NNS09AA65C XMTL 003A ITEM 1

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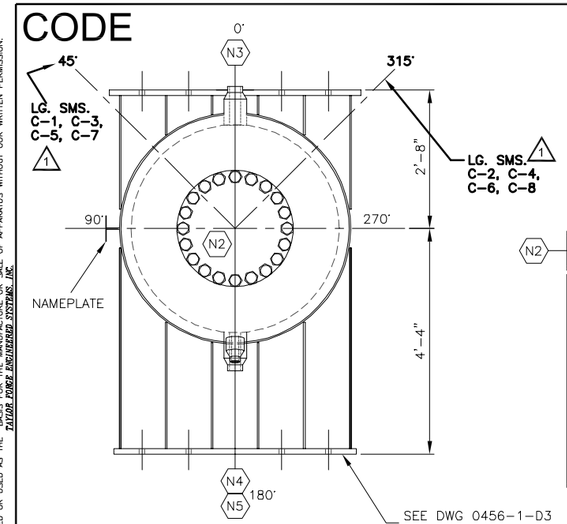
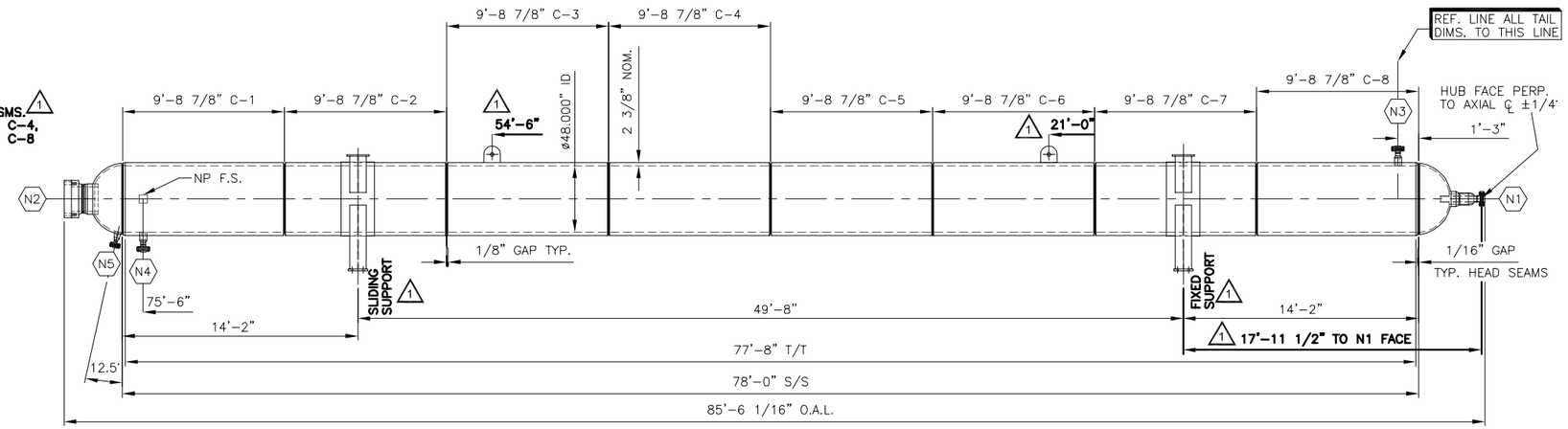
CODE

IF IN DOUBT ASK



LEFT END VIEW
3X SCALE
CLAMP CONNECTORS NOT SHOWN

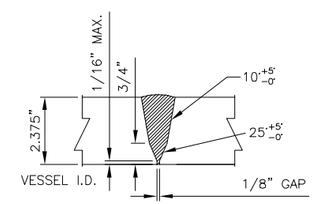


270° ELEVATION VIEW

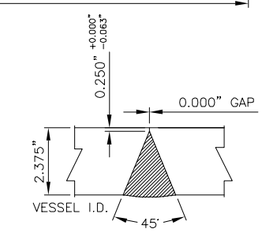
MAXIMUM SUPPORT LOADS (BASE OF SUPPORT)

