NYC Parks

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City of New York
Parks & Recreation

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Flushing, NY 11368
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April 5, 2017

Nigel Crawford, P.E.
Superfund and Brownfield Cleanup Unit – NYSDEC Region 2
1 Hunter's Point Plaza
47-40 21st Street
Long Island City, NY 11101

Re: **SITE MANAGEMENT PLAN REVISIONS**
PELHAM BAY LANDFILL, BRONX **BOROUGH**

Dear Nigel,

The New York City Department of Parks & Recreation hereby submits the attached Appendix X to the Pelham Bay Landfill Site Management Plan (SMP), in conformance with our discussions that initiated on May 26, 2015.

We reached a consensus that a separate appendix be written to bring the SMP up to date, rather than disperse updated information throughout the existing SMP.

Please do not hesitate to call me at (718) 760-6748 should you have any questions about the information supplied or if you require any additional information.

Sincerely,

Kay Zias, Director
New York City Department of Parks & Recreation
Capital Projects Division
Environmental Remediation Unit

cc: Jane O'Connell, NYS DEC
Marty Rowland, Ph.D., P.E. NYC-DPR
Barry Kline, TRC
Keith Robinson, Stratis

Attachment – Appendix X; NYSDEC Approved Stormwater, Groundwater, and Leachate Sampling Parameter and Frequency Modifications

Appendix X

NYSDEC Approved
Stormwater, Groundwater,
and Leachate Sampling
Parameter and Frequency
Modifications

On May 26, 2015, a meeting was held between representatives of NYCDPR and NYSDEC regarding reduction of the post-closure environmental monitoring requirements and the representatives agreed to the following points:

1. Stormwater sampling was no longer required;
2. Elimination of pesticides and PCBs analysis;
3. Elimination of saltwater-related compounds from the inorganic analytical tests; and
4. Groundwater sampling and analysis for all (monitoring) wells was reduced to biennial.

Summaries of the meeting differed regarding whether or not the reduction from semi-annual to biennial sampling applied to groundwater only, or to groundwater and leachate. This issue was clarified in an email from NYSDEC, dated March 6, 2017, which stated that the biennial sampling did, in fact, apply to both groundwater and leachate.

Following the May 26, 2015 meeting, the sampling protocol was further revised based on a letter from NYCDPR dated October 4, 2016 requesting that groundwater and leachate no longer be sampled and analyzed for VOCs and SVOCs, with the exception of MW-122. This revised protocol was approved by NYSDEC in a letter dated November 29, 2016.

All documents referenced in the above paragraphs are included at the end of this Appendix.

Revisions and clarifications to the Site Management Plan are tabulated below. Bold and italicized text indicate the relevant changes.

NYSDEC APPROVED
STORMWATER, GROUNDWATER, AND LEACHAGE SAMPLING
PARAMETER AND FREQUENCY MODIFICATIONS

SITE MANAGEMENT PLAN (SMP)

Pelham Bay Landfill
Bronx, NY
March 22, 2017

Location of Revision	Original Text	Revised Text
Section 3.2.2.1 First Paragraph	"Groundwater samples will be will be collected for laboratory analysis on a ***semi-annual*** basis…" "Leachate samples will be collected for laboratory analysis on a ***semi-annual*** basis…"	"Groundwater samples will be collected for laboratory analysis on a ***biennial (every two years)*** basis…" "Leachate samples will be collected for laboratory analysis on a ***biennial (every two years)*** basis…"
Section 3.2.4.1 First Paragraph	"In addition, stormwater samples will be collected ***for laboratory analysis on a semi-annual basis (see Section 3.2.6 of this SMP).***"	"Stormwater samples ***will no longer be collected***"
Section 3.2.6 Second Paragraph	"The groundwater monitoring program, which involves the collection of groundwater samples on a ***semi-annual*** basis…"	"The groundwater monitoring program, which involves the collection of groundwater samples on a ***biennial (every two years)*** basis…"
Section 3.2.6 Third Paragraph	"The Leachate Management System component involves the collection of leachate samples on a ***semi-annual*** basis…" "Leachate samples will be collected as grab samples and submitted to a NYSDOH-approved laboratory for the analysis of ***TCL VOCs, TCL SVOCs, TCL pesticides, TAL inorganics, cyanide, and conventional parameters…"***	"The Leachate Management System component involves the collection of leachate samples on a ***biennial (every two years)*** basis…" "Leachate samples will be collected as grab samples and submitted to a NYSDOH-approved laboratory for the analysis of ***TAL inorganics (not associated with saltwater), cyanide, and conventional parameters not associated with saltwater…***"

NYSDEC APPROVED
STORMWATER, GROUNDWATER, AND LEACHAGE SAMPLING
PARAMETER AND FREQUENCY MODIFICATIONS

SITE MANAGEMENT PLAN (SMP)

Pelham Bay Landfill
Bronx, NY
March 22, 2017

Location of Revision	Original Text	Revised Text
Section 3.2.6 Fifth Paragraph	Paragraph beginning, "The Stormwater Management System ***involves the collection of stormwater samples on a semi-annual basis…***	"Stormwater samples ***will no longer be collected.***" *The entire text of this paragraph will be struck and replaced with this sentence.*
Section 3.3.3 First Paragraph	"Groundwater quality samples will be collected from the specified monitoring well network and groundwater elevations will be measured in the specified monitoring well network on a ***semi-annual basis***. The duration of the ***semi-annual*** groundwater monitoring event is approximately 5 days."	"Groundwater quality samples will be collected from the specified monitoring well network and groundwater elevations will be measured in the specified monitoring well network on a ***biennial (every two years)*** basis. The duration of the ***biennial*** groundwater monitoring event is approximately 5 days."
Section 3.3.4 Fourth Paragraph	"Groundwater samples will be submitted to the laboratory for analysis of ***TCL VOCs, TCL SVOCs, TCL pesticides, TAL inorganics, cyanide, and conventional leachate parameters***."	"Groundwater samples will be submitted to the laboratory for analysis of ***TAL inorganics (not associated with saltwater), cyanide, and conventional leachate parameters not associated with saltwater. Samples collected from monitoring well MW-122 will also be submitted for TCL VOCs and TCL SVOCs***"
Section 4.2.2.3 Fifth Bullet	• ***Semi-annual*** sampling of groundwater and leachate.	• ***Biennial (every two years)*** sampling of groundwater and leachate.
Table 2 – Monitoring/Inspection Schedule Second Row - Groundwater and Leachate Management System Second Column - Frequency	"Sampling and Groundwater Elevation Measurements: ***Semi-Annual***"	"Sampling and Groundwater Elevation Measurements: ***Biennial (every two years)***"
Table 2 – Monitoring/Inspection Schedule Second Row - Groundwater and Leachate Management System Fourth Column - Analysis	"Laboratory Analysis for ***TCL VOCs, TCL SVOCs, TAL inorganics, Cyanide, TCL pesticides, and Conventional leachate parameters***"	"Laboratory Analysis for ***TAL inorganics (not associated with saltwater), Cyanide, and Conventional leachate parameters not associated with saltwater. Samples collected from MW-122 will also be submitted for TCL VOCs and TCL SVOCs***."

