Construction, Operation, & Performance Monitoring Report

Nutrien US LLC
Kenai Nitrogen Operations
Biosparge Project

Prepared by

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1.0 Background & Overview

This report provides the final documentation of the biosparge groundwater remediation system (Biosparge Project) constructed at the Nutrien Kenai Nitrogen Operations Plant (KNO) in Fall 2022. The objective of the Biosparge Project is to accelerate mass removal of nitrogen including urea, carbamate, and ammonia from groundwater at the southern portion of the KNO site.

Construction of the project was completed on October 18, 2022. The system was started on November 11, 2022, and has operated with 99.9% uptime to date. The 0.1% operational downtime of the system is due to periodic maintenance and inspections of the compressor, and annual monitoring of the air sparge wells.

The following sections provide system as-built documentation, optimized system operational settings, and a one-year progress report of performance monitoring.

2.0 Biosparge System Design & Documentation

The biosparge system is designed in accordance with the standards outlined in the EPA Air Sparging Design Paradigm (Paradigm) (Battelle 2002). The system design was previously documented in a workplan entitled Biosparge System Plan (CIE 2022). The workplan was submitted to the Alaska Department of Environmental Conservation (ADEC) on June 23, 2023, and approved by ADEC on July 14, 2022. As-built record drawings for the system are provided in this report.

2.1 Air Supply System

Figure 1 is a layout drawing of the air supply system. The air supply system is installed inside Building J-602 and consists of the following components:

- Atlas-Copco model ZT37VSD-8.6, 50 hp, rotary tooth, air compressor.
- Atlas Copco model CD85+, heatless dryer.
- Samuel model L4036.5C, 240-gallon, vertical receiver tank.
- Discharge piping.

Manufacturer technical data sheets for the air supply system components are provided in Appendix A. The Building J-602 ventilation system was modified to circulate waste heat from the compressor as a means of heating the building during the winter months. Compressor ventilation and waste heat recovery calculations are shown on Table 1.

2.2 Air Transmission Lines

Existing instrument air transmission lines at the Facility were used to feed two air headers, which meter, control, and distribute flow and pressure to each injection well. Figure 2 is a KNO Plant layout drawing showing the routing of the air transmission lines to each of two supply headers.

2.3 Injection Air Supply Headers

Figure 3 is an as-built drawing of the two injection air supply headers. The first header, which feeds the unconfined aquifer, is in a 10 x 24’ Connex enclosure located at the northwest corner of South Avenue and

Back Street. The second header, which feeds the semi-confined aquifer is inside the Chem Building, situated due south of the J-629A, GE Lead Pond.

Pressure and flow settings for each air injection (sparge) well are optimized and recorded every two weeks. Table 2 provides system operational settings as of October 2023. These settings are optimized to maximize dissolved oxygen concentrations in the treatment area, while minimizing compressor energy usage.

2.4 Multi-use Sparge/Monitoring Wells

Sparge wells were placed in the source and centerline downgradient portions of the unconfined and semi-confined aquifer ammonia-N plume areas exceeding 300 mg/L. Monitoring wells were placed downgradient of sparge wells to establish nitrogen removal trends within a 12-month, full-scale operational timeframe.

Table 3 summarizes the position surveys and as-built data for all active sparge and monitoring wells at the KNO site. Figures 4 and 5 are layout maps of the southern plume UA and SCA respectively showing current ammonia-N and dissolved oxygen conditions in the treatment areas. Figures 6 and 7 are well construction details for the multi-use sparge/monitoring wells installed in May 2022.

3.0 Groundwater Monitoring Results

Groundwater monitoring over the past 18 months included baseline monitoring conducted prior to system startup in June 2022, and performance monitoring conducted semi-monthly between November 11, 2022, through October 31, 2023.

Baseline monitoring included thirty-one (31) wells located within the southern plume area unconfined and semiconfined aquifers. Baseline monitoring consisted of field-measured water level, dissolved oxygen, ORP, conductivity, temperature, and pH, and laboratory analyzed urea-N, carbamate-N, ammonia-N, nitrite-N, and nitrate-N.

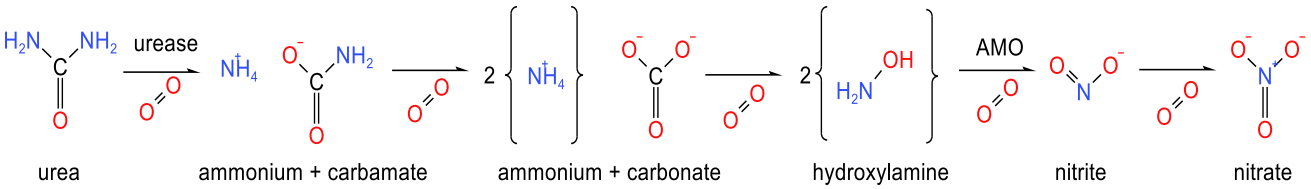
After startup of the air injection system, performance monitoring was completed for six (6) designated UA monitoring wells and six (5) designated SCA monitoring wells within the treatment areas. Performance monitoring parameters included field-measured water level, dissolved oxygen, ORP, conductivity, temperature, and pH, along with laboratory analysis of urea-N, carbamate-N, ammonia-N, nitrite-N, and nitrate-N.

Table 4 provides a one-year summary of routine air sparge well pressure and flow readings collected between November 2022 and November 2023.

Table 5 provides an eighteen-month summary of baseline and performance monitoring results collected between June 2022 and November 2023.

4.0 Data Analysis & Conclusions

Sitewide groundwater has been previously shown to exhibit a five-step chemolithotrophic nitrification process as shown below:



In the first step urea-n is oxidized by aerobic bacteria, in the presence of the enzyme urease, to form carbamate-N. Carbamate-N is next oxidized to form ammonium and carbonate ions. Ammonium is next oxidized to form hydroxylamine. Ammonia oxidizing bacteria and archaea oxidize hydroxylamine in the presence of the enzyme ammonia monooxygenase (AMO) to form nitrite under anaerobic conditions and nitrate under aerobic conditions.

Over the past year, satisfactory oxygen distribution is apparent throughout the treatment areas and significantly enhanced groundwater nitrogen degradation rates have resulted.

Figure 8 shows time series trends for key degradation indicators in the unconfined aquifer (UA). After treatment system startup the unconfined aquifer showed dramatic increases in dissolved oxygen (DO) levels at the downgradient monitoring wells. Dissolved oxygen levels in the UA are currently stabilized between 1-9 mg/L under optimized air flow settings.

Urea-N levels showed an initial increase after startup, with peak urea-N concentrations occurring in February 2023, followed by a consistent lognormal decreasing trend through November 2023. Carbamate-N concentrations peaked one month later in April 2023, followed by a consistent lognormal decreasing trend through November 2023. Ammonia-N and carbonate levels, which are the products of carbamate-N hydrolysis peaked one month later in May 2023 and show consistent decreasing trends through November 2023.

Nitrite-N levels have shown exponential increases since startup which have continued through November 2023, while nitrate levels have remained generally stable to slightly decreasing indicating that lithotrophic conditions are active, but oxygen is limited. pH levels in the UA have generally decreased by 0.5 units (a factor of five) since the startup of the treatment system.

Figure 9 shows time series trends for key degradation indicators in the semiconfined aquifer (UA). After treatment system startup the SCA showed only moderate increases in dissolved oxygen (DO) levels at the downgradient monitoring wells. Dissolved oxygen levels in the SCA are currently stabilized between 0.1-2 mg/L under optimized air flow settings.

Very low urea-N levels are present in SCA, and no trend is discernable. Carbamate-N concentrations in the SCA peaked in April 2023, followed by a consistent decreasing trend to low or non-detectable levels in November 2023.

Ammonia-N and carbonate levels peaked in March 2023 and showed consistent decreasing lognormal trends through November 2023. Nitrite-N levels began an exponential increasing trend in April which has continued through November 2023, while nitrate-N levels have remained generally stable to slightly decreasing. These data indicate that lithotrophic conditions are active, but bioavailable oxygen remains limited. SCA pH levels have decreased by one unit (factor of ten) since the startup of the treatment system.

Table 6 summarizes the calculated first order nitrogen decay rate constants and projected plume lifetimes to meet the southern plume area cleanup goal of 3 mg/L for urea-N, carbamate-N and ammonia-N. As of October 31, 2023, the projected maximum life expectancies of the south complex nitrogen plumes exceeding 3 mg/L-N are 2.4 years in the semi-confined aquifer (SCA) and 4.1 years in the UA.

Figure 10 is a cross section of the center line of the southern plume treatment areas showing ammonia nitrogen concentrations and decay rates in the UA and SCA. Urea and carbamate degradation rates are ten to one-hundred times more rapid than ammonia. Consequently, urea and carbamate currently meet the 3 mg/L cleanup goal in the entire SCA, and in the downgradient portions of the UA. The projected cleanup time for remaining urea and carbamate in the UA source area is projected to be approximately 1-year.

Table 7 summarizes the calculated one-year urea, carbamate, and ammonia nitrogen (UCAN) mass removal in the UA and SCA. An estimated 2,596 tonnes of UCAN were removed from the UA between November 2022 and November 2023 with an estimated 4,042 tonnes remaining. An estimated 1,126 tonnes of UCAN were removed from the SCA over the past year with an estimated 1,815 tonnes remaining.

5.0 Recommendations

Continued operation of the biosparge system under its current optimized configuration is recommended for the projected remaining five years to meet the 3 mg/L cleanup goal. Continued performance monitoring is needed to ensure effective operation. Because degradation rates change over time, the frequency of performance monitoring should continue at least monthly during 2024. At the end of 2024, nitrogen degradation rates should be reassessed along with the needed frequency of performance monitoring.

6.0 References

(Battelle 2002) - Air Sparging Design Paradigm, A. Leeson, P. Johnson et.al, Battelle, Columbus, Ohio, August 12, 2002.

(CIE 2022) - Biosparge System Plan, J. Worley, Cook Inlet Environmental, Inc., Kenai, Alaska, June 23, 2022

Tables

Table 1
ZT37 VSD-8.6 Ventilation Requirements
Biosparge System Design

Required Ventilation capacity (q_v) (m^3/s):

where:

$$q_v = \frac{P_v}{1.21 \times \Delta T}$$

Variable		Basis	25% @ 102 psi	100% @ 102 psi	Winter	Summer
P_v	=	ZT37 VSD-8.6 heat flow @ effective operating pressure and min/max free air delivery (kW)	24.7	47.4		
ΔT	=	Allowed room temperature rise based on compressor intake temperature limits and seasonal outdoor temperatures. (°C)			40	20

Cases used to define range of required ventilation.	Required Ventilation Capacity		Intake Duct Size & Velocity	
	q_v (m3/s)	q_v (cfm)	24" Dia. Round Duct Velocity (m/s)	32 x 12" Rectangular Duct Velocity (m/s)
Low - Winter@ 25 % capacity	0.51	1081	1.75	1.94
High - Summer @ 100% capacity	0.98	2075	3.36	3.72

Notes:

Air intake duct sizing is estimated based on ASHRE duct sizing charts for calcuated ventilation capacity (qv) (cfm)
Per manufacturer, duct velocity at the air ventilation intake must be less than 4 m/s . Slightly larger duct size than ASHRAE standards is required to meet this specification.

Table 2

Optimized System Operational Settings - November 2023

KNO Biosparge Project

Compressor & Dryer Operation Data:	Optimized Setttings	Atlas ZT55-VSD Compressor Duty
Minimum Discharge Pressure (psig)	90	
Maximum Pressure (psig)	102	
Discharge Pressure-Dewpoint (°C)	-35	
Minimum Combined Air Flow (scfm):	120	45%
Maximum Flow (scfm)	162	75%
Air Header Operation Data:	**Connex Header**	**Pond Header**
Number of operating air sparge wells:	6	6
Header Pressure Setpoint (psi)	40	40
Min Header flow @ 100 psig (scfm)	60	60
Max header flow @ 100 psig (scfm):	72	90
Injection Well Operation Data	**Unconfined Aquifer**	**Semi-confined Aquifer**
Well depths (ft below ground):	66-79 feet	140 feet
Well diameters (in):	2	2
Screen lengths (ft):	5	5
Screen slot size (in):	0.01	0.01
Screen depth (ft. below water):	10-20	20-30
Nominal back pressure (psig):	7-10	15-22
Minimum single well flow (scfm):	10	10
Maximum single well flow (scfm):	12	15
Average single well radius of influence (ft.):	28	32

Table 3

Well As-Built and Survey Data

KNO Monitoring Well and Air Sparge Well Network

Aquifer	Well ID	Completion Date	ASP Northing (ft.)	ASP Easting (ft.)	Well Diameter (in)	Screen Length (ft)	Screen Slot Size (in)	Elevation, TOC (ft. MLLW)	Depth to Water (ft. from TOC)	Well Depth (ft. from TOC)	Elevation, Water (ft. MLLW)	Elevation, Top of screen (ft. MLLW)	Elevation, Bottom of screen (ft. MLLW)	Elevation, Ground (ft. MLLW)
UA	MW-03	10/5/1991	2440125.00	1393904.70	6	0	6.000	134.18	67.50	74.74	66.68	59.44	59.44	125.25
UA	MW-04R	9/11/1991	2441961.80	1393341.40	2	10	0.013	128.77	53.66	76.52	75.11	62.25	52.25	125.25
UA	MW-07R	9/12/1991	2439658.90	1393153.40	2	10	0.013	129.55	62.63	84.94	66.92	54.61	44.61	127.86
UA	MW-08R	1/8/2003	2440153.78	1392607.42	2	10	0.020	130.98	65.96	74.83	65.02	66.15	56.15	130.29
UA	MW-09R	6/5/2019	2441034.68	1392536.99	2	10	0.010	132.83	63.50	71.69	69.33	71.14	61.14	127.52
UA	MW-13	4/26/1989	2440570.82	1392591.32	2	10	0.020	131.13	64.09	81.34	67.04	59.79	49.79	127.94
UA	MW-14	4/22/1989	2439285.50	1393171.20	2	10	0.020	131.02	69.67	75.09	61.35	65.93	55.93	128.74
UA	MW-15	4/20/1989	2441038.40	1392329.50	2	10	0.020	129.81	64.23	75.14	65.58	64.67	54.67	127.24
UA	MW-16	4/23/1989	2440019.84	1392651.87	2	10	0.020	129.70	65.91	72.63	63.79	67.07	57.07	126.84
UA	MW-17	4/13/1989	2440044.80	1394028.90	2	10	0.020	136.37	66.49	75.45	69.88	70.92	60.92	132.74
UA	MW-18A	4/17/1989	2441105.21	1393612.39	4	10	0.020	132.67	58.56	73.33	74.11	69.34	59.34	130.84
UA	MW-19	4/28/1989	2440454.16	1393043.59	4	10	0.020	129.58	59.46	78.24	70.12	61.34	51.34	127.74
UA	MW-20	9/4/1991	2440696.21	1393599.42	2	10	0.020	131.94	57.54	74.67	74.40	67.27	57.27	128.40
UA	MW-21	8/30/1991	2441468.09	1392662.59	2	10	0.020	129.88	58.96	79.55	70.92	60.33	50.33	128.69
UA	AS-23R	5/4/2022	2440373.99	1393034.46	2	5	0.010	131.19	62.60	71.75	68.59	64.44	59.44	128.44
UA	MW-24	10/26/1999	2440353.85	1392999.81	2	10	0.020	131.70	62.29	74.5	69.41	67.20	57.20	129.14
UA	MW-25	10/23/2001	2441701.38	1392317.02	2	10	0.020	130.33	61.30	76.93	69.03	63.40	53.40	127.14
UA	MW-26	10/24/2001	2441900.78	1392510.84	2	10	0.020	131.56	60.28	73.36	71.28	68.20	58.20	127.54
UA	MW-27	10/25/2001	2441713.71	1392756.80	2	10	0.020	126.88	55.32	67.80	71.56	69.08	59.08	127.56
UA	MW-28	10/25/2001	2440422.93	1393254.04	2	10	0.020	130.68	59.89	72.50	70.79	68.18	58.18	123.43
UA	MW-29	10/26/2001	2440256.99	1393088.50	2	10	0.020	130.97	61.25	72.63	69.72	68.34	58.34	128.34
UA	MW-30	10/26/2001	2440422.68	1393137.00	2	10	0.020	127.04	56.48	87.98	70.56	49.06	39.06	127.74
UA	MW-31	10/29/2001	2440414.83	1393039.58	2	10	0.020	126.97	55.55	70.58	71.42	66.39	56.39	127.74
UA	MW-39	7/13/2005	2441761.24	1392680.05	2	10	0.010	127.63	57.49	82.49	70.14	55.14	45.14	127.80
UA	MW-40	7/14/2005	2442067.03	1392376.55	2	10	0.010	128.39	58.48	71.88	69.91	66.51	56.51	124.80
UA	MW-41	7/12/2005	2441985.62	1392070.47	2	10	0.010	127.55	59.53	74.98	68.02	62.57	52.57	124.90
UA	MW-42	8/29/2005	2442075.60	1392639.26	2	10	0.010	131.29	59.53	74.98	71.76	66.31	56.31	128.50
UA	AS-60	5/4/2022	2440288.98	1393078.00	2	5	0.010	131.19	64.42	76.52	66.77	59.67	54.67	128.44
UA	AS-61	5/6/2022	2440423.71	1393012.24	2	5	0.010	130.90	61.18	77.30	69.72	58.60	53.60	128.15
UA	AS-62	5/6/2022	2440400.53	1392983.34	2	5	0.010	130.33	61.65	77.05	68.68	58.28	53.28	127.58
UA	MW-63	5/7/2022	2440449.45	1392967.61	2	5	0.010	130.06	62.40	77.15	67.66	57.91	52.91	127.31
UA	MW-64	5/8/2022	2440482.84	1392924.12	2	5	0.010	130.00	61.35	77.99	68.65	57.01	52.01	127.25
UA	AS-65	5/9/2022	2440316.42	1392985.37	2	5	0.010	131.97	61.82	71.83	70.15	65.14	60.14	129.22
UA	MW-66	5/9/2022	2440298.23	1392953.10	2	5	0.010	131.35	61.71	72.69	69.64	63.66	58.66	128.60
UA	MW-67	5/11/2022	2440417.22	1392741.60	2	5	0.010	130.76	64.51	83.95	66.25	51.81	46.81	128.01
UA	MW-68	5/11/2022	2440362.03	1392752.38	2	5	0.010	133.67	79.91	82.32	53.76	56.35	51.35	130.92
UA	AS-69	5/14/2022	2440247.26	1392858.64	2	5	0.010	140.60	75.20	83.60	65.40	62.00	57.00	137.85
UA	MW-71	5/14/2022	2440205.88	1392783.67	2	5	0.010	131.62	68.96	81.70	62.66	54.92	49.92	128.87
UA	MW-72	5/22/2022	2440493.07	1392345.62	2	5	0.010	131.12	67.34	73.71	63.78	62.41	57.41	128.37
UA	MW-73	5/21/2022	2440072.67	1392523.56	2	5	0.010	130.36	66.66	81.20	63.70	54.16	49.16	127.61

Table 3

Well As-Built and Survey Data

KNO Monitoring Well and Air Sparge Well Network

Aquifer	Well ID	Completion Date	ASP Northing (ft.)	ASP Easting (ft.)	Well Diameter (in)	Screen Length (ft)	Screen Slot Size (in)	Elevation, TOC (ft. MLLW)	Depth to Water (ft. from TOC)	Well Depth (ft. from TOC)	Elevation, Water (ft. MLLW)	Elevation, Top of screen (ft. MLLW)	Elevation, Bottom of screen (ft. MLLW)	Elevation, Ground (ft. MLLW)
UA	MW-78	5/17/2022	2441432.60	1392223.77	2	5	0.010	133.75	62.20	77.80	71.55	60.95	55.95	127.61
SCA	MW-18B	11/14/1989	2441115.55	1393607.75	4	10	0.020	132.73	100.69	116.96	32.04	25.77	15.77	130.84
SCA	MW-32	8/26/2003	2440145.11	1392613.53	2	10	0.020	133.81	110.08	136.69	23.73	7.12	-2.88	126.32
SCA	MW-33	5/20/2004	2440327.16	1392383.54	2	10	0.010	129.18	111.64	126.12	17.54	13.06	3.06	125.89
SCA	MW-34	5/21/2004	2439953.69	1392735.85	2	10	0.010	125.82	104.50	122.31	21.32	13.51	3.51	121.49
SCA	MW-35R	5/27/2020	2439861.43	1392453.38	1	3	0.010	20.78	3.62	12.00	17.16	11.78	8.78	18.12
SCA	MW-36R	5/27/2020	2440697.64	1392065.95	1	3	0.010	22.06	6.19	12.00	15.87	13.06	10.06	17.59
SCA	MW-37R	5/27/2020	2441121.14	1391869.21	1	3	0.010	25.09	7.03	12.00	18.06	16.09	13.09	17.02
SCA	MW-38R	5/27/2020	2441746.15	1391591.43	1	3	0.010	29.38	6.53	12.00	22.85	20.38	17.38	17.62
SCA	MW-43R	6/4/2019	2442028.17	1391474.15	1	3	0.010	24.28	6.74	12.00	17.54	15.28	12.28	20.02
SCA	MW-44-120	9/16/2005	2441777.97	1392633.67	2	5	0.010	129.97	101.95	123.74	28.02	11.23	6.23	127.30
SCA	MW-45-120	9/21/2005	2440378.24	1393050.46	2	5	0.010	131.14	104.69	118.98	26.45	17.16	12.16	123.50
SCA	MW-46	9/21/2005	2440355.86	1392993.83	2	10	0.010	131.84	106.89	125.23	24.95	16.61	6.61	129.14
SCA	MW-47	9/27/2005	2440426.08	1393323.40	2	10	0.010	132.70	103.93	125.62	28.77	17.08	7.08	129.80
SCA	MW-48-120	10/18/2005	2440230.25	1392797.60	2	5	0.010	133.96	107.75	122.75	26.21	16.21	11.21	123.10
SCA	MW-49-120	9/23/2005	2441899.18	1392181.98	2	5	0.010	124.27	99.53	122.80	24.74	6.47	1.47	121.40
SCA	MW-50	9/30/2005	2441582.66	1392144.35	2	5	0.010	127.14	107.25	126.24	19.89	5.90	0.90	125.90
SCA	MW-51	10/5/2005	2442080.95	1391987.56	2	5	0.010	130.61	107.07	125.20	23.54	10.41	5.41	128.40
SCA	MW-52	10/8/2005	2441890.94	1393004.21	2	5	0.010	130.76	99.91	122.85	30.85	12.91	7.91	123.90
SCA	MW-53	11/21/2005	2441998.75	1392456.20	2	5	0.010	129.88	102.81	119.20	27.07	15.68	10.68	127.20
SCA	MW-70	5/12/2022	2440358.76	1392741.42	2	5	0.010	131.74	107.41	142.71	24.33	-5.97	-10.97	128.99
SCA	AS-74	5/13/2022	2440293.66	1392767.04	2	5	0.010	133.20	107.24	142.70	25.96	-4.50	-9.50	130.45
SCA	AS-75	5/15/2022	2440192.30	1392788.34	2	5	0.010	133.75	108.75	142.65	25.00	-3.90	-8.90	131.00
SCA	AS-76	5/18/2022	2440185.86	1392631.57	2	5	0.010	133.82	112.09	142.65	21.73	-3.83	-8.83	131.05
SCA	AS-77	5/16/2022	2440123.26	1392667.59	2	5	0.010	133.80	111.84	142.70	21.96	-3.90	-8.90	131.05
SCA	MW-79	5/17/2022	2440983.23	1392244.05	2	5	0.010	133.79	112.67	145.67	21.12	-6.88	-11.88	131.05
SCA	MW-80	5/25/2022	2440496.93	1392354.59	2	5	0.010	134.11	112.07	145.67	22.04	-6.56	-11.56	131.36
SCA	AS-81	5/24/2022	2440304.27	1392430.83	2	5	0.010	134.04	112.55	142.69	21.49	-3.65	-8.65	131.29
SCA	AS-82	5/23/2022	2440191.06	1392493.16	2	5	0.010	133.87	112.58	142.43	21.29	-3.56	-8.56	131.12
SCA	AS-83	5/19/2022	2440041.23	1392544.28	2	5	0.010	133.59	112.46	142.86	21.13	-4.27	-9.27	130.84

Notes:

UA Unconfined Aquifer

SCA Semi-confined Aquifer

ASP Alaska State Plane Coordinates, Zone 4, NAD 1983-2011 Epoch, in US feet.

TOC Top of PVC well casing, vertical measuring point.

MLLW Mean low low water based on the National Ocean Service Nikiski tidal datum 9455760.

