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2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

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Executive Summary

This report documents the Operations and Maintenance activities undertaken during calendar year 2020 for the Current Landfill (Area of Concern [AOC] 3) and the Former Landfill Areas. The Former Landfill Areas include the Former Landfill (AOC 2A), Interim Landfill (AOC 2D), and Slit Trench (AOC 2E). Brookhaven National Laboratory is responsible for performing this work to comply with the post-closure O&M requirements specified in 6 New York State Code of Rules and Regulations (NYCRR) Part 360, Solid Waste Management Facilities, updated November 4, 2017. The landfill caps are functioning as designed and the 2020 results are consistent with results from previous years.

GROUNDWATER QUALITY

The groundwater quality at both the Current and Former Landfill Areas remains relatively unchanged from 2019. Volatile organic compounds (VOCs) and metals continue to be detected downgradient of the Current Landfill. The most prevalent VOCs detected above NYSDEC Class GA Groundwater/Guidance Values are chloroethane, 1,1-dichloroethane and benzene, at maximum concentrations of 25.5 micrograms per liter (µg/L), 24.5 µg/L and 1.71 µg/L, respectively. As with previous years, aluminum, arsenic, iron, manganese, and sodium were detected downgradient from the Current Landfill at concentrations above applicable standards. Concentrations of these metals were similar to those detected historically. Maximum concentrations of aluminum, arsenic, iron, manganese, and sodium in downgradient wells were 470 µg/L,12.8 µg/L, 94,600 µg/L, 4,090 µg/L, and 34,400 µg/L, respectively. These results are an indicator of continued low-level leachate generation at this landfill. There were no detections of radionuclides above standards at the Current Landfill during 2020.

Concentration of parameters detected in wells downgradient of the Former Landfill Area do not indicate the presence of leachate. VOCs were not detected above standards in Former Landfill Area monitoring wells in 2020. Strontium-90 concentrations in all Former Landfill area monitoring wells were below the groundwater standard of 8 pCi/L during 2020. Strontium-90 has not been detected above the standard of 8 pCi/L in Former Landfill monitoring wells since 2001. Water chemistry and metals concentrations were equivalent to historic background levels. There were no detections of pesticides or polychlorinated biphenyls (PCBs) during 2020 at the Former Landfill.

As part of Brookhaven National Labs ongoing effort to investigate emerging contaminants, twelve Current Landfill and four Former Landfill wells were sampled for Perfluorooctane sulfonate (PFOS), Perfluorooctanoic acid (PFOA) and 1,4-dioxane. 1,4-Dioxane was found above the standard in wells 087-11, 088-23, 088-110 and 098-99. PFOS was not found above the standard in any of the Current Landfill wells and was only identified in one Former Landfill well 086-42 at a concentration of 10.1 ng/L, slightly above the standard. PFOA exceeded the standard in one Current Landfill well at a concentration of 45.2 ng/L and was below the standard in the four Former landfill wells sampled.

The groundwater monitoring well network for the Current Landfill Area is adequate at this time. VOCs, metals and water quality parameters will continue to be monitored semi-annually but VOCs

will be monitored quarterly in wells 088-109 and 098-99. Radionuclides will continue to be monitored annually.

The Former Landfill groundwater monitoring data collected during the previous two decades indicate groundwater impact is now essentially nonexistent. With the current and historical groundwater monitoring data as evidence, it is recommended that groundwater monitoring of the Former Landfill monitoring well network be discontinued.

SOIL-GAS MONITORING

Soil-gas monitoring at the Current Landfill indicates that decomposition is still occurring. However, as with prior years, there is no indication that the vapors are migrating beyond the monitoring well network. Soil-gas monitoring at the Former Landfill Area indicates that there is no detection of gasses emanating from the landfill. The existing soil gas monitoring well networks are sufficient to monitor both landfill areas.

MAINTENANCE AND REPAIR

Monthly inspections and routine maintenance of the cap, drainage channels and wells were performed throughout 2020. During a post storm cleanup operation, soil gas well GSGM-2C was damaged with a payloader. The inner riser pipe was undamaged, and the outer protective casing was repaired by a licensed well installation contractor.

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ACRONYMS

AOC	Area of concern
BNL	Brookhaven National Laboratory
BSA	Brookhaven Science Associates
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CY	Calendar year
DCS	Derived concentration technical standard
DOE	U.S. Department of Energy
DQOs	Data quality objectives
EIMS	Environmental Info. Mgmt. System
HWMF	Former Hazardous Waste Management Facility
LEL	Lower explosive limit
µg/L	Micrograms per liter
mg/L	Milligrams per liter
ng/L	Nanograms per liter
mrem	Millirem
MS/MSDs	Matrix spike/matrix spike duplicates
NPL	National Priorities List
NYSDEC	NY State Dept. of Environmental Conservation
NYSDOH	NY State Dept. of Health
O&M	Operations and Maintenance
OU	Operable Unit
PCBs	Polychlorinated biphenyls
pCi/L	Picocuries per liter
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
SCDHS	Suffolk County Department of Health Services
Sr-90	Strontium 90
TDS	Total dissolved solids
TKN	Total Kjeldahl nitrogen
TSS	Total suspended solids
TVOCs	Total volatile organic compounds
UEL	Upper explosive limit
USEPA	United States Environmental Protection Agency
VOCs	Volatile organic compounds

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1.0 INTRODUCTION

This report documents the Operation and Maintenance (O&M) activities and summarizes monitoring data collected during calendar year (CY) 2020 for the Current Landfill (Area of Concern [AOC] 3) and the Former Landfill Areas (Former Landfill AOC 2A, Interim Landfill AOC 2D, and Slit Trench AOC 2E). Brookhaven National Laboratory (BNL) is responsible for performing this work to comply with the post-closure O&M requirements specified in the 6 New York State Code of Rules and Regulations (6NYCRR) Part 360, Solid Waste Management Facilities, revised November 4, 2017. The details of the O&M programs are described in the Final Operations and Maintenance Manuals for the Current Landfill (CDM Federal, 1996a) and the Former Landfill Areas (CDM Federal, 1996c).

The following are the primary objectives of the O&M program:

- Monitor the effectiveness of the impermeable caps in protecting groundwater quality;
- Monitor the potential generation and migration of soil-gas; and
- Maintain and monitor the various components of the closure system (e.g., landfill caps, drainage structures, and environmental monitoring systems).

This is the twenty-fifth year of O&M for the Current Landfill, the twenty-fourth year for the Former Landfill and Slit Trench, and the twenty-third year for the Interim Landfill.

1.1 Site Description and Project Background

BNL is a 5,265-acre site located in central eastern Long Island, New York. The facility is a federally owned and funded international research and learning center managed by Brookhaven Science Associates (BSA) under contract with the United States Department of Energy (DOE). On December 21, 1989, the site was placed on the United States Environmental Protection Agency's (USEPA's) National Priorities List (NPL), a ranking of hazardous waste sites compiled by the federal government as part of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Placing BNL on the NPL resulted in the establishment of a remediation

task list for various locations around the facility. The site subsequently was divided into seven separate remediation work areas known as Operable Units (OU). The Current Landfill and Former Landfill Areas are located in OU I, near the south-central portion of the BNL site **(Figure 1)**.

Current Landfill. The Current Landfill consists of one unlined waste-cell that operated from the late 1960s until 1990 for disposing of waste generated at the Laboratory. An impermeable cap covering the cell was completed in November 1995. Additional information about the cap's construction can be obtained from the *Construction Certification Report for the Current Landfill* (CDM Federal, 1996b). Following the installation of the cap, the post-closure groundwater monitoring program was implemented in January 1996, in compliance with 6 NYCRR Part 360 Section 2.15, Solid Waste Management Facilities.

Groundwater quality near the Current Landfill is monitored under the O&M program for a wide variety of volatile organic compounds (VOCs), metals, radiological, and water chemistry (landfill leachate) parameters. Monitoring in this vicinity was expanded in 1999 to include a wetland area adjacent to the landfill's eastern boundary. This area, known as the Wooded Wetland area, is a two-acre wetland located between the Former Hazardous Waste Management Facility (HWMF) and the Current Landfill. The wetland receives surface runoff from the Current Landfill and usually contains standing surface water during the spring/early summer and dry in late summer/fall. Monitoring of the Wooded Wetland area was incorporated into the Current Landfill Monitoring Program and consisted of sampling and analyzing surface water and sediment annually through 2008, and then every other year to evaluate the potential for leachate migrating into this area, as originally performed under the *OU I Ecological Risk Assessment* (CDM Federal, 1999). In response to information provided in the *2015 Environmental Monitoring Report, Current and Former Landfill Areas* (BNL 2016) and additional tiger salamander information provided upon the request of the NYSDEC, it was agreed that further monitoring of the Wooded Wetlands would be limited to visual tiger salamander assessments. Furthermore, it was agreed to that no further sediment and surface water samples will be collected, and care would be taken by BNL to not disturb the buildup of detritus material in the Wooded Wetland.

As required under 6 NYCRR Part 360, groundwater quality must be monitored for a minimum of five years, after which the permittee may request modification of the sampling and analysis

requirements. In October 2001, BNL submitted the *Five-Year Evaluation Report for the Current Landfill* (BNL, 2001b). This report assessed groundwater trends over the five years after capping, and proposed changes to the sampling program. These changes were implemented in CY 2002. In July 2006, March 2011 and June 2016, BNL issued CERCLA five-year review reports which discussed all remediation areas at the site, including the current landfill (BNL 2016, BNL 2011, BNL 2016).

Former Landfill Area. The Former Landfill Area encompasses three closely located landfill units; the Former Landfill, the Slit Trench, and the Interim Landfill. The Former Landfill is an unlined waste-disposal area originally used by the United States Army starting in 1918. Waste disposal operations ceased in 1966, and the landfill was covered with soil. The Interim Landfill also is unlined and was reportedly used for approximately one year between the time the Former Landfill was closed and the Current Landfill was opened. The Slit Trench is unlined as well and is believed to have operated between 1960 and 1967 for disposal of construction and demolition debris (CDM Federal, 1996c).

The Former Landfill and Slit Trench were capped in November 1996 and the Interim Landfill was capped in October 1997. Additional information about the construction of the caps can be found in the *Construction Certification Report for the Former Landfill* (Roy F. Weston, 1997) and *Construction Certification Report for the Interim Landfill Capping* (PW Grosser, 1997). BNL started O&M activities in December 1996 at the Former Landfill and Slit Trench, and in November 1997 at the Interim Landfill. Under this O&M program, groundwater quality in downgradient wells near the Former Landfill is monitored for VOCs, metals, radionuclides, and landfill-leachate parameters.

In March 2002, BNL submitted a *Five-Year Evaluation Report for the Former Landfill* (P.W. Grosser, 2002), which assessed trends in groundwater quality over the five-year period following capping and proposed changes to the sampling program. These changes were implemented in CY 2003. In July 2006, March 2011 and June 2016 BNL issued CERCLA five-year review reports which discussed all remediation areas at the site including the Former Landfill areas (BNL 2016, BNL 2011, BNL 2016).

1.2 Overview of the Monitoring Program

Groundwater Monitoring

Data quality objectives (DQOs) for each of BNL's groundwater monitoring programs are presented in the *BNL Environmental Monitoring Plan* (BNL, 2020). The design of the data collection network was optimized as part of the process. Such optimization continues annually as part of the O&M program and is based on the interpretation of new data as well as historical trends. The primary DQO decision identified for the landfill monitoring programs is "Are the controls effectively improving groundwater quality below and downgradient of the landfill?"

Groundwater samples are collected from monitoring wells positioned upgradient and downgradient of each landfill area. Analytical data are reviewed, and determinations are made regarding the effectiveness of landfill controls.

The additional monitoring programs for the landfill areas consist of:

Soil-gas Monitoring. Measurements of methane, Lower Explosive Limit (LEL), and hydrogen sulfide are taken quarterly from monitoring locations surrounding the Current Landfill and annually from monitoring locations surrounding the Former Landfill to evaluate the movement of soil-gas from the landfills.

Routine Visual Inspection, Maintenance, and Repair. Monthly inspections are performed to monitor the structural and/or operational status of the landfill caps, drainage structures, and environmental monitoring systems. Semi-annual inspections of the landfills are also performed to ensure that institutional controls continue to be maintained.

Leachate Discharge. Visual inspections of the landfills are performed monthly to monitor for signs of leachate discharge. If observed, samples of the leachate are collected and analyzed. Leachate was not observed during 2020.

These activities are discussed in greater detail in **Sections 2 through 4** of this report. **Section 5** contains the conclusions and recommendations. References are included in **Section 6**.

2.0 GROUNDWATER MONITORING

2.1 Monitoring Well Networks

2.1.1 Current Landfill

Since January 1996, groundwater quality at the Current Landfill has been monitored using eleven downgradient wells and one background monitoring well. **Figure 2** depicts the location of the monitoring wells. **Figure 3** shows the water table contours for this area in January 2021. The depths of the screen intervals for the Current Landfill wells and fourth quarter depth to water elevations are listed below.

Well ID	Depth to Water (ft BLS) 4th Q 2020	Screen Interval (ft BLS)	Screen Zone
087-09*	28.80	24–34	Shallow Glacial
087-11	15.46	11–21	Shallow Glacial
087-23	33.77	25–40	Shallow Glacial
087-24	33.68	70–80	Middle Glacial
087-26	14.20	70–80	Middle Glacial
087-27	14.36	5–20	Shallow Glacial
088-109	12.79	6–21	Shallow Glacial
088-110	14.61	10–25	Shallow Glacial
088-21	8.96	5–20	Shallow Glacial
088-22	9.10	70–80	Middle Glacial
088-23	8.99	120–130	Deep Glacial
098-99	12.11	39.5-49.5	Middle Glacial

BLS = Below Land Surface

*Background well

2.1.2 Former Landfill

Since January 1997, groundwater quality at the Former Landfill area has been monitored using 14 shallow monitoring wells (three background and 11 downgradient). The locations of the 14 monitoring wells are presented in **Figure 4**. The direction of groundwater flow in the OU I area of the site is generally to the south-southeast. **Figure 3** shows the January 2021 water table contours for the area. The screen zones for Former Landfill Area wells are summarized below.

Well ID	Depth to Water (ft BLS) 4th Q 2020	Screen Interval (ft BLS)	Screen Zone
086-42*	39.01	65–75	Middle Glacial
086-72*	46.41	41.5–56.5	Shallow Glacial
087-22*	46.81	43–53	Shallow Glacial
097-17	33.37	29–39	Shallow Glacial
097-64	34.39	29–44	Shallow Glacial
097-277	44.35	40–55	Shallow Glacial
106-02	30.70	55–65	Middle Glacial
106-30	33.30	29–44	Shallow Glacial
106-20	28.80	85-95	Middle Glacial
106-21	31.80	55-65	Shallow Glacial
106-43	29.06	43-53	Shallow Glacial
106-44	29.05	44-54	Shallow Glacial
106-45	29.12	44-55	Shallow Glacial
106-64	28.98	30-40	Shallow Glacial

BLS = Below Land Surface
*Background well
NS = Not sampled

2.1.3 Sampling Frequency and Analytical Parameters

The majority of monitoring wells for the Current Landfill were sampled semiannually, during June and December 2020, for VOCs, metals, and water chemistry parameters. A quarterly VOC sampling frequency was maintained for wells 088-109 and 098-99. Samples were analyzed for radionuclides once during 2020 for wells 087-23, 087-27, 088-21, and 088-109.

Former Landfill Area wells are scheduled to be sampled every two years. However, as recommended in the *2016 Environmental Monitoring Report, Current and Former Landfill Areas* (BNL, 2017), the sampling frequency for Sr-90 was increased to annually for wells 097-64, 106-02, 106-43, 106-44, and 106-45. All other wells and parameters, which include VOCs, pesticides/PCBs, general chemistry, metals and radionuclides, were sampled in 2020.

The BNL sampling team conducted the groundwater sampling, and General Engineering Laboratories, Inc of Charleston, South Carolina analyzed the samples. Groundwater samples were collected using BNL procedure EM-SOP-302, *Groundwater Sampling-Low Flow Purging and Sampling Using Dedicated Bladder Pumps.* See **Table 1** for a summary of analyses performed, by well and sampling round.

2.1.4 Quality Assurance / Quality Control

The groundwater samples were collected and analyzed in accordance with strict quality assurance/ quality control (QA/QC) requirements as described in the BNL standard operating procedures (SOPs) for groundwater monitoring. The analytical results for groundwater samples collected during 2020 satisfied the data-quality objectives. Furthermore, a master calibration/maintenance log is maintained for each field-measuring device (e.g., pH, conductivity, turbidity meters).

The analytical results of samples collected for the Current and Former Landfill Area projects underwent data verification, using EM-SOP-203, *Chemical Data Verification*, and EM-SOP-204, *Radiochemical Data Verification*. These procedures are designed to verify the accuracy and/or completeness of analytical data. The data verification process is implemented to detect the most common analytical problems that affect the quality of the results. To accomplish this task, QA/QC items such as the following were checked: holding times, matrix spikes, laboratory and field blanks, and field logs. If items are found that can affect the use and interpretation of the data, they are either corrected, as in the case of unreadable information on the field logs, or the data are "qualified," as in the case of contamination of the blanks or violations of the holding time.

Guidance on the collection of QA/QC samples is contained in the QAPP, and in BNL procedure EM-SOP-200, *Collection and Frequency of Field Quality Control Samples*. The QA/QC samples collected included trip blanks, field blanks, matrix spike/matrix spike duplicate (MS/MSDs), and blind duplicates.

Trip blanks were analyzed for aqueous VOCs only. One trip blank was shipped to the analytical laboratory with each set of samples submitted for VOC analyses. The results of the blank samples did not indicate any significant impact on the quality of the results. One duplicate sample was collected from the Current Landfill during the first, second, third and fourth quarters. One duplicate sample was collected from the Former Landfill during the fourth quarter. No inconsistencies were detected in the blind duplicate analyses. The results are indicative of consistency with contract analytical laboratories and sampling methods, resulting in valid, reproduceable data. Matrix spike/matrix spike duplicate (MS/MSD) samples were collected at the same frequency as the duplicates. Due to a shipping error, Current Landfill well samples submitted for nitrate and nitrite analysis during the fourth quarter were analyzed outside their respective holding times from wells

087-09 and 088-109. The data has been qualified for the samples that were affected by this exceedance and subsequently denoted in the respective data tables. The amount of qualified data was within acceptable limits and did not adversely impact the review of groundwater quality.

2.2 Landfill Groundwater Monitoring Results

This section summarizes the 2020 results for VOCs, metals, water-chemistry parameters, and radionuclides detected for both the Current Landfill and Former Landfill as well as the Pesticide/PCB results from the Former Landfill Area. The historical trends in concentrations of key contaminants are assessed and shown graphically in **Figures 5 through 12**. Summary tables of all 2020 landfill groundwater data are presented in **Tables 2 through 11**. Detections that exceed groundwater standards are shaded and in bold text. The tables include groundwater standards, laboratory results, minimum detection limits, and laboratory data qualifiers.

The groundwater standards used for evaluating non-radiological groundwater data are those contained in the NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values (June 1998, with addendums April 2000 and June 2004) (NYSDEC 1998, 2000, and 2004) and 6NYCRR Part 703.5. Groundwater standards for radiological isotopes were supplemented with New York State Department of Health's (NYSDOH's) and United States Environmental Protection Agency (EPA) strontium-90 and tritium standards for drinking water. There were no groundwater standards for the gamma constituents; therefore, a Groundwater Screening Level was used. This value is based on a dose equivalent of 4 millirems (mrem)/year and was calculated as 4% of the DOE Derived Concentration Technical Standards (DCS) (DOE-STD-1196-2011) for the isotope of concern. These values are listed under the "groundwater standards" column in the summary tables and annotated where appropriate. Laboratory results that exceed the lower of the groundwater standards or the Cleanup Goals listed in the Record of Decision (ROD) are highlighted in the data summary tables to facilitate review of the information.

The laboratory data qualifiers included in the tables vary for the different analyses. Explanations for the data qualifiers are included in the notes in each table. Complete 2020 laboratory data reports, chain of custody forms, and well-sampling logs for both landfills are archived and

available upon request. In addition, analytical results are stored in the BNL Environmental Information Management System (EIMS) database.

2.2.1 Current Landfill

2.2.1.1 Volatile Organic Compounds (VOCs)

Benzene and chloroethane have historically been the primary groundwater contaminants detected downgradient of the Current Landfill. Benzene was detected above its standard of 1 microgram per liter (µg/L) in monitoring well 087-11, 087-27, 088-109 and 088-110. 1,1-Dichloroethane was detected above the groundwater standard of 5 µg/L in downgradient monitoring well 088-109 during 2020 **(Table 2)**. Chloroethane was detected in wells 088-109 and 088-110 above the groundwater standard of 5 µg/L. No other VOCs were detected above groundwater standards during 2020.

Benzene exceeded the 1 µg/L standard in well 087-11 during the June 2020 and December 2020 sampling events, with a maximum concentration of 1.71 µg/L. Well 088-110 exceeded the benzene standard during the December 2020 sampling event with result of 1.1 µg/L. Chloroethane exceeded the 5 µg/L standard in well 088-109 for June, October, and December with a concentration of 25.5 µg/L, 16.9 µg/L and 19.6 µg/L respectively. These concentrations are significantly below the historic high of 560 ug/L detected in this well in 1998. Well 088-110 exceeded the chloroethane standard in December with a concentration of 6.2 µg/L. Well 098-99 detected 1,1-Dichloroethane slightly above the standard of 5 µg/L in June at a concentration of 5.9 µg/L. 1,1-Dichloroethane was detected above the standard in well 088-109 during the June, September and December sampling events with a maximum concentration of 24.5 µg/L. There is no apparent seasonal or water table elevation correlation with VOC concentrations in this well based on an assessment of historical data.

Figure 5 plots the concentration trends of total VOCs (TVOC), benzene and chloroethane. Overall, the trend plots also show a distinct decrease in VOC concentrations from the high concentrations seen prior to the installation of the cap. This reflects the positive effects of the capping on the groundwater quality downgradient of the landfill.

2.2.1.2 Water Chemistry Parameters

Groundwater samples near the Current Landfill were analyzed semi-annually for ammonia, total Kjeldahl nitrogen (TKN), cyanide, sulfate, nitrite, nitrate, total nitrogen, chloride, alkalinity, total dissolved solids (TDS or residue, nonfilterable), and total suspended solids (TSS or residue, filterable) during 2020. The results are provided in **Table 3**. Elevated levels of these parameters can be indicative of the presence of landfill leachate. A comparison of downgradient and background wells shows that leachate continues to be generated from the Current Landfill, albeit at low concentrations. Decreasing to stable trends in concentrations of contaminants indicate that the capping continues to effectively reduce the generation and migration of leachate.

During 2020, ammonia was the only water chemistry parameter detected above standards. Ammonia was detected above the standard of 2 milligrams per liter (mg/L) in well 087-11 and 088-109. The highest concentration was found in well 087-11 at 6.2 mg/L in June 2020 **(Table 3)**. The levels of ammonia detected in downgradient wells are consistent with historic data.

Chloride was not detected above the standard of 250 mg/L in any wells in 2020. Downgradient well 087-24 had the highest concentration of chloride at 53.2 mg/L. **Figure 6** plots the trends for alkalinity and chloride. The trends for downgradient wells show low levels of chloride concentrations near the Current Landfill. The historical concentration trends plotted show overall stable levels of chloride.

Alkalinity, in the form of bicarbonate, is the concentration of anions available to neutralize acid, and is often used as an indicator of leachate contamination. The alkalinity in background well 087-09 ranged from 24.3mg/L to 30.7 mg/L. The highest alkalinity concentration during 2020 was detected in downgradient, shallow Upper Glacial aquifer well 087-11, at 241 mg/L. There is no groundwater standard for alkalinity. The historical concentration trends plotted in **Figure 6** show overall stable to decreasing levels of alkalinity.

During 2020, all sulfate concentrations remained below the groundwater standard of 250 mg/L. The highest sulfate value reported for 2020 was detected in the June sample from monitoring well 087-23 at a concentration of 16.7 mg/L. This is consistent with historic background levels at the Current Landfill.

TDS and TSS results were similar to those from previous years. TDS and TSS concentrations in background well 087-09 ranged from 91.4 mg/L to 129 mg/L, and 1.4 to 6.6 mg/L, respectively. The maximum concentrations observed in downgradient wells were 326 mg/L and 37 mg/L of TDS and TSS, respectively.

No water chemistry parameters have exceeded groundwater standards in downgradient wells 087-24, 088-22, and 088-23, since 1998. These wells are all screened in the mid to deep-Upper Glacial aquifer to monitor the vertical extent of contamination from the Current Landfill.

2.2.1.3 Metals

Historically, iron is detected consistently above groundwater standards in the upgradient well, and the majority of downgradient wells surrounding the landfill. Precipitated iron from the BNL Water Treatment Plant was disposed of at the Current Landfill during past operations. However, metals concentrations in upgradient well 087-09 are still lower than in several downgradient wells, suggesting continued leachate migration from the landfill into the groundwater.

During 2020, iron, chromium and sodium exceeded their respective groundwater standards in background well 087-09. Aluminum, arsenic, iron, manganese, and sodium exceeded their respective groundwater standards in several downgradient wells **(Table 4)**.

Aluminum was reported above the standard of 200 µg/L in downgradient well 087-11 at a maximum concentration of 470 µg/L. This result is consistent with historic results reported for several Current Landfill wells, including background well 087-09.

Arsenic was reported slightly above the standard of 10 µg/L in wells 087-23, 087-27 and 088-110 at a maximum concentration of 12.8 µg/L. Arsenic concentrations have historically been observed at similar levels in Current Landfill wells.

