

APPENDIX K

AIR MONITORING PLAN AND COMMENTS

**AIR MONITORING PLAN FOR
REMEDIATION ACTIVITIES AT FUTURE
BERRY LANE PARK
APRIL 2012**

**MORRIS CANAL
CHROMIUM SITES 121 AND 207
BERRY LANE PARK
JERSEY CITY, NJ 07302**

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1.0 INTRODUCTION

On behalf of the Jersey City Redevelopment Agency (JCRA), this Air Monitoring Plan (AMP) describes the proposed air monitoring to be conducted during remedial activities at JCRA's Berry Lane Park project, specifically Hudson County Chromate (HCC) Site 121 (i.e. Property #4), HCC Site 207 (i.e. a portion of Property #5) and the portion of the former Morris Canal within the limits of JCRA's Berry Lane Park in Jersey City, New Jersey. The Berry Lane Park project consists of twelve (12) properties which have been or are in the process of being acquired by JCRA for redevelopment. The Berry Lane Park project is bound by Garfield Avenue on the west, Communipaw Avenue and a private warehouse/industrial property on the north, Woodward Avenue on the east and the Bergen-Hudson Light Rail on the south as shown in **Figure 1**. HCC Site 114 is located adjacent to the south of the Berry Lane Park project. Air monitoring will be conducted during all remedial activities. In addition, five days of air monitoring will be conducted prior to the commencement of remedial activities in order to establish baseline or "background" levels. Air monitoring activities are designed to meet the project objectives defined in Section 2.0 of this AMP.

Previous site investigations have indicated the presence of hexavalent chromium (Cr^{+6}), chromium, vanadium, nickel and other heavy metals. Polycyclic aromatic hydrocarbons (PAHs) and other compounds associated with historic fill have also been identified at the Site.

- Continuous real-time particulate monitoring will be conducted as a control tool for fugitive dust emissions resulting from remedial activities (e.g. soil excavation).
- The real-time measurement of dust with a particulate size of 10 microns or less (PM₁₀) will serve as a surrogate for Cr^{+6} and other heavy metals and PAHs in the perimeter ambient air quality monitoring program.
- Time integrated sampling for Total Dust and Cr^{+6} will also be performed at specific air monitoring locations and will be submitted to a laboratory for analysis.

Previous site investigations did not identify significant concentrations of total volatile organic compounds (TVOCs) in soil and groundwater.

- Background concentration of TVOCs will be measured prior to the commencement of remedial activities to establish baseline conditions. The TVOCs sampling will be largely be conducted to assess potential impact from former manufactured gas plant (MGP) which was located on the adjacent HCC Site 114.
- The monitoring of TVOCs will be conducted using real-time photo-ionization detectors (PID).
- If real-time TVOCs are above detectable limits during the baseline study, additional real-time sampling of TVOCs may be implemented during remedial activities.

2.0 PROJECT OBJECTIVES

There are four (4) primary objectives of this AMP:

- To protect human health and the environment;
- To use real-time perimeter air monitoring results in conjunction with other on-site worker health and safety programs;
- To evaluate the effectiveness of, and need of, dust suppression controls; and
- To document air quality during all ground intrusive site activities from both onsite and offsite sources.

2.1 Air Monitoring Objectives

Perimeter air quality monitoring will be performed at various locations around the perimeter of remedial activities. Perimeter air monitoring will be designed to accomplish the objectives described above, as well as:

- To establish current baseline levels of Total Dust, PM₁₀, Cr⁺⁶ and total volatile organic compounds (TVOCs) in ambient air prior to commencement of remedial activities;
- To monitor and document ambient air levels of PM₁₀ and Cr⁺⁶ during site activities from both onsite and offsite (background) sources.
- To continuously monitor the effectiveness of dust control measures being utilized at the site; and
- To evaluate the need for additional dust control measures to reduce airborne contaminants.

JCRA proposes to adopt the action levels approved by the New Jersey Department of Environmental Protection for the adjacent HCC Site 114 as set forth in AECOM's "Air Monitoring Workplan for Ground Intrusion Activities at the Garfield Avenue Site in Jersey City, New Jersey", dated July 2010 (revised December 2010).

2.2 Data Quality Objectives

The number of samples collected for field screening depends on the level of data quality that can be expected from the testing method employed. Below is a discussion regarding Data Quality Objectives (DQOs) and the relative quality of the samples needed for types of data to be collected.

