



*Town of Swampscott*  
*Department of Public Works*

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March 1, 2023

Ms. Elizabeth Kudarauskas  
Water Compliance Unit  
U.S. Environmental Protection Agency, Region 1  
5 Post Office Square, Suite 100  
Mail Code OES04-2  
Boston, MA 02109-3912

**SUBJECT: Consent Decree Compliance Report**  
**Period 8/1/2022 to 1/31/2023**

Dear Ms. Kudarauskas:

Pursuant to Paragraph 66 of the Consent Decree between the U.S. EPA and the Town of Swampscott, MA, I am providing the following certification statement with regard to the preparation and submittal of: **Compliance Reporting – Period 8/1/2022 to 1/31/2023**

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

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Gino A. Cresta, Jr.  
Director of Public Works

# MEMORANDUM

TO: Elizabeth Kudarauskas | US EPA

FROM: David Peterson | Kleinfelder

DATE: March 1, 2023

CC: Gino Cresta, Aleena Alsaraby | Town of Swampscott  
Mark Thompson, Cecilia Carmona, Dan Scott, John Rahill | Kleinfelder

**SUBJECT: COMPLIANCE REPORTING - CASE 1:15-CV-13388-DJC  
SWAMPSCOTT, MASSACHUSETTS**

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## **Purpose:**

This Compliance Report is provided pursuant to Paragraph 33 of the subject Consent Decree between the United States of America and the Town of Swampscott, MA. This report covers the reporting period noted below:

<b>Reporting Period:</b> August 1, 2022 through January 31, 2023
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Through this reporting period, activities primarily included:

- Completed construction of Phase 1C sewer rehabilitation improvements in Stacy's Brook
- Initiated post-construction water quality sampling for Phase 1C sewer rehabilitation program
- Completed a study on engineering alternatives to improve water quality at King's Beach

The following report summarizes the activities performed during the Reporting Period.

## **Phase 1C Construction Update**

The Stacy's Brook Sewer System Rehabilitation Project Phase 1C includes comprehensive sewer rehabilitation in specific neighborhoods in the Stacy's Brook catchment, consisting of cured in place pipe (CIPP) lining of sewer mainlines and laterals, sewer manhole rehabilitation, and split-wall sewer manhole rehabilitation (Type 2 underdrain manholes).

The Phase 1C project scope includes the comprehensive rehabilitation of the sewer collection system in the remaining Phase 1 areas that were not completed in Phases 1A or 1B. These areas are primarily located in the southern part of the Stacy's Brook catchment that converge at the intersection of Paradise Road and Norfolk Avenue.

Outside the physical limits of the Phase 1 area, the Phase 1C project scope also includes CIPP lining of sewer mainlines on Puritan Road, adjacent to Fisherman's Beach. These mainlines were included as an additive bid item and were part of the original Areas Beyond Stacy's Brook (ABSB) design scope required by paragraph 19 of the Town's Consent Decree. These repairs were prioritized in the near term and included in the Phase 1C project because of the high bacteria counts found at Fisherman's Beach and on Puritan Road during the ABSB catchment investigations.

Kleinfelder awarded the Phase 1C contract to National Water Main Cleaning Co. (NWMCC) on December 28, 2020 for a total contract price of \$1,762,773. The Town issued the Notice to Proceed on February 9, 2021, and construction activities began shortly after in March 2021.

During the current reporting period, NWMCC completed CIPP rehabilitation of 13 laterals and manhole chimney seal rehabilitation of 80 manholes within the Phase 1C project scope. In addition, their subcontractor McGrath Enterprises completed open-cut repairs of 2 lateral defects. The open-cut repairs were completed at locations on sewer laterals where structural defects would prohibit the proper installation of a CIPP lateral liner and increase the risk of a failure.

Through this current reporting period, NWMCC and their subcontractors have completed all work within the Phase 1C project scope. In the upcoming reporting period, the substantial completion certificate will be issued and the contract closeout documentation finalized. The contractor is required to complete follow-up warranty CCTV inspections of all mainline and lateral CIPP at least 1 year after installation. These inspections are planned to be completed in Fall 2023. Once complete, the contract will be formally closed out.

During this period, Kleinfelder initiated post-construction water quality sampling in the 1C project area including the Stacy's Brook outfall at King's Beach. A complete summary of the post-construction water quality sampling results is anticipated to be available in the next reporting period after sampling is complete.