VERTICAL LOAD (LB)	149,887
TRANSVERSE LOAD (LB)	10,859
LONGITUDINAL LOAD (LB)	33,456

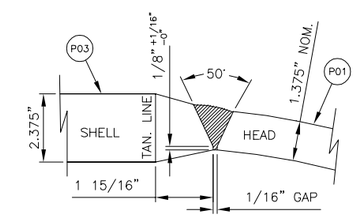
SUPPORT LOADS ARE PRELIMINARY



0456 GIRTH SEAM DETAIL
SHELL TO SHELL



1 LONG SEAM DETAIL



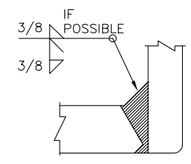
0456 GIRTH SEAM DETAIL
HEMI-HEAD TO SHELL

GENERAL NOTES
1. NAMEPLATE PER DRAWING 0456-0-A101.
2. TOLERANCES PER TFES ES-4.1.1 R/1 TOLERANCE SHEET FOR HORIZONTAL VESSELS WITH THE EXCEPTION OF N1 HUB FACE.
3. PRODUCTION IMPACT TEST PLATES ARE REQUIRED FOR EACH QUALIFIED WELDING PROCEDURE USED ON THE VESSEL PER PARAGRAPH 3.11.8.4 FOR BOTH CATEGORY A & B JOINTS. ACCEPTANCE CRITERIA IS 30/20 FT-LBS AT -20°F.
4. FOLLOWING HYDRO, LEAK TEST VESSEL AT 2800 PSIG WITH DRY NITROGEN-HELIUM GAS MIXTURE CONTAINING AT LEAST 10% HELIUM BY VOLUME. MECHANICAL JOINTS AND WELDS SHALL BE EVALUATED FOR LEAKAGE USING "LEAK-TEK" OR APPROVED EQUAL SOLUTION.
5. CLEAN VESSEL FOR GASEOUS NITROGEN SERVICE PER Q.S.P. 4.13.F R/0.
6. SHIP W/ CLEAN NITROGEN UNDER 3-5 PSIG PURGE MAINTAINED THROUGH DELIVERY. NITROGEN MUST CONFORM TO NASA SSC STD-79-002.
7. (1) LIFTING LUGS ARE DESIGNED FOR 60° MINIMUM SLING ANGLE FROM HORIZONTAL. SEE 0456-1-D3 FOR LIFTING LUG DETAILS.

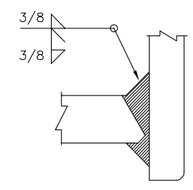
MECHANICAL DESIGN NOTES:
VESSEL SHALL BE CONSTRUCTED ACCORDING TO THE 2007 ASME SECTION VIII DIVISION 2, ADDENDA 2008
NATIONAL BOARD REGISTRATION REQUIRED STAMP YES
RADIOGRAPHY 100% PER QSP-4.1.1-D1 R/24
SHELL FABRICATION HOT ROLL YES COLD ROLL NO
LONG SEAM HEAT TREATMENT NORM NO N&T NO Q&T YES
PWHT YES PER ES-3.8.22 R/6 FOR 2 1/4 HOURS
JOINT EFFICIENCY: SHELL 100 % HEADS 100 %
DESIGN PRESSURE 3080 PSIG WORKING 2800 PSIG
DESIGN TEMPERATURE 130 °F WORKING 100 °F
MAWP 3172 PSIG (CONTROLLED BY SHELL)
MAP (NEW & COLD) 3172 PSIG (CONTROLLED BY SHELL)
CORROSION ALLOWANCE 0.000"
HYDRO 4536 PSIG IN HORIZONTAL POSITION PER QSP-4.5.3 R/15 (PRESSURE & TEMPERATURE CHARTS REQ'D)
SHELL THICKNESS 2.375" NOM. 2.250" MIN.
SHELL MATERIAL SA-738-B S3, S5, S12, S19
HEAD THICKNESS 1.125" MIN. TYPE HEMI-SPHERICAL
HEAD MATERIAL SA-738-B S3, S5, S12, S19
MDMT -20° F
IMPACTS REQUIRED YES PER PARAGRAPH 3.11
30/20 FT-LBS AT -20° F
NO. VESSELS REQ'D 17
WEIGHT EACH EMPTY 112,000 LBS
WEIGHT EACH HYDRO 177,400 LBS
WEIGHTS ARE PRELIMINARY