DQOs are established to define the quality of the data generated in relation to the methods used to collect the data and the data's anticipated end use. Real-time screening level data

and periodic time integrated samples will be collected to evaluate contaminant levels in ambient air.

The following DQO levels will be used during the performance of site actions:

Real-time Screening Data – Field screening of PM10 will be conducted using real-time equipment. The real-time data will include all quality assurance/quality control (QA/QC) data and documentation required to support the real-time data collections. The real-time data will be used to document conditions occurring on and off the site during ground intrusive activities and to determine the need for more aggressive dust suppression activities or alteration of work activities. In addition, the real-time data will be used to show compliance with the NJDEP approved risk-based action levels presented in this AMP.

Periodic Integrated Data – This data collection applies to analyses performed off-site at an analytical laboratory. The analyses will be conducted in accordance with appropriate air sampling methods acceptable for Total Dust and Cr⁺⁶. This data will include the QA/QC elements specified by the air sampling methods. In general, the samples will be collected on a daily basis.

3.0 AIR MONITORING PROGRAM

The air monitoring program will consist of the full time monitoring of real-time PM10 and time-integrated sampling of Total Dust and Cr⁺⁶. TVOC monitoring will be limited to the baseline phase of the program prior to the start of remedial activities, and possibly periodically during the remedial program if determined to be necessary. The air monitoring program also will consist of the collection of meteorological data.

3.1. Air Quality Monitoring Networks

The air monitoring program will consist of one (1) network of perimeter samplers and one (1) network of exclusion zone samplers. The proposed air monitoring locations are shown in **Figure 2**.

3.1.1. Perimeter Sampler Network

The perimeter sampler network will consist of five (5) air monitoring locations:

- Three (3) air monitoring locations will be adjacent to sensitive receptors on Garfield Avenue corresponding to:
 - a basketball court,
 - several residences and businesses concentrated around the corner of Garfield Avenue and Bramhall Avenue and;
 - the Bergen-Hudson Light Rail Station and offices around the corner of Garfield Avenue and Union Street.

- Two (2) air monitoring locations will be located east of the Former Morris Canal to monitor the Woodward Street perimeter of the Site. The air monitoring locations are conservatively located west of the actual east perimeter of the Site for security reasons.

The five (5) perimeter air monitoring locations will primarily remain fixed for the life of the remedial program. Each perimeter network air monitoring station will be equipped with a weather proof enclosure to house the real-time and time-integrated air sampling equipment and communication modules to transfer the real-time data to an off-site server. All equipment will be powered by rechargeable batteries.

3.1.2. Exclusion Zone Sampler Network

The exclusion zone air sampler network will consist of four (4) air monitoring locations surrounding the remedial activities including the soil excavation, stockpiling and load out areas.

The four (4) exclusion zone air monitoring locations are not fixed and will be adjusted accordingly depending on day to day remedial activities. The exclusion zone network will be configured to permit the system software to determine the upwind/downwind status of each monitoring location. Each exclusion zone network air monitoring system will be equipped with a portable weather proof enclosure and secure mounting equipment (tripod). All equipment will be powered by rechargeable batteries.

Separate exclusion zones (i.e. remedial activities in two distinct locations) may require their own networks of four (4) air monitoring locations. Adjacent exclusion zones may share two (2) air monitoring locations on the shared border.

3.1.3. Continuing Operation of Perimeter and Exclusion Zone Sampler Networks

At least seven (7) of the nine (9) air monitoring locations including communication equipment in the combined networks must be operational for remedial activities to continue. One (1) complete backup air monitoring station, including associated communication equipment, will be available on Site for immediate replacement of non functioning air monitoring stations.

3.2. Baseline Air Monitoring Program (Pre-remedial Monitoring)

The baseline air monitoring program will be conducted prior to the commencement of remedial activities (i.e. excavation of hexavalent chromium/overburden within the canal) for five (5) days during a two (2) week period (as weather permits) to quantify pre-remedial baseline conditions of site-specific contaminants and will include the following:

- Optimization of the operation of the air monitoring system.

- All perimeter and exclusion zone samplers to be employed. Exclusion zone samplers will be located around the planned initial exclusion zone.
- Real-time PM10 (further described in Section 3.3) and time-integrated sampling for Total Dust and Cr⁺⁶ (further described in Section 3.4) to be conducted identical to that employed during remedial activities air monitoring.
- Real-time TVOC monitoring using a PID will also be conducted during the baseline program at each perimeter and exclusion zone air monitoring location.