### **King's Beach Water Quality Engineering Study**

In the previous reporting period, the Town of Swampscott hired Kleinfelder to initiate a regional study to develop an approach to improve water quality at King's Beach at the town line between Swampscott and the City of Lynn to minimize the frequency of beach closures during the summer months. The study includes an analysis of six (6) alternative approaches to alleviate bacteria loading at King's Beach from two (2) large stormwater outfalls from both Lynn and Swampscott. The two (2) outfalls discharge near the vicinity of Eastern Avenue and Lynn Shore Drive.

The following alternatives were included in the evaluation:

1. Source elimination through infrastructure improvements (e.g. rehabilitation of sewers and/or drains tributary to King's Beach)
2. Pump dry weather base flows to the Lynn Water and Sewer Commission (LWSC) wastewater treatment plant
3. Disinfection with chemical addition (e.g. chlorination / dechlorination)
4. Disinfection with ultraviolet (UV) light
5. Extend the outfall further from the shoreline
6. Relocate the outfalls along the shore where there is no public beach

There are many stakeholders interested and involved in the health of King's Beach and the intent of this project is to be a regionally adopted solution. As such, to assist in the analysis of the alternatives throughout the project a steering committee was formed that includes representatives from the following entities:

1. City of Lynn
2. LWSC
3. Town of Swampscott
4. Massachusetts Department of Environmental Protection (MassDEP)
5. Save the Harbor / Save the Bay
6. Selected consultants

The US Environmental Protection Agency (US EPA) was invited to participate in the steering process, however, the invitation was declined. US EPA personnel have been available to answer specific questions about the alternatives considered with respect to their ability to be permitted.

During this reporting period, Kleinfelder completed its evaluation of the initial six (6) alternatives. At a steering committee meeting on August 9, 2022 the team presented its findings and solicited feedback to arrive at a subset of three (3) alternatives to investigate further\*. These alternatives included:

3. Disinfection with chemical addition (e.g. chlorination / dechlorination)
4. Disinfection with ultraviolet (UV) light
5. Extend the outfall further from the shoreline

*\*Alternative 1 - Source identification through Illicit Discharge Detection and Elimination (IDDE) and subsequent removal was removed from evaluation as there was agreement among all stakeholders that the work will continue regardless of the outcomes of the study.*

Kleinfelder proceeded with a detailed analysis of these alternatives, which built on the initial analysis and furthered all aspects of the design, including constructability, site considerations, costs, and permitting. Where applicable, the team performed site visits in other municipalities that have constructed similar facilities in the region. On August 31, 2022 the Kleinfelder team and various stakeholders toured a stormwater UV disinfection facility in Newport, RI to gain a better understanding of the capabilities and effectiveness of UV. In addition, on August 16, 2022 the Kleinfelder team collected stormwater samples from Stacy's Brook and Eastern Avenue drains and sent them to the lab to analyze bacteria counts and UV Transmissivity (UVT). The results are included in **Appendix A** to this report.

Kleinfelder presented its findings at a steering committee meeting on September 15, 2022 and, based on stakeholder input, arrived at a final recommended approach. The group decided to move forward with design and construction of the UV disinfection alternative in the near term. In addition, the team elected to continue investigations for the outfall extension alternative as this may be the preferred long-term solution. Finally, the steering committee agreed that the source elimination effort in the Stacy's Brook tributary area should continue regardless of the outcomes of the other alternatives.

Based on these conclusions, Kleinfelder proceeded to draft a final Basis of Design Report (BODR) detailing the results of the study and the next steps for implementation. The draft BODR is anticipated to be submitted in early February 2023 for review by the Town of Swampscott.

**Tracking Data Tables:**

In accordance with Paragraph 33 of the Consent Decree, a series of tracking tables are presented furnishing the information requested.