Iron was reported above the standard of 300 µg/L in wells 087-09, 087-11, 087-23, 087-27, 088-109, 088-110 and 088-21. The background concentrations ranged up to 1,700 µg/L while downgradient concentrations ranged up to 94,600 µg/L in well 087-11. Well 087-11 has shown decreasing iron concentrations since the fourth quarter 2018. Iron trend graphs are plotted on **Figure 7**.

Manganese was detected above the standard of 300 µg/L in wells 087-11, 087-23, 087-27, 088-109 and 088-110. Manganese ranged from 71.8 µg/L to 85.9 µg/L in background well 087-09, and up to 4,090 µg/L in the downgradient well 087-23.

Sodium was detected above the standard of 20,000 µg/L in wells 087-09, 087-11, 087-24, 087-26, 087-27, 088-109 and 088-21. Downgradient sodium levels ranged up to 34,400 µg/L in well 087-11.

Chromium was detected above the standard of 50 µg/L in background well 087-09 at concentrations up to 260 µg/L. Historical data shows consistent exceedances of chromium within this upgradient well. However, chromium was not detected above the standard in any of the downgradient wells.

2.2.1.4 Radionuclides

No radionuclides were detected above groundwater standards for strontium-90, tritium and gamma constituents during 2020 **(Table 5)**. As noted in **Section 2.2**, there are no groundwater standards for the gamma constituents; therefore, a groundwater screening level was used for comparison purposes and annotated where appropriate. **Figure 8** shows the historical strontium-90 and tritium concentration trends for the four wells sampled.

2.2.2 Former Landfill

Based on changes recommended in the *2012 Environmental Monitoring Report, Current and Former Landfill Areas* (BNL,2013), monitoring wells are scheduled to be sampled every two years. However, the Sr-90 sampling frequency for wells 097-64, 106-02, 106-43, 106-44, and 106-45 is annual. All wells were sampled in 2020.

2.2.2.1 VOCs

There were no detections of VOCs above groundwater standards in the Former Landfill Area monitoring wells in 2020 (**Table 6)**. The maximum VOC concentration was 3 µg/L of chloroform in monitoring well 097-277. The trends for VOC results are shown on **Figure 9**. There have been no detections of VOCs above standards since 1998.

2.2.2.2 Water Chemistry Parameters

Groundwater samples were analyzed for ammonia, cyanide, TKN, sulfate, nitrite, nitrate, total nitrogen, chloride, alkalinity, TDS and TSS. During 2020, none of the water chemistry parameters exceeded applicable groundwater standards **(Table 7)**. The trends of the alkalinity and chloride results are shown on **Figure 10**.

2.2.2.3 Metals

The sampling results are summarized in **Table 8**, and concentration trend plots for iron are shown on **Figure 11**. All metal detections were below groundwater standards during 2020 except for sodium in background well 086-42 at 62,400 µg/L.

2.2.2.4 Pesticides/PCBs

There were no detections of pesticides or polychlorinated biphenyls (PCBs) during 2020. The last detection of pesticides was in 2002 and the last PCB was detected in 2008. The sampling results are summarized in **Table 9**.

2.2.2.5 Radionuclides

The sampling results are summarized in **Table 10**, and concentration trend plots for Strontium-90 and tritium are shown on **Figure 12**. Tritium was not detected above the MDA in any wells during 2020. Strontium-90 was sampled for in all wells and was detected in two wells in 2020 below the groundwater standard of 8 pCi/L. Strontium-90 was detected in well 106-44 at 2.1 pCi/L and in well 106-45 at 2.1pCi/L. Strontium-90 has not been detected above the standard of 8 pCi/L in Former Landfill monitoring wells since 2001. There were five estimated detections of gross beta activity in one upgradient well 086-42 and four downgradient wells 097-277, 097-64, 106-02 and 106-30. The highest estimated concentration was 3.76 pCi/L in well 097-64. There was one estimated detection of gross alpha in well 106-02 at a value of 1.9 pCi/L. These estimated values are well below groundwater standards.

2.3 Emerging Contaminants

Perfluorooctane sulfonate , Perfluorooctanoic acid (PFOS/PFOA) and 1,4-dioxane are emerging contaminants of concern across the United States. During 2020, New York State Department of

Health has established Maximum Contaminant Levels (MCLs) in drinking water for PFAS and PFOA each at 10 ppt/(10 ng/l) and 1 ppb/(µg/L) for 1,4-dioxane.

For BNL, the impact that PFOS, PFOA and 1,4-dioxane is having on groundwater quality has been investigated through a multi-phase characterization effort. As part of this emerging contaminant characterization effort, BNL collected samples of groundwater during 2020 for PFOS, PFOA and 1,4-dioxane analyses in the vicinity of both Current and Former Landfill Areas. All twelve Current Landfill Area wells and four Former Landfill Area wells were sampled, and the results are presented in **Table 11**. The full results of the characterization will be reported in the *2020 Groundwater Status Report*.

1,4-Dioxane exceeded the standard of 1 µg/Lin downgradient Current Landfill wells 087-11, 088-23, 088-110 and 098-99. Upgradient well 087-09 did not detect 1,4-dioxane. None of the four Former Landfill wells sampled for 1,4-dioxane exceeded the standard.

Perfluorooctane sulfonate (PFOS) did not exceed the standard of 10 ng/l in any of the downgradient Current Landfill wells. PFOS did however exceed the standard in one Former Landfill well 086-42 at a concentration of 10.1 ng/L.

Perfluorooctanoic acid (PFOA) exceeded the standard of 10 ng/l in one downgradient Current Landfill well 087-11 at a concentration of 45.2 ng/l. None of the four Former Landfill wells exceeded the standard for PFOA.

3.0 SOIL-GAS MONITORING

3.1 Soil-gas Monitoring Networks

Soil-gas readings were collected from wells surrounding the Current Landfill in March, June, September, and December 2020 and from the Former Landfill in August 2020. Methane, lower explosive limit (LEL), and hydrogen sulfide were measured using a Landtec® GEM 2000. The LEL for methane is 5.3% and the upper explosive limit (UEL) is 15%.

3.1.1 Current Landfill

Along the perimeter of the Current Landfill, 58 points were sampled for soil-gas, which includes four outpost soil-gas well clusters, GSGM-1 to GSGM-4, located along the south side of Brookhaven Avenue. The sampling points include 12 soil-gas well clusters consisting of three sampling intervals per cluster, and 11 soil-gas well couplets consisting of two sampling intervals per couplet. **Table 12** describes each soil-gas well adjacent to the landfill. Their locations are illustrated on **Figure 13**.

3.1.2 Former Landfill Area

Twenty-four sampling points were monitored for the Former Landfill Area. These points include 12 well couplets consisting of two sampling points per couplet. Details of each soil-gas well are given in **Table 12** and their locations shown in **Figure 14**.

3.1.3 Sampling Frequency

Soil-gas was monitored for each landfill in the following months.

Sampling Event	Current Landfill	Former Landfill
Round 1	March 2020	August 2020
Round 2	June 2020	None
Round 3	September 2020	None
Round 4	December 2020	None

3.2 Results of Soil-Gas Monitoring

Action levels for soil-gas are specified in 6 NYCRR Part 360-2.17(f) in terms of percent LEL, which is primarily related to the amount of methane present. This discussion focuses primarily on the methane levels detected during monitoring. Hydrogen sulfide is monitored but has no regulatory action level. 6 NYCRR Part 360-2.17(f) specifies that active measures to control decomposition gases are required when the concentration of methane or other explosive gases exceeds 25 percent of the LEL (or 1.3% methane) in facility structures, or 100 percent (%) of the LEL (or 5.3% methane) at the site boundary.

3.2.1 Current Landfill

A total of 23 soil-gas monitoring well clusters are positioned around the Current Landfill **(Figure 13)** and were sampled quarterly during 2020. Potential receptors, or areas where methane can accumulate near the Current Landfill, include the National Weather Service office building located 480 feet north northwest of the Current Landfill on the north side of Brookhaven Avenue. Four outpost soil-gas locations, GSGM-1 to GSGM-4, are located along the south side of Brookhaven Avenue, and are used to monitor the northern extent of the migration of landfill gas. Should methane extend to the south side of Brookhaven Avenue at concentrations exceeding 25 percent of the LEL (or 1.3% methane), active measures may be required to control its migration. This is a BNL administrative limit that would trigger further evaluation.

The results of the soil-gas monitoring for 2020 are summarized in **Table 13**. **Appendix A** contains the field notes recorded during the sampling events. Instrument measurements show that methane continues to be generated in several areas of the landfill. The percent of the LEL is elevated along the western side and the southeast boundary of the Current Landfill. In addition, SGMW-19 along the northern side of the Current Landfill had elevated LEL readings in only one of its quarterly sampling events. The LEL readings in these areas have remained stable since 1996 when monitoring began. The current gas venting system appears to be effective in controlling gas accumulation. These data are consistent with previous years.

Outpost wells, GSGM-1 to GSGM-4, located along the south side of Brookhaven Avenue and immediately upgradient of the landfill showed no methane during 2020, indicating that the methane accumulation and migration does not extend to this area. Should methane, at concentrations exceeding 25 percent of the LEL (or 1.3% methane) extend to these outpost wells on the south side of Brookhaven Avenue, active measures may be required to control its migration.

Hydrogen sulfide is a product of anaerobic decay in landfills and can produce an odor like rotten eggs. It is a nuisance, but rarely a toxicity problem. For reference, the National Institute of Occupational Safety and Health sets an exposure limit of 10 parts per million (ppm) hydrogen sulfide in the breathing zone for an 8-hour period.

Hydrogen sulfide measurements collected from the soil-gas monitoring wells ranged from 0 ppm to 35 ppm. Well SGMW-03C located along the west section of the landfill, had the highest hydrogen sulfide concentration of 35 ppm, which was above the 10 ppm exposure limit. However, the measurement was taken from a vapor point screened 20 to 29 ft below the surface, and not from the ambient breathing zone. Elevated hydrogen sulfide was also detected in well SGMW-03B, which is screened 10.5 to 17 ft below the surface at a concentration of 28 ppm. Like methane, receptors to hydrogen sulfide are considered to be in areas such as basements where the gas can accumulate. Based upon the readings obtained from the outpost soil-gas wells along the south side of Brookhaven Avenue (GSGM-1 to GSGM-4), there is no evidence that hydrogen sulfide is migrating toward the National Weather Service building.

3.2.1.1 Trend in Soil-Gas Data

Historically the levels of methane and hydrogen sulfide in the wells along the northwest landfill boundary and southeast corner have remained elevated but stable.

3.2.2 Former Landfill Area

A total of 12 soil-gas monitoring well clusters are positioned around the Former Landfill Area **(Figure 14)**. During 2020, the well clusters were monitored once, in August. The only existing operating facility within the immediate vicinity of the Former Landfill Area is Building 670, located approximately 650 feet to the southeast. This building houses the Chemical Holes Sr-90 groundwater treatment system. This facility does not have a basement. Based upon the sampling

event, there was no methane or hydrogen sulfide detected. **Table 14** details the 2020 soil-gas monitoring results for the Former Landfill Area. **Appendix A** contains the field notes recorded during the sampling events.

3.2.2.1 Trends in Soil-Gas Data

The results of monitoring the Former Landfill Area continue to be consistent with the initial survey of the methane gas migration conducted in 1995, during which concentrations between 0% to 0.1% methane were recorded. Methane has not been detected since 2005. Although hydrogen sulfide gas was measured during this initial survey it has not been detected since 2010.

Presently, there is no measured pathway for methane gas migration, nor do the concentrations represent an explosive hazard, as shown by the non-detectable readings on the LEL meter. The age of the Former Landfill Area and the types of materials disposed of would likely result in low levels or the absence of methane or hydrogen sulfide.

4.0 MAINTENANCE AND REPAIR

Monthly site inspections were performed by BNL at the Current and Former Landfill areas to monitor the structural and/or operational status of the landfill cap, gas vents, drainage structure, fences and environmental monitoring system (groundwater wells, soil-gas wells) in accordance with the O&M Manuals. A copy of the inspection reports is included in **Appendix B**. Maintenance and repair work completed by BNL is discussed below.

4.1 Landfill Cap and Gas Vents

To prevent ruts in the landfills caused by the weight of the lawn mowers during periods of above normal precipitation, grass cutting is only conducted when soil conditions are optimal. During 2020, the grass at the Current and Former Landfills was cut during June and September. The vegetation along the Current Landfill asphalt road edges was partially sprayed with herbicide. Pine seedlings observed growing on the edge of the Former Landfill area were hand pulled at the time of inspection. The seedlings only penetrated the top soil cover. Several animal burrows at both the Current and Former Landfills were filled in throughout 2020. The burrows did not penetrate past the protection layer of the cap.

4.2 Drainage Structures

The drainage structures at both the Current and Former Landfill areas were maintained. They were observed to be operational and structurally sound during the site inspections. Small pine seedlings and weeds were noted growing in the drainage channels of both landfills during various times of the year. The weeds died off as cold weather set in. If they grow back in sufficient numbers, they will either be cut back or sprayed with herbicide.

4.3 Environmental Monitoring System

The monitoring wells and soil-gas monitoring wells associated with the landfills required no significant maintenance. However, during a post storm cleanup operation, a BNL employee inadvertently damaged the protective casing of soil gas monitoring well GSGM-2C with a payloader. The incident occurred April 2020. The inner riser pipe was undamaged during this event and was repaired. The licensed well installation contractor who performed the repair work

confirmed the riser pipe was intact and reset the protective casing with cement for stability. Access to the soil-gas monitoring wells was cleared via mechanical weed whacking prior to each sampling event.

4.4 Related Structures

No structures other than the protective casing on GSGM-2C described above required maintenance during 2020.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Groundwater Monitoring

5.1.1 Conclusions for the Current Landfill

- Although low levels of contaminants continue to be detected, the landfill controls are effective at reducing the impact of the Current Landfill on groundwater quality as evidenced by the improving quality of groundwater downgradient of the landfill.

- Benzene was detected in downgradient wells 087-27, 088-109, 088-110 and 087-11 at concentrations slightly above the groundwater standard with a maximum concentration of 1.7 µg/L in well 087-11. The other VOCs detected above the groundwater standard were chloroethane and 1,1-dichloroethane. 1,1-Dichloroethane was detected above the standard of 5 µg/L in monitoring well 088-109 and 098-99. The maximum concentration of 1,1-dichloroethane was 24.5 µg/L in well 088-109. Chloroethane was detected in wells 088-109 and 088-110 above the groundwater standard of 5 µg/L with concentrations up to 25.5 µg/L. Although VOCs continue to be detected in downgradient wells, an analysis of the trends of VOCs indicate the concentrations are stable to decreasing. These VOCs are naturally attenuating as shown by groundwater monitoring and are not detected at the site boundary above the drinking water standard.

- Concentrations of landfill water chemistry parameters and metals such as ammonia and iron in several downgradient wells were above the upgradient values. This suggests that leachate continues to emanate from the landfill into groundwater. Ammonia was the only water chemistry parameter detected above the standard of 2 mg/L, in downgradient wells 087-11 and 088-109 at a maximum of 6.2 mg/L.

- During 2020, iron, chromium and sodium in the background well, and aluminum, arsenic iron, manganese, and sodium in several downgradient wells were detected above their respective groundwater standards. These parameters and concentrations are consistent with historic values.

- Strontium-90 and tritium were not detected in 2020. There have been no detections of radionuclides above the drinking water standards since 1998.

5.1.2 Recommendations for the Current Landfill

- The monitoring well network for the Current Landfill is adequate, and no changes to the network or the sampling frequency are recommended at this time.

5.1.3 Conclusions for the Former Landfill Area

- The Former Landfill Area is no longer a source of VOC contamination. No VOCs were detected above groundwater standards in 2020.
- Water chemistry parameters were detected at concentrations approximating those of historic background monitoring well results, indicating that leachate generation is minimal to nonexistent. No results exceeded the applicable groundwater standards.
- All metal detections were below groundwater standards during 2020 except for sodium in background well 086-42.
- There were no detections of pesticides or polychlorinated biphenyls (PCBs) during 2020.
- All strontium-90 detections were below the groundwater standard of 8 pCi/L during 2020. The highest strontium-90 result was in well 106-45 at 2.1 pCi/L. The strontium-90 results are consistent with historic data.
- Monitoring at the Former Landfill continue to show minimal to nonexistent impact on groundwater quality, and that the controls are effective.

5.1.4 Recommendations for the Former Landfill Area

- With the data presented in this report and with over two decades of groundwater monitoring data providing evidence that groundwater impact from the Former Landfill area is now essentially nonexistent, it is recommended that groundwater monitoring of the Former Landfill area be discontinued.

5.2 Soil-Gas Monitoring

5.2.1 Conclusions for the Current Landfill

- Methane and/or hydrogen sulfide levels in wells located along the west landfill boundary, north landfill boundary and southeast corner have remained stable and have not shown any significant increases or decreases over time. No gas migration has been observed this year at the outpost soil-gas wells along Brookhaven Avenue.

5.2.2 Recommendations for the Current Landfill

- The soil-gas monitoring program is adequate at this time and no changes are recommended.

5.2.3 Conclusions for the Former Landfill Area

- Methane and hydrogen sulfide monitoring at the Former Landfill Area continue to show no detectable levels of landfill gas. Methane has not been detected at or above standards since monitoring began in 1996.

5.2.4 Recommendations for the Former Landfill Area

- The soil-gas monitoring program is adequate at this time and no changes are recommended.

5.3 Maintenance and Repair

- Maintenance of the landfill caps will continue in accordance with the O&M requirements.

5.3.1 Current Landfill

- Monthly inspections and maintenance will continue in accordance with the O&M requirements. Access to the soil-gas monitoring wells will continue to be cleared via mechanical weed whacking. Continue the removal of small pines and weeds in the drainage channel during 2021.

5.3.2 Former Landfill Area

- Monthly inspections and maintenance will continue in accordance with the O&M requirements. Access to the soil-gas monitoring wells will continue to be cleared via mechanical weed whacking. Continue the removal of small pines and weeds in the drainage channel during 2021.

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Table 1
2020 Analytical Requirements for Groundwater Samples

Well ID	Project 1	Project 2	Decision Subunit	EPA 524.2 VOCs	Pesticides Method 608	PCBs Method 608	TSS/TDS	Sufates/Chloride/Alkalinity	TK Nitrogen	Total Nitrogen	Nitrates	Nitrites	Ammonia	TAL Metals	Cyanide	EPA 901 Gamma Spec	EPA 906 Tritium	EPA 905 Sr 90	Frequency (events/year)
087-09	CLF		Background	X[b]			X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]				2b
087-11	CLF		Downgradient	X[b]			X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]				2b
087-23	CLF		Downgradient	X[b]			X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[a]	X[a]	X[a]	2b
087-24	CLF		Downgradient	X[a]			X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]				2b
087-26	CLF		Downgradient	X[b]			X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]				2b
087-27	CLF		Downgradient	X[b]			X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[a]	X[a]	X[a]	2b
088-109	CLF		Downgradient	X			X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[a]	X[a]	X[a]	4
088-110	CLF		Downgradient	X[b]			X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]				2b
088-21	CLF		Downgradient	X[b]			X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[b]	X[a]	X[a]	X[a]	2b
088-22	CLF		Downgradient	X[a]			X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]				1a
088-23	CLF		Downgradient	X[a]			X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]				1a
098-99	CLF	OU I (South Boundary)	Downgradient	X															4
086-42	FLF		Background	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	1a
086-72	FLF		Background	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	1a
087-22	FLF		Background	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	1a
097-17	FLF		Downgradient	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	1a
097-277	FLF		Downgradient	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	1a
097-64	FLF		Downgradient	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	1a
106-02	FLF		Downgradient	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	1a
106-20	FLF		Downgradient															X[a]	1a
106-21	FLF		Downgradient															X[a]	1a
106-30	FLF		Downgradient	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	X[a]	1a
106-43	FLF		Downgradient															X[a]	1a
106-44	FLF		Downgradient															X[a]	1a
106-45	FLF		Downgradient															X[a]	1a
106-64	FLF		Downgradient															X[a]	1a

NOTES:
a: Collect in 4th Quarter only.
b: Collect in 2nd and 4th Quarters.

Table 2
Current Landfill - Summary of 2020 Volitile Organic Compounds.

		087-09		087-09		087-11		087-11		087-23		087-23		087-24		087-26	
	Groundwater Standards	6/16/2020		12/7/2020		6/17/2020		12/7/2020		6/17/2020		12/8/2020		12/8/2020		6/16/2020	
Analtye	(ug/L)	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
1,1,1,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.7		0.18	J	0.5	U	0.5	U
1,1-Dichloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloropropene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichloropropane	0.04	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	0.6	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichloropropane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2,2-Dichloropropane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene	1	0.5	U	0.5	U	**1.71**		**1.11**		0.71		0.56		0.5	U	0.5	U
Benzene, 1,2,4-trimethyl	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene, 1,3,5-trimethyl-	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene, 1-methylethyl-	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	5	0.5	U	0.5	U	0.85		0.32	J	0.85		0.45	J	0.5	U	0.5	U
Chlorobromomethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	5	0.5	U	0.5	U	0.5	U	1.72		4.79		0.88		0.5	U	0.5	U
Chloroform	7	0.5		0.41	J	0.5	U	0.5	U	0.5	U	0.5	U	0.8		1.46	
cis-1,2-Dichloroethylene	5	0.5	U	0.5	U	0.18	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Cymene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
DBCP	0.04	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromomethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
EDB	0.05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethene, 1,2-dichloro-, (E)-	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Hexachlorobutadiene	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p xylene	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl bromide	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl tert-butyl ether	10	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
n-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
n-Propylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Naphthalene	10	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Chlorotoluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.22	J	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
p-Chlorotoluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
p-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.21	J	0.5	U	0.37	J	0.5	U	0.5	U
sec-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.19	J	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
tert-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichlorofluoromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2 TVOC	--	0.5		0.41		2.74		3.77		7.05		2.44		0.8		1.46	

U: Analyte was analyzed for, but not detected above the MDL.

J: Value is estimated

Bold/Shaded: Value exceeds Standard/Guiadance Value

Table 2
Current Landfill - Summary of 2020 Volitile Organic Compounds.

		087-26		087-27		087-27		088-109		088-109		088-109		088-109		088-110		088-110	
	Groundwater Standards	12/7/2020		6/16/2020		12/7/2020		2/11/2020		6/16/2020		10/7/2020		12/7/2020		6/16/2020		12/7/2020	
Analtye	(ug/L)	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
1,1,1,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	5	0.5	U	0.5	U	0.5	U	2.13		**24.5**		**10.7**		**9.89**		0.31	J	3.31	
1,1-Dichloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloropropene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichloropropane	0.04	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	0.6	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichloropropane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2,2-Dichloropropane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene	1	0.5	U	0.46	J	**1.19**		0.21	J	0.38	J	0.44	J	**1.02**		0.4	J	**1.1**	
Benzene, 1,2,4-trimethyl	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene, 1,3,5-trimethyl-	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene, 1-methylethyl-	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	5	0.5	U	0.91		1.19		0.5	U	0.5	U	0.5	U	0.5	U	0.3	J	0.46	J
Chlorobromomethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	5	0.5	U	0.5	U	0.99		4.69		**25.5**		**16.9**		**19.6**		4.38		**6.23**	
Chloroform	7	1.92		0.42	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Cymene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
DBCP	0.04	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromomethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
EDB	0.05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethene, 1,2-dichloro-, (E)-	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Hexachlorobutadiene	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p xylene	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl bromide	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl tert-butyl ether	10	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
n-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
n-Propylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Naphthalene	10	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Chlorotoluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Dichlorobenzene	3	0.5	U	0.5	U	0.27	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
p-Chlorotoluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
p-Dichlorobenzene	3	0.5	U	0.5	U	0.34	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.39	J
sec-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
tert-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichlorofluoromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2 TVOC	--	1.92		1.79		3.98		7.03		50.38		28.04		30.51		5.39		11.49	

U: Analyte was analyzed for, but not detected above the MDL.

J: Value is estimated

Bold/Shaded: Value exceeds Standard/Guiadance Value

Table 2
Current Landfill - Summary of 2020 Volitile Organic Compounds.

		088-21		088-21		088-22		088-23		098-99		098-99		098-99		098-99	
	Groundwater Standards	6/17/2020		12/9/2020		12/9/2020		12/9/2020		2/11/2020		6/17/2020		10/7/2020		12/9/2020	
Analtye	(ug/L)	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
1,1,1,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	2.88		**5.92**		4.86		3.05	
1,1-Dichloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.74		0.5	U	0.5	U
1,1-Dichloropropene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichloropropane	0.04	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	0.6	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichloropropane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2,2-Dichloropropane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.22	J	0.5	U	0.5	U
Benzene, 1,2,4-trimethyl	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene, 1,3,5-trimethyl-	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene, 1-methylethyl-	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobromomethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.53		0.5	U	0.5	U	0.5	U
Chloroform	7	0.5	U	0.5	U	3.76		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.4	J	0.34	J	0.5	U
cis-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Cymene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
DBCP	0.04	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromomethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
EDB	0.05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethene, 1,2-dichloro-, (E)-	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Hexachlorobutadiene	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p xylene	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl bromide	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl tert-butyl ether	10	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
n-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
n-Propylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Naphthalene	10	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Chlorotoluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
p-Chlorotoluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
p-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
sec-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
tert-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichlorofluoromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2 TVOC	--	0		0		3.76		0		3.41		7.28		5.2		3.05	

U: Analyte was analyzed for, but not detected above the MDL.

