Forsyth County Procurement
Greg Bridges, Procurement Agent III

November 22, 2021

ADDENDUM #1

BID No. 21-177-3340

For: Liquid Oxygen Tank Rental and Liquid Oxygen and Liquid Nitrogen Supply

This addendum supersedes and supplements all portions of the bidding documents and becomes part of the contract documents for the above-referenced project.

Where any item called for in the specifications or indicated on the drawings is supplemented hereby, the original requirements shall remain in effect.

Where any original item is amended, voided or superseded hereby, the provision of such item not so specifically amended, voided or superseded shall remain in effect.

Clarification on Bidder Questions:

1. **Q: On the Special terms and Conditions Sheet, it mentions a cost per month tank storage fee that is to remain firm during the course of the contract. It is my understanding that these tanks have already been purchased, so why would the approved vendor charge a monthly fee?**

   A: *The liquid nitrogen tank has previously been purchased by the Owner. The liquid oxygen tank, ambient vaporizers, solenoid valves for switching between vaporizers, and other equipment as identified in the LOX EQUIPMENT REQUIREMENTS section of the bid documents shall be provided by the vendor.*

2. **Q: It also states that at the end of the agreement, the successful vendor will remove the equipment. If this is customer-owned equipment, no vendor will remove such equipment as it is not the property of the vendor. Can you elaborate?**

   A: *The vendor owned equipment will be removed, customer owned equipment shall remain.*

3. **Q: The Bid paperwork also states that all permits must be paid for by the vendor, but since the equipment is customer-owned, Forsyth County will be responsible for the State Inspection that has to be completed prior to the commissioning of the bulk tanks. Can you clarify this for me?**

   A: *Vendor will only be responsible for the inspections related to equipment provided by the vendor.*

4. **Q: Who is the current liquid oxygen supplier?**

   A: *There is currently not a supplier / contract in place.*

5. **Q: What is the current liquid oxygen price?**

   A: *There is currently not a supplier / contract in place.*

6. **Who is the current liquid nitrogen supplier?**

   A: *There is currently not a supplier / contract in place.*

7. **Q: What is the current liquid nitrogen price?**

   A: *There is currently not a supplier / contract in place.*

8. **Q: What size is the valve that the vendor will connect to on the pad for both oxygen and nitrogen?**

   A: *Vendor shall provide the connection for the liquid oxygen tank. Details on the liquid nitrogen tank are attached with cutsheet.*

9. **Q: What kind of connection will be provided on both systems?**

   A: *Vendor shall provide the connection for the liquid oxygen tank. Details on the liquid nitrogen tank are attached.*

10. **Q: Is the houseline pressure 50 PSI for the oxygen and can you confirm the pressure on the nitrogen as well?**

    A: *50 psi is sufficient for both oxygen and nitrogen.*

11. **Q: Does the liquid line need to be insulated on the oxygen system?**

A: *Yes.*

12. **Q: Are there any details on the pipe material that will need to be installed? Copper or Stainless?**

    A: *LOX piping will be copper, or as recommended by selected vendor. Gas piping will be 316 stainless steel.*

13. **Q: How thick is the concrete pad for the liquid nitrogen tank?**

    A: *16-inches.*

14. **Q: Will Western Summit perform all of the installation? And will the vendor need to be on-site during the connection process?**

    A: *Western Summit will perform the installation of the liquid oxygen tank and associated components, however, the vendor will need to provide a representative onsite for key steps in the installation process and to certify the installation.*

15. **Q: The updated location for the LOX tank is near a storm drain inlet. Can you confirm that the location will be at least 10 ft. from the opening?**

    A: *The proposed LOX tank will be located greater than 10 ft. from the storm drain inlet. See attachment for the proposed location.*

16. **Q: Documents state that equipment shall be provided onsite no later than 12-weeks after the notice to proceed is issued. We are currently seeing lead times of 14-18 weeks on bulk related equipment.**