NYSDEC APPROVED
STORMWATER, GROUNDWATER, AND LEACHAGE SAMPLING
PARAMETER AND FREQUENCY MODIFICATIONS

SITE MANAGEMENT PLAN (SMP)

Pelham Bay Landfill
Bronx, NY
March 22, 2017

Location of Revision	Original Text	Revised Text
Table 2 – Monitoring/Inspection Schedule Fourth Row - Stormwater Management System Second Column - Frequency	"Sampling: ***Semi-Annual (Spring and Fall)***"	"Sampling: ***None***"
Table 2 – Monitoring/Inspection Schedule Fourth Row - Stormwater Management System Fourth Column - Analysis	"Laboratory Analysis for ***TCL VOCs, TCL SVOCs, TAL inorganics, Cyanide, TCL pesticides, and Conventional leachate parameters***"	"Laboratory Analysis: ***None***"
Table 3 Title	"Table 3. ***Semi-Annual*** Groundwater Quality Monitoring Well Network"	"Table 3. ***Biennial (Every Two Years)*** Groundwater Quality Monitoring Well Network"
Table 4 Title	"Table 4. ***Semi-Annual*** Groundwater Elevation Monitoring Well Network"	"Table 4. ***Biennial (Every Two Years)*** Groundwater Elevation Measurement Monitoring Well Network"
Table 5 Title	"Table 5. ***Groundwater, Leachate, and Stormwater*** Sample Analytical Protocols"	"Table 5. ***Groundwater and Leachate*** Sample Analytical Protocols"
Table 5 Parameter Column	"TCL VOCs" "TCL SVOCs" "TCL Pesticides" "TAL Inorganics" "Chloride" "Sulfate" "Total Dissolved Solids"	"TCL VOCs ***(MW-122 only)***" "TCL SVOCs ***(MW-122 only)***" ***Strike this line*** "TAL Inorganics ***(not associated with saltwater)***" ***Strike this line*** ***Strike this line*** ***Strike this line***
Appendix K, Vol I, Section 2.7 Second Paragraph	"Monitoring continues and includes ***semi-annual*** monitoring of environmental media."	"Monitoring continues and includes ***biennial (every two years)*** monitoring of ***select*** environmental media."
Appendix K, Vol I, Section 2.7.1 First Paragraph	"In addition to the groundwater monitoring wells, one (1) leachate sample is collected and analyzed ***semi-annually, two (2) stormwater samples are collected and analyzed semi-annually***, along with four (4) landfill gas monitoring well samples, one…"	"***Groundwater and leachate is monitored biennially (every two years),*** along with four (4) landfill gas monitoring well samples, one…"

NYSDEC APPROVED
STORMWATER, GROUNDWATER, AND LEACHAGE SAMPLING
PARAMETER AND FREQUENCY MODIFICATIONS

SITE MANAGEMENT PLAN (SMP)

Pelham Bay Landfill
Bronx, NY
March 22, 2017

Location of Revision	Original Text	Revised Text
Appendix K, Vol I, Section 7.1.2 Item #5	"5. All ***semiannual*** data with relevant comments and conclusions"	"5. All ***biennial (every two years)*** data with relevant comments and conclusions"
Appendix K, Vol III, Section 6.1 First Paragraph	"Monitoring will…include ***semi-annual*** monitoring of environmental media"	"Monitoring will…include ***biennial (every two years)*** monitoring of ***select*** environmental media. ***Stormwater will no longer be sampled***"
Appendix K, Vol III, Section 6.2.1 Item #1 – Groundwater First Bullet	• "Quarterly Sampling Events (for the first year) and semi-annual next four years"	• "Quarterly Sampling Events (for the first year), semi-annual (next four years), ***and currently biennially (every two years)***"
Appendix K, Vol III, Section 6.2.1 Item #2 – Elevation Measurements First Bullet	• "Quarterly Sampling Events (for the first year) and semi-annually next four years"	• "Quarterly Sampling Events (for the first year), semi-annual (next four years), ***and currently biennially (every two years)***"
Appendix K, Vol III, Section 6.2.1 Item #3 – Leachate First Bullet	• "Quarterly Sampling Events (for the first year) and semi-annually next four years"	• "Quarterly Sampling Events (for the first year), semi-annually (next four years), ***and currently biennially (every two years)***"
Appendix K, Vol III, Section 6.2.1 Item #3 – Leachate Second Bullet	• "Semi-annual sampling event (for the first five years)"	• "Semi-annual sampling event (for the first five years), ***and currently biennially (every two years)***"
Appendix K, Vol III, Section 6.2.1 Item #4 – Stormwater First Bullet	• "Spring and Fall Sampling Events (for the first five years)"	• "Spring and Fall Events (for the first five years), ***currently none required***" *Strike the remainder of the paragraph*
Appendix K, Table 6-1 Item #4 – Stormwater Points	"The following two (2) locations shall be used to collect stormwater samples for analytical testing: SW-1, SW-2"	"Stormwater samples ***will no longer be collected***."
Appendix K, Table 6-2 – Schedule A	Target Compound List (TCL) • Field Parameters • Conventionals • TCL Volatile Organics • TCL Semivolatile Organics • TCL Pesticides Target Analyte List (TAL) Inorganics	Target Compound List (TCL) • Field Parameters • Conventionals ***(not associated with saltwater)*** • TCL Volatile Organics ***(MW-122 only)*** • TCL Semivolatile Organics ***(MW-122 only)*** Target Analyte List (TAL) Inorganics ***(not associated with saltwater)***