Table 4

Air Sparge Well Flow/Pressure Readings - Nov 22 to Nov 23

Connex Header (UA)		Flow Set Point (Scfm)							
		15	12	12	12	12	Off	15	78
Date/Time	Header Pressure (psig)	AS-23R (psig)	AS-60 (psig)	AS-61 (psig)	AS-62 (psig)	AS-65 (psig)	AS-68 (psig)	AS-69 (psig)	UA Header Flow (scfm)
11/9/22 17:20	92.0	4.3	5.0	6.0	6.0	5.0	3.5	3.8	49
11/16/22 5:00	91.0	4.0	5.0	5.5	6.0	4.5	3.5	3.5	49
11/25/22 13:20	87.0	4.0	5.0	5.5	6.0	4.5	3.5	3.5	49
12/7/22 9:17	78.0	4.3	5.3	5.3	5.8	4.3	3.5	3.5	49
1/2/23 13:20	76.0	6.0	7.0	8.5	8.0	6.8	5.3	6.3	49
1/12/23 16:35	76.0	6.0	8.9	9.0	8.5	6.5	5.5	6.8	55
1/24/23 16:12	76.0	6.3	9.0	9.0	8.3	6.8	5.3	6.8	55
2/9/23 13:32	49.0	6.5	8.5	10.0	8.5	8.8	5.5	7.0	58
2/15/23 11:20	40.0	6.0	7.8	9.0	8.3	8.5	5.0	6.5	58
3/2/23 16:30	40.0	6.3	7.5	8.8	8.5	8.3	5.0	6.8	58
3/14/23 13:25	40.0	6.5	8.3	9.5	8.5	9.0	5.3	6.5	62
4/13/23 12:55	40.0	6.3	9.0	8.5	8.5	8.5	4.5	7.0	68
4/21/23 15:45	40.0	6.5	8.5	8.0	8.0	8.0	4.5	6.5	78
5/12/23 11:07	40.0	6.5	8.5	8.0	8.0	8.0	0.0	6.5	78
6/12/23 14:01	40.0	5.3	7.0	7.5	8.0	8.0	0.0	8.3	78
6/28/23 17:40	40.0	6.5	10.5	11.5	10.0	6.0	0.0	6.3	78
7/5/23 16:50	40.0	5.0	7.0	7.0	7.0	6.8	0.0	8.0	78
7/17/23 9:46	40.0	5.3	6.5	7.5	7.0	6.5	0.0	8.0	78
7/27/23 17:08	40.0	4.5	6.5	6.5	6.5	6.0	0.0	7.3	78
8/9/23 10:42	40.0	5.0	7.0	7.0	7.0	6.5	0.0	8.3	78
8/22/23 14:15	40.0	5.5	6.5	6.5	6.5	6.0	0.0	8.5	78
9/5/23 17:30	40.0	6.5	7.5	7.5	7.5	7.5	0.0	9.5	78
10/3/23 0:00	40.0	6.0	8.0	8.5	8.5	7.5	0.0	9.5	78
10/17/23 16:46	40.0	6.0	7.5	8.0	8.0	7.5	0.0	9.0	78
10/31/23 15:18	40.0	7.0	8.5	9.0	8.5	8.5	0.0	10.0	78

Pond Header (SCA)		Flow Set Point (scfm)								
		15	10	10	15	15	15	Off	80	
Date/Time	Header Pressure (psig)	AS-83 (psig)	AS-82 (psig)	AS-81 (psig)	AS-77 (psig)	AS-76 (psig)	AS-75 (psig)	AS-74 (psig)	SCA Header Flow (scfm)	Combined Flow (scfm)
11/9/22 17:20	90.0	18.0	15.0	14.5	15.0	15.5	17.0	17.5	70	119
11/16/22 5:00	91.0	17.5	14.5	14.5	15.5	15.0	16.5	17.3	70	119
11/25/22 13:26	85.0	16.5	14.0	13.5	14.0	15.0	16.0	16.5	70	119
12/7/22 9:17	76.0	16.5	14.5	13.8	14.3	15.3	16.3	16.8	70	119
1/2/23 13:50	70.0	18.5	17.0	16.0	16.3	17.5	19.0	17.0	70	119
1/12/23 16:38	69.0	18.3	18.0	17.3	17.0	17.3	19.5	18.0	70	125
1/24/23 16:25	69.0	18.0	18.3	17.0	17.0	17.0	19.5	18.0	70	125
2/9/23 13:45	50.0	19.0	18.0	17.0	17.0	18.0	19.5	18.3	70	128
2/15/23 0:00	40.0	18.8	17.0	18.3	16.5	17.5	19.5	18.0	70	128
3/2/23 16:41	40.0	18.8	17.5	18.5	18.3	19.5	19.5	18.3	74	132
3/14/23 13:44	40.0	19.0	18.0	17.0	18.0	19.0	19.3	18.3	76	138
4/13/23 13:11	40.0	16.0	16.0	14.0	17.0	18.0	18.0	19.0	80	148
4/21/23 11:10	40.0	16.0	16.0	14.5	16.5	17.5	18.0	18.5	80	158
5/12/23 15:22	40.0	16.0	16.0	14.5	16.5	17.5	0.0	0.0	69	147
6/12/23 14:48	40.0	16.5	14.0	10.5	15.5	15.5	21.0	0.0	80	158
6/28/23 17:30	40.5	20.5	18.0	14.9	20.3	21.0	22.5	0.0	80	158
7/5/23 16:59	40.0	18.8	17.5	14.5	18.0	18.0	21.0	0.0	80	158
7/17/23 9:58	40.0	18.3	16.5	13.5	16.5	16.5	19.5	0.0	80	158
7/27/23 17:13	40.0	16.5	15.5	12.8	15.5	14.5	19.0	0.0	80	158
8/9/23 10:49	40.0	17.0	15.5	13.0	16.0	16.5	19.5	0.0	80	158
8/22/23 14:30	40.0	16.5	15.5	12.5	15.5	16.0	19.5	0.0	80	158
9/5/23 17:40	40.0	17.5	16.5	14.0	16.5	16.0	20.0	0.0	80	158
10/3/23 0:00	40.0	17.5	16.0	13.5	17.0	16.5	18.5	0.0	80	158
10/17/23 16:15	40.0	19.0	17.5	15.0	17.5	17.0	19.5	0.0	80	158
10/31/23 16:35	40.0	18.0	17.0	15.0	17.0	16.0	22.5	0.0	80	158

Table 5
Baseline and Performance Monitoring Results

Well ID	Sample Date/Time	Purge Time (Min.)	Specific Cond. (µS/cm)	pH (su)	ORP (mV)	Turbidity (NTU)	DO (mg/L)	Temp (C)	NH3-N (Nesslers) (mg/L)	Urea-N (HPLC) (mg/L)	Carbamate-N (HPLC) (mg/L)	Carbonate (HPLC) (mg/L)	NO2-N (HPLC) (mg/L)	NO3-N (HPLC) (mg/L)
MW-08R	6/15/22 12:39	12	3667	--	--	--	0.18	9.5	255	0.5 U	2.86	626	1.49	173
MW-08R	8/15/22 14:04	5	3808	--	--	--	1.06	13.4	240	--	--	--	--	--
MW-08R	9/12/22 17:25	14	4024	--	--	--	0.14	8.4	--	--	--	--	--	--
MW-08R	10/3/22 18:12	15	3860	--	--	--	0.32	9.1	300	1.21	3.62	591	1.46	179
MW-08R	11/18/22 18:51	14	3318	8.64	104	--	0.35	8.1	245	0.78	3.69	467	11.4	209
MW-08R	12/13/22 15:08	14	3559	7.63	171	--	0.29	8.3	205	0.92	0.5 U	400	4.36	205
MW-08R	12/27/22 16:52	14	--	8.06	125	--	0.10	8.2	180	0.5 U	0.5 U	442	4.37	205
MW-08R	1/10/23 13:55	12	3145	7.10	147	--	0.07	8.3	190	0.5 U	0.5 U	458	5.47	219
MW-08R	1/24/23 15:54	15	3396	7.61	142	--	0.08	8.2	200	0.5 U	0.97	527	2.90	207
MW-08R	2/7/23 13:52	17	3835	8.30	138	1	0.10	8.1	205	0.5 U	2.32	461	1.62	211
MW-08R	2/21/23 14:35	15	3555	7.09	152	1	0.19	8.3	195	0.5 U	1.97	454	2.03	209
MW-08R	3/14/23 15:09	27	3389	8.24	94	1	0.01	8.2	205	0.5 U	1.72	479	1.67	203
MW-08R	3/21/23 14:49	17	3567	8.52	131	1	0.01	8.1	220	1.34	0.5 U	496	2.00	176
MW-08R	4/4/23 13:10	14	3498	8.17	170	1	0.01	8.6	205	0.5 U	2.11	510	2.07	176
MW-08R	4/18/23 16:03	16	3412	8.50	119	1	0.01	8.3	235	2.52	2.26	509	1.78	163
MW-08R	5/2/23 15:04	21	3179	7.95	62	1	0.01	8.4	215	0.5 U	0.5 U	414	1.54	159
MW-08R	5/16/23 14:44	21	3474	8.21	63	1	0.17	9.6	200	0.5 U	0.5 U	426	1.85	159
MW-08R	6/6/23 16:05	17	2692	8.36	113	1	0.04	9.7	180	0.5 U	0.5 U	429	2.57	145
MW-08R	6/20/23 14:09	21	3207	8.40	105	1	0.14	10.2	196	0.5 U	0.5 U	116	14.8	29.5
MW-08R	7/11/23 10:22	17	3326	7.69	98	1	0.24	11.1	178	0.5 U	0.5 U	103	34.2	31.8
MW-08R	7/26/23 16:10	15	3197	8.52	67	1	0.23	10.7	202	0.5 U	0.5 U	96	21.9	30.8
MW-08R	8/8/23 13:11	17	3650	8.26	121	1	0.01	11.6	186	0.5 U	0.5 U	93	24.9	30.8
MW-08R	8/22/23 14:02	15	3583	6.94	119	1	0.14	13.0	154	0.5 U	0.5 U	89	45.1	34.3
MW-08R	9/5/23 14:09	17	3687	8.55	82	1	0.05	10.1	172	0.5 U	0.5 U	102	45.0	35.1
MW-08R	10/3/23 15:47	16	3694	8.26	110	1	0.51	10.0	246	0.5 U	0.93	128	27.9	34.6
MW-08R	10/17/23 15:42	18	4153	6.78	153	1	0.54	11.4	182	0.5 U	0.57	97	61.0	42.3
MW-08R	10/31/23 11:11	15	3666	7.09	91	1	0.13	10.2	219	0.91	0.98	114	38.1	42.2
MW-16	6/6/23 15:42	15	2177	6.66	131	1	0.06	11.9	48	0.5 U	0.5 U	307	0.03	150
MW-16	6/20/23 13:41	18	1949	7.00	140	1	0.03	10.0	50	0.5 U	0.5 U	63.5	0.1 U	17.6
MW-16	7/11/23 10:44	16	1834	7.22	117	1	0.01	9.4	47	0.5 U	0.5 U	77.0	0.1 U	16.3
MW-16	7/26/23 16:50	15	2001	7.07	100	1	0.02	10.3	44	0.5 U	0.5 U	65.6	0.1 U	22.0
MW-16	8/8/23 13:51	15	1983	7.10	132	1	0.01	10.0	42	0.5 U	0.5 U	61.0	0.1 U	16.9
MW-16	8/22/23 14:55	15	2037	7.07	116	1	0.01	10.4	46	0.5 U	0.5 U	78.5	0.17	16.2
MW-16	9/5/23 13:10	14	2048	6.92	124	1	0.02	10.1	46	0.5 U	0.5 U	91.6	0.1 U	16.6
MW-16	10/3/23 14:52	19	2297	6.31	97	1	0.04	10.3	42	0.5 U	0.5 U	88.9	0.1 U	16.6
MW-16	10/17/23 14:21	15	2726	6.65	139	1	0.01	9.8	35	0.5 U	0.71	81.6	1.50	29.7
MW-16	10/31/23 11:56	14	2715	6.56	120	1	0.01	9.3	44	0.87	0.5 U	65.1	1.12	40.4
MW-19	6/10/22 13:07	9	1741	--	--	--	0.13	11.1	36	1.6	0.5 U	308	0.25	92.4
MW-19	8/15/22 11:08	9	1571	--	--	--	1.98	15.3	30	--	--	--	--	--
MW-19	9/12/22 14:24	15	1643	--	--	--	0.61	7.9	--	--	--	--	--	--
MW-19	10/7/22 12:38	14	1359	--	--	--	0.33	7.5	58	0.5 U	11.6	192	2.47	135
MW-19	11/18/22 17:14	14	1817	6.19	214	--	2.39	6.3	100	0.55	1.05	147	5.72	153
MW-19	12/13/22 14:24	14	2292	6.49	188	--	0.43	6.4	125	0.5 U	0.5 U	232	6.37	141
MW-19	12/27/22 12:03	15	--	6.33	226	--	0.37	6.4	170	0.5 U	69.7	828	11.5	184
MW-19	1/10/23 10:32	10	2234	6.55	228	--	0.34	6.3	150	0.5 U	0.5 U	373	7.84	159
MW-19	1/24/23 11:38	15	2742	6.46	182	--	0.10	6.4	185	0.5 U	0.5 U	467	14.0	169
MW-19	2/7/23 10:41	15	3713	5.38	214	1	0.55	6.1	195	0.5 U	0.5 U	501	18.2	196
MW-19	2/21/23 11:25	18	2866	6.70	192	1	0.42	6.5	205	0.5 U	1.39	425	22.3	169
MW-19	3/14/23 11:32	17	2242	6.68	234	21	0.39	6.1	105	0.5 U	0.5 U	359	20.0	122
MW-19	3/21/23 9:28	18	2213	6.76	230	1	0.26	6.3	90	0.74	1.79	324	11.2	98.4
MW-19	4/4/23 9:05	16	2053	6.67	208	1	0.01	6.5	60	0.5 U	0.5 U	365	10.6	98.4
MW-19	4/18/23 11:44	20	2274	6.66	241	263	0.01	6.4	60	0.73	0.5 U	456	5.45	95.2
MW-19	5/2/23 11:37	20	918	6.31	78	79	0.11	6.7	20	0.66	0.5 U	228	0.8	33.9
MW-19	5/16/23 11:24	15	1469	6.91	139	343	0.01	8	18	0.5 U	0.5 U	305	2.5	59.9
MW-19	6/6/23 11:10	15	1790	6.60	165	2	0.01	8.1	48	0.5 U	0.5 U	279	8.2	93.1
MW-19	6/20/23 10:09	16	1710	6.73	214	1	0.01	7.6	64	0.59	0.5 U	51.0	13.9	12.9
MW-19	7/10/23 16:19	17	1654	6.88	124	1	0.20	7.6	45	0.5 U	0.5 U	59.2	25.3	12.0
MW-19	7/26/23 11:19	16	1392	6.95	218	1	0.01	7.6	28	0.5 U	0.5 U	49.1	19.1	11.2
MW-19	8/8/23 9:59	17	2349	6.12	213	6	0.20	7.9	31	0.5 U	0.5 U	22.7	23.1	29.0
MW-19	8/22/23 10:11	17	2631	5.22	135	8	2.82	8.3	81	0.5 U	0.5 U	29.7	61.0	28.6
MW-19	9/5/23 10:25	18	2692	6.27	163	4	1.18	8.4	70	0.5 U	0.5 U	24.5	92.2	42.3
MW-19	10/3/23 11:16	20	3451	4.93	138	5	0.51	8.1	158	0.5 U	0.5 U	16.7	68.8	12.6
MW-19	10/17/23 11:11	20	3474	5.19	132	6	1.05	8.2	124	0.80	0.5 U	22.1	45.2	45.2
MW-19	10/31/23 8:04	17	2607	6.11	134	6	1.11	7.5	112	0.5 U	0.5 U	29.7	38.2	41.8
AS-23R	6/10/22 11:18	9	2881	--	--	--	0.01	8.0	500	6.23	95.1	835	2.33	36.6
AS-23R	7/11/22 11:03	21	3630	9.44	133	4	0.01	7.9	345	--	--	--	--	--
AS-23R	7/10/23 11:31	20	1750	8.93	166	6	2.01	8.7	155	0.5 U	1.5	123	17.9	3.6
MW-24	6/15/22 11:15	16	5847	--	--	--	0.18	8.9	455	0.5 U	74.8	1362	5.55	184
MW-24	7/28/22 15:07	9	4070	--	--	--	2.39	7.6	--	--	--	--	--	--
MW-24	8/15/22 16:11	5	6479	--	--	--	6.82	9.6	710	--	--	--	--	--
MW-24	9/12/22 16:14	15	8449	--	--	--	6.01	8.1	--	--	--	--	--	--

Table 5
Baseline and Performance Monitoring Results

Well ID	Sample Date/Time	Purge Time (Min.)	Specific Cond. (µS/cm)	pH (su)	ORP (mV)	Turbidity (NTU)	DO (mg/L)	Temp (C)	NH3-N (Nesslers) (mg/L)	Urea-N (HPLC) (mg/L)	Carbamate-N (HPLC) (mg/L)	Carbonate (HPLC) (mg/L)	NO2-N (HPLC) (mg/L)	NO3-N (HPLC) (mg/L)
MW-24	10/3/22 15:56	14	8831	--	--	--	7.66	7.6	955	11.9	125	1881	19.4	266
MW-24	11/17/22 14:41	15	6905	9.59	45.9	--	5.86	7.2	930	37.3	190	1912	48	217
MW-24	12/14/22 11:20	15	--	9.79	109	--	4.73	6.8	920	21.1	130	1548	106	250
MW-24	12/27/22 13:22	17	--	8.38	122	--	3.37	6.7	910	47.7	224	1828	95	248
MW-24	1/10/23 10:58	20	6977	9.65	103	--	7.10	6.5	910	16.0	234	1718	113	258
MW-24	1/24/23 13:21	15	6331	8.30	80	--	5.26	6.9	950	21.2	280	2397	103	302
MW-24	2/7/23 11:03	14	10446	8.57	190	1	3.74	6.5	1160	367	318	2018	83	316
MW-24	2/21/23 11:44	13	9642	9.49	103	5	4.98	6.6	1180	29	349	2142	77	298
MW-24	3/14/23 11:54	14	10408	9.60	118	3	7.62	6.4	1	86	416	3243	50	269
MW-24	3/21/23 10:08	14	10720	8.67	115	2	7.67	6.4	1160	85	421	2791	45	246
MW-24	4/4/23 9:28	16	10896	9.56	133	2	8.25	6.6	1230	87	458	3331	48	259
MW-24	4/18/23 12:55	15	11187	9.50	141	2	4.58	6.7	1410	75	428	3156	45	229
MW-24	5/2/23 12:57	20	9919	8.42	59	3	5.22	6.8	1280	70	330	2467	31	211
MW-24	5/16/23 11:45	15	10669	9.60	44	2	9.66	8.3	1160	69	334	2468	27	211
MW-24	6/6/23 11:29	14	7690	9.47	60	28	9.40	8.5	1130	49	287	2164	47	189
MW-24	6/20/23 10:34	18	8841	9.54	78	2	8.83	8.1	1010	19	121	404	46	9.0
MW-24	7/10/23 16:39	16	8842	9.55	51	2	9.18	9	970	16	118	584	262	34
MW-24	7/26/23 11:39	15	7981	9.56	98	2	4.02	7.4	970	16	126	752	42	32
MW-24	8/8/23 10:30	16	9180	9.45	57	2	1.63	9.5	880	9.3	84	556	35	31
MW-24	8/22/23 10:43	25	9767	9.32	64	2	7.70	8.9	1020	0.5 U	99	490	546	39
MW-24	9/5/23 10:48	14	9836	9.25	54	3	8.91	9.5	1090	0.5 U	79	417	946	62
MW-24	10/3/23 11:43	17	8556	8.93	53	2	0.11	8.6	970	11	81	374	604	47
MW-24	10/17/23 11:31	14	9605	9.20	48	2	3.79	8.7	865	12	88	377	839	45
MW-24	10/31/23 8:27	16	9093	9.05	24	3	4.34	8.0	945	15	79	336	918	43
MW-29	6/9/22 15:48	11	2082	--	--	--	0.14	8.8	33	3.9	0.5 U	344	0.1 U	118
MW-29	8/15/22 11:39	4	325	--	--	--	3.11	15.1	87	--	--	--	--	--
MW-29	9/12/22 15:14	14	2425	--	--	--	0.27	7.6	--	--	--	--	--	--
MW-29	10/7/22 12:07	14	1723	--	--	--	0.20	7.8	81	0.5 U	9.5	333	0.1 U	124
MW-29	11/18/22 16:51	15	1992	7.45	139	--	0.42	6.7	82	0.5 U	6.46	205	17.4	147
MW-29	12/13/22 13:57	14	2318	7.25	142	--	2.08	8.2	83	0.5 U	4.42	299	5.9	139
MW-29	12/27/22 11:20	15	--	7.05	199	--	1.51	7.5	78	0.5 U	11.5	826	2.0	142
MW-29	1/10/23 10:14	10	2035	7.13	222	--	0.34	7.4	81	0.5 U	8.04	371	2.4	154
MW-29	1/24/23 12:33	14	2293	7.16	198	--	0.01	6.8	80	0.5 U	3.93	397	1.6	156
MW-29	2/7/23 10:20	15	2814	5.64	208	5	6.86	6.4	87	0.5 U	4.73	336	4.6	159
MW-29	2/21/23 11:02	17	2193	6.25	139	1	2.10	5.9	85	0.5 U	3.73	316	1.5	147
MW-29	3/14/23 11:05	14	2401	6.74	232	1	2.09	6.6	100	0.89	3.67	378	3.9	159
MW-29	3/21/23 9:04	17	2468	6.42	214	5	0.05	6.9	86	2.73	7.41	310	3.3	160
MW-29	4/4/23 8:41	15	2390	6.95	202	37	3.99	7.0	85	0.94	4.21	340	8.8	160
MW-29	4/18/23 11:17	14	2837	7.00	217	1	2.41	6.6	93	0.81	0.5 U	262	8.9	166
MW-29	5/3/23 16:32	19	2926	6.87	141	2	7.42	8.5	92	0.5 U	2.90	266	9.8	172
MW-29	5/16/23 10:33	15	2766	7.17	141	107	5.62	8.0	86	0.5 U	2.93	230	12.2	175
MW-29	6/6/23 11:32	17	7608	9.49	64	68	8.95	8.5	71	0.5 U	1.81	149	1.8	168
MW-29	6/20/23 9:40	21	2514	7.20	195	1	0.02	8.2	77	0.5 U	0.5 U	44	17.7	26.8
MW-29	7/10/23 15:57	16	2048	7.01	103	1	0.16	8.9	53	0.5 U	0.73	52	7.6	21.0
MW-29	7/26/23 10:58	15	2044	6.93	226	1	1.75	8.6	71	0.5 U	0.5 U	44	19.5	23.9
MW-29	8/8/23 9:39	17	2521	6.85	171	1	1.79	9.1	76	0.5 U	0.5 U	38	37.7	24.7
MW-29	8/22/23 9:39	14	1770	6.76	213	1	3.64	10.1	68	0.5 U	0.5 U	27	6.3	19.3
MW-29	9/5/23 10:01	16	1785	6.80	133	6	6.64	9.9	91	0.5 U	0.55	45	24.4	25.7
MW-29	10/3/23 10:49	17	2249	6.58	89	1	0.68	9.3	106	0.70	1.19	63	66.8	26.2
MW-29	10/17/23 10:46	21	2249	6.39	121	1	3.24	10.5	79	0.5 U	0.5 U	30	17.1	26.4
MW-29	10/31/23 7:24	18	1949	6.73	152	1	4.70	8.9	77	0.5 U	0.72	23	20.6	30.3
MW-32	6/17/22 11:47	13	2915	--	--	--	0.07	9.7	295	0.5 U	2.6	906	0.53	61.7
MW-32	7/28/22 15:34	11	2974	--	--	--	0.28	6.4	--	--	--	--	--	--
MW-32	8/15/22 13:40	11	3377	--	--	--	0.25	9.8	395	--	--	--	--	--
MW-32	9/12/22 17:52	14	3784	--	--	--	0.07	8.7	--	--	--	--	--	--
MW-32	10/3/22 18:38	14	3523	--	--	--	0.08	8.9	425	0.5 U	24.2	979	2.7	45.6
MW-32	11/18/22 18:30	15	3230	9.39	38.3	--	0.07	8.2	420	0.97	6.06	1028	2.3	49.5
MW-32	12/13/22 14:48	14	3896	9.37	72.5	--	0.15	9	500	1.96	0.5 U	1067	2.8	52.7
MW-32	12/27/22 17:11	14	--	8.66	48.0	--	0.01	8.2	430	1.58	0.5 U	1086	2.4	47.8
MW-32	1/10/23 13:37	14	3533	9.33	20.9	--	0.02	8.6	420	0.5 U	23.0	1191	2.2	47.3
MW-32	1/24/23 16:14	15	4153	8.47	74.7	--	0.01	8.7	425	2.33	0.5 U	1163	1.9	46.4
MW-32	2/7/23 14:11	15	5152	9.10	84.0	3	0.02	8.9	455	0.5 U	0.5 U	1182	1.6	53.7
MW-32	2/21/23 14:58	18	4437	9.04	68.0	2	0.01	8.3	435	0.5 U	0.5 U	1233	1.3	46.1
MW-32	3/14/23 15:30	16	4154	8.25	60.9	4	0.07	8.0	420	0.5 U	3.68	1074	1.2	43.3
MW-32	3/21/23 15:41	15	4566	9.00	120.7	3	0.01	8.5	410	2.50	0.5 U	1108	1.2	46.5
MW-32	4/4/23 13:31	16	4538	8.93	150.6	4	0.01	8.5	395	1.95	0.5 U	1069	1.4	42.5
MW-32	4/18/23 15:42	14	4741	8.93	103.2	2	0.01	8.4	255	6.98	4.84	1047	7.7	53.2
MW-32	5/2/23 15:59	15	4886	8.46	63.1	2	0.05	9.0	470	0.5 U	0.5 U	879	57.1	51.7
MW-32	5/16/23 15:37	15	5608	8.83	61.9	2	0.20	10.7	445	0.5 U	0.5 U	654	0.1 U	52.1
MW-32	6/6/23 16:25	16	4261	8.86	29.6	2	0.20	11.3	430	0.5 U	0.5 U	486	0.1 U	53.9
MW-32	6/20/23 14:35	20	5069	8.92	29.3	3	0.22	11.6	405	0.5 U	0.5 U	94	146	9.7

