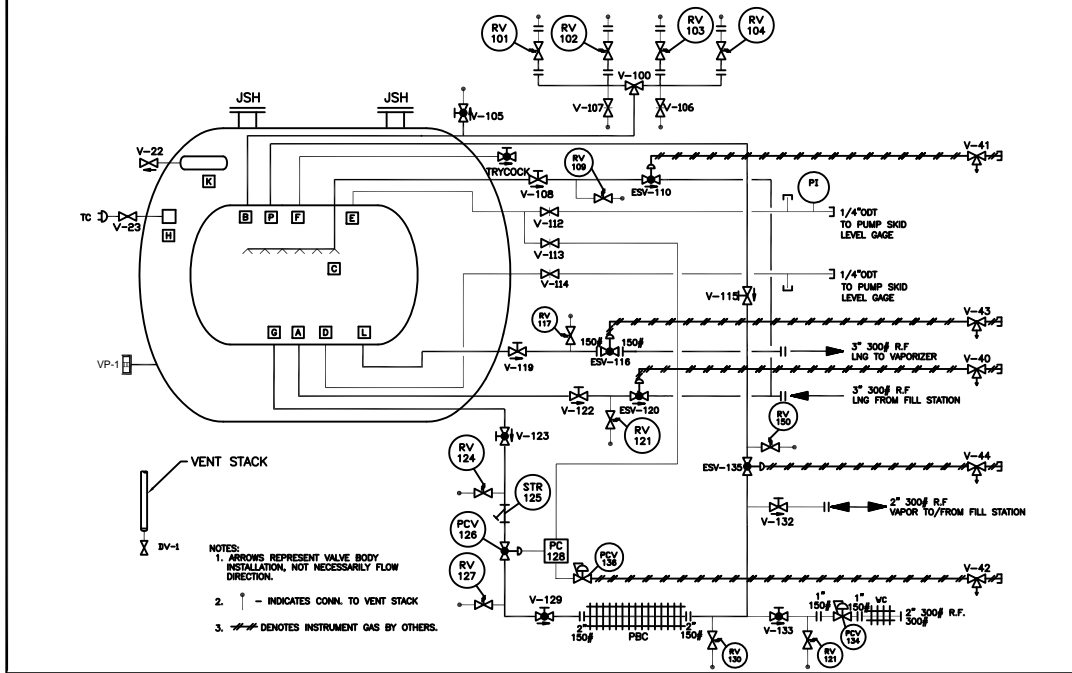
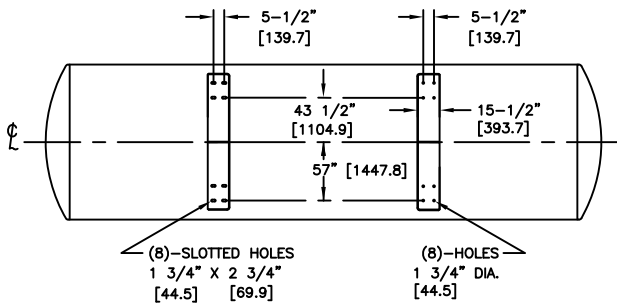
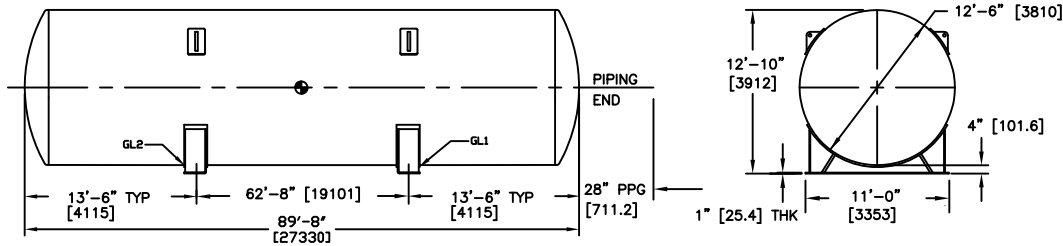


Chart Inc. Storage Systems Division



- NOTES:
- ARROWS REPRESENT VALVE BODY INSTALLATION, NOT NECESSARILY FLOW DIRECTION.
 - ↑ - INDICATES CONN. TO VENT STACK
 - ⊗ DENOTES INSTRUMENT GAS BY OTHERS.



