

SEE DRAWING IES-305-081 FOR WELD DETAILS

8" TYP. FOR N5 AND N7

GROUNDING LUG (45° & 225°)

TAIL LUG (215°)

PLAN VIEW

SEE DRAWING IES-305-082 FOR WELD DETAILS

TYP. 2 PLACES

183"

178"

192"

96"

2" THK INSULATION

0" REFERENCE DATUM WELDED TO HEAD

12"

14"

24 5/16"

24 5/16"

3" HIGH LAYER OF 1/8" DIA INERT BALLS

6" ABOVE GIRTH SEAM OF 1/4" DIA INERT BALLS

45 5/16"

FRONT VIEW

RIGHT SIDE VIEW

16"

22 11/16"

6" TYP. 2 PLACES

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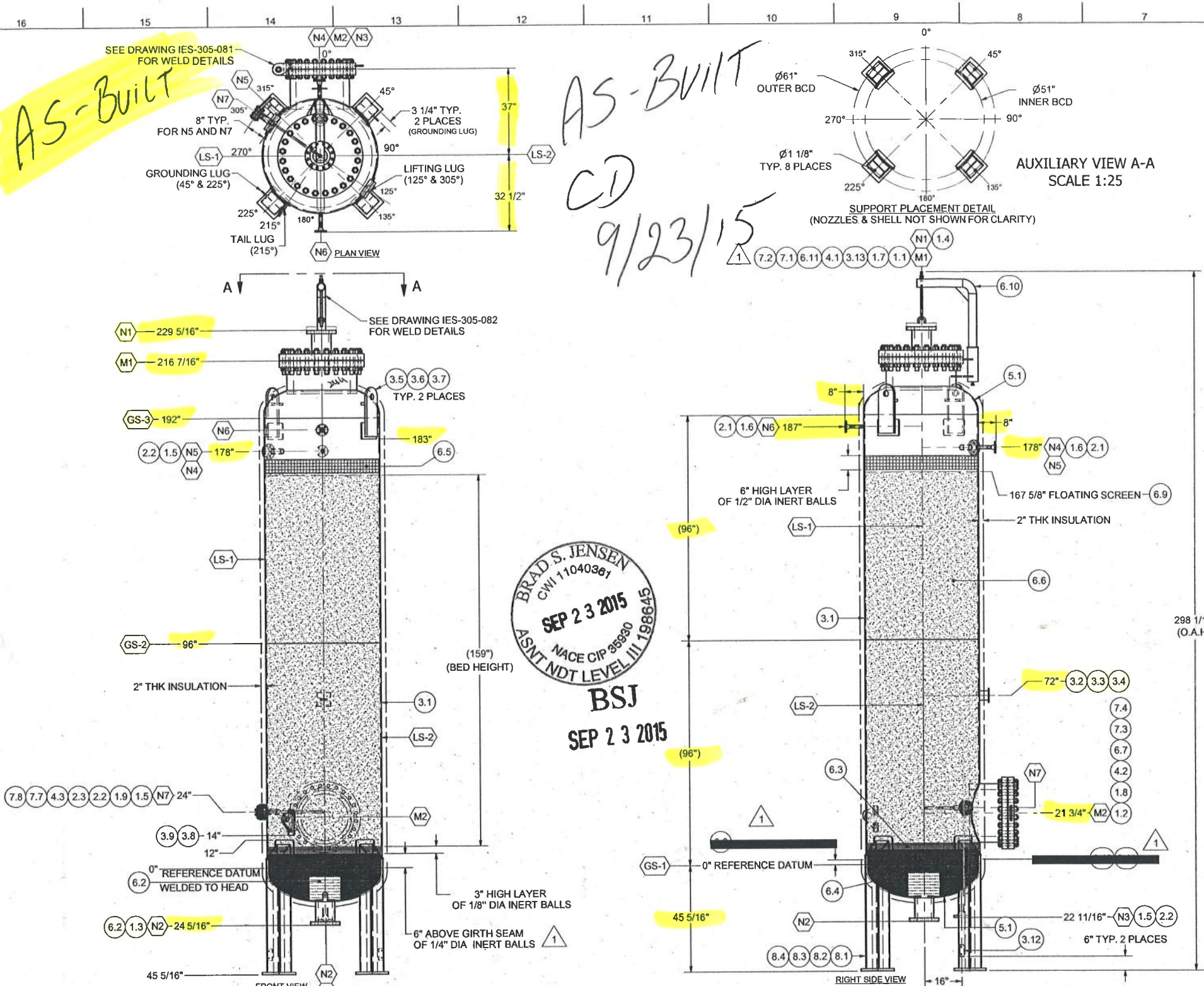
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AS-BUILT