- a) Chronology of SSO Events Occurring during Reporting Period
- b) Catchment Area Inspections Completed during Reporting Period
- c) Percentage of Catchment Area Investigated and Addressed
- d) Listing of Illicit Discharges Verified during Reporting Period
  - i) Illicit Connections
  - ii) Sanitary Sewer Defects
- e) Map of Location of Each Illicit Discharge Verified during Reporting Period
- f) Chart of Inspections Completed and Enforcement Actions Taken during Reporting Period
- g) List of Plans, Reports and other Submissions Required by this Consent Decree made during the Reporting Period
- h) Copies of Sampling Results Received during Reporting Period
- i) Planned Activities during the 6 Months Following the Reporting Period
- j) Summary of Non-Compliance with this Consent Decree during the Reporting Period

**a) Chronology of SSO Events Occurring during Reporting Period**

A map displaying the location of the SSO events that occurred during the current reporting period is included in **Appendix B**.

i.	i.	i.	ii.	iii.	iii.	iii.	iv.	iv.	v.	vi.	vii.	vii.	viii.	ix.	ix.	xi.	xii.
Date/Time Reported	Date/Time Event Stopped	Date Reported to EPA and DEP	Location	Final Disposition	Property Backup (address)	Receiving Drainage Structure	Receiving Surface Water	Location Release Reached Surface Water	Source of Notification	Cause(s) of Release	Cause = Blockage	Cause = Capacity Issue	Measures Take to Stop Discharge	Volume of Release (Gallons)	Basis of Estimate	Measures Taken to Prevent Future SSOs	Date of Last SSO at this Location
10/14/2022 22:00	10/15/2022 0:00	10/18/2022	9 Roy Street	Sewer backup into private property	9 Roy Street	Catch Basin	Kings Beach	Yes	Swampscott Police Department	Sewer System Blockage	Yes	No	Closed off impacted area with sawhorses. Disinfected and pressure washed street.	100	Visual Estimate	None required.	None Known

**b) Catchment Area Inspections completed during Reporting Period**

**c) Percentage of Catchment Area Investigated and Addressed**

Note that this reporting is in relation to meeting the Remedial Measures stipulated in Section VII of the consent decree. In order to meet the objectives of the consent decree, the Town’s scope of work is not specifically following an IDDE Plan, but rather, is directly following the Remedial Measures themselves, and the Scope of Work for the Stacy’s Brook drainage area that was submitted to the EPA on 10/26/2015.

33.b.i, ii	Sub-Catchment Area ID	Number of Drain Manholes in Sub-Catchment	Number of Drain Manholes Inspected						Number of Drain Manholes Addressed					
			Previous Reporting Periods		This Reporting Period		To-Date		Previous Reporting Periods		This Reporting Period		To-Date	
			QTY	%	QTY	%	QTY	%	QTY	%	QTY	%	QTY	%
1	Stacey's Brook	236	21	9%	0	0%	21	9%	6	3%	0	0%	6	3%
2	Other	372	78	21%	0	0%	78	21%	0	0%	0	0%	0	0%
		<b>TOTAL</b>	99	16%	0	0%	99	16%	6	1%	0	0%	6	1%

33.b.iii, 33.c	Sub-Catchment Area ID	Length of Drain in Sub-Catchment	Length of Drain Inspected						Length of Drain Addressed					
			Previous Reporting Periods		This Reporting Period		To-Date		Previous Reporting Periods		This Reporting Period		To-Date	
			FT	%	FT	%	FT	%	FT	%	FT	%	FT	%
1	Stacey's Brook	55,600	21,100	38%	0	0%	21,100	38%	650	1%	0	0%	650	1%
2	Other	95,000	3,263	3%	0	0%	3,263	3%	85	0%	0	0%	85	0%
		<b>TOTAL</b>	24,363	16%	0	0%	24,363	16%	735	0%	0	0%	735	0%