- NOTES:
- BACKUP STRIPS AND JOGGLE JOINTS ACCEPTABLE.
 - INNER VESSEL BUILT AND STAMPED PER ASME SECTION VIII DIV.1, LATEST EDITION AND ADDENDA.
 - TANK IS SHIPPED WITH 68.9-103.4 KPAG (10-15 PSIG) NITROGEN PRESSURE IN INNER VESSEL.
 - ALL PIPE (A312), TUBE (A269) AND FITTINGS (A403) TO BE 304/L DUAL GRADE STAINLESS STEEL SEAMLESS.
 - DESIGN AND FABRICATION PER 49 CFR PART 193 AND APPLICABLE NFPA 59A CHAPTER 13 SECTIONS.
 - PIPING 2" AND OVER SHALL BE SCH 10 MIN. PIPING UNDER 2" SHALL BE SCH 40 MIN.
 - WIND & SEISMIC DESIGN BASIS: ASCE 7-10. SEISMIC: S_{rs}: 1.85 g, S₁: 0.85 g, SITE CLASS D. WIND: 150 MPH, EXPOSURE CATEGORY D, OCCUPANCY CATEGORY III.
 - LIFT PLATES ARE LOCATED ON THE NON-PLUMBING VESSEL HEAD. LIFT PLATES ARE 5"0.
 - VACUUM PUMP-OUT PORT CONNECTION LOCATED ON EACH HEAD.
 - PIPING WELDS TO BE 100% RADIOGRAPHED. ALL OTHER PIPE WELD JOINTS (SOCKET WELDS) TO BE 100% DYE PENETRANT EXAMINED. LINES TO ATMOSPHERE DO NOT REQUIRE NDE. 3" NPS AND LARGER MUST BE BUTT WELD.
 - ALL FLANGES TO BE 300# RAISED FACE A182 F304L S/S.
 - ALL TUBE FITTINGS TO BE SWAGelok.

VESSEL DESIGN DATA		
HS-5500SS-100		
INNER VESSEL:	DESIGN STANDARD:	ASME SECT VIII, DIV 1 COLD STRETCHED, 2014
	MAWP:	100 PSIG
	DESIGN TEMPERATURE:	-320°F TO +120°F
	HYDROSTATIC TEST PRESSURE:	223 PSIG
	VESSEL MATERIALS:	SA-240 T304
	CODE STAMP:	YES
	RADIOGRAPH:	RT-1
Code ASME Section VIII Division 1 Latest Addenda, Cold Stretched Inspected by National Board Inspectors National Board Registration Required		
OUTER VESSEL:	DESIGN STANDARD:	CGA-341-2007
	MAWP:	206.8 KPAG / 30 PSIG (FULL VACUUM)
	DESIGN TEMPERATURE:	-20°F TO +300°F
	VESSEL MATERIAL:	SA36 CARBON STEEL
	INSULATION:	MULTI LAYER SUPER INSULATION WITH VACUUM
	GRIT BLASTING:	YES
	PAINTING:	HENTZEN 2-COAT WHITE
WEIGHTS:	EMPTY:	118,200 LBS
	FULL OF LNG:	313,700 LBS
CAPACITY:	FULL OF WATER:	56,200 GAL
	NET VOLUME (COLD):	50,100 GAL
PIPING PER ASME/ANSI B31.3, LATEST EDITION		

LINE	INTERNAL LINE SIZES	FUNCTION
A	2" NPS, SCH 10	LIQUID IN - BOTTOM FILL
B	2" NPS, SCH 10	VAPOR LINE
C	2" NPS, SCH 10	LIQUID IN - TOP FILL SPRAY BAR
D	1/4" ODT	GAUGE LINE FOR BOTTOM LIQUID SPACE PRESSURE
E	1/4" ODT	GAUGE LINE FOR VAPOR SPACE PRESSURE
F	1/4" ODT	90% LIQUID LEVEL TRYCOCK
G	1" NPS, SCH 40	LIQUID OUT TO PRESSURE BUILD COIL
K	-	ANNULAR SPACE VACUUM CONNECTION
L	3" NPS, SCH 10	LIQUID OUT TO VAPORIZER
P	2" NPS, SCH 10	PRESSURE BUILD VAPOR
H	-	ANNULAR SPACE VACUUM THERMOCOUPLE CONN PORT



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CUSTOMER DRAWING FOR:

GREENVILLE UTILITIES CORPORATION

LNG STORAGE EXPANSION

REF. NO. GRN-0056-D5

MODEL HS-5500SS-100CS LNG TANK

JOB. NO. 2010335 Tanks 09.24.13 PE# 20757696 PART No. 20757697

APPROVALS BY DATE SHEET 1 OF 2

DRAFTER DVL 02/25/2014 A-20773275 A

CHECKER ENGINEERING DESIGN TDH 5/15/2000 DRAWING NO. REV.

