLOWANCE 0.125"(3.2mm) HEADS & SHELL
HYDRO-TEST PRESSURE 416 psig (2868 kPag)
SERVICE SWEET CAPACITY 903.9 ft³ (25.6 m³)
OVERALL LENGTH 59'-3"(18060) OVERALL HEIGHT 12'-8 1/4"(3867)
MINIMUM DESIGN METAL TEMPERATURE -20°F (-29°C) @ MAWP
IMPACT TESTING NOT REQUIRED AS PER UG-20(f)(1-5) [EXCEPT MANWAY HEAD MK #2 WHICH IS EXEMPT AS PER UCS-66(a) PRODUCTION WELD EXEMPT PER UCS-67(d)(1)]
WEIGHT: vessel fab. (empty,bare) 32725 lbs. (14844 kg)
WEIGHT: vessel shop test (flooded,bare) 89200 lbs. (40460 kg)
WEIGHT: vessel shipping lbs. ( kg)
WEIGHT: vessel operating (insulated,heat traced,others) lbs. ( kg)

## FABRICATION NOTES

1. ALL FLANGE RATINGS TO BE ASME B16.5a - 2003.
2. DRILL A 1/4"(6) TELLTALE HOLE IN EXTERNAL REINFORCING PADS. TELLTALE HOLES IN REPADS SHALL BE PLUGGED WITH CORROSION INHIBITING GREASE AFTER HYDROTEST.
3. ALL NOZZLES TO BE TWO-HOLED TO THE WORLD.
4. NOZZLES N2, N3, N4, N6, ARE PERPENDICULAR TO THE WORLD.
5. ALL DIMENSIONS ARE IN IMPERIAL & S.I. UNITS. DIMENSIONS IN BRACKETS ARE S.I. HARD CONVERSIONS FOR SHOP REFERENCE ONLY.
6. NO WELDING OR HEATING TO CORRECT MISALIGNMENT SHALL BE PERMITTED AFTER PWHT.
7. TACK WELDS TO BE REMOVED DURING ROOT PASS.
8. L.S. = LONGITUDINAL SEAM
   F.S. = FAR SIDE
9. HEAD TO SHELL JOINT TO BE TRANSITIONED AS PER UW-9(c).
10. RADIUS EXPOSED INSIDE EDGES AS PER UG-76(c).
11. ITEMS IDENTIFIED WITH A (※) ARE ATTACHED TO THE PRESSURE ENVELOPE & REQUIRE A HEAT NUMBER TO BE HARD STAMPED & RECORDED BY Q.C..
12. ALL MATERIAL AND WELDER IDENTIFICATION SHALL BE WITH LOW STRESS STAMPS.
13. UNLESS NOTED OTHERWISE ON THE DWG ALL FABRICATION TOLERANCES SHALL BE PER MALONEY INDUSTRIES DWG HMI-PVTOL-01
14. THERE HAS BEEN A 2.0mm ALLOWANCE MADE IN PIPE LENGTHS FOR BUTT WELD GAPS.
15. COAT CARBON STEEL BLINDS WITH DEVOE 253.
16. ALL DESAND CLIPS TO BE 316L S.S.
17. 316L S.S. STUDS & NUTS ON COATED INTERNALS.
18. ALL INTERNALS TO BE SELF DRAINING.

## REGISTRATION

REGISTERED IN THE PROVINCE(S) SASK./ALBERTA
CRN NUMBER T6783.23
FROM CORLAC DWG. EDS-6109 REV.3
MFR SERIAL NUMBER 07-010488-81
VESSEL TAG NUMBER FWK-129

| NO | DATE | REVISIONS | BY | APPD |
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REVISIONS

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CLIENT
MALONEY INDUSTRIES
STOCK

DWG TITLE
INCLINED FREE WATER KNOCK-OUT FWK-129
54" (1372mm) I.D. x 55'-0" (16764mm) LG. S/S - 320 psi
DESIGN DATA & FABRICATION NOTES

| SCALE | DWN BY | DWG NO. | SHEET NO. | REV. NO. |
|---|---|---|---|---|
| N.T.S. | TS/VZ | 010488-4-8100-00-001 | 2 of 10 | 0 |
| DATE | CHKD / APPD | WP NO. | | |
| 07-04-16 | LTW / KM | 010488-81 | | |