J: Value is estimated

Bold/Shaded: Value exceeds Standard/Guiadance Value

Table 3

Current Landfill-Summary of 2020 Water Chemistry Data

Analtye	Groundwater Standards (mg/L)	087-09 6/16/2020 (mg/L)		087-09 12/7/2020 (mg/L)		087-11 6/17/2020 (mg/L)		087-11 12/7/2020 (mg/L)		087-23 6/17/2020 (mg/L)		087-23 12/8/2020 (mg/L)		087-24 6/17/2020 (mg/L)	
Alkalinity (as CaCO3)	--	30.7		24.3		241		200		122		87		29.7	
Ammonia (as N)	2	0.0414	U	0.0562		**6.2**		**3.48**		0.318		0.643		0.017	U
Chloride	250	24		37.8		44		5.34		7.9		9.29		53.2	
Cyanide	0.2	0.00167	U	0.00167	U	0.00167	U	0.00167	U	0.00167	U	0.00167	U	0.00167	U
Nitrate (as N)	10	0.44		0.453	H	0.033	U	0.33	U	0.033	U	0.241	J	0.495	
Nitrite (as N)	1	0.033	U	0.033	HU	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U
Nitrite + Nitrate-N	10	0.423		0.476		0.085	U	0.017	U	0.085	U	0.133		0.519	
Nitrogen	--	0.512		0.745		8.8		4.09		0.555		1.03		0.571	
Sulfate	250	11.1		15.4		2.3		1.15		16.7		10.7		10.7	
TDS	--	91.4		129		276		247		164		164		109	
Total Kjeldahl Nitrogen	--	0.089	U	0.269		8.8		4.08		0.555		0.9		0.0521	J
TSS	--	1.4	J	6.6		37		20		10.4		5.44		0.632	J

U: Analyte was analyzed for, but not detected above MDL.

J: Value is estimated.

H: Analytical holding time exceeded.

Bold/Shaded: Concentration exceeds Standard/Guidance Value

NS: No sample data.

Table 3

Current Landfill-Summary of 2020 Water Chemistry Data

Analtye	Groundwater Standards (mg/L)	087-24 12/8/2020 (mg/L)		087-26 6/16/2020 (mg/L)		087-26 12/7/2020 (mg/L)		087-27 6/16/2020 (mg/L)		087-27 12/7/2020 (mg/L)		088-109 6/16/2020 (mg/L)		088-109 12/7/2020 (mg/L)	
Alkalinity (as CaCO3)	--	32.4		25		25.7		67.1		161		123		143	
Ammonia (as N)	2	0.09		0.0438	U	0.0506		0.747		1.36		0.986		**2.68**	
Chloride	250	42.5		50		35.1		27.7		38.7		15.7		18.5	
Cyanide	0.2	0.00167	U	0.00167	U	0.00167	U	0.00167	U	0.00167	U	0.00167	U	0.00167	U
Nitrate (as N)	10	0.469		0.482		0.508		0.033	U	0.165	U	0.033	U	0.165	HU
Nitrite (as N)	1	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	HU
Nitrite + Nitrate-N	10	0.517		0.5		0.663		0.017	U	0.017	U	0.085	U	0.0186	J
Nitrogen	--	0.675		0.715		0.84		0.874		1.92		1.3		3.26	
Sulfate	250	9.31		8.73		8.88		11.3		8.75		12.2		4.32	
TDS	--	174		119		136		141		326		129		251	
Total Kjeldahl Nitrogen	--	0.158		0.215	U	0.177		0.874		1.91		1.3		3.24	
TSS	--	0.57	U	0.57	U	1.12	J	11.6		11.6		31.2		14.8	

U: Analyte was analyzed for, but not detected above MDL.

J: Value is estimated.

H: Analytical holding time exceeded.

Bold/Shaded: Concentration exceeds Standard/Guidance Valu

NS: No sample data.

Table 3

Current Landfill-Summary of 2020 Water Chemistry Data

Analtye	Groundwater Standards (mg/L)	088-110 6/16/2020 (mg/L)		088-110 12/7/2020 (mg/L)		088-21 6/17/2020 (mg/L)		088-21 12/9/2020 (mg/L)		088-22 12/9/2020 (mg/L)		088-23 12/9/2020 (mg/L)	
Alkalinity (as CaCO3)	--	102		127		27.6		38.4		18.7		31.6	
Ammonia (as N)	2	0.144		0.827		0.0808		0.0795		0.103		0.0271	J
Chloride	250	28		26.6		33.9		23.6		38.3		15.6	
Cyanide	0.2	0.00167	U	0.00167	U	0.00167	U	0.00167	U	0.00167	U	0.00167	U
Nitrate (as N)	10	0.033	U	0.165	U	0.0689	J	0.428		0.427		0.389	
Nitrite (as N)	1	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U
Nitrite + Nitrate-N	10	0.085	U	0.0505		0.0332	J	0.465		0.459		0.415	
Nitrogen	--	0.257		1.06		0.154		0.63		0.51		0.471	
Sulfate	250	14.6		11.3		3.78		4.65		4.63		14.5	
TDS	--	189		267		94.3		92.9		97.1		85.7	
Total Kjeldahl Nitrogen	--	0.257		1.01		0.121		0.165		0.0511	J	0.0556	J
TSS	--	13.6		11.2		11.1		1.7	J	0.6	J	1.1	J

U: Analyte was analyzed for, but not detected above MDL.

J: Value is estimated.

H: Analytical holding time exceeded.

Bold/Shaded: Concentration exceeds Standard/Guidance Valu

NS: No sample data.

Table 4

Current Landfill-Summary of 2020 Metals Data

Analtye	Groundwater Standards (ug/L)	087-09 6/16/2020 (ug/L)		087-09 12/7/2020 (ug/L)		087-11 6/17/2020 (ug/L)		087-11 12/7/2020 (ug/L)		087-23 6/17/2020 (ug/L)		087-23 12/8/2020 (ug/L)		087-24 6/17/2020 (ug/L)		087-24 12/8/2020 (ug/L)	
Aluminum	200*	68	U	68	U	68	U	**470**		68	U	68	U	68	U	68	U
Antimony	3	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Arsenic	10**	2	U	2	U	7.82		8.84		**12.8**		9.93		2	U	2	U
Barium	1000	17.1	B	19.1	B	58.7	B	26.3	B	32.1	B	39.6	B	21.6	B	19.8	B
Beryllium	3	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cadmium	5	1	U	1	U	1	U	1.17	B	1	U	1	U	1	U	1	U
Calcium	--	7720		8610		24800		22600		13200		8370		11000		12400	
Chromium	50	25.2		**260**		1	U	2.79	B	1	U	1.95	B	1	U	1	U
Cobalt	--	1	U	1.21	B	2.97	B	1	U	14.6	B	14.3	B	1	U	1	U
Copper	200	1.34	B	4.12		1.16	B	3.34		2.18		1.77	B	0.413	B	0.594	B
Iron	300	**342**		**1700**		**94600**		**72600**		**54500**		**39100**		30	U	30	U
Lead	15***	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Magnesium	35000	3620		3080		8200		4880		3950		3740		6630		7890	
Manganese	300	85.9		71.8		**2440**		**2670**		**4090**		**3960**		29.7		1	U
Mercury	0.7	0.141	UJ	0.067	U	0.136	B	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U
Nickel	100	9.98	B	10.7	B	1.73	B	1.5	U	1.77	B	1.82	B	1.5	U	1.5	U
Potassium	--	735	B	856	B	6460		3410	B	892	B	1240	B	1730	B	1480	B
Selenium	10	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Silver	50	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
Sodium	20000	19600		**25700**		**34400**		6120		6710		7960		**27400**		18800	
Thallium	0.5	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Vanadium	--	1	U	2.61	B	1	U	1	U	1	U	1	U	1	U	1	U
Zinc	2000	9.69	UJ	3.95	B	12.9	UJ	9.18	B	9.13	UJ	11.2	B	8.84	UJ	3.39	B

Table 4

Current Landfill-Summary of 2020 Metals Data

Analtye	Groundwater Standards (ug/L)	087-26 6/16/2020 (ug/L)		087-26 12/7/2020 (ug/L)		087-27 6/16/2020 (ug/L)		087-27 12/7/2020 (ug/L)		088-109 6/16/2020 (ug/L)		088-109 12/7/2020 (ug/L)		088-110 6/16/2020 (ug/L)		088-110 12/7/2020 (ug/L)	
Aluminum	200*	68	U	68	U	68	U	68	U	68	U	68	U	68	U	68	U
Antimony	3	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Arsenic	10**	2	U	2	U	6.77		**10.8**		4.84	B	9.12		**12**		**11.3**	
Barium	1000	37.4	B	32.6	B	20.7	B	30.1	B	30.8	B	39.6	B	27.9	B	35.1	B
Beryllium	3	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cadmium	5	1	U	1	U	1	U	1.15	B	1	U	1	U	1	U	1	U
Calcium	--	7940		8000		9750		20000		17600		28800		19200		20000	
Chromium	50	1	U	1	U	1	U	1.85	B	1	U	1.37	B	1	U	2.16	B
Cobalt	--	1	U	1	U	2.03	B	9.31	B	3.81	B	2.28	B	1	U	4.37	B
Copper	200	2.25	R	2.23		0.615	B	0.782	B	0.375	B	0.3	U	0.311	B	0.307	B
Iron	300	115		189		**26200**		**60900**		**32300**		**53900**		**46200**		**57300**	
Lead	15***	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Magnesium	35000	5190		5220		2890		5010		4070		4640		5300		5660	
Manganese	300	1.59	B	1.47	B	**1320**		**2950**		**1500**		**1460**		**3580**		**3800**	
Mercury	0.7	0.141	UJ	0.067	U	0.127	UJ	0.067	U	0.119	UJ	0.067	U	0.136	UJ	0.067	U
Nickel	100	1.5	U	1.5	U	1.79	B	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Potassium	--	1940	B	1510	B	1840	B	2770	B	3270	B	5460		2180	B	2650	B
Selenium	10	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Silver	50	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
Sodium	20000	**30200**		**21200**		17600		**26700**		12500		**22600**		16000		19700	
Thallium	0.5	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Vanadium	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Zinc	2000	7.78	UJ	3.3	U	9.61	UJ	5.89	B	9.32	UJ	3.82	B	7.78	UJ	5.16	B

Table 4

Current Landfill-Summary of 2020 Metals Data

Analtye	Groundwater Standards (ug/L)	088-21 6/17/2020 (ug/L)		088-21 12/9/2020 (ug/L)		088-22 12/9/2020 (ug/L)		088-23 12/9/2020 (ug/L)	
Aluminum	200*	85	B	68	U	68	U	68	U
Antimony	3	1	U	1	U	1	U	1	U
Arsenic	10**	2	U	2	U	2	U	2	U
Barium	1000	8.79	B	11	B	41.8	B	4.54	B
Beryllium	3	1	U	1	U	1	U	1	U
Cadmium	5	1	U	1	U	1	U	1	U
Calcium	--	4130	B	4330	B	7430		12100	
Chromium	50	1	U	1	U	1	U	1	U
Cobalt	--	1	U	1	U	1	U	1	U
Copper	200	0.706	B	0.645	B	0.373	B	0.3	U
Iron	300	**1200**		128		109		256	
Lead	15***	0.5	U	0.5	U	0.5	U	0.5	U
Magnesium	35000	2250		2570		5880		2890	
Manganese	300	41.4		4.71	B	9.87		17.7	
Mercury	0.7	0.067	U	0.067	U	0.067	U	0.067	U
Nickel	100	1.5	U	1.5	U	1.5	U	1.5	U
Potassium	--	975	B	1050	B	1680	B	736	B
Selenium	10	2	U	2	U	2	U	2	U
Silver	50	0.3	U	0.3	U	0.3	U	0.3	U
Sodium	20000	**26200**		**26100**		15600		12200	
Thallium	0.5	0.6	U	0.6	U	0.6	U	0.6	U
Vanadium	--	3.52	B	1.18	B	1	U	1	U
Zinc	2000	5.99	UJ	3.3	U	3.3	U	3.3	U

U: Analyte was analyzed for, but not detected above MDL.

J: Value is estimated

Bold/Shaded: Concentration exceeds Standard/Guidance Value.

B: Indicates that the value was less then the Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit(IDL).

E: %Difference of sample and SD is greater then 10%

N:The Matrix spike sample recovery is not within control limits.

*: USEPA SMCL Secondary Maximum Contaminant Levels (SMCLs)

** USEPA Maximum Contaminiant Level (MCL)

*** OUI Record of Decision Selected Cleanup Goal

Table 5

Current Landfill-Summary of 2020 Radionuclide Data

Analtye	**Groundwater Standards** pCi/L	**087-23 12/8/2020 pCi/L**				**087-27 12/7/2020 pCi/L**				**088-109 12/7/2020 pCi/L**				**088-21 12/9/2020 pCi/L**			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2*	-8.87	U	22.1	12.4	2.08	U	23.8	13.1	1.08	U	5.36	3.54	4.75	U	24.4	14.6
Beryllium-7	40000	-10.3	U	31.7	17.8	-4.53	U	25.4	14.4	1.31	U	22.6	12.3	-4.94	U	27	15.4
Cesium-134	80	0.104	U	4.68	2.44	0.284	U	3.53	1.95	-0.146	U	3.14	1.64	0.0933	U	3.18	1.73
Cesium-137	120*	0.969	U	5.15	2.63	0.148	U	2.89	1.58	-0.597	U	3.06	1.78	-1.07	U	2.9	2.01
Co-60	200*	0.917	U	5.32	2.46	-0.149	U	3.3	1.76	0.723	U	3.29	1.59	0.626	U	3.79	1.99
Cobalt-57	4000*	0.303	U	3.31	1.83	1.78	U	2.49	1.75	-0.719	U	2.11	1.42	-1.04	U	2.74	1.57
Europium-152	841	-3.09	U	11	6.68	1.92	U	8.63	4.55	0.21	U	8.54	4.71	-3.79	U	8.64	5.07
Europium-154	573	-0.821	U	13.2	6.61	0.148	U	9.47	5.67	-0.644	U	9.5	5.08	-2.84	U	8.46	5.08
Europium-155	4000*	-0.673	U	13.6	7.55	-0.925	U	10.3	5.92	-2.03	U	8.07	5.33	-1.78	U	11.9	6.69
Manganese-54	2000*	1.68	U	4.95	2.4	-0.321	U	2.68	1.43	-1.02	U	2.71	1.53	-1.22	U	3.02	2.06
Sodium-22	400*	-0.346	U	4.58	2.31	0.111	U	3.35	2	-0.166	U	3.37	1.79	-0.999	U	2.97	1.78
Strontium-90	8***	0.684	U	0.78	0.488	0.54	U	0.766	0.47	-0.318	U	0.737	0.321	0.349	U	0.742	0.437
Tritium	20000***	29.5	U	377	214	401	U	430	268	168	U	428	251	47.9	U	374	213
Zinc-65	360	1.02	U	8.54	4.38	1.96	U	6.34	3.37	0.594	U	6.27	3.18	2.19	U	7.11	4

U: Analyte was analyzed for but not detected above the MDA

J: Estimated value.

*: Department of Energy (DOE) Groundwater Screening Level

***:Environmental Protection Agency (EPA) Drinking Water Standards.

Table 6
Former Landfill - Summary of 2020 Volitile Organic Compound Data

		086-42		086-72		087-22		097-17		097-277		097-64		106-02		106-30	
	Groundwater Standards	12/10/2020		12/10/2020		12/10/2020		12/11/2020		12/11/2020		12/11/2020		12/14/2020		12/14/2020	
Analtye	(ug/L)	(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)		(ug/L)	
1,1,1,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.44	J	0.5	U	1.57	
1,1,2,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	J
1,1,2-Trichloroethane	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.91	
1,1-Dichloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloropropene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichloropropane	0.04	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	0.6	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichloropropane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2,2-Dichloropropane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene, 1,2,4-trimethyl	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene, 1,3,5-trimethyl-	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene, 1-methylethyl-	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobromomethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	7	0.17	J	2.34		0.55		1.6		2.96		0.19	J	0.57		0.44	J
cis-1,2-Dichloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Cymene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
DBCP	0.04	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromomethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
EDB	0.05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethene, 1,2-dichloro-, (E)-	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Hexachlorobutadiene	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p xylene	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl bromide	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl tert-butyl ether	10	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
n-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
n-Propylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Naphthalene	10	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Chlorotoluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
p-Chlorotoluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
p-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
sec-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
tert-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethylene	5	0.23	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.57		0.5	U	1.5	
Trichlorofluoromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2 TVOC	--	0.4		2.34		0.55		1.6		2.96		1.2		0.57		4.62	

U: Analyte was analyzed for, but not detected above the MDL.

J: Value is estimated

Bold/Shaded: Value exceeds Standard/Guiadance Value

Table 7

Former Landfill-Summary of 2020 Water Chemistry Data

Analtye	Groundwater (mg/L)	086-42 12/10/2020 (mg/L)		086-72 12/10/2020 (mg/L)		087-22 12/10/2020 (mg/L)		097-17 12/11/2020 (mg/L)		097-277 12/11/2020 (mg/L)		097-64 12/11/2020 (mg/L)		106-02 12/14/2020 (mg/L)		106-30 12/14/2020 (mg/L)	
Alkalinity (as CaCO3)	--	37.8		6.57		8.16		8.76		10.9		28.3		9.15		21.7	
Ammonia (as N)	2	0.0492	J	0.0819		0.0721		0.0319	J	0.0373	J	0.017	U	0.0621		0.0237	J
Chloride	250	108		9.53		5.45		6.41		9.56		17.4		8.93		14.2	
Cyanide	0.2	0.00167	U	0.00167	U	0.00167	U	0.00167	U	0.00167	U	0.00167	U	0.00167	U	0.00167	U
Nitrate (as N)	10	2.74		0.0818	J	0.631		0.236		0.104		1.35		0.255	H	1.03	H
Nitrite (as N)	1	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	HU	0.033	HU
Nitrite + Nitrate-N	10	3.27		0.0466	J	0.712		0.251		0.0455	J	1.36		0.261		0.745	
Nitrogen	--	3.52		0.135		0.814		0.395		0.147		1.49		0.535		0.906	
Sulfate	250	22		9.97		10.1		8.98		13.8		11		5.58		22.8	
TDS	--	279		45.7		18.6		30		42.9		62.9		20		80	
Total Kjeldahl Nitrogen	--	0.255		0.0886	U	0.102	U	0.144		0.101		0.125		0.274		0.161	
TSS	--	1.14	U	0.928	J	0.57	U	0.62	U	0.57	U	0.594	U	3.05		1.7	J

U: Analyte was analyzed for, but not detected above MDL.

J: Value is estimated.

H: Analytical holding time exceeded.

Bold/Shaded: Concentration exceeds Standard/Guidance Value

NS: No sample data.

Table 8
Former Landfill-Summary of 2020 Metals Data

Analtye	Groundwater Standards (ug/L)	086-42 12/10/2020 (ug/L)		086-72 12/10/2020 (ug/L)		087-22 12/10/2020 (ug/L)		097-17 12/11/2020 (ug/L)		097-277 12/11/2020 (ug/L)		097-64 12/11/2020 (ug/L)		106-02 12/14/2020 (ug/L)		106-30 12/14/2020 (ug/L)	
Aluminum	200*	68	U	68	U	68	U	68	U	68	U	68	U	68	U	68	U
Antimony	3	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Arsenic	10**	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Barium	1000	52.4	B	12.4	B	13.1	B	7.53	B	13.3	B	18.8	B	6.62	B	11.9	B
Beryllium	3	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cadmium	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Calcium	--	21800		2440	B	2730	B	2800	B	3810	B	11300		4220	B	13200	
Chromium	50	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cobalt	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Copper	200	0.37	B	0.584	B	0.457	B	0.3	U	0.377	B	0.3	U	4.06		0.481	B
Iron	300	30	U	30	U	30	U	30	U	30	U	30	U	177		30	U
Lead	15***	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Magnesium	35000	6470		1380		1830		877		2850		1750		865		3020	
Manganese	300	1	U	3.81	B	2.45	B	2.3	B	23.2		4.54	B	2.33	B	6.57	
Mercury	0.7	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U	0.067	U
Nickel	100	1.67	B	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Potassium	--	2940	B	710	B	852	B	629	B	1000	B	948	B	965	B	1060	B
Selenium	10	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Silver	50	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
Sodium	20000	**62400**		7640		5670		6540		6960		15200		6310		11900	
Thallium	0.5	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Vanadium	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Zinc	2000	4.72	B	3.85	B	3.7	B	3.3	U	3.37	B	3.75	B	3.3	U	4.36	B

U: Analyte was analyzed for, but not detected above MDL.

J: Value is estimated

Bold/Shaded: Concentration exceeds Standard/Guidance Value.

B: Indicates that the value was less then the Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit(IDL).

E: %Difference of sample and SD is greater then 10%

N:The Matrix spike sample recovery is not within control limits.

*: USEPA SMCL Secondary Maximum Contaminant Levels (SMCLs)

** USEPA Maximum Contaminiant Level (MCL)

*** OUI Record of Decision Selected Cleanup Goal

Table 9
Former Landfill - Summary of 2020 Pesticide/PCB Data

Analyte	Groundwater Standards (ug/L)	086-42 12/10/2020 (ug/L)		086-72 12/10/2020 (ug/L)		087-22 12/10/2020 (ug/L)		097-17 12/11/2020 (ug/L)		097-277 12/11/2020 (ug/L)		097-64 12/11/2020 (ug/L)		106-02 12/14/2020 (ug/L)		106-30 12/14/2020 (ug/L)	
4,4''-DDD	0.3	0.0384	U	0.0392	U	0.0426	U	0.0393	U	0.039	U	0.0378	U	0.0425	U	0.04	U
4,4''-DDE	0.2	0.0384	U	0.0392	U	0.0426	U	0.0393	U	0.039	U	0.0378	U	0.0425	U	0.04	U
4,4''-DDT	0.2	0.0384	U	0.0392	U	0.0426	U	0.0393	U	0.039	U	0.0378	U	0.0425	U	0.04	U
Aldrin	0	0.0192	U	0.0196	U	0.0213	U	0.0196	U	0.0195	U	0.0189	U	0.0213	U	0.02	U
alpha-BHC	0.01	0.0192	U	0.0196	U	0.0213	U	0.0196	U	0.0195	U	0.0189	U	0.0213	U	0.02	U
Aroclor 1016	0.09	0.0978	U	0.0977	U	0.0996	U	0.0999	U	0.0978	U	0.1	U	0.104	U	0.1	U
Aroclor 1221	0.09	0.0978	U	0.0977	U	0.0996	U	0.0999	U	0.0978	U	0.1	U	0.104	U	0.1	U
Aroclor 1232	0.09	0.0978	U	0.0977	U	0.0996	U	0.0999	U	0.0978	U	0.1	U	0.104	U	0.1	U
Aroclor 1242	0.09	0.0978	U	0.0977	U	0.0996	U	0.0999	U	0.0978	U	0.1	U	0.104	U	0.1	U
Aroclor 1248	0.09	0.0978	U	0.0977	U	0.0996	U	0.0999	U	0.0978	U	0.1	U	0.104	U	0.1	U
Aroclor 1254	0.09	0.0978	U	0.0977	U	0.0996	U	0.0999	U	0.0978	U	0.1	U	0.104	U	0.1	U
Aroclor 1260	0.09	0.0978	U	0.0977	U	0.0996	U	0.0999	U	0.0978	U	0.1	U	0.104	U	0.1	U
beta-BHC	0.04	0.0192	U	0.0196	U	0.0213	U	0.0196	U	0.0195	U	0.0189	U	0.0213	U	0.02	U
Chlordane	0.05	0.24	U	0.245	U	0.266	U	0.246	U	0.244	U	0.236	U	0.266	U	0.25	U
delta-BHC	0.04	0.0192	U	0.0196	U	0.0213	U	0.0196	U	0.0195	U	0.0189	U	0.0213	U	0.02	U
Dieldrin	0.004	0.0384	U	0.0392	U	0.0426	U	0.0393	U	0.039	U	0.0378	U	0.0425	U	0.04	U
Endosulfan I	--	0.0192	U	0.0196	U	0.0213	U	0.0196	U	0.0195	U	0.0189	U	0.0213	U	0.02	U
Endosulfan II	--	0.0384	U	0.0392	U	0.0426	U	0.0393	U	0.039	U	0.0378	U	0.0425	U	0.04	U
Endosulfan sulfate	--	0.0384	U	0.0392	U	0.0426	U	0.0393	U	0.039	U	0.0378	U	0.0425	U	0.04	U
Endrin	0	0.0384	U	0.0392	U	0.0426	U	0.0393	U	0.039	U	0.0378	U	0.0425	U	0.04	U
Endrin aldehyde	5	0.0384	U	0.0392	U	0.0426	U	0.0393	U	0.039	U	0.0378	U	0.0425	U	0.04	U
Endrin ketone	5	0.0384	U	0.0392	U	0.0426	U	0.0393	U	0.039	U	0.0378	U	0.0425	U	0.04	U
Heptachlor	0.04	0.0192	U	0.0196	U	0.0213	U	0.0196	U	0.0195	U	0.0189	U	0.0213	U	0.02	U
Heptachlor epoxide	0.03	0.0192	U	0.0196	U	0.0213	U	0.0196	U	0.0195	U	0.0189	U	0.0213	U	0.02	U
Lindane	0.05	0.0192	U	0.0196	U	0.0213	U	0.0196	U	0.0195	U	0.0189	U	0.0213	U	0.02	U
Methoxychlor	35	0.192	U	0.196	U	0.213	U	0.196	U	0.195	U	0.189	U	0.213	U	0.2	U
Toxaphene	0.06	0.48	U	0.49	U	0.533	U	0.491	U	0.487	U	0.473	U	0.532	U	0.5	U

U = Not detected.