NO.	DATE	BY	CHKD	RECORD OF REVISION
1	5/15/2014	RDF	JC	UPDATE SADDLE SPACING TO 62"8"

COMPONENT LISTING				
TAG	FUNCTION	DESCRIPTION	SIZE	P/N
V-122	TANK BOTTOM FILL SHUT-OFF	GATE, GODDARD GS-00110-16V3A, BW	2"	1716681
V-105	TANK VENT VALVE	GLOBE, GODDARD GS-00210-16V3A, BW	2"	1715821
V-108	TANK TOP FILL SHUT-OFF	GATE, GODDARD GS-00110-16V3A, BW	2"	1716681
V-123	TANK P.B. LIQUID SHUT-OFF	GLOBE, GODDARD GS-00210-8S3, SW	1"	1719141
V-119	TANK LIQUID DELIVERY SHUT-OFF	GATE, GODDARD GS-00110-24V3A, BW	3"	1716531
V-115	TANK P.B. VAPOR SHUT-OFF	GATE, GODDARD GS-00110-16V3A, BW	2"	1716681
V-129	P.B. LIQUID SHUT-OFF	GLOBE, GODDARD GS-00210-8S3, SW	1"	1719141
V-132	TANK VAPOR BALANCE	GATE, GODDARD GS-00110-16V3A, BW	2"	1716681
V-133	ECONOMIZER ISOLATION	GLOBE, GODDARD GS-00210-8S3, SW	1"	1719141
TRYCCK	TANK FULL TRYCCK	GLOBE, GODDARD GS-00210-4S3, SW	1/2"	20785622
V-100	TANK SAFETY VALVE SELECTOR	BALL, WORCESTER C4466PMSV1, SW	2"	894.252
ESV-110	TANK TOP FILL CONTROL	GLOBE, FISHER EZ-C, FLANGED 300# ACT, FISHER xxx LIMIT SWITCHES, WESTLOCK BECDN 2007NBY2E2M0200	2"	20773654
ESV-116	TANK LIQUID DELIVERY EMERGENCY SHUT-OFF	BALL, WORCESTER CAF466PT301, WAFER ACT, WORCESTER 3339SN LIMIT SWITCHES, WESTLOCK BECDN 2007NBY2E2M0200	3"	20773651
ESV-120	TANK BOTTOM FILL CONTROL	GLOBE, FISHER EZ-C, FLANGED 300# ACT, FISHER xxx LIMIT SWITCHES, WESTLOCK BECDN 2007NBY2E2M0200	2"	20773654
ESV-135	P.B. VAPOR EMERGENCY SHUT-OFF	BALL, WORCESTER CAF4466PMBV10, BW ACT, WORCESTER 2039SN LIMIT SWITCHES, WESTLOCK BECDN 2007NBY2E2M0200	2"	20773642
PCV-126	TANK P.B. CONTROL VALVE	GLOBE, CASHCO 2296 46C-2A17-23V300N6D, NPT	1"	20773653
PC-128	TANK P.B. CONTROLLER	PART OF PCV-126	-	-
PCV-136	TANK PC-1 SUPPLY REGULATOR	PART OF PCV-126	1/4"	-
PCV-134	TANK ECONOMIZER REGULATOR	REGULATOR, CASH-ACME FR 40-200, SET AT 85	3/4"	20785624
RV-109	THERMAL RELIEF VALVE	RELIEF VALVE, FLOWSAFE F84M, NPT SB44M-05MNO-05FNO-SS-SS-BT	1/2"x1/2"	20773655
RV-117	THERMAL RELIEF VALVE	RELIEF VALVE, FLOWSAFE F84M, NPT SB44M-05MNO-05FNO-SS-SS-BT	1/2"x1/2"	20773655
RV-121	THERMAL RELIEF VALVE	RELIEF VALVE, FLOWSAFE F84M, NPT SB44M-05MNO-05FNO-SS-SS-BT	1/2"x1/2"	20773655
RV-124	THERMAL RELIEF VALVE	RELIEF VALVE, FLOWSAFE F84M, NPT SB44M-05MNO-05FNO-SS-SS-BT	1/2"x1/2"	20773655
RV-127	THERMAL RELIEF VALVE	RELIEF VALVE, FLOWSAFE F84M, NPT SB44M-05MNO-05FNO-SS-SS-BT	1/2"x1/2"	20773655
RV-150	THERMAL RELIEF VALVE	RELIEF VALVE, FLOWSAFE F84M, NPT SB44M-05MNO-05FNO-SS-SS-BT	1/2"x1/2"	20773655
RV-1XX	THERMAL RELIEF VALVE	RELIEF VALVE, FLOWSAFE F84M, NPT SB44M-05MNO-05FNO-SS-SS-BT	1/2"x1/2"	20773655