d) Listing of Illicit Discharges Verified during Reporting Period

									Total Volume Removed (Gallons)							
									Prior Reporting Periods	271,676						
									This Reporting Period	100						
									Cumulative To Date	271,776						
Discharge Type	Date Verified	Location / Address	SOURCE if: Building Type	SOURCE if: Sewer Exfiltration	Estimated Flow (GPM)	Actions Taken to Remove	Date Removed	Cost to Remove	Volume Removed (Gallons) (Reporting Period)	Actively Discharging > 60 Days	Explanation	Schedule for Removal	Private Discharges Persisting > 90 days	Town's Legal Enforcement Actions	Reasons for Delay	
Paragraph ->	i.	i.	i.	i.	ii.	iii.	iv.	v.	vi.	vii.	vii.	viii.	ix.	ix.	x.	
Sewer Defect	1/10/2022	151 Philips Ave	Residential	Sewer Service Repair	not estimated	Private contractor performed repair	1/10/2022	unknown	unknown	No	n/a	completed	No	None	n/a	
Sewer Defect	12/5/2022	217 Humphrey St	Residential	Sewer Service Repair	not estimated	Private contractor performed repair	12/5/2022	unknown	unknown	No	n/a	completed	No	None	n/a	
Sewer Blockage	10/14/2022	9 Roy St	Public - Sewer Manhole	Sewer backup into private property	not estimated	Town staff removed the sewer blockage	10/15/2022	unknown	100	No	n/a	completed	no	None	n/a	
Sewer Defect	10/11/2022	435 Essex St	Residential	Sewer Service Repair	not estimated	Private contractor performed repair	10/11/2022	unknown	unknown	No	n/a	completed	No	None	n/a	



**e) Map of Location of Each Illicit Discharge Verified during Reporting Period**

A map showing the locations of all illicit discharges and SSOs is included in **Appendix B**.

**f) Chart of Inspections Completed and Enforcement Actions Taken during Reporting Period**

Due to a change of Town staff members during this reporting period, these items were accidentally not tracked and therefore cannot be reported. The items are currently being tracked once again and will be included in the next bi-annual report.

**g) List of Plans, Reports and other Submissions Required by this Consent Decree made during the Reporting Period**

Submission Description	Date Completed	Consent Decree Paragraph Reference
Bi-Annual Progress Report	9/1/2022	18

**h) Copies of Sampling Results Received during Reporting Period**

As part of the King’s Beach Basis of Design Study, Kleinfelder collected stormwater samples from Stacy’s Brook and Eastern Avenue drains and sent them to the lab to analyze bacteria counts and UV Transmissivity (UVT). The results are included in **Appendix A** to this report.

Initial sampling was completed as part of the Stacy’s Brook Phase 1C construction project during this reporting period. A complete set of results will be provided in the following semi-annual report.

**i) Planned Activities during the 6 Months Following the Reporting Period**

During the period February 1, 2023 through July 31, 2023 the following activities are anticipated:

- Complete the post construction sampling and continue the contract closeout of the Stacy’s Brook Phase 1C sewer rehabilitation project.
- Initiate the next steps with the Town of Swampscott in reducing bacterial contamination at King’s Beach based on the recommendations from the Basis of Design Report.

**j) Summary of Non-Compliance with this Consent Decree during the Reporting Period**

There has been no non-compliance during this report period.

## **Appendix A**

### Bacteria and UV Transmissivity Lab Results



## ANALYTICAL REPORT

Lab Number:	L2244047
Client:	Kleinfelder One Beacon Street Suite 8100 Boston, MA 02108
ATTN:	David Peterson
Phone:	(617) 497-7800
Project Name:	KING'S BEACH STUDY
Project Number:	20226094.001A
Report Date:	08/29/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** KING'S BEACH STUDY  
**Project Number:** 20226094.001A

**Lab Number:** L2244047  
**Report Date:** 08/29/22

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L2244047-01	VFW	WATER	SWAMPSCOTT, MA	08/16/22 08:20	08/16/22
L2244047-02	LYNN	WATER	SWAMPSCOTT, MA	08/16/22 09:20	08/16/22

**Project Name:** KING'S BEACH STUDY  
**Project Number:** 20226094.001A

**Lab Number:** L2244047  
**Report Date:** 08/29/22

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

**HOLD POLICY** - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

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**Project Name:** KING'S BEACH STUDY  
**Project Number:** 20226094.001A

**Lab Number:** L2244047  
**Report Date:** 08/29/22


**Case Narrative (continued)**

Sample Receipt

The analysis of E. Coli (MPN) was inadvertently performed instead of Enterococcus.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Caitlin Walukevich

Title: Technical Director/Representative

Date: 08/29/22

# **INORGANICS & MISCELLANEOUS**

Project Name: KING'S BEACH STUDY

Lab Number: L2244047

Project Number: 20226094.001A

Report Date: 08/29/22

## SAMPLE RESULTS

Lab ID: L2244047-01

Date Collected: 08/16/22 08:20

Client ID: VFW

Date Received: 08/16/22

Sample Location: SWAMPSCOTT, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
E. Coli (MPN)	204.59		MPN/100ml	1	NA	1	-	08/16/22 15:34	121,9223B	TL
<b>General Chemistry - Westborough Lab</b>										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	08/17/22 09:09	121,2540D	SA