Table 10
Former Landfill - Summary of 2020 Radionuclide Data

Analyte	Groundwater Standards pCi/L	086-42 12/10/2020 pCi/L				086-72 12/10/2020 pCi/L				087-22 12/10/2020 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2*	3.19	U	15.8	9.17	0.948	U	7.5	4.11	11.3	U	24	14.4
Beryllium-7	40000	-7.46	U	18	10.4	2.94	U	20.5	10.5	0.135	U	20.9	12
Cesium-134	80	0.645	U	2.83	1.47	-0.546	U	2.52	1.41	0.405	U	3.06	1.61
Cesium-137	120*	-0.449	U	2.39	1.35	0.744	U	2.66	1.32	1.36	U	2.87	1.43
Co-60	200*	-0.451	U	2.51	1.56	-0.411	U	2.49	1.6	0.235	U	2.64	1.37
Cobalt-57	4000*	-0.19	U	2.2	1.35	-0.586	U	2.1	1.38	-0.371	U	2.35	1.36
Europium-152	841	1.87	U	7.52	3.89	3.03	U	7.4	4.02	2.2	U	7.32	4.24
Europium-154	573	-2.66	U	6.61	3.81	0.636	U	7.97	4.16	0.522	U	7.35	3.83
Europium-155	4000*	-0.723	U	8.86	5.07	-0.142	U	8.22	4.63	13.9	J-UI	10.6	8.5
Gross Alpha	15**	0.581	U	1.89	1.03	1	U	1.68	1.06	0.182	U	1.67	0.802
Gross Beta	50**	2.26	J	1.53	1.03	1.12	U	2.33	1.38	1.63	U	1.83	1.18
Manganese-54	2000*	-0.224	U	2.56	1.44	-1.38	U	2.27	1.4	1.63	U	2.25	2.84
Sodium-22	400*	-0.987	U	2.28	1.33	0.143	U	2.75	1.45	0.204	U	2.59	1.35
Strontium-90	8***	0.239	U	0.646	0.371	0.142	U	0.767	0.423	0.0967	U	0.73	0.395
Tritium	20000***	60.9	U	368	211	186	U	380	225	126	U	367	214
Zinc-65	360	-1.48	U	5.67	3.14	1.06	U	5.6	3.14	0.399	U	5.33	2.81

Table 10
Former Landfill - Summary of 2020 Radionuclide Data

Analyte	Groundwater Standards pCi/L	097-17 12/11/2020 pCi/L				097-277 12/11/2020 pCi/L				097-64 12/11/2020 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2*	-5.65	U	10.2	6.43	5.2	U	17	9.44	0.722	U	11.5	6.41
Beryllium-7	40000	10.6	U	24	12.6	2.03	U	22.9	12.3	1.28	U	20.7	12.3
Cesium-134	80	0.474	U	2.72	1.38	0.639	U	3.03	1.58	0.286	U	2.68	1.41
Cesium-137	120*	-0.367	U	2.68	1.46	-0.633	U	2.74	1.76	0.23	U	2.4	1.26
Co-60	200*	2.01	U	3.52	1.63	-0.943	U	2.32	1.31	-0.067	U	2.44	1.23
Cobalt-57	4000*	0.146	U	2.42	1.33	0.164	U	2.48	1.44	0.984	U	2.08	1.13
Europium-152	841	1.29	U	8.59	4.78	4.15	U	8.58	4.39	-1.97	U	6.54	3.65
Europium-154	573	-1	U	8.39	5.41	3.35	U	8.4	3.82	-4.21	U	6.32	4.14
Europium-155	4000*	1.5	U	9.52	5.15	2.63	U	10.6	6.05	0.334	U	8.45	4.81
Gross Alpha	15**	-0.248	U	1.67	0.649	0.834	U	1.67	1.01	1.24	U	1.91	1.25
Gross Beta	50**	2.01	U	2.07	1.34	1.92	J	1.58	1.1	3.76	J	1.88	1.44
Manganese-54	2000*	-0.49	U	2.69	1.72	1.41	U	2.82	1.39	-0.63	U	2.07	1.21
Sodium-22	400*	-0.377	U	2.93	1.9	1.1	U	2.91	1.33	-1.28	U	2.19	1.41
Strontium-90	8***	0.199	U	0.754	0.428	0.46	U	0.716	0.439	0.367	U	0.769	0.454
Tritium	20000***	123	U	363	212	119	U	325	190	58.1	U	352	201
Zinc-65	360	-0.0601	U	6.5	3.56	2.96	U	5.2	2.43	1.83	U	5.1	3.52

Table 10
Former Landfill - Summary of 2020 Radionuclide Data

Analyte	Groundwater Standards pCi/L	106-02 12/14/2020 pCi/L				106-20 12/15/2020 pCi/L				106-21 12/15/2020 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2*	-2.23	U	10	6.12								
Beryllium-7	40000	3.96	U	21	11.8								
Cesium-134	80	-0.511	U	2.6	1.46								
Cesium-137	120*	1.09	U	2.77	1.41								
Co-60	200*	-0.855	U	2.51	1.5								
Cobalt-57	4000*	-0.0929	U	2.11	1.18								
Europium-152	841	1.41	U	7.61	4.26								
Europium-154	573	1.37	U	7.76	4.07								
Europium-155	4000*	-0.324	U	8.66	4.79								
Gross Alpha	15**	1.85	J	1.58	1.25								
Gross Beta	50**	2.12	J	1.43	1.07								
Manganese-54	2000*	-1.11	U	2.32	1.37								
Sodium-22	400*	0.44	U	2.7	1.42								
Strontium-90	8***	0.344	U	0.632	0.376	-0.505	U	0.777	0.368	0.302	U	0.43	0.259
Tritium	20000***	69.4	U	414	236								
Zinc-65	360	2.15	U	5.38	3								

Table 10
Former Landfill - Summary of 2020 Radionuclide Data

Analyte	Groundwater Standards pCi/L	106-30 12/14/2020 pCi/L				106-43 12/10/2020 pCi/L				106-44 12/15/2020 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2*	7.72	U	22.5	13.2								
Beryllium-7	40000	-1.22	U	17.4	10.8								
Cesium-134	80	0.421	U	2.45	1.33								
Cesium-137	120*	0.595	U	2.08	1.09								
Co-60	200*	0.742	U	2.53	1.25								
Cobalt-57	4000*	0.857	U	2.07	1.16								
Europium-152	841	-2.01	U	6.06	3.4								
Europium-154	573	2.42	U	6.64	3.19								
Europium-155	4000*	3.48	U	9.33	5.24								
Gross Alpha	15**	0.867	U	1.45	0.96								
Gross Beta	50**	1.9	J	1.84	1.23								
Manganese-54	2000*	-0.0416	U	2.16	1.22								
Sodium-22	400*	0.833	U	2.32	1.12								
Strontium-90	8***	0.059	U	0.574	0.329	0.107	U	0.771	0.432	2.06		0.786	0.645
Tritium	20000***	30.9	U	392	221								
Zinc-65	360	1.31	U	4.49	2.62								

Table 10
Former Landfill - Summary of 2020 Radionuclide Data

Analyte	Groundwater Standards pCi/L	106-45 12/15/2020 pCi/L				106-64 12/11/2020 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2*								
Beryllium-7	40000								
Cesium-134	80								
Cesium-137	120*								
Co-60	200*								
Cobalt-57	4000*								
Europium-152	841								
Europium-154	573								
Europium-155	4000*								
Gross Alpha	15**								
Gross Beta	50**								
Manganese-54	2000*								
Sodium-22	400*								
Strontium-90	8***	2.13		0.578	0.527	0.688	U	0.779	0.485
Tritium	20000***								
Zinc-65	360								

U: Analyte was analyzed for but not detected above the MDA

UI: Gamma Spectroscopy-Uncertain identification.

J: Estimated value.

*: Department of Energy (DOE) Groundwater Screening Level

**:OUI Record of Decision Selected Cleanup Goal

***:Environmental Protection Agency (EPA) Drinking Water Standards.

Table 11

Current and Former Landfill Summary of 2020 Emerging Contaminant Data

Analtye	**Groundwater Standards MCL**	**087-09**		**087-11**		**087-23**		**087-24**		**087-26**	
		6/16/2020		**6/17/2020**		**6/17/2020**		**6/17/2020**		**6/16/2020**	
		Current Landfill		**Current Landfill**		**Current Landfill**		**Current Landfill**		**Current Landfill**	
1,4-Dioxane	1 µg/L	0.2	U	**11.6**		0.68		0.2	U	0.27	
Perfluorooctanesulfonate (PFOS)	10 ng/L	1.73	U	4.3		1.69	J	2.13		5.88	
Perfluorooctanoic acid (PFOA)	10 ng/L	1.46	J	**45.2**		4.27		3.65		2.96	

U: Analyte was analyzed for, but not detected above MDL.

J: Value is estimated.

Bold/Shaded: Exceeds New York State Standard/Maximum Contaminant Level (MCL)

NS: No sample data.

Table 11

Current and Former Landfill Summary of 2020 Emerging Contaminant Data

Analtye	**Groundwater Standards MCL**	**087-27**		**088-21**		**088-22**		**088-23**		**088-109**	
		6/16/2020		**6.17/2020**		**6/17/2020**		**6/17/2020**		**2/11/2020**	
		Current Landfill		**Current Landfill**		**Current Landfill**		**Current Landfill**		**Current Landfill**	
1,4-Dioxane	1 µg/L	0.92		0.2	U	0.2	U	**3.74**		0.63	
Perfluorooctanesulfonate (PFOS)	10 ng/L	4.61		6.86		7.17		2.89		5.18	
Perfluorooctanoic acid (PFOA)	10 ng/L	7.36		1.59	J	1.56	J	5.27		8.24	

U: Analyte was analyzed for, but not detected above MDL.

J: Value is estimated.

Bold/Shaded: Exceeds New York State Standard/Maximum Contaminant Level (MCL)

NS: No sample data.

Table 11

Current and Former Landfill Summary of 2020 Emerging Contaminant Data

Analtye	**Groundwater Standards MCL**	**088-110 6/16/2020 Current Landfill**		**098-99 2/11/2020 Current Landfill**		**086-42 8/26/2020 Former Landfill**		**097-17 8/26/2020 Former Landfill**	
1,4-Dioxane	1 µg/L	**1.4**		**4.49**		0.2	U	0.2	U
Perfluorooctanesulfonate (PFOS)	10 ng/L	1.64	J	5.67		**10.1**		0.88	J
Perfluorooctanoic acid (PFOA)	10 ng/L	6.34		7.78		2.69		2.01	

U: Analyte was analyzed for, but not detected above MDL.

J: Value is estimated.

Bold/Shaded: Exceeds New York State Standard/Maximum Contaminant Level (MCL)

NS: No sample data.

Table 11

Current and Former Landfill Summary of 2020 Emerging Contaminant Data

Analtye	**Groundwater Standards MCL**	**106-30 8/26/2020 Former Landfill**		**106-64 5/29/2020 Former Landfill**	
1,4-Dioxane	1 µg/L	0.2	U	0.2	U
Perfluorooctanesulfonate (PFOS)	10 ng/L	1.17	J	1.61	J
Perfluorooctanoic acid (PFOA)	10 ng/L	2.08		2.17	

U: Analyte was analyzed for, but not detected above MDL.

J: Value is estimated.

Bold/Shaded: Exceeds New York State Standard/Maximum Contaminant Level (MCL)

NS: No sample data.

Table 12
Current Landfill Soil Gas Monitoring Well Description

Current Landfill			
Soil Gas Monitoring Well	**Screen Location**	**Top of Screen (Feet BLS)**	**Bottom Screen (Feet BLS)**
SGM-1 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-1 PROBE B	**Intermediate**	**10.5**	**17.5**
SGM-1 PROBE C	**Deep**	**20**	**29.5**
SGM-2 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-2 PROBE B	**Intermediate**	**10.5**	**16**
SGM-2 PROBE C	**Deep**	**19**	**28**
SGM-3 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-3 PROBE B	**Intermediate**	**10.5**	**17**
SGM-3 PROBE C	**Deep**	**20**	**29**
SGM-4 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-4 PROBE B	**Intermediate**	**10.5**	**20**
SGM-4 PROBE C	**Deep**	**23**	**32**
SGM-5 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-5 PROBE B	**Intermediate**	**10.5**	**22**
SGM-5 PROBE C	**Deep**	**25**	**34**
SGM-6 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-6 PROBE B	**Intermediate**	**10.5**	**18.5**
SGM-6 PROBE C	**Deep**	**21.5**	**30.5**
SGM-7 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-7 PROBE B	**Intermediate**	**10.5**	**16**
SGM-7 PROBE C	**Deep**	**19**	**26**
SGM-8 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-8 PROBE B	**Intermediate**	**10.5**	**16.5**
SGM-8 PROBE C	**Deep**	**19.5**	**28.5**
SGM-9 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-9 PROBE B	**Intermediate**	**10.5**	**20.5**
SGM-9 PROBE C	**Deep**	**23.5**	**32.5**
SGM-10 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-10 PROBE B	**Intermediate**	**10.5**	**15.5**
SGM-10 PROBE C	**Deep**	**18.5**	**27.5**
SGM-11 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-11 PROBE B	**Intermediate**	**10.5**	**16**
SGM-12 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-12 PROBE B	**Intermediate**	**10.5**	**15**
SGM-13 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-13 PROBE B	**Intermediate**	**10.5**	**13**
SGM-14 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-14 PROBE B	**Intermediate**	**10.5**	**13**
SGM-15 PROBE A	**Shallow**	**2.5**	**5.5**
SGM-15 PROBE B	**Intermediate**	**8.5**	**11.5**
SGM-16 PROBE A	**Shallow**	**2.5**	**5.5**
SGM-16 PROBE B	**Intermediate**	**8.5**	**11**
SGM-17 PROBE A	**Shallow**	**2.5**	**5.5**

Table 12
Current Landfill Soil Gas Monitoring Well Description

Current Landfill			
Soil Gas Monitoring Well	**Screen Location**	**Top of Screen (Feet BLS)**	**Bottom Screen (Feet BLS)**
SGM-17 PROBE B	**Intermediate**	**8.5**	**11**
SGM-18 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-18 PROBE B	**Intermediate**	**10.5**	**13.5**
SGM-19 PROBE A	**Shallow**	**2.5**	**7.5**
SGM-19 PROBE B	**Intermediate**	**10.5**	**17**

BLS – Below Land Surface

Current Landfill Outpost Wells		
Site ID	**Depth to Bottom from top PVC (feet)**	**PVC Stick Up from Ground (feet)**
GSGM-1A	**12.00**	**2.50**
GSGM-1B	**21.00**	**2.50**
GSGM-1C	**29.40**	**2.50**
GSGM-2A	**14.25**	**2.50**
GSGM-2B	**20.05**	**2.50**
GSGM-2C	**27.00**	**2.50**
GSGM-3A	**13.91**	**2.50**
GSGM-3B	**17.75**	**2.50**
GSGM-4A	**11.50**	**2.50**
GSGM-4B	**15.20**	**2.50**

Table 12
Former Landfill Soil Gas Monitoring Well Description

Former Landfill			
Soil Gas Monitoring Well	**Screen Location**	**Top of Screen (Feet BLS)**	**Bottom Screen (Feet BLS)**
SGM-1 PROBE A	**Shallow**	**2.5**	**10**
SGM-1 PROBE B	**Intermediate**	**15**	**43**
SGM-2PROBE A	**Shallow**	**2.5**	**10**
SGM-2 PROBE B	**Intermediate**	**15**	**40**
SGM-3 PROBE A	**Shallow**	**2**	**9.5**
SGM-3 PROBE B	**Intermediate**	**14.5**	**36**
SGM-4 PROBE A	**Shallow**	**2.5**	**10**
SGM-4 PROBE B	**Intermediate**	**15**	**35.5**
SGM-5 PROBE A	**Shallow**	**2.5**	**10**
SGM-5 PROBE B	**Intermediate**	**15**	**37**
SGM-6 PROBE A	**Shallow**	**2.7**	**10.2**
SGM-6 PROBE B	**Intermediate**	**22**	**37.2**
SGM-7 PROBE A	**Shallow**	**2.8**	**10.3**
SGM-7 PROBE B	**Intermediate**	**15**	**42**
SGM-8 PROBE A	**Shallow**	**2.5**	**10**
SGM-8 PROBE B	**Intermediate**	**15**	**47**
SGM-9 PROBE A	**Shallow**	**2.5**	**10**
SGM-9 PROBE B	**Intermediate**	**15**	**52**
SGM-10 PROBE A	**Shallow**	**2.5**	**10**
SGM-10 PROBE B	**Intermediate**	**15**	**52**
SGM-11 PROBE A	**Shallow**	**2.5**	**10**
SGM-11 PROBE B	**Intermediate**	**15**	**46**
SGM-12 PROBE A	**Shallow**	**2.5**	**10**
SGM-12 PROBE B	**Intermediate**	**15**	**43.5**

BLS – Below Land Surface

Table 13

2020 Current Landfill Soil Gas Monitoring Summary Table

Soil/Gas Monitoring Well	Well ID	Methane (% By Volume) 3/19/2020	Methane (% By Volume) 6/18/2020	Methane (% By Volume) 9/18/2020	Methane (% By Volume) 12/30/2020	LEL (% By Volume) 3/19/2020	LEL (% By Volume) 6/18/2020	LEL (% By Volume) 9/18/2020	LEL (% By Volume) 12/30/2020	Hydrogen (ppm By Volume) 3/19/2020	Hydrogen (ppm By Volume) 6/18/2020	Hydrogen (ppm By Volume) 9/18/2020	Hydrogen (ppm By Volume) 12/30/2020
GSGM-1A		0	0	0	0	0	0	0	0	0	0	0	0
GSGM-1B		0	0	0	0	0	0	0	0	0	0	0	0
GSGM-1C		0	0	0	0	0	0	0	0	0	0	0	0
GSGM-2A		0	0	0	0	0	0	0	0	0	0	0	0
GSGM-2B		0	0	0	0	0	0	0	0	0	0	0	0
GSGM-2C		0	0	0	0	0	0	0	0	0	0	0	0
GSGM-3A		0	0	0	0	0	0	0	0	0	0	0	0
GSGM-3B		0	0	0	0	0	0	0	0	0	0	0	0
GSGM-4A		0	0	0	0	0	0	0	0	0	0	0	0
GSGM-4B		0	0	0	0	0	0	0	0	0	0	0	0
SGMW-01A (CLF)	087-62	7.1	6.1	3.3	6.3	>100	>100	66	>100	1	3	1	3
SGMW-01B (CLF)	087-78	5.6	5.9	3.1	6.4	>100	>100	62	>100	0	0	0	1
SGMW-01C (CLF)	087-79	3.9	4.6	2.9	5.2	78	92	58	>100	0	0	0	1
SGMW-02A (CLF)	087-63	33.6	31.9	36	44.6	>100	>100	>100	>100	0	7	3	0
SGMW-02B (CLF)	087-80	30.3	37.3	42.5	34.5	>100	>100	>100	>100	0	15	21	12
SGMW-02C (CLF)	087-81	14.7	36.3	41.2	40.2	>100	>100	>100	>100	0	3	0	3
SGMW-03A (CLF)	087-64	11.2	16.8	32.5	12.9	>100	>100	>100	>100	1	10	8	1
SGMW-03B (CLF)	087-82	27.7	41.4	45.5	45.8	>100	>100	>100	>100	1	20	28	9
SGMW-03C (CLF)	087-83	5	41.5	46.2	37.1	100	>100	>100	>100	0	20	35	0
SGMW-04A (CLF)	087-65	26.7	34.6	35.9	35.8	>100	>100	>100	>100	0	7	8	0
SGMW-04B (CLF)	087-84	20.1	30.8	32.6	32.6	>100	>100	>100	>100	0	6	12	2
SGMW-04C (CLF)	087-85	11.5	23.1	24.7	24.8	>100	>100	>100	>100	0	5	7	0
SGMW-05A (CLF)	087-66	0	1.4	21.3	0	0	28	>100	0	0	0	0	0
SGMW-05B (CLF)	087-86	10.8	11.2	22.3	22.4	>100	>100	>100	>100	0	0	3	0
SGMW-05C (CLF)	087-87	6.2	14	15.8	18	>100	>100	>100	>100	0	1	1	0
SGMW-06A (CLF)	087-67	5.7	0.7	3.1	0.1	>100	14	62	2	0	0	0	0
SGMW-06B (CLF)	087-88	9	27	25.9	25.2	>100	>100	>100	>100	0	5	8	0
SGMW-06C (CLF)	087-89	13.2	24.2	22.7	23.8	>100	>100	>100	>100	0	4	5	0
SGMW-07A (CLF)	087-68	0	0	0	0	0	0	0	0	0	0	0	0

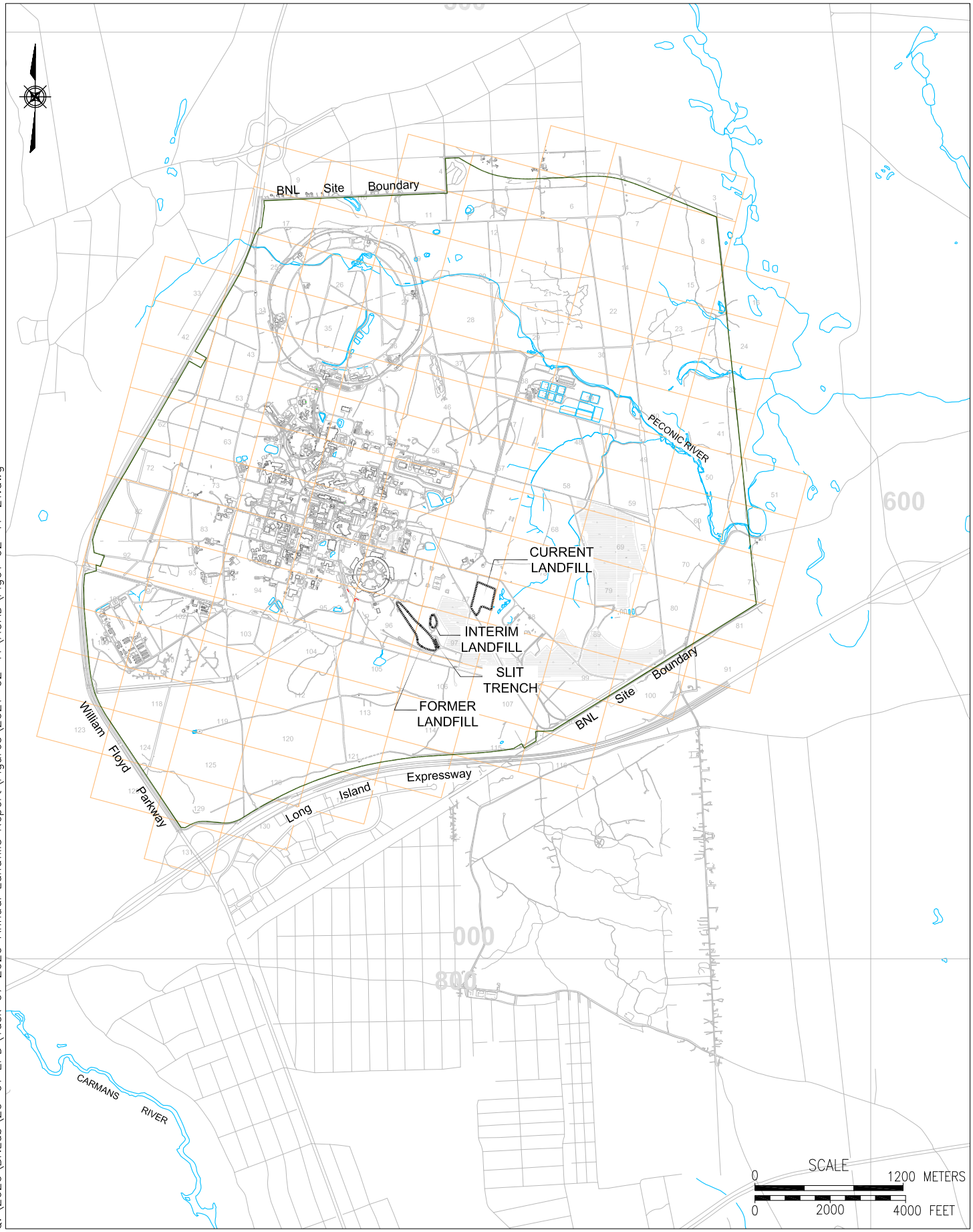
Table 13

2020 Current Landfill Soil Gas Monitoring Summary Table

Soil/Gas Monitoring Well	Well ID	Methane (% By Volume) 3/19/2020	Methane (% By Volume) 6/18/2020	Methane (% By Volume) 9/18/2020	Methane (% By Volume) 12/30/2020	LEL (% By Volume) 3/19/2020	LEL (% By Volume) 6/18/2020	LEL (% By Volume) 9/18/2020	LEL (% By Volume) 12/30/2020	Hydrogen (ppm By Volume) 3/19/2020	Hydrogen (ppm By Volume) 6/18/2020	Hydrogen (ppm By Volume) 9/18/2020	Hydrogen (ppm By Volume) 12/30/2020
SGMW-07B (CLF)	087-90	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-07C (CLF)	087-91	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-08A (CLF)	087-69	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-08B (CLF)	087-92	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-08C (CLF)	087-93	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-09A (CLF)	087-70	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-09B (CLF)	087-94	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-09C (CLF)	087-95	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-10A (CLF)	087-71	0	2.7	14.2	4.4	0	54	>100	88	0	0	34	0
SGMW-10B (CLF)	087-96	2.5	9.2	14.1	9.8	50	>100	>100	>100	0	1	11	0
SGMW-10C (CLF)	087-97	3.6	8.1	11.5	6.9	72	>100	>100	>100	2	3	7	0
SGMW-11A (CLF)	087-72	2	8.6	17	9.2	40	>100	>100	>100	2	15	21	0
SGMW-11B (CLF)	087-98	0.4	8.4	15.3	3.8	8	>100	>100	72	0	2	4	0
SGMW-12A (CLF)	087-73	31.4	32.7	38.1	37.9	>100	>100	>100	>100	10	29	18	0
SGMW-12B (CLF)	087-99	27	30.8	35.6	13.2	>100	>100	>100	>100	0	2	3	0
SGMW-13A (CLF)	087-74	0	10.3	17.4	0.1	0	>100	>100	2	0	4	26	0
SGMW-13B (CLF)	087-100	0	0	23.6	6	0	0	>100	>100	0	0	13	0
SGMW-14A (CLF)	087-75	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-14B (CLF)	087-101	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-15A (CLF)	088-111	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-15B (CLF)	088-114	0	0	0	4.5	0	0	0	90	0	0	0	0
SGMW-16A (CLF)	088-112	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-16B (CLF)	088-115	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-17A (CLF)	088-113	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-17B (CLF)	088-116	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-18A (CLF)	087-76	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-18B (CLF)	087-102	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-19A (CLF)	087-77	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-19B (CLF)	087-103	0	0	8	0	0	0	>100	0	0	0	0	0

