QUARTERLY GROUNDWATER MONITORING REPORT

2019 QUARTER–2

DANSKAMMER POINT GENERATING STATION SOLID WASTE MANAGEMENT FACILITY

Prepared for

Danskammer Energy, LLC.
Newburgh, New York

July 2019

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Project DANSK 01.18.01

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EXECUTIVE SUMMARY

Dynegy Northeast Generation, Inc. formerly operated the Danskammer Generating Station located in Newburgh, New York. The Danskammer Generating Station has been offline since October 2012 after sustaining damage during Hurricane Sandy. Prior to October 2012 coal combustion wastes generated by the coal-fired generating units were transported off site for beneficial reuse, or alternatively placed within the on-site Solid Waste Management Facility (SWMF) Phase III cell. The Danskammer Generating Station was sold in November 2013 to Danskammer Energy, LLC with the intent to repowering the facility.

The SWMF consists of three ash disposal cells with a leachate and runoff control system directed to two sedimentation basins. The Phase I cell was constructed in 1987 utilizing a single liner system. Closure and capping of the Phase I cell was completed during 1993 in accordance with the requirements set forth in 6 NYCRR Part 360. The Phase II cell was constructed in early 1992 utilizing a double composite-liner system with primary and secondary leachate collection systems. The Phase II cell is no longer active for ash placement and was permanently closed in April 2006. Construction of the Phase III cell began in April 2005 and was completed in February 2006. The Phase III expansion also utilizes a double composite-liner system with primary and secondary leachate collection systems. The Phase III cell is presently the active SWMF cell for ash placement.

The monitoring program, as set forth in the updated Environmental Monitoring Plan (EMP) prepared in March 2005, addresses both the requirements of 6 NYCRR Part 360 and special monitoring conditions Nos. 35 and Nos. 36 detailed in the SWMF Permit to Operate. The EMP was updated as part of the 2005 Renewal Application for a Permit to Operate[1] the facility, and incorporates procedures for monitoring all three monofill cells (Phase I, Phase II, and Phase III). The 2005 EMP supersedes the EMP that was submitted and subsequently accepted by New York State Department of Environmental Conservation (NYSDEC) as part of the renewal application package in February 2000.

The purpose of this report is to characterize SWMF groundwater quality in the perched/deep overburden and the bedrock units during the second quarter 2019, in accordance with the requirements of the EMP. The key findings are summarized as follows:

Groundwater Quality

- During the second quarter 2019 monitoring event, parameters were detected at concentrations in exceedance of operational trigger values (OTV) in three of the overburden monitoring wells and four of the bedrock monitoring wells.

- OTV exceedances in the SWMF overburden monitoring wells were below the STV, indicating that the concentrations reported are not significantly higher than the background water quality conditions, with the following exceptions:

[1] The renewed operating permit became effective on October 3, 2005, and remained in effect until October 2010. The revised (March 2005) EMP outlined a plan to abandon certain contingency wells and historically dry wells and consolidate the SWMF monitoring program.

- The concentration of seven parameters (calcium, chloride, hardness, sodium, sulfate, sulfur and TDS) were identified above the STVs in overburden monitoring well DW-6D in the second quarter 2019.

    - The STV exceedances are directly related to the elevated hardness, therefore contingency monitoring is not warranted.

No STV exceedances were identified in any of the bedrock monitoring wells during the second quarter 2019 sampling event.

Based on the evaluation of the SWMF groundwater data collected during second quarter 2019, it can be reasonably concluded that no impact on groundwater quality is a result of operation of the SWMF. The data evaluation included the comparison of groundwater analytical results with site-specific OTVs and STVs presented in the SWMF EMP, as well as NYSDEC Groundwater Quality Standards and Guidance Values.

The results of the overburden intrawell analysis, as detailed in the 2005 EMP, have demonstrated that the groundwater quality within the perched/deep overburden and bedrock water bearing units are stable and that the OTV exceedances are not specific to the leachate indicator parameters.

Pursuant to the Permit Renewal Application for the SWMF, the OTVs and STVs will be updated to better reflect the background groundwater quality for the previous five years at the Danskammer facility.

1 INTRODUCTION

1.1 Purpose of Report

This report provides a summary of analytical results from the groundwater monitoring program at Danskammer Energy, LLC's (Danskammer) SWMF for the second quarter of program year 2019.

The SWMF monitoring program is a modification of the Part 360 routine and baseline parameter lists developed to better monitor water quality for constituents of concern associated with coal ash. The second quarter 2019 groundwater samples were analyzed for routine parameters specified in the EMP. The EMP provides a protocol for comparing SWMF groundwater quality data to specific trigger values for each monitored constituent.

Consistent with the EMP (Sec. 3.1.1 Evaluation Methodology), water quality trigger values for the SWMF were established by parameter for overburden intrawell comparison and upgradient bedrock-derived interwell comparison. A significant increase from existing water quality levels is determined if sampling results exceed either: 1) the mean existing water quality concentration plus three standard deviations (statistical trigger value); or 2) the existing water quality value and the New York State Water Quality Standards (Part 701, 702, or 703). Trigger values were developed for both the overburden and the bedrock water bearing units at the SWMF as follows.

Overburden Monitoring Wells

Overburden monitoring well parameter analysis (perched and deep) is evaluated using intrawell comparison methods based on observed well–specific values. This evaluation establishes a STV for each individual overburden monitoring well.

Existing water quality or OTV is calculated as the arithmetic mean of five prior years of data on an individual monitoring well basis, assuring that the data are normal and uniform. STV is defined as three standard deviations above the average existing water quality of each parameter at each well. This methodology establishes a STV, the exceedance of which would initiate implementation of the contingency water quality plan if the owner/operator determines there was a significant increase from existing water quality.

This published methodology incorporates intrawell analysis as the statistical approach, which is fundamentally different from interwell analysis. While interwell analysis compares compliance wells to background upgradient water quality, the intrawell analysis compares each compliance well against a background composed of its own historic data. The intrawell analysis does not require that the hydrogeologic conditions be contiguous and uniform throughout the site and that all wells are screened in the same interval. This is because the intrawell analysis monitors trends over time at a given well instead of changes among wells.

Bedrock Monitoring Wells

Bedrock monitoring wells are evaluated via interwell comparison relative to a database developed using three standard deviations from the mean from upgradient monitoring wells DW-1R, DW-8R, and DW-9R for three prior years to yield the STV for the bedrock unit.

The contingency program pursuant to Part 360-2.11(c)(5)(iii) provides guidance when a constituent is identified above the STV levels. In such circumstances, trilinear diagrams may be prepared for both groundwater and leachate collection system samples to illustrate the relative concentrations of the major cations (calcium, magnesium, and sodium+potassium) and the major anions (sulfate, chloride, and carbonate+bicarbonate).

1.2 Monitoring Network

The 18 monitoring wells (3 perched overburden wells, 6 deep overburden wells and 9 bedrock wells) comprising the groundwater monitoring network at the SWMF include wells screened in both the perched and deep overburden units, and in the underlying bedrock as summarized on Figure 1-1 – SWMF Groundwater Monitoring Plan and in Table 1-1 – Monitoring Well Network. The following summarizes the groundwater monitoring network relative to the screened unit location, and vertical and horizontal position of each well to the SWMF.

Perched Overburden Monitoring Wells

- DW – 3P Downgradient - Southeast
- DW – 4P Downgradient - South
- DW – 7P Crossgradient - West

Deep Overburden Monitoring Wells

- DW – 2D Downgradient - Southeast
- DW – 3D Downgradient - Southeast
- DW – 4D Downgradient - South
- DW – 5D Downgradient - South
- DW – 6D Downgradient - South
- DW – 7D Crossgradient - Southwest

Bedrock Monitoring Wells

- DW – 1R Crossgradient - East
- DW – 2R Downgradient - Southeast
- DW – 3R Downgradient - Southeast
- DW – 4R Downgradient - South
- DW – 5R Downgradient - South
- DW – 6R Downgradient - South
- DW – 7R Crossgradient - Southwest
- DW – 8R Upgradient - Northwest
- DW – 9R Upgradient - North

Leachate generation is monitored and periodically collected at eight (8) locations around the SWMF, as depicted on Figure 2-1 – SWMF Leachate Collection System Plan. Monitoring points associated with the facility's leachate collection system include:

Phase I Components

- The Phase I Groundwater Interceptor Drain (P1-GID) is monitored daily for flow;
- The Phase I Underdrain (P1-UD) is monitored daily for flow; and
- The Phase I Cell has a Part 360 cap which is monitored to confirm that runoff is directed to the concrete perimeter collection trench.

Phase II Components

- The Phase II Primary Leachate Collection System (P2-PLCS), which collects the Phase II leachate is monitored daily for flow;
- The Phase II Secondary Leachate Collection System (P2-SLCS-E and P2-SLCS-W) is monitored daily for flow; and
- The Phase II Subgrade Stabilization System (P2-SSS) is monitored daily for flow.

Phase III Components

- The Phase III expansion is designed to monitor leachate in the same manner as the Phase II Cell, through a primary and secondary leachate system (P3-PLCS, P3-SLCS, respectively); and
- The Phase III liner overlays a portion of the Phase I and Phase II Cells. Phase III leachate is diverted to the existing sediment basins for treatment and ultimate discharge through Danskammer SPDES Outfall No. 019.

1.3 Second Quarter Monitoring Status

Table 1-1 summarizes groundwater elevations (as field measured) for monitored SWMF locations and their associated sampling status during the second quarter of 2019. Nine of the SWMF groundwater monitoring wells were sampled as part of the quarterly event. Samples for the second quarter monitoring period were obtained in June 2019 from the groundwater monitoring wells at the SWMF containing sufficient volume for water sampling.

Based on a review of field conditions observed during the June 2019 sampling event, eight of the SWMF monitoring wells were either dry or contained an insufficient water volume to allow for the collection of ground water samples. This group of consistently dry monitoring wells includes:

- Perched Overburden Monitoring Wells: DW-4P and DW-7P;
- Deep Overburden Monitoring Wells: DW-2D, DW-3D, DW-4D; and DW-5D; and
- Bedrock Monitoring Wells: DW-2R and DW-9R.

1.4 Tables

1-1 Second Quarter 2019 Monitoring Status

Table 1-1
MONITORING STATUS
JUNE 2019
DANSKAMMER ENERGY, L.L.C.
DANSKAMMER SOLID WASTE MANAGEMENT FACILITY

Sample ID	Screened Interval	Sampling Status	Water Level Elevation (ft-amsl)
DW-3P	P	SAMPLED	99.80
DW-4P	P	DRY	NA
DW-7P	P	DRY	NA
DW-2D	P	DRY	NA
DW-3D	D	DRY	NA
DW-4D	D	DRY	NA
DW-5D	D	DRY	NA
DW-6D	D	SAMPLED	57.00
DW-7D	D	SAMPLED	55.10
DW-1R	R	SAMPLED	34.50
DW-2R	D	DRY	NA
DW-3R	R	DAMAGED	NA
DW-4R	R	SAMPLED	35.05
DW-5R	R	SAMPLED	39.13
DW-6R	R	SAMPLED	47.70
DW-7R	R	SAMPLED	69.20
DW-8R	R	SAMPLED	103.60
DW-9R	R	DRY	NA
P2-PLCS	--------	SAMPLED	NA
P2-SLCS-E	--------	NOT SAMPLED	NA
P2-SLCS-W	--------	NOT SAMPLED	NA
P3-PLCS		SAMPLED	NA
P3-SLCS		NOT SAMPLED	NA
PI-SB	--------	SAMPLED	NA
PII-SB	--------	SAMPLED	NA
SSS	--------	NOT SAMPLED	NA
GID	--------	NOT SAMPLED	NA
P1-UD	--------	NOT SAMPLED	NA