Table 5
Baseline and Performance Monitoring Results

Well ID	Sample Date/Time	Purge Time (Min.)	Specific Cond. (µS/cm)	pH (su)	ORP (mV)	Turbidity (NTU)	DO (mg/L)	Temp (C)	NH3-N (Nesslers) (mg/L)	Urea-N (HPLC) (mg/L)	Carbamate-N (HPLC) (mg/L)	Carbonate (HPLC) (mg/L)	NO2-N (HPLC) (mg/L)	NO3-N (HPLC) (mg/L)
MW-32	7/11/23 9:58	17	4851	9.15	6.1	3	0.26	10.9	390	0.5 U	0.5 U	65	155	9.0
MW-32	7/26/23 16:30	16	4464	9.07	24.7	2	0.21	11.9	380	0.5 U	0.5 U	51	103	9.3
MW-32	8/8/23 13:31	16	4981	9.01	58.7	2	0.16	12.8	335	0.5 U	0.5 U	42	169	9.5
MW-32	8/22/23 14:24	16	4815	9.00	45.4	3	0.13	12.7	335	0.5 U	0.5 U	53	199	8.8
MW-32	9/5/23 13:46	28	4652	9.00	-10.7	3	0.10	13.0	430	0.5 U	0.5 U	62	765	11
MW-32	10/3/23 16:09	16	3931	8.49	37.2	3	0.17	10.8	320	0.5 U	0.5 U	45	589	8.2
MW-32	10/17/23 16:21	22	4454	8.96	-4.2	3	0.14	12.1	290	3.55	0.5 U	87	128	9.2
MW-32	10/31/23 11:34	14	3701	8.78	-9.9	2	0.12	11.1	285	1.66	1.17	33	617	8.4
MW-33	6/17/22 12:28	9	1040	--	--	--	0.02	7.4	85	0.5 U	0.5 U	297	0.1 U	0.1 U
MW-33	8/15/22 15:13	7	1542	--	--	--	0.30	10.3	115	--	--	--	--	--
MW-33	9/13/22 13:36	15	1436	--	--	--	0.12	8.7	--	--	--	--	--	--
MW-33	10/6/22 17:25	15	1266	--	--	--	0.09	8.3	125	2.17	0.5 U	393	0.1 U	17.0
MW-33	11/18/22 17:39	14	1337	9.19	89.0	--	0.01	6.2	131	1.66	9.67	422	0.1 U	17.9
MW-33	12/13/22 15:33	14	1502	8.81	96.2	--	0.07	6.7	122	0.66	1.92	415	0.1 U	16.4
MW-33	12/27/22 17:50	9	--	8.74	81.7	--	0.01	6.9	72	0.88	0.5 U	363	0.1 U	9.5
MW-33	1/10/23 14:49	13	1181	9.29	83.3	--	0.01	6.5	79	0.86	0.5 U	399	0.1 U	14.7
MW-33	1/24/23 16:59	14	1093	8.07	43.1	--	0.01	7.4	73	0.5 U	0.5 U	376	0.1 U	9.2
MW-33	2/7/23 15:12	23	1452	9.23	115	1	0.01	6.5	97	0.5 U	0.5 U	413	0.1 U	12.6
MW-33	2/21/23 16:00	15	1398	9.05	105	1	0.01	6.9	103	0.5 U	0.5 U	388	0.1 U	12.3
MW-33	3/14/23 16:13	14	1431	9.17	75.5	1	0.01	7.5	1240	0.5 U	0.5 U	408	0.1 U	13.5
MW-33	3/21/23 16:42	15	1286	8.98	124	1	0.01	7.0	76	0.69	0.5 U	364	0.1 U	8.8
MW-33	4/4/23 14:15	18	1497	9.07	174	1	0.01	6.7	98	0.77	0.5 U	438	0.1 U	11.7
MW-33	4/18/23 16:50	14	1365	9.05	107.7	1	0.01	6.3	85	0.64	0.91	369	0.1 U	8.4
MW-33	5/2/23 17:02	21	1431	9.07	53.6	1	0.01	6.7	213	3.62	0.5 U	348	0.1 U	11.9
MW-33	5/16/23 16:31	18	1530	9.08	55.7	1	0.01	8.9	98	1.61	0.5 U	352	0.1 U	11.4
MW-33	6/6/23 17:07	16	1355	9.01	42.7	1	0.03	10.2	115	0.5 U	0.5 U	357	0.1 U	14.4
MW-33	6/20/23 15:55	19	1674	8.99	68.1	1	0.01	9.4	123	0.5 U	0.5 U	90	0.23	2.6
MW-33	7/11/23 11:29	19	2079	9.10	37.9	1	0.09	10.3	162	0.5 U	0.5 U	107	0.33	3.4
MW-33	7/26/23 17:33	17	2008	9.02	51.6	1	0.02	9.7	161	0.5 U	0.5 U	111	0.46	3.2
MW-33	8/8/23 14:36	18	2168	8.97	71.4	1	0.09	10.6	151	0.5 U	0.5 U	128	0.86	2.6
MW-33	8/22/23 16:30	17	2705	8.91	123	1	0.08	11.1	199	0.5 U	0.5 U	99	3.3	3.4
MW-33	9/5/23 15:02	17	2381	8.93	44	1	0.03	10.0	191	0.5 U	0.5 U	126	6.7	3.0
MW-33	10/3/23 17:08	18	2692	8.57	76	1	0.07	9.8	208	0.5 U	0.5 U	121	14.4	3.7
MW-33	10/17/23 16:49	18	2439	8.90	-6	1	0.01	9.1	161	0.5 U	1.63	106	15.8	3.0
MW-33	10/31/23 13:38	22	2104	8.72	50	1	0.05	9.9	152	0.93	0.5 U	104	22.8	2.9
MW-35R	8/3/22 13:47	6	3168	5.35	--	--	--	15.2	61	2.8	0.5 U	45	3.20	262
MW-35R	8/3/23 0:00	5	--	5.68	--	--	--	13.2	117	1.5	0.5 U	29	17.1	22
MW-36R	8/3/22 15:04	14	1877	7.00	--	--	--	15.3	0.22	6.8	0.5 U	64	0.1 U	134
MW-36R	8/3/23 0:00	5	--	5.55	--	--	--	11.6	5.9	0.5 U	0.5 U	44	0.1 U	8.4
MW-37R	8/3/22 15:35	20	1430	6.87	--	--	--	15.2	0.50	5.4	0.5 U	127	0.44	96.0
MW-37R	8/3/23 0:00	5	--	--	--	--	--	14.2	34	0.5 U	0.5 U	42	3.47	24.4
MW-38R	8/3/22 16:40	20	4230	6.99	--	--	--	12.7	0.92	3.8	0.5 U	135	0.1 U	233
MW-38R	8/3/23 0:00	5	--	7.35	--	--	--	11.9	1.66	0.5 U	0.5 U	65	1.2	16
MW-43R	8/3/22 17:18	5	2628	6.70	--	--	--	12.0	0.31	3.9	0.5 U	195	0.1 U	32.5
MW-43R	8/3/23 0:00	5	--	6.99	--	--	--	12.3	1.80	0.5 U	0.5 U	26	0.1 U	1.1
MW-46	6/16/22 13:46	9	590	--	--	--	0.02	7.2	23.0	2.3	78.7	606	3.4	78
MW-46	8/15/22 12:36	4	600	--	--	--	1.07	10.3	12.6	--	--	--	--	--
MW-46	9/12/22 15:47	14	628	--	--	--	0.11	8.3	--	--	--	--	--	--
MW-46	10/8/22 17:30	15	489	--	--	--	0.16	7.1	12.0	0.5 U	0.5 U	224	0.1 U	0.1 U
MW-46	11/17/22 14:17	15	498	7.72	-20	--	0.13	7.7	11.6	1.07	2.90	273	0.1 U	0.11
MW-46	12/14/22 13:05	16	446	8.07	-21.8	--	0.01	7.0	11.1	0.91	0.5 U	239	0.1 U	0.1 U
MW-46	12/27/22 13:44	15	--	7.70	-11.1	--	0.03	7.1	11.6	1.51	0.5 U	248	0.1 U	0.1 U
MW-46	1/10/23 11:13	10	501	7.77	17.6	--	0.06	7.1	11.3	0.5 U	0.5 U	245	0.1 U	0.1 U
MW-46	1/24/23 13:39	14	572	7.18	42.8	--	0.01	6.9	10.4	0.5 U	0.5 U	259	0.1 U	0.1 U
MW-46	2/7/23 11:22	15	672	7.69	37.1	1	0.01	6.6	11.4	0.5 U	0.5 U	256	0.1 U	0.1 U
MW-46	2/21/23 12:02	14	595	7.67	44.3	1	0.02	7.2	11.3	0.5 U	1.17	279	0.1 U	0.1 U
MW-46	3/14/23 13:02	16	595	7.56	57.1	1	0.01	6.5	11.0	0.5 U	0.5 U	243	0.1 U	0.1 U
MW-46	3/14/23 13:02	16	595	7.56	57.1	1	0.01	6.5	10.8	0.5 U	0.5 U	238	0.1 U	0.1 U
MW-46	4/4/23 10:13	18	648	7.38	137.3	1	0.01	6.9	10.7	0.5 U	0.72	243	0.1 U	0.1 U
MW-46	4/18/23 13:19	19	670	7.63	55.6	1	0.01	7.6	10.8	0.51	0.5 U	244	0.1 U	0.1 U
MW-46	5/2/23 13:14	14	624	7.52	-79.1	1	0.01	7.0	10.8	0.5 U	0.5 U	215	0.1 U	0.1 U
MW-46	5/16/23 12:05	15	650	7.65	-90.8	6	0.01	8.1	9.9	0.5 U	0.5 U	213	0.1 U	0.1 U
MW-46	6/6/23 11:51	15	506	7.45	-90.4	1	0.01	8.8	9.8	0.5 U	0.5 U	219	0.1 U	0.09
MW-46	6/20/23 10:59	18	590	7.57	-100.3	1	0.01	8.4	10.2	0.5 U	0.5 U	54.3	0.1 U	0.09
MW-46	7/10/23 16:59	17	588	7.70	-97.3	1	0.01	9.1	8.9	0.5 U	0.5 U	60.9	0.1 U	0.1 U
MW-46	7/26/23 11:56	14	562	7.63	-99.9	1	0.01	8.5	10.1	0.5 U	0.5 U	63.5	0.1 U	0.1 U
MW-46	8/8/23 10:58	24	638	7.56	-89.8	1	0.01	8.8	10.0	0.5 U	0.5 U	69.3	0.1 U	0.1 U
MW-46	8/22/23 11:08	20	639	7.60	-103.5	1	0.01	9.1	10.7	0.5 U	0.5 U	68.8	0.1 U	0.1 U

Table 5
Baseline and Performance Monitoring Results

Well ID	Sample Date/Time	Purge Time (Min.)	Specific Cond. (µS/cm)	pH (su)	ORP (mV)	Turbidity (NTU)	DO (mg/L)	Temp (C)	NH3-N (Nesslers) (mg/L)	Urea-N (HPLC) (mg/L)	Carbamate-N (HPLC) (mg/L)	Carbonate (HPLC) (mg/L)	NO2-N (HPLC) (mg/L)	NO3-N (HPLC) (mg/L)
MW-48-140	6/16/22 15:06	46	865	--	--	--	0.01	8.2	59	0.5 U	0.5 U	228	0.1 U	0.1 U
MW-48-140	8/15/22 15:52	7	528	--	--	--	0.24	10.2	2.4	--	--	--	--	--
MW-48-140	9/13/22 11:35	16	574	--	--	--	0.10	7.6	--	--	--	--	--	--
MW-48-140	10/3/22 17:37	16	551	--	--	--	0.08	7.3	2.8	0.45	0.5 U	205	0.1 U	0.1 U
MW-48-140	11/18/22 13:23	14	472	7.98	-134	--	0.05	5.8	3.0	1.63	0.5 U	208	0.1 U	0.1 U
MW-48-140	12/14/22 13:58	14	405	7.84	-80	--	0.30	6.4	2.9	0.73	0.5 U	207	0.1 U	0.1 U
MW-48-140	12/27/22 15:04	15	--	7.51	-68	--	0.01	6.4	2.5	1.55	0.5 U	218	0.1 U	0.1 U
MW-48-140	1/10/23 11:50	10	457	7.56	-69	--	0.01	5.7	2.7	0.5 U	0.5 U	223	0.1 U	0.1 U
MW-48-140	1/24/23 14:21	15	527	6.84	79	--	0.08	6.4	2.2	0.5 U	0.5 U	254	0.1 U	0.1 U
MW-48-140	2/7/23 13:06	16	623	5.72	178	1	0.01	5.9	2.3	0.5 U	0.5 U	243	0.1 U	0.1 U
MW-48-140	2/21/23 13:25	16	556	7.58	-62	1	0.01	6.3	2.7	0.5 U	0.5 U	229	0.1 U	0.1 U
MW-48-140	3/14/23 13:46	17	558	7.47	-61	1	0.01	5.9	2.5	0.5 U	0.5 U	221	0.1 U	0.1 U
MW-48-140	3/14/23 13:46	17	558	7.47	-61	1	0.01	5.9	2.3	0.5 U	1.54	216	0.1 U	0.1 U
MW-48-140	4/4/23 10:35	15	609	7.29	-30	1	0.01	6.1	2.6	0.5 U	0.5 U	234	0.1 U	0.1 U
MW-48-140	4/18/23 14:10	23	626	7.51	-56	1	0.01	6.8	2.2	0.5 U	0.5 U	229	0.1 U	0.1 U
MW-48-140	5/2/23 13:36	15	579	7.35	-134	1	0.01	6.4	2.6	0.5 U	0.5 U	194	0.1 U	0.1 U
MW-48-140	5/16/23 13:21	16	611	7.57	-151	5	0.01	7.5	2.4	0.5 U	0.5 U	193	0.1 U	0.1 U
MW-48-140	6/14/23 11:29	20	561	7.64	-151.2	3	0.01	8.9	2.5	0.5 U	0.5 U	58	0.1 U	0.1 U
MW-48-120	6/14/23 10:54	21	952	8.93	-94.4	208	2.27	11.4	48	0.5 U	0.59	91	0.93	0.46
MW-48-120	9/5/23 16:29	35	981	7.47	87.4	38	5.9	11.2	45	0.5 U	0.5 U	82	4.61	2.28
MW-48-120	10/3/23 14:00	17	867	7.36	75.6	2	2.4	9.6	45	0.5 U	0.5 U	68	10.0	0.64
MW-48-120	10/17/23 13:22	19	888	7.67	40.8	1	0.92	10.7	37	0.5 U	0.5 U	67	9.4	0.59
MW-48-120	10/31/23 10:11	15	864	8.14	-18.3	1	0.63	9.1	44	0.5 U	0.5 U	80	6.9	0.1 U
AS-60	6/9/22 16:24	12	1544	8.78	134	4	0.02	8.0	93	0.5 U	32.3	388	0.15	54.7
AS-60	7/11/22 10:17	10	1565	8.88	174	2	0.10	8.6	125	4.63	0.5 U	359	0.1 U	42.2
AS-60	7/10/23 10:54	22	896	8.16	207	5	2.09	14.5	38	0.5 U	0.5 U	72	3.64	0.8
AS-61	6/10/22 11:57	9	893	7.19	220	1	0.04	8.3	255	0.5 U	0.5 U	244	0.1 U	15.6
AS-61	7/11/22 11:40	17	870	7.40	205	3	0.13	10.6	550	13.7	121	1110	5.37	71.9
AS-61	7/10/23 13:12	24	2523	7.24	204	8	12.88	9.1	4.4	0.5 U	0.5 U	9	5.48	33.8
AS-62	7/11/22 14:06	10	1329	7.36	205	1	0.04	8.4	27	0.5 U	0.5 U	306	0.1 U	40.7
AS-62	7/19/22 14:22	18	1160	--	--	--	0.16	10.2	26	9.80	0.5 U	257	0.1 U	41.4
AS-62	7/10/23 14:59	21	2355	7.34	99.7	4	0.56	10.9	24	0.5 U	0.5 U	46	378	6.4
MW-63	7/11/22 14:49	15	780	6.77	223	4	0.02	8.4	13.0	0.5 U	0.5 U	268	0.1 U	9.82
MW-63	6/14/23 16:57	18	667	6.69	110	3	2.79	9.2	4.3	0.5 U	0.5 U	45	3.22	1.51
MW-64	7/11/22 15:22	9	790	7.28	219	2	0.01	7.6	24	0.5 U	0.5 U	299	0.1 U	2.00
MW-64	6/14/23 17:26	17	854	7.43	68	4	0.09	9.4	16	0.5 U	0.5 U	76	0.1 U	0.1 U
AS-65	7/11/22 13:30	10	3083	9.61	114	1	0.05	8.2	540	19.8	0.5 U	111	0.85	35.2
AS-65	7/10/23 14:27	26	6018	9.57	94	5	8.01	10.6	710	20.8	86.6	530	14.1	16.1
MW-66	7/11/22 13:01	11	4276	8.93	159	1	0.05	8.3	420	11.2	0.5 U	933	11	181
MW-66	8/15/22 12:10	8	4006	--	--	--	0.36	11.1	375	--	--	--	--	--
MW-66	9/12/22 16:42	14	4768	--	--	--	0.10	8.4	--	--	--	--	--	--
MW-66	10/3/22 15:26	14	4477	--	--	--	0.16	7.9	430	0.63	19.4	857	8	175
MW-66	11/17/22 15:23	14	4004	9.04	66.2	--	0.11	7.6	425	0.5 U	52.7	1093	19	157
MW-66	12/14/22 13:34	15	3016	9.20	37.4	--	0.01	6.8	405	0.5 U	78.6	1016	13	143
MW-66	12/27/22 14:04	11	--	8.84	53.5	--	0.01	7.0	310	0.5 U	367	769	20	159
MW-66	1/10/23 11:32	9	3653	8.95	78.3	--	0.02	6.8	360	0.5 U	101	1005	27	160
MW-66	1/24/23 14:00	13	4410	7.42	111	--	0.04	7.1	410	0.5 U	110	914	41	167
MW-66	2/7/23 11:44	16	5677	6.59	194	1	0.01	6.7	460	0.5 U	102	893	45	195
MW-66	2/21/23 13:01	14	5422	9.04	148	1	0.01	6.6	500	0.5 U	110	1006	48	182
MW-66	3/14/23 13:24	16	5638	9.06	78.1	1	0.01	6.7	530	0.5 U	119	1242	51	181
MW-66	3/21/23 11:00	14	6003	7.92	217	1	0.01	6.9	545	0.5 U	127	1193	55	175
MW-66	4/4/23 11:46	20	6265	9.12	156	1	0.01	6.8	560	0.5 U	137	1246	70	173
MW-66	4/18/23 13:41	17	6650	9.14	67.4	1	0.01	7.0	335	0.5 U	162	1313	68	177
MW-66	5/2/23 12:01	17	5773	8.79	15.3	1	0.01	7.1	605	0.5 U	111	1109	69	176
MW-66	5/16/23 13:00	21	6306	9.09	-9.6	58	0.01	7.9	575	0.5 U	116	1127	74	163
MW-66	6/6/23 12:54	17	5225	8.91	42.3	1	0.01	8.8	570	0.5 U	132	1369	55	129
MW-66	6/20/23 11:22	16	6008	9.01	-90.3	1	0.01	8.1	540	13.1	56	335	178	22
MW-66	7/10/23 17:20	17	5865	9.14	-81.4	1	0.01	8.7	535	3.60	59	398	140	20
MW-66	7/26/23 14:39	18	5511	9.25	97.1	2	0.01	8.8	540	0.5 U	86	397	128	21
MW-66	8/8/23 11:20	17	6224	9.21	-76.5	1	0.01	8.9	470	0.5 U	84	365	24	22
MW-66	8/22/23 11:32	18	5957	9.25	-79.6	1	0.01	8.7	540	0.5 U	84	409	135	23
MW-66	9/5/23 11:13	18	5560	9.31	40.6	2	0.01	8.8	575	0.5 U	63	368	168	28
MW-66	10/3/23 13:00	16	6167	7.07	124	1	0.01	7.8	620	0.5 U	62	245	361	36
MW-66	10/17/23 11:53	17	6711	8.62	106	1	0.02	8.8	530	0.5 U	58	195	444	40
MW-66	10/31/23 8:56	18	5784	9.13	-8.2	1	0.01	8	555	5.54	43	184	435	38
MW-67	7/12/22 14:57	9	1355	7.31	245	2	0.11	9.3	54	0.5 U	0.5 U	332	0.1 U	27.3