Table 14
2020 Former Landfill Soil-Gas Monitoring Summary Table

Soil/Gas Monitoring Well	Well ID	Methane (% By Volume) 8/12/2020	LEL (% By Volume) 8/12/2020	Hydrogen (ppm By Volume) 8/12/2020
SGMW-01A (FLF)	096-41	0	0	0
SGMW-01B (FLF)	096-42	0	0	0
SGMW-02A (FLF)	096-43	0	0	0
SGMW-02B (FLF)	096-44	0	0	0
SGMW-03A (FLF)	096-45	0	0	0
SGMW-03B (FLF)	096-46	0	0	0
SGMW-04A (FLF)	096-47	0	0	0
SGMW-04B (FLF)	096-48	0	0	0
SGMW-05A (FLF)	097-50	0	0	0
SGMW-05B (FLF)	097-51	0	0	0
SGMW-06A (FLF)	097-52	0	0	0
SGMW-06B (FLF)	097-53	0	0	0
SGMW-07A (FLF)	097-54	0	0	0
SGMW-07B (FLF)	097-55	0	0	0
SGMW-08A (FLF)	097-56	0	0	0
SGMW-08B (FLF)	097-57	0	0	0
SGMW-09A (FLF)	097-58	0	0	0
SGMW-09B (FLF)	097-59	0	0	0
SGMW-10A (FLF)	097-60	0	0	0
SGMW-10B (FLF)	097-61	0	0	0
SGMW-11A (FLF)	097-62	0	0	0
SGMW-11B (FLF)	097-63	0	0	0
SGMW-12A (FLF)	096-49	0	0	0
SGMW-12B (FLF)	096-50	0	0	0



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BROOKHAVEN NATIONAL LABORATORY

ENVIRONMENTAL PROTECTION DIVISION

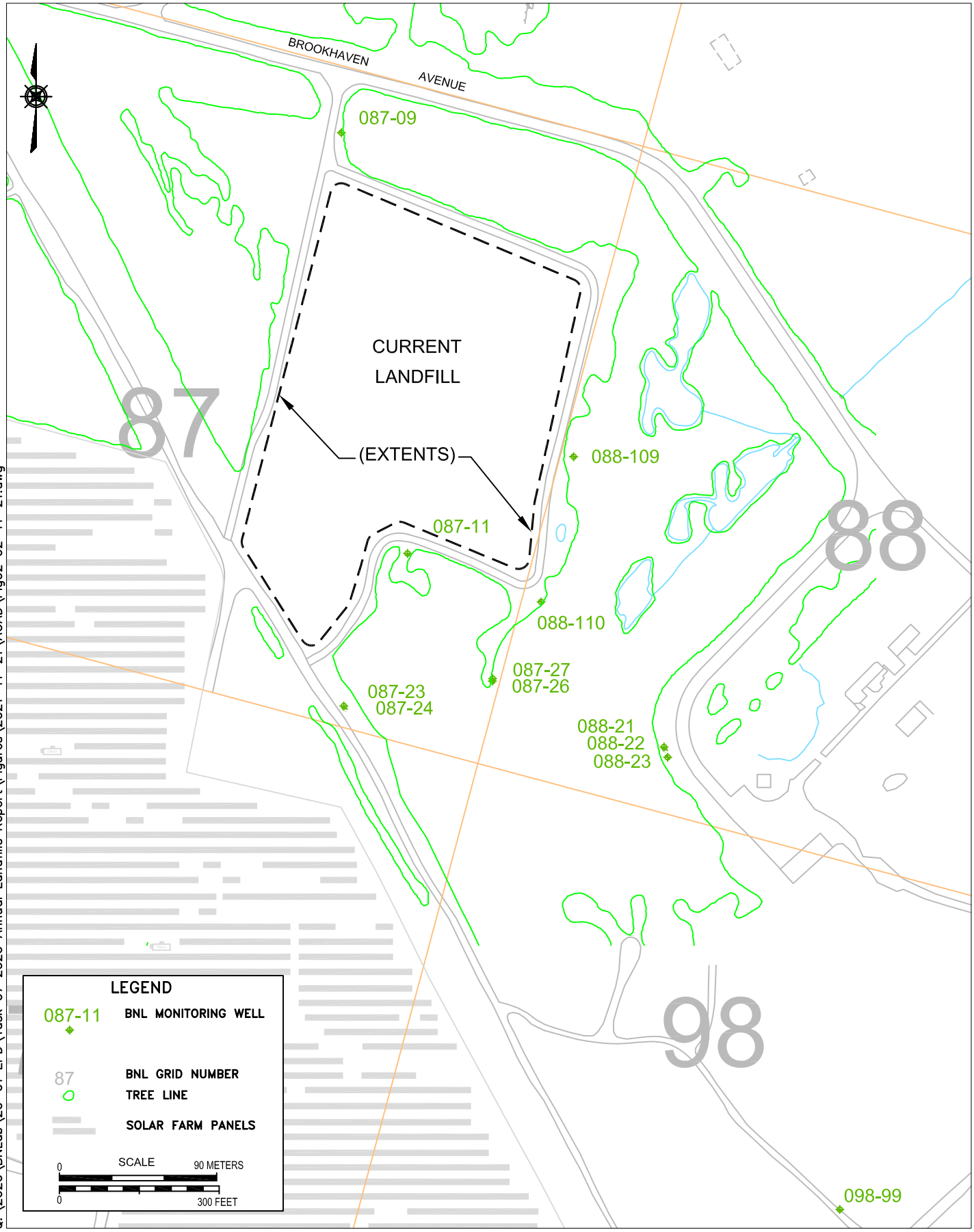
TITLE:

SITE LOCATION MAP

2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	02/11/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–

FIGURE NO.: 1



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BROOKHAVEN NATIONAL LABORATORY

ENVIRONMENTAL PROTECTION DIVISION

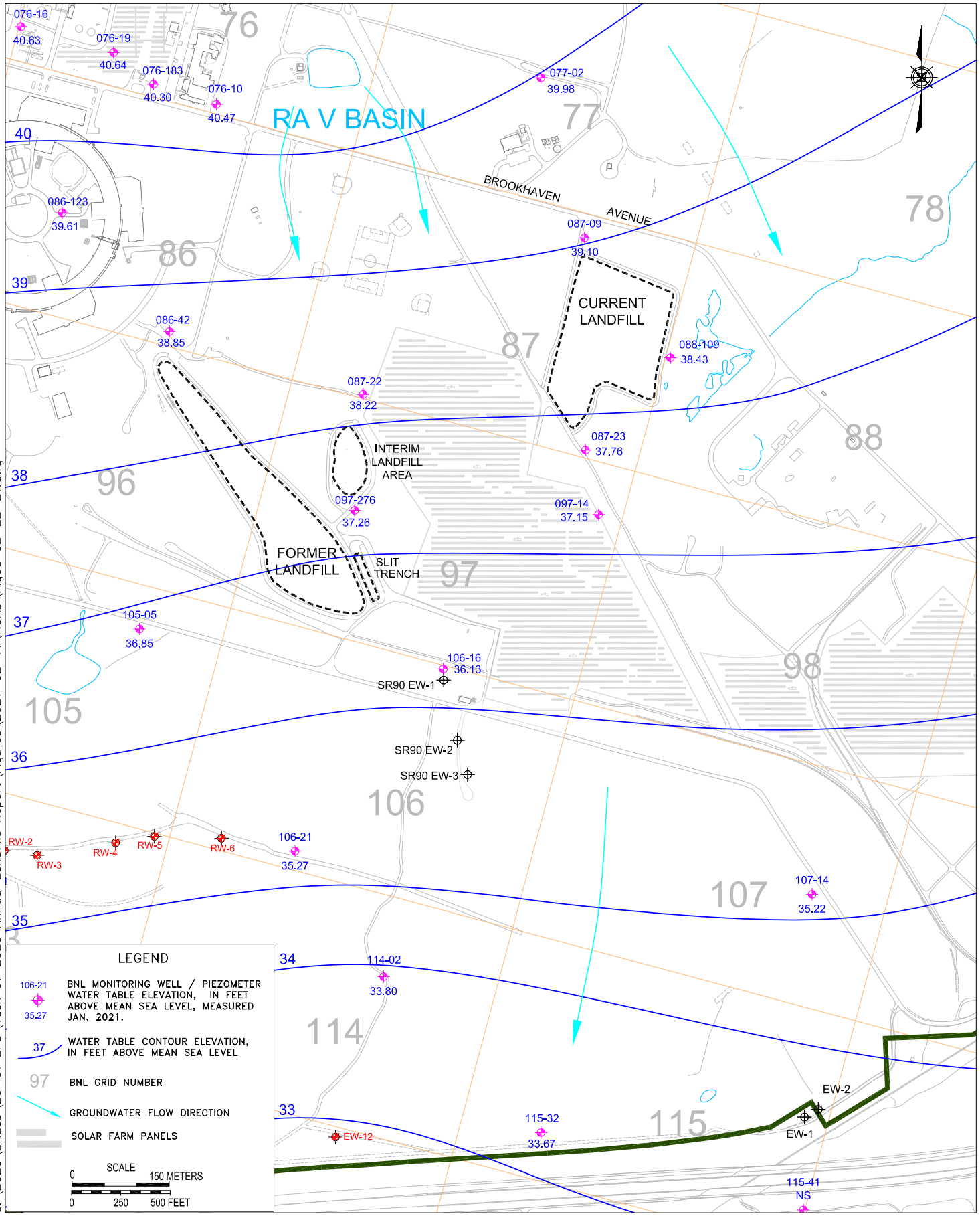
TITLE:

CURRENT LANDFILL MONITORING WELL LOCATIONS

2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	02/11/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–

FIGURE NO.: 2



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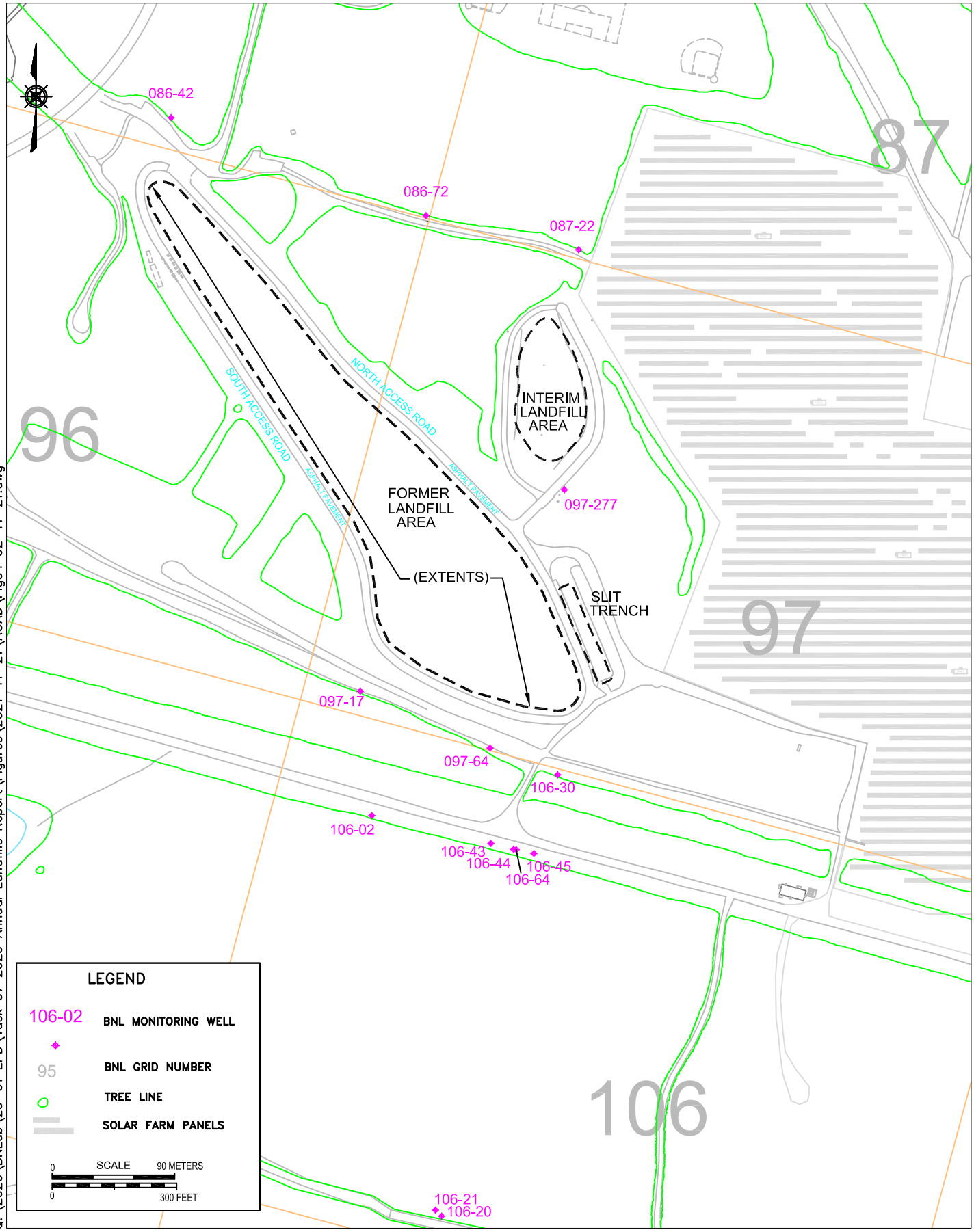
BROOKHAVEN NATIONAL LABORATORY
ENVIRONMENTAL PROTECTION DIVISION

TITLE:

WATER TABLE CONTOUR MAP
2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	02/22/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–

FIGURE NO.: 3



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BROOKHAVEN NATIONAL LABORATORY

ENVIRONMENTAL PROTECTION DIVISION

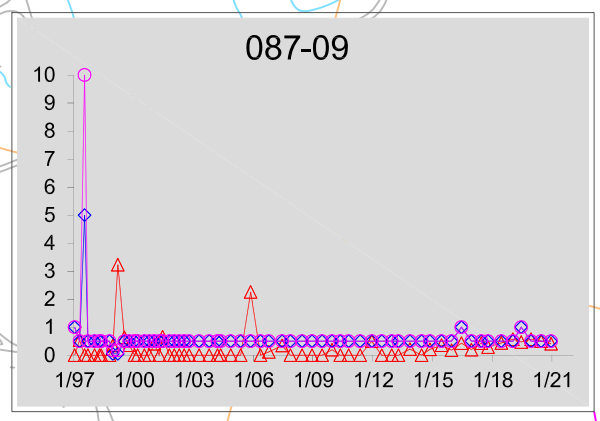
TITLE:

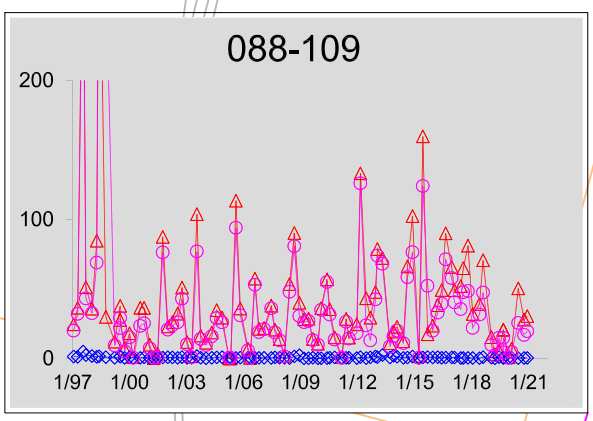
FORMER LANDFILL MONITORING WELL LOCATIONS

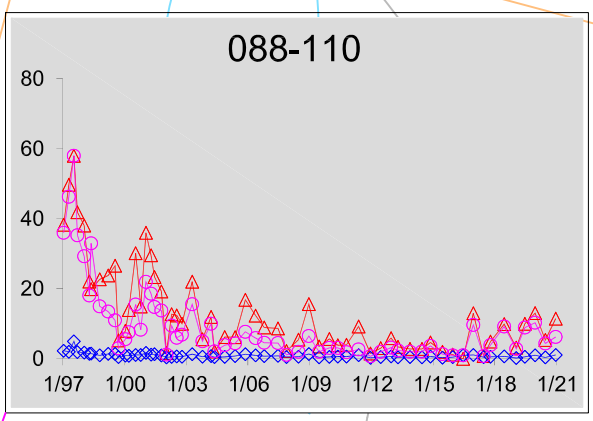
2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	02/11/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–

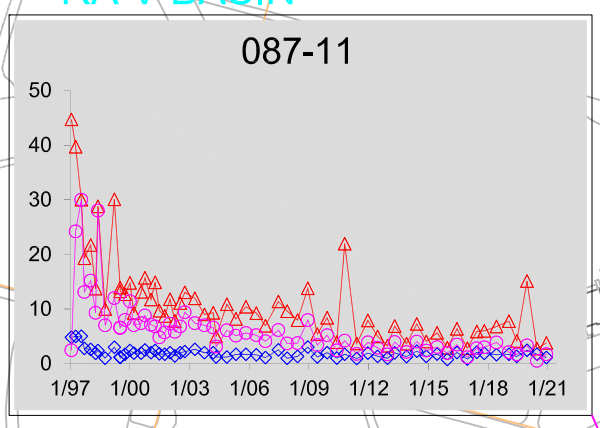
FIGURE NO.: 4

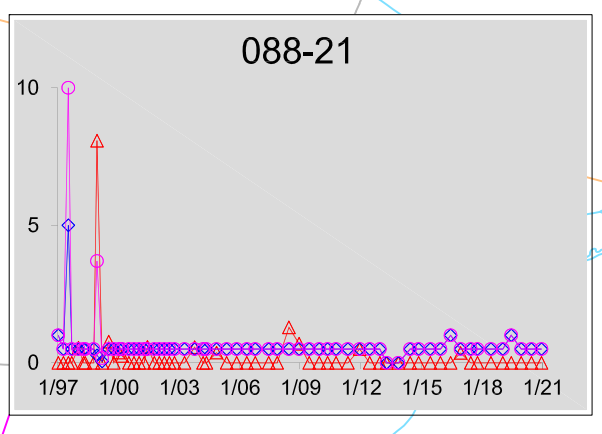


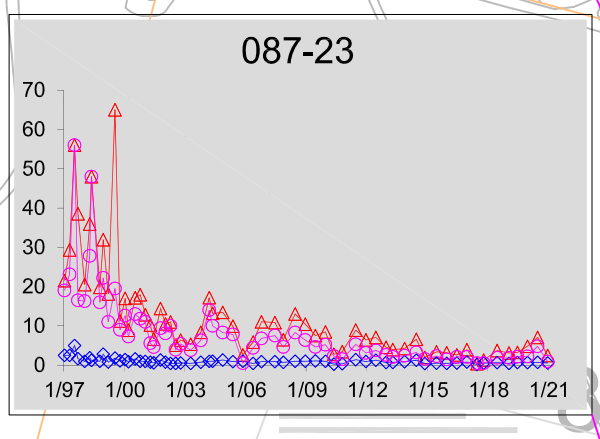


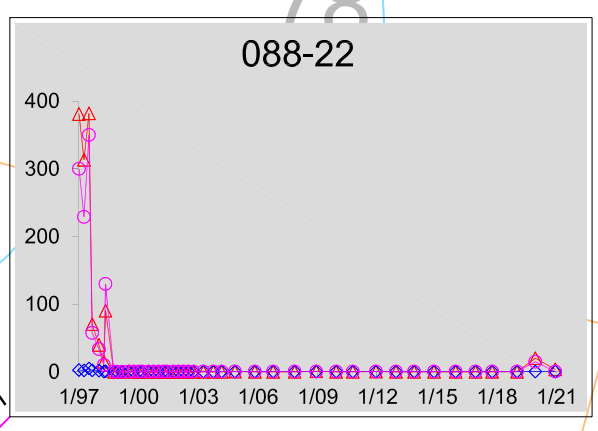


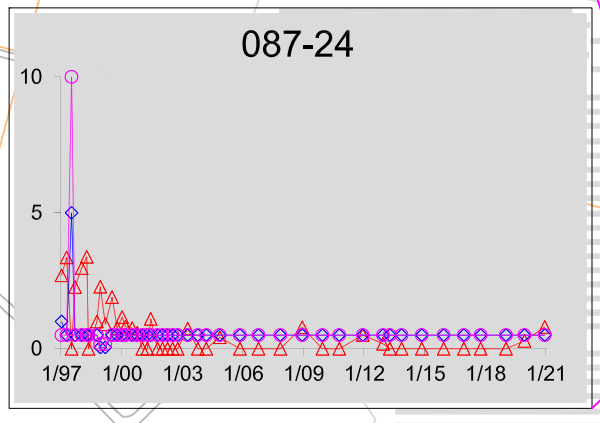
RA V BASIN

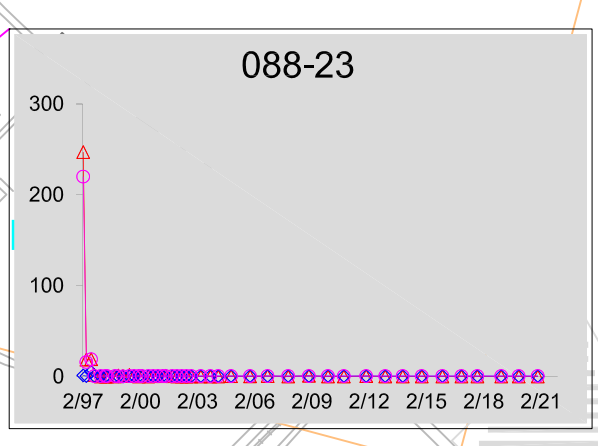


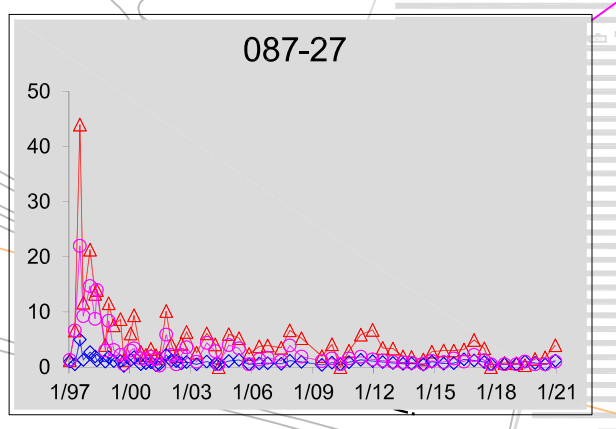












77

78

87

98

107

087-09

CURRENT LANDFILL

088-109

087-11

088-110

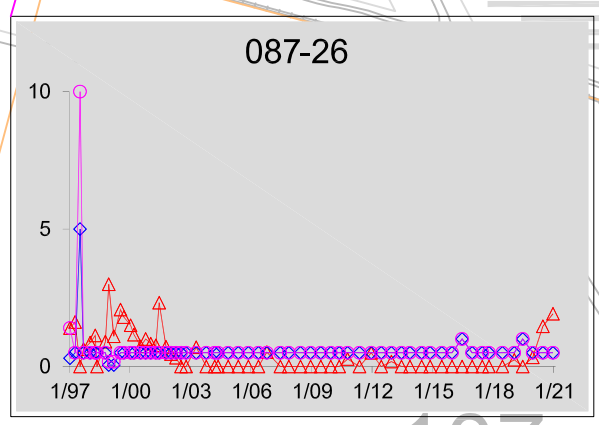
087-23
087-24

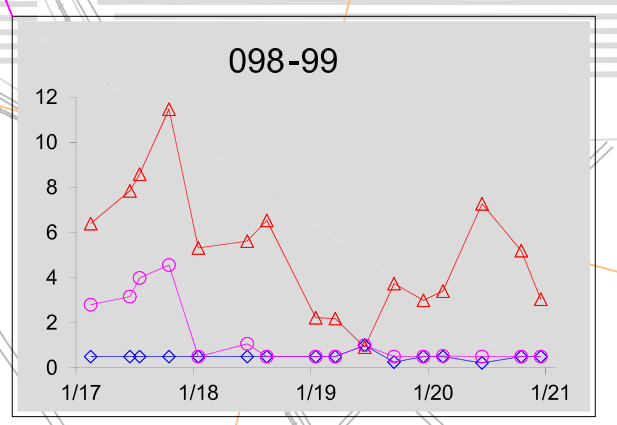
087-27
087-26

088-21
088-22
088-23

BROOKHAVEN AVE.