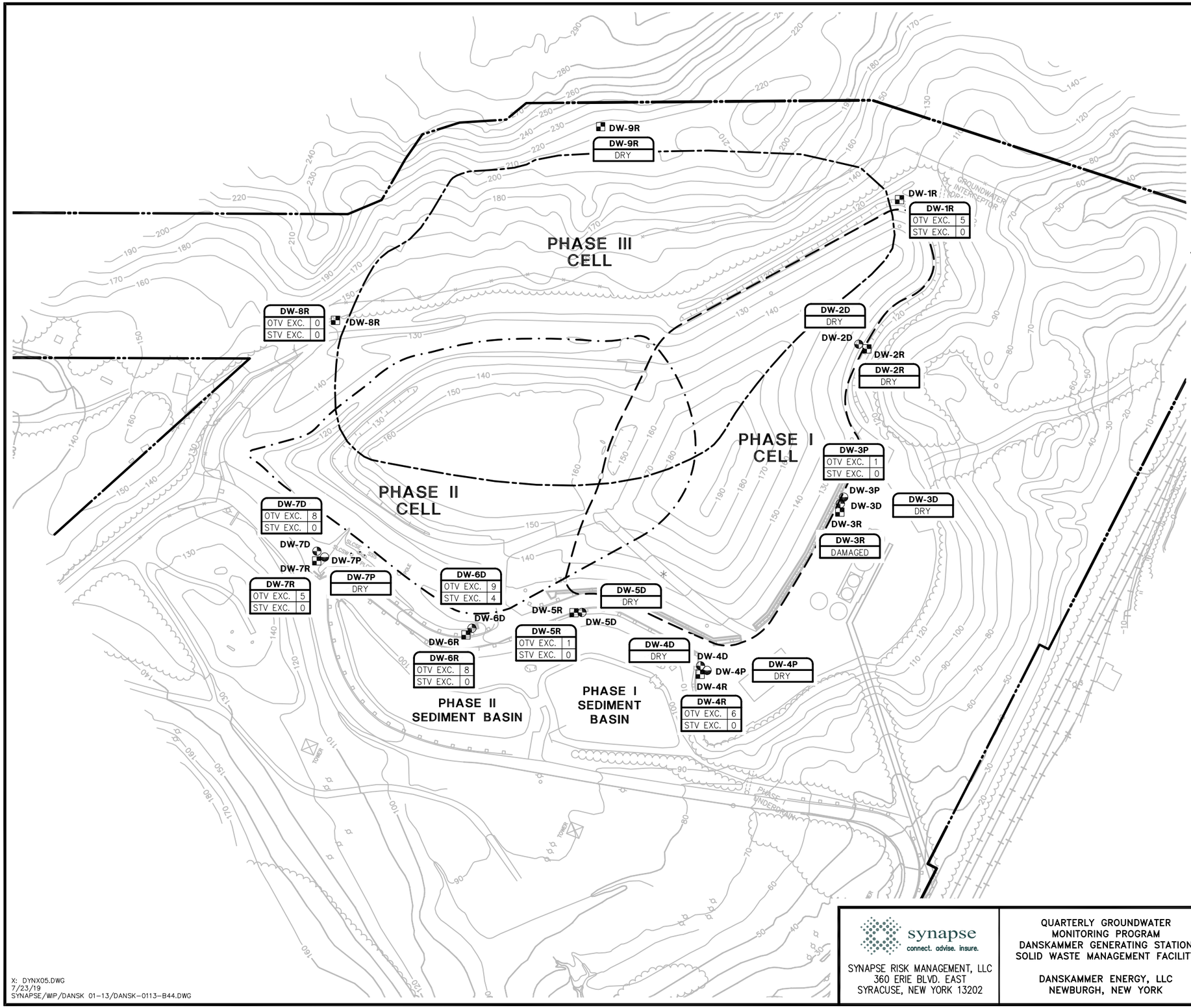
NOTES:

PLCS	-	Primary Leachate Collection System
SLCS-E	-	Secondary Leachate Collection System, East
SLCS-W	-	Secondary Leachate Collection System, West
PI-SB	-	Phase I Sedimentation Basin
PII-SB	-	Phase II Sedimentation Basin
SSS	-	Subgrade Stabilization System
GID	-	Groundwater Interceptor Drain
PI-UD	-	Phase I Under Drain
NA	-	not applicable
ND	-	Data not collected/unavailable
ft-amsl	-	feet above mean sea level

P = Perched Overburden Well
D = Deep Overburden Well
R = Bedrock Well

1.5 Figures

1-1 SWMF Groundwater Monitoring Plan



LEGEND:

- 70 — TOPOGRAPHIC CONTOUR
- ACCESS ROADWAY
- DRAINAGE CHANNEL
- GUIDERAIL
- FENCE
- PROPERTY BOUNDARY
- CULVERT
- STRUCTURES/TANKS
- POWER POLE
- DW-3P — PERCHED OVERBURDEN MONITORING WELL
- DW-3D — DEEP OVERBURDEN MONITORING WELL
- DW-3R — BEDROCK MONITORING WELL

2ND QUARTER 2019 SAMPLE EVENT RESULTS (JUNE 2019):

DW-7D	WELL ID
OTV EXC. 5	OPERATIONAL TRIGGER VALUE EXCEEDANCES
STV EXC. 1	STATISTICAL TRIGGER VALUE EXCEEDANCES

DW-7P	WELL ID
DRY	INSUFFICIENT GROUNDWATER TO ALLOW FOR SAMPLE COLLECTION

NOTES:

1. BASE MAP MODIFIED FROM ELECTRONIC FILE BY SHAW EMCON/OWT, INC. DRAWING ENTITLED "GROUNDWATER MONITORING SYSTEM", 2003.
2. WELL LOCATIONS HAVE BEEN MOVED SLIGHTLY FOR CLARITY.

0 200' 400'

GRAPHIC SCALE

X: DYNX05.DWG
7/23/19
SYNAPSE/WIP/DANSK 01-13/DANSK-0113-B44.DWG

synapse
connect. advise. insure.
SYNAPSE RISK MANAGEMENT, LLC
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SYRACUSE, NEW YORK 13202

QUARTERLY GROUNDWATER MONITORING PROGRAM
DANSKAMMER GENERATING STATION
SOLID WASTE MANAGEMENT FACILITY

DANSKAMMER ENERGY, LLC
NEWBURGH, NEW YORK

SWMF GROUNDWATER MONITORING PLAN

PROJECT NO.: DANSK 01.18.01
DATE: JULY 2019
FIGURE NO.: 1-1

2 ANALYTICAL RESULTS

Laboratory analytical results from the overburden and bedrock groundwater monitoring wells for the secondquarter2019 are presented in Table 2-1 – Overburden Groundwater Quality Data and Table 2-2 – Bedrock Groundwater Quality Data, respectively. Analyses were performed for SWMF "baseline" parameters as outlined in Table 4 of the EMP.

In addition to the laboratory analytical results, Tables 2-1 and 2-2 present the OTVs and STVs referenced in the EMP as well as the NYSDEC ambient water quality standards and guidance values. Exceedances of the OTV are identified on the water quality tables, as are STV exceedances at concentrations greater than the groundwater quality standard.

2.1 Overburden Water Quality

A total of three overburden wells were sampled at the SWMF during the second quarter of 2019. Laboratory analytical results for groundwater samples collected from the overburden wells are presented in Table 2-1.

Overburden groundwater analytes reported at concentrations exceeding the OTVs and STVs are summarized as follows:

OTV Exceedances

Monitoring Well DW-3P

- Calcium.

Monitoring Well DW-6D

- Boron, calcium, chloride, hardness, magnesium, sulfate, TDS, bicarbonate and sodium.

Monitoring Well DW-7D

- Calcium, magnesium, alkalinity, sodium, sulfate, carbonate, hardness, TDS and bicarbonate.

In general, OTVs reported during the second quarter 2019 were less than the STV calculated values based on the intrawell comparisons. The OTV exceedances observed during the second quarter 2019 for the above referenced monitoring wells are further discussed in Section 3 – Groundwater Quality Summary. There were seven STV exceedances identified in samples collected from overburden monitoring well DW-6D during the second quarter sampling event. Calcium was detected at 220 mg/L, which exceeded the STV of 159 ug/L. Sulfate was detected at 181 mg/L, which exceeded the STV of 13 mg/L. Chloride was detected at 47.3 mg/L, which exceeded the STV of 32 mg/L. Sodium was detected at 27.9 mg/L, which exceeded the STV of 13 mg/L. Sulfur was detected at 60.4 mg/L, which exceeded the STV of 42 mg/L. TDS was detected at 800 mg/L, which exceeded the STV of 700 mg/L.

2.2 Bedrock Water Quality

A total of six bedrock monitoring wells were sampled at the SWMF during the second quarter of 2019. Laboratory analytical data from the bedrock wells are presented in Table 2-2. The second quarter 2019 results indicated that a number of monitoring wells screened in the bedrock exhibited analyte concentrations above the OTV. Historically, exceedances of the NYSDEC groundwater standards detected at the SWMF have been reported in both upgradient and downgradient wells, suggesting that elevated levels of these analytes may reflect local background groundwater quality. There were no STV exceedances observed in the bedrock monitoring wells during the second quarter 2019 sampling event. The analyte concentrations exceeding the OTVs in downgradient bedrock wells during the second quarter 2019 sampling event include the following monitoring wells:

OTV Exceedances

Monitoring Well DW-1R

- Magnesium, potassium, hardness, sulfate and TDS.

Monitoring Well DW-4R

- Boron, chloride, hardness, sulfate, sulfur and TDS.

Monitoring Well DW-5R

- Sodium.

Monitoring Well DW-6R

- Boron, magnesium, alkalinity, chloride, hardness, sodium, sulfate, bicarbonate and TDS.

Monitoring Well DW-7R

- Alkalinity, chloride, hardness, TDS and bicarbonate.

With the above exceptions, the analytical results reported during the second quarter 2019 were less than the OTV calculated values based on the upgradient groundwater derived interwell data. See Table 2-2 for details of OTV exceedances for the second quarter 2019. There were no STV exceedances identified at any bedrock monitoring wells during the second quarter 2019 sampling event, with the exception of DW-1R and DW-7R, where carbonate was detected above the STV.

2.3 Quality Assurance/Quality Control

Quality Assurance/Quality Control (QA/QC) samples analyzed for the second quarter 2019 groundwater sampling event included field and method blanks, and a blind duplicate sample (DUP) collected from monitoring well DW-7D. Analytical results for the field blank and duplicate samples collected during this quarter are included in Appendix A. Lab grade, deionized water was used for the field blank. No occurrences of laboratory contamination or problems with sample handling were identified in the laboratory narratives. A comparison of the analytical results and duplicate samples indicates that the data are within the expected range of reproducibility.