Table 5
Baseline and Performance Monitoring Results

Well ID	Sample Date/Time	Purge Time (Min.)	Specific Cond. (µS/cm)	pH (su)	ORP (mV)	Turbidity (NTU)	DO (mg/L)	Temp (C)	NH3-N (Nesslers) (mg/L)	Urea-N (HPLC) (mg/L)	Carbamate-N (HPLC) (mg/L)	Carbonate (HPLC) (mg/L)	NO2-N (HPLC) (mg/L)	NO3-N (HPLC) (mg/L)
MW-67	6/14/23 16:22	19	1531	7.41	21	18	0.02	9.6	0.41	--	--	--	--	--
AS-68	7/18/22 11:26	40	poor well p	--	--	--	--	--	127	6.30	0.5 U	278	0.1 U	52.6
MW-68	6/26/23 0:00	bailed	poor well p	--	--	--	--	--	117	0.5 U	0.5 U	77	159	6.2
AS-69	7/11/22 15:57	9	4522	9.28	68	1	0.01	8.9	620	0.5 U	9.18	1201	0.1 U	112
AS-69	7/10/23 13:50	24	6054	9.00	136	2	9.54	10.0	460	--	--	--	--	--
MW-70	7/12/22 15:44	14	525	7.73	221	2	0.11	8.0	1.90	0.5 U	0.5 U	204	0.1 U	0.1 U
MW-70	8/15/22 12:57	5	519	--	--	--	0.22	8.2	2.00	--	--	--	--	--
MW-70	9/13/22 10:58	14	566	--	--	--	0.11	9.3	--	--	--	--	--	--
MW-70	10/3/22 16:33	14	546	--	--	--	0.10	8.4	2.00	0.7	0.5 U	197	0.1 U	0.1 U
MW-70	11/17/22 15:54	14	466	8.27	-130	--	0.13	8.1	2.00	1.00	1.55	201	0.1 U	0.1 U
MW-70	12/14/22 14:53	14	421	8.16	-57.8	--	0.01	6.5	2.00	0.74	0.5 U	215	0.1 U	0.1 U
MW-70	12/27/22 16:29	13	--	8.02	6.30	--	0.01	7.1	1.70	1.89	0.5 U	207	0.1 U	0.1 U
MW-70	1/10/23 13:16	19	451	8.18	-9.90	--	0.01	7.1	1.90	0.5 U	0.5 U	216	0.1 U	0.1 U
MW-70	1/24/23 15:01	13	519	7.03	103	--	0.02	7.7	1.81	0.5 U	0.5 U	232	0.1 U	0.1 U
MW-70	2/7/23 12:08	16	614	6.78	186	1	0.01	6.7	1.85	0.5 U	0.5 U	233	0.1 U	0.1 U
MW-70	2/21/23 14:09	14	551	8.00	56.1	1	0.01	6.7	1.83	0.5 U	0.5 U	254	0.1 U	0.1 U
MW-70	3/14/23 14:33	15	549	8.03	32.8	1	0.01	6.5	1.85	0.5 U	0.5 U	210	0.1 U	0.1 U
MW-70	3/21/23 14:25	15	609	8.27	109	1	0.01	7.2	1.85	0.5 U	0.5 U	206	0.1 U	0.1 U
MW-70	4/4/23 11:21	18	598	7.91	130	1	0.01	6.8	1.83	0.72	0.5 U	217	0.1 U	0.1 U
MW-70	4/18/23 15:00	16	621	7.98	41	1	0.01	6.4	1.83	0.79	0.5 U	201	0.1 U	0.1 U
MW-70	5/2/23 14:16	15	571	7.97	-132	1	0.01	7.2	1.95	0.5 U	0.5 U	178	0.1 U	0.1 U
MW-70	5/16/23 14:14	16	604	8.02	-133	1	0.07	10.6	1.90	0.5 U	0.5 U	182	0.1 U	0.1 U
MW-70	6/14/23 15:53	18	548	8.21	-144	4	0.10	8.9	1.74	0.5 U	0.5 U	55	0.1 U	0.1 U
MW-71	7/13/22 10:34	14	3998	9.22	140	8	0.09	9.7	480	6.2	38.2	964	2	166
MW-71	8/15/22 13:16	8	4392	--	--	--	9.98	11.8	435	--	--	--	--	--
MW-71	9/13/22 12:10	20	4565	--	--	--	7.22	9.5	--	--	--	--	--	--
MW-71	10/3/22 17:04	16	3968	--	--	--	9.55	8.8	420	0.52	49.2	776	1.1	151
MW-71	11/18/22 13:53	14	3389	9.46	46.3	--	10.43	8.0	425	0.52	20.2	830	1.3	150
MW-71	12/14/22 14:23	16	3043	9.68	60.1	--	10.70	8.0	470	0.52	21.6	870	0.1	163
MW-71	12/27/22 16:07	14	--	9.42	79.7	--	7.74	7.8	400	0.52	25.4	832	1.4	147
MW-71	1/10/23 12:51	11	3339	9.47	95.0	--	10.26	7.8	405	0.5 U	59.4	786	1.6	151
MW-71	1/24/23 14:42	15	3798	8.82	83.5	--	10.83	8.4	405	0.5 U	52.8	866	1.6	153
MW-71	2/7/23 13:26	14	4442	9.28	95.2	1	10.89	7.9	410	0.5 U	30.9	713	1.8	163
MW-71	2/21/23 13:48	14	4034	9.33	78.1	1	8.65	7.9	410	0.5 U	15.7	748	1.9	160
MW-71	3/14/23 14:08	16	3974	9.31	54.2	1	4.88	7.6	420	0.5 U	14.1	813	4.2	156
MW-71	3/21/23 11:44	14	4269	9.17	69.8	1	3.83	8.2	410	0.5 U	13.7	783	8.8	161
MW-71	4/4/23 10:56	16	4568	9.25	153	2	7.44	7.9	430	0.5 U	15.8	905	13	154
MW-71	4/18/23 14:39	24	4677	9.38	63	1	5.25	7.9	255	0.5 U	41.8	1162	7.2	144
MW-71	5/2/23 13:57	15	4316	9.17	30	2	7.19	8.3	445	0.5 U	5.0	802	13	136
MW-71	5/16/23 13:42	16	4441	9.20	-4	3	4.42	9.3	385	0.5 U	5.6	710	11	149
MW-71	6/6/23 13:18	18	3527	8.92	57	6	7.35	9.6	380	0.5 U	6.1	704	26	130
MW-71	6/20/23 11:54	23	4100	8.96	46	3	6.07	9.5	375	2.88	1.2	197	77	23
MW-71	7/10/23 17:40	16	4099	9.28	20	2	4.84	9.8	380	2.07	2.1	208	30	22
MW-71	7/26/23 14:59	15	3908	9.14	85	2	5.81	10.8	390	0.5 U	3.6	230	28	22
MW-71	8/8/23 11:43	17	4508	9.07	50	2	7.24	11.1	370	3.33	2.9	235	33	20
MW-71	8/22/23 11:54	15	4441	9.07	44	2	7.32	9.9	400	3.95	4.1	251	44	21
MW-71	9/5/23 12:08	14	4423	9.01	62	2	7.15	10.1	460	0.5 U	8.7	303	80	26
MW-71	10/3/23 13:31	18	4519	9.04	79	2	5.69	10.0	485	0.5 U	7.3	262	56	23
MW-71	10/17/23 12:58	19	5006	8.02	72	5	7.09	10.2	420	0.5 U	4.4	256	130	24
MW-71	10/31/23 9:20	14	4627	8.62	47	7	6.85	9.5	440	1.83	4.0	262	206	25
MW-72	7/14/22 11:06	15	2048	7.02	137	2	0.04	8.8	121	1.2	21.5	233	ND(0.1)	155
MW-72	6/14/23 14:42	15	2671	6.94	41	10	0.10	10.7	118	--	--	--	--	--
MW-73	7/13/22 15:24	13	4349	8.82	121	3	0.03	10.1	445	3.8	17.0	1062	0.12	195
MW-73	8/15/22 14:51	6	5173	--	--	--	0.31	12.3	490	--	--	--	--	--
MW-73	9/13/22 13:00	15	5364	--	--	--	0.11	9.9	--	--	--	--	--	--
MW-73	10/6/22 17:54	15	4238	--	--	--	0.05	9.1	500	0.5 U	34.4	1061	0.13	185
MW-73	11/18/22 18:05	15	4071	9.17	45	--	0.72	8.4	410	0.5 U	25.8	915	1.72	168
MW-73	12/13/22 15:59	16	4200	9.18	57	--	0.08	8.5	410	0.5 U	21.6	870	0.10	163
MW-73	12/27/22 17:35	16	--	9.00	59	--	0.01	8.2	350	0.5 U	14.5	827	0.11	146
MW-73	1/10/23 14:11	10	3004	9.39	63	--	0.01	8.3	335	0.5 U	54.3	815	0.19	132
MW-73	1/24/23 16:38	17	3385	9.21	82	--	0.01	8.8	350	0.5 U	51.5	765	0.35	143
MW-73	2/7/23 14:36	17	3733	8.92	118	1	0.01	9.0	330	0.5 U	19.8	694	0.14	125
MW-73	2/21/23 15:23	16	3345	8.27	106	1	0.08	8.3	340	0.5 U	12.9	691	0.11	123
MW-73	3/14/23 15:53	16	3285	9.24	52.1	1	0.01	8.4	325	0.5 U	13.4	655	0.14	133
MW-73	3/21/23 16:04	15	3578	9.21	112	1	0.01	8.5	325	0.5 U	16.3	651	0.12	136
MW-73	4/4/23 13:50	14	3770	9.22	154	1	0.01	8.9	340	0.5 U	14.8	710	0.12	139

Table 5
Baseline and Performance Monitoring Results

Well ID	Sample Date/Time	Purge Time (Min.)	Specific Cond. (µS/cm)	pH (su)	ORP (mV)	Turbidity (NTU)	DO (mg/L)	Temp (C)	NH3-N (Nesslers) (mg/L)	Urea-N (HPLC) (mg/L)	Carbamate-N (HPLC) (mg/L)	Carbonate (HPLC) (mg/L)	NO2-N (HPLC) (mg/L)	NO3-N (HPLC) (mg/L)
MW-73	4/18/23 16:26	15	3705	9.20	82	1	0.01	8.5	190	0.5 U	15.9	654	0.16	139
MW-73	5/2/23 16:34	16	3320	9.21	49	1	0.01	8.8	320	0.5 U	7.0	515	0.54	134
MW-73	5/16/23 16:07	22	3457	9.22	38	1	0.01	10.4	295	0.5 U	6.7	530	0.17	132
MW-73	6/6/23 16:46	17	2785	9.16	29	1	0.01	10.4	320	0.5 U	6.7	538	0.17	119
MW-73	6/20/23 15:00	17	3244	9.15	29	1	0.01	10.5	305	2.45	1.5	141	0.70	21.3
MW-73	7/11/23 11:04	16	3255	9.28	26	1	0.01	10.6	475	1.61	2.1	146	0.86	20.9
MW-73	7/26/23 17:10	16	3225	9.17	33	1	0.01	11.2	315	0.5 U	3.2	179	1.08	21.3
MW-73	8/8/23 14:12	17	3783	9.14	52	1	0.01	11.1	310	2.22	1.8	159	0.90	21.3
MW-73	8/22/23 16:05	17	3880	9.07	119	1	0.01	11.7	345	2.84	0.5 U	203	1.16	22.0
MW-73	9/5/23 14:31	15	3907	9.18	37	1	0.01	10.9	425	0.5 U	4.41	221	0.83	30.0
MW-73	10/3/23 16:41	17	3914	9.23	22	2	0.01	10.3	395	0.5 U	5.61	194	0.92	26.9
MW-73	10/17/23 14:51	15	4232	8.57	65	1	0.01	10.4	365	0.5 U	6.79	200	0.69	27.7
MW-73	10/31/23 13:01	16	3875	7.82	90	1	0.04	10.9	390	1.56	2.59	185	1.12	27.1
AS-74	7/12/22 16:44	12	567	8.11	199	1	0.04	7.7	14	8.37	0.5 U	208	0.1 U	0.1 U
AS-74	6/6/23 14:53	15	506	7.51	6	22	0.25	11.4	9.1	0.5 U	0.5 U	202	0.1 U	0.1 U
MW-74	6/20/23 13:14	18	585	7.58	7	1	0.06	11.5	9.0	0.5 U	0.5 U	39	0.1 U	0.1 U
MW-74	7/11/23 9:35	20	561	7.92	53	1	0.08	11.5	8.6	0.5 U	0.5 U	55	0.1 U	0.1 U
MW-74	7/26/23 15:50	16	544	7.87	35	1	0.01	10.8	8.9	0.5 U	0.5 U	56	0.1 U	0.1 U
MW-74	8/8/23 15:08	19	624	7.77	46	1	0.08	13.0	8.8	0.5 U	0.5 U	65	0.1 U	0.1 U
MW-74	8/22/23 13:37	14	619	7.78	-1	1	0.01	11.3	8.9	0.5 U	0.5 U	65	0.1 U	0.1 U
MW-74	9/5/23 16:51	16	616	7.83	-12	2	0.01	9.8	10	0.5 U	0.5 U	62	0.1 U	0.1 U
MW-74	10/3/23 14:24	16	610	7.65	2	1	0.08	11.5	9.3	0.5 U	0.5 U	54	0.1 U	0.1 U
MW-74	10/17/23 13:52	22	624	7.73	-13	1	0.04	11.4	8.5	0.5 U	0.5 U	53	0.1 U	0.1 U
MW-74	10/31/23 10:47	17	600	7.70	-22	1	0.01	10.8	8.7	0.5 U	0.5 U	59	0.1 U	0.1 U
AS-75	7/13/22 11:17	12	511	7.16	119	1	0.11	8.7	10.0	7.75	0.5 U	248	0.1 U	0.1 U
AS-75	6/6/23 13:43	21	878	8.77	115	8	6.17	9.0	6.3	1.09	0.5 U	202	0.1 U	0.1 U
MW-75	6/28/23 16:37	28	600	7.31	47.4	15	5.51	12.8	3.9	0.5 U	0.5 U	50	0.1 U	0.34
AS-76	7/13/22 13:10	14	833	9.19	83	2	0.06	8.0	100	0.5 U	15.2	326	0.1 U	0.1 U
AS-76	6/28/23 11:45	41	2543	7.29	80	35	6.43	12.4	157	0.5 U	0.5 U	92	78.2	6.80
AS-77	7/13/22 12:25	23	868	8.91	68	2	0.09	9.4	90	5.46	0.5 U	345	0.1 U	0.50
AS-77	6/28/23 13:29	28	1922	8.06	115	24	5.29	13.3	103	0.5 U	0.5 U	69	103	5.0
MW-78	7/14/22 0:00	16	1577	7.29	150	1	0.11	8.2	96	7.40	32.0	446	0.1 U	56
MW-78	6/21/23 13:45	29	1493	7.54	166	8	0.01	8.9	78	0.5 U	0.5 U	65	0.1 U	7.2
MW-79	7/14/22 0:00	18	423	7.29	130	1	0.01	7.3	0.05	6.0	0.5 U	174	0.1 U	0.1 U
MW-79	6/13/23 17:20	28	463	7.58	-135	--	0.03	9.7	0.37	0.5 U	0.5 U	47	0.1 U	0.1 U
MW-80	7/14/22 0:00	16	462	7.30	-1.5	1	0.02	7.7	3.1	4.90	0.5 U	205	0.1 U	0.1 U
MW-80	6/14/23 13:59	18	561.6	7.23	-122	2	0.12	9.7	2.9	0.5 U	0.5 U	53	0.1 U	0.1 U
AS-81	7/14/22 10:21	19	466	7.70	63	1	0.04	7.7	6.5	7.35	0.5 U	210	0.1 U	0.1 U
AS-81	6/28/23 15:58	19	534	7.98	-49	3	0.44	13.4	4.7	0.5 U	0.5 U	43	0.1 U	0.1 U
AS-82	7/13/22 16:20	11	690	8.70	88	1	0.08	8.5	60	7.8	0.5 U	276	0.1 U	0.1 U
AS-82	6/28/23 14:52	27	939	7.54	103	16	4.84	13.1	55	0.5 U	0.5 U	53	2.1	2.3
AS-83	7/13/22 14:42	16	788	8.83	127	1	0.09	9.2	65	0.5 U	0.5 U	326	0.1 U	0.1 U
AS-83	6/28/23 14:11	28	1497	7.82	56	28	5.30	12.9	78	0.5 U	0.5 U	70	78.4	1.7

Table 6

First Order Nitrogen Decay Rates (k) and Projected Plume Life (t_s)

November 2023

				Urea-N		Carbamate-N		Ammonia-N		Nitrite-N		Nitrate-N	
Well ID	**Aquifer**	**Location**	**DO Conditions**	**N decay rate (k)(mg/L)/day**	**3.0 mg/L Plume Life (t_s)(yrs)**	**N decay rate (k)(mg/L)/day**	**3.0 mg/L Plume Life (t_s)(yrs)**	**N decay rate (k)(mg/L)/day**	**3.0 mg/L Plume Life (t_s)(yrs)**	**N decay rate (k)(mg/L)/day**	**1.0 mg/L Plume Life (ts)(yrs)**	**N decay rate (k)(mg/L)/day**	**10 mg/L Plume Life (yrs)**
MW-08R	UA	Central, Lead Ponds	aerobic	0.281	0.01	0.028	0.11	0.006	2.00	0.012	0.59	0.009	0.78
MW-16	UA	Ponds, Sidegradient S	anaerobic	0.000	0.00	0.000	0.00	0.004	2.04	0.069	0.35	0.020	0.35
MW-19	UA	Source, Side gradient N	aerobic	0.200	0.00	0.048	0.00	0.029	0.34	0.021	0.33	0.017	0.25
MW-24	UA	Source, Ground zero	aerobic	0.035	0.12	0.014	0.65	0.004	4.13	0.016	1.17	0.016	0.25
MW-29	UA	Source, Sidegradient S	aerobic	0.085	0.00	0.096	0.00	0.002	3.64	0.042	0.20	0.023	0.13
MW-66	UA	Central, NH3 Tks	anaerobic	0.150	0.01	0.007	0.97	0.004	3.59	0.004	3.59	0.013	0.27
MW-71	UA	Central, NH3 Tks	aerobic	0.108	0.00	0.015	0.06	0.004	3.89	0.004	3.89	0.014	0.18
MW-73	UA	Bluff	anaerobic	0.103	0.00	0.017	0.00	0.007	1.85	0.007	1.85	0.006	0.44
MW-32	SCA	Central, Lead Ponds	aerobic	0.055	0.0	0.052	0.00	0.008	1.62	0.008	1.62	0.048	0.00
MW-33	SCA	Bluff, GE Main	anaerobic	0.126	0.0	0.075	0.00	0.004	2.40	0.004	2.40	0.019	0.00
MW-46	SCA	Source, Ground zero	anaerobic	0.245	0.0	0.065	0.00	0.003	1.05	0.003	1.05	0.047	0.00
MW-48	SCA	Central, NH3 Tks	aerobic	0.000	0.0	0.002	0.00	0.004	1.89	0.004	1.89	0.060	0.00
MW-74	SCA	Central, NH3 Tks	anaerobic	0.016	0.0	0.000	0.00	0.003	1.02	ND	0.00	ND	0.00

Notes:

UA	Unconfined aquifer
SCA	Semi-confined aquifer
ND	The analyte is not detectable.
$k = -Ln[(C_0-C_t)/t]$	Point decay rate constant (mg/L/day)
C_0	Initial plume concentration (mg/L)
C_t	Concentration at elapsed time (mg/L)
t	Elapsed time (days)
$t_s = 365*[-Ln(C_s/C_t)/k]$	Projected nitrogen plume life above cleanup goal (yrs)
C_s	Cleanup goal (mg/L)

Table 7

1 Year Urea- Carbamate- Ammonia-Nitrogen (UCAN) Mass Removal

KNO Biosparge Project

	Unconfined Aquifer						Semi-confined Aquifer				
S. Plume Treatment Zone Characteristics	**MW-24**	**MW-66**	**MW-71**	**MW-08R**	**MW-73**	**Subtotal**	**MW-48**	**MW-32**	**MW-33**	**Subtotal**	**Total S. Plume**
Avg. DO Conc.(mg/L)	5.98	0.02	7.39	0.15	0.05		2.44	0.17	0.03		
1 yr Δ pH (su)	-0.74	-0.07	-1.06	-1.55	-1.35		-0.79	-0.61	-0.47		
Treatment Zone Area (ft^2)	9,852	4,926	2,463	2,463	6,434	26,138	6,434	6,434	6,434	19,302	45,440
Avg. Saturated Thickness of S. Plume (ft.)	16	16	16	16	16		38	38	38		
Groundwater Volume of S. Plume (kL)	2,354,754	1,177,377	588,688	588,688	1,537,798	6,247,306	3,652,271	3,652,271	3,652,271	10,956,813	17,204,119
UCAN Baseline Concentration (mg/L)	1955	605	535	306	538		49	531	225		
UCAN Baseline Mass (Tonnes)	4,604	712	315	180	827	6,638	179	1,939	822	2,940	9,578
t=1 yr.- Δ UCAN Concentration (mg/L)	-787	-396	-99.8	-85	-109		-4.1	-243	-61		
t=1 yr., ΔUCAN Mass (Tonnes)	-1,853	-466	-59	-50	-168	-2,596	-15	-888	-223	-1,125	-3,721
Mass of N Remaining as of 10/31/23 (Tonnes)	2,750	246	256	130	660	4,042	164	1,052	599	1,815	5,857

Figures

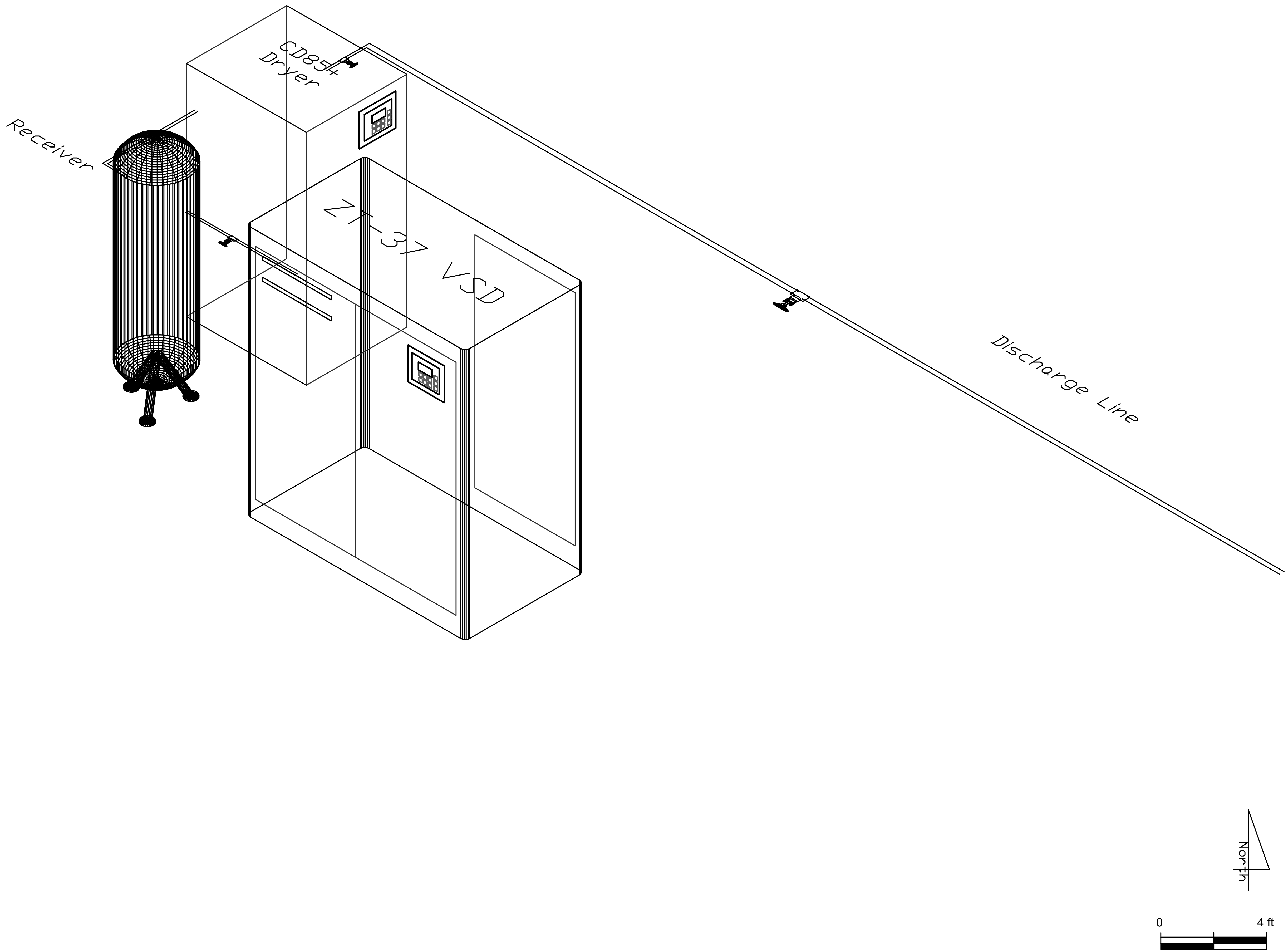


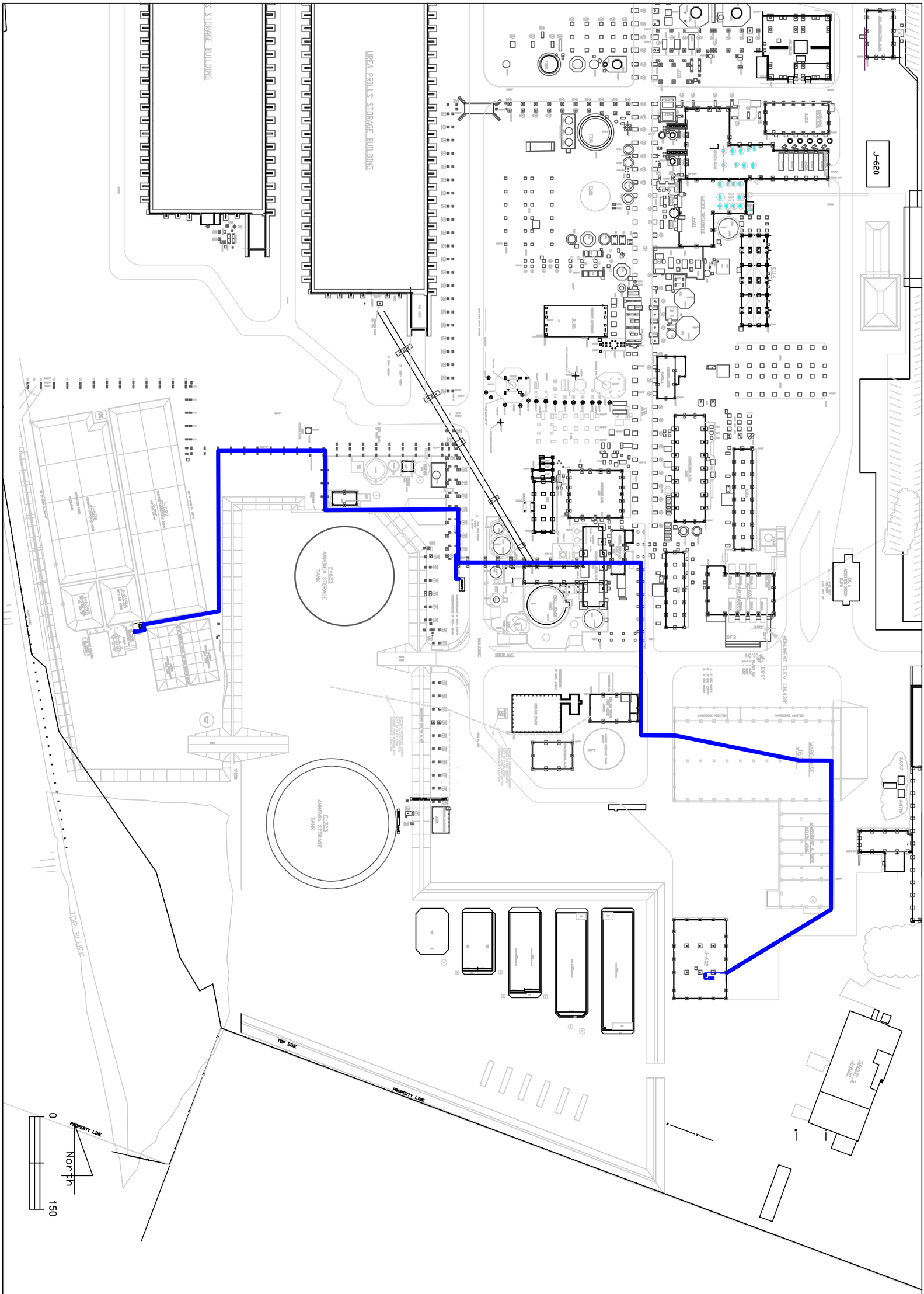
FIGURE 1

Air Supply System Layout
J-602 Building

NUTRIEN U.S. LLC
KENAI NITROGEN OPERATIONS

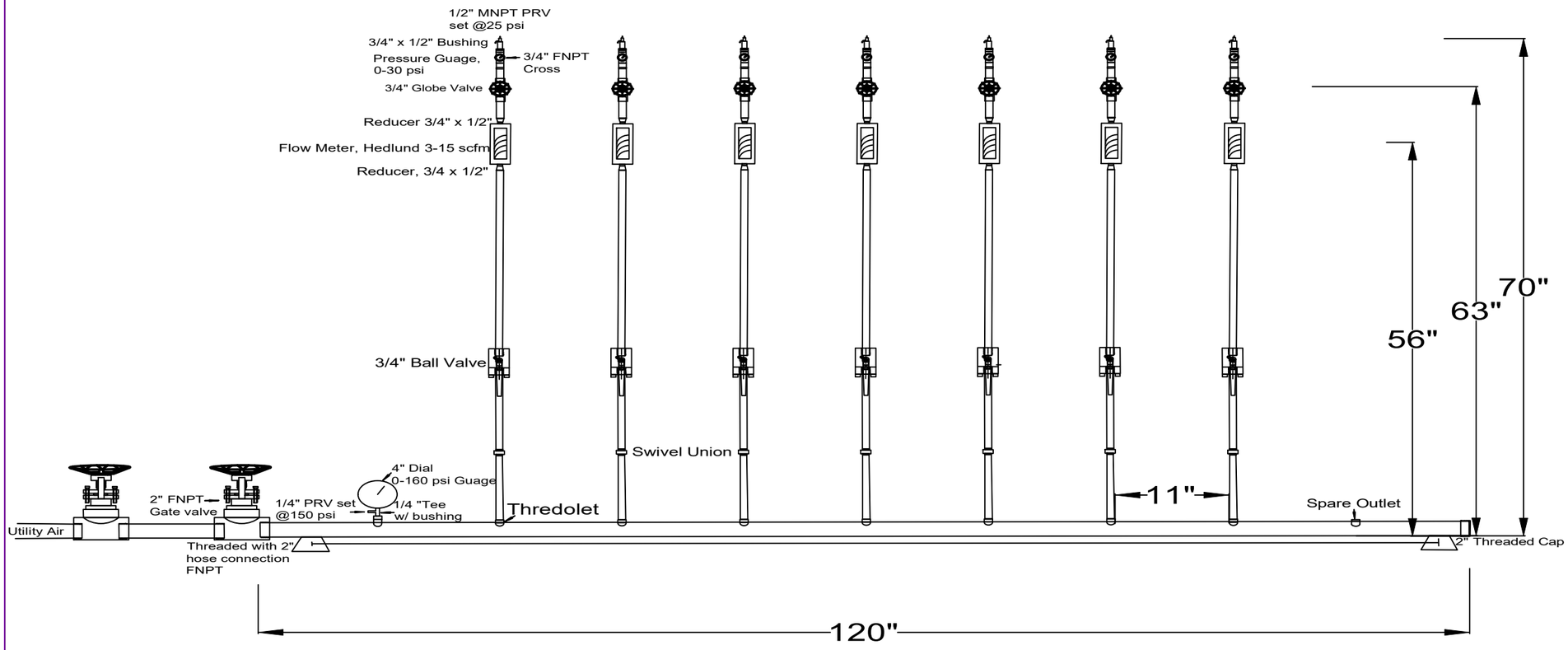
Cook Inlet Environmental, Inc.