098-99





LEGEND

- 11 — MONITORING WELL
- Benzene (µG/L)
- Chloroethane (µG/L)
- TVOC (µG/L)
- 32 — BNL GRID NUMBER
- BNL RECHARGE BASIN
- RA V
- 087-09 — BACKGROUND
- 087-11 — DOWNGRADIENT
- SOLAR FARM PANELS

SCALE
0 500 FEET

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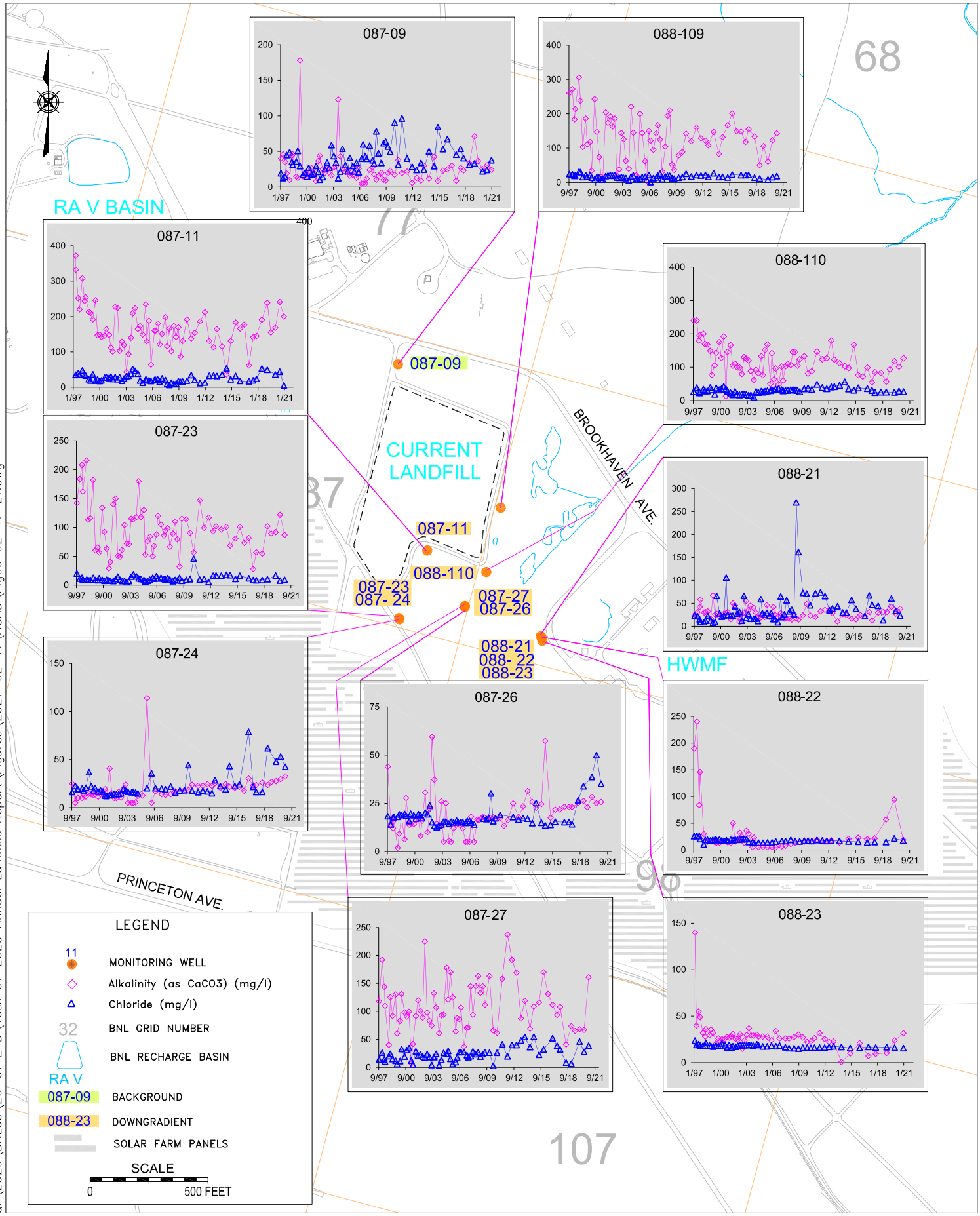
BROOKHAVEN NATIONAL LABORATORY
ENVIRONMENTAL PROTECTION DIVISION

TITLE:
CURRENT LANDFILL
VOC TREND PLOTS
2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	02/11/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–

FIGURE NO.: 5



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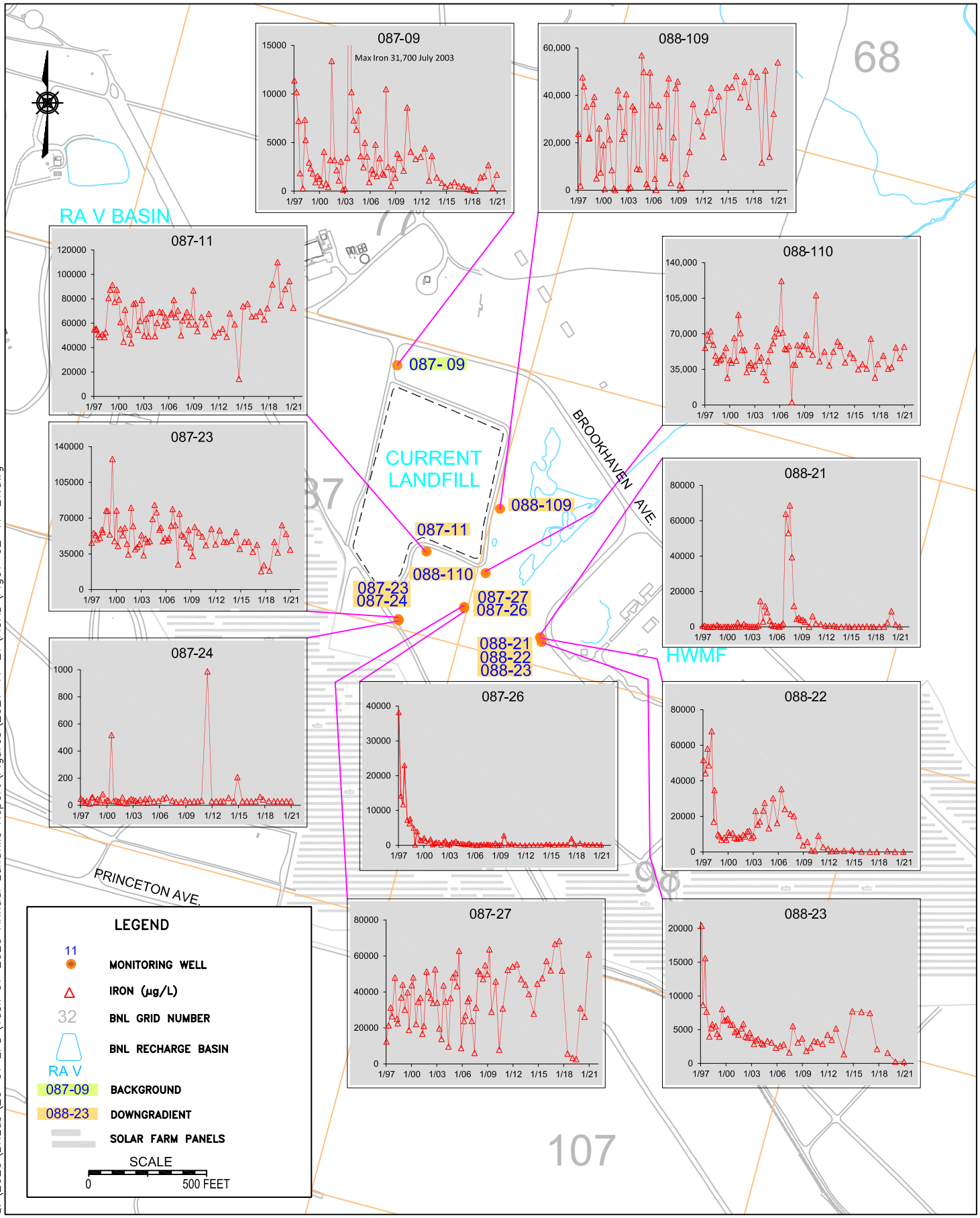
BROOKHAVEN NATIONAL LABORATORY
ENVIRONMENTAL PROTECTION DIVISION

TITLE:

CURRENT LANDFILL
ALKALINITY AND CHLORIDE TREND PLOTS
2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	02/11/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–

FIGURE NO.: 6



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BROOKHAVEN NATIONAL LABORATORY
ENVIRONMENTAL PROTECTION DIVISION

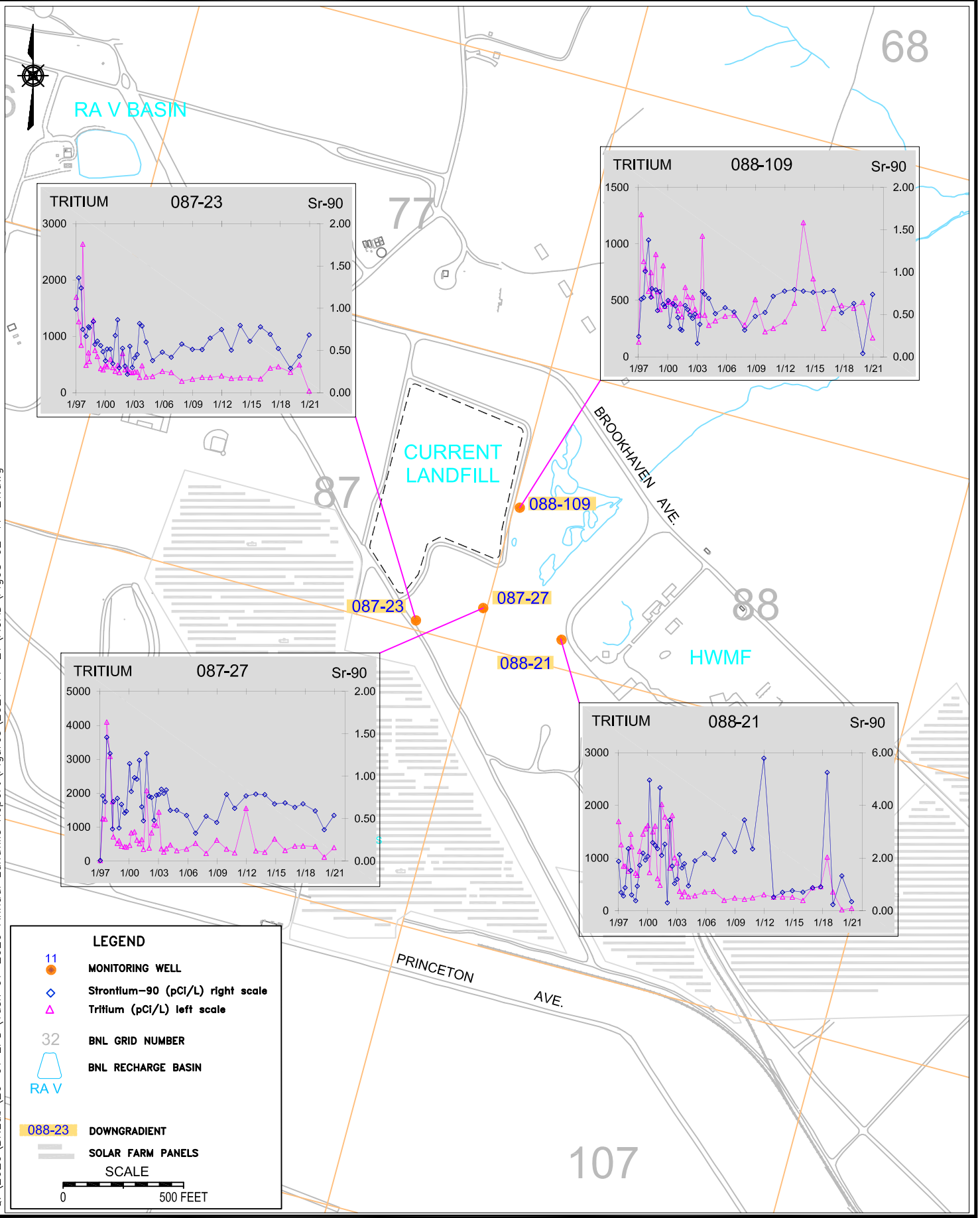
TITLE:

CURRENT LANDFILL IRON TREND PLOTS

2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	02/11/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–

FIGURE NO.: 7



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BROOKHAVEN NATIONAL LABORATORY
ENVIRONMENTAL PROTECTION DIVISION

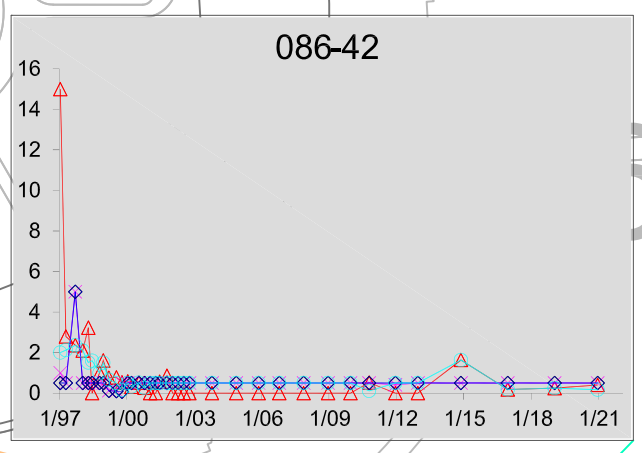
TITLE:

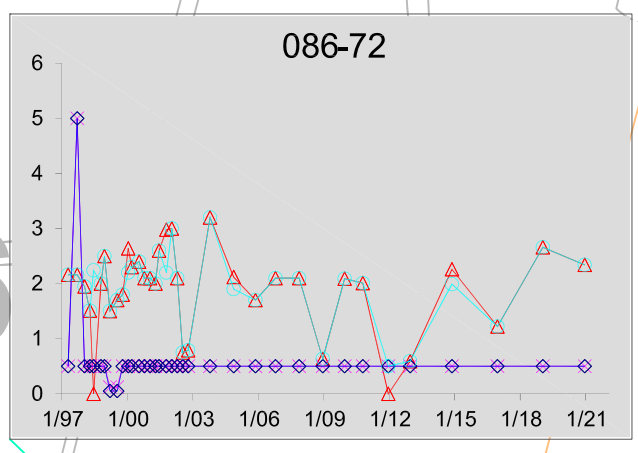
CURRENT LANDFILL TRITIUM AND STRONTIUM-90 TREND PLOTS

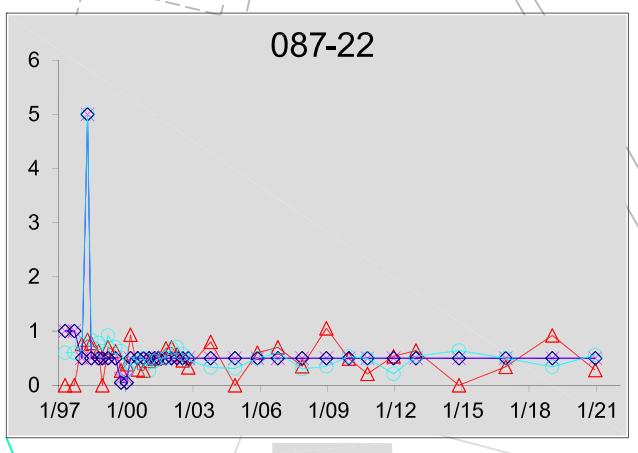
2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

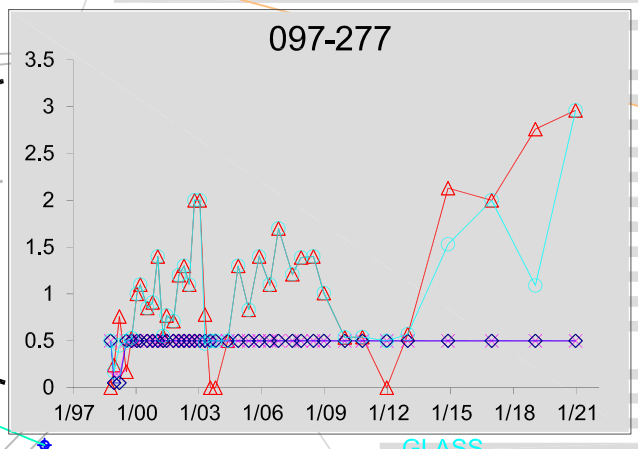
DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	02/11/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–

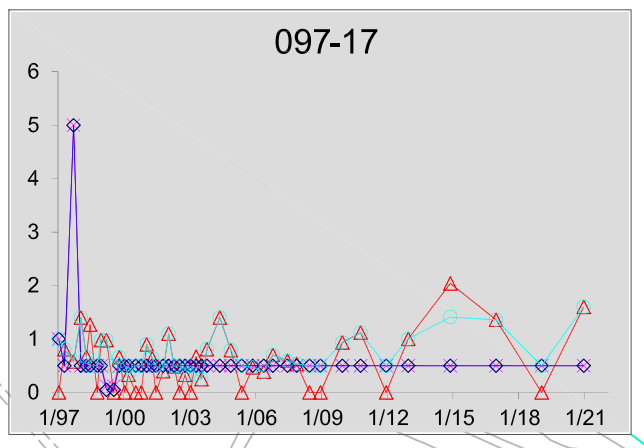
FIGURE NO.: 8

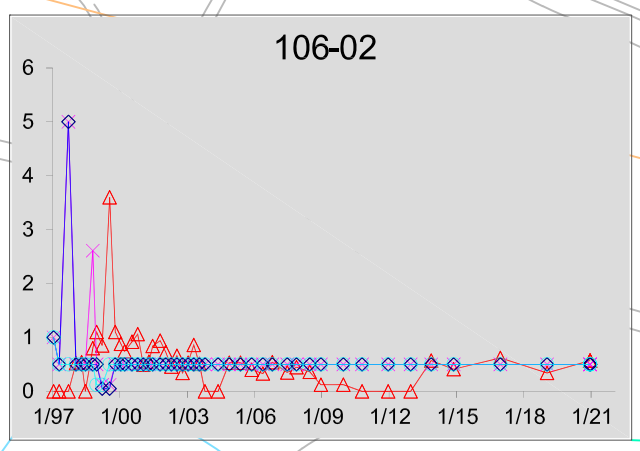


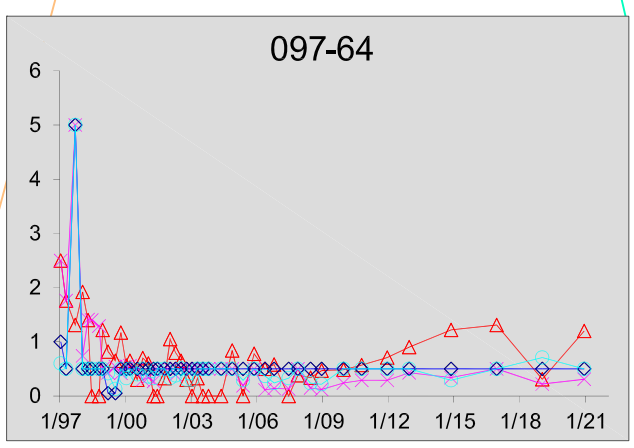


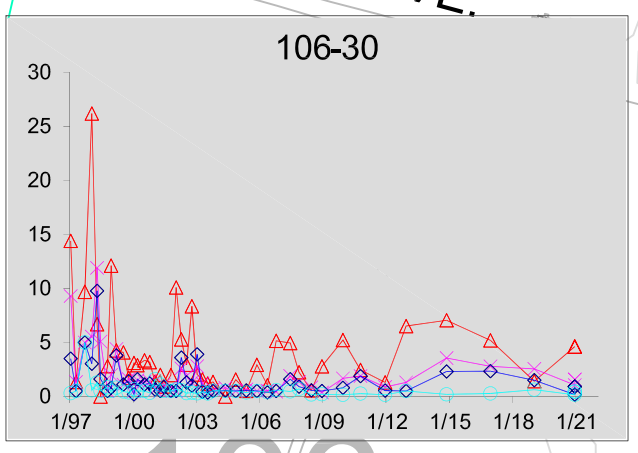












086-42

086-72

087-22

097-277

097-17

097-64

106-30

106-02

INTERIM LANDFILL

FORMER LANDFILL

SLIT TRENCH

GLASS HOLES

97

106

PRINCETON AVE.

LEGEND

17 MONITORING WELL

1,1,1–Trichloroethane (µg/L)

1,1–Dichloroethane (µg/L)

Chloroform (µg/L)

TVOC (µg/L)

32 BNL GRID NUMBER

RA V BNL RECHARGE BASIN

SOLAR FARM PANELS

086-42 BACKGROUND

106-02 DOWNGRADIENT

SCALE

0 250 FEET

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BROOKHAVEN NATIONAL LABORATORY

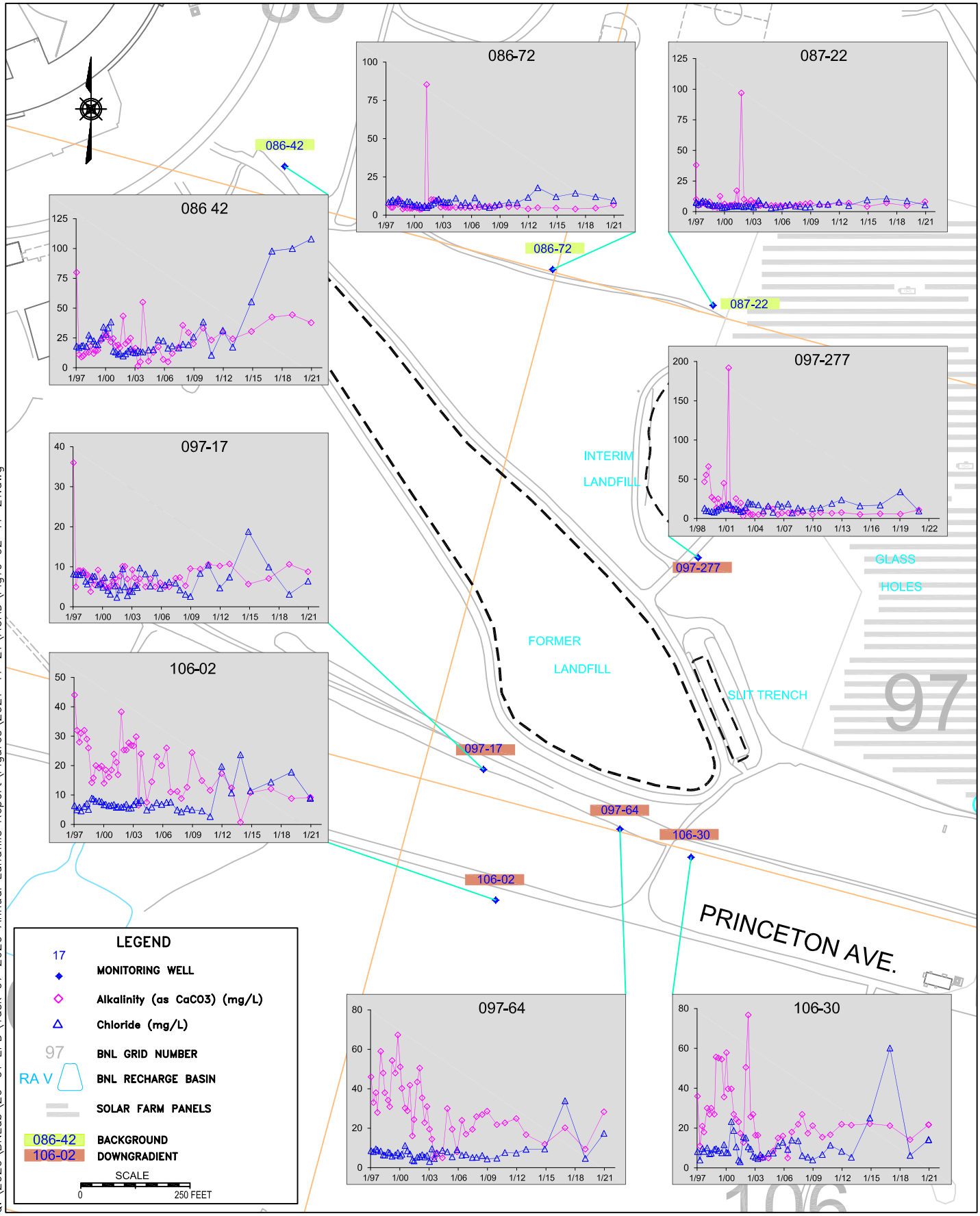
ENVIRONMENTAL PROTECTION DIVISION

TITLE:

FORMER LANDFILL
VOC TREND PLOTS
2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	02/11/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–