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STORMWATER, GROUNDWATER, AND LEACHAGE SAMPLING
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Location of Revision	Original Text	Revised Text
Appendix R, QAPP Worksheet #10 Second Paragraph	"Groundwater quality samples are collected on a ***semi-annual*** basis from…"	"Groundwater samples are collected on a ***biennial (every two years)*** basis from…"
Appendix R, QAPP Worksheet #10 Third Paragraph	"Leachate samples are collected as grab samples on a ***semi-annual*** basis from Collection Sump No. D-1."	"Leachate samples are collected as grab samples on a ***biennial (every two years)*** basis from Collection Sump No. D-1."
Appendix R, QAPP Worksheet #10 Fifth Paragraph	"Stormwater samples are collected on a ***semi-annual basis*** from the effluent of Sedimentation Pond C."	"Stormwater samples ***are no longer collected.***"
Appendix R, QAPP Worksheet #11 First Bullet	• "Groundwater quality samples are collected from a network of ten (10) on-site monitoring wells during the ***semi-annual sampling events***…for the analysis of target compound list (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), TCL pesticides, target analyte list (TAL) metals, cyanide, and conventional leachate parameters (ammonia, bicarbonate alkalinity, carbonate alkalinity, chemical oxygen demand (COD), chloride, nitrate, sulfate, Total Kjeldahl Nitrogen (TKN), and total dissolved solids)"	• "Groundwater quality samples are collected from a network of ten (10) on-site monitoring wells during the ***biennial (every two years)*** sampling events…for the analysis of target analyte list (TAL) metals ***(not associated with saltwater)***, cyanide, and conventional leachate parameters ***not associated with saltwater (ammonia, bicarbonate alkalinity, carbonate alkalinity, chemical oxygen demand (COD), nitrate, and Total Kjeldahl Nitrogen (TKN)). Samples collected from MW-122 will also be submitted for TCL VOCs and TCL SVOCs***"
Appendix R, QAPP Worksheet #11 Second Bullet	• "Groundwater elevations are measured…during the ***semi-annual*** sampling events"	• "Groundwater elevations are measured…during the ***biennial (every two years)*** sampling events"
Appendix R, QAPP Worksheet #11 Third Bullet	• "Leachate samples are collected from Collection Sump No. D-1 during the ***semi-annual*** sampling events and are submitted to the laboratory for the analysis of TCL VOCs, TCL SVOCs, TCL pesticides, TAL inorganics, cyanide, and conventional leachate parameters."	• "Leachate samples are collected from Collection Sump No. D-1 during the ***biennial (every two years)*** sampling events and are submitted to the laboratory for the analysis of TAL inorganics ***(not associated with saltwater)***, cyanide, and conventional leachate parameters ***not associated with saltwater***."
Appendix R, QAPP Worksheet #11 Fourth Bullet	• "Storm water samples are collected from the effluent of Pond C during the semi-annual sampling events and are submitted to the laboratory for the analysis of TCL VOCs, TCL SVOCs, TCL pesticides, TAL inorganics, cyanide, and conventional leachate parameters."	• "Stormwater samples ***are no longer collected***."

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SITE MANAGEMENT PLAN (SMP)

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Appendix R, QAPP Worksheet #11 Sixth Question	"The data are collected on a semi-annual basis, or other ***(as specified in the SMP)***."	"The data are collected as specified in the SMP, ***including all revisions***."
Appendix R, QAPP Worksheet #11 Seventh Question	"***Severn Trent Environmental Services (STES)*** collects the data…" "***Eco Test laboratories*** generates the analytical data."	"The site ***O&M Contractor or Environmental Engineer*** collects the data…" "The ***approved analytical laboratory*** generates the analytical data."
Appendix R, QAPP Worksheet #11 Ninth Question	"All hard copy data will be archived by ***STES. ARCADIS*** will maintain…"	"All hard copy data will be archived by the ***O&M Contractor or Environmental Engineer. The Environmental Engineer*** will maintain…"
Appendix R, QAPP Worksheet #14 – Sampling Tasks Item #5	"5. ***Stormwater sample collection***"	"5. ***Reserved***"
Appendix R, QAPP Worksheet #14 – Analysis Tasks Item #1	"1. ***Eco Test Laboratories*** to prepare and analyze groundwater samples for TCL VOCs, TCL SVOCs, TCL pesticides, TAL inorganics, cyanide, and conventional leachate parameters."	"1. ***Approved analytical laboratory*** to prepare and analyze groundwater samples for TAL inorganics ***(not associated with saltwater)***, cyanide, and conventional leachate parameters ***not associated with saltwater. Samples collected from MW-122 will also be submitted for TCL VOCs and TCL SVOCs***"
Appendix R, QAPP Worksheet #14 – Analysis Tasks Item #2	"2. ***Eco Test Laboratories*** to prepare and analyze leachate samples for TCL VOCs, TCL SVOCs, TCL pesticides, TAL inorganics, cyanide, and conventional leachate parameters."	"2. ***Approved analytical laboratory*** to prepare and analyze leachate samples for TAL inorganics ***(not associated with saltwater)***, cyanide, and conventional leachate parameters ***not associated with saltwater***."
Appendix R, QAPP Worksheet #14 – Analysis Tasks Item #3	"3. Eco Test Laboratories to prepare and analyze stormwater samples for TCL VOCs, TCL SVOCs, TCL pesticides, TAL inorganics, cyanide, and conventional leachate parameters."	***Strike this text.***
Appendix R, QAPP Worksheet #14 – Documentation and Records Item #4	" ***STES*** and/or its designated…"	"The ***O&M Contractor or Environmental Engineer*** and/or their designated…"
Appendix R, QAPP Worksheet #14 – Data Review Tasks Item #1	"***Eco Test Laboratories*** will…"	"The **Approved Analytical Laboratory** will…"

NYSDEC APPROVED
STORMWATER, GROUNDWATER, AND LEACHAGE SAMPLING
PARAMETER AND FREQUENCY MODIFICATIONS

SITE MANAGEMENT PLAN (SMP)