RV-130	PRESSURE RELIEF VALVE, P.B. OUTLET	RELIEF VALVE, FLOWSAFE P835D, NPT P835D-01FNO-02FNO-SS-SS-TNPT, SET AT 150 PSIG	1"x2"	20786107
RV-101	PRESSURE RELIEF VALVE, PRIMARY SAFETY	RELIEF VALVE, FLOWSAFE F835D, NPT P835D-01FNO-02FNO-SS-SS-TNPT, SET AT 100 PSIG	1"x2"	20785628
RV-102	PRESSURE RELIEF VALVE, SECONDARY SAFETY	RELIEF VALVE, FLOWSAFE F7350, NPT P7350-01FNO-02FNO-SS-SS-TNPT, SET AT 110 PSIG	1"x2"	20785629
RV-103	PRESSURE RELIEF VALVE, PRIMARY SAFETY	RELIEF VALVE, FLOWSAFE F835D, NPT P835D-01FNO-02FNO-SS-SS-TNPT, SET AT 100 PSIG	1"x2"	20785628
RV-104	PRESSURE RELIEF VALVE, SECONDARY SAFETY	RELIEF VALVE, FLOWSAFE F7350, NPT P7350-01FNO-02FNO-SS-SS-TNPT, SET AT 110 PSIG	1"x2"	20785629
V-40	PNEUMATIC SHUT-DOWN VALVE	3-WAY, SWAGELDK SS-44XS6-SC11	3/8"	20773641
V-41	PNEUMATIC SHUT-DOWN VALVE	3-WAY, SWAGELDK SS-44XS6-SC11	3/8"	20773641
V-42	PNEUMATIC SHUT-DOWN VALVE	3-WAY, SWAGELDK SS-44XS6-SC11	3/8"	20773641
V-43	PNEUMATIC SHUT-DOWN VALVE	3-WAY, SWAGELDK SS-44XS6-SC11	3/8"	20773641
V-44	PNEUMATIC SHUT-DOWN VALVE	3-WAY, SWAGELDK SS-44XS6-SC11	3/8"	20773641
DV-1	VENT STACK DRAIN VALVE	BALL, APOLLO SELF-CLOSING 76-503-57	1/2"	1714861
PBC	TANK PRESSURE BUILD COIL	ALUMINUM FINNED TUBE	-	-
WC	BOIL-OFF WARMING COIL	ALUMINUM FINNED TUBE	-	-
JSH	JACKET SAFETY HEADS	CHART STANDARD	6"	10899110
TC	TANK VACUUM GAUGE TUBE	HASTINGS DV-6R	-	4210049
V-137	TANK VACUUM GAUGE ISOLATION	BELLOWS, HDKE 4111L2B	1/8"	10482381
VP-101	TANK VACUUM PUMPOUT	CHART STANDARD PUMPOUT	3-1/2"	10826172
V-106	TANK SAFETY TEST VALVE	NEEDLE, SWAGELDK SS-1KM4-S4-A-SC11	1/4"	11076684
V-107	TANK SAFETY TEST VALVE	NEEDLE, SWAGELDK SS-1KM4-S4-A-SC11	1/4"	11076684
V-112	TANK TOP GAUGE LINE SHUT-OFF	NEEDLE, SWAGELDK SS-1KM4-S4-SC11	1/4"	11699814
V-113	P.B. CONTROLLER SIGNAL SHUT-OFF	NEEDLE, SWAGELDK SS-1KM4-S4-SC11	1/4"	11699814
V-114	TANK BTH GAUGE LINE SHUT-OFF	NEEDLE, SWAGELDK SS-1KM4-S4-SC11	1/4"	11699814
STR-125	P.B. STRAINER	STRAINER, MUELLER 582 WYE -TYPE 100 MESH, SW	1"	469.045
PI-1	TANK PRESSURE GAUGE	US GAUGE, 0-200 PSI, 4.5" DIAL, 1981-155027	1/4"	534.235



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CUSTOMER DRAWING FOR:

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LNG STORAGE EXPANSION

REF. NO. GRN-0056-D5

MODEL HS-5500SS-100 LNG TANK

JOB. NO. 2010335 Tanks 09.24.13	PE# 20757696	PART No. 20757697
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APPROVALS	BY	DATE	SHEET 2 OF 2
DRAFTER	DVL	02/25 2014	A-20773275 A
CHECKER			
ENGINEERING DESIGN	TDH	5/15 2000	DRAWING NO. REV.