2.4 Tables

2-1 Overburden Groundwater Quality Data – June 2019
2-2 Bedrock Groundwater Quality Data – June 2019

TABLE 2-1
OVERBURDEN GROUNDWATER QUALITY DATA
JUNE 2019
DANSKAMMER ENERGY, LLC
DANSKAMMER SOLID WASTE MANAGEMENT FACILITY

ROUTINE

Monitoring Well ID		**DW-3P**			**DW-6D**			**DW-7D**		
Routine Parameters	**NYSDEC Standard**	**Operational**	**STV**	**6/20/2019**	**Operational**	**STV**	**6/17/2019**	**Operational**	**STV**	**6/17/2019**
Aluminum	-	0.683	1.86	<0.100	0.94	1.39	<0.100	0.33	0.81	<0.100
Arsenic	0.025	0.004	0.01	<0.005	0	0.01	<0.005	0.01	0.01	<0.005
Boron	1	0.240	0.63	0.56	0.21	0.51	**0.618**	0.12	0.48	<0.050
Calcium	-	74	184	**76**	128	159	**220**	111	135	**126**
Iron	0.3	0.901	2.85	<0.050	0.73	2.71	<0.050	0.44	1.19	<0.050
Magnesium	35	29	41	15.3	24	27	**35.7**	54	66	**52.6**
Manganese	0.3	0.153	0.55	<0.020	0.86	2.98	<0.020	0.06	0.24	<0.020
Potassium	-	3	7	2.23	1.41	4.71	**1.47**	1.32	3.13	1.2
Selenium		0.016	0.05	0.013	0.01	0.02	0.005	0.01	0.04	<0.005
Alkalinity	-	279	454	260	336	448	**350**	401	521	**450**
Bromide	-	1	1	<2	1	1	<2	1	1	<2
Chloride	250	7	30	2.39	21	32	**47.3**	64	96	**70.7**
Hardness	-	348	462	253	414	494	**696**	503	611	**505**
Sodium	20	7	13	5.71	8	13	**27.9**	25	42	**26.6**
Sulfate	250	59	183	42.4	81	117	**181**	67	98	56.2
Sulfur	-	30	70	14.2	31	42	**60.4**	28	56	18.8
Total Dissolved Solids	500	396	593	315	522	700	**800**	612	951	**620**
Carbonate	-	3	9	<1	3	9	<1	3	9	<1
Bicarbonate	-	287	477	260	344	462	**350**	415	533	**450**
Conductivity	-	1403	1403	630	1403	1403	601	1403	1403	1206
Turbidity	5	35	95	2	12	36	2	18	68	4

Notes:
1. Operational = Existing Water Quality, the mean of the prior five years (2000-2004) of analytical data, where available.
2. STV = Statistical Trigger Values: Calculated value of three standard deviations above the average analytical value.
3. NYSDEC Standard = Groundwater Quality Standards per NYCRR Part 703.
4. Overburden monitoring wells to be accessed utilizing Intrawell comparison.
5. Bolded cells indicate that the concentration is above the Operational Trigger Value.
6. Shaded cells indicate that the concentration is above the Statistical Trigger Value.
7. Concentrations reported in milligrams per liter (mg/L), approximately equivalent to parts per million.
8. NA = Not Available, due to limited data from dry monitoring wells, or incomplete historical data.

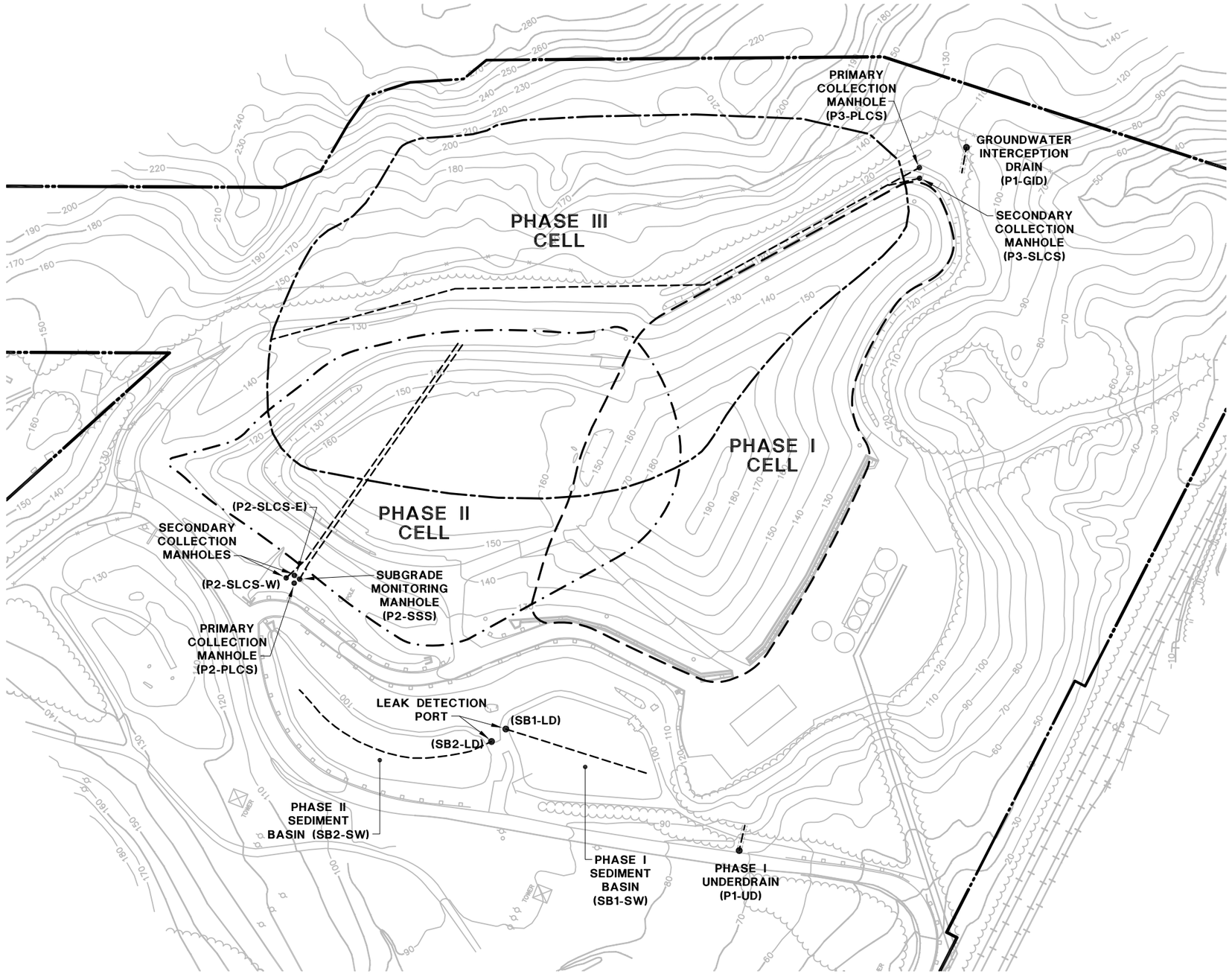
TABLE 2-2
BEDROCK GROUNDWATER QUALITY DATA
JUNE 2019
DANSKAMMER ENERGY, LLC
DANSKAMMER SOLID WASTE MANAGEMENT FACILITY

Monitoring Well ID				**DW-1R**	**DW-4R**	**DW-5R**	**DW-6R**	**DW-7R**	**DW-8R**
Routine Parameters	**NYSDEC Standard**	**Operational**	**STV**	**6/17/2019**	**6/18/2019**	**6/20/2019**	**6/19/2019**	**6/17/2019**	**6/18/2019**
Aluminum	-	0.39	1.5	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Arsenic	0.025	0.01	0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Boron	1	0.050	1.05	<0.050	**0.591**	<0.050	**0.297**	<0.050	<0.050
Calcium	-	227	250	91.4	127	74.2	143	127	70.4
Iron	0.3	0.95	3.6	0.113	<0.050	<0.050	0.162	<0.050	<0.050
Magnesium	35	53	69	**55.1**	51.2	45.4	**52.2**	51.1	35.7
Manganese	0.3	0.03	0.11	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Potassium	-	1.6	9	**2.34**	1.28	1.46	1.42	1.59	0.617
Selenium		0.004	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Alkalinity	-	402	604	400	400	360	**450**	**440**	350
Bromide	-	1	1	<2	<2	<2	<2	<2	<2
Chloride	250	25	136	4.06	**47.4**	16	**41.1**	**46.4**	<2
Hardness	-	449	830	**455**	**528**	372	**572**	**527**	323
Sodium	20	18	75	16.3	15.8	**19.3**	**19.4**	21	3.64
Sulfate	250	72	214	**148**	**182**	52.6	111	59.5	7.76
Sulfur	-	50	89	49.4	**60.8**	17.6	37.1	19.9	2.6
Total Dissolved Solids	500	500	668	**590**	**580**	430	**645**	**550**	220
Carbonate	-	3	9	<1	<1	<1	<1	<1	<1
Bicarbonate	-	406	612	400	400	360	**450**	**440**	350
Conductivity	-	1995	1400	1200	960	575	1155	1280	940
Turbidity	5	15	65	<1	<1	<1	<1	<1	<1

Notes:
1. Operational = Existing Water Quality, the mean of the prior five years (2000-2004) of analytical data, where available.
2. STV = Statistical Trigger Values: Calculated value of three standard deviations above the average analytical value.
3. NYSDEC Standard = Groundwater Quality Standards per NYCRR Part 703.
4. NA = Not Available, due to limited data from dry monitoring wells, insufficient water volume to allow sample collection, or incomplete historical data.
5. Bedrock monitoring wells to be accessed utilizing Intrawell comparison.
6. Bolded cells indicate that the concentration is above the Operational Trigger Value.
7. Shaded cells indicate that the concentration is above the STV.

2.5 Figures

2-1 SWMF Leachate and Water Monitoring Plan



LEGEND:

- 70 — TOPOGRAPHIC CONTOUR
- ACCESS ROADWAY
- DRAINAGE CHANNEL
- GUIDERAIL
- FENCE
- PROPERTY BOUNDARY
- CULVERT
- STRUCTURES/TANKS
- POWER POLE

NOTES:

1. BASE MAP MODIFIED FROM ELECTRONIC FILE BY SHAW EMCON/OWT, INC. DRAWING ENTITLED "GROUNDWATER MONITORING SYSTEM", 2003.

0 200' 400'

GRAPHIC SCALE

X: DYNX05.DWG
9/6/18
SYNAPSE/WIP/DANSK 01-13/DANSK-0113-B15.DWG

synapse
connect. advise. insure.

SYNAPSE RISK MANAGEMENT, LLC
360 ERIE BLVD. EAST
SYRACUSE, NEW YORK 13202

QUARTERLY GROUNDWATER MONITORING PROGRAM
DANSKAMMER GENERATING STATION
SOLID WASTE MANAGEMENT FACILITY

DANSKAMMER ENERGY, LLC
NEWBURGH, NEW YORK

SWMF
LEACHATE AND SURFACE WATER MONITORING PLAN

PROJECT NO.: DANSK 01.18.01
DATE: MAY 2019
FIGURE NO.: 2-1

3 GROUNDWATER QUALITY SUMMARY

Perched/Deep Overburden Unit

Monitoring Well	March2019 Groundwater Quality Observations
DW-3P	DW-3P exhibited one exceedance of the OTVs established for this intrawell location. No STV exceedances were observed at this location during the June2019 sampling event.
DW-6D	DW-6D exhibited twelve exceedances of the OTVs established for this intrawell location. Seven STV exceedances were observed at this location during the June 2019 sampling event.
DW-7D	DW-7D exhibited eight exceedances of the OTV established for this interwell location. No STV exceedances was observed at this location during the June 2019 sampling event.

Bedrock Unit

Monitoring Well	March2019 Groundwater Quality Observations
DW-1R	DW-1R exhibited five exceedances of the OTVs established for this intrawell location. No STV exceedance were observed at this location during the June 2019 sampling event.
DW-4R	DW-4R exhibited six exceedances of the OTVs established for this interwell location. No STV exceedances were observed at this location during the June 2019 sampling event.
DW-5R	DW-4R exhibited one exceedance of the OTVs established for this interwell location. No STV exceedances were observed at this location during the June 2019 sampling event.
DW-6R	DW-6R exhibited eight exceedances of the OTVs established for this interwell location. No STV exceedances was observed at this location during the June 2019 sampling event.
DW-7R	DW-7R exhibited five exceedances of the OTVs established for this interwell location. No STV exceedances was observed at this location during the June 2019 sampling event.
DW-8R	No OTV or STV exceedances were observed at this location during the June 2019 sampling event.

4 CONCLUSIONS

Groundwater Quality

- During the second quarter 2019 monitoring event, parameters were detected at concentrations in exceedance of operational trigger values (OTV) in three of the overburden monitoring wells and four of the bedrock monitoring wells.

- OTV exceedances in the SWMF overburden monitoring wells were below the STV, indicating that the concentrations reported are not significantly higher than the background water quality conditions, with the following exceptions:

- The concentration of seven parameters (calcium, chloride, hardness, sodium, sulfate, sulfur and TDS) were identified above the STVs in overburden monitoring well DW-6D in the second quarter 2019.