WELDING/NDE NOTES
1. GRIND SMOOTH I.D. OF GIRTH WELDS 6" EA. SIDE OF 180° LINE TO FACILITATE CLEANING.
2. (1) WHERE THE SUPPORT WEAR PLATE COVERS A LONGITUDINAL SEAM IN (2) LOCATIONS, THE SEAM SHALL BE GROUND FLUSH AND INSPECTED BY MT PER QSP-4.2.1 R/17. NO OTHER WELD SEAMS SHALL BE COVERED OR OTHERWISE INACCESSIBLE TO NDE.
3. MT ALL CBW, LONG. SEAM AND NOZZLE WELD BEVELS PER QSP-4.2.1 R/17.
4. VT ALL WELDS PER QSP-4.8.5 R/5.
5. RT BUTT WELDS 100% PER QSP-4.1.1-D1 R/24 BEFORE PWHT.
6. PROVIDE ONE SET OF RT NEGATIVES W/ REPORT TO SSC COTR ON COMPLETION OF VESSEL.
7. UT FULL PENETRATION NOZZLE WELDS PER QSP-4.3.2 R/14 BEFORE PWHT.
8. MT ALL BACKGOUGES, EXPOSED ROOT FACES, FINISHED NOZZLE WELDS, CBW & LONG. SEAM WELDS AND EXTERNAL ATTACHMENT WELDS PER QSP-4.2.1 R/17 BEFORE PWHT.
9. TEMPORARY ATTACHMENTS SHALL BE REMOVED, GROUND FLUSH AND THE ATTACHMENT LOCATION SHALL BE MT PER QSP-4.2.1 R/17.
10. NO ARC BURNS ALLOWED ON FINISHED PRODUCT. VERIFY ARC STRIKE REMOVAL IMMEDIATELY AFTER REMOVAL PER ES-3.5.2 R/0.

PAINTING NOTES (QD)
1. SHOP COATING PER NASA-STD-5008A, ZONE 3B, OUTSIDE ONLY.
2. CLEAN AND DEGREASE SURFACES TO SSPC-SP1 PRIOR TO BLASTING.
3. BLAST WITH CLEAN RIVER BOTTOM SAND TO SSPC-SP10, 1.5-3.0 MILS ANCHOR PROFILE.
4. PRIMER: CARBOLINE CARBOZINC 11 HS, SOLVENT BASED INORGANIC ZINC, 2.5-4.0 MILS DFT, COLOR: GREEN
   INTERMEDIATE: CARBOLINE CARBOGUARD 893, CYCLOALIPHATIC AMINE EPOXY URETHANE MODIFIED EPOXY, 4.0-6.0 MILS DFT, COLOR: GREY
   TOPCOAT: CARBOLINE CARBOTHANE 134 HS ACRYLIC ALIPHATIC POLYURETHANE, 2.0-3.0 MILS DFT, COLOR: WHITE (FED-STD-595 NO. 17925, CARBOLINE NO. 1864)



NOZZLE ATTACHMENT DETAIL
N1 N3 N4 N5



NOZZLE ATTACHMENT DETAIL
N2

Tag	Size	Service	Qty.	PROJ* FROM CL./SM.	Internal Projection
N5	2"	CLEAN OUT DRAIN	1	–	0"
N4	3"	LOW POINT DRAIN	1	32.875"	0"
N3	3"	HIGH POINT VENT	1	32.875"	0"
N2	18"	ACCESS MANWAY	1	28.188"	2 1/4"
N1	4"	DISCHARGE	1	29.875"	0"
NOZZLE SCHEDULE					

*NOZZLE PROJECTIONS ARE TAKEN AT THE 'NECK' WELD

REV.	DATE	DESCRIPTION	BY	CK./APP.
1	06/30/09	REVISED LONG. SEAM DETAIL, LOCATION; ADDED LIFTING LUGS	RTS	DJM

TAYLOR FORGE ENGINEERED SYSTEMS, INC.
208 North Iron Street – Paola, Kansas 66071
Traditionally Dependable

GENERAL ARRANGEMENT
48" ID X 78'-0" S/S GN2 STORAGE VESSEL
A3 ALTITUDE TEST FACILITY
NASA JOHN C. STENNIS SPACE CENTER

DR. RTS	P.O. NO. NNS09AA65C		
CK./APP. DJM	JOB 0456	DRAWING NO. 0456	ITEM 1
RESPONSIBLE ENGINEER R. SPEARS	DATE 05/28/09	SHEET No. D1	REV. 1