AS-BUILT  
CD  
9/23/15

BRAD S. JENSEN  
CWI 11040361  
SEP 23 2015  
NACE CIP 35590  
ASNT NDT LEVEL III 198645  
BSJ  
SEP 23 2015



**CERTIFIED BY:**  
INDUSTRIAL EQUIPMENT SOLUTIONS, INC.  
(IES)  
301 N. SMITH AVE.  
CORONA, CALIFORNIA, 92680

**MAWP:** 251 PSI  
**MDMT:** -20°F  
**MAEWP:** 15 PSI

**YEAR BUILT:** 2015

**P.O. NO.:** 14.48012-607128  
**TAG NO.:** PK-591-V100

- LEGEND**
- BRKT: BRACKET  
BW: BUTT WELD  
CJP: COMPLETE JOINT PENETRATION  
CL: CLASS  
C.T.F.: CUT TO FIT  
DATUM: REFERENCE LINE  
DWG: DRAWING  
ERW: ELECTRIC RESISTANCE WELDING  
F/B: FLAT BAR  
FLG: FLANGE  
GISM: GOUGE TO SOUND METAL  
HEX.: HEXAGONAL  
I.D.: INSIDE DIAMETER  
LR: LONG RADIUS  
M.T.A.F.: MINIMUM THICKNESS AFTER FORMING  
MT: MAGNETIC PARTICLE TESTING  
O.D.: OUTSIDE DIAMETER  
OAH: OVER ALL HEIGHT  
PT: PENETRANT TESTING  
PWHT: POSTWELD HEAT TREATMENT  
REPAD: REINFORCING PAD  
RFLWN: RAISED FACE LONG WELD NECK  
RFSO: RAISED FACE SOCKET WELD  
RFWN: RAISED FACE WELD NECK  
RT: RADIOGRAPHIC TESTING  
RTJ: RING TYPE JOINT  
SCH.: SCHEDULE  
SMLS: SEAMLESS  
SR.: SHORT RADIUS  
STD.: STANDARD  
THK.: THICK  
THKS: THICKNESS  
TL: TANGENT LINE  
TYP.: TYPICAL  
UT: ULTRASONIC TESTING  
XH: EXTRA HEAVY  
XXH: EXTRA EXTRA HEAVY

- CONSTRUCTION NOTES**
1. VESSEL TO BE DESIGNED & CONSTRUCTED PER ASME CODE SECTION VIII, DIV.1: EDITION 2013.
  2. ALL FLANGE BOLT HOLES MUST STRADDLE NORMAL CENTERLINES.
  3. ALL SHARP EDGES TO BE GROUND SMOOTH.
  4. NO BACK UP RINGS ALLOWED.
  5. WELD JOINTS SHOULD BE FREE OF SLAG, DIRT, OIL, PAINT & ALL FOREIGN MATTER.
  6. PROTECT FLANGES GASKET CONTACT SURFACES AT ALL TIMES.
  7. BUTT WELDS SHALL BE FULL PENETRATION.
  8. ALL TOLERANCES ARE  $\pm 1/8"$
  9. ALL FLANGES FACING MUST HAVE 125-250 AARR FINISH.
  10. ALL SHELL, HEAD AND NOZZLE ATTACHMENT WELDS SHALL BE FREE OF UNDERCUT.
  11. ALL DIMENSIONS ARE IN INCHES.
  12. ALL REPADS SHALL HAVE A 1/4" NPT VENT HOLES.
  13. FILLET WELD INLET DISTRIBUTOR TO FLANGE.1.7