    A: *It is important to get the system up and running as soon as possible and having the LOX equipment onsite within 12-weeks is key in doing this. If vendor cannot meet the 12-week schedule, please provide commentary separate to the bid form with temporary options, temporary timelines, and associated costs. Note that it is acceptable for temporary options to have less capacity (such as tank could be 500 gallons and vaporizers could be 20 scfm).*

Attachments:

CP-A

120VAC

AI ASH AI ASH AI ASH ZS RM ZSO ZSC ZS RM ZSO ZSC ZS RM ZSO ZSC PSH LI PI AI

120VAC HS 48-3-1 OCP V
120VAC HS 48-3-2 OCP V
120VAC HS 48-3-3 OCP V

BV-48-3-1
BV-48-3-4
BV-48-3-5
BV-48-3-6
B-48-3-3
B-48-3-2
BV-48-3-8
BV-48-3-9
BV-48-3-7
BV-48-3-10
BV-48-3-11

GO
LOX

AMBIENT VAPORIZER
AMBIENT VAPORIZER
AMBIENT VAPORIZER

VAPOR/SWITCHING VALVE ASSEMBLY

PSV-48-6-1 V *
1"

PSV-48-6-2 V
BV-48-6-1
BV-48-6-6
BV-48-6-2
BV-48-6-5
1/4"
1"x1/2" PRV-48-6-1
PSV-48-6-3
BV-48-6-7
BV-48-6-3
1"x1/2" PRV-48-6-2
BV-48-6-4
PRA *

PIT 48-6-1
PE 48-6-1

PRESSURE REGULATING ASSEMBLY

PSH 48-4-1
LIT 48-4-1
PI 48-4-1
PSV-48-4-1 V
LOX
LIQUID OXYGEN TANK 1
BV-48-4-1

BV-48-7-1
BV-48-7-2 *
FTR
2"x1"
1/2"
BV-48-7-5
PARTICULATE FILTER ASSEMBLY
FTR-48-7-1

BV-48-7-3
BV-48-7-4 *
BV-48-7-6
PARTICULATE FILTER ASSEMBLY
FTR-48-7-2

2"
0.75"