Pelham Bay Landfill
Bronx, NY
March 22, 2017

Location of Revision	Original Text	Revised Text
Appendix R, QAPP Worksheet #16 Row 1 Column 2	"***ARCADIS***"	"***Environmental Engineer***"
Appendix R, QAPP Worksheet #16 Row 2 Column 1	"Groundwater Sample, Leachate Sample, and ***Stormwater Sample*** Collection"	"Groundwater Sample and Leachate Sample Collection"
Appendix R, QAPP Worksheet #16 Row 2 Column 2	"***STES***"	"***Site O&M Contractor or Environmental Engineer***"
Appendix R, QAPP Worksheet #16 Row 3 Column 2	"***Eco Test Laboratories***"	"***Approved Analytical Laboratory***"
Appendix R, QAPP Worksheet #16 Rows 2-5, Columns 3, 4, &6	"***Semi-annual***" – *9 places*	"***Biennial (every two years)***"
Appendix R, QAPP Worksheet #17 First Paragraph	"Groundwater samples, leachate samples, ***stormwater samples***, and…during the ***semi-annual*** sampling events." The data collected during the ***semi-annual*** events will…"	"Groundwater samples, leachate samples, and…during the ***biennial (every two years)*** sampling events." The data collected during the ***biennial*** events will…"
Appendix R, QAPP Worksheet #17 Second Paragraph	"***Eco Test Laboratories***" – *2 places*	"the ***Approved Analytical Laboratory***"
Appendix R, QAPP Worksheet #18 Row 1 – Monitoring Wells Column 4	"Field Parameters, TCL VOCs, TCL SVOCs, TAL Metals, TCL OC Pesticides, Cyanide and Conventional Leachate Parameters"	"Field Parameters, TAL Metals ***(not associated with saltwater)***, Cyanide, and Conventional Leachate Parameters ***not associated with saltwater. Samples collected from MW-122 will also be submitted for TCL VOCs and TCL SVOCs***"
Appendix R, QAPP Worksheet #18 Row 2 – Collection Sump No. D-1 Column 4	"Field Parameters, TCL VOCs, TCL SVOCs, TAL Metals, TCL OC Pesticides, Cyanide and Conventional Leachate Parameters"	"Field Parameters, TAL Metals ***(not associated with saltwater)***, Cyanide, and Conventional Leachate Parameters ***not associated with saltwater***."
Appendix R, QAPP Worksheet #18 Row 3 – SW-1	"SW-1…See Worksheet #17"	***Strike entire row from the worksheet.***

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Appendix R, QAPP Worksheet #18 Footnote #3	"Conventional leachate parameters include ammonia, ***chloride***, nitrate, ***sulfate, total dissolved solids***, carbonate alkalinity, bicarbonate alkalinity, chemical oxygen demand, and total kjeldahl nitrogen."	Footnote 3 – "Conventional leachate parameters not associated with saltwater include ammonia, nitrate, carbonate alkalinity, bicarbonate alkalinity, chemical oxygen demand, and total kjeldahl nitrogen."
Appendix R, QAPP Worksheet #33 First Row Third Column	"***Semi-annual***"	"***Biennial (every two years)***"
Appendix R, QAPP Worksheet #33 First Row Fifth Column	"***STES/ARCADIS***"	"***Site O&M Contractor/Environmental Engineer***"
Appendix R, QAPP Worksheet #33 Second Row Fifth Column	"NYSDEC Region 2; ***NYCDEP***"	"NYSDEC Region 2; ***NYCDPR***"
Appendix R, QAPP Worksheet # 36 First Row – Groundwater Third Column	"VOCs, SVOCs, ***OC Pesticides***, Metals, General Chemistry Parameters	"VOCs, SVOCs, Metals, General Chemistry Parameters"
Appendix R, QAPP Worksheet # 36 Second Row – Leachate Third Column	"***VOCs, SVOCs, OC Pesticides,*** Metals, General Chemistry Parameters	"Metals, General Chemistry Parameters"
Appendix R, QAPP Worksheet # 36 Third Row - Stormwater	"***VOCs, SVOCs, OC Pesticides, Metals, General Chemistry Parameters***	***Strike this entire row from the worksheet.***

Site Management Plan

Pelham Bay Landfill
Bronx, New York
NYSDEC Index # 2-03-001

HISTORY OF CHANGE

REVISION DATE	REVISION NUMBER	REASON FOR CHANGE
30 SEPTEMBER 2009	0	Original Document
4 APRIL 2011	1	Addendum #1 – Summarize recommendations presented in the Corrective Measures Report for Landfill Gas System Maintenance
12 JANUARY 2015	2	Addendum #2 – Revise imported backfill requirements from 6 NYCRR Part 375-6.8(a) (Unrestricted Use Soil Cleanup Objectives) to 6 NYCRR Part 375-6.8(b) (Restricted-Residential Use Soil Cleanup Objectives)
22 MARCH 2017	3	Addendum #3 – Summary of NYSDEC Approved Stormwater, Groundwater, and Leachate Sampling Parameter and Frequency Modifications (Appendix X added)

Kline, Barry

From:	Peronto, Jim
Sent:	Monday, March 07, 2016 4:51 PM
To:	Kline, Barry
Subject:	FW: Draft minutes of Tuesday's meeting. (Pelham Bay Landfill Meeting)

From: Crawford, Nigel (DEC) [mailto:nigel.crawford@dec.ny.gov]
Sent: Wednesday, January 6, 2016 8:08 AM
To: Peronto, Jim <JPeronto@trcsolutions.com>
Subject: FW: Draft minutes of Tuesday's meeting. (Pelham Bay Landfill Meeting)

Jim: These are the minutes for the May 26, 2015 meeting. Nigel

From: Crawford, Nigel (DEC)
Sent: Friday, May 29, 2015 7:57 AM
To: Kay.Zias@parks.nyc.gov
Cc: 'Rowland, Marty (Parks)'; 'San Giovanni, Carlo'; 'Nemickas, Arnie'
Subject: Draft minutes of Tuesday's meeting.