| BILL OF MATERIAL                    |         |                                                                                                                                                                   |              |               |
|-------------------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|
| ITEM                                | QTY     | DESCRIPTION                                                                                                                                                       | MATERIAL     | INTR#         |
| FLANGE                              |         |                                                                                                                                                                   |              |               |
| 1.1V                                | 1       | 24" - CL300 RFHB X 14" L                                                                                                                                          | SA-105       | B13LBN        |
| 1.2V                                | 1       | 20" - CL300 RFHB X 17" L                                                                                                                                          | SA-105       | B13LBN        |
| 1.3V                                | 1       | 6" - CL300 RFLWN FLANGE X 11" L - OUTLET                                                                                                                          | SA-105       | C1008AF       |
| 1.4V                                | 1       | 6" - CL300 RFLWN FLANGE X 12-3/4" L - INLET                                                                                                                       | SA-105       | C1008AF       |
| 1.5V                                | 3       | 2" - CL 300 RFWN FLANGE SCH 160 BORE                                                                                                                              | SA-105       | C2RE          |
| 1.6V                                | 2       | 1" - CL 300 RFWN FLANGE SCH XXH BORE                                                                                                                              | SA-105       | 1631V3        |
| 1.7V                                | 1       | 24" - CL 300 RF BLIND FLANGE                                                                                                                                      | SA-105       | 4163202       |
| 1.8V                                | 1       | 20" - CL 300 RF BLIND FLANGE                                                                                                                                      | SA-105       | 568295        |
| 1.9V                                | 1       | 2" - CL 300 RF BLIND FLANGE                                                                                                                                       | SA-105       | A49AB         |
| SEAMLESS PIPE                       |         |                                                                                                                                                                   |              |               |
| 2.1V                                | 1       | 1" SCH XXH PIPE X 15" L - TOTAL LENGTH                                                                                                                            | SA-106-B     | 109199        |
| 2.2V                                | 1       | 2" SCH 160 PIPE X 23" L - TOTAL LENGTH                                                                                                                            | SA-106-B     | 1014362419    |
| 2.3V                                | 1       | 3/4" SCH STD PIPE X 40" L - TOTAL LENGTH                                                                                                                          | SA-106-B     | 111283        |
| PLATE                               |         |                                                                                                                                                                   |              |               |
| 3.1V                                | 2       | 1/2" THK X 48" ID X 96" L SHELL                                                                                                                                   | SA-516-GR-70 | 812K3370      |
| 3.2V                                | 1       | 1/4" THK X 6" X 6" L - NAMEPLATE BRACKET                                                                                                                          | SA-36        |               |
| 3.3V                                | 1       | 1/4" THK X 4" X 4" L - NAMEPLATE WEB                                                                                                                              | SA-36        |               |
| 3.4V                                | 1       | 1/8" THK X 5 1/2" X 5 1/2" L - NAMEPLATE LABEL                                                                                                                    | SA-240-304   |               |
| 3.5V                                | 2       | 1" THK X 8" X 21" L - LIFTING LUG                                                                                                                                 | SA-36        | 813K63020     |
| 3.6V                                | 2       | 1" THK X 2" X 8" L - LIFTING LUG SUPPORT PLATE                                                                                                                    | SA-36        | 813K63020     |
| 3.7V                                | 2       | 1/2" THK X 7" X 11" L - REPAD PLATE WITH LONG SIDE ROLLED TO ID OF 49" TO FIT ON CYLINDRICAL SHELL                                                                | SA-516-GR-70 | W5DL57        |
| 3.8V                                | 1       | 1" THK X 6" X 8" - TAIL LUG PLATE                                                                                                                                 | SA-36        | 813K63020     |
| 3.9V                                | 1       | 1/2" THK X 3" X 11" L - REPAD PLATE WITH SHORT SIDE ROLLED TO ID OF 49" TO FIT ON CYLINDRICAL SHELL                                                               | SA-516-70    | W5DL57        |
| GASKETS                             |         |                                                                                                                                                                   |              |               |
| 3.12V                               | 2       | 3/8" X 3" X 5" L - GROUNDING LUG                                                                                                                                  | SA-240-304   |               |