FIGURE NO.: 9



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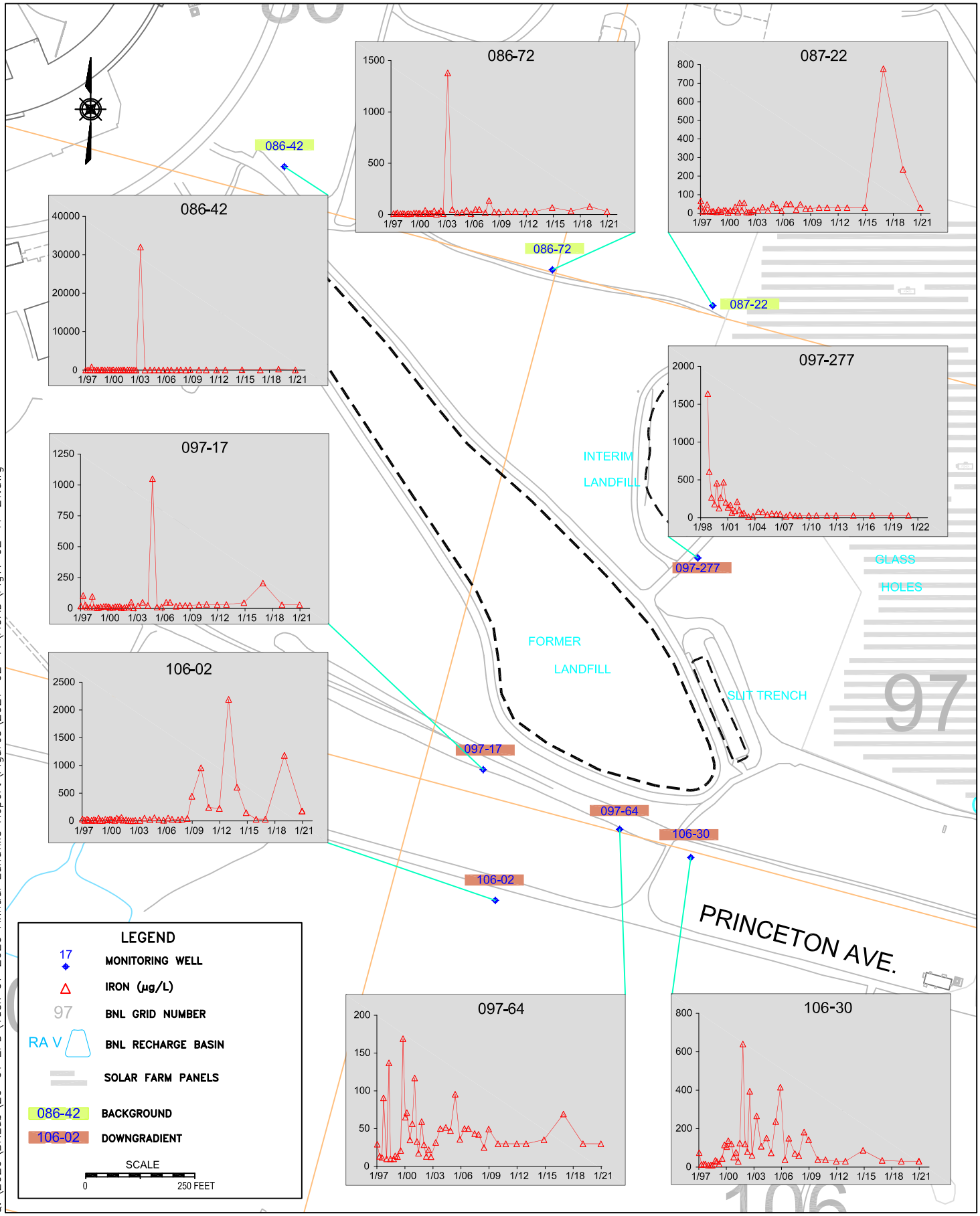
BROOKHAVEN NATIONAL LABORATORY
ENVIRONMENTAL PROTECTION DIVISION

TITLE:

FORMER LANDFILL
ALKALINITY AND CHLORIDE TREND PLOTS
2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	02/11/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–

FIGURE NO.: 10



BROOKHAVEN NATIONAL LABORATORY

ENVIRONMENTAL PROTECTION DIVISION

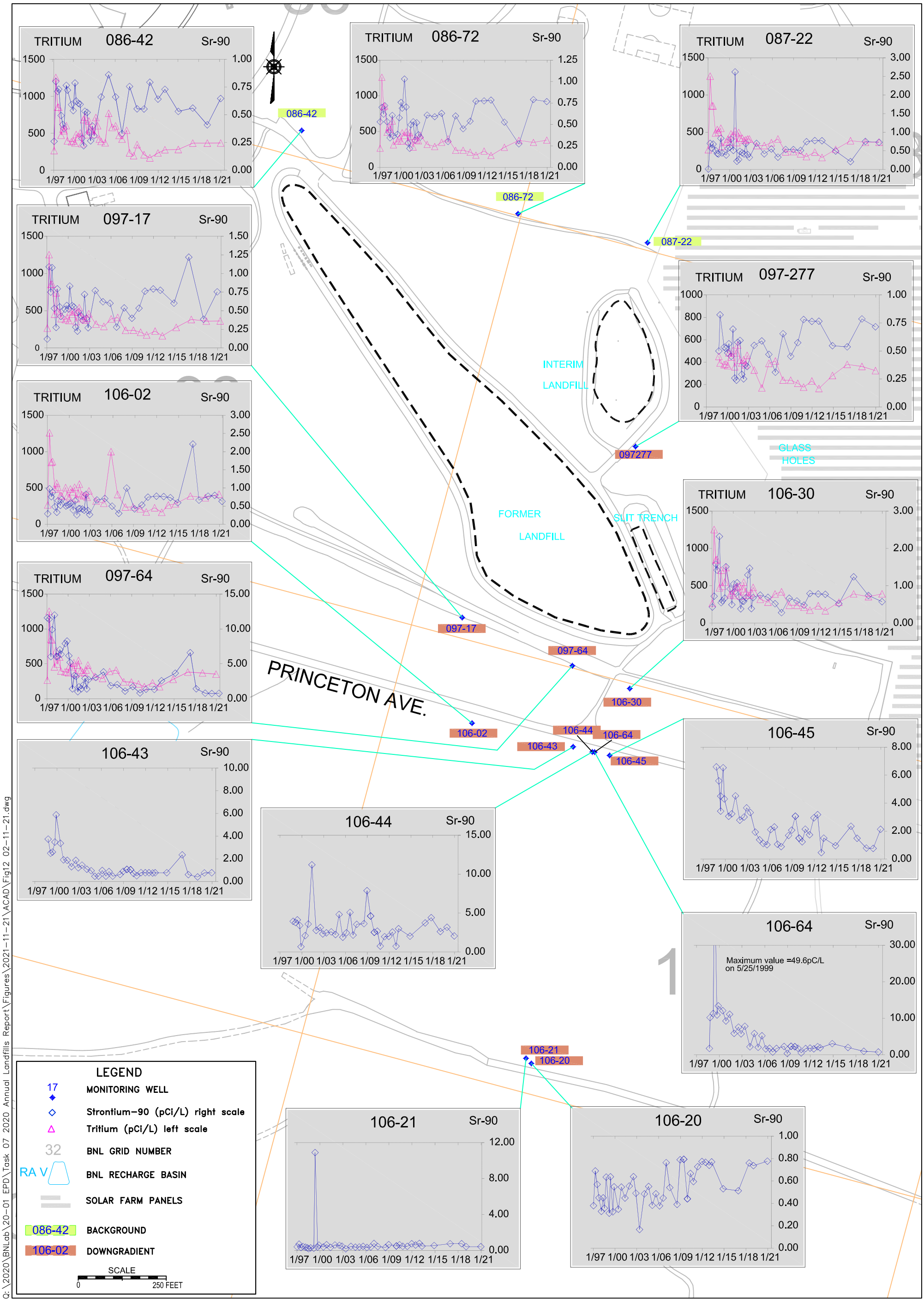
TITLE:

FORMER LANDFILL IRON TREND PLOTS

2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	02/11/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–

FIGURE NO.: 11



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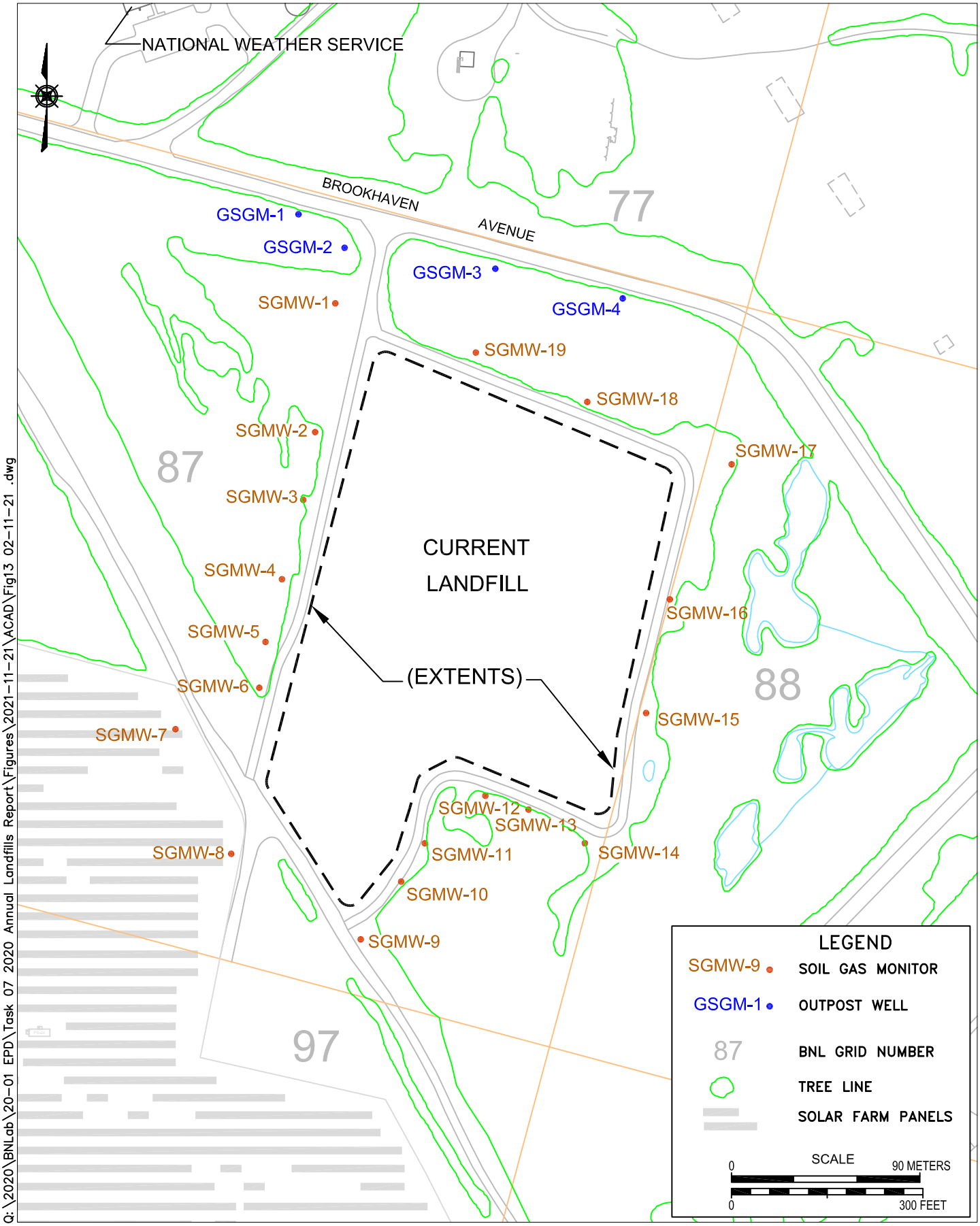
ENVIRONMENTAL PROTECTION DIVISION

TITLE:

FORMER LANDFILL
TRITIUM AND SR-90 TREND PLOTS
2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN:	VS: HS.:	DATE:	PROJECT NO.:
AJZ	–	02/11/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–
FIGURE NO.:			
12			



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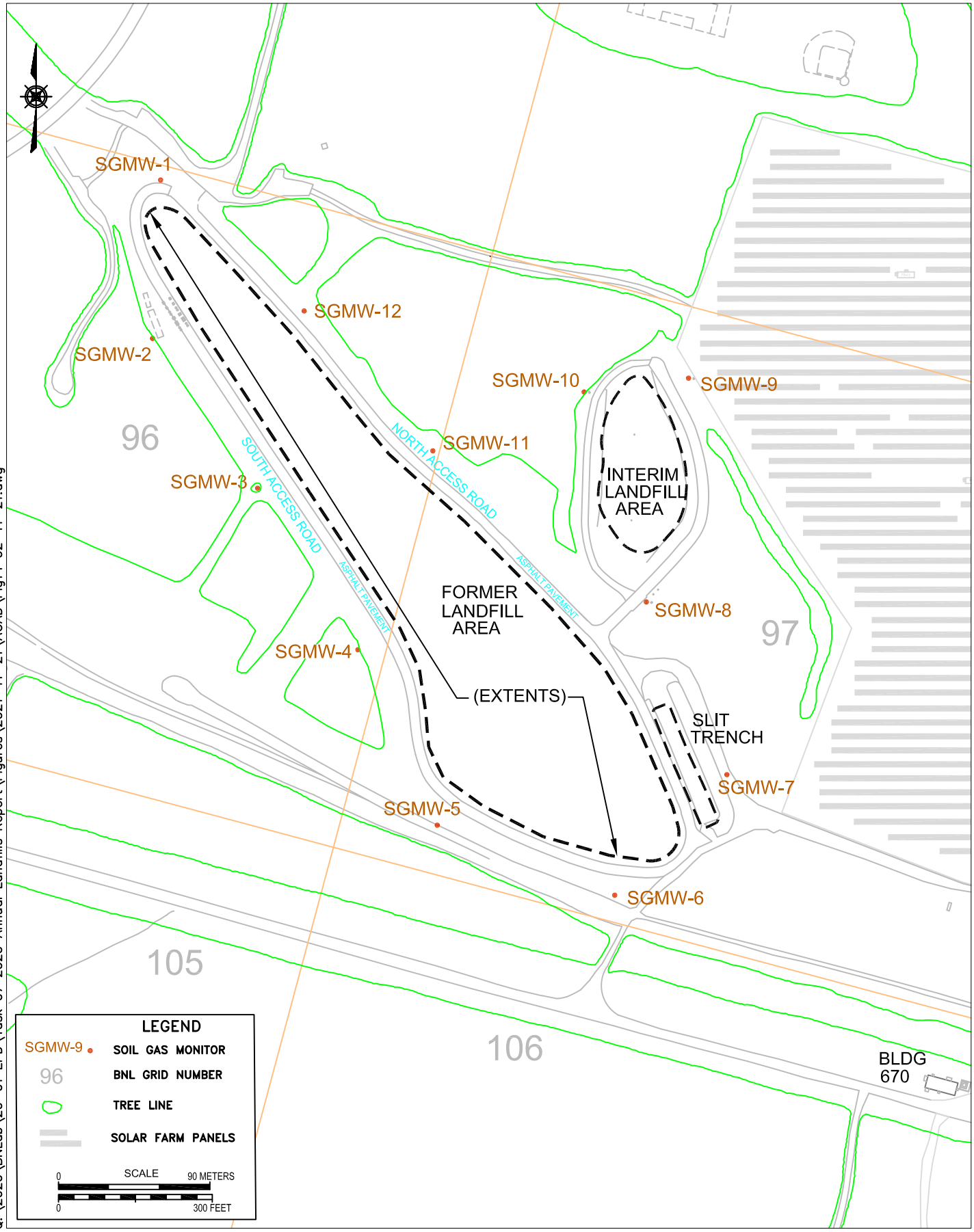
BROOKHAVEN NATIONAL LABORATORY
ENVIRONMENTAL PROTECTION DIVISION

TITLE:
CURRENT LANDFILL
SOIL-GAS MONITOR LOCATION MAP
2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	02/11/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–

FIGURE NO.: 13



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BROOKHAVEN NATIONAL LABORATORY
ENVIRONMENTAL PROTECTION DIVISION

TITLE:
FORMER LANDFILL AREA
SOIL-GAS MONITOR LOCATION MAP
2020 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
AJZ	–	02/11/21	–
CHKD:	APPD:	REV.:	NOTES:
JM	RFH	–	–

FIGURE NO.: 14

Appendix A

Soil-gas Sampling Field Notes

4

17° clear sky — Current Location — 12/19/14

Location	Well ID	CH4 %	LEL %	H2S	Time
GSBM 1A	NA	0	0	0	1050
1B		0	0	0	1045
1C		0	0	0	1039
2A		0	0	0	1030
2B		0	0	0	1025
2C		0	0	0	1019
3A		0	0	0	1009
3B		0	0	0	0958
4B		0	0	0	0951
4B		0	0	0	0945

5

3/13/20 — 45° — 30.47" Hg — 5% Humidity — Current Location — Cal Check — Gem 2000

Location	Well ID	CH4 %	LEL %	H2S	Time/Comments
SGM -1A	087-62	7.1	>100 142	1	0945
1B	087-78	5.6	>100 112	0	0913
1C	087-79	3.9	79 %	0	0923
2A	087-63	33.6	>100 672	0	0930
2B	087-80	30.3	>100 606	0	0936
2C	087-81	14.7	>100 294	0	0946
3A	087-64	11.2	>100 224	1	0949
3B	087-82	27.7	>100 554	1	0956
3C	087-83	5.0	>100 100	0	1009
4A	087-65	26.7	>100 534	0	1013
4B	087-84	20.1	>100 402	0	1020
4C	087-85	11.5	>100 230	0	1030
5A	087-66	0	0	0	1040
5B	087-86	10.8	>100 216	0	1055
5C	087-87	6.2	>100 124	0	1108
6A	087-67	5.7	>100 114	0	1242
6B	087-88	9.0	>100 180	0	1248
6C	087-89	13.2	>100 264	0	1258
7A	087-68	0	0	0	1308
7B	087-90	0	0	0	1318
7C	087-91	0	0	0	1328
8A	087-69	0	0	0	1334
8B	087-92	0	0	0	1344
8C	087-93	0	0	0	1352

Rain in the Rain

Current Landfill — 3/18/20 – 3/19/20

	Well ID	CH4 %	LEL %	H2S ppm	Time/comment
9A	087-70	0	0	0	1350
9B	087-94	0	0	0	1356
9C	087-96	0	0	0	1406
10A	087-71	0	0	0	1410 3/18
10B	087-96	2.5	51	0	1417
10C	087-97	3.6	72	2	1427
11A	087-72	2	40	2	1430
11B	087-98	0.4	8	0	1433
12A	087-73	31.4	>100 628	10	3/19/20 0940
12B	087-99	27.0	>100 540	0	0946
13A	087-74	0	0	0	0955
13B	087-100	0	0	0	1005
14A	087-75	0	0	0	1009
14B	087-101	0	0	0	1015
15A	88-111	0	0	0	1024
15B	088-114	0	0	0	1031
16A	088-112	0	0	0	1035
16B	088-115	0	0	0	1043 water
17A	088-113	0	0	0	1049
17B	088-116	0	0	0	1056 water
18A	087-76	0	0	0	1106 water
18B	087-102	0	0	0	1113 water
19A	087-77	0	0	0	1120
19B	087-103	0	0	0	1135

45°

Current Landfill — 3/19/20

Location	Well ID	CH4 %	LEL %	H2S ppm	Time/comment
G-50m 1A	NID	0	0	0	1302
1B		0	0	0	1308
1C		0	0	0	1318
2A		0	0	0	1322
2B		0	0	0	1329
2C		0	0	0	1339
3A		0	0	0	1345
3B		0	0	0	1355
4A		0	0	0	1405
4B		0	0	0	1410

(W) 3/19/20

Current Leakin — 6/12/20

Location	Well ID	CH4%	LeL%	H2S ppm	Time/Comments
SGM-1A	087-62	6.1	>100 122	3	0903
1B	087-78	5.9	>100 118	0	0700
1C	087-79	4.6	7100	0	0922
2A	087-63	31.9	>100. 638	7	0930
2B	087-80	37.3	>100 746	15	0936
2C	087-81	36.3	>100 726	3	0946
3A	087-14	16.8	>100 336	10	0950
3B	087-82	41.4	>100 828	20	0957
3C	087-83	41.5	>100 830	20	1000
4A	087-65	34.6	>100 692	7	1014
4B	087-84	30.8	>100 616	6	1020
4C	087-85	23.1	>100 462	5	1030
5A	087-66	1.4	>83 28	0	1035
5B	087-86	11.2	>100 224	0	1041
5C	087-87	14.0	>100 280	1	1051
6A	087-67	0.7	>100 14	0	1054
6B	087-88	27.0	>100 540	5	1100
6C	087-89	24.2	>100 484	4	1109
7A	087-68	~~2.70~~	~~54.0~~	~~0~~	1310
7B	087-90	0	0	0	1320
7C	087-91	0	0	0	1330

cal check ok — Current Leakin — 6/12/20

Location	Well ID	CH4%	LeL%	H2S ppm	Time/Comments
SGM-8A	087-69	0	0	0	1335
8B	087-92	0	0	0	1342
8C	087-93	0	0	0	1352
9A	087-70	0	0	0	1393
9B	087-94	0	0	0	1400
9C	087-95	0	0	0	1410
10A	087-71	2.7	56%	0	1145
10B	087-96	9.2	>100 184	1	1153
10C	087-97	8.1	>100 162	3	1200
11A	087-72	8.6	>100 172	15	1406
11B	087-98	8.4	>100 168	2	1416
12A	087-73	32.7	>100 654	29	1430
12B	087-99	30.8	>100 616	2	1432
13A	087-74	10.3	>100 206	4	1445
13B	087-100	0	0	0	1452
14A	087-75	0	0	0	1505
14B	087-101	0	0	0	1510
15A	088-111	0	0	0	1100 6/13
15B	088-114	0	0	0	1110
16A	088-112	0	0	0	1120
16B	088-115	0	0	0	1128 wind
17A	088-113	0	0	0	1135
17B	088-116	0	0	0	1145 wind
18A	087-76	0	0	0	1150
18B	087-102	0	0	0	1158 wind
19A	087-77	0	0	0	1840
19B	087-103	0	0	0	1248

Rain in the Rain

Cobbet Landing — 6/18/20

30.19"	76° P.Cloudy wind E?	75%			
G56m 1A	No ID	0	0	0	1428
1B		0	0	0	1418
1C		0	0	0	1410
2A		0	0	0	1350
2B		0	0	0	1346
2C		0	0	0	1340
3A		0	0	0	1329
3B		0	0	0	1318
4A		0	0	0	1300
4B		0	0	0	1310

Current Landfill 6/18/20

30.19 = 76° P.Cloudy 75%

Location	Well ID				
SGm 1A	No ID	0	0	0	1428
1B		0	0	0	1418
1C		0	0	0	1410
2A		0	0	0	1350
2B		0	0	0	1346
2C		0	0	0	1340
3A		0	0	0	1329
3B		0	0	0	1318
4A		0	0	0	1300
4B		0	0	0	1310

85° 8.5 mph 1017 AB

Current Landfill 9/17/20 Cal ok

Location	Well ID	CH4 %	LEL %	H2S PPM	Time/Comment
SGm - 1A	087-62	3.3	66	1	0840
1B	087-78	3.1	63	0	0847
1C	087-79	2.9	58	0	0857
2A	087-63	36	>100 720	3	0905
2B	087-80	42.5	>100 850	21	0911
2C	087-81	41.2	>100 824	0	0925
3A	087-64	32.5	>100 650	8	0932
3B	087-82	45.5	>100 910	28	0940
3C	087-83	46.2	>100 924	35	0946
4A	087-65	35.9	>100 718	8	0956
4B	087-84	32.6	>100 652	12	1007
4C	087-85	24.7	>100 494	7	1020
5A	087-66	21.3	>100 426	0	1028
5B	087-86	22.3	>100 446	3	1037
5C	087-87	15.8	>100 316	1	1047
6A	087-67	3.1	>100 62	0	1055
6B	087-88	25.9	>100 518	8	1107
6C	087-89	22.7	>100 454	5	1118
7A	087-68	0	0	0	0830
7B	087-90	0	0	0	0836
7C	087-91	0	0	0	0846
8A	087-69	0	0	0	0900
8B	087-92	0	0	0	0906
8C	087-93	0	0	0	0925

9/18/20

9/17/20

Current Levels

Location	Well ID	CH4 %	LEL %	H2S	Time/Remarks
9A	087-70	0	0	0	1127
9B	087-94	0	0	0	1135
9C	287-95	0	0	0	1145
10A	087-71	14.2	>100 284	34	1303
10B	087-96	14.1	>100 282	11	1310
10C	087-97	11.5	>100 230	7	1330
11A	087-72	17.0	>100 340	21	1336
11B	087-98	15.3	>100 306	4	1340
12A	087-73	38.1	>100 762	18	1348
12B	087-99	35.6	>100 712	3	1359
13A	087-74	17.4	>100 348	26	1406
13B	087-100	23.6	>100 472	13	1413
14A	087-75	0	0	0	1420
14B	087-101	0	0	0	1422
15A	088-111	0	0	0	1429
15B	088-114	0	0	0	water 1436
16A	088-112	0	0	0	1439
16B	088-115	0	0	0	water 1446
17A	088-43	0	0	0	1450
17B	088-46	0	0	0	water 1456
18A	087-76	0	0	0	15.0
18B	087-102	0	0	0	water 15.6
19A	087-77	0	0	0	1512
19B	087-103	8	>100 160	0	1520

68° cloudy

9/18/20 Cas 01

Current Levels

Location	Well ID	CH4 %	LEL %	H2S ppm	Time/Remarks
G5Gm 1A	NW FD	0	0	0	1047
1B		0	0	0	1037
1C		0	0	0	1030
2A		0	0	0	1023
2B		0	0	0	1015
2C		0	0	0	1003
3A		0	0	0	0943
3B		0	0	0	0940
4A		0	0	0	0936
4B		0	0	0	0929