DATE	June 2022
CHKD	JW
DRAWN	MVG



DATE June 2022 CHKD JW DRAWN MVG	Cook Inlet Environmental, Inc.	**Air Transmission Line Layout** **Biosparge System** **NUTRIEN U.S. LLC** **KENAI NITROGEN OPERATIONS**	FIGURE **2**

Front View



Side View

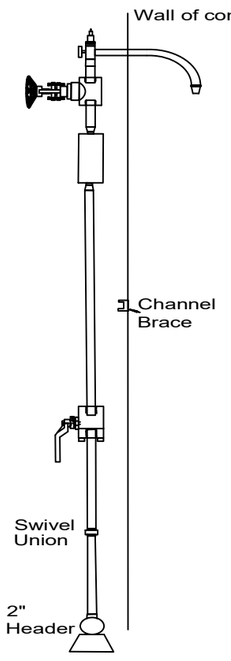


FIGURE 3

Air Header Details
Biosparge Project

Nutrien US LLC
KENAI NITROGEN OPERATIONS PLANT

Cook Inlet Environmental, Inc.

DATE June 2022
CHKD JW
DRAWN LG

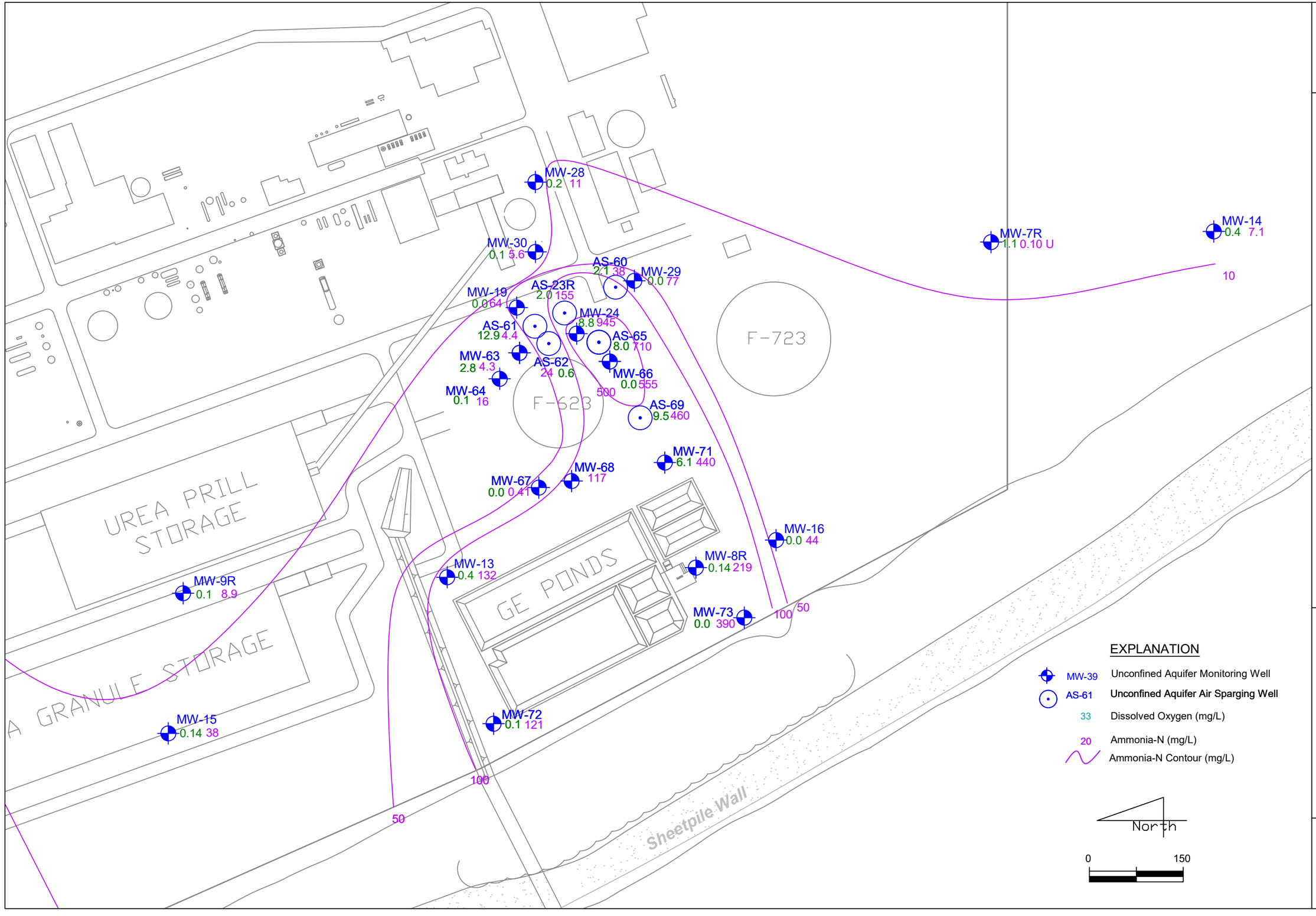


FIGURE 4

Ammonia-N & Dissolved Oxygen Concentrations
Unconfined Aquifer - November 2023

NNUTRIEN U.S. LLC
KENAI NITROGEN OPERATIONS

Cook Inlet Environmental, Inc.

DATE June 2023
CHKD JW
DRAWN LG

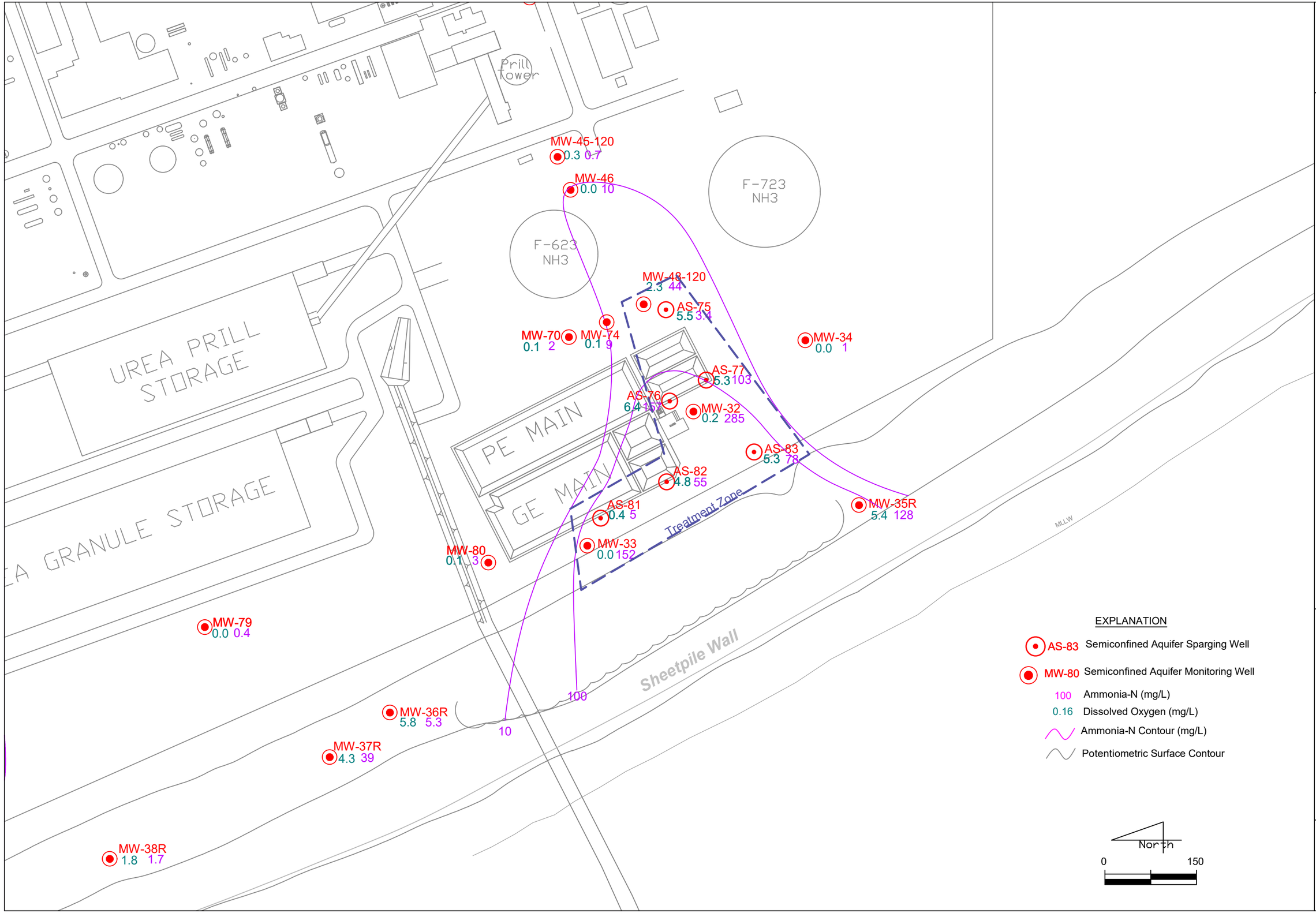


FIGURE 5

Ammonia-N and Dissolved Oxygen Concentrations
Semi Confined Aquifer - November 2023

NUTRIEN U.S. LLC
KENAI NITROGEN OPERATIONS

Cook Inlet Environmental, Inc.

DATE June 2022
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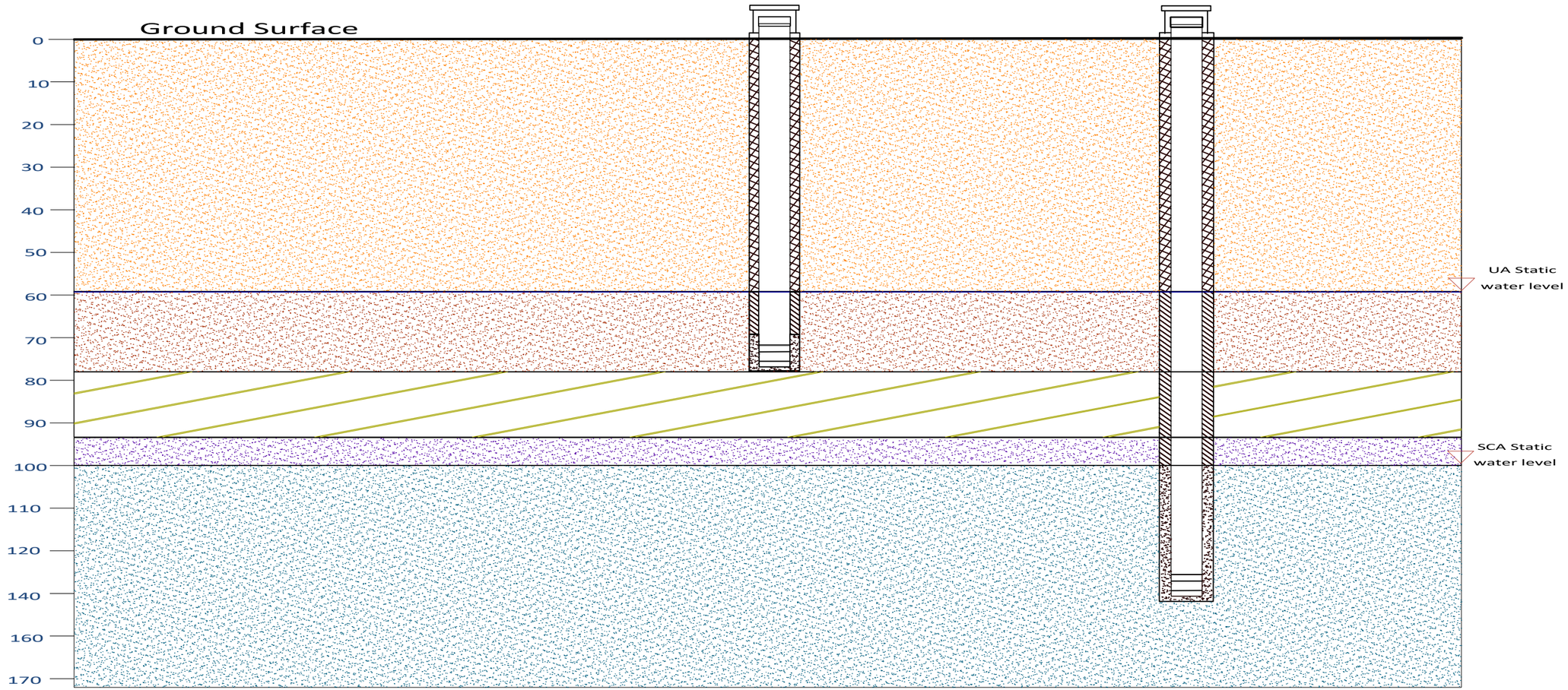
DRAWN MVG



Well Completion

- Volclay Grout
- Hydrated Bentonite (Pel Plug)
- Sand Pack

Lithology

- Vadose Zone (Medium to Coarse Sand and Gravel)
- Unconfined Aquifer (Medium to Course Sand)
- Main Aquitard (Clay)
- SCA Unsaturated (Fine Sand)
- SCA Saturate (Fine Sand w/ Silt)

FIGURE 6

Well Construction Details
Biosparge Project

NUTRIEN US LLC
KENAI NITROGEN OPERATIONS PLANT

Cook Inlet Environmental, Inc.

DATE June 2022
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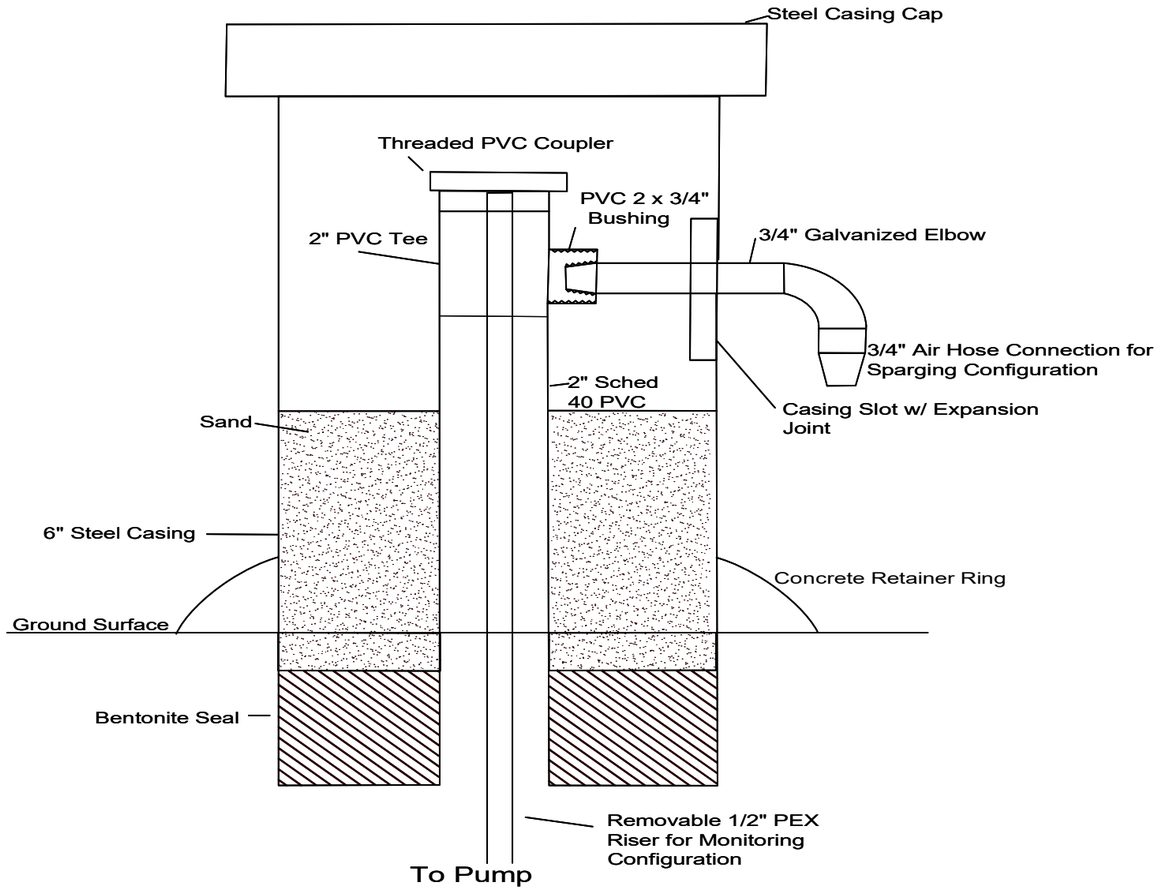
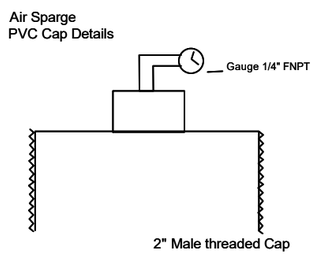
DRAWN LG

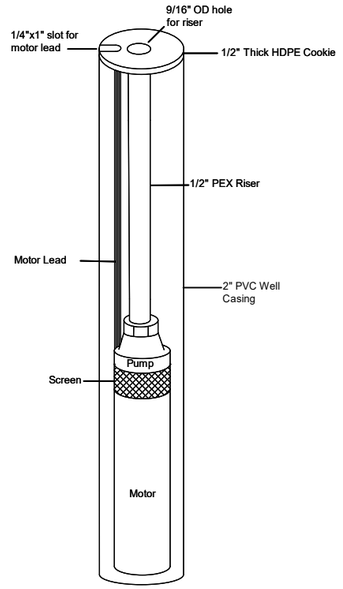
Muli-use Sparge/Monitoring Well Surface Finish:



Sparging Cap:



Pump Installation Detail



Monitoring Cap:

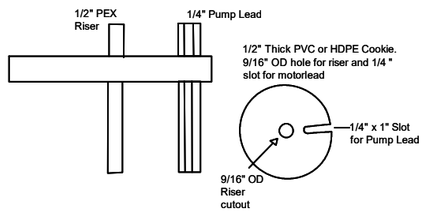


FIGURE 7

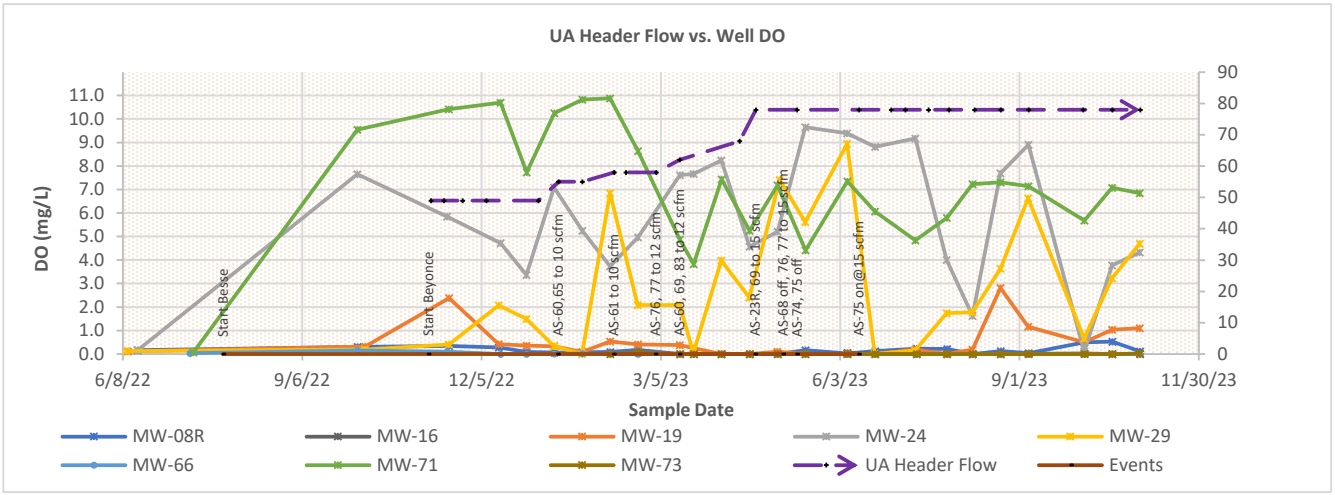
Well Equipment & Surface Finish Details
Biosparge Project

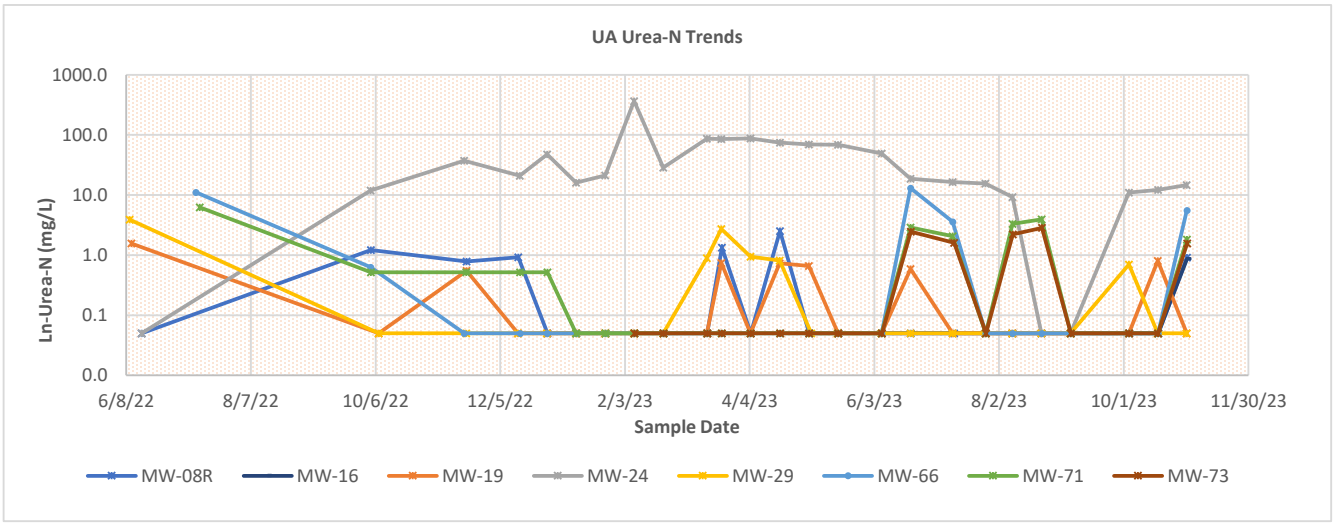
Nutrien US LLC
KENAI NITROGEN OPERATIONS PLANT

Cook Inlet Environmental, Inc.