Kay: Please see the following. All comments are welcome:
On 5/26/15 there was a meeting on this site at the NYSDEC headquarters Region 2, Room 441. In attendance were Nigel Crawford and Jane O'Connell of the NYSDEC Region 2, Kay Zias and Marty Rowland of the NYC Department of Parks and Recreation and Arnas Nemickas and Carlo San Giovanni of ARCADIS. This meeting was held because Jane O'Connell wanted to get some clarity on the changes in the monitoring program that the NYCDPR and ARCADIS are proposing. She asked questions such as the following: "April and October, why were they chosen as the months when the groundwater sampling and analysis took place?" In answer to another question by Jane O'Connell, ARCADIS stated that there is no relation between the height of the water table and the concentrations of various parameters. They also stated that there is no variation in concentrations over the tidal cycles. This fact was established in the 2007 tidal study. They also noted that it was in 2007 that all the sampling was changed. Jane O'Connell also asked why sampling and analysis took place every 2 years except annual. She also asked if there a reason why sampling and analysis would be preferable in the spring vs fall. ARCADIS noted that groundwater, in large measure, revealed the presence of the constituents of seawater reflecting inward migration of saltwater (A wedge) and Lab contaminants such as acetone and methylene chloride are present in a lot of the samples. They also expressed the view that most of the concentration trends reveal falling/ decreasing concentrations. It was stated during the meeting that the 1992 data is the baseline for comparison, there is no groundwater well in the middle of the landfill, water level elevation fluctuates with the tide and the D-1 sump is the location of the leachate sampling. According to Jane O'Connell storm water sampling and analysis looks like something that can eliminated as well as sampling and analysis of Pesticides and PCBs. ARCADIS also mentioned that they monitor temperature in the wells. Regarding landfill gas it was reiterated that condensate builds up in the landfill gas transit pipes and has to be trucked off site. Also it was stated by the NYCDPR that the O, M & M contract will be put out to bid in the fall of 2015. To summarize, please see the following points:

1. Sampling and analysis of storm water is dropped
2. Pesticides and PCBs as parameters are dropped
3. Inorganics that are saltwater related are dropped
4. A revised proposal will be sent to the NYSDEC laying out all these summary points.
5. There will biennial (every two years) sampling and analysis for groundwater in all wells
6. ARCADIS has to make the case in their revised submittal for VOCs to be dropped for all groundwater sampling and analysis except for MW-122.

Nigel N. Crawford, P.E.
Environmental Engineer 2
DER
NYSDEC Region 2
47-40 21st Street, LIC
New York 11101
Tel. # 718-482-7778

Thérèse Braddick
Deputy Commissioner
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NYC Parks

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July 2, 2015

Nigel Crawford, P.E.
Superfund and Brownfield Cleanup Unit - NYS DEC – Region 2
1 Hunter's Point Plaza
47-40 21st Street
Long Island City, NY 11101

Re: **SUMMARY OF MEETING ON REDUCTION OF MONITORING FREQUENCY**
PELHAM BAY LANDFILL, BRONX BOROUGH

Dear Nigel,

The New York City Department of Parks & Recreation (DPR) hereby submits a summary of our May 26, 2015 meeting that was held to discuss reductions in environmental sampling activity and frequency.

DPR anticipates performing the next round of biennial sampling in October 2016.

Please do not hesitate to call me at (718) 760-6922 should you have any questions about the information supplied or if you require any additional information.

Sincerely,

Marty Kowland, Ph.D., P.E.
Senior Project Manager for Environmental Remediation
New York City Department of Parks & Recreation
Capital Projects Division
Environmental Unit

cc: Kay Zias, NYC-DPR Director of Environmental Remediation
Arnas Nemickas, ARCADIS
Carlo SanGiovanni, ARCADIS
Jane O'Connell, NYS DEC

Attachment – Summary of Meeting on Pelham Bay Landfill, May 26, 2015

Summary of NYC DPR and NYS DEC Meeting on Pelham Bay Landfill

Reduction in Sampling Activity and Frequency

May 26, 2015

On May 26, 2015, a technical meeting was held between New York City Department of Parks & Recreation (DPR) and the New York State Department of Environmental Conservation (DEC) regarding a reduction in the volume and frequency of environmental sampling at the Pelham Bay Landfill site, at the DEC Region 2 Headquarters, Room 441. In attendance were Nigel Crawford and Jane O'Connell of the DEC Region 2, Kay Zias and Marty Rowland (Project Manager) of the DPR, and Arnas Nemickas and Carlo San Giovanni of ARCADIS. Jane O'Connell asked for the meeting in order to get clarity on the changes in the monitoring program that the DPR is proposing. She asked these questions:

Q: "April and October, why were they chosen as the months when the groundwater sampling and analysis took place?"

A: *These are typically the seasons of moderate temperatures; not too cold nor hot. October is often the month with the least rainfall.*

Q: "What is the relation between the height of the water table and the concentrations of various parameters?"

A: *There is no relation. The majority of the wells are tidally impacted; the tides have a greater effect on water levels rather than seasonal changes. This fact was established in the 2007 tidal study. As a result of that study the groundwater sampling procedures were changed to address this effect. Starting in 2007, monitoring wells were and continue to be sampled on the second half of the outgoing tide, so as to sample water draining out of the landfill (worst case), rather than bay water infiltrating the landfill. Groundwater quality (even with this sampling regime) has similar constituents to that of seawater, suggesting that water quality beneath the landfill resembles water quality in Eastchester Bay. The reported concentrations of acetone and methylene chloride are appropriately discounted as they are common lab contaminants and not actually present in the landfill environment.*

Q: "Why is sampling and analysis proposed to take place every 2 years in October rather than annual; and why October and not April?

A: *Most of the concentration trends reveal decreasing concentrations in both groundwater samples and landfill leachate samples (collected at the D-1 sump), or non-detection in either (e.g., pesticides and PCBs). With a 1992 groundwater and leachate quality baseline, there are 23 years of data documenting improved environmental conditions at the site, which provides the justification for a longer sampling frequency and the elimination of parameters never detected. DPR prefers October.*

Q: "So you want to eliminate sampling for pesticides and PCBs?"

A: *Yes*

Q: "Have you ever found contaminants in stormwater?"

A: *No.*

DPR then reported that landfill gas condensate continues to build up periodically (more so in the cooler months) in the landfill gas transportation pipeline and is then transported offsite for disposal.