3.3. Real-time Air Monitoring

Real-time air monitoring of PM10 will be conducted during the baseline air monitoring program and during all remedial activities. The continuous data collection of PM10 will serve as a surrogate for Cr⁺⁶, chromium, heavy metals and PAHs. Real-time TVOCs sampling will be conducted during the baseline air monitoring program. Real-time TVOCs monitoring may also be conducted during remedial activities if warranted.

3.3.1. Real-time PM10 Air Monitoring

The following describes the real-time PM10 air monitoring program:

- Real-time PM10 air monitoring will be conducted using a Thermo DataRAM 4000, TSI DustTrak II Aerosol Monitor or equivalent. The real-time monitor will be equipped with an omni-directional inlet.
- Real-time monitoring will be conducted at all Perimeter and Exclusion Zone air monitoring locations.
- Sampling will be conducted at 4-6 feet above grade (breathing zone)
- Real-time PM10 will be monitored only while remedial activities are in progress which is expected to be 8 – 10 hours per day. No real-time PM10 air monitoring will be conducted during inactive periods at any perimeter or exclusion zone locations.
- The real-time instrument will be set to log 15-minute time-weighted averages (TWAs).
- Data from real-time monitors will be relayed to central off-site server for comparison to the Site Alert and Action Levels.
- Visual, audible alarms and cell phone messaging will be triggered as necessary to communicate threshold exceedances.

3.3.2. Real-time TVOCs Monitoring

The following describes the real-time TVOCs air monitoring program:

- Real time monitoring for TVOCs will be conducted using a PID during the five-day baseline program at each perimeter and exclusion zone air monitoring location.
 - Addresses the existence of a former MGP which was located on the adjacent HCC 114.

- Provides baseline data in the event of odor complaints during the intrusive air monitoring.
- If sustained real-time TVOCs results are above detectable limits during the baseline study, some real-time sampling of TVOCs may be appropriate during intrusive activities.
- Option of conducting a volatile organic and semi-volatile profile (modified EPA TO-15 method), laboratory analytical sampling method to identify individual compounds from off-site sources.
- Sampling will be conducted twenty-four hours a day.
- Sampling will be conducted at 4-6 feet above grade (breathing zone)

3.4. Time-integrated Air Monitoring

Time integrated sampling for Total Dust and Cr⁺⁶ will be performed at all perimeter and exclusion zone air monitoring locations. Integrated sampling uses a small battery operated pump typically used for industrial hygiene applications. The pump will be set for a flow rate of 2 liters per minute.

- Time-integrated air sampling will be conducted at each of the five (5) perimeter air monitoring locations for **8-10 hours a day (during remedial activities)**.
- Two (2) of the perimeter air monitoring locations will be selected for time-integrated air sampling to be conducted for **24-hours a day on work days and the entire weekend (72 hours)**. The samples collected at these locations will be separate from the 8-10 hour samples listed above.
- Time-integrated air sampling will be conducted at the exclusion zone air monitoring locations for **8-10 hours a day (only during remedial activities)**.

Time integrated samples are subsequently submitted to an analytical laboratory for analysis.

- Collects particulate on a pre-weighed filter.
- Total Dust will be determined gravimetrically using method NIOSH 0500.
- Total Cr⁺⁶ concentrations will be determined from the same filter using method OSHA ID 215.
- The laboratory analysis turn-around-time for Total Dust and Cr⁺⁶ results will be five (5) working days after the receipt of samples by the analytical laboratory during the baseline air monitoring program and during the initial five (5) days of remedial activities.
- The laboratory analysis turn-around-time will be relaxed to ten (10) working days assuming satisfactory results for the initial days of remedial activities
- The appropriate number of blanks will be submitted with the samples.

Sample analysis may be further expedited accordingly if determined to be appropriate.

3.5. Meteorological Monitoring

Meteorological stations will be collocated with three (3) of the perimeter air monitoring locations distributed to best identify, 24 hours/day, the upwind and downwind airflow pattern across the Site and tag offsite sources of dust in real-time. The following describes the meteorological systems:

- The three (3) units will continuously measure wind speed, wind direction and sigma theta. Instantaneous determination of predominant wind direction and wind speed will be facilitated.
- One (1) unit will continuously measure air temperature and relative humidity
- The wind direction data will be integrated together from the three (3) meteorological stations to show in real-time the laminar or non-laminar air flow across the site.
- The following are the technical specifications for the meteorological system:

Sensor	Range	System Accuracy
Wind Speed	0-100 miles/hr	± 0.5 mph or ± 1.5%
Wind Direction	0-360°	±3°
Relative Humidity	0-100%	±4%
Temperature	-22 to +122° F	±1.0° F.

