

TABLE A: NOZZLE LIST

| NOZZLE No. | SIZE (mm) | ORIENTATION | SCHEDULE No. | RATING (ASME) | FLANGE TYPE | DESCRIPTION | REMARKS |
|------------|-----------|-------------|--------------|---------------|-------------|-------------------------|--------------------|
| M1 | DN600 | 0° | XS | 300# | WN RF | MANHOLE | NOTE 10 |
| N1 | DN500 | 180° | 30 | 300# | WN RF | 2 PHASE INLET | TANGENTIAL-SPECIAL |
| N2 | DN500 | 270° | XS | 150# | WN RF | STEAM OUTLET | |
| N3 | DN500 | 180° | XS | 300# | WN RF | BRINE OUTLET | TANGENTIAL |
| N4 | DN80 | 60° | 160 | 300# | WN RF | LEVEL STANDPIPE (LS/LT) | |
| N5 | DN80 | 30° | 160 | 300# | WN RF | LEVEL STANDPIPE (LSHH) | |
| N6 | DN80 | 30° | 160 | 300# | WN RF | LEVEL STANDPIPE (LSHH) | |
| N7 | DN80 | 60° | 160 | 300# | WN RF | SPARE | NOTE 9 |
| N8 | DN150 | 0° | 120 | 150# | WN RF | HAND HOLE | NOTE 9 |
| N9 | DN80 | 180° | 160 | 300# | WN RF | VENT | |
| OP1 | DN900 | 270° | XS | N/A | N/A | SKIRT OPENING | PIPE OPENING |
| OP2 | DN600 | 90° | XS | N/A | N/A | SKIRT OPENING | SKIRT ACCESS |

- RIGHT HAND RULE APPLIES FOR MOMENT DIRECTION
- ALL DESIGN LOADS ARE MAXIMUM ALLOWABLE LOADS IN EITHER POSITIVE OR NEGATIVE DIRECTION.

DESIGN PARAMETERS:

- | | |
|-----------------------------------|---|
| 1. DESIGN CODE | ASME BOILER AND PRESSURE VESSEL CODE SECTION VIII DIVISION 1 AND DIVISION II (2007) |
| 2. SEISMIC COEFFICIENT | 0.41g |
| 3. DESIGN WIND PRESSURE | 11 kN/m ² |
| 4. CONTENTS | STEAM, WATER AND BRINE |
| 5. DESIGN TEMPERATURE | 0°C TO 197°C |
| 6. DESIGN PRESSURE INT-EXT | 13.5 barg TO FULL VACUUM |
| 7. BAFFLE DESIGN PRESSURE | 2 bar DIFFERENTIAL |
| 8. CORROSION ALLOWANCE (INTERNAL) | 6mm FOR BOTTOM HEAD & NOZZLES ON BOTTOM HEAD 3mm FOR OTHER PRESSURE PARTS. |
| 9. WEIGHT EMPTY | 16 TONNES APPROX. |
| 10. WEIGHT OPERATING | 20 TONNES APPROX. |
| 11. WEIGHT FULL OF WATER | 42 TONNES APPROX. |
| 12. CENTRE OF MASS OPERATING | 4.800mm FROM BOTTOM BASE PLATE APPROX. |

MATERIAL SPECIFICATION:

- | | |
|--|---|
| 1. SHELL PLATE | ASTM A516 GR 70 |
| 2. SEMI-ELLIPTICAL HEADS | ASTM A516 GR 70 |
| 3. SKIRT AND BASE RING | ASTM A283 GR C |
| 4. NOZZLE PIPES AND MANHOLE NECKS | API 5L-GR B |
| 5. MANHOLE BLIND FLANGES | ASTM A105 |
| 6. NOZZLE FLANGES | ASTM A105 |
| 7. NOZZLE PLATES AND REINFORCING PADS | ASTM A516 GR 70 |
| 8. PIPE FITTINGS | ASTM A234 WPB |
| 9. STUD BOLTS AND NUTS | ASTM A193 B7 AND ASTM A194 2H |
| 10. GASKETS | SPIRAL WOUND TO ANSI B16.20, WITH 316 SS METAL WINDING AND INNER RING, CS CENTERING RING AND FLEXIBLE GRAPHITE FILLER MATERIAL (NON ASBESTOS) |
| 11. LIFTING LUGS AND ASSOCIATED REINFORCING PADS | ASTM A283 GR C |
| 12. NAMEPLATE BRACKET | ASTM A283 GR C |
| 13. NAMEPLATE | SS GR 316 |
| 14. BAFFLE PLATE | ASTM A516 GR 70 |
| 15. DAVIT PLATES | ASTM A283 GR C |
| 16. DAVIT PIPES AND SUPPORT SPIDER | ASTM A106 GR B |
| 17. DAVIT HANDLES | ASTM A36 |
| 18. DAVIT STUD BOLTS AND NUTS | ASTM A307/A563 (HOT DIP GALVANISED) |

PROTECTIVE COATINGS:

INTERIOR SURFACES: NIL

VESSEL EXTERIOR:

SURFACE PREPARATION AND PAINTING TO TECHNICAL SPECIFICATION.