Jane O'Connell agreed to reduce the following environmental sampling activities and frequencies:

1. Sampling of storm water is no longer required;
2. Sampling for pesticides and PCBs is no longer required;
3. Sampling for inorganic parameters (associated with saltwater quality)is no longer required;
4. Sampling for VOCs is no longer required, except for MW-122; and
5. Sampling will occur biennially (every two years) for groundwater in all wells.

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Therese Braddick
Deputy Commissioner
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City of New York
Parks & Recreation

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September 23, 2015

Nigel Crawford, P.E.
Superfund and Brownfield Cleanup Unit - NYS DEC – Region 2
1 Hunter's Point Plaza
47-40 21st Street
Long Island City, NY 11101

Re: **SUMMARY OF REDUCED POST-CLOSURE ENVIRONMENTAL MONITORING REQUIREMENTS MEETING OF 5/26/15**
PELHAM BAY LANDFILL, BRONX BOROUGH

Dear Nigel,

The New York City Department of Parks & Recreation (DPR) hereby submits a summary of our May 26, 2015 meeting concerning our petition to reduce the frequency of monitoring groundwater, leachate, and landfill gas at the Pelham Bay Landfill. The New York State Department of Environmental Conservation (DEC) agreed to five main points, as detailed in the attachment:

1. Biennial sampling and analysis of groundwater and leachate
2. Elimination of pesticides and PCBs analyses
3. Elimination of saltwater-related compounds from the inorganic and conventional leachate parameter analytical tests
4. Biennial groundwater elevation measurement frequency
5. Elimination of stormwater sample collection and analysis

Under separate cover, we will address the remaining task discussed at our December 17, 2014 meeting, i.e., terminating active leachate collection, passively venting landfill gas, and abandoning several groundwater and landfill gas wells.

Please do not hesitate to call me at (718) 760-6922 should you have any questions about the information supplied or if you require any additional information.

Sincerely,

Marty Rowland, Ph.D., P.E.
Senior Project Manager for Environmental Remediation
New York City Department of Parks & Recreation
Capital Projects Division
Environmental Unit

cc: Kay Zias, NYC-DPR Director of Environmental Remediation
Arnas Nemickas, ARCADIS
Jane O'Connell, NYS DEC

Attachment – Summary of Reduced Post-Closure Environmental Monitoring Requirements

ARCADIS
Infrastructure Water Environment Buildings

ARCADIS of New York, Inc.
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Melville
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Tel 631 249 7600
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ENVIRONMENT

Mr. Marty Rowland Ph.D., P.E.
Senior Project Manager
New York City Department of Parks & Recreation
The Olmsted Center
Flushing Meadows-Corona Park
117-02 Roosevelt Avenue
Corona, NY 11368

Subject:
Summary of Reduced Post-Closure Environmental Monitoring Requirements, Pelham Bay Landfill, Bronx, New York

Date:
September 21, 2015

Contact:
Carlo San Giovanni

Phone:
631-391-5259

Email:
carlo.sangiovanni@arcadis-us.com

Our ref:
NY001443.0011

Dear Mr. Rowland:

At the request of the New York City Department of Parks and Recreation (DPR), ARCADIS has prepared this summary to document reductions to the Pelham Bay Landfill (PBL or Site) post-closure environmental monitoring program agreed to during the May 28, 2015 meeting with New York State Department of Environmental Conservation (NYSDEC) and provide the additional rationale requested for eliminating volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) analyses for the leachate and groundwater sampling programs. The PBL post-closure environmental monitoring program reductions agreed to during the meeting are summarized in Table 1 and include the following:

1. Reduction of leachate and groundwater sampling frequency from semi-annual to biennial (once every two years)

2. Elimination of pesticides and polychlorinated biphenyls (PCBs) analysis from the leachate and groundwater sampling programs

3. Elimination of saltwater-related compounds from the inorganic and conventional leachate parameter analytical lists for both the leachate and groundwater sampling programs

4. Reduction of groundwater elevation measurement frequency from semi-annual to biennial (once every two years), and

5. Elimination of stormwater sample collection and analysis.

Additionally, during the May 28, 2015 meeting, the NYSDEC requested additional rationale for the elimination of VOC and SVOC analyses from Leachate and Groundwater Monitoring Programs be provided. The only exception was the NYSDEC requested Monitoring Well MW-122 continue to be sampled for VOC analysis. The rationale for the elimination of VOC and SVOC analyses from the PBL Leachate and Groundwater Monitoring Programs is provided below and summarized on Table 1.

ARCADIS' original petition to reduce post-closure environmental monitoring (dated April 10, 2015), presented the historical analytical data tables, time versus concentration graphs, and an evaluation of the data. As described in in the April 10, 2015 petition, VOC and SVOC leachate quality data were not available prior to 1999 and, since 1999, there have generally been sporadic detections of a limited number of VOCs and SVOCs in PBL leachate samples, with the majority of these detections determined to be unrelated to the Site as they are recognized lab contaminants (e.g., 2-butanone, acetone, chloroform, methylene chloride, and bis (2-ethylhexyl) phthalate) (Table 1). Based on this evaluation, DPR is requesting the NYSDEC approve the elimination of VOC and SVOC analyses from the PBL Leachate Monitoring Program.

As presented in the April 10, 2015 petition, the VOC and SVOC analytical results from the PBL Groundwater Monitoring Program generally show that VOCs and SVOCs have been sporadically detected at low (i.e., generally less than 10 ug/l) concentrations in samples collected from nine of the ten groundwater monitoring wells that form the PBL groundwater monitoring network, and these wells exhibit a decreasing trends in VOC and SVOC concentrations over time. A majority of the groundwater VOC detections are recognized lab contaminants and, therefore, are not considered to be Site-related. The one exception to the above trend is Monitoring Well MW-122, where VOCs and SVOCs have been consistently detected. In general, the historical sporadic and low concentrations detected, coupled with recent decreasing groundwater quality trends suggest that groundwater quality, with respect to VOCs and SVOCs, has improved during the post-closure monitoring period, with the exception of MW-122 (Table 1). Based on this analysis, DPR is requesting NYSDEC approve the elimination of VOC and SVOC analyses (with the exception of Well MW-122, which will be sampled biennially) from the PBL Leachate and Groundwater Monitoring Programs.