AI 48-4-7 DEW POINT AE 48-4-7 V * 120V

TO OZONE GENERATION INLET HEADER

NITROGEN

AIT 48-9-1 * OZONE ROOM AMBIENT OZONE ASH 48-9-1
AIT 48-9-2 * OZONE ROOM AMBIENT OXYGEN ASH 48-9-2
120VAC

AIT 48-9-3 * SECOND AMBIENT OXYGEN ASH 48-9-3
120VAC

LOX Vendor Equipment Responsibility

THIRD ANGLE PROJECTION

REV	REVISION DESCRIPTION	DRAWN	APP	DATE
A	ORIGINAL ISSUE	SF	LL	3/3/21

PROJECT INFORMATION

FORSYTH COUNTY WTP

CONTRACT# 31421197 PO#

PROJECT MANAGER	MECH. ENGINEER	ELEC. ENGINEER
KELLY HUFNAGEL	LENNY MARKMAN	LUIS LU

suez
600 WILLOW TREE ROAD
LEONIA, NEW JERSEY 07605
UNITED STATES
(201) 676-2525

	BY	DATE
DRAWN	SF	2/26/21
CHECKED	LL/LM	2/26/21
APP	KH	2/26/21

SHT: 1 OF 5

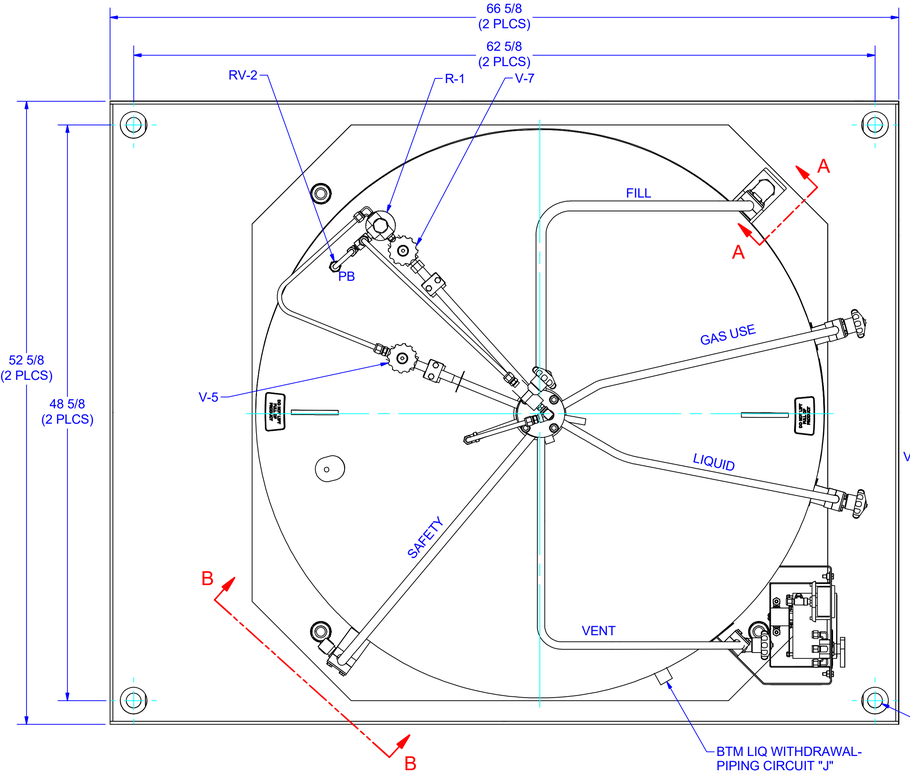
SCALE NONE

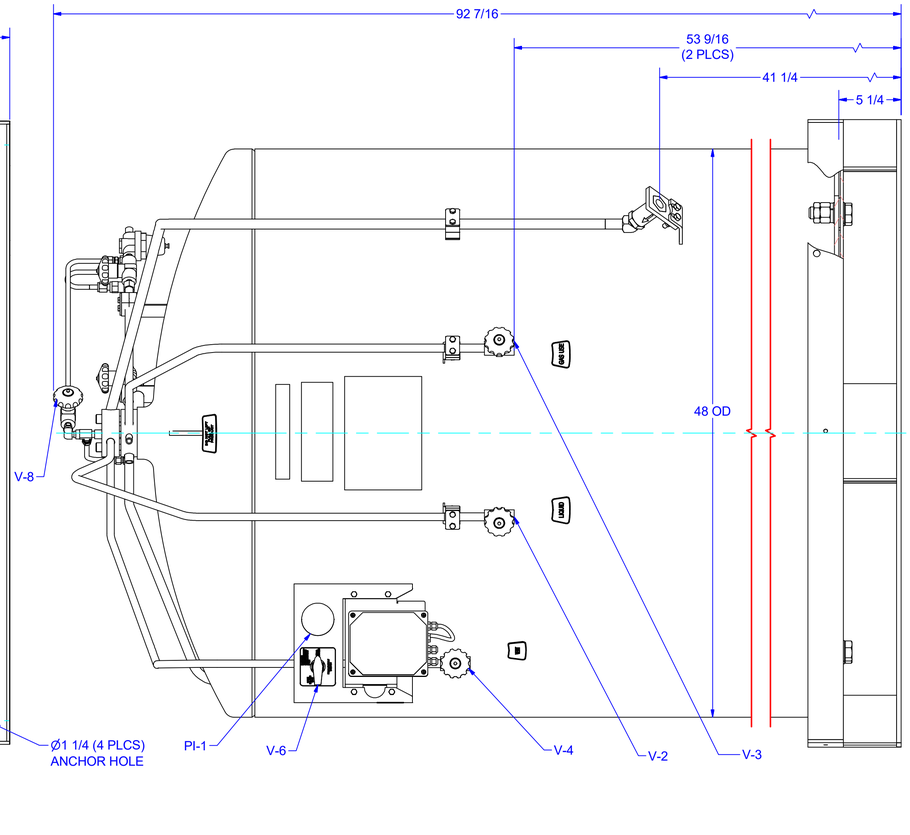
PROCESS AND INSTRUMENTATION DIAGRAM
OXYGEN FEED GAS SYSTEM