    - The STV exceedances are directly related to the elevated hardness, therefore contingency monitoring is not warranted.

No STV exceedances were identified in any of the bedrock monitoring wells during the second quarter 2019 sampling event.

Based on the evaluation of the SWMF groundwater data collected during second quarter 2019, it can be reasonably concluded that no impact on groundwater quality is a result of operation of the SWMF. The data evaluation included the comparison of groundwater analytical results with site-specific OTVs and STVs presented in the SWMF EMP, as well as NYSDEC Groundwater Quality Standards and Guidance Values.

The results of the overburden intrawell analysis, as detailed in the 2005 EMP, have demonstrated that the groundwater quality within the perched/deep overburden and bedrock water bearing units are stable and that the OTV exceedances are not specific to the leachate indicator parameters.

Pursuant to the Permit Renewal Application for the SWMF, the OTVs and STVs will be updated to better reflect the background groundwater quality for the previous five years at the Danskammer facility.

4.1 Tables

4-1 Summary of Operational Trigger Value Exceedances – June 2019

TABLE 3-1
SUMMARY OF OPERATIONAL TRIGGER VALUE EXCEEDANCES
JUNE 2019
DANSKAMMER ENERGY, LLC
DANSKAMMER SOLID WASTE MANAGEMENT FACILITY

Parameters	Turbidity	Alkalinity	Chloride	Sulfate	TDS	Aluminum	Arsenic	Boron	Calcium	Iron	Magnesium	Manganese	Potassium	Sulfur	Selenium	Sodium	Hardness	Bicarbonate	Carbonate	Sulfide	Barium	Copper	Lead	Zinc	Chromium
DW-3P									X		X														
DW-6D			X								X						X								
DW-7D		X	X	X	X				X		X		X			X	X								
DW-1R					X						X		X	X			X								
DW-3R	X			X	X			X				X	X	X	X	X	X								
DW-4R			X	X	X			X									X								
DW-5R																									
DW-6R			X	X	X			X							X	X	X								
DW-7R		X	X		X						X				X		X								
DW-8R		X									X				X		X								

Notes:
X - Operational Trigger Value Exceedance

5 REFERENCES

New York State Department of Environmental Conservation, Division of Solid Waste. 6 NYCRR Part 360.

Synapse Risk Management, LLC. April2005. Environmental Monitoring Plan, Danskammer Point Solid Waste Management Facility.

APPENDIX A
LABORATORY ANALYSIS

SWMF 2019 SECOND QUARTER REPORT

DANSKAMMER ENERGY, LLC
NEWBURGH, NEW YORK

JUNE 2019

Adirondack Environmental Services, Inc.

Experience is the solution

314 North Pearl Street ♦ Albany, New York 12207
(800) 848-4983 ♦ (518) 434-4546 ♦ Fax (518) 434-0891

July 10, 2019

Susanne May
Danskammer Energy, LLC c/o CAMS
994 River Road
Newburgh, NY 12550

TEL: (845) 563-4825

Work Order No: 190619064

RE: Quarterly GW
SWMF-Danskammer-Quarterly Routines

Dear Susanne May:

Adirondack Environmental Services, Inc received 7 samples on 6/19/2019 for the analyses presented in the following report.

Please see case narrative for specifics on analysis.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

ELAP#: 10709

Monica Higdon
Laboratory Manager

Adirondack Environmental Services, Inc — CASE NARRATIVE

CLIENT:	Danskammer Energy, LLC c/o CAMS	**Date:**	*10-Jul-19*
Project:	Quarterly GW		
Lab Order:	190619064		

Sample containers were supplied by Adirondack Environmental Services.

Definitions - RL: Reporting Limit DF: Dilution factor

Qualifiers:

- ND : Not Detected at reporting limit
- J: Analyte detected below quantitation limit
- B: Analyte detected in Blank
- X : Exceeds maximum contamination limit
- H: Hold time exceeded
- N: Matrix Spike below acceptable limits
- N+: Matrix Spike is above acceptable limits
- C: CCV below acceptable Limits
- C+: CCV above acceptable Limits
- S: LCS Spike recovery is below acceptable limits
- S+: LCS Spike recovery is above acceptable limits
- Z: Duplication outside acceptable limits
- T : Tentatively Identified Compound-Estimated
- E :Above quantitation range-Estimated

Note : All Results are reported as wet weight unless noted

The results relate only to the items tested. Information supplied by the client is assumed to be correct.

Adirondack Environmental Services, Inc

Date: *10-Jul-19*

CLIENT:	Danskammer Energy, LLC c/o CAMS	**Client Sample ID:**	DW-1R
Work Order:	**190619064**	**Collection Date:**	6/17/2019 3:45:00 PM
Reference:	Quarterly GW / SWMF-Danskammer-Quarte	**Lab Sample ID:**	190619064-001
PO#:		**Matrix:**	GROUNDWATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HARDNESS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Total Hardness (As CaCO3)	**455**	5		mg/L CaCO3	1	6/26/2019
ICP METALS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Aluminum	**ND**	0.100		mg/L	1	6/26/2019 3:18:00 PM
Arsenic	**ND**	0.005		mg/L	1	6/26/2019 3:18:00 PM
Boron	**ND**	0.050		mg/L	1	6/26/2019 3:18:00 PM
Calcium	**91.4**	0.050		mg/L	1	6/26/2019 3:18:00 PM
Iron	**0.113**	0.050		mg/L	1	6/26/2019 3:18:00 PM
Magnesium	**55.1**	0.050		mg/L	1	6/26/2019 3:18:00 PM
Manganese	**ND**	0.020		mg/L	1	6/26/2019 3:18:00 PM
Potassium	**2.34**	0.050		mg/L	1	6/26/2019 3:18:00 PM
Selenium	**ND**	0.005		mg/L	1	6/26/2019 3:18:00 PM
Sodium	**16.3**	0.050		mg/L	1	6/26/2019 3:18:00 PM
ANIONS BY ION CHROMATOGRAPHY - EPA 300.0 REV 2.1						Analyst: **CS**
Chloride	**4.06**	2.00		mg/L	2	7/9/2019 12:11:00 AM
Bromide	**ND**	2.00		mg/L	2	7/9/2019 12:11:00 AM
Sulfate	**148**	4.00	N	mg/L	2	7/9/2019 12:11:00 AM
ALKALINITY - SM 2320B-2011						Analyst: **DAA**
Alkalinity, Bicarbonate (As CaCO3)	**400**	10.0		mgCaCO3/L	1	6/24/2019
Alkalinity, Carbonate (As CaCO3)	**ND**	10.0		mgCaCO3/L	1	6/24/2019
Alkalinity, Total (As CaCO3)	**400**	10.0		mgCaCO3/L	1	6/24/2019
SULFUR IN WATER CALCULATION						Analyst: **CMH**
Sulfur	**49.4**	0.6		mg/L	1	7/10/2019
TOTAL DISSOLVED SOLIDS - SM 2540C-2011						Analyst: **CC**
TDS (Residue, Filterable)	**590**	5	S+	mg/L	1	6/24/2019

Adirondack Environmental Services, Inc

Date: *10-Jul-19*

CLIENT:	Danskammer Energy, LLC c/o CAMS	**Client Sample ID:**	DW-6D
Work Order:	**190619064**	**Collection Date:**	6/19/2019 10:20:00 AM
Reference:	Quarterly GW / SWMF-Danskammer-Quarte	**Lab Sample ID:**	190619064-002
PO#:		**Matrix:**	GROUNDWATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HARDNESS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Total Hardness (As CaCO3)	**696**	5		mg/L CaCO3	1	6/26/2019
ICP METALS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Aluminum	**ND**	0.100		mg/L	1	6/26/2019 3:28:08 PM
Arsenic	**ND**	0.005		mg/L	1	6/26/2019 3:28:08 PM
Boron	**0.618**	0.050		mg/L	1	6/26/2019 3:28:08 PM
Calcium	**220**	0.500		mg/L	10	6/26/2019 3:33:12 PM
Iron	**ND**	0.050		mg/L	1	6/26/2019 3:28:08 PM
Magnesium	**35.7**	0.050		mg/L	1	6/26/2019 3:28:08 PM
Manganese	**ND**	0.020		mg/L	1	6/26/2019 3:28:08 PM
Potassium	**1.47**	0.050		mg/L	1	6/26/2019 3:28:08 PM
Selenium	**ND**	0.005		mg/L	1	6/26/2019 3:28:08 PM
Sodium	**27.9**	0.050		mg/L	1	6/26/2019 3:28:08 PM
ANIONS BY ION CHROMATOGRAPHY - EPA 300.0 REV 2.1						Analyst: **CS**
Chloride	**47.3**	2.00		mg/L	2	7/9/2019 1:08:05 AM
Bromide	**ND**	2.00		mg/L	2	7/9/2019 1:08:05 AM
Sulfate	**181**	4.00		mg/L	2	7/9/2019 1:08:05 AM
ALKALINITY - SM 2320B-2011						Analyst: **DAA**
Alkalinity, Bicarbonate (As CaCO3)	**350**	10.0		mgCaCO3/L	1	6/24/2019
Alkalinity, Carbonate (As CaCO3)	**ND**	10.0		mgCaCO3/L	1	6/24/2019
Alkalinity, Total (As CaCO3)	**350**	10.0		mgCaCO3/L	1	6/24/2019
SULFUR IN WATER CALCULATION						Analyst: **CMH**
Sulfur	**60.4**	0.6		mg/L	1	7/10/2019
TOTAL DISSOLVED SOLIDS - SM 2540C-2011						Analyst: **CC**
TDS (Residue, Filterable)	**800**	5		mg/L	1	6/25/2019

Adirondack Environmental Services, Inc

Date: *10-Jul-19*

CLIENT:	Danskammer Energy, LLC c/o CAMS	**Client Sample ID:**	DW-4R
Work Order:	**190619064**	**Collection Date:**	6/18/2019 1:45:00 PM
Reference:	Quarterly GW / SWMF-Danskammer-Quarte	**Lab Sample ID:**	190619064-003
PO#:		**Matrix:**	GROUNDWATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HARDNESS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Total Hardness (As CaCO3)	**528**	5		mg/L CaCO3	1	6/26/2019
ICP METALS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Aluminum	**ND**	0.100		mg/L	1	6/26/2019 3:38:11 PM
Arsenic	**ND**	0.005		mg/L	1	6/26/2019 3:38:11 PM
Boron	**0.591**	0.050		mg/L	1	6/26/2019 3:38:11 PM
Calcium	**127**	0.500		mg/L	10	6/26/2019 3:43:14 PM
Iron	**ND**	0.050		mg/L	1	6/26/2019 3:38:11 PM
Magnesium	**51.2**	0.050		mg/L	1	6/26/2019 3:38:11 PM
Manganese	**ND**	0.020		mg/L	1	6/26/2019 3:38:11 PM
Potassium	**1.28**	0.050		mg/L	1	6/26/2019 3:38:11 PM
Selenium	**ND**	0.005		mg/L	1	6/26/2019 3:38:11 PM
Sodium	**15.8**	0.050		mg/L	1	6/26/2019 3:38:11 PM
ANIONS BY ION CHROMATOGRAPHY - EPA 300.0 REV 2.1						Analyst: **CS**
Chloride	**47.4**	2.00		mg/L	2	7/9/2019 2:26:20 AM
Bromide	**ND**	2.00		mg/L	2	7/9/2019 2:26:20 AM
Sulfate	**182**	4.00		mg/L	2	7/9/2019 2:26:20 AM
ALKALINITY - SM 2320B-2011						Analyst: **DAA**
Alkalinity, Bicarbonate (As CaCO3)	**400**	10.0		mgCaCO3/L	1	6/24/2019
Alkalinity, Carbonate (As CaCO3)	**ND**	10.0		mgCaCO3/L	1	6/24/2019
Alkalinity, Total (As CaCO3)	**400**	10.0		mgCaCO3/L	1	6/24/2019
SULFUR IN WATER CALCULATION						Analyst: **CMH**
Sulfur	**60.8**	0.6		mg/L	1	7/10/2019
TOTAL DISSOLVED SOLIDS - SM 2540C-2011						Analyst: **CC**
TDS (Residue, Filterable)	**580**	5		mg/L	1	6/25/2019

