



301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
 State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For

Hanover Engineering Associates, Inc.

Project 4987-PACL LAKE
 Workorder 3248486
 Report ID 179221 on 7/5/2022

Certificate of Analysis

Enclosed are the analytical results for samples received by the laboratory on Jun 16, 2022.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Jessica Smith (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

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 ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s):
 Jason Smith - Hanover Engineering Associates, Inc.

Jessica Smith

Jessica Smith
 Project Coordinator

(ALS Digital Signature)

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.



Sample Summary

<u>Lab ID</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Collector</u>	<u>Collection Company</u>
3248486001	LS SURFACE	Water	06/15/2022 12:00	06/16/2022 20:30	CBC	Collected By Client
3248486002	LS BOTTOM	Water	06/15/2022 12:00	06/16/2022 20:30	CBC	Collected By Client
3248486003	LS SURFACE (CHL a)	Water	06/15/2022 12:00	06/16/2022 20:30	CBC	Collected By Client



Reference

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.



Project Notations

Sample Notations

Lab ID **Sample ID**

Result Notations

Notation Ref.

1	The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.
2	The method requires a minimum filter weight after drying of 0.0025g. The sample did not meet these requirements.
3	Pheophytin-a = 0.000 mg/m3
4	ALS-Middletown does not hold PADEP NELAP accreditation for this analyte by this method of analysis.



Detected Results Summary

Client Sample ID	LS SURFACE	Collected	06/15/2022 12:00
Lab Sample ID	3248486001	Lab Receipt	06/16/2022 20:30

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
WET CHEMISTRY						
Alkalinity, Total	21	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.068J	mg/L	0.100	0.03	ASTM D6919-09	#
Orthophosphate, Soluble	0.016J	mg/L	0.020	0.0050	S4500PE-11	#
Phosphorus, Total Low Level	0.024	mg/L	0.010	0.010	EPA 365.1	#
Total Kjeldahl Nitrogen	0.4	mg/L	0.2	0.07	EPA 351.2	#
Total Suspended Solids	4	mg/L	1	1	S2540D-11	#



Detected Results Summary

Client Sample ID	LS BOTTOM	Collected	06/15/2022 12:00
Lab Sample ID	3248486002	Lab Receipt	06/16/2022 20:30

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
WET CHEMISTRY						
Alkalinity, Total	24	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.229	mg/L	0.100	0.03	ASTM D6919-09	#
Orthophosphate, Soluble	0.018J	mg/L	0.020	0.0050	S4500PE-11	#
Phosphorus, Total Low Level	0.053	mg/L	0.010	0.010	EPA 365.1	#
Total Kjeldahl Nitrogen	0.7	mg/L	0.2	0.07	EPA 351.2	#
Total Suspended Solids	7	mg/L	1	1	S2540D-11	#

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Detected Results Summary

Client Sample ID	LS SURFACE (CHL a)	Collected	06/15/2022 12:00
Lab Sample ID	3248486003	Lab Receipt	06/16/2022 20:30

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
BIOMONITORING						
Chlorophyll a	9.7	mg/m3	1.0	1	S10200H-11	#



Results

Client Sample ID	LS SURFACE	Collected	06/15/2022 12:00
Lab Sample ID	3248486001	Lab Receipt	06/16/2022 20:30

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	21	1	mg/L	5	5	SM2320B-2011	1	06/18/2022 07:14	BXD	D
Ammonia-N	0.068J	J	mg/L	0.100	0.03	ASTM D6919-09	10	06/28/2022 12:29	NML	A
Nitrate/Nitrite-N	ND	ND	mg/L	0.10	0.02	EPA 353.2	1	06/24/2022 10:51	KXH	A
Orthophosphate, Soluble	0.016J	J	mg/L	0.020	0.0050	S4500PE-11	1	06/17/2022 11:37	LXZ	B
Phosphorus, Total Low Level	0.024		mg/L	0.010	0.010	EPA 365.1	1	06/29/2022 19:52	NJA	A
Total Kjeldahl Nitrogen	0.4		mg/L	0.2	0.07	EPA 351.2	1	06/30/2022 20:24	NJA	A
Total Suspended Solids	4	2	mg/L	1	1	S2540D-11	1	06/17/2022 12:35	JML	B



Results

Client Sample ID	LS BOTTOM	Collected	06/15/2022 12:00
Lab Sample ID	3248486002	Lab Receipt	06/16/2022 20:30

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	24	1	mg/L	5	5	SM2320B-2011	1	06/18/2022 07:52	BXD	D
Ammonia-N	0.229		mg/L	0.100	0.03	ASTM D6919-09	10	06/29/2022 19:25	NML	A
Nitrate/Nitrite-N	ND	ND	mg/L	0.10	0.02	EPA 353.2	1	06/24/2022 10:52	KXH	A
Orthophosphate, Soluble	0.018J	J	mg/L	0.020	0.0050	S4500PE-11	1	06/17/2022 11:37	LXZ	B
Phosphorus, Total Low Level	0.053		mg/L	0.010	0.010	EPA 365.1	1	06/29/2022 19:52	NJA	A
Total Kjeldahl Nitrogen	0.7		mg/L	0.2	0.07	EPA 351.2	1	06/30/2022 20:24	NJA	A
Total Suspended Solids	7	2	mg/L	1	1	S2540D-11	1	06/17/2022 12:35	JML	B