DATE June 2022
CHKD JW
DRAWN LG

Figure 8 - UA Time Series Trends





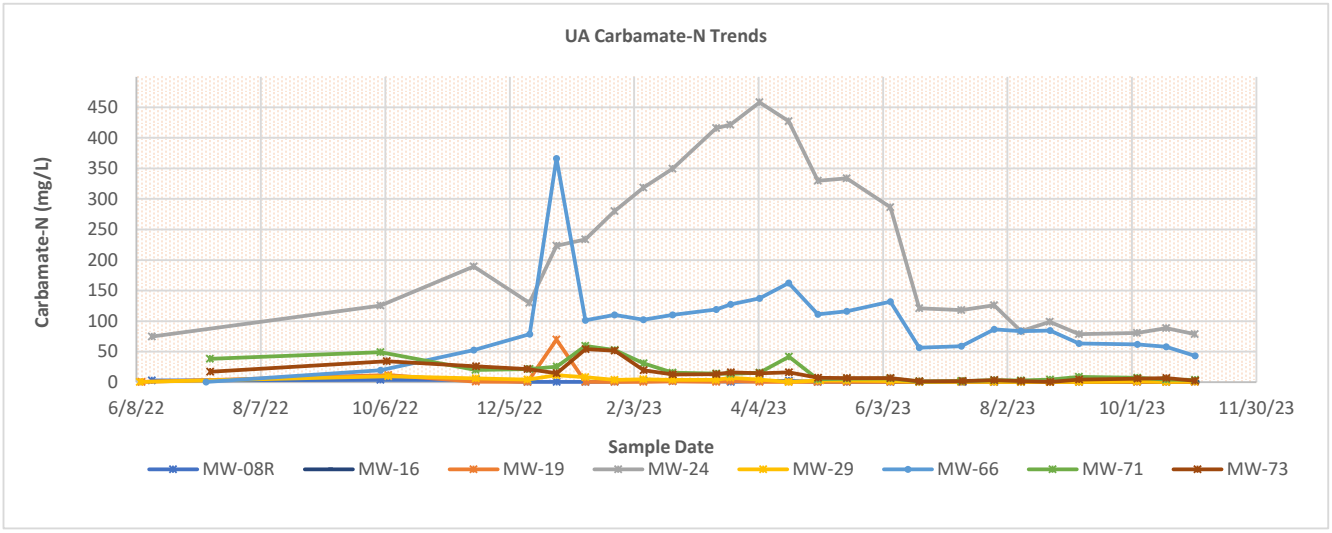
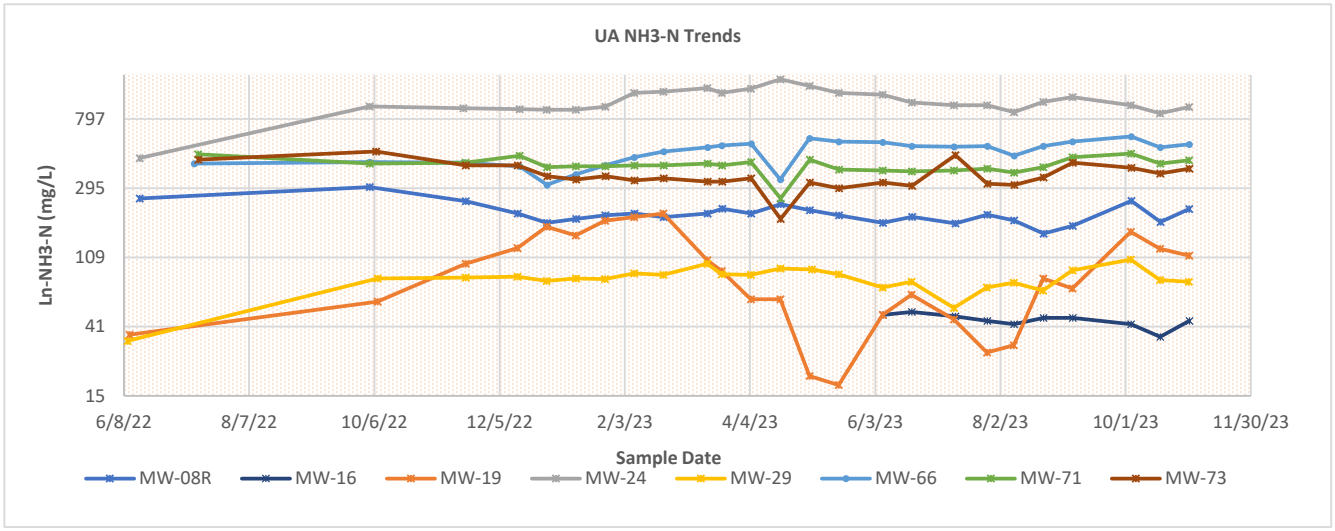
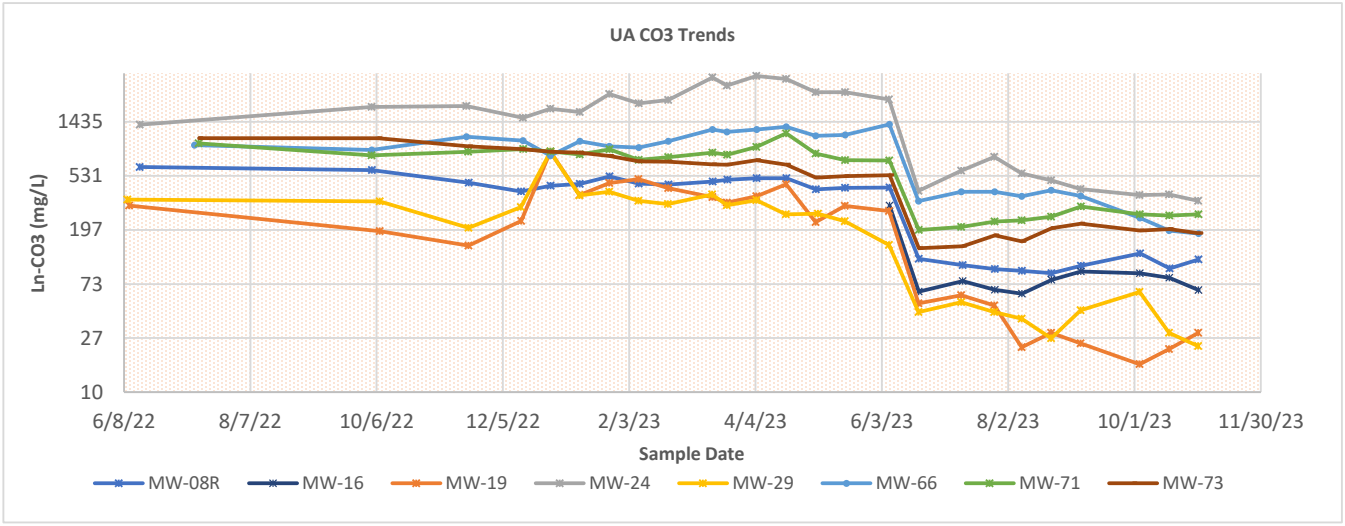


Figure 8 - UA Time Series Trends





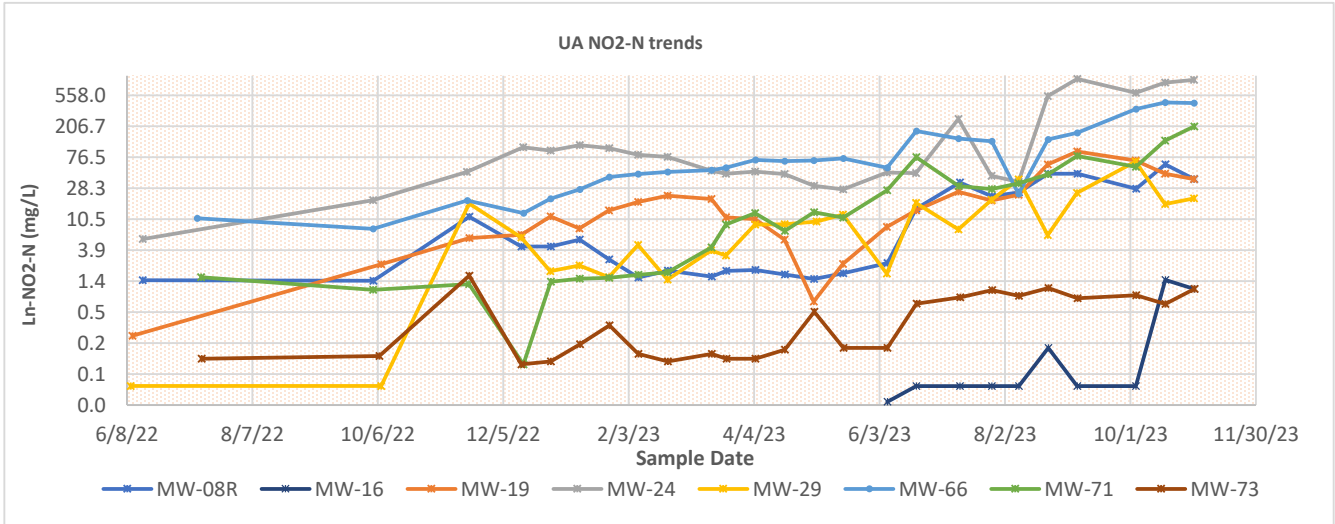
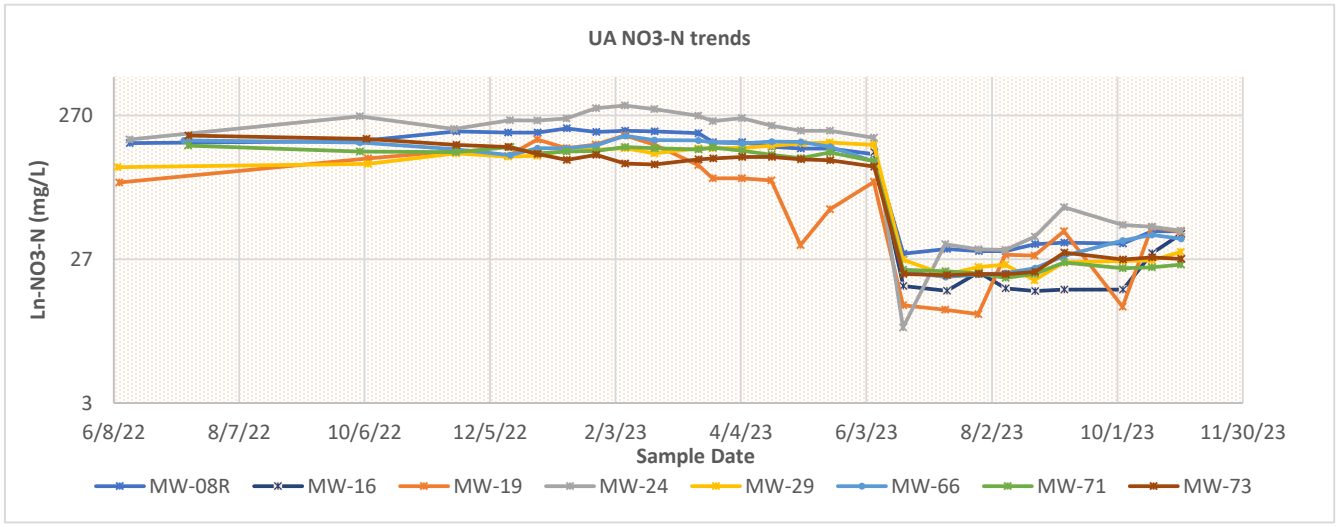


Figure 8 - UA Time Series Trends



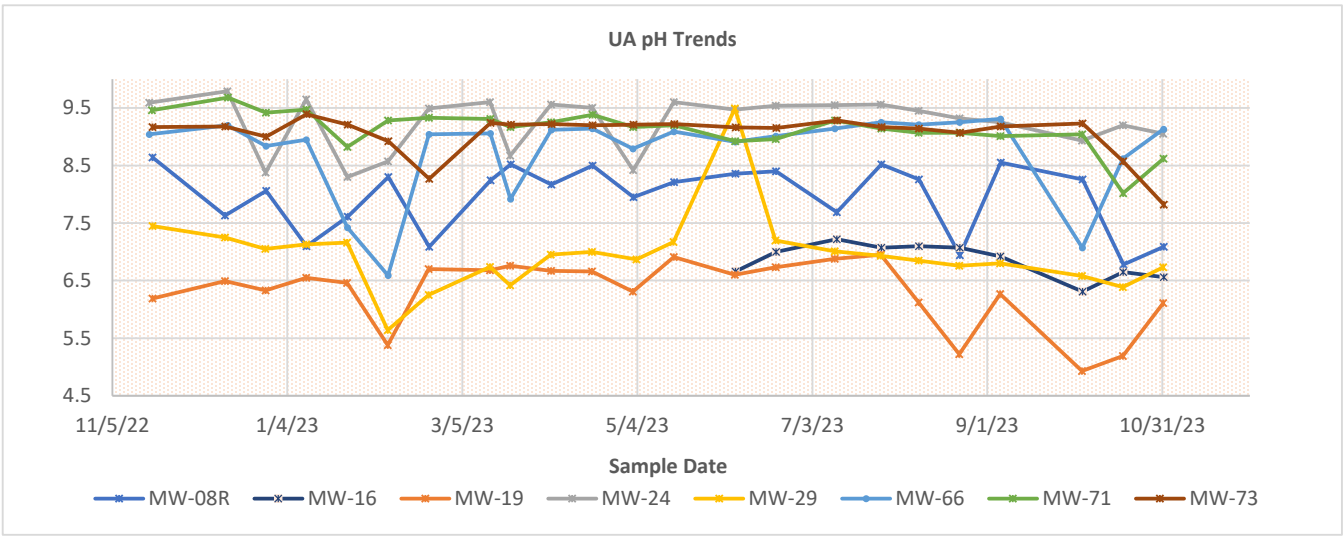
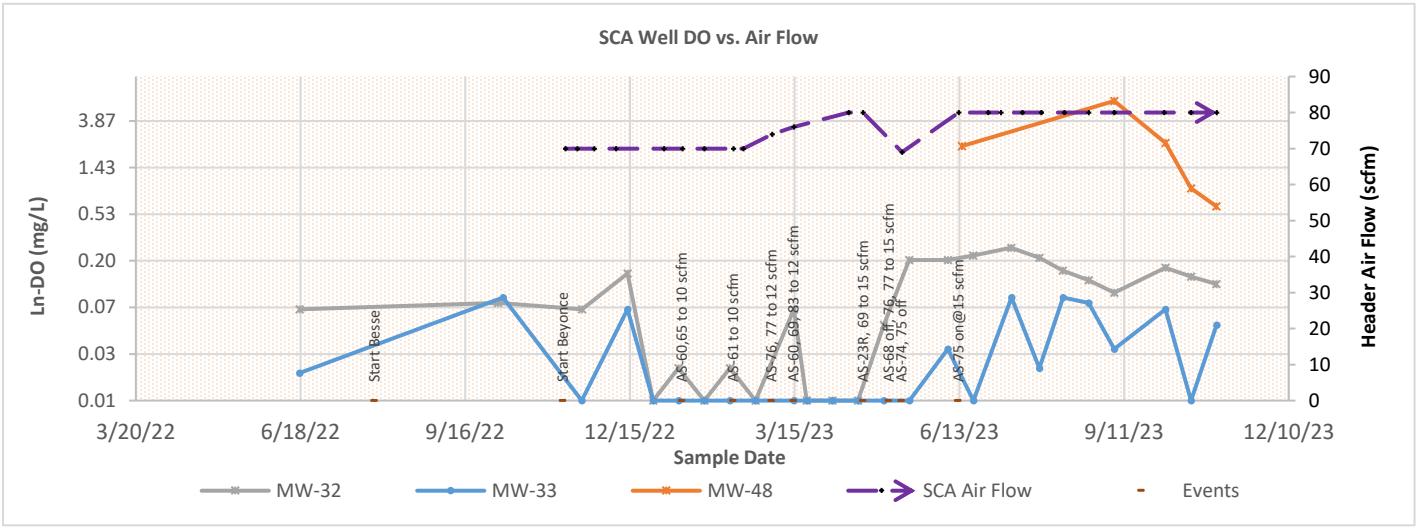
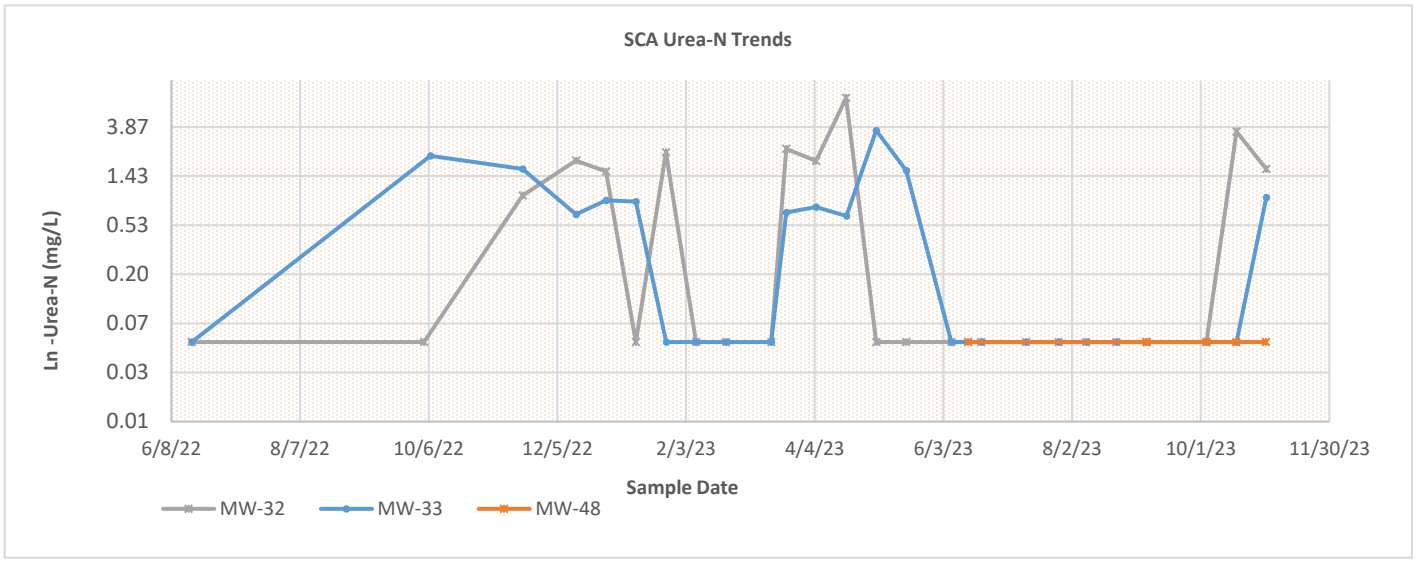


Figure 9- SCA Time Series Trends





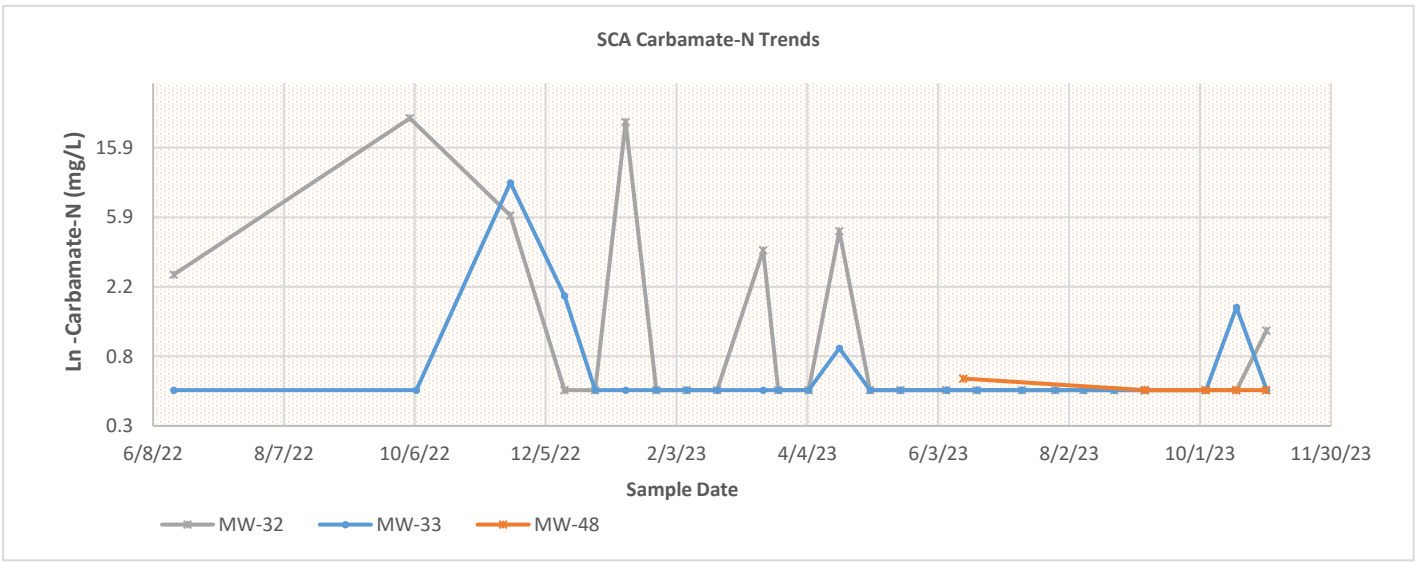
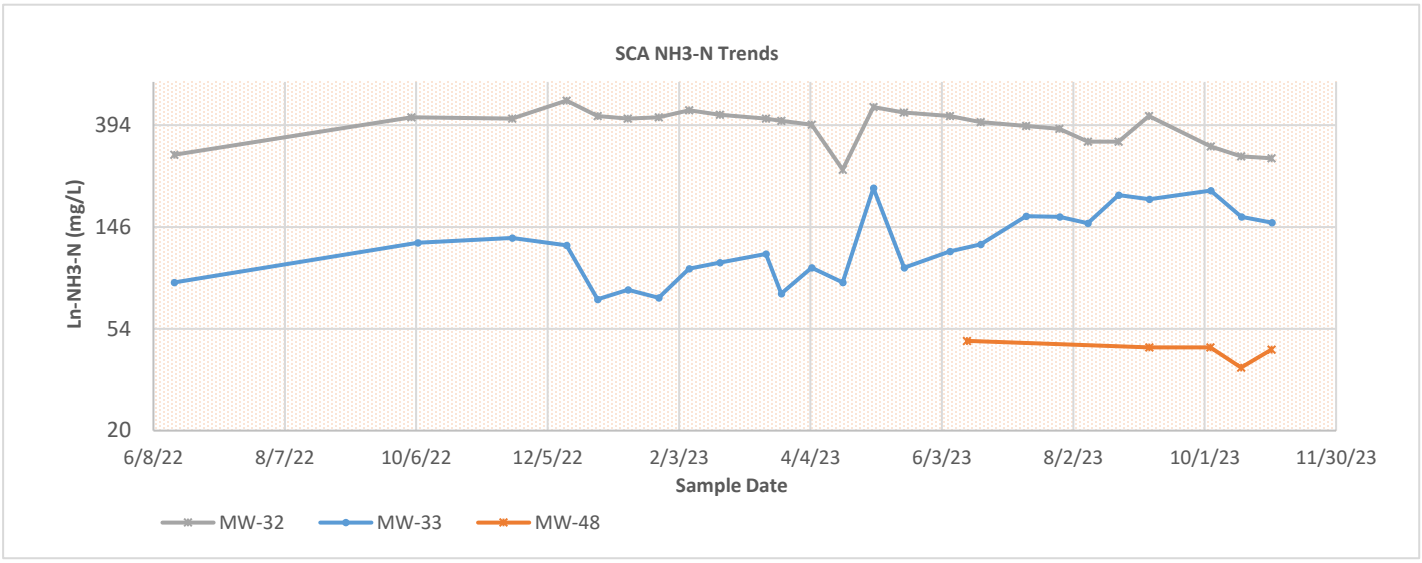
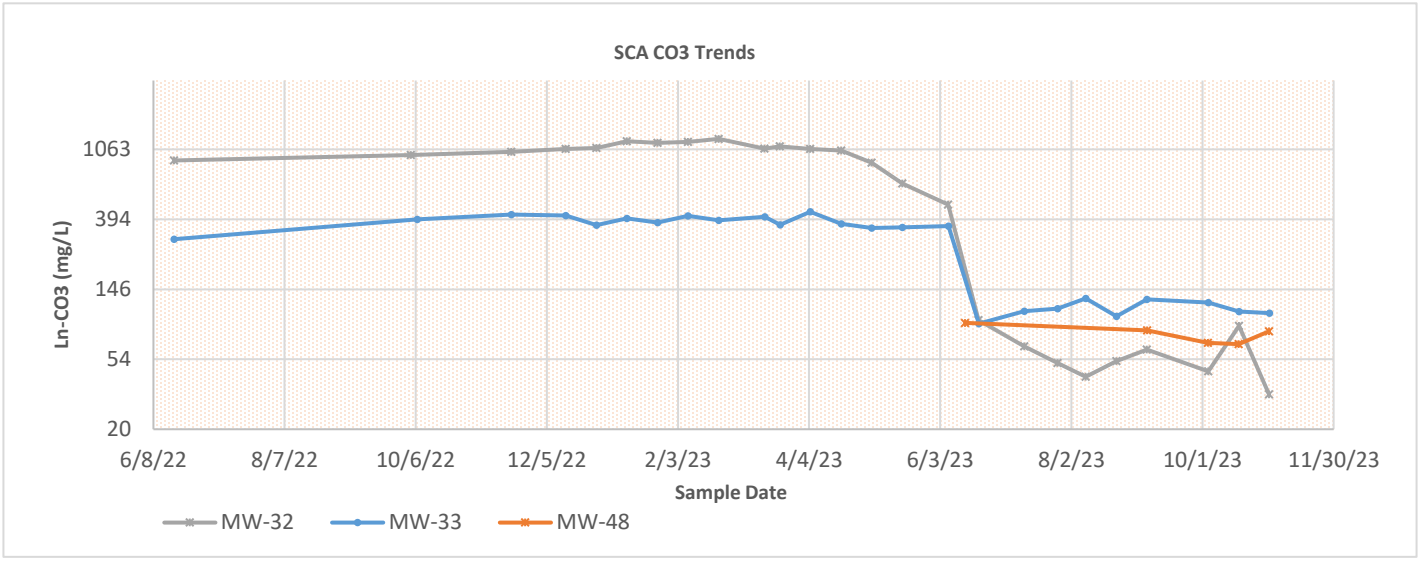