SIZE B | DWG. NO. R001184-SNA-PR-T02-8521-DS-101 | REVISION A

File: C:\Sue\2021 projects\P&ID\Forsyth County R-0001184\R-0001184-SNA-PR-T02-8521-DS-101 THROUGH 105.dwg
Date: Mar 26, 2021 - 8:29am
User: KG5604

DRAWING NO D-14698219





DESIGN SPECIFICATION

ITEM	INNER VESSEL
CODE	ASME SEC. VIII. DIV 1
RELIEF SETTING MAWP	350 PSI / 24.13 BAR (MP & HP)
	500 PSI / 34.47 BAR (VHP)
GROSS VOLUME	1,550 LITERS /409 GALLONS
NET VOLUME	1,455 LITERS / 384 GALLONS
TARE WEIGHT	2200 lbs / 998 kg MP/HP
	2500 lbs / 1134 kg VHP
NORMAL EVAPORATION RATE	1% PER DAY NITROGEN & OXYGEN .62% PER DAY ARGON .3% PER DAY CARBON DIOXIDE
MATERIAL	TYPE 304 STAINLESS STEEL
	PALLET BASE GALVANIZED CS A36

GASEOUS EQUIVALENT AT 1 ATM AND 70º F/ 1 ATM AND 0ºC

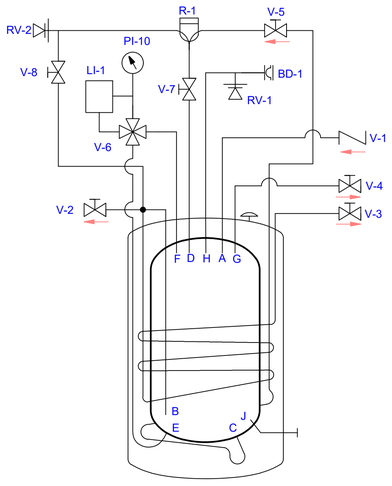
NITROGEN	35,790 SCF / 1,013 Nm³
OXYGEN	44,220 SCF / 1,250 Nm³
ARGON	43,220 SCF / 1,223 Nm³
CARBON DIOXIDE	29,340 SCF / 830 Nm³

GAS DELIVERY RATE HP/VHP

NITROGEN	1,350 SCF/H / 35.4 Nm³/h
OXYGEN	1,350 SCF/H / 35.4 Nm³/h
ARGON	1,350 SCF/H / 35.4 Nm³/h
CARBON DIOXIDE	450 SCF/H / 12.7 Nm³/h / 51.5 lbs/h