Table 2 presents the proposed, revised monitoring program requirements for the PBL. We appreciate your consideration of this petition to relax the environmental monitoring requirements at the PBL and look forward to your response. Should these additional reductions be approved by the NYSDEC, the SMP will be amended to reflect the agreed to changes.

Sincerely,

ARCADIS of New York, Inc.

Carlo San Giovanni

Carlo San Giovanni
Project Manager

Copies
Kay Zias - DPR
File

Table 1: Proposed Monitoring Changes
Pelham Bay Landfill, Bronx, New York

Monitoring Program	Original Monitoring Program		Agreed to Reductions [1]			Additional Reductions		Rationale for Additional Reductions
	Frequency	*Parameters*	*Frequency*	*Parameters*		*Parameters*		
Leachate sampling: Collection and laboratory analysis of leachate samples.	Semi-annual	VOCs	Biennial (once every two years)	Pesticides	Eliminated	VOCs	Eliminated	VOCs have been detected in limited concentrations in recent sampling events, with the majority of the detected compounds being recognized laboratory contaminants
		SVOCs		PCBs	Eliminated	SVOCs	Eliminated	SVOCs have been detected in limited concentrations in recent sampling events, with the majority of the detected compounds being recognized laboratory contaminants
		Pesticides		Metals and Conventional Leachate Parameters	Eliminate analysis of saltwater related compounds (sodium, chloride, magnesium, potassium, sulfate, calcium, and TDS)			
		PCBs						
		Metals						
		Conventional Leachate Parameters						
Groundwater sampling: Collection and laboratory analysis of groundwater samples from the following wells: MW-104, MW-106, MW-109, MW-110, MW-113, MW-114, MW-119, MW-120, MW-120B, and MW-122	Semi-annual	VOCs	Biennial (once every two years)	Pesticides	Eliminated	VOCs	Eliminated for all wells except MW-122	VOCs have only been consistently detected in only one monitoring well, MW-122. VOCs have been detected in limited concentrations in the other monitoring wells, with the majority of the detected compounds being recognized laboratory contaminants
		SVOCs		PCBs	Eliminated			
		Pesticides		Metals and Conventional Leachate Parameters	Eliminate analysis of saltwater related compounds (sodium, chloride, magnesium, potassium, sulfate, calcium, and TDS)	SVOCs	Eliminated for all wells except MW-122	SVOCs have only been consistently detected in only one monitoring well, MW-122. SVOCs have been detected in limited concentrations in the other monitoring wells, with the majority of the detected compounds being recognized laboratory contaminants
		PCBs						
		Metals						
		Conventional Leachate Parameters						
Groundwater Elevation Measurement: Field measurement of groundwater elevations.	Semi-annual	Water levels	Biennial (once every two years)	Water levels		N/A		
Stormwater sampling: Collection and laboratory analysis of samples from stormwater basin outflow.	Semi-annual	VOCs	All stormwater sampling eliminated			N/A		
		SVOCs						
		Pesticides						
		PCBs						
		Metals						
		Conventional Leachate Parameters						

(1) Reductions Agreed to at May 26, 2015 meeting with NYSDEC

Table 2: Revised Monitoring Program
Pelham Bay Landfill, Bronx, New York

Monitoring Program	Revised Monitoring Program		
	Frequency	*Parameters*	
Leachate sampling: Collection and laboratory analysis of leachate samples.	Biennial	Metals	Aluminum (Al), Antimony (Sb), Arsenic (As), Barium (Ba), Beryllium (Be), Boron (Bo), Cadmium (Cd), Chromium (Cr), Cobalt (Co), Copper (Cu), Hexavalent Chromium, Iron (Fe), Lead (Pb), Magnesium (Mg), Mercury (Hg), Molybdenum (Mo), Nickel (Ni), Selenium (Se), Silver (Ag), Thallium (Tl), Vanadium (V), Zinc (Zn)
		Conventional Leachate Parameters	Alkalinity as Bicarbonate, Alkalinity as Carbonate, Ammonia (NH3), as N, Biochemical Oxygen Demand (BOD5), Chemical Oxygen Demand (COD), Nitrate + Nitrite as N, Nitrate Nitrogen, Nitrogen, Total Kjeldahl as N (TKN), pH, Solids, Total Suspended (TSS), Cyanide, Total, TPH, Recoverable
Groundwater sampling: Collection and laboratory analysis of groundwater samples from the following wells: MW-104, MW-105, MW-109, MW-110, MW-113, MW-114, MW-119, MW-120, MW-120B, and MW-122	Biennial	VOCs	MW-122 Only
		SVOCs	MW-122 Only
		Metals	Aluminum (Al), Antimony (Sb), Arsenic (As), Barium (Ba), Beryllium (Be), Boron (Bo), Cadmium (Cd), Chromium (Cr), Cobalt (Co), Copper (Cu), Hexavalent Chromium, Iron (Fe), Lead (Pb), Magnesium (Mg), Mercury (Hg), Molybdenum (Mo), Nickel (Ni), Selenium (Se), Silver (Ag), Thallium (Tl), Vanadium (V), Zinc (Zn)
		Conventional Leachate Parameters	Alkalinity as Bicarbonate, Alkalinity as Carbonate, Ammonia (NH3), as N, Biochemical Oxygen Demand (BOD5), Chemical Oxygen Demand (COD), Nitrate + Nitrite as N, Nitrate Nitrogen, Nitrogen, Total Kjeldahl as N (TKN), pH, Solids, Total Suspended (TSS), Cyanide, Total, TPH, Recoverable
Groundwater Elevation Measurement: Field measurement of groundwater elevations.	Biennial	Water levels	
Stormwater sampling: Collection and laboratory analysis of samples from stormwater basin outflow.	None		

Kline, Barry

From:	Crawford, Nigel (DEC) <nigel.crawford@dec.ny.gov>
Sent:	Monday, March 06, 2017 11:16 AM
To:	Kline, Barry
Cc:	O'Connell, Jane H (DEC)
Subject:	RE: Questions Regarding the Pelham Bay Landfill Site Management Plan Update

Barry: Yes, leachate and groundwater sampling will occur biennially (every two years) at the Pelham Bay landfill. Nigel

Nigel N. Crawford, P.E.