ABRASIVE BLAST AND APPLY PRIMER COAT(S) TO APPROVED SPECIFICATION.

IN ADDITION TO THE ABOVE, ALL STEEL PROTRUDING OUTSIDE OF SEPARATOR INSULATION (SKIRT, MANWAYS, LIGHTNING ROD CONNECTION, ETC.), SHALL HAVE FINISH COAT(S) TO APPROVED SPECIFICATION.

CONSTRUCTION TOLERANCES:

- REFER TO DESIGN CODE AND SPECIFICATION FOR FABRICATION REQUIREMENTS.
- ALL LONGITUDINAL WELDS IN VESSEL SHELL TO BE OFFSET BY AT LEAST 150mm TO EACH OTHER, AS WELL AS CLEAR OF ANY PENETRATION OR SHELL REINFORCEMENT BY AT LEAST 50mm.

INSTALLATION:

- VESSEL CONTRACTOR TO PROVIDE HOLD DOWN BOLT HOLE TEMPLATE.
- HOLD DOWN BOLT ALIGNMENT TOLERANCE = ±1mm HORIZONTAL, ±5mm VERTICAL, ±0.5° TILT.

NDT INSPECTION & TESTING:

- 100% RADIOGRAPHY REQUIRED OF ALL PRESSURE RETAINING WELDS. VESSEL JOINT EFFICIENCY = 1.0
- ALL NON PRESSURE RETAINING WELDS TO BE MAGNETIC PARTICLE OR DYE PENETRANT TESTED.
- HYDROSTATIC TEST TO DESIGN CODE.
- THE TWO CHAMBERS SEPARATED BY THE BAFFLE PLATE SHALL BE HYDROTESTED TOGETHER TO AVOID DAMAGING THE BAFFLE PLATE.

NOTES:

- MATERIALS, WELDING, FABRICATION, INSPECTION & TESTING SHALL COMPLY WITH THE REQUIREMENTS OF THE DESIGN CODE AND SPECIFICATION.
- BOLT HOLES SHALL STRADDLE THE VERTICAL CENTERLINES AND HORIZONTAL 0° AXIS.
- EXCEPT FOR MACHINED SURFACES ALL EXPOSED EDGES AND CORNERS ARE TO BE CHAMFERED OR ROUNDED.
- ALL FLANGE FACES ARE TO BE GREASED AND PROTECTED WITH A 10mm PLYWOOD BLIND FLANGE OR EQUIVALENT.
- ALL PARTS TO BE FULLY WELDED UNLESS NOTED OTHERWISE.
- WN FLANGES TO MATCH PIPE WALL THICKNESS, UNLESS OTHERWISE STATED.
- ALL FLANGES TO ASME B16.5 OR ASME B16.47 SERIES A.
- ALL FILLET WELDS TO BE FULL SIZE UNLESS NOTED OTHERWISE.
- NOZZLE TO BE FITTED WITH BLIND FLANGE.
- MANHOLE TO BE FITTED WITH DAVIT AND INTERNAL WALL TO MATCH VESSEL ID.
- ALL REINFORCING RINGS AND PLATE SHALL HAVE 2 NO. 1/8" NPT HOLES AND PLUGS DIAMETRICALLY OPPOSITE EACH OTHER, WITH ONE LOCATED AT THE BOTTOM SIDE OF VERTICAL REINFORCING PLATE. REMOVE PLUGS AFTER TESTING AND FILL HOLE WITH HIGH TEMPERATURE GREASE.



FIRM NAME AND ADDRESS

PROJECT NAME AND ADDRESS
CONNECTION OF MAKE UP WELLS OW-53B, OW-53C AND OW-53D AT OLKARIA GEOTHERMAL PROJECT

DRAWING TITLE
GENERATOR- TYPE 1.7 GENERAL NOTES

DRAWING No.
OW-53-SFD-EB-DRG-040

Date
24/03/2019

Scale
As noted