Figure 9- SCA Time Series Trends





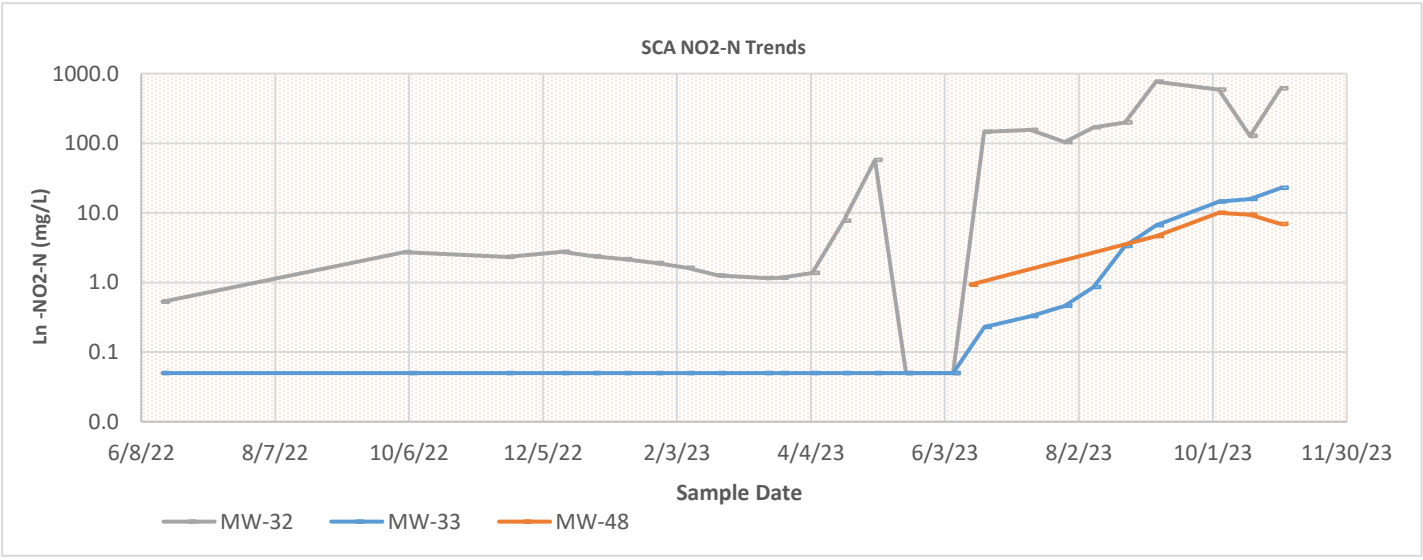
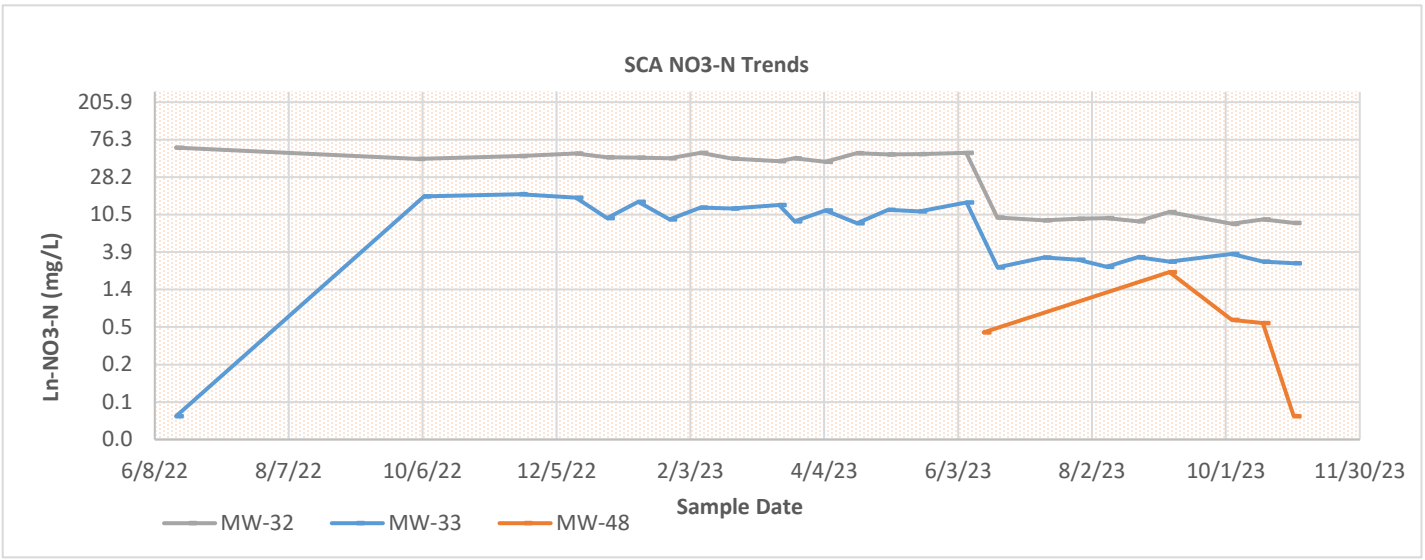
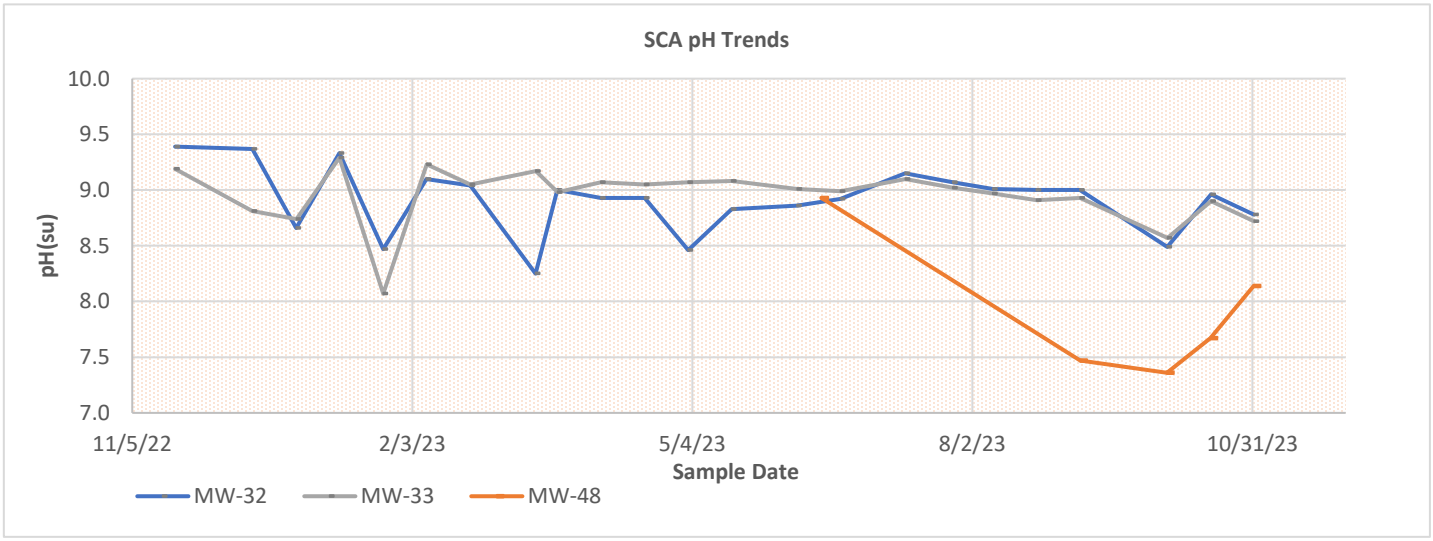


Figure 9- SCA Time Series Trends





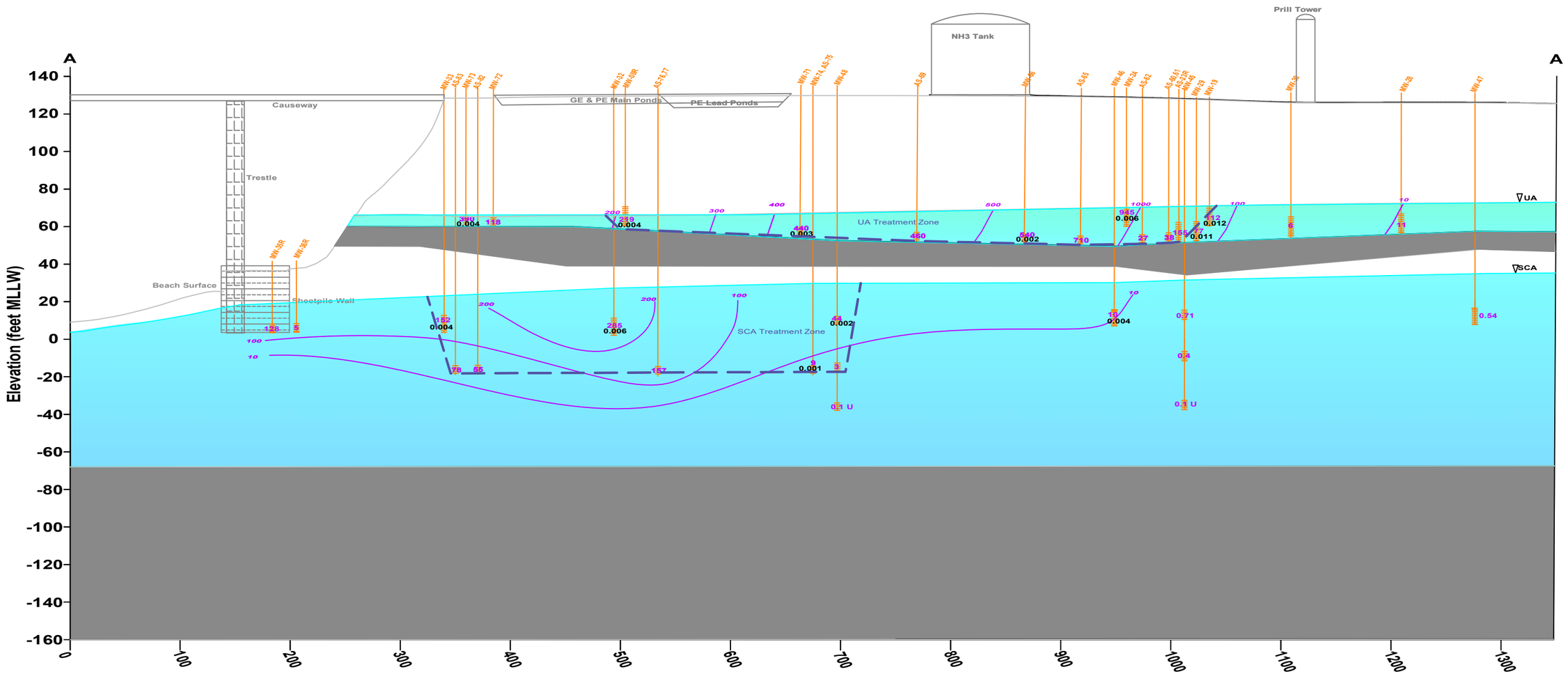


FIGURE 10

Cross Section - S. Plume Site Model
Biosparge System- November 2023

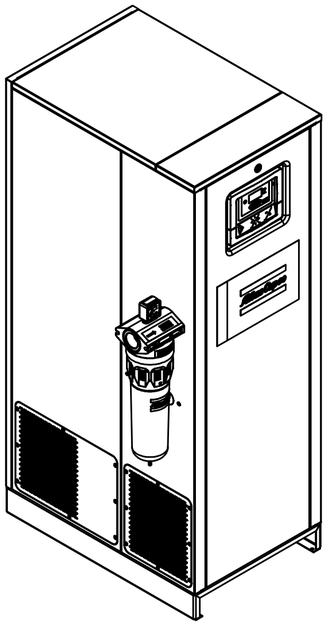
NUTREN U.S. LLC
KENAI NITROGEN OPERATIONS

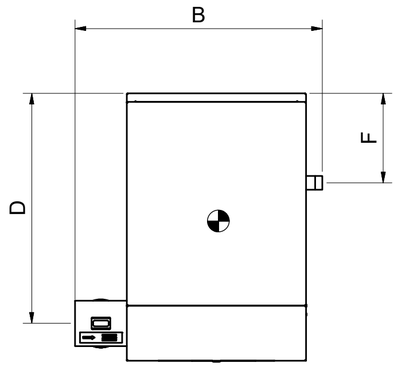
Cook Inlet Environmental, Inc.

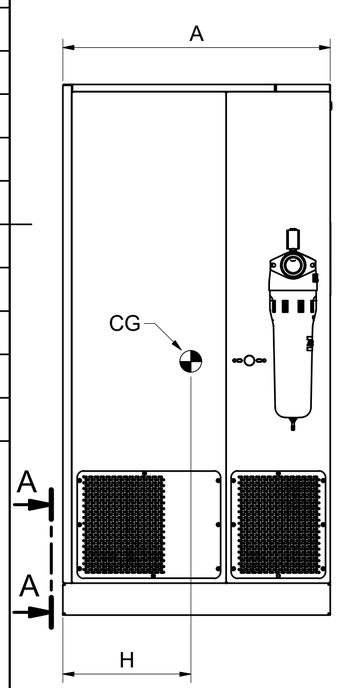
DATE June 2022
CHKD JW
DRAWN LG

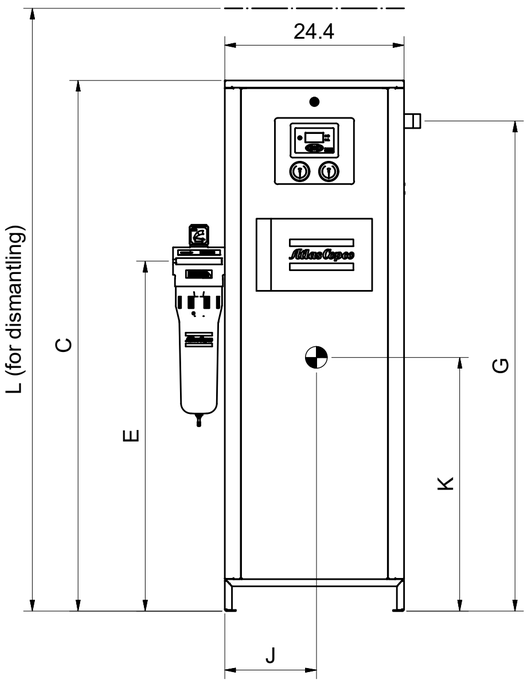
Appendix A

All materials supplied are in compliance with the requirements of the List of Prohibited Substances

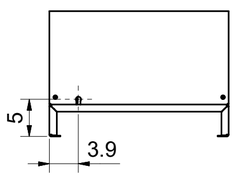


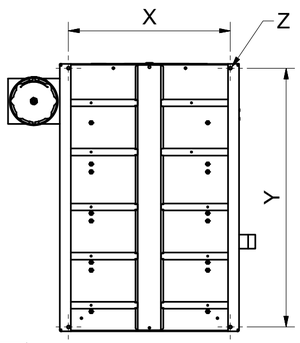






POWER SUPPLY
A-A (1 : 15)





Model	PDP	Mass	In-Out	A	B	C	D	E	F	G	H	J	K	L	X	Y	ØZ
CD 25+	-5 °F	210 lbs	NPT1/2" - NPT1/2"	15.51	30,18	47.44	4.33	34.65	4.53	35.24	6.93	12.32	22.68	53.35	22.05	14.17	0.35
CD 35+	-5 °F	220 lbs	NPT1" - NPT1"	15.51	30,96	47.44	4.33	34.65	4.53	35.24	6.93	12.32	22.68	53.35	22.05	14.17	0.35
CD 50+	-5 °F	247 lbs	NPT1" - NPT1"	15.51	30,96	47.44	4.33	34.65	4.53	41.93	6.46	12.24	24.09	61.89	22.05	14.17	0.35
CD 65+	-5 °F	293 lbs	NPT1" - NPT1"	15.51	30,96	58.86	4.33	34.65	4.53	49.02	6.34	12.28	28.82	71.14	22.05	14.17	0.35
CD 80+	-5 °F	324 lbs	NPT1" - NPT1"	15.51	32,15	58.86	4.33	34.65	4.53	54.92	6.26	12.32	30.2	88.66	22.05	14.17	0.35
CD 105+	-5 °F	377 lbs	NPT1 1/2" - NPT1 1/2"	15.51	32,15	72.24	10,28	34.65	4.53	66.73	6.26	12.24	36.14	106.38	22.05	14.17	0.35
CD 125+	-5 °F	501 lbs	NPT1 1/2" - NPT1 1/2"	22.2	32,15	58.86	16.97	34.65	4.53	49.02	9.65	12.28	28.31	75.67	22.05	20.87	0.35
CD 150+	-5 °F	539 lbs	NPT1 1/2" - NPT1 1/2"	22.2	32,15	58.86	16.97	34.65	4.53	54.92	9.49	12.4	30.24	88.66	22.05	20.87	0.35
CD 195+	-5 °F	638 lbs	NPT1 1/2" - NPT1 1/2"	22.2	32,15	72.24	16.97	34.65	11,22	66.73	10.04	12.48	35.94	106.38	22.05	20.87	0.35
CD 225+	-5 °F	766 lbs	NPT2" - NPT2"	28.9	33,68	58.86	23.66	34.65	11,22	54.92	12.76	12.52	29.72	88.66	22.05	27.56	0.35
CD 300+	-5 °F	911 lbs	NPT2" - NPT2"	28.9	33,68	72.24	23.66	47.64	12,2	66.73	13.35	12.52	35.08	106.38	22.05	27.56	0.35
CD 20+	-40 °F	227 lbs	NPT1/2" - NPT1/2"	15.51	30,18	47.44	4.33	34.65	4.53	35.24	6.93	12.32	22.68	53.35	22.05	14.17	0.35
CD 30+	-40 °F	227 lbs	NPT1/2" - NPT1/2"	15.51	30,18	47.44	4.33	34.65	4.53	35.24	6.93	12.32	22.68	53.35	22.05	14.17	0.35
CD 40+	-40 °F	247 lbs	NPT1" - NPT1"	15.51	30,96	47.44	4.33	34.65	4.53	41.93	6.46	12.24	24.09	61.89	22.05	14.17	0.35
CD 55+	-40 °F	292 lbs	NPT1" - NPT1"	15.51	30,96	58.86	4.33	34.65	4.53	49.02	6.34	12.28	28.82	71.14	22.05	14.17	0.35
CD 65+	-40 °F	320 lbs	NPT1" - NPT1"	15.51	30,96	58.86	4.33	34.65	4.53	54.92	6.26	12.32	30.2	88.66	22.05	14.17	0.35
CD 85+	-40 °F	377 lbs	NPT1" - NPT1"	15.51	32,15	72.24	4.33	34.65	4.53	66.73	6.26	12.24	36.14	106.38	22.05	14.17	0.35
CD 105+	-40 °F	495 lbs	NPT1 1/2" - NPT1 1/2"	22.2	32,15	58.86	16.96	34.65	4.53	49.02	9.65	12.28	28.31	75.67	22.05	20.87	0.35
CD 125+	-40 °F	539 lbs	NPT1 1/2" - NPT1 1/2"	22.2	32,15	58.86	16.97	34.65	4.53	54.92	9.49	12.4	30.24	88.66	22.05	20.87	0.35
CD 170+	-40 °F	637 lbs	NPT1 1/2" - NPT1 1/2"	22.2	32,15	72.24	16.97	34.65	4.53	66.73	10.04	12.48	35.94	106.38	22.05	20.87	0.35
CD 190+	-40 °F	766 lbs	NPT1 1/2" - NPT1 1/2"	28.9	32,15	58.86	23.66	34.65	11,22	54.92	12.76	12.52	29.72	88.66	22.05	27.56	0.35
CD 250+	-40 °F	901 lbs	NPT2" - NPT2"	28.9	33,68	72.24	23.66	34.65	11,22	66.73	13.35	12.52	35.08	106.38	22.05	27.56	0.35
CD 335+	-40 °F	1158 lbs	NPT2" - NPT2"	36.57	33,68	72.24	31.34	47.64	12,2	66.73	16.69	12.48	35.79	106.38	22.05	35.24	0.35

4 4 4

NOTE:
- All dimensions in inches, unless otherwise stated

Ed	Position	Modified from	Date	Intr./Appd.
4		Updates for CD105 (-20/-40 PDP) and for col. F	28/10/2020	User Agent

Attention : 3rd angle projection is used

9829529800-M1	2.0
Parent 3D model	Ed . Version 3D

Tolerances, if not indicated, according to:				
ATLAS COPCO STANDARD CLASS				
Name DIMENS. DRWG			CD 20-335+	Confidentiality Class acc. to 1102 K: Public
Material See Drawing				
Treatment Not Applicable				INV
Atlas Copco	Scale 1 : 15	Family	A2	Compare / Drawing owner: API
	Drawn by AIR41892	Blank nr.		Replaces
STATUS	Version Drwg	Blank wt Kg	Fini wt. 332,934 kg	Designation / Sheet 1 / 1
Released	Des checked.	Prod checked.	Approved.	Date 27/10/2020

9829529800-02

CD+85 CERADES

ATLAS COPCO DRYERS

Model: CD 85+ - CERADES - MK5 Touch Controller

Reference conditions

1. Compressed air effective inlet pressure	101.5	psi(g)
2. Compressed air inlet temperature	95.0	°F
3. Inlet relative humidity	100.0	%
4. Ambient air temperature	77.0	°F
5. Ambient air Pressure	14.7	psi(g)

Limitations for operations

1. Minimum ambient air temperature	35.6	°F
2. Maximum ambient air temperature	113.0	°F
3. Minimum compressed air inlet pressure	58.0	psi(g)
4. Maximum compressed air inlet pressure	203.0	psi(g)
5. Minimum inlet air temperature	35.6	°F
6. Maximum inlet air temperature	158.0	°F
7. Minimum volume flow at inlet	44.5	scfm

Performance data (1)

1. Rated Volume Flow (2)	**178.0**	**scfm**
2. Pressure drop at maximum flow	3.6	psi(g)
3. Time to half a cycle	42.0	sec
4. Regenerating time	30.0	sec
5. Pressurization time	10.0	sec
6. Regeneration air consumption average	16.0	%
7. Regeneration air consumption peak	22.4	%

Electrical Data

1. Voltage/Phase/Frequency	115 / 1 / DUAL	
2. Installed power	0.1	kW
3. FLA	0.5	A
4. Controller IP Rating	IP65 (Similar to NEMA 4)	

Physical data

1. Dimensions (L x W x H)	15.6 x 36.8 x 72.3	inches
2. Net weight	363.8	Lbs.
3. Connection - Inlet	1	in. NPT(F)
4. Connection - Outlet	1	in. NPT(M)
5. Inlet Filter	UD100+	

Remarks:

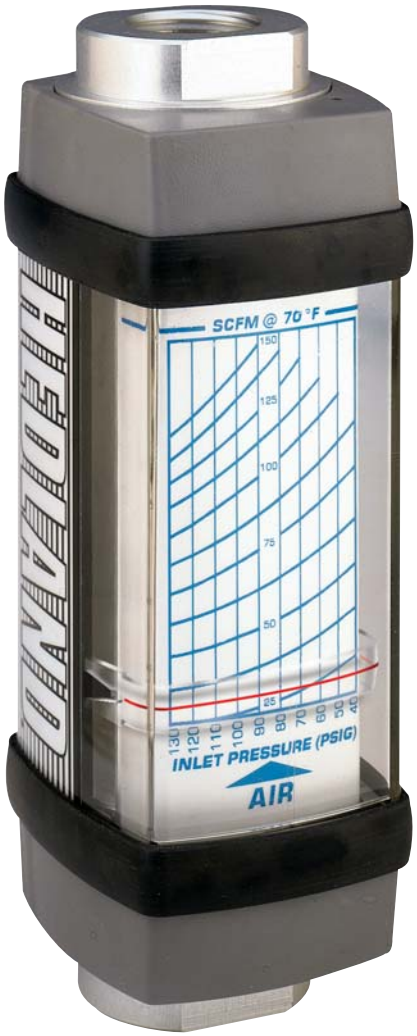
(1) All performance data stated at reference conditions

(2) Referred to absolute pressure of 1 bar and temperature of 20°C and measured according to ISO 7183-1:2010

1000/1500 PSI Flow Meters

For Air and Other Compressed Gases

- Direct reading
- Install in any position
- 360° rotatable guard/scale
- Easier-to-read linear scale
- No flow straighteners or special piping required
- Relatively insensitive to shock and vibration
- Temperature up to 240 °F
- Accuracy ±2% full scale
- Repeatability ±1%
- Special scales available
- Calibrated for 1.0 S.G.