Environmental Engineer 2,
Division of Environmental Remediation

New York State Department of Environmental Conservation
NYSDEC Region 2
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From: Kline, Barry [mailto:BKline@trcsolutions.com]
Sent: Monday, March 06, 2017 9:19 AM
To: Crawford, Nigel (DEC) <nigel.crawford@dec.ny.gov>
Subject: Questions Regarding the Pelham Bay Landfill Site Management Plan Update

Hi Nigel,

Attached are documents regarding modifications to the Pelham Bay Landfill sampling program for GW, storm water and leachate. I'll give you a call later this morning to discuss these documents. I just need one quick clarification so that I can complete the SMP update.

Thanks,

- Barry

Barry Kline, P.E.
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October 4, 2016

Nigel Crawford, P.E.
Superfund and Brownfield Cleanup Unit - NYS DEC – Region 2
1 Hunter's Point Plaza
47-40 21st Street
Long Island City, NY 11101

Re: **REDUCTION OF MONITORING FREQUENCY – GROUNDWATER AND LEACHATE**
PELHAM BAY LANDFILL, BRONX BOROUGH

Dear Nigel,

The New York City Department of Parks & Recreation (DPR) is seeking guidance and clarification from the New York State Department of Environmental Conservation (DEC) regarding the required groundwater and leachate sampling at the Pelham Bay Landfill. Reduced monitoring of landfill gas is not addressed at this time.

It appears, based on the data presented in the various documents and discussed at the May 29, 2015 meeting, that elimination of SVOC and VOC analysis from the groundwater and leachate sampling program has been justified, with the exception of the continued sampling of VOCs at MW-122. We are planning for the next sampling event in October of this year and would like your concurrence with these modifications before we proceed.

Several documents and meetings are described below to present a timeline on this issue. In an effort to clarity, please note that Attachment 1 is the April 14, 2015 petition from DPR to DEC seeking a reduction in the monitoring frequency of groundwater and leachate (that included an April 10, 2015 report from ARCADIS), and Attachment 2 contains several communications, contained in the attached CD.

- Your May 29, 2015 email to DPR's Kay Zias concerning the May 26, 2015 meeting held in your offices with DPR;
- A DPR July 2, 2015 letter to you about the same May 26, 2015 meeting; and,
- A DPR September 23, 2015 letter to you that detailed five items of agreement between DPR and DEC (that included a September 21, 2015 report from ARCADIS).

On May 26, 2015, a meeting was held between NYSDEC, DPR, and ARCADIS to discuss the DPR April 14th petition to reduce monitoring frequencies at the landfill. After that meeting, you provided DPR an email summary of the meeting, dated May 29. On July 2nd, and September 23rd DPR provided DEC additional information to confirm the agreements made on May 26th. In your May 29th email (see highlighted text therein), you stated that "ARCADIS has to make the case in their revised submittal for VOCs to be dropped for all groundwater sampling and analysis except for MW-122." *There is no mention of leachate monitoring or the water quality parameter group of semivolatile organics (SVOCs).*

In DPR's July 2nd letter (see highlighted text therein), you are described as having acknowledged (during the May 26th meeting) decreasing trends in groundwater and leachate and that the data collected for groundwater and leachate since 1992 is used as the basis for eliminating parameters. In the description of the activities/frequencies that NYSDEC (Jane O'Connell) reportedly agreed to reduce during the May 26th meeting (activity #4, also highlighted in the July 2nd letter), in the words "Sampling for VOCs is no longer required, except for MW-122". No information is provided regarding SVOCs. *It is*

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also unclear if the approved changes apply only to groundwater or to both groundwater and leachate.

Finally, in the September 21st letter from ARCADIS provides justification for the elimination of SVOC and VOC analysis from the groundwater and leachate sampling program. *DEC has not confirmed that SVOCs should be eliminated from the monitoring list.*

Please provide the requested guidance so that we can plan the groundwater sampling event next week.

Thank you for your assistance and please feel free to call me with any questions or comments.

Sincerely,

Marty Rowland, Ph.D., P.E.
Senior Project Manager for Environmental Remediation
New York City Department of Parks & Recreation
Capital Projects Division
Environmental Remediation Unit

cc: Kay Zias, NYC-DPR Director of Environmental Remediation
Barry Kline, TRC
Jane O'Connell, NYS DEC

Attachment: CD with two documents

1 - April 14, 2016 letter from NYC DPR to NYS DEC on reducing monitoring frequency at Pelham Bay Landfill

2 – Several documents concerning reducing monitoring frequency at Pelham Bay Landfill

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 2
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November 29, 2016

Marty Rowland, Ph.D., P.E.
Senior Project Manager for Environmental Remediation
Capital Projects Division - Environmental Unit
NYC Department of Parks and Recreation
Olmstead Center
Flushing Meadows Corona Park
Flushing, NY 11368

Re: Pelham Bay Landfill
NYSDEC Site # 203001
Site Management Plan Modifications

Dear Dr. Rowland:

The New York State Department of Environmental Conservation (NYSDEC) has reviewed your letter dated October 4, 2016 which requested changes to the parameters sampled and analyzed in the groundwater and leachate at the Pelham Bay Landfill. Specifically, the letter proposed that groundwater and leachate will no longer be sampled and analyzed for VOCs and SVOCs with the exception of groundwater samples obtained from MW-122. This request is hereby approved.

These changes in the sampling and analysis of groundwater and leachate constitute modifications to the Site Management Plan (SMP) and must be identified in the Summary of Revisions identified on the cover of the SMP. Please submit revised pages and cover for the SMP reflecting these changes no later than 30 days from the date of this letter. Once approved, the modified SMP must be placed in all document repositories for the Site within five business days. A certification that this document has been placed, and that the repositories are complete with all project documents, must be submitted to me.

If you have any questions, please call me at (718) 482-7778 or email me at nigel.crawford@dec.ny.gov.

Sincerely,

N. Crawford

Nigel N. Crawford, P.E.
Environmental Engineer 2

cc: J. O'Connell - NYSDEC
K. Zias - NYC Parks
B. Kline - TRC