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Results

Client Sample ID	LS SURFACE (CHL a)	Collected	06/15/2022 12:00
Lab Sample ID	3248486003	Lab Receipt	06/16/2022 20:30

BIOMONITORING

<u>Compound</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Dilution</u>	<u>Analysis Date/Time</u>	<u>By</u>	<u>Cntr</u>
Chlorophyll a	9.7	3.4	mg/m3	1.0	1	S10200H-11	1	06/25/2022 05:46	LXZ	A



Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3248486001	LS SURFACE	ASTM D6919-09	N/A	
		EPA 351.2	EPA 351.2	
		EPA 353.2	N/A	
		EPA 365.1	EPA 365.1	
		S2540D-11	N/A	
		S4500PE-11	N/A	
		SM2320B-2011	N/A	
3248486002	LS BOTTOM	ASTM D6919-09	N/A	
		EPA 351.2	EPA 351.2	
		EPA 353.2	N/A	
		EPA 365.1	EPA 365.1	
		S2540D-11	N/A	
		S4500PE-11	N/A	
		SM2320B-2011	N/A	
3248486003	LS SURFACE (CHL a)	S10200H-11	N/A	



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3248486001	LS SURFACE	N/A	N/A	N/A		ASTM D6919-09	858986
		EPA 351.2	859453	06/28/2022 15:47	NJA	EPA 351.2	860642
		N/A	N/A	N/A		EPA 353.2	858871
		EPA 365.1	858922	06/23/2022 14:50	SAM	EPA 365.1	860585
		N/A	N/A	N/A		S2540D-11	857816
		N/A	N/A	N/A		S4500PE-11	857788
3248486002	LS BOTTOM	N/A	N/A	N/A		ASTM D6919-09	858983
		EPA 351.2	859453	06/28/2022 15:47	NJA	EPA 351.2	860642
		N/A	N/A	N/A		EPA 353.2	858871
		EPA 365.1	858922	06/23/2022 14:50	SAM	EPA 365.1	860585
		N/A	N/A	N/A		S2540D-11	857816
		N/A	N/A	N/A		S4500PE-11	857788
3248486003	LS SURFACE (CHL a)	N/A	N/A	N/A		SM2320B-2011	857767
						S10200H-11	857789



Low Level Remediation
 301 Fulling Mill Rd, Suite A
 Middletown, PA 17057
 P. 717-944-5541

**CHAIN OF CUSTODY/
 REQUEST FOR ANALYSIS
 ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT /
 SAMPLER. INSTRUCTIONS ON THE BACK.**

3248486



Logged By: AMF
 PM: JLS

COC #: 324
 ALS Quote #:

Client Name: HANOVER ENGINEERING ASSOC.
 Address: 252 BROOKHURST ROAD
SUITE 100
BETHLEHEM, PA 18017-8944
 Contact: JASON SMITH
 Phone: 484.266.9283
 Project Name: 4987 - PAGE LAKE
 Bill To: SAME
 Purchase Order #: _____
 Normal-Standard TAT is 10-12 business days.
 Rush-Subject to ALS approval and surcharges.
 Date Required: _____ Approved? _____
 Email? y.jesmith@hanovereng.com

Container Type	Container Size	Preservative	ANALYSES/METHOD REQUESTED	Enter Number of Containers Per Sample or Field Results Below.
P	P	P	P	P
SOIL	SOIL	UNP	UNP	UNP
UNP	UNP	H ₂ O ₄	UNP	UNP
TSS			ALKALINITY	
			DRINK PHOS	
			PHOS# TKN, NH ₃	
			CLIMOPHYLL P	

Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hhr:mm	SDWA Sample Type (see key)	Matrix (See bottom of COC)	Enter Number of Containers Per Sample or Field Results Below.
1 LS SURFACE	06/15/22	1200	G	DSM	1
2 LS BOTTOM	↓	↓	G	↓	1
3 LS SURFACE (CHLA)	↓	↓	C	↓	1
4					
5					
6					
7					
8					
9					
10					

Temp Taken By: _____ Therm ID: _____ WO Temp (°C) _____
 Receipt Info Completed By: _____
 Cooler Custody Seal Intact: Y N
 Sample Custody Seal Intact: Y N
 Received on Ice: Y N
 Coolers & Sump: Y N
 Correct Containe: Y N
 Sample Label/C: Y N
 Adequate Sample: Y N
 VOA only: Heads: Y N
 VOA only: Trip BI: Y N
 NJ ≤ 4 days: Y N
 Courier/Tracking#: _____
 SDWA Compliance: Y N
 PWSID: _____
 WY Containers 0-6°C: Y N
 PWS Contact: _____ PWS Phone #: _____
 SDWA Sample Type Key: D=Distribution E=Entry Point
 R=Raw P=Plant C=Check S=Special A=Annual Startup
 Contains Short Hold Testing: YES NO
 Internal Use: If less than 48 hours - notify lab upon receipt