9/18/20

Rite in the Rain

12/29/20 / 12/30/20 Current Landfill — 36° 1028mb 52% clear

14 CH chart ok

Location	Well ID	CH %	LEL %	H2S ppm	Time/comment
S6m - 1A	087-62	6.3	>100 136	3	0900
1B	087-78	6.4	>100 128	1	0907
1C	087-79	5.2	>100 104	1	0917
2A	087-63	<14.6	>100 892	0	0923
2B	087-80	34.5	>100 690	12	0929
2C	087-81	40.2	>100 804	3	0939
3A	087-64	12.9	>100 258	1	0944
3B	087-82	45.8	>100 916	9	0952
3C	087-83	37.1	>100 742	0	1002
4A	087-65	35.8	>100 716	0	1007
4B	087-84	32.6	>100 652	2	1015
4C	087-85	24.8	>100 496	0	1025
5A	087-66	0	0	0	1034
5B	087-86	22.4	>100 448	0	1042
5C	087-87	18.0	>100 360	0	1051
6A	087-67	.1	2	0	1057
6B	087-88	25.2	>100	0	1104
6C	087-89	23.8	>100	0	1114
7A	087-68	0	0	0	0935
7B	087-90	0	0	0	0942
7C	087-91	0	0	0	0952
8A	087-69	0	0	0	0959
8B	087-92	0	0	0	1007
8C	087-93	0	0	0	1017

12/30/20

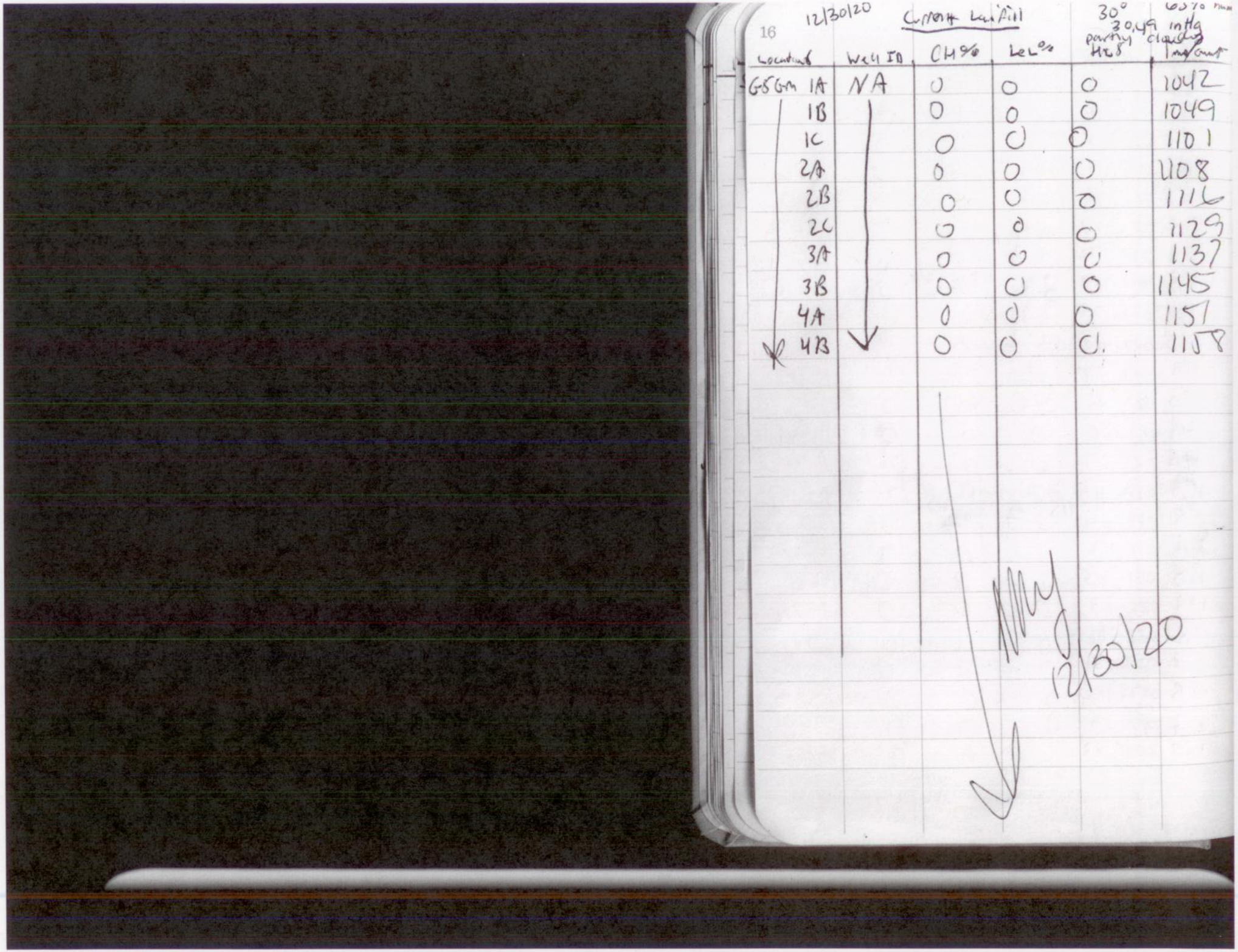
MW 12/29/20

Current Landfill

15

Location	Well ID	CH %	LEL %	H2S	Time/comment
S6m - 9A	087-70	0	0	0	1124
9B	087-94	0	0	0	1131
9C	087-95	0	0	0	1141
10A	087-71	4.4	88	0	1326
10B	087-96	9.8	>100	0	1332
10C	087-97	6.9	>100	0	1342
11A	087-72	9.2	>100	2	1354
11B	087-98	3.8	~~>100~~ 72	0	1400
12A	087-73	37.9	>100	0	1407
12B	087-99	13.2	>100	0	1415
13A	087-74	.1	2	0	1420
13B	087-100	6.0	>100	0	1429
14A	087-75	0	0	0	1434
14B	087-101	0	0	0	1440
15A	088-111	0	0	0	1447
15B	088-114	4.5 ~~3.8~~	~~79~~ 90	0	1455
16A	088-112	0	0	0	1500
16B	088-115	0	0	0	1506 wa
17A	088-113	0	0	0	1508
17B	088-116	0	0	0	1515 wa
18A	087-76	0	0	0	1519
18B	087-102	0	0	0	1525
19A	087-77	0	0	0	1530
19B	087-103	0	0	0	1536

MW 12/30/20



16

12/30/20 — Current Landfill — 30° — 30.49 in Hg — 65% RH

Location	Well ID	CH4 %	LEL %	H2S	ppm
GSGM 1A	NA	0	0	0	1042
1B		0	0	0	1049
1C		0	0	0	1101
2A		0	0	0	1108
2B		0	0	0	1116
2C		0	0	0	1129
3A		0	0	0	1137
3B		0	0	0	1145
4A		0	0	0	1151
4B		0	0	0	1158

12/30/20

(47) Former Landfill 8/12/20

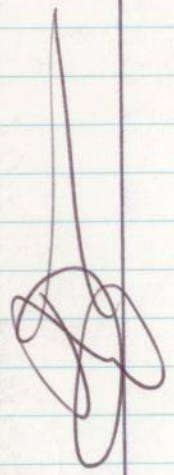
cal check Gem 2000+

Location	well ID	CH4 %	LEL %	H2S ppm	Time/comments
SGM 1A	096-41	0	0	0	0905
1B	096-42	0	0	0	0915
2A	096-43	0	0	0	0919
2B	096-44	0	0	0	0927
3A	096-45	0	0	0	0933
3B	096-46	0	0	0	0940
4A	096-47	0	0	0	0946
4B	096-48	0	0	0	0954
5A	097-50	0	0	0	1015
5B	097-51	0	0	0	1023
6A	097-52	0	0	0	1030
6B	097-53	0	0	0	1037
7A	097-54	0	0	0	1043
7B	097-55	0	0	0	1050
8A	097-56	0	0	0	1058
8B	097-57	0	0	0	1107
9A	057-58	0	0	0	1309
9B	097-59	0	0	0	1320

(48) Former Landfill

9A/1° 30.01" 74% humidity Sunny 84° HHH

Location	well ID	CH4 %	LEL %	H2S ppm	Time/comments
SGM 10A	097-60	0	0	0	1326
10B	097-61	0	0	0	1336
11A	097-62	0	0	0	1340
11B	097-63	0	0	0	1347
12A	096-49	0	0	0	1356
12B	096-50	0	0	0	1407



Appendix B

Monthly Landfill Site Inspection Forms

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 1-28-20

Purpose of Inspection: X Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: ___

Time off Site: ___

Weather Conditions: ___

A. Inspection Checklist

Component		Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	X				X
	Cap	X				X
	Gas Vents	X				X
2.0	**Drainage Structures:**					
	Toe Drain	X				X
	Drainage Channels	X				X
	French Drains/Outfalls	X				X
	Subsurface Drainage Pipes/Outfalls	X				X
	Manholes	X				X
	Recharge Areas	X				X
	Monitoring System:					
	Soil Gas Wells	X				X
	Groundwater Wells	X				X
4.0	**Site Access:**					
	Asphalt Access Road	X				X
	Crushed-Concrete Access Road	X				X

B. Description of Further Action Requirements:

Location: ___

Observed Conditions: ___

Recommendations: ___

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 2-26-20

Purpose of Inspection: X Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: ___

Time off Site: ___

Weather Conditions: ___

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	X				X
	Cap	X				X
	Gas Vents	X				X
2.0	**Drainage Structures:**					
	Toe Drain	X				X
	Drainage Channels	X				X
	French Drains/Outfalls	X				X
	Subsurface Drainage Pipes/Outfalls	X				X
	Manholes	X				X
	Recharge Areas	X				X
	Monitoring System:					
	Soil Gas Wells	X				X
	Groundwater Wells	X				X
4.0	**Site Access:**					
	Asphalt Access Road	X				X
	Crushed-Concrete Access Road	X				X

B. Description of Further Action Requirements:

Location: All OK

Observed Conditions:

Recommendations:

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 3-30-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: _____

Time off Site: _____

Weather Conditions: _____

A. Inspection Checklist

	Component	Observed Condition: Excellent	Fair	Poor	Further Action Required: Yes	No
1.0	**Landfill Cap:**					
	Vegetation	X				X
	Cap	X				X
	Gas Vents	X				X
2.0	**Drainage Structures:**					
	Toe Drain	X				X
	Drainage Channels	X				X
	French Drains/Outfalls	X				X
	Subsurface Drainage Pipes/Outfalls	X				X
	Manholes	X				X
	Recharge Areas	X				X
	Monitoring System:					
	Soil Gas Wells	X				X
	Groundwater Wells	X				X
4.0	**Site Access:**					
	Asphalt Access Road		X			X
	Crushed-Concrete Access Road	X			X	

B. Description of Further Action Requirements:

Location: Asphalt Road

Observed Conditions: Moss, Vegetation Growth

Recommendations: Contact Grounds after lab resumes normal operating status

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 4-28-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: ___

Time off Site: ___

Weather Conditions: Clear & Sunny

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	✓				✓
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels	✓				✓
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
	Monitoring System:					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road		✓			✓
	Crushed-Concrete Access Road	✓				✓

B. Description of Further Action Requirements:

1. Location: Roads & Edge of Roads

Observed Conditions: Some Excessive Vegetation

Recommendations: Have Grounds Spray at Later date

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 5-28-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: ___

Time off Site: ___

Weather Conditions: SUNNY

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation		✓		✓	
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels		✓		✓	
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
	Monitoring System:					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road		✓			
	Crushed-Concrete Access Road	✓			✓	

B. Description of Further Action Requirements:

1. Location: LANDFILL, ROAD, CULVERTS

Observed Conditions:

LANDFILL NEEDS MOWING ROAD NEEDS SCRAPING, SPRAYING EDGES WITH VEGETATION KILLER, CULVERTS NEED SOME VEG REMOVAL

Recommendations:

WILL CONTACT GROUNDS CREW WHEN LAB RESUMES OPERATIONS

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 6-30-25

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: ___ ___

Time off Site: ___ ___

Weather Conditions: Sunny

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	✓				✓
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels	✓				✓
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
	Monitoring System:					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road		✓			
	Crushed-Concrete Access Road	✓			✓	

B. Description of Further Action Requirements:

1. Location: Asphalt Road

Observed Conditions: Road needs to be scraped of Vegetation

Recommendations: Contact Grounds

Note: Landfill was Mowed / Vegetation was sprayed with veg Killer

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 7-31-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: ___

Time off Site: ___

Weather Conditions: ___

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation		✓		✓	
	Cap					✓
	Gas Vents	✓				
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels	✓				✓
	French Drains/Outfalls					
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
3.0	**Monitoring System:**					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				
4.0	**Site Access:**					
	Asphalt Access Road	✓				✓
	Crushed-Concrete Access Road	✓				✓

B. Description of Further Action Requirements:

1. Location: LANDFILL

Observed Conditions: LANDFILL Needs to be mowed

Recommendations: Will Contact Grounds to Mow LANDFILL

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 8-31-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: ___ ___

Time off Site: ___ ___

Weather Conditions: Sunny

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation		✓		✓	
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels	✓				✓
	French Drains/Outfalls					
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
	Monitoring System:					
	Soil Gas Wells					
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road		✓			
	Crushed-Concrete Access Road	✓			✓	

B. Description of Further Action Requirements:

1. Location: Landfill, Road

Observed Conditions: Landfill Needs Mowing, Road needs Scraping

Recommendations: Contact Grounds.

Location (AOC): Current Landfill and Wooded Wetland
Date of Inspection: 9/2/20
Name of Inspector(s): R. Howe
Purpose of Inspection: ☒ Routine (Scheduled Freq. of 2x/yr) ☐ Heavy Rainfall ☐ Reported Incident

A. Inspection Checklist

Component	Observed Condition				Further Action Req'd	
	Excell.	Fair	Poor	Not Applic.	Yes (describe)	No
1. Landfill Cap/Wetlands:						
Vegetation (e.g. grass)		X			Needs mowing	
Soil (Cap/Cover/Fill)	X				No burrows evident	X
Other: _____						
2. Drainage Structures:						
Standing Water	X				Dry	X
Toe Drain	X					X
Drainage Channels	X				Some vegetation	
French Drains/Outfalls				X		X
Subsurface Drainage Pipes/Outfalls		X				X
Manholes				X		X
Berms				X		X
Roof Drains				X		X
Recharge Areas	X					X
Other: _____						
3. Monitoring System:						
Soil Gas Wells		X			Need Vegetation Cut	
Groundwater Wells	X					X
Gas Vents	X				No nests or damage	X
Other: __						
4. Site Access:						
Asphalt Access Road		X				X
Crushed-concrete Access Road				X		X
Fence	X					X
Gates/locks	X					X
Radiological Postings				X		X
Other: Stairs access to cap	X					X

5. Evidence of unauthorized work activities and/or unauthorized access has occurred? ☐ Yes ☒ No
If yes, describe evidence: _ _____

B. Description of Other Observations
Observed Conditions/Recommendations: The grass on the cap needs to be cut. Vegetation in the south culvert needs to be sprayed. The Wooded Wetland appears dry. Signs in place and all gates locked.

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 9-30-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: ___

Time off Site: ___

Weather Conditions: ___

A. Inspection Checklist

Component		Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	✓				✓
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels	✓				✓
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
	Monitoring System:					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road		✓			✓
	Crushed-Concrete Access Road	✓				✓

B. Description of Further Action Requirements:

1. Location: Roads, Edges of Roads

Observed Conditions: Some Excess Vegetation

Recommendations: Will contact Grounds in Spring if it has not died off during Winter

Note: Landfill Mowed in September

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 10-29-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: ___ ___

Time off Site: ___ ___

Weather Conditions: ___

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	✓				✓
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels	✓				✓
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
	Monitoring System:					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road		✓			✓
	Crushed-Concrete Access Road	✓				✓

B. Description of Further Action Requirements:

1. Location: Road, Edges of Road

Observed Conditions: Some excess vegetation on Road and Edges of Road

Recommendations: Will Contact Grounds in Spring if vegetation does not die during Winter

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 11-30-20

Purpose of Inspection: ___ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: _____

Time off Site: _____

Weather Conditions: _____

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	✓				✓
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels	✓				✓
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
	Monitoring System:					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road		✓		✓	
	Crushed-Concrete Access Road	✓				✓

B. Description of Further Action Requirements:

1. Location: Asphalt acess Road

Observed Conditions: Some Excess Vegetation

Recommendations: Will Contact Grounds in Spring If Vegetation does NOT die during WINTER

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 12-29-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: _____

Time off Site: _____

Weather Conditions: _____

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation		✓		✓	
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels					✓
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls					✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
	Monitoring System:					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road		✓			
	Crushed-Concrete Access Road	✓			✓	

B. Description of Further Action Requirements:

1. Location: Asphalt access Road, LANDFILL

Observed Conditions: Some excess Vegetation ON Road.
Two Gopher Holes NOTICED ON LandFill

Recommendations: Will CONTACT Grounds IN SPRING for Vegetation Removal
Will CONTACT Grounds NOW about Getting Holes Filled IN.

BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 1-28-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: _____

Time off Site: _____

Weather Conditions: _____

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	X				X
	Cap	X				X
	Gas Vents	X				X
2.0	**Drainage Structures:**					
	Toe Drain	X				X
	Drainage Channels	X				X
	French Drains/Outfalls	X				X
	Subsurface Drainage Pipes/Outfalls	X				X
	Manholes	X				X
	Recharge Areas	X				X
3.0	**Monitoring System:**					
	Soil Gas Wells	X				X
	Groundwater Wells	X				X
4.0	**Site Access:**					
	Asphalt Access Road	X				X
	Crushed-Concrete Access Road	X				X

B. Description of Further Action Requirements:

1. Location: All OK

Observed Conditions: _____

Recommendations: _____

BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 2-26-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site:

Time off Site:

Weather Conditions:

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	✓				✓
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels	✓				✓
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
3.0	**Monitoring System:**					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road	✓				✓
	Crushed-Concrete Access Road	✓				✓

B. Description of Further Action Requirements:

1. Location: All OK

Observed Conditions:

Recommendations:

BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 3-30-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site:

Time off Site:

Weather Conditions:

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	X				X
	Cap	X				X
	Gas Vents	X				X
2.0	**Drainage Structures:**					
	Toe Drain	X				X
	Drainage Channels	X				X
	French Drains/Outfalls	X				X
	Subsurface Drainage Pipes/Outfalls	X				X
	Manholes	X				X
	Recharge Areas	X				X
3.0	**Monitoring System:**					
	Soil Gas Wells	X				X
	Groundwater Wells	X				X
4.0	**Site Access:**					
	Asphalt Access Road	X				
	Crushed-Concrete Access Road	X				X

B. Description of Further Action Requirements:

1. Location: All OK

Observed Conditions:

Recommendations:

BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 4-28-20
Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident
Time on Site:
Time off Site:
Weather Conditions: Clear, Sunny

A. Inspection Checklist

	Component	Observed Condition: Excellent	Fair	Poor	Further Action Required: Yes	No
1.0	**Landfill Cap:**					
	Vegetation		✓			✓
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels					✓
	French Drains/Outfalls		✓			✓
	Subsurface Drainage Pipes/Outfalls		✓			✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
3.0	**Monitoring System:**					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road	✓				✓
	Crushed-Concrete Access Road	✓				✓

B. Description of Further Action Requirements:

1. Location: Landfill, Culverts
Observed Conditions: Very small saplings on Landfill. Saplings and vegetation in culverts

Recommendations: Monitor. Have Grounds remove & treat vegetation at ~~the~~ a later date.

BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 5-28-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site:

Time off Site:

Weather Conditions: Sunny

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation		✓		✓	
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels		✓		✓	
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
3.0	**Monitoring System:**					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road		✓			
	Crushed-Concrete Access Road	✓			✓	

B. Description of Further Action Requirements:

1. Location: Landfill, Culverts, Edges of Roads

Observed Conditions:

Landfill Needs Mowing, Saplings in drainage channels & Landfill. Edges of Roads need Weed whacking

Recommendations:

Will contact Grounds when Lab resumes operations.

BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 6-30-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site:

Time off Site:

Weather Conditions: SUNNY

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation		✓		✓	
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels		✓		✓	
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
3.0	**Monitoring System:**					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road		✓			
	Crushed-Concrete Access Road	✓			✓	

B. Description of Further Action Requirements:

1. Location: LANDFILL, Drainage Channels, Edges of Roads

Observed Conditions:

LANDFILL Needs Mowing, Saplings in drainage channels and on LANDFILL Edges of Roads Needs ~~use~~ Weed Whacking

Recommendations:

Will Contact Grounds about doing Above ITEMS.

BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 7-31-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site:

Time off Site:

Weather Conditions:

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	✓				✓
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels		✓		✓	
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
3.0	**Monitoring System:**					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road	✓				✓
	Crushed-Concrete Access Road	✓				✓

B. Description of Further Action Requirements:

1. Location: Drainage Channels

Observed Conditions: Vegetation and Saplings in Channels

Recommendations: Will Contact Grounds

NOTE: Land Fill was Mowed, Edges of Road Sprayed

BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 8-31-20
Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident
Time on Site:
Time off Site:
Weather Conditions: Sunny

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	✓				✓
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels		✓		✓	
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
3.0	**Monitoring System:**					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road	✓				✓
	Crushed-Concrete Access Road	✓				✓

B. Description of Further Action Requirements:

1. Location: Drainage Channels
Observed Conditions: Excess Vegetation

Recommendations: Will contact Grounds to spray channels.
Note: Landfill recently mowed

Location (AOC): Former Landfill Area (includes the former and interim landfills and slit trench)
Date of Inspection: 9/2/20
Name of Inspector(s): R. Howe
Purpose of Inspection: ☒ Routine (Scheduled Freq. of 2x/yr) ☐ Heavy Rainfall ☐ Reported Incident

A. Inspection Checklist

Component	Observed Condition				Further Action Req'd	
	Excell.	Fair	Poor	Not Applic.	Yes (describe)	No
1. Landfill Cap/Wetlands:						
Vegetation (e.g. grass)	X				Grass recently cut	X
Soil (Cap/Cover/Fill)	X				Cut pine, Interim LF	
Other: _____						
2. Drainage Structures:						
Standing Water	X				No water	X
Toe Drain	X					X
Drainage Channels		X			Remove vegetation	
French Drains/Outfalls	X					X
Subsurface Drainage Pipes/Outfalls	X					X
Manholes				X		X
Berms				X		X
Roof Drains				X		X
Recharge Areas	X				Significant vegetation	X
Other: _____						
3. Monitoring System:						
Soil Gas Wells	X					X
Groundwater Wells	X					X
Gas Vents	X					X
Other: _____	X					X
4. Site Access:						
Asphalt Access Road		X				X
Crushed-concrete Access Road		X				X
Fence				X		X
Gates/locks				X		X
Radiological Postings				X		X
Other: LUIC Signs	X				All signs in place	X

5. Evidence of unauthorized work activities and/or unauthorized access has occurred? ☐ Yes ☒ No
If yes, describe evidence: _____

B. Description of Other Observations

Observed Conditions/Recommendations: Former Landfill, Interim Landfill, and Slit Trench caps are in good condition. The grass on all three landfills was recently cut. No animal burrows are evident. A Work Order was issued for removal of the pine tree on the north edge of the Interim Landfill and spray or mechanically cut vegetation growing in all drainage channels.

BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 9-30-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: _____

Time off Site: _____

Weather Conditions: _____

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	✓	✓		✓	
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels		✓		✓	
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes					✓
	Recharge Areas	✓				✓
3.0	**Monitoring System:**					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road	✓				✓
	Crushed-Concrete Access Road	✓				✓

B. Description of Further Action Requirements:

1. Location: Landfill, Culverts

Observed Conditions: Small Pine Tree Saplings

Recommendations: Will Contact Grounds to remove.

NOTE: Landfill was Mowed this Month

BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): ~~@~~ Eric Kramer

Date of Inspection: 10-29-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site:

Time off Site:

Weather Conditions:

A. Inspection Checklist

	Component	Observed Condition: Excellent	Fair	Poor	Further Action Required: Yes	No
1.0	**Landfill Cap:**					
	Vegetation		✓		✓	
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels		✓		✓	
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
3.0	**Monitoring System:**					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road	✓				✓
	Crushed-Concrete Access Road	✓				✓

B. Description of Further Action Requirements:

1. Location: Landfill, Culverts

Observed Conditions: Small Pine Saplings on Landfill and Culverts

Recommendations: Will contact Grounds to have removed

BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 11-30-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: _____

Time off Site: _____

Weather Conditions: _____

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation		✓		✓	
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓			✓	
	Drainage Channels		✓			✓
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
3.0	**Monitoring System:**					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road	✓				✓
	Crushed-Concrete Access Road	✓				✓

B. Description of Further Action Requirements:

1. Location: Landfill to Drainage Ditch

Observed Conditions: Small Pine Saplings

Recommendations: Contact Grounds to Have Removed

BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM

Name of Inspector(s): Eric Kramer

Date of Inspection: 12-29-20

Purpose of Inspection: ✓ Routine ___ Heavy Rainfall ___ Reported Incident

Time on Site: _____

Time off Site: _____

Weather Conditions: _____

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	**Landfill Cap:**					
	Vegetation	✓				✓
	Cap	✓				✓
	Gas Vents	✓				✓
2.0	**Drainage Structures:**					
	Toe Drain	✓				✓
	Drainage Channels	✓	✓			✓
	French Drains/Outfalls	✓				✓
	Subsurface Drainage Pipes/Outfalls	✓				✓
	Manholes	✓				✓
	Recharge Areas	✓				✓
3.0	**Monitoring System:**					
	Soil Gas Wells	✓				✓
	Groundwater Wells	✓				✓
4.0	**Site Access:**					
	Asphalt Access Road	✓				✓
	Crushed-Concrete Access Road	✓				✓

B. Description of Further Action Requirements:

1. Location: Drainage Channel

Observed Conditions: Some small pine saplings

Recommendations:

NOTE: Pine saplings removed from Landfill