3.6. Real-time Dust Action and Alert Levels

JCRA proposes to adopt the PM10 Action Level approved for the adjacent HCC Site 114.

3.6.1. Real-time PM10 Action and Alert Levels

The following summarizes the proposed PM10 Action and Alert Levels for the Berry Lane Park Project:

- Perimeter Network
 - Action Level is 333 $\mu\text{g}/\text{m}^3$ for a 15 minute TWA.
 - Alert Level is 250 $\mu\text{g}/\text{m}^3$ for a 15 minute TWA (75% of Action Level).
 - Observation of sustained visible dust migrating from Site regardless of Real-time Total Dust concentration by the air monitoring consultant or other Site operators.
- Exclusion Zone Network
 - Action Level is 333 $\mu\text{g}/\text{m}^3$ for a 15 minute TWA.
 - Alert Level is 250 $\mu\text{g}/\text{m}^3$ for a 15 minute TWA (75% of Action Level).
 - Observation of sustained visible dust migrating from Site regardless of Real-time Total Dust concentration by the air monitoring consultant or other Site operators.

Background data (i.e. upwind concentrations as determined in real-time by the air monitoring system) will be used when assessing the cause of elevated result events (should they occur) and when developing corrective actions.

3.6.2. Time-integrated Cr⁺⁶ Acceptable Air Concentration

The Acceptable Air Concentration (AAC) developed for HCC 114 and proposed for the Berry Lane Park Project is a time-weighted average of 49 nanograms per cubic meter of air (49 ng/m³) over the project duration. The AAC is designed to ensure the protection of human health and serves as a means of evaluating the effectiveness of the Site's dust control program. The AAC is based on an 8-hour exposure while work is being performed.

3.7. Alert and Action Level Responses

Alert Level exceedance responses for the perimeter air monitoring network are as follows:

- The cause of the Alert Level exceedance is investigated.
- If the Alert Level exceedance is due to airborne dust related to Site remedial activities, dust suppression will be initiated and/or enhanced. Work in the exclusion zone may continue.
- If the Alert Level exceedance is not due to airborne dust related to Site remedial activities, continue monitoring conditions. Work in the exclusion zone may continue.

Action Level exceedance responses for the perimeter air monitoring network are as follows:

- Upon observation of an Action Level exceedance, and/or the observation of sustained visible dust migrating from the Exclusion Zone, work shall be stopped until dust control measures effectively lower the dust concentration levels below the alert level (within the next 15 minute TWA).
- Dust suppression and/or re-evaluation or modification of activities and conditions shall be conducted.
- Work resumes when dust concentrations drop below the Alert Level for 15 minutes and no sustained visible dust is observed migrating from the Exclusion Zone.

Alert Level exceedance responses for the exclusion zone air monitoring network are as follows:

- The cause of the Alert Level exceedance is investigated.
- If the Alert Level exceedance is due to airborne dust related to the exclusion zone or other portions of the Site, dust suppression will be initiated and/or enhanced. Work in the exclusion zone may continue.
- If the Alert Level exceedance is not due to airborne dust related to the exclusion zone or other Site activities, continue monitoring conditions. Work in the exclusion zone may continue.

Action Level exceedance responses for the exclusion zone air monitoring network are as follows:

- Upon observation of an Action Level exceedance, and/or the observation of visible dust migrating from the Exclusion Zone, work shall be stopped unless dust control measures effectively lower the dust concentration levels below the alert level (within the next 15 minute TWA).
- Dust suppression and/or re-evaluation or modification of activities and conditions shall be conducted.
- Work resumes when dust concentrations drop below the Alert Level for 15 minutes and no sustained visible dust is observed migrating from the Exclusion Zone.

Figures 3 and 4 present the Real-time Total Dust Action Level Response in flow-chart form.

If the on-site technician verifies an exceedance, the technician will contact the air monitoring consultant's Project Manager, the JCRA, the environmental consultant's Project Manager and the remedial contractor Project Manager. The Remedial Contractor's staff will determine the appropriate corrective actions to implement.