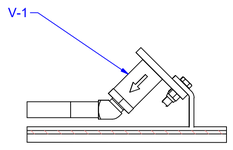
PARTS LIST

ITEM	QTY	PART NO.	DESCRIPTION	MANUFACTURER P/N	MANUFACTURER
V-1	1	11051090	CHECK VALVE 1/2 FPT	CV-503B-T-5	GENERANT
V-2	1	11906043	VALVE 3/8 FPT BLUE HANDLE LIQUID	T9464DAB	REGO
V-3	1	11905964	VALVE 3/8 FPT GREEN HANDLE GAS USE	T9464ADAG	REGO
V-4	1	11905956	VALVE 3/8 FPT SILVER HANDLE VENT	T9464DA	REGO
V-5	1	11905964	VALVE 3/8 FPT GREEN HANDLE PB	T9464ADAG	REGO
V-6	1	20683719	VALVE 4-WAY BRS 1/8FPT	B-43YTF2-WL8	SWAGELOK
V-7	1	11905999	VALVE SHUTOFF 1/4FPT	T9452 MSS SP-80,	REGO
V-8	1	11905999	VALVE SHUTOFF 1/4FPT	T9452 MSS SP-80,	REGO
LI-1	1	20910598	CYL-TEL GEN 5 0-200" H2O	9500-8200	CHART
PI-1	1	20827654	PG 2-1/2" 0-600PSI/BAR 1/8MPT	52553914	WIKA
R-1	1	20821672	REGULATOR MCR 1/4 FPT @ 125 PSI (MP)	SEE CHART P/N	GENERANT
		20821673	REGULATOR MCR 1/4 FPT @ 300 PSI (HP)		
		20821674	REGULATOR MCR 1/4 FPT @ 450 PSI (VHP)		
RV-1	1	20599868	RV BRS 1/2MPT 350PSI (HP)	PRV19434TP350	REGO
		20894583	RV BRS 1/2MPT 500 PSI (VHP)	PRV19434TP500	
RV-2	1	1812702	RV BRS 1/4 MPT 550 PSI	PRV9432T550	REGO
BD-1	1	11526569	RPD 525 PSI 1/2 MPT INLINE (HP)	SEE DESCRIPTION	BS&B
		11526622	RPD 700 PSI 1/2 MPT INLINE (VHP)	SEE DESCRIPTION	

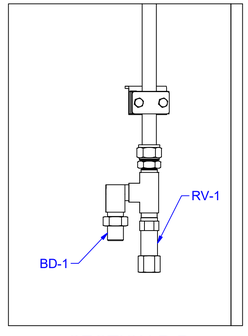


SCHEMATIC

NOMENCLATURE	
V-1	TOP FILL CHECK VALVE
V-2	LIQUID VALVE
V-3	GAS USE VALVE
V-4	VENT/FULL TRYCOCK VALVE
V-5	PRESS. BLDG. VALVE
V-6	4-WAY VALVE
V-7	REG. ISO VALVE PB
V-8	REG. ISO VALVE ECON
LI-1	LEVEL INDICATOR
PI-1	PRESSURE INDICATOR
R-1	PRESS. BLDG./ ECONO REG.
RV-1	RELIEF VALVE
RV-2	LINE RELIEF
BD-1	BURST DISC
PIPING	
A	TOP FILL
B	LIQUID WITHDRAWAL
C	PRESSURE BUILDING INLET
D	PRESSURE BUILDING OUTLET
E	LIQUID PHASE
F	VAPOR PHASE
G	VENT/FULL TRYCOCK
H	SAFETY CIRCUIT
J	BTM WITHDRAWAL



SECTION A-A
SCALE .25



SECTION B-B
SCALE .25
(SEE NOTE 3)

NOTES:
1. CONFIGURATION OPTION 03 IS DEPICTED. SEE SALES LITERATURE FOR AVALIABLE OPTIONS.
2. THE DIMENSIONS ON THIS DRAWING ARE FOR REFERENCE ONLY.
3. DUAL RV/RPD KIT IS OPTIONAL. SEE DRAWING B-20648806.

REV	APPV	ECR	REVISION DESCRIPTION	BY	DATE
D	CGT	209647	UPDATE REG TO GENERANT	JDG	8/31/18
C	CGT	209500	UPDATE PARTS LIST	RLB	08/08/17
B	CGT	209319	NEW LAB BASE, MODEL UPDATE	JNB	12/5/15
A	CGT	209263	DROPPED DOWN SAFETIES; UPDATED TBLS	JPW	6/16/15

APPV'D DATE
DRAWN BY JSK 3/22/2010
CHECKED BY
PROJ. ENGR. CGT 5/27/2010
USED ON 207245
APPLICATION ORIGINAL ECR/ER

(#) DESIGNATES A NOTE REFERENCE.