SPECIFICATIONS:

MATERIALS:

2024 - T351 Anodized aluminum body, piston and cone
C360 Brass body, piston and cone①
T303 Stainless body, 2024 - T351 Anodized aluminum piston and cone

COMMON PARTS:	**Retaining Ring:** T316 SS
Spider Plate: T316 SS	**Retaining Spring:** T316 SS
Spring: T302 SS	**Indicator and Internal Magnet:** PPS / Ceramic
Fasteners: T303 SS	**Guard Seal / Bumper:** Buna N
Pressure Seals: Viton®	**Scale Support:** 6063 - T6 Aluminum
Guard: Polycarbonate	**End Caps:** Nylon ST

THREADS: SAE J1926/1, **NPTF** ANSI B2.2, **BSPP** ISO1179

TEMPERATURE RANGE: -20 to 240 °F (-29 to 116 °C) for higher temperatures, consult factory

PRESSURE RATING:

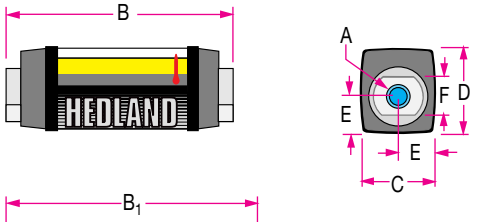
Aluminum / Brass Operating: 1,000 psi/69 bar max. (250 psi/17 bar max. for 3" series) with a 10:1 safety factor.
For High Cycle Applications: see page 7

Stainless Steel Operating: 1,500 psi/103 bar max. with a 10:1 safety factor.
For High Cycle Applications: see page 7

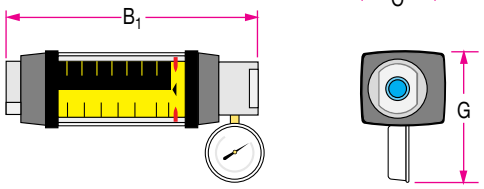
PRESSURE DROP: See Ordering Information Table, page 36.
For detailed differential pressure charts, see page 60.

ACCURACY: ±2% of full scale **REPEATABILITY:** ±1%

STANDARD PRODUCT



STANDARD PRODUCT WITH EP & EG OPTION



DIMENSIONS:

A	B	B_1	C	D	E	F	G
NOMINAL PORT SIZE	**LENGTH in (mm)**	**LENGTH in (mm)**	**WIDTH in (mm)**	**DEPTH in (mm)**	**OFFSET in (mm)**	**FLATS in (mm)**	**HEIGHT in (mm)**
1/4 (SAE 6)	4.8 (122)	6.12 (155)	1.68 (43)	1.90 (48)	.84 (21)	.88 (22)	5.0 (127)
1/2 (SAE 10)	6.6 (168)	8.00 (203)	2.07 (53)	2.40 (61)	1.04 (26)	1.25 (32)	5.4 (137)
3/4 (SAE 12)	7.2 (183)	8.9 (226)	2.48 (63)	2.85 (72)	1.24 (32)	1.50 (38)	5.9 (150)
1 (SAE 16)	7.2 (183)	8.9 (226)	2.48 (63)	2.85 (72)	1.24 (32)	1.50 (38)	5.9 (150)
1-1/4 (SAE 20)	12.2 (310)	13.8 (351)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)	7.2 (183)
1-1/2 (SAE 24)	12.2 (310)	13.8 (351)	4.12 (105)	4.72 (120)	2.06 (52)	2.75 (70)	7.2 (183)

NOTE: Dimensions for 3" meters can be found on page 72.
Weights for all sizes can be found on page 73.

① 3 inch models have Celcon® piston/piston ring

Celcon is a registered trademark of Hoechst Celanese Corp.
Viton is a registered trademark of DuPont Dow Elastomers

1000/1500 PSI Flow Meters

For Air and Other Compressed Gases

ORDERING INFORMATION:

NOMINAL PORT SIZE	FLOW RANGE ① SCFM	FLOW RANGE ② L/SEC	PRESSURE DROP 50% FLOW PSI (BAR)	PRESSURE DROP 100% FLOW PSI (BAR)	MODEL NUMBER (see example below) SAE	NPTF	BSPP③	MATERIAL ALUMINUM 1000 PSI	MATERIAL BRASS 1000 PSI	MATERIAL STAINLESS 1500 PSI	OPTIONS EXTENDED CAP PLUGGED ④	OPTIONS EXTENDED CAP W/GAUGE ④
1/4 SAE 6	0.5 - 5	0.2 - 2.2	2.51 (0.17)	4.45 (0.31)	H270 ✱ - 005 - †	H271 ✱ - 005 - †	H272 ✱ - 005 - †	A	B	S	EP	EG
	1 - 10	0.5 - 4.75	9.29 (0.64)	16.46 (1.13)	H270 ✱ - 010 - †	H271 ✱ - 010 - †	H272 ✱ - 010 - †					
	2 - 20	1 - 9	10.15 (0.70)	18.71 (1.29)	H270 ✱ - 020 - †	H271 ✱ - 020 - †	H272 ✱ - 020 - †					
	3 - 30	1.5 - 14	13.75 (0.95)	26.23 (1.81)	H270 ✱ - 030 - †	H271 ✱ - 030 - †	H272 ✱ - 030 - †					
1/2 SAE 10	3 - 25	2 - 12	3.73 (0.26)	6.10 (0.42)	H670 ✱ - 025 - †	H671 ✱ - 025 - †	H672 ✱ - 025 - †	A	B	S	EP	EG
	5 - 50	3 - 22	6.04 (0.42)	10.35 (0.71)	H670 ✱ - 050 - †	H671 ✱ - 050 - †	H672 ✱ - 050 - †					
	10 - 100	5 - 47	7.18 (0.50)	13.85 (0.95)	H670 ✱ - 100 - †	H671 ✱ - 100 - †	H672 ✱ - 100 - †					
	15 - 150	7 - 70	8.06 (0.56)	18.49 (1.27)	H670 ✱ - 150 - †	H671 ✱ - 150 - †	H672 ✱ - 150 - †					
3/4 SAE 12	3 - 25	1.5 - 11.5	2.99 (0.21)	5.90 (0.41)	H770 ✱ - 025 - †	H771 ✱ - 025 - †	H772 ✱ - 025 - †	A	B	S	EP	EG
	5 - 50	2 - 23	2.00 (0.14)	3.58 (0.25)	H770 ✱ - 050 - †	H771 ✱ - 050 - †	H772 ✱ - 050 - †					
	10 - 100	5 - 47.5	7.19 (0.50)	12.87 (0.89)	H770 ✱ - 100 - †	H771 ✱ - 100 - †	H772 ✱ - 100 - †					
	15 - 150	7 - 70	4.44 (0.31)	9.52 (0.66)	H770 ✱ - 150 - †	H771 ✱ - 150 - †	H772 ✱ - 150 - †					
	25 - 250	10 - 118	6.27 (0.43)	15.38 (1.06)	H770 ✱ - 250 - †	H771 ✱ - 250 - †	H772 ✱ - 250 - †					
1 SAE 16	3 - 25	1.5 - 11.5	2.99 (0.21)	5.90 (0.41)	H790 ✱ - 025 - †	H791 ✱ - 025 - †	H792 ✱ - 025 - †	A	B	S	EP	EG
	5 - 50	2 - 23	2.00 (0.14)	3.58 (0.25)	H790 ✱ - 050 - †	H791 ✱ - 050 - †	H792 ✱ - 050 - †					
	10 - 100	5 - 47.5	7.19 (0.50)	12.87 (0.89)	H790 ✱ - 100 - †	H791 ✱ - 100 - †	H792 ✱ - 100 - †					
	15 - 150	7 - 70	4.44 (0.31)	9.52 (0.66)	H790 ✱ - 150 - †	H791 ✱ - 150 - †	H792 ✱ - 150 - †					
	25 - 250	10 - 118	6.27 (0.43)	15.38 (1.06)	H790 ✱ - 250 - †	H791 ✱ - 250 - †	H792 ✱ - 250 - †					
1-1/4 SAE 20	20 - 200	10 - 95	1.89 (0.13)	3.16 (0.22)	H870 ✱ - 200 - †	H871 ✱ - 200 - †	H872 ✱ - 200 - †	A	B	S	EP	EG
	40 - 400	20 - 180	2.53 (0.17)	5.49 (0.38)	H870 ✱ - 400 - †	H871 ✱ - 400 - †	H872 ✱ - 400 - †					
	60 - 600	30 - 280	4.47 (0.31)	10.71 (0.74)	H870 ✱ - 600 - †	H871 ✱ - 600 - †	H872 ✱ - 600 - †					
	80 - 800	50 - 350	6.13 (0.42)	17.14 (1.18)	H870 ✱ - 800 - †	H871 ✱ - 800 - †	H872 ✱ - 800 - †					
	100 - 1000	50 - 475	9.84 (0.68)	28.45 (1.96)	H870 ✱ - 999 - †	H871 ✱ - 999 - †	H872 ✱ - 999 - †					
1-1/2 SAE 24	20 - 200	10 - 95	1.89 (0.13)	3.16 (0.22)	H890 ✱ - 200 - †	H891 ✱ - 200 - †	H892 ✱ - 200 - †	A	B	S	EP	EG
	40 - 400	20 - 180	2.53 (0.17)	5.49 (0.38)	H890 ✱ - 400 - †	H891 ✱ - 400 - †	H892 ✱ - 400 - †					
	60 - 600	30 - 280	4.47 (0.31)	10.71 (0.74)	H890 ✱ - 600 - †	H891 ✱ - 600 - †	H892 ✱ - 600 - †					
	80 - 800	50 - 350	6.13 (0.42)	17.14 (1.18)	H890 ✱ - 800 - †	H891 ✱ - 800 - †	H892 ✱ - 800 - †					
	100 - 1000	50 - 475	9.84 (0.68)	28.45 (1.96)	H890 ✱ - 999 - †	H891 ✱ - 999 - †	H892 ✱ - 999 - †					
3	100 - 1400	75 - 750	10.0 (0.69)	16.0 (1.10)	H970 ✱ - 140 - †	H971 ✱ - 140 - †	H972 ✱ - 140 - †	250 PSI A	250 PSI B	Not Available		
	200 - 2200	75 - 1130	10.0 (0.69)	16.0 (1.10)	H970 ✱ - 220 - †	H971 ✱ - 220 - †	H972 ✱ - 220 - †					

NOTE: Consult factory for other options.

① SCFM/PSI multipressure scales are standard.

② L/sec/bar multipressure scales are available at no extra charge.

③ 3 inch models have BSPT (BS21) threads

④ EP and EG options are only available with NPTF and BSPP models.

(example) **H 771 A - 030 - EP**

NOTE: When ordering a L/sec/bar scale add "S1" suffix to part number

(example) H771 A - 250 - S1 or H771 A - 250 - EG - S1

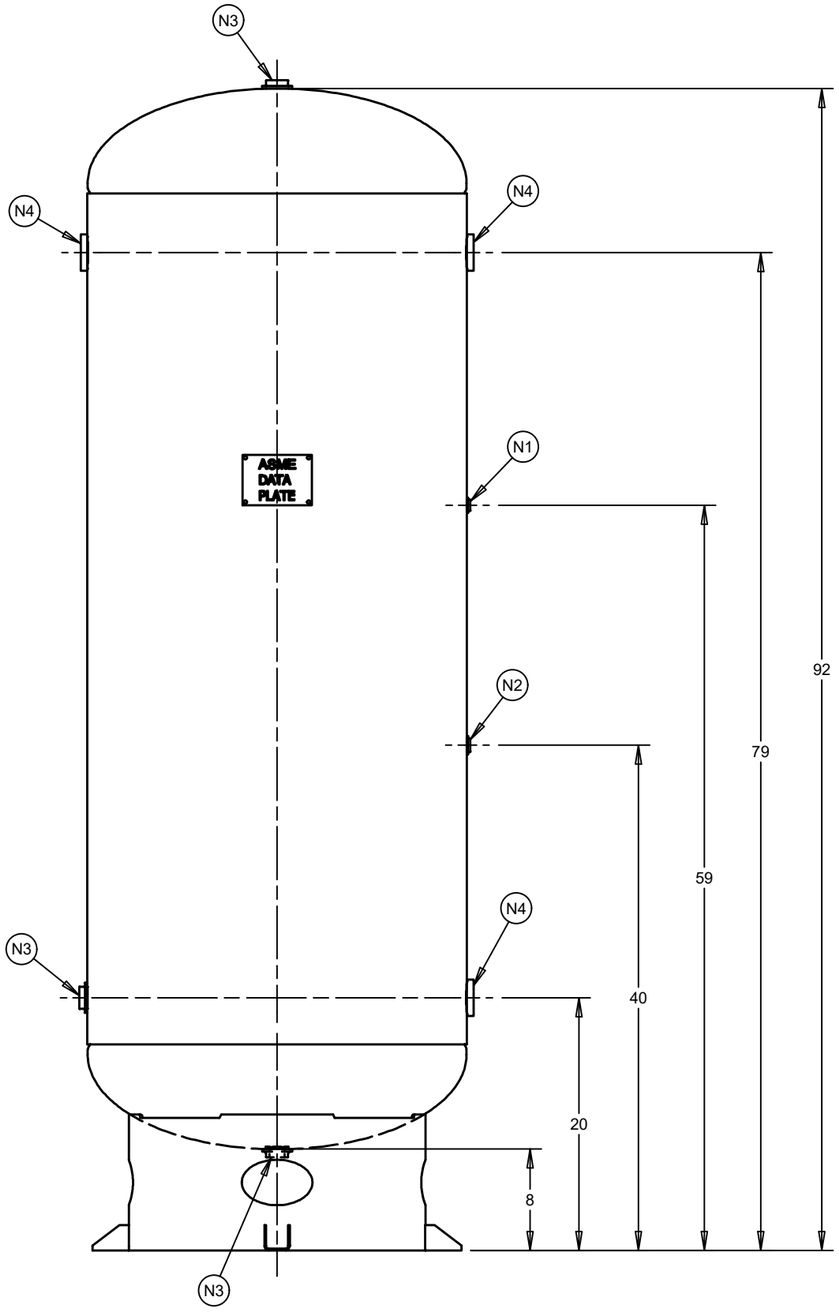
AIR TEST KITS PAGE 37

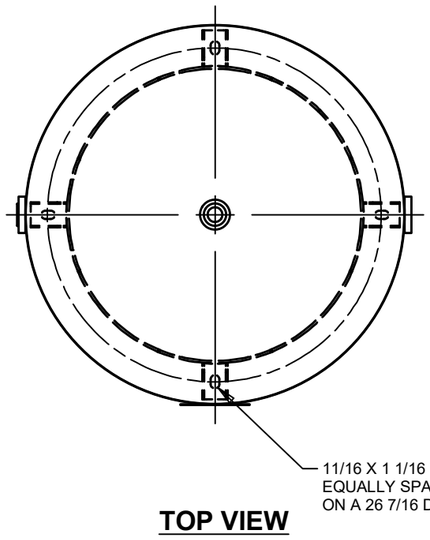
AIR & CORROSIVE GASES PAGE 33

FLOW-ALERT FLOW SWITCHES PAGES 39 and 41

FLOW TRANSMITTERS PAGE 43

NOZZLE CHART	
NOZZLE ID	NPT SIZE
N1	1/4
N2	1/2
N3	1
N4	2





TOP VIEW

DESIGN INFORMATION	
SPECIFICATION	VALUE
DIAMETER O.D./I.D.	30 O.D.
MAWP	200 PSI AT 400°F
MDMT	-20°F AT 200 PSI
CAPACITY	APPROX 240 GALLONS
SHIPPING WEIGHT	542 LBS
CRN	L4036.5C

(BUILT IN ACCORDANCE WITH LATEST EDITION OF SECTION VIII DIV 1 ASME CODE)

REV	DESCRIPTION	BY	DATE
C19	ISSUED		

TITLE: VERTICAL AIR RECEIVER

SAMUEL 1905 PRESSURE VESSEL GROUP

CUSTOMER: STOCK

TYPE: ASME

DRAWN	CHECKED	DRAWING NO	REV
KAT 9/9/2016	DMM 10/7/2016	A10053	C19

SIZE: B

SHEET 1 OF 1

Note:
Applicable models
ZT37-55 VSD

CENTER OF GRAVITY ±2(inch)			
	PACK	ID	IMD
W	20,4	20,4	20,4
L	44,8	45,6	44,7
H	29,6	30,9	32,0

MASS ±110(LBS)			
TYPE	PACK	ID	IMD
ZT37VSD	3199	3510	3684
ZT55VSD	3318	3638	3885

TABLE 1		
	ID	IMD
A	36,4"	31,8"
B	15,0"	17,1"
C	39,9"	41,5"
D	22,4"	24,4"

* DOOR FULLY OPEN
** VARIES ON FLANGED INLET OPTION SEE 9820 6922 02

Attention : 3rd angle projection is used

All materials supplied are in compliance with the requirements of the List of Prohibited Substances

00				
Ed	Posi-tion	Modified from	Date	Intr./Appd.

9820481000 | 00.00
Parent 3D model | Ed . Version 3D

Tolerances, if not indicated, according to:
ATLAS COPCO STANDARD CLASS

Name: DIMENS. DRWG
Material: Not Applicable
Treatment: Not Applicable
Confidentiality Class acc. to 1102 K: Confidential
INV

Atlas Copco
STATUS: Approved
Scale | Family | Compare
Drawn by AIR22014 | Blank nr. | Replaces 9820692200
Drawing format A1 | Blank wt 0 Kg | Fini wt. N/A
Des checked. | Prod checked. | Approved. | Date 30/09/2018
Drawing Owner: API | Transferred from
Designation: 9820692201 | Sheet 1 / 1

Technical data: ZT 37VSD-8.6

Product definition	
Model	ZT 37VSD
Pressure variant	125 psi
Frequency	60 Hz

Reference conditions	
Absolute inlet pressure	14.5 psi(a)
Relative humidity	0 %
Air inlet temperature	68 °F
Cooling air inlet temperature	68 °F
Effective working pressure	102 psi(g)
Motor shaft speed(rpm)	4627 rpm

Performance data*1	
Maximum working pressure	125 psi(g)
Free air delivery (at maximum volume flow rate)	194 cfm
− Total electrical power input	47.9 kW
− Total specific energy requirements (SER)	24.7 kW/100 cfm
Free air delivery (at 75% of volume flow range)	163 cfm
− Total electrical power input	39.4 kW
− Total specific energy requirements (SER)	24.1 kW/100 cfm
Free air delivery (at 50% of volume flow range)	132 cfm
− Total electrical power input	34 kW
− Total specific energy requirements (SER)	25.7 kW/100 cfm
Free air delivery (at 25% of volume flow range)	101 cfm
− Total electrical power input	26.8 kW
− Total specific energy requirements (SER)	26.5 kW/100 cfm
Free air delivery (at minimum volume flow rate)	70 cfm
− Total electrical power input	22.4 kW
− Total specific energy requirements (SER)	31.9 kW/100 cfm
Effective working pressure	102 psi(g)
Free air delivery (at maximum volume flow rate)	207 cfm
− Total electrical power input	47.4 kW
− Total specific energy requirements (SER)	22.9 kW/100 cfm
Free air delivery (at 75% of volume flow range)	173 cfm
− Total electrical power input	37.7 kW

− Total specific energy requirements (SER)	21.8 kW/100 cfm
Free air delivery (at 50% of volume flow range)	139 cfm
− Total electrical power input	31.6 kW
− Total specific energy requirements (SER)	22.7 kW/100 cfm
Free air delivery (at 25% of volume flow range)	106 cfm
− Total electrical power input	24.7 kW
− Total specific energy requirements (SER)	23.4 kW/100 cfm
Free air delivery (at minimum volume flow rate)	72 cfm
− Total electrical power input	20.3 kW
− Total specific energy requirements (SER)	28.2 kW/100 cfm
Minimum effective working pressure	58 psi(g)
Free air delivery (at maximum volume flow rate)	207 cfm
− Total electrical power input	39 kW
− Total specific energy requirements (SER)	18.8 kW/100 cfm
Free air delivery (at 75% of volume flow range)	174 cfm
− Total electrical power input	30.7 kW
− Total specific energy requirements (SER)	17.7 kW/100 cfm
Free air delivery (at 50% of volume flow range)	141 cfm
− Total electrical power input	25.7 kW
− Total specific energy requirements (SER)	18.3 kW/100 cfm
Free air delivery (at 25% of volume flow range)	107 cfm
− Total electrical power input	20 kW
− Total specific energy requirements (SER)	18.7 kW/100 cfm
Free air delivery (at minimum volume flow rate)	74 cfm
− Total electrical power input	16.4 kW
− Total specific energy requirements (SER)	22.2 kW/100 cfm

Unit data*[3]	
Compressed air temperature at outlet	79 °F
Mean sound pressure level*[2]	68 dB(A)
Total electrical power input at unload	6.9 kW
Cooling air flow compressor	3560 cfm
Cooling air flow motor	1023 cfm
Cooling air flow frequency converter	102 cfm
Oil capacity	6.6 gal(US)

Dimension and Weight			
	Unit dimensions	Shipping dimensions with pallet only	Shipping dimensions with wooden crate

Length	96.06 in	105.12 in	105.12 in
Width	40.39 in	69.69 in	69.69 in
Height	74.02 in	79.53 in	82.28 in
Volume	166 ft³	337 ft³	349 ft³
Net weight	3155 lb	3285 lb	3406 lb

Limitations	
Maximum effective working pressure	124.8 psi(g)
Minimum effective working pressure	58 psi(g)
Maximum ambient temperature	104 °F
Minimum ambient temperature	32 °F
Maximum cooling air temperature	104 °F
Minimum cooling air temperature	32 °F
Maximum altitude (above sea level)	3280.84 ft

Installation connections	
Compressed air outlet	G1 1/2" F
Condensate drain connections	DO 8 mm/ DI 5,5 mm
Electrical cable entry size	M63x1,5 F

Main drive motor	
Motor manufacturer	Siemens
Motor nominal power	50 hp
Motor service factor	1.15
Motor efficiency class	dedicated VSD motor
Power drive system efficiency*[4]	IES2
motor nominal efficiency	92 %
Motor protection class	IP54

Frequency Converter	
Converter manufacturer	Atlas Copco (NEOS)

Electrical data	
Supply voltage	460 V
Supply frequency	60 Hz
Package current*[5]	71.1 A
Electrical network	TT or TN network

Main feeder circuit protection (Customer's installation) *6	
Main fuse type	class J or class T
Maximum main fuse size	3x175A
Main control panel short-circuit current rating	10 kA

Approvals	
Electrical approval	UL/cUL
Pressure vessel approval	CE / ASME

Notes

*1 The FAD figures quoted correspond to 'Actual Volume Flow Rate' in accordance with ISO 1217 Ed. 4 (2009), guaranteed with a tolerance of +/-5 % for FAD < 250 l/s (530 cfm) or +/-4 % for FAD > 250 l/s (530 cfm).

*1 The SER figures quoted are in accordance with ISO 1217 Ed. 4 (2009), guaranteed with a tolerance of +/-6 % for FAD < 250 l/s (530 cfm) or +/-5 % for FAD > 250 l/s (530 cfm).

*2 A-weighted emission sound pressure level at the work station (LpWSAd).
Measured according to ISO 2151: 2008 using ISO 9614-2 (sound intensity scanning method).
The added correction factor (+/- 3 dB(A)) is the total uncertainty value (KpAd) conform with the test code.
For air cooled machines, sound pressure levels are stated with ducting of outlet cooling air according the installation proposal

*3 Unit data is valid at reference conditions

*4 The inverter and motor together comply with the requirements for power drive efficiency (according to IEC 61800-9-2 & EN 50598)

*5 Package current is the current a compressor uses
- at reference ambient conditions
- at 100 % load
- at max pressure
- at nominal voltage
- right before service interval (including fouled filters, etc).

*6 The pre-described fuses OR circuit breaker are maximum main fuses or circuit breaker to protect the installed compressor electrical panel.
Cable and fuse or circuit breaker selection will depend on customer's installation.
Fuses or circuit breaker of the same type/class are mandatory. Not installing these fuses or circuit breaker will void warranty in case of an electrical failure.
Installing smaller fuses might lead to smaller supply cables. If Main circuit breaker shown as NA (not

applicable), only fuses are allowed.
The information in this document is subject to change without prior notice.

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