Figure 5 presents Action Level Communication Protocol

3.8. Data Acquisition System

The data acquisition system will consist of a real-time integrated wireless monitoring system accepting data from communication system modules located at each perimeter and exclusion zone air monitoring station. The real-time integrated wireless monitoring system will collect and display all data in real-time on one (1) database table and on one (1) map-view showing all locations and real-time air monitoring and meteorological sampling results. Instantaneous data and 15-min TWA results will be displayed simultaneously. The map view of the Site will identify upwind and downwind station in real-time. All data will be accessible on a graphical display to show trends using a contour type integrated display or equivalent.

Backup databases shall be located in each field station at each Exclusion Zone and Perimeter air monitoring location. The data will be relayed to a central off-site server in a secure location continuously via wireless telemetry. Data will be backed up daily and be available to on and off site personnel through a web based interface. An internet-based interface will allow site personnel to access the results of all sampling stations (perimeter and exclusion zone) in real-time on a computer, tablet (e.g., iPad) and/or smart phone).

4.0 DAILY MONITORING OPERATIONS

Daily Operations will require up to two (2) technicians who will be responsible for:

- Daily setup of five (5) perimeter and four (4) exclusion zone air monitoring stations.

- Collection of time-integrated samples and shipment to the analytical laboratory under chain-of-custody procedures.
- Recording observations regarding activities performed at the Site.
- Data review.
- Inspection of all air monitoring and meteorological equipment.
- Alarm system and exceedance notifications to appropriate managers.
- Maintaining expendable supplies.
- Routine calibration and QC documentation for all air monitoring stations and meteorological equipment.
- Periodic testing of the alarm system.
- Secure storage of documents at the air monitoring consultant's office.

5.0 DATA VALIDATION AND REPORTING

5.1 Real-time Data Management Overview

- Data will be logged and backed up on a secure, off-site server available 24 hours a day.
- Stored as 15-minute averages.
- For a data average to be considered a valid data point, 50% of the data period must be valid.
- On a daily basis, a copy of all raw data will be retrieved daily from the off-site server for back up in the air monitoring consultant's data base.

5.2 Data Validation

- Objective is 90% valid data capture.
- Air monitoring and sampling data will be representative of actual conditions.
- Expressed in a manner that enables comparison with Alert and Action Levels.
- Obtained from calibrated well-functioning instruments.
- Air sampled without interference or obstruction.
- All calibrations standards traceable to National Institute of Standards and Technology (NIST) or other authoritative standards.

5.2.1. Real-time Total Dust Monitor Calibrations

- Zero checked daily.
- Tested for general upscale responses once per week.

5.2.2. Real-time VOC Monitor Calibrations

- Zero checked daily.
- Calibration checked daily using an isobutylene gas standard.

5.2.3. Integrated Sampling Equipment Calibrations

- Personal sampling pumps pre-sampling flow rates recorded daily.
- Flow rates to be determined from a digital secondary standard (bubble calibrator).
- Secondary standard to be calibrated against a NIST traceable primary standard annually or sooner if erroneous operation is suspected.
- Personal sampling pumps post-sampling flow rates recorded daily.

5.2.4. Meteorological Systems Calibrations

- Maintenance and calibrations are conducted at startup.
- At demobilization.
- Every six months during the monitoring program.

5.3 Data Reporting

- Data obtained in the air monitoring program will be used to make the following determinations:
 - Baseline concentration levels prior to site remediation activities.
 - Action Level exceedances at the perimeter.
 - Effectiveness of corrective actions taken when an Action Level is exceeded.
 - Effectiveness of the real-time PM₁₀ monitoring as a surrogate when compared to integrated Cr⁺⁶ air sampling analytical results.
- Data must be evaluated by qualified and experienced personnel to ensure that the data quality objectives have been met. The evaluation process will include, but is not limited to the following:
 - Verifying that all requested analyses are reported.
 - Verifying that all air monitoring and meteorological equipment has been properly calibrated and maintained.
 - Verifying that all samples are analyzed according to the methods specified in the monitoring plan.
 - Verifying that laboratory quality control results fall within the laboratory acceptance criteria.
 - Environmental data that does not pass data quality objectives will not be used for evaluation purposes.

5.3.1. Exceedance Documentation Reports

- Produced to report any threshold exceedances (real-time or integrated sampling data results greater than the Action Level or AAC, respectively).
- Produced within 3 days after receipt of analytical results for timely distribution.
- Alerts stakeholders any time elevated or Cr⁺⁶ dust concentrations are observed.

5.3.2. Weekly Summary Reports

- Delivered after weekly data are downloaded and tabulated.
- Provide routine program updates.
- Provide on-site personnel with timely information necessary to manage the level of site activities in order to be protective of human health.
- Provided to on-site personnel, the NJDEP and the Site Administrator for operational use.
- Will include:
 - Daily real-time monitoring results for the perimeter and the exclusion zone.
 - Updated program-to-date average Cr⁺⁶ and Total Dust concentrations.
 - Daily/weekly site maps.

5.3.3. Monthly Summary Reports

- Provide a comprehensive evaluation of the program-to-date results.
- Completed within three weeks of the close of each calendar month.
- Will present:
 - Integrated Total Dust and Cr⁺⁶ results.
 - Real-time PM10.
 - Meteorological summaries.
- Monthly reports will focus primarily on Cr⁺⁶ results in comparison to the AAC, to evaluate the success of the air monitoring plan and dust control implementation at the Site.
- Several short term average Cr⁺⁶ concentrations, including program-to-date, 90-day, 60-day and 30-day running averages will be incorporated into the monthly report to help manage operational activities and evaluate the success of onsite emission control responses.
 - Exceedance of short term average Cr⁺⁶ results may require a meeting of appropriate participants.

5.3.4. Final Air Monitoring Reports

- Summary of all Site activities for the entire program, time-weighted average Cr⁺⁶ concentration over the entire program, and a summary of all air monitoring results, including:
 - Real-time Total Dust printouts.
 - Meteorological data with daily wind roses.
 - Daily site maps indicating the locations of the air monitoring stations for each day.
 - Daily integrated Total Dust and Cr⁺⁶ sampling results.

6.0 EQUIPMENT QA/QC

6.1 Equipment Calibration and QA/QC Procedures

6.1.1. Real-time Total Dust Monitors

- At a minimum, the monitors will be field checked daily using zero calibration air. A zero (or particulate-free) test sample, using the appropriate particulate filter will be placed over the sample inlet.
- All data to be observed and recorded in the field logbook.

6.1.2. Integrated Total Dust and Cr⁺⁶ Monitors

- Flow rates to be determined from a digital standard (bubble calibrator).
- The secondary standard is inspected before each use for damage or improper functioning.
- The flow tube must be adequately wet prior to accepting flow rate values.
- A minimum of 3 flow rate values per sample to be recorded and averaged to determine the pre- and post-sampling flow rates.
- Secondary standard to be calibrated against a NIST primary standard annually or sooner if erroneous operation is suspected.
- Documentation of the NIST traceable primary standard calibration to be maintained with the equipment.
- Start, stop and elapsed time data will be recorded.
- Laboratory chain-of-custody procedures will be followed for all time-integrated samples.
- One field blank will be submitted with each shipment to the laboratory. Samples will be shipped at the conclusion of each sampling day.

6.1.3. Real-time TVOC (PID) Monitors

- A cylinder containing ultra-pure zero air and a cylinder containing an isobutylene calibration gas standard will be used to check the response of the PIDs.
- The PIDs will be zeroed using the ultra-pure zero air and the response observed and recorded in the field logbook.
- The PIDs will be challenged with the isobutylene standard and the response observed and recorded in the field logbook.
- If a PID fails to respond properly to the calibration check procedures, the calibration will be adjusted.
- Instruments that cannot be properly adjusted will be removed from service and replaced with properly calibrated instruments.
- All instrument calibration procedures will be conducted according to the manufacturer's instructions.

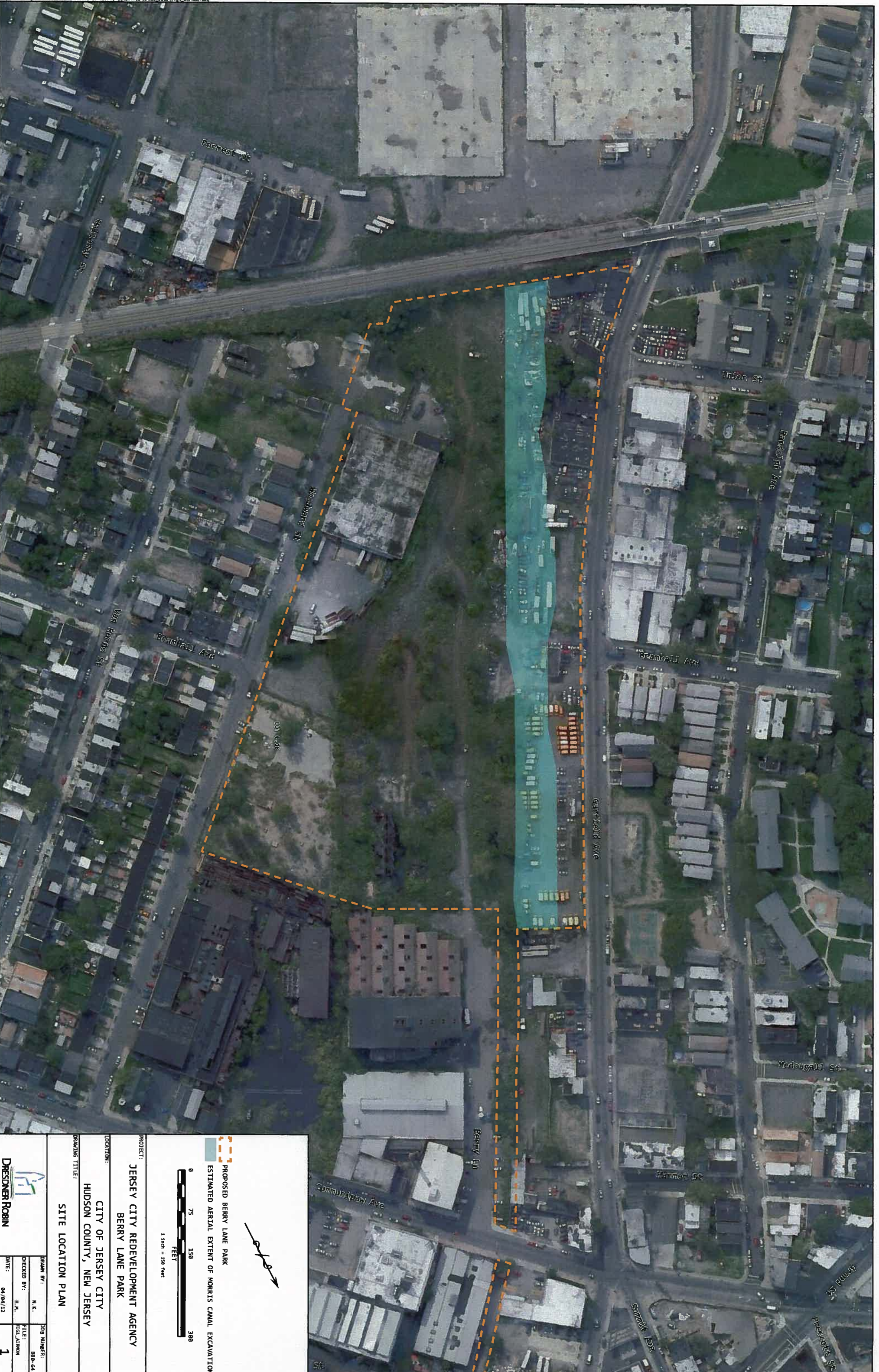
6.1.4. Meteorological Systems





- Maintenance and calibrations are conducted at startup.
- At demobilization.
- Every six months during the monitoring program.
- Will be recorded in the field logbook.

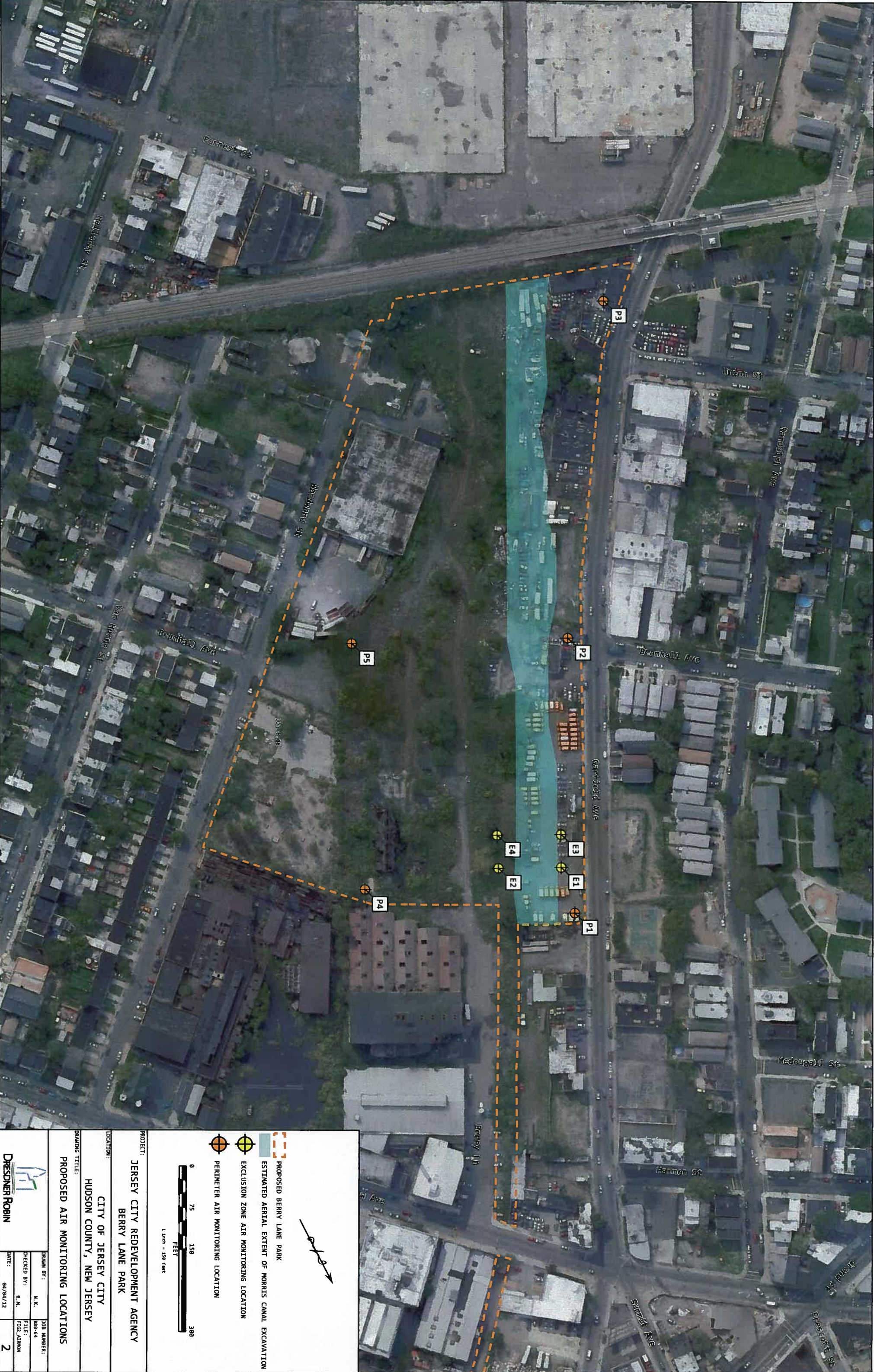
7.0 REFERENCES

AECOM Environment. "Air Monitoring Workplan for Ground Intrusion Activities at the Garfield Avenue Site in Jersey City, New Jersey (Document No.: 60149955-0405A), July 2010 (Revised December 2010)

FIGURES



	
	PROPOSED BERRY LANE PARK
	ESTIMATED AERIAL EXTENT OF MORRIS CANAL EXCAVATION
	
1 inch = 150 feet	
PROJECT: JERSEY CITY REDEVELOPMENT AGENCY BERRY LANE PARK	
LOCATION: CITY OF JERSEY CITY HUDSON COUNTY, NEW JERSEY	
DRAWING TITLE: SITE LOCATION PLAN	
DESIGNER: ROBIN	JOB NUMBER: 88-64
CHECKED BY: R.M.	FILE: 88-64
DATE: 04/04/12	1



PROPOSED BERRY LANE PARK

ESTIMATED AERIAL EXTENT OF MORRIS CANAL EXCAVATION

EXCLUSION ZONE AIR MONITORING LOCATION

PERIMETER AIR MONITORING LOCATION

0 75 150 300 FEET
1 inch = 150 feet

PROJECT:	JERSEY CITY REDEVELOPMENT AGENCY BERRY LANE PARK		
LOCATION:	CITY OF JERSEY CITY HUDSON COUNTY, NEW JERSEY		
DRAWING TITLE:	PROPOSED AIR MONITORING LOCATIONS		
DRAWN BY:	N.K.	JOB NUMBER:	888-64
CHECKED BY:	R.M.	FILE:	FILE AIRMON
DATE:	04/04/12	PAGE:	2

Reference: Dredging Basin Boundary Survey, 2010-2011; Aerial Imagery; Microsoft Virtual Earth 2011; New Jersey Department of Transportation 2008.

Figure 3: Real-time Total Dust Action Level Response Flow Chart for Perimeter Monitors