MAT'L
SEE PARTS LIST

FINISH P/N
14698219

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
TOLERANCES:
FRACTIONS ± 1/2
ANGLES ± 1 °
2 PLACE DECIMAL ±N/A
3 PLACE DECIMAL ±N/A

CHART INC.
CANTON, GEORGIA 30114

TITLE: SPEC DWG PERMA-CYL 1500 OPT 03

DRAWING NO. D-14698219 REV: D

SCALE: 3/16=1 DO NOT SCALE DRAWING SHEET: 1 of 1

SUPERPULSATOR CLARIFIER

STEPS

PIPE VAULT

STEPS

SIDEWALK

ASPHALT

1220

1210

3/4" 45° HORIZ BEND, IE 1221.83

0.5' CONC. WALL

1215

ASPHALT

STORY METAL BUILDING

CONC.

DUMPSTER PAD

PROPANE TANK

NATURAL GAS TANK

24" C&G

ASPHALT

CONCRETE WALLS WITH OVERHANG

1205

3 AC PADS

45 CHEMICAL BULK STORAGE NO. 1

GAS CONTROL

2

ASPHALT

OVERHANG

ASPHALT

1" RW

ASPHALT

UGT

24" X 6" SERVICE TAP

W

W

EM

POSSIBLE AIR RELEASE VALVE

6" PD

1220

INSTR

UE

UE

CB-EX

33 NORTH HIGH SERVICE PUMP STATION

SD-10

ST-MH2

SD-11

24" RCP

STMH-002
TOP=1205.36
IN(A)=1200.25
IN(B)=1195.67
IN(C)=1199.21
OUT=1187.59

SD-9

1195

1190

1185

1180

1200

1

DI-10

DI-2137
TOP=1169.31
IN=1165.50
OUT=1165.31

DI-1770
TOP=1173.43
IN=1165.45
OUT=1165.90

24" RCP

SD-12

36" FW

1205

TRAV-5
N=1,542,907.00
E=2,315,272.30
ELEV= 1,207.34

16" RCP

CONC.

DI-1158
TOP=1204.80
OUT=1197.17

CHEMICAL BULK STORAGE NO. 2

40

METAL CANOPY

CONC. WALL

2.5' CONC. WALL

1210

1211.3

UE

SD-0

3' WIDE GATE

N 1542818.57
E 2315163.45

16'

BOLLARD (TYP. 13)

28'

DI-0

DI-104
TOP=1206.05
OUT=1200.15

CONC.

6' WIDE GATE

CHAIN LINK FENCE

N 1542790.57
E 2315163.19

ASPHALT

CHAIN LINK FENCE

GRAVEL

1200

34 SURGE TANK AND COMPRESSOR BUILDING

1

TRAV-101
N=1,542,703.49
E=2,315,239.01
ELEV= 1,211.88

1210

N

0 20 40 60

1"=20'

811 Know what's below. Call before you dig.

DESIGNED BY: RYAN MURPHY	DRAWN BY: TODD HOXIT	CHECKED BY: JASON GODFREY
NO.	DATE	REVISION	BY	APVD

ESG ENGINEERING
5400 LAUREL SPRINGS PKWY, SUITE 902
SUWANEE, GA 30024
478.474.4996

FORSYTH COUNTY WTP
OZONE REPLACEMENT

CIVIL
LOX TANK PAD
SITE LAYOUT PLAN

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

SCALE	AS NOTED
PRELIMINARY	
PROJ	F4000.103
DATE	NOVEMBER 2021
005-C-212	
SHEET	

File Name : 005-Y-212_F4000.103.dgn Last Saved : 11/18/2021 5:55:29 PM User : THoxit