Adirondack Environmental Services, Inc

Date: *10-Jul-19*

CLIENT:	Danskammer Energy, LLC c/o CAMS	**Client Sample ID:**	DW-6R
Work Order:	**190619064**	**Collection Date:**	6/19/2019 11:30:00 AM
Reference:	Quarterly GW / SWMF-Danskammer-Quarte	**Lab Sample ID:**	190619064-004
PO#:		**Matrix:**	GROUNDWATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HARDNESS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Total Hardness (As CaCO3)	**572**	5		mg/L CaCO3	1	6/26/2019
ICP METALS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Aluminum	**ND**	0.100		mg/L	1	6/26/2019 3:48:13 PM
Arsenic	**ND**	0.005		mg/L	1	6/26/2019 3:48:13 PM
Boron	**0.297**	0.050		mg/L	1	6/26/2019 3:48:13 PM
Calcium	**143**	0.500		mg/L	10	6/26/2019 4:08:47 PM
Iron	**0.162**	0.050		mg/L	1	6/26/2019 3:48:13 PM
Magnesium	**52.2**	0.050		mg/L	1	6/26/2019 3:48:13 PM
Manganese	**ND**	0.020		mg/L	1	6/26/2019 3:48:13 PM
Potassium	**1.42**	0.050		mg/L	1	6/26/2019 3:48:13 PM
Selenium	**ND**	0.005		mg/L	1	6/26/2019 3:48:13 PM
Sodium	**19.4**	0.050		mg/L	1	6/26/2019 3:48:13 PM
ANIONS BY ION CHROMATOGRAPHY - EPA 300.0 REV 2.1						Analyst: **CS**
Chloride	**41.1**	2.00		mg/L	2	7/9/2019 2:45:40 AM
Bromide	**ND**	2.00		mg/L	2	7/9/2019 2:45:40 AM
Sulfate	**111**	4.00		mg/L	2	7/9/2019 2:45:40 AM
ALKALINITY - SM 2320B-2011						Analyst: **DAA**
Alkalinity, Bicarbonate (As CaCO3)	**450**	10.0		mgCaCO3/L	1	6/25/2019
Alkalinity, Carbonate (As CaCO3)	**ND**	10.0		mgCaCO3/L	1	6/25/2019
Alkalinity, Total (As CaCO3)	**450**	10.0		mgCaCO3/L	1	6/25/2019
SULFUR IN WATER CALCULATION						Analyst: **CMH**
Sulfur	**37.1**	0.6		mg/L	1	7/10/2019
TOTAL DISSOLVED SOLIDS - SM 2540C-2011						Analyst: **CC**
TDS (Residue, Filterable)	**645**	5		mg/L	1	6/26/2019

Adirondack Environmental Services, Inc

Date: *10-Jul-19*

CLIENT:	Danskammer Energy, LLC c/o CAMS	**Client Sample ID:**	DW-7R
Work Order:	**190619064**	**Collection Date:**	6/17/2019 2:25:00 PM
Reference:	Quarterly GW / SWMF-Danskammer-Quarte	**Lab Sample ID:**	190619064-005
PO#:		**Matrix:**	GROUNDWATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HARDNESS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Total Hardness (As CaCO3)	**527**	5		mg/L CaCO3	1	6/26/2019
ICP METALS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Aluminum	**ND**	0.100		mg/L	1	6/26/2019 4:13:48 PM
Arsenic	**ND**	0.005		mg/L	1	6/26/2019 4:13:48 PM
Boron	**ND**	0.050		mg/L	1	6/26/2019 4:13:48 PM
Calcium	**127**	0.500		mg/L	10	6/26/2019 4:18:54 PM
Iron	**ND**	0.050		mg/L	1	6/26/2019 4:13:48 PM
Magnesium	**51.1**	0.050		mg/L	1	6/26/2019 4:13:48 PM
Manganese	**ND**	0.020		mg/L	1	6/26/2019 4:13:48 PM
Potassium	**1.59**	0.050		mg/L	1	6/26/2019 4:13:48 PM
Selenium	**ND**	0.005		mg/L	1	6/26/2019 4:13:48 PM
Sodium	**21.0**	0.050		mg/L	1	6/26/2019 4:13:48 PM
ANIONS BY ION CHROMATOGRAPHY - EPA 300.0 REV 2.1						Analyst: **CS**
Chloride	**46.4**	2.00		mg/L	2	7/9/2019 3:04:42 AM
Bromide	**ND**	2.00		mg/L	2	7/9/2019 3:04:42 AM
Sulfate	**59.5**	4.00		mg/L	2	7/9/2019 3:04:42 AM
ALKALINITY - SM 2320B-2011						Analyst: **DAA**
Alkalinity, Bicarbonate (As CaCO3)	**440**	10.0		mgCaCO3/L	1	6/25/2019
Alkalinity, Carbonate (As CaCO3)	**ND**	10.0		mgCaCO3/L	1	6/25/2019
Alkalinity, Total (As CaCO3)	**440**	10.0		mgCaCO3/L	1	6/25/2019
SULFUR IN WATER CALCULATION						Analyst: **CMH**
Sulfur	**19.9**	0.6		mg/L	1	7/10/2019
TOTAL DISSOLVED SOLIDS - SM 2540C-2011						Analyst: **CC**
TDS (Residue, Filterable)	**550**	5	S+	mg/L	1	6/24/2019

Adirondack Environmental Services, Inc

Date: *10-Jul-19*

CLIENT:	Danskammer Energy, LLC c/o CAMS	**Client Sample ID:**	DW-7D
Work Order:	**190619064**	**Collection Date:**	6/17/2019 3:20:00 PM
Reference:	Quarterly GW / SWMF-Danskammer-Quarte	**Lab Sample ID:**	190619064-006
PO#:		**Matrix:**	GROUNDWATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HARDNESS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Total Hardness (As CaCO3)	**531**	5		mg/L CaCO3	1	6/26/2019
ICP METALS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Aluminum	**ND**	0.100		mg/L	1	6/26/2019 4:23:55 PM
Arsenic	**ND**	0.005		mg/L	1	6/26/2019 4:23:55 PM
Boron	**ND**	0.050		mg/L	1	6/26/2019 4:23:55 PM
Calcium	**126**	0.500		mg/L	10	6/26/2019 4:29:01 PM
Iron	**ND**	0.050		mg/L	1	6/26/2019 4:23:55 PM
Magnesium	**52.6**	0.050		mg/L	1	6/26/2019 4:23:55 PM
Manganese	**ND**	0.020		mg/L	1	6/26/2019 4:23:55 PM
Potassium	**1.20**	0.050		mg/L	1	6/26/2019 4:23:55 PM
Selenium	**ND**	0.005		mg/L	1	6/26/2019 4:23:55 PM
Sodium	**26.6**	0.050		mg/L	1	6/26/2019 4:23:55 PM
ANIONS BY ION CHROMATOGRAPHY - EPA 300.0 REV 2.1						Analyst: **CS**
Chloride	**70.7**	2.00		mg/L	2	7/9/2019 3:23:43 AM
Bromide	**ND**	2.00		mg/L	2	7/9/2019 3:23:43 AM
Sulfate	**56.2**	4.00		mg/L	2	7/9/2019 3:23:43 AM
ALKALINITY - SM 2320B-2011						Analyst: **DAA**
Alkalinity, Bicarbonate (As CaCO3)	**450**	10.0		mgCaCO3/L	1	6/25/2019
Alkalinity, Carbonate (As CaCO3)	**ND**	10.0		mgCaCO3/L	1	6/25/2019
Alkalinity, Total (As CaCO3)	**450**	10.0		mgCaCO3/L	1	6/25/2019
SULFUR IN WATER CALCULATION						Analyst: **CMH**
Sulfur	**18.8**	0.6		mg/L	1	7/10/2019
TOTAL DISSOLVED SOLIDS - SM 2540C-2011						Analyst: **CC**
TDS (Residue, Filterable)	**620**	5	S+	mg/L	1	6/24/2019

Adirondack Environmental Services, Inc

Date: *10-Jul-19*

CLIENT:	Danskammer Energy, LLC c/o CAMS	**Client Sample ID:**	DW-8R
Work Order:	**190619064**	**Collection Date:**	6/18/2019 12:30:00 PM
Reference:	Quarterly GW / SWMF-Danskammer-Quarte	**Lab Sample ID:**	190619064-007
PO#:		**Matrix:**	GROUNDWATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HARDNESS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Total Hardness (As CaCO3)	**323**	5		mg/L CaCO3	1	6/26/2019
ICP METALS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/20/2019)						
Aluminum	**ND**	0.100		mg/L	1	6/26/2019 4:34:04 PM
Arsenic	**ND**	0.005		mg/L	1	6/26/2019 4:34:04 PM
Boron	**ND**	0.050		mg/L	1	6/26/2019 4:34:04 PM
Calcium	**70.4**	0.050		mg/L	1	6/26/2019 4:34:04 PM
Iron	**ND**	0.050		mg/L	1	6/26/2019 4:34:04 PM
Magnesium	**35.7**	0.050		mg/L	1	6/26/2019 4:34:04 PM
Manganese	**ND**	0.020		mg/L	1	6/26/2019 4:34:04 PM
Potassium	**0.617**	0.050		mg/L	1	6/26/2019 4:34:04 PM
Selenium	**ND**	0.005		mg/L	1	6/26/2019 4:34:04 PM
Sodium	**3.64**	0.050		mg/L	1	6/26/2019 4:34:04 PM
ANIONS BY ION CHROMATOGRAPHY - EPA 300.0 REV 2.1						Analyst: **CS**
Chloride	**ND**	2.00		mg/L	2	7/9/2019 3:42:45 AM
Bromide	**ND**	2.00		mg/L	2	7/9/2019 3:42:45 AM
Sulfate	**7.76**	4.00		mg/L	2	7/9/2019 3:42:45 AM
ALKALINITY - SM 2320B-2011						Analyst: **DAA**
Alkalinity, Bicarbonate (As CaCO3)	**350**	10.0		mgCaCO3/L	1	6/25/2019
Alkalinity, Carbonate (As CaCO3)	**ND**	10.0		mgCaCO3/L	1	6/25/2019
Alkalinity, Total (As CaCO3)	**350**	10.0		mgCaCO3/L	1	6/25/2019
SULFUR IN WATER CALCULATION						Analyst: **CMH**
Sulfur	**2.6**	0.6		mg/L	1	7/10/2019
TOTAL DISSOLVED SOLIDS - SM 2540C-2011						Analyst: **CC**
TDS (Residue, Filterable)	**220**	5		mg/L	1	6/25/2019

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518-434-4546 ♦ Fax: 518-434-0891

CHAIN OF CUSTODY RECORD

AES Work Order#: 190619064

EXPERIENCE IS THE SOLUTION

A full service analytical research laboratory offering solutions to environmental concerns

Client Name: Synapse	Address:		
Send Report to:	Project Name (Location): SWMF-Danskammer-Quarterly Routines	Samplers Name:	
Client Phone No:	PO #:	Samplers Signature:	
Client Fax No:			