| 3.13V                               | 1       | 1/4" THK X 6" DIA - PLATE FOR DISTRIBUTOR                                                                                                                         | SA-36        |               |
| GASKET SPIRAL WOUND TYPE 24" - 300# |         |                                                                                                                                                                   |              |               |
| 4.1V                                | 1       | FLEXITALLIC STYLE CGI WITH INNER RING SS-304 WINDINGS WITH 95% MIN FLEXIBLE GRAPHITE FILLINGS AND SS-304 OUTER CENTERING RING                                     | SS-304       |               |
| 4.2V                                | 1       | GASKET SPIRAL WOUND TYPE 20" - 300# FLEXITALLIC STYLE CGI WITH INNER RING SS-304 WINDINGS WITH 95% MIN FLEXIBLE GRAPHITE FILLINGS AND SS-304 OUTER CENTERING RING | SS-304       |               |
| 4.3V                                | 1       | GASKET SPIRAL WOUND TYPE 2" - 300# FLEXITALLIC STYLE CGI WITH INNER RING SS-304 WINDINGS WITH 95% MIN FLEXIBLE GRAPHITE FILLINGS AND SS-304 OUTER CENTERING RING  | SS-304       |               |
| ELLIPSOIDAL HEAD                    |         |                                                                                                                                                                   |              |               |
| 5.1V                                | 2       | 1/2" THK X 48" ID - 2:1 ELLIPSOIDAL HEAD: HOT FORMED, MTA = 0.438"                                                                                                | SA-516-GR-70 | AZFLV<br>AZHL |
| MISCELLANEOUS MATERIAL              |         |                                                                                                                                                                   |              |               |
| 6.2V                                | 1       | (OUTLET-N2) JOHNSON SCREEN                                                                                                                                        | SS-304       |               |
| 6.3V                                | 1       | 1/8" DIA INERT BALLS(3 CUBIC FT)                                                                                                                                  |              |               |
| 6.4V                                | 1       | 1/4" DIA INERT BALLS(17 CUBIC FT)                                                                                                                                 |              |               |
| 6.5V                                | 1       | 1/2" DIA INERT BALLS(6 CUBIC FT)                                                                                                                                  |              |               |
| 6.6V                                | 7,500LB | MOLE SIEVE: Z3-06 (1.6-2.6 mm, 8 X 12 MESH)                                                                                                                       |              |               |
| 6.7V                                | 1       | 20" HINGE ASSEMBLY- SEE DRAWING (IES-305-081)                                                                                                                     | C.S.         |               |
| 6.8V                                | 1       | 1/2" THK X 48" DIA - FLOATING SCREEN                                                                                                                              |              |               |
| 6.9V                                | 1       | SEE DAVIT ARM ASSEMBLY (IES-305-082)                                                                                                                              | SS-304       |               |
| 6.11V                               | 4       | 1/4" THK X 2" WIDE - Z- BAR STOCK                                                                                                                                 | SA-36        |               |
| NUTS, BOLTS & WASHERS               |         |                                                                                                                                                                   |              |               |
| 7.1V                                | 24      | 1-1/2" - 8 UN X 11" LONG STUD - ZINC COATED                                                                                                                       | SA-193-GR-B7 |               |
| 7.2V                                | 48      | 1-1/2" - 8 UN X HEAVY HEX NUT - ZINC COATED                                                                                                                       | SA-194-GR-2H |               |
| 7.3V                                | 24      | 1-1/4" - 8 UN X 8-3/4" LONG STUD - ZINC COATED                                                                                                                    | SA-193-GR-B7 |               |
| 7.4V                                | 48      | 1-1/4" - 8 UN HEAVY HEX NUT - ZINC COATED                                                                                                                         | SA-194-GR-2H |               |
| 7.5V                                | 8       | 5/8" - 11 UNC X 3-3/4" LONG STUD - ZINC COATED                                                                                                                    | SA-193-GR-B7 |               |
| 7.6V                                | 16      | 5/8" - 11 UNC HEAVY HEX NUT - ZINC COATED                                                                                                                         | SA-194-GR-2H |               |
| SKIRT SUPPORT                       |         |                                                                                                                                                                   |              |               |
| 8.1V                                | 4       | 1" THK X 10" X 10" L- BASE PLATE                                                                                                                                  | SA-36        | 44781         |
| 8.2V                                | 4       | BEAM W8 X 24# X 54-5/16" L- SUPPORT W- BEAM                                                                                                                       | SA-36        |               |
| 8.3V                                | 4       | 1/4" THK X 8" X 9" L- SUPPORT W- BEAM CAP                                                                                                                         | SA-36        |               |
| 8.4V                                | 4       | 1/2" THK X 11" X 11" L- REPAD PLATE ROLLED TO ID OF 49" TO FIT ON CYLINDRICAL SHELL                                                                               | SA-516-70    | W5DL57        |

RELEASED FOR FAB

| MANWAY-1             | M1   | 1    | 24"  | -    | -     | CL300  | RFHB  | -    | -          |
|----------------------|------|------|------|------|-------|--------|-------|------|------------|
| MANWAY-2             | M2   | 1    | 20"  | -    | -     | CL300  | RFHB  | -    | -          |
| SAMPLING PORT        | N7   | 1    | 2"   | 160  | .343" | CL300  | RFLWN | -    | -          |
| PRESSURE TRANSMITTER | N6   | 1    | 1"   | XXH  | .358" | CL300  | RFLWN | -    | -          |
| PSV                  | N5   | 1    | 2"   | 160  | .343" | CL300  | RFLWN | -    | -          |
| VENT                 | N4   | 1    | 1"   | XXH  | .358" | CL300  | RFLWN | -    | -          |
| DRAIN                | N3   | 1    | 2"   | 160  | .343" | CL300  | RFLWN | -    | -          |
| OUTLET               | N2   | 1    | 6"   | -    | -     | CL300  | RFLWN | -    | -          |
| INLET                | N1   | 1    | 6"   | -    | -     | CL300  | RFLWN | -    | -          |
| SERVICE              | MARK | QTY. | SIZE | SCH. | THKS  | RATING | TYP.  | O.D. | THK. REPAD |

**VESSEL DESIGN SUMMARY**

1. CODE: ASME SECTION VIII, DIVISION 1 EDITION 2013
2. DESIGN PRESSURE: 250 PSI @ 600°F
3. MAWP: 251 PSI @ 600°F
4. MDMT: -20°F @ 251 PSI
5. INT. CORR. ALLOW.: 1/8"
6. MATERIAL: CARBON STEEL
7. RADIOGRAPHY: RT-1
8. SHELL LONG JOINT EFFICIENCY, E=1.00
9. HEAD JOINT EFFICIENCY, E=1.00
10. POST WELD HEAT TREATMENT: PWHT (PARTIAL)
- 10.1- ONLY M1 BLIND FLANGE (1.7) & N1(1.4) NEEDS TO BE POST WELD HEAT TREATED
- 10.2- NO WELDING IS PERMITTED AFTER POST WELD HEAT TREATMENT ON (1.7) & (1.4)
11. HYDROSTATIC TEST: 337 PSIG
12. APPROX. EMPTY WT./VESSEL: 18,000 LBS
13. FLOODED WT./ VESSEL: 27,000 LBS
14. VESSEL VOLUME: 1661 GALLONS

**SURFACE PREPARATION AND PAINTING**

1. AS PER PAINT MATRIX

**WELD SEAM DESIGNATION**

GS-1: GIRTH SEAM HEAD TO SHELL  
GS-2: GIRTH SEAM SHELL TO SHELL  
GS-3: GIRTH SEAM HEAD TO SHELL  
LS-1: LONG SEAM SHELL  
LS-2: LONG SEAM SHELL

**NON-DESTRUCTIVE TESTING**

1. RADIOGRAPHY: RT-1 (FULL)  
1.1- RT ON GIRTH SEAMS (GS-1,GS-2, & GS-3): FULL  
1.2- RT ON LONG SEAMS (LS-1 & LS-2): FULL
2. HYDROSTATIC TEST AT 337 PSIG, HOLD PRESSURE FOR 120 MINUTES AFTER PWHT
3. DYE PENETRATION TEST (PT):  
3.1- PT ON NOZZLE N1 THRU N7, M1 & M2 TO HEAD/SHELL.  
3.3- PT ON REPADS TO SHELL  
3.4- PT ON LIFTING LUGS/ TAIL LUG TO REPAD  
3.5- PT ON BEAM SUPPORTS TO REPAD/ BASE PLATE  
3.6- PT ON HINGE & DAVIT ARM PLATES TO FLANGE
4. REPADS SHALL BE AIR/SOAP TESTED TO A PRESSURE OF 15 PSIG.
5. AFTER POST WELD HEAT TREAT, NO WELD OR CUTTING PERMITTED ON VESSEL SHOULD BE PAINTED ON VESSEL, IN 3 INCH HIGH WHITE LETTERING.

**PROJECT INFORMATION**

CLIENT: GAS TECH ENGINEERING, LLC  
P.O. NO.: 14.48012-607128  
IES PROJECT NO.: IES-305  
IES REFERENCE P & ID NO.: IES-305A-011  
IES VESSEL SERIAL NO.: -  
IES VESSEL TAG NO.: PK-591-V-100

**REVISED**

PER CUSTOMER COMMENTS  
ISSUED FOR FABRICATION

**Gastech Engineering, LLC**  
1067 E. Admiral Blvd., Suite 14130

DATE: 5/20/2015  
SCALE: 1:25  
APP'D: K.W.  
CHK'D: A.R.

48" ID MOLE SIEVE CONTRACTOR PK-591-V-100

48012-300

SHEET TOTAL 1 OF 3