Project Name: KING'S BEACH STUDY

Project Number: 20226094.001A

Lab Number: L2244047

Report Date: 08/29/22

**SAMPLE RESULTS**

Lab ID: L2244047-02

Client ID: LYNN

Sample Location: SWAMPSCOTT, MA

Date Collected: 08/16/22 09:20

Date Received: 08/16/22

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
E. Coli (MPN)	3498		MPN/100ml	100	NA	100	-	08/16/22 15:34	121,9223B	TL
<b>General Chemistry - Westborough Lab</b>										
Solids, Total Suspended	11.		mg/l	5.0	NA	1	-	08/17/22 09:09	121,2540D	SA



Project Name: KING'S BEACH STUDY

Lab Number: L2244047

Project Number: 20226094.001A

Report Date: 08/29/22

**Method Blank Analysis**  
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab for sample(s): 01-02 Batch: WG1675913-1										
E. Coli (MPN)	<1		MPN/100ml	1	NA	1	-	08/16/22 15:34	121,9223B	TL
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1676254-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	08/17/22 09:09	121,2540D	SA

## Lab Control Sample Analysis

Batch Quality Control

**Project Name:** KING'S BEACH STUDY

**Lab Number:** L2244047

**Project Number:** 20226094.001A

**Report Date:** 08/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1676254-2								
Solids, Total Suspended	90		-		80-120	-		

## Lab Duplicate Analysis

*Batch Quality Control*

**Project Name:** KING'S BEACH STUDY

**Project Number:** 20226094.001A

**Lab Number:** L2244047

**Report Date:** 08/29/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1676254-3 QC Sample: L2244126-01 Client ID: DUP Sample						
Solids, Total Suspended	710	720	mg/l	1		32

**Project Name:** KING'S BEACH STUDY**Lab Number:** L2244047**Project Number:** 20226094.001A**Report Date:** 08/29/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information**

<b>Cooler</b>	<b>Custody Seal</b>
A	Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2244047-01A	Bacteria Cup Na2S2O3 preserved	A	NA		2.2	Y	Absent		E-COLI-QT(.33)
L2244047-01B	Bacteria Cup Na2S2O3 preserved	A	NA		2.2	Y	Absent		E-COLI-QT(.33)
L2244047-01C	Plastic 950ml unpreserved	A	7	7	2.2	Y	Absent		TSS-2540(7)
L2244047-01D	Plastic 950ml unpreserved	A	7	7	2.2	Y	Absent		TSS-2540(7)
L2244047-02A	Bacteria Cup Na2S2O3 preserved	A	NA		2.2	Y	Absent		E-COLI-QT(.33)
L2244047-02B	Bacteria Cup Na2S2O3 preserved	A	NA		2.2	Y	Absent		E-COLI-QT(.33)
L2244047-02C	Plastic 950ml unpreserved	A	7	7	2.2	Y	Absent		TSS-2540(7)
L2244047-02D	Plastic 950ml unpreserved	A	7	7	2.2	Y	Absent		TSS-2540(7)

**Project Name:** KING'S BEACH STUDY  
**Project Number:** 20226094.001A

**Lab Number:** L2244047  
**Report Date:** 08/29/22

## GLOSSARY

### Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)  Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report



**Project Name:** KING'S BEACH STUDY  
**Project Number:** 20226094.001A

**Lab Number:** L2244047  
**Report Date:** 08/29/22

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Chlordane:** The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

**Difference:** With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Gasoline Range Organics (GRO):** Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**PAH Total:** With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

**PFAS Total:** With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report



**Project Name:** KING'S BEACH STUDY  
**Project Number:** 20226094.001A

**Lab Number:** L2244047  
**Report Date:** 08/29/22

#### **Data Qualifiers**

- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)



**Project Name:** KING'S BEACH STUDY  
**Project Number:** 20226094.001A

**Lab Number:** L2244047  
**Report Date:** 08/29/22

## REFERENCES

- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

### Westborough Facility

**EPA 624/624.1:** m/p-xylene, o-xylene, Naphthalene

**EPA 625/625.1:** alpha-Terpineol

**EPA 8260C/8260D:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270D/8270E:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS

**EPA 8082A:** NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

### Westborough Facility:

#### Drinking Water

**EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

**EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**

**EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

#### Non-Potable Water

**SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

**SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

**EPA 624.1:** Volatile Halocarbons & Aromatics,

**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

### Mansfield Facility:

#### Drinking Water

**EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

**EPA 522, EPA 537.1.**

#### Non-Potable Water

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

**EPA 245.1 Hg.**

**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



## CERTIFICATE OF ANALYSIS Final Report

**Project Name:** King's Beach – Swampscott  
(Cities of Lynn & Swampscott Future UV)  
**Client Address:** Kleinfelder  
1 Beacon Street, Suite 8100  
Boston, MA, 02108  
**Telephone:** (617) 498-4641  
**Email:** jyonts@kleinfelder.com

**Trojan Sales:** Rob Jansen  
**Local Rep:** Maher Corp - Fred Croy  
**Engineer:** Kleinfelder  
**Sample #:** 22-0316 – 22-0320

**Received Date & Time:** August 17, 2022 11:00am  
**Analysis Date:** August 17-18, 2022  
**Release Date:** August 18, 2022

**Treatment Process:** Storm Water  
**Weather Conditions:** Sun, 70°F  
**Disinfection Limit:** 130 Enterococci/100mL

LAB SAMPLE NO.	SAMPLE IDENTIFICATION	SAMPLE DATE/TIME (M/D/Y)	RECEIVED TEMP. (°C)	UVT (%/cm)	UVT FILTERED (%/cm)	TSS (PPM)
22-0316	80% Lynn 20% VFW	8/16/2022 8:20am	8.4	90	90	2.3
22-0317	40% Lynn 60% VFW	8/16/2022 8:20am	8.4	90	90	2.3
22-0318	60% Lynn 40% VFW	8/16/2022 8:20am	8.4	90	90	3.7
22-0319	VFW – Particle Size Analysis	8/16/2022 9:20am	8.4	---	---	---
22-0320	Lynn – Particle Size Analysis	8/16/2022 9:20am	8.4	--	--	---

### DESCRIPTION OF ANALYSES

**UVT (UV Transmittance)**

The percentage of germicidal UV light that is able to penetrate through 1cm of water sample at 254nm. The higher the UVT value measured the more effective a UV system will be. UVT can be reduced by iron, organic dyes, tannins, humic acids.

**UVT Filtered**

The percentage of germicidal UV light that is able to penetrate through a sample of water after it has passed through a 1.2µm Glass Fiber Filter.

**TSS (Total Suspended Solids in PPM – Parts-Per-Million or mg/L -- milligrams per Liter)**

The weight measurement of all suspended matter larger than 1.2µm for a predetermined volume of water.

**Comments:**

\*VFW (Swampscott) sample had a total chlorine value of 0.29mg/L. No collimated beam analysis was performed.

*Mari Burgess*

\_\_\_\_\_  
Certified by Mari Burgess  
Water Testing Services Manager

## **Appendix B**

### SSO and Illicit Discharge Map



**LEGEND**

**TYPE**

- ★ ILLICIT DISCHARGE
- ★ SSO
- Chlorination Facility
- ▲ MS4 Outfall
- Catch Basin
- Drain Manhole
- Drain Culvert
- Drain Pipe
- Underdrain Manhole
- Sewer Manhole
- Sewer Pump Station
- Sewer - Gravity
- Sewer - Force Main
- Under Drains

**303d Listed Waters**

- ▨ Fish Consumption, Not Supporting
- ▨ Shellfish Harvesting, Not Supporting
- Water Bodies
- Parcels
- Town Borders



The information contained on this graphic representation has been compiled from a variety of sources and is subject to change without notice. The user of this information is advised to verify the accuracy, completeness, timeliness, or any other aspect of the information contained on this graphic representation in the field or by other means.

PROJECT NO.	20192126
DRAWN:	3/1/2023
DRAWN BY:	JVR
CHECKED BY:	DFS
FILE NAME:	Compliance Reporting

**APPENDIX B**  
**ILLICIT DISCHARGE & SSO LOCATIONS**  
**REPORTING PERIOD: 8/1/22 TO 1/31/23**

EPA Consent Decree  
 Swampscott, Massachusetts