AES Sample ID	Client Sample ID:	Date Sampled	Time A=am P=pm		Sample Type Matrix	C	G	# of Cont's	Analysis
001	DW-1R	6/17/19	1545	A (P)	GW		G	3	Routine Parameters
				A P					Al,As,B,Ca,Fe,Mg,Mn,K,
				A P					Se,Na,Hardness,Sulfur,
									Bromide,Chloride,Sulfate,
									Carbonate/Bicarbonate,
									Alkalinity,TDS
				P					
002	DW-6D	6/19/19	1020	(A)	GW		G	3	Same As Above
DRY	~~DW-2R~~			A P	~~GW~~		~~G~~	~~3~~	~~Same As Above~~ BW
DRY	~~DW-2D~~			A P	~~GW~~		~~G~~	~~3~~	~~Same As Above~~ BW
Broken	~~DW-3R~~			A P	~~GW~~		~~G~~	~~3~~	~~Same As Above~~ BW
DRY	~~DW-3D~~			A P	~~GW~~		~~G~~	~~0~~	~~Same As Above~~ BW

Shipment Arrived Via:
FedEx UPS (Client) AES Other:_____

Turnaround Time Requested:
④ 1 Day ④ 3 Day ④ Normal
④ 2 -Day ④ 5 Day

Special Instructions/Remarks:

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Ben Lytow AAL	6/19/19	3:33pm			
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	**Received for Laboratory by:**	Date	Time
			[signature]	6/19/19	3:33

Sample Temperature
Ambient (Chilled)
Chilling Process begun
Notes: 4°C

Properly Preserved
(Y) N
Notes:

Received Within Holding Times
(Y) N
Notes:

Demo
190619064

Adirondack Environmental Services Inc.
314 North Pearl Street
Albany, New York 12207
518-434-4546 ♦ Fax: 518-434-0891

CHAIN OF CUSTODY RECORD

AES Work Order#: 1906190G4

EXPERIENCE IS THE SOLUTION

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Client Name: Synapse	Address:	
Send Report to:	Project Name (Location): SWMF-Danskammer-Quarterly Routines	Samplers Name:
Client Phone No:	PO #:	Samplers Signature:
Client Fax No:		

AES Sample ID	Client Sample ID:	Date Sampled	Time A=am P=pm		Sample Type Matrix	C	G	# of Cont's	Analysis
1	DW-3P			A P	GW		G	3	Same As Above
003	DW-4R	6/18/19	1345	A (P)	GW		G	3	Same As Above
DRY	~~DW-4D~~			A P	~~GW~~		~~G~~	~~3~~	~~Same As Above~~ BW
DRY	~~DW-4P~~			A P	~~GW~~		~~G~~	~~3~~	~~Same As Above~~ BW
	DW-5R			A P	GW		G	3	Same As Above
DRY	~~DW-5D~~			A P	~~GW~~		~~G~~	~~3~~	~~Same As Above~~
004	DW-6R	6/19/19	1130	A P	GW		G	3	Same As Above
005	DW-7R	6/17/19	1425	A (P)	GW		G	3	Same As Above
006	DW-7D	6/17/19	1520	A (P)	GW		G	3	Same As Above
DRY	~~DW-7P~~			A P	~~GW~~		~~G~~	~~3~~	~~Same As Above~~ BW
007	DW-8R	6/18/19	1230	A (P)	GW		G	3	Same As Above
DRY	~~DW-9R~~			A P	~~GW~~		~~G~~	~~3~~	~~Same As Above~~ BW

Shipment Arrived Via:
FedEx UPS (Client) AES Other:_____

Turnaround Time Requested:
④ 1 Day ④ 3 Day ④ Normal
④ 2 -Day ④ 5 Day

Special Instructions/Remarks:

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Ben Wagner AAL	6/19/19	3:33pm			
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	**Received for Laboratory by:**	Date	Time
			[signature]	6/19/19	3:33

Sample Temperature	**Properly Preserved**	**Received Within Holding Times**
Ambient (Chilled)	(Y) N	(Y) N
Chilling Process begun		
Notes: 4°C	Notes:	Notes:

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TERMS, CONDITIONS & LIMITATIONS

All service rendered by the **Adirondack Environmental Services, Inc.** are undertaken and all rates are based upon the following terms:

(a) Neither **Adirondack Environmental Services, Inc.,** nor any of its employees, agents or sub-contractors shall be liable for any loss or damage arising out of **Adirondack Environmental Services, Inc.'s** performance or nonperformance, whether by way of negligence or breach of contract, or otherwise, in any amount greater than twice the amount billed to the customer for the work leading to the claim of the customer. Said remedy shall be the sole and exclusive remedy against **Adirondack Environmental Services, Inc.** arising out of its work.

(b) All claims made must be in writing within forty-five (45) days after delivery of the **Adirondack Environmental Services, Inc.** report regarding said work or such claim shall be deemed or irrevocably waived.

(c) **Adirondack Environmental Services, Inc.** reports are submitted in writing and are for our customers only. Our customers are considered to be only those entities being billed for our services. Acquisition of an **Adirondack Environmental Services, Inc.** report by other than our customer does not constitute a representation of **Adirondack Environmental Services, Inc.** as to the accuracy of the contents thereof.

(d) In no event shall **Adirondack Environmental Services, Inc.,** its employees, agents or sub-contractors be responsible for consequential or special damages of any kind or in any amount.

(e) No deviation from the terms set forth herein shall bind **Adirondack Environmental Services, Inc.** unless in writing and signed by a Director of **Adirondack Environmental Services, Inc.**

(f) Results pertain only to items analyzed. Information supplied by client is assumed to be correct. This information may be used on reports and in calculations and **Adirondack Environmental Services, Inc.** is not responsible for the accuracy of this information.

(g) Payments by Credit Card/Purchase Cards are subject to a 3% additional charge.

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July 10, 2019

Susanne May
Danskammer Energy, LLC c/o CAMS
994 River Road
Newburgh, NY 12550

TEL: (845) 563-4825

Work Order No: 190621002

RE: Quarterly GW
SWMF-Danskammer-Quarterly Routines

Dear Susanne May:

Adirondack Environmental Services, Inc received 2 samples on 6/20/2019 for the analyses presented in the following report.

Please see case narrative for specifics on analysis.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

ELAP#: 10709

Monica Higdon
Laboratory Manager

Adirondack Environmental Services, Inc CASE NARRATIVE

CLIENT:	Danskammer Energy, LLC c/o CAMS	**Date:**	*10-Jul-19*
Project:	Quarterly GW		
Lab Order:	190621002		

Sample containers were supplied by Adirondack Environmental Services.

Definitions - RL: Reporting Limit DF: Dilution factor

Qualifiers:

- ND : Not Detected at reporting limit
- J: Analyte detected below quantitation limit
- B: Analyte detected in Blank
- X : Exceeds maximum contamination limit
- H: Hold time exceeded
- N: Matrix Spike below acceptable limits
- N+: Matrix Spike is above acceptable limits
- C: CCV below acceptable Limits
- C+: CCV above acceptable Limits
- S: LCS Spike recovery is below acceptable limits
- S+: LCS Spike recovery is above acceptable limits
- Z: Duplication outside acceptable limits
- T : Tentatively Identified Compound-Estimated
- E :Above quantitation range-Estimated

Note : All Results are reported as wet weight unless noted

The results relate only to the items tested. Information supplied by the client is assumed to be correct.

Adirondack Environmental Services, Inc

Date: *10-Jul-19*

CLIENT:	Danskammer Energy, LLC c/o CAMS	**Client Sample ID:**	DW-5R
Work Order:	**190621002**	**Collection Date:**	6/20/2019 12:55:00 PM
Reference:	Quarterly GW / SWMF-Danskammer-Quarte	**Lab Sample ID:**	190621002-001
PO#:		**Matrix:**	WATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HARDNESS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/21/2019)						
Total Hardness (As CaCO3)	**372**	5		mg/L CaCO3	1	6/26/2019
ICP METALS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/21/2019)						
Aluminum	**ND**	0.100		mg/L	1	6/26/2019 6:06:06 PM
Arsenic	**ND**	0.005		mg/L	1	6/26/2019 6:06:06 PM
Boron	**ND**	0.050		mg/L	1	6/26/2019 6:06:06 PM
Calcium	**74.2**	0.050		mg/L	1	6/26/2019 6:06:06 PM
Iron	**ND**	0.050		mg/L	1	6/26/2019 6:06:06 PM
Magnesium	**45.4**	0.050		mg/L	1	6/26/2019 6:06:06 PM
Manganese	**ND**	0.020		mg/L	1	6/26/2019 6:06:06 PM
Potassium	**1.46**	0.050		mg/L	1	6/26/2019 6:06:06 PM
Selenium	**ND**	0.005		mg/L	1	6/26/2019 6:06:06 PM
Sodium	**19.3**	0.050		mg/L	1	6/26/2019 6:06:06 PM
ANIONS BY ION CHROMATOGRAPHY - EPA 300.0 REV 2.1						Analyst: **CS**
Chloride	**16.0**	2.00		mg/L	2	7/9/2019 7:15:36 AM
Bromide	**ND**	2.00		mg/L	2	7/9/2019 7:15:36 AM
Sulfate	**52.6**	4.00		mg/L	2	7/9/2019 7:15:36 AM
ALKALINITY - SM 2320B-2011						Analyst: **DAA**
Alkalinity, Bicarbonate (As CaCO3)	**360**	10.0		mgCaCO3/L	1	6/24/2019
Alkalinity, Carbonate (As CaCO3)	**ND**	10.0		mgCaCO3/L	1	6/24/2019
Alkalinity, Total (As CaCO3)	**360**	10.0		mgCaCO3/L	1	6/24/2019
SULFUR IN WATER CALCULATION						Analyst: **CMH**
Sulfur	**17.6**	0.6		mg/L	1	7/10/2019
TOTAL DISSOLVED SOLIDS - SM 2540C-2011						Analyst: **CC**
TDS (Residue, Filterable)	**430**	5		mg/L	1	6/27/2019

Adirondack Environmental Services, Inc

Date: *10-Jul-19*

CLIENT:	Danskammer Energy, LLC c/o CAMS	**Client Sample ID:**	DW-3P
Work Order:	**190621002**	**Collection Date:**	6/20/2019 1:30:00 PM
Reference:	Quarterly GW / SWMF-Danskammer-Quarte	**Lab Sample ID:**	190621002-002
PO#:		**Matrix:**	WATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
HARDNESS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/21/2019)						
Total Hardness (As CaCO3)	**253**	5		mg/L CaCO3	1	6/26/2019
ICP METALS - EPA 200.7 REV 4.4						Analyst: **SM**
(Prep: - 6/21/2019)						
Aluminum	**ND**	0.100		mg/L	1	6/26/2019 6:16:19 PM
Arsenic	**ND**	0.005		mg/L	1	6/26/2019 6:16:19 PM
Boron	**0.560**	0.050		mg/L	1	6/26/2019 6:16:19 PM
Calcium	**76.0**	0.050		mg/L	1	6/26/2019 6:16:19 PM
Iron	**ND**	0.050		mg/L	1	6/26/2019 6:16:19 PM
Magnesium	**15.3**	0.050		mg/L	1	6/26/2019 6:16:19 PM
Manganese	**ND**	0.020		mg/L	1	6/26/2019 6:16:19 PM
Potassium	**2.23**	0.050		mg/L	1	6/26/2019 6:16:19 PM
Selenium	**0.013**	0.005		mg/L	1	6/26/2019 6:16:19 PM
Sodium	**5.71**	0.050		mg/L	1	6/26/2019 6:16:19 PM
ANIONS BY ION CHROMATOGRAPHY - EPA 300.0 REV 2.1						Analyst: **CS**
Chloride	**2.39**	2.00		mg/L	2	7/9/2019 7:34:37 AM
Bromide	**ND**	2.00		mg/L	2	7/9/2019 7:34:37 AM
Sulfate	**42.4**	4.00		mg/L	2	7/9/2019 7:34:37 AM
ALKALINITY - SM 2320B-2011						Analyst: **DAA**
Alkalinity, Bicarbonate (As CaCO3)	**260**	10.0		mgCaCO3/L	1	6/24/2019
Alkalinity, Carbonate (As CaCO3)	**ND**	10.0		mgCaCO3/L	1	6/24/2019
Alkalinity, Total (As CaCO3)	**260**	10.0		mgCaCO3/L	1	6/24/2019
SULFUR IN WATER CALCULATION						Analyst: **CMH**
Sulfur	**14.2**	0.6		mg/L	1	7/10/2019
TOTAL DISSOLVED SOLIDS - SM 2540C-2011						Analyst: **CC**
TDS (Residue, Filterable)	**315**	5		mg/L	1	6/27/2019

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CHAIN OF CUSTODY RECORD

AES Work Order # 190621002

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Client Name: SYNAPSE	**Address:**		
Send Report To:	**Project Name (Location)** SWMF-DansKammer-Quarterly Routines		**Samplers: (Names)** Jimmy Conley
Client Phone No:	**Client Email:**	**PO Number:**	**Samplers: (Signature)** Jimmy Conley

AES Sample Number	Client Sample Identification & Location	Date Sampled	Time A=a.m. P=p.m.		Sample Type: Matrix	Comp	Grab	Number of Cont's	Analysis Required
001	DW-5R	6/20/19	1255	A (P)				3	Routine Parameters
002	~~DW-3R~~ DW-3P	6/20/19	1330	A (P)				3	Al, As, B, Ca, Fe, Mg, Mn, K, Se, Na, Hardness, Sulfor, Bromide, Chloride, Sulfate, Carbonate / Bicarbonate, Alkalinity, TDS
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					
				A P					

Shipment Arrived Via:
FedEx UPS Client AES Other:_____

CC Report To / Special Instructions/Remarks:

Turnaround Time Request:
☐ 1 Day ☐ 3 Day ☐ Normal
☐ 2 Day ☐ 5 Day
Note: Samples received after 3:30 pm are considered next business day

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Jimmy Conley		
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received for Laboratory by:	Date/Time
		6/20/19 3:30pm

Temperature	AES Bottles	Properly Preserved	Received Within Holding Times
Ambient or Chilled	Y ☒ N ☐	Y N	Y N
Notes: 4°C		Notes:	

WHITE - Lab Copy YELLOW - Sampler Copy

Adirondack Environmental Ser

Demo
190621002

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(b) All claims made must be in writing within forty-five (45) days after delivery of the **Adirondack Environmental Services, Inc.** report regarding said work or such claim shall be deemed or irrevocably waived.

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APPENDIX B
FIELD DATA SHEETS

SWMF 2019 SECOND QUARTER REPORT

DANSKAMMER ENERGY, LLC
NEWBURGH, NEW YORK

JUNE 2019

LOW FLOW GROUNDWATER SAMPLING FIELD FORM

Site: Danskammer SWMF
Project No.
Date: 6/20/19
Weather: 70°F Overcast

Well ID: DW-5R
Sample ID: DW-5R
Sampler: Jimmy Corley
Signature: Jimmy Corley

Well Condition Observations	
Protective Casing:	Good
Lock:	Good
Label:	Good
Surface Seal:	Good
PVC Well Casing:	Good

Well Volume Calculations	
Well Diameter (in):	
Depth to Water (ft):	BW 82.60 82.37
Total Depth (ft):	
Well Volume (gal):	

TIME	PUMP SETTING (feet of H_2O)	DISCHARGE TIME (seconds)	REFILL TIME (seconds)	FLOW RATE (ml/min)	DEPTH TO WATER (feet)	pH (SU)	TEMP (°C)	SPECIFIC CONDUCTANCE (mS/cm)	DISSOLVED OXYGEN (mg/l)	ORP (mv)	TURBIDITY (NTU)
1240	120	9	+0 11	120	82.85	7.93	19.3	0.598	10.10	176.6	0.4
1245	120	9	11	120	83.26	7.62	15.6	0.634	8.75	181.7	0.7
1250	120	9	11	120	83.63	7.57	15.8	0.658	8.52	182.7	0.9
1255	120	9	11	120	83.60	7.54	15.9	0.671	8.00	179.4	0.9
Stabilization Criteria				100-400 ml/min	Drawdown <0.3'	± 0.1 units	3%	3%	10%	± 10 mv	10% (>1 NTU)
Stabilization Achieved (Y/N)				Y	Y	Y	Y	Y	Y	Y	Y

purge vol (gal)

Total purged ~1 gal

Sampling/Purge Equipment	
Water Level Meter:	Solinst Model 101
pH/S.C./Dissolved Oxygen/ORP/Turbidity:	Horbia Model
Pump:	QED Bladder Pump Model
Intake Depth (feet below PVC):	
Tubing:	QED Bonded Poly Sample Tubing

Laboratory Analyses/Con		
Container	Preservative	#
8-OZ P	HNO3	1
4-OZ P/G	None	1
32-OZ P	None	1

routine para

Sample Collection Time	Start	End
	1255	

Comments: Routine Parameters

LOW FLOW GROUNDWATER SAMPLING FIELD FORM

Site: Danskammer SWMF
Project No.
Date: 6/20/19
Weather: 70°F overcast

Well ID: DW-3P
Sample ID: DW-3P
Sampler: Jimmy Corey
Signature: Jamy Corey

Well Condition Observations	
Protective Casing:	√
Lock:	√
Label:	√
Surface Seal:	√
PVC Well Casing:	√

Well Volume Calculations	
Well Diameter (in):	2in
Depth to Water (ft):	22.20
Total Depth (ft):	29.60
Well Volume (gal):	

TIME	PUMP SETTING (feet of H_2O)	DISCHARGE TIME (seconds)	REFILL TIME (seconds)	FLOW RATE (ml/min)	DEPTH TO WATER (feet)	pH (SU)	TEMP (°C)	SPECIFIC CONDUCTANCE (mS/cm)	DISSOLVED OXYGEN (mg/l)	ORP (mv)	TURBIDITY (NTU)
1315	25	9	11	150	22.31	6.80	14.4	0.485	8.55	181.9	5.0
1320	25	9	11	150	22.20	6.68	17.2	0.485	8.16	185.1	3.4
1325	25	9	11	150	22.20	6.66	18.0	0.487	8.13	186.3	3.3
1330	25	9	11	150	22.22	6.68	18.7	0.490	8.04	185.3	3.1
Stabilization Criteria				100-400 ml/min	Drawdown <0.3'	± 0.1 units	3%	3%	10%	± 10 mv	10% (>1 NTU)
Stabilization Achieved (Y/N)				√	√	√	√	√	√	√	√

purge vol (gal)

Total purged 0.75 gal

Sampling/Purge Equipment	
Water Level Meter:	Solinst Model 101
pH/S.C./Dissolved Oxygen/ORP/Turbidity:	Horbia Model
Pump:	QED Bladder Pump Model
Intake Depth (feet below PVC):	
Tubing:	QED Bonded Poly Sample Tubing

Laboratory Analyses/Con		
Container	Preservative	#
8-OZ P	HNO3	1
4-OZ P/G	None	1
32-OZ P	None	1

Routine par.

Sample Collection Time	Start	End
	1330	

Comments: Routine Parameters

LOW FLOW GROUNDWATER SAMPLING FIELD FORM

Site: Danskammer SWMF
Project No.
Date: 6/19/14
Weather:

Well ID: DW-6R
Sample ID: DW-6R
Sampler: Ben Wagner
Signature: Ben Wagner

Well Condition Observations	
Protective Casing:	Good
Lock:	Good
Label:	Good
Surface Seal:	Good
PVC Well Casing:	Good

Well Volume Calculations	
Well Diameter (in):	4"
Depth to Water (ft):	71.3
Total Depth (ft):	
Well Volume (gal):	

TIME	PUMP SETTING (feet of H_2O)	DISCHARGE TIME (seconds)	REFILL TIME (seconds)	FLOW RATE (ml/min)	DEPTH TO WATER (feet)	pH (SU)	TEMP (°C)	SPECIFIC CONDUCTANCE (mS/cm)	DISSOLVED OXYGEN (mg/l)	ORP (mv)	TURBIDITY (NTU)
11:00	150	10	20	100	71.3	7.16	14.9	0.923	7.04	154.2	2.8
11:05	150	10	20	100	73.4	6.94	14.3	0.975	4.17	-0.3	4.2
11:10	150	10	20	100	75.7	6.93	14.1	0.976	4.13	17.2	3.6
11:15	150	10	20	100	76.9	6.92	14.0	0.979	3.90	29.9	2.4
11:20	150	10	20	100	78.8	6.88	13.9	0.982	3.32	42.3	2.2
11:25	150	10	20	100	79.0	6.89	13.8	0.981	3.22	41.9	1.8
11:30	150	10	20	100	79.1	6.88	13.8	0.980	3.20	38.2	0.9
11:35											
11:40											
11:45											
11:50											
11:55											
12:00											
Stabilization Criteria				100-400 ml/min	Drawdown <0.3'	± 0.1 units	3%	3%	10%	± 10 mv	10% (>1 NTU)
Stabilization Achieved (Y/N)				Y	Y	Y	Y	Y	Y	Y	Y

purge vol Gal

Total purged ~0.75 gal

Sampling/Purge Equipment	
Water Level Meter:	Solinst Model 101
pH/S.C./Dissolved Oxygen/ORP/Turbidity:	Horbia Model
Pump:	QED Bladder Pump Model
Intake Depth (feet below PVC):	
Tubing:	QED Bonded Poly Sample Tubing

Laboratory Analyses/Con		
Container	Preservative	#
8-OZ P	HNO3	1
4-OZ P/G	None	1
32-OZ P	None	1

Routine par.

Sample Collection Time	Start	End
	1130	

Comments: Routine Parameters

LOW FLOW GROUNDWATER SAMPLING FIELD FORM

Site: Danskammer SWMF
Project No.
Date: 6/19/19
Weather: 68°F overcast

Well ID: PW-6D
Sample ID: PW-6D
Sampler: Ben Wagner
Signature: Ben Wagner

Well Condition Observations	
Protective Casing:	Good
Lock:	Good
Label:	Good
Surface Seal:	Good
PVC Well Casing:	Good

Well Volume Calculations	
Well Diameter (in):	4in
Depth to Water (ft):	57.45
Total Depth (ft):	
Well Volume (gal):	

TIME	PUMP SETTING (feet of H_2O)	DISCHARGE TIME (seconds)	REFILL TIME (seconds)	FLOW RATE (ml/min)	DEPTH TO WATER (feet)	pH (SU)	TEMP (°C)	SPECIFIC CONDUCTANCE (mS/cm)	DISSOLVED OXYGEN (mg/l)	ORP (mv)	TURBIDITY (NTU)
0955	80	5	10	120	57.58	6.93	13.5	1.196	4.88	168.2	0.5
1000	80	5	10	120	57.78	6.86	14.3	1.213	4.73	168.4	0.4
1005	80	5	10	120	57.91	6.82	14.3	1.229	4.57	169.0	0.5
1010	80	5	10	120	57.94	6.82	14.2	1.228	4.53	168.4	0.6
1015	80	5	10	120	58.05	6.82	14.3	1.229	4.50	167.9	0.6
1020	80	5	10	120	58.14	6.83	14.4	1.228	4.48	167.1	0.6
1025											
1030											
1035											
1040											
1045											
1050											
1055											
1100											
1105											
Stabilization Criteria				100-400 ml/min	Drawdown <0.3'	± 0.1 units	3%	3%	10%	± 10 mv	10% (>1 NTU)
Stabilization Achieved (Y/N)				Y	Y	Y	Y	Y	Y	Y	Y

purge vol (gal)

Total purge vol. ~ 1.25 gal

Sampling/Purge Equipment	
Water Level Meter:	Solinst Model 101
pH/S.C./Dissolved Oxygen/ORP/Turbidity:	Horbia Model
Pump:	QED Bladder Pump Model
Intake Depth (feet below PVC):	
Tubing:	QED Bonded Poly Sample Tubing

Laboratory Analyses/Con — Routine par.

Container	Preservative	#
8-OZ P	HNO3	1
4-OZ P/G	None	1
32-OZ P	None	1

Sample Collection Time	Start	End
	1020	

Comments: Routine Parameters

Synapse Risk Management, LLC

LOW FLOW GROUNDWATER SAMPLING FIELD FORM

Site: Danskammer SWMF
Project No.
Date: 6/18/19
Weather: Raining

Well ID: DW-8R
Sample ID: DW-8R
Sampler: Ben Wagner
Signature: Ben Wagner

Well Condition Observations	
Protective Casing:	Good
Lock:	Good
Label:	Good
Surface Seal:	Good
PVC Well Casing:	Good

Well Volume Calculations	
Well Diameter (in):	2 in
Depth to Water (ft):	31.40
Total Depth (ft):	
Well Volume (gal):	

TIME	PUMP SETTING (feet of H_2O)	DISCHARGE TIME (seconds)	REFILL TIME (seconds)	FLOW RATE (ml/min)	DEPTH TO WATER (feet)	pH (SU)	TEMP (°C)	SPECIFIC CONDUCTANCE (mS/cm)	DISSOLVED OXYGEN (mg/l)	ORP (mv)	TURBIDITY (NTU)
1155	50	7	8	120	31.55	7.02	13.9	0.583	3.56	13.4	9.2
1200	50	8	7	120	31.70	6.73	15.7	0.574	2.98	11.3	10.1
1205					31.71	6.73	15.8	0.575	3.21	18.8	8.8
1210					31.70	6.72	16.0	0.571	3.47	28.2	8.9
1215					31.71	6.71	16.0	0.566	3.77	43.1	8.1
1220					31.71	6.71	16.1	0.567	3.90	49.3	8.4
1225					31.70	6.71	16.2	0.569	4.01	53.8	8.4
1230					31.71	6.71	16.3	0.569	4.14	59.0	8.5
Stabilization Criteria				100-400 ml/min	Drawdown <0.3'	± 0.1 units	3%	3%	10%	± 10 mv	10% (>1 NTU)
Stabilization Achieved (Y/N)				Y	Y	Y	Y	Y	Y	Y	Y

Purge Vol (Gal)

Sampling/Purge Equipment	
Water Level Meter:	Solinst Model 101
pH/S.C./Dissolved Oxygen/ORP/Turbidity:	Horbia Model
Pump:	QED Bladder Pump Model
Intake Depth (feet below PVC):	
Tubing:	QED Bonded Poly Sample Tubing

Laboratory Analyses/Con — Routine par.

Container	Preservative	#
8-OZ P	HNO3	1
4-OZ P/G	None	1
32-OZ P	None	1

Sample Collection Time	Start	End
	1230	

Comments: Routine Parameters

LOW FLOW GROUNDWATER SAMPLING FIELD FORM

Site: Danskammer SWMF
Project No.
Date: 6/18/19
Weather: Raining

Well ID: DW-4R
Sample ID: DW-4R
Sampler: Ben Wagner
Signature:

Well Condition Observations	
Protective Casing:	Good
Lock:	Good
Label:	Good
Surface Seal:	Good
PVC Well Casing:	Good

Well Volume Calculations	
Well Diameter (in):	2 in
Depth to Water (ft):	90.25
Total Depth (ft):	
Well Volume (gal):	

TIME	PUMP SETTING (feet of H_2O)	DISCHARGE TIME (seconds)	REFILL TIME (seconds)	FLOW RATE (ml/min)	DEPTH TO WATER (feet)	pH (SU)	TEMP (°C)	SPECIFIC CONDUCTANCE (mS/cm)	DISSOLVED OXYGEN (mg/l)	ORP (mv)	TURBIDITY (NTU)	purge vol (gal)
1315	120	11	19	100	90.28	7.63	16.3	0.693	10.34	102.1	0.7	
1320	↓	↓	↓	↓	90.29	7.39	16.0	0.759	9.34	112.4	0.6	
1325					90.28	7.13	15.7	0.840	7.39	117.7	0.9	
1330					90.25	7.04	15.6	0.881	5.86	121.5	0.7	
1335					90.25	6.98	15.6	0.920	4.84	125.7	0.9	
1340					90.28	6.98	15.7	0.928	4.81	125.9	0.9	
1345	↓	↓	↓	↓	90.25	6.98	15.6	0.933	4.77	126.0	0.8	
Stabilization Criteria				100-400 ml/min	Drawdown <0.3'	± 0.1 units	3%	3%	10%	± 10 mv	10% (>1 NTU)	
Stabilization Achieved (Y/N)				↓	↓	↓	↓	↓	↓	↓	↓	

Total vol purge ~1.25 gal

Sampling/Purge Equipment	
Water Level Meter:	Solinst Model 101
pH/S.C./Dissolved Oxygen/ORP/Turbidity:	Horbia Model
Pump:	QED Bladder Pump Model
Intake Depth (feet below PVC):	
Tubing:	QED Bonded Poly Sample Tubing

Laboratory Analyses/Con		
Container	Preservative	#
8-OZ P	HNO3	1
4-OZ P/G	None	1
32-OZ P	None	1

Sample Collection Time	Start	End
	1345	

Comments: Routine Parameters

1135

LOW FLOW GROUNDWATER SAMPLING FIELD FORM

Site: Danskammer SWMF
Project No.
Date: 6/17/19
Weather:

Well ID: DW-1R
Sample ID: ~~SWMF-Danskammer-DW-1R~~
Sampler: Ben Wagner
Signature: Ben Wagner

Well Condition Observations	
Protective Casing:	Good
Lock:	None / no cap
Label:	None
Surface Seal:	Good
PVC Well Casing:	Good

Well Volume Calculations	
Well Diameter (in):	2 in
Depth to Water (ft):	37.50
Total Depth (ft):	56.5
Well Volume (gal):	2.5

TIME	PUMP SETTING (feet of H_2O)	DISCHARGE TIME (seconds)	REFILL TIME (seconds)	FLOW RATE (ml/min)	DEPTH TO WATER (feet)	pH (SU)	TEMP (°C)	SPECIFIC CONDUCTANCE (mS/cm)	DISSOLVED OXYGEN (mg/l)	ORP (mv)	TURBIDITY (NTU)
6/17/19											
1135					37.50		Purged Dry				
1545						7.87	21.4	0.007	7.92	143.2	50.1
Stabilization Criteria				100-400 ml/min	Drawdown <0.3'	± 0.1 units	3%	3%	10%	± 10 mv	10% (>1 NTU)
Stabilization Achieved (Y/N)											

Purge Vol (gal)
3 gal - Dry

Total purged ~3 gal

Sampling/Purge Equipment	
Water Level Meter:	Solinst Model 101
pH/S.C./Dissolved Oxygen/ORP/Turbidity:	Horbia Model
Pump:	QED Bladder Pump Model
Intake Depth (feet below PVC):	
Tubing:	QED Bonded Poly Sample Tubing

Laboratory Analyses/Con		
Container	Preservative	#
8-OZ P	HNO3	1
4-OZ P/G	None	1
32-OZ P	None	1

Sample Collection Time	Start	End
	1545	

Comments: Routine Parameters

LOW FLOW GROUNDWATER SAMPLING FIELD FORM

Site: Danskammer SWMF
Project No.
Date: 6/17/19
Weather:

Well ID: DW-7D
Sample ID: ~~SWMF-Danskammer-DW-7D~~
Sampler: Ben Wagner
Signature: Ben Wagner

Well Condition Observations	
Protective Casing:	Good
Lock:	Good
Label:	Good
Surface Seal:	Good
PVC Well Casing:	Good

Well Volume Calculations	
Well Diameter (in):	2 in
Depth to Water (ft):	50.2
Total Depth (ft):	
Well Volume (gal):	

TIME	PUMP SETTING (feet of H_2O)	DISCHARGE TIME (seconds)	REFILL TIME (seconds)	FLOW RATE (ml/min)	DEPTH TO WATER (feet)	pH (SU)	TEMP (°C)	SPECIFIC CONDUCTANCE (mS/cm)	DISSOLVED OXYGEN (mg/l)	ORP (mv)	TURBIDITY (NTU)
14:45	80	5	10	100	50.80	6.87	13.8	1.001	6.37	141.4	9.3
14:50	↓	↓	↓	↓	51.30	6.82	14.7	1.012	5.97	144.1	9.6
14:55					51.28	6.82	14.6	1.025	5.83	146.1	11.5
15:00					51.30	6.82	14.4	1.024	5.80	147.9	5.0
15:05					51.28	6.82	14.5	1.022	5.77	149.2	9.0
15:10					51.30	6.82	14.6	1.022	5.80	150.0	13.5
15:15					51.31	6.82	14.7	1.022	5.79	150.9	13.4
15:20					51.30	6.82	14.8	1.022	5.80	151.4	13.1
Stabilization Criteria				100-400 ml/min	Drawdown <0.3'	± 0.1 units	3%	3%	10%	± 10 mv	10% (>1 NTU)
Stabilization Achieved (Y/N)				100	Y	Y	Y	Y	Y	Y	Y

Purge vol (gal)

Total purged 1.25 gal

Sampling/Purge Equipment	
Water Level Meter:	Solinst Model 101
pH/S.C./Dissolved Oxygen/ORP/Turbidity:	Horbia Model
Pump:	QED Bladder Pump Model
Intake Depth (feet below PVC):	
Tubing:	QED Bonded Poly Sample Tubing

Laboratory Analyses/Con		
Container	Preservative	#
8-OZ P	HNO3	1
4-OZ P/G	None	1
32-OZ P	None	1

Sample Collection Time	Start	End
	1520	

Comments: Routine Parameters

LOW FLOW GROUNDWATER SAMPLING FIELD FORM

Site: Danskammer SWMF
Project No.
Date: 6/17/19
Weather:

Well ID: ~~DW-7~~ DW-7R
Sample ID: SWMF-DanskKammer-DW-7R
Sampler: Ben Wagner
Signature: Ben Wagner

Well Condition Observations	
Protective Casing:	Good
Lock:	Good
Label:	Good
Surface Seal:	Good
PVC Well Casing:	Good

Well Volume Calculations	
Well Diameter (in):	2
Depth to Water (ft):	42.55
Total Depth (ft):	
Well Volume (gal):	

TIME	PUMP SETTING (feet of H_2O)	DISCHARGE TIME (seconds)	REFILL TIME (seconds)	FLOW RATE (ml/min)	DEPTH TO WATER (feet)	pH (SU)	TEMP (°C)	SPECIFIC CONDUCTANCE (mS/cm)	DISSOLVED OXYGEN (mg/l)	ORP (mv)	TURBIDITY (NTU)
14:00	100	5	10	100	43.05	7.45	14.7	0.721	10.00	132.9	0.4
14:05	↓	↓	↓	↓	43.10	6.97	14.0	0.962	5.61	141.4	0.5
14:10					43.10	6.93	13.9	0.902	4.63	142.2	0.6
14:15					43.05	6.92	14.3	0.920	21.20	142.7	0.4
14:20					43.05	6.92	14.4	0.927	4.01	143.1	0.4
14:25					43.05	6.92	14.4	0.932	3.86	143.3	0.5
14:30											
14:35											
14:40											
14:45											
14:50											
14:55											
15:00											
16:05											
15:10											
Stabilization Criteria				100-400 ml/min	Drawdown <0.3'	± 0.1 units	3%	3%	10%	± 10 mv	10% (>1 NTU)
Stabilization Achieved (Y/N)				100	Y	Y	Y	Y	Y	Y	Y

Purge vol (G

Total purged
1.00 gallons

Sampling/Purge Equipment	
Water Level Meter:	Solinst Model 101
pH/S.C./Dissolved Oxygen/ORP/Turbidity:	Horbia Model
Pump:	QED Bladder Pump Model
Intake Depth (feet below PVC):	
Tubing:	QED Bonded Poly Sample Tubing

Laboratory Analyses/Con		
Container	Preservative	#
8-OZ P	HNO3	1
4-OZ P/G	None	1
32-OZ P	None	1

Sample Collection Time	Start	End
	1425	

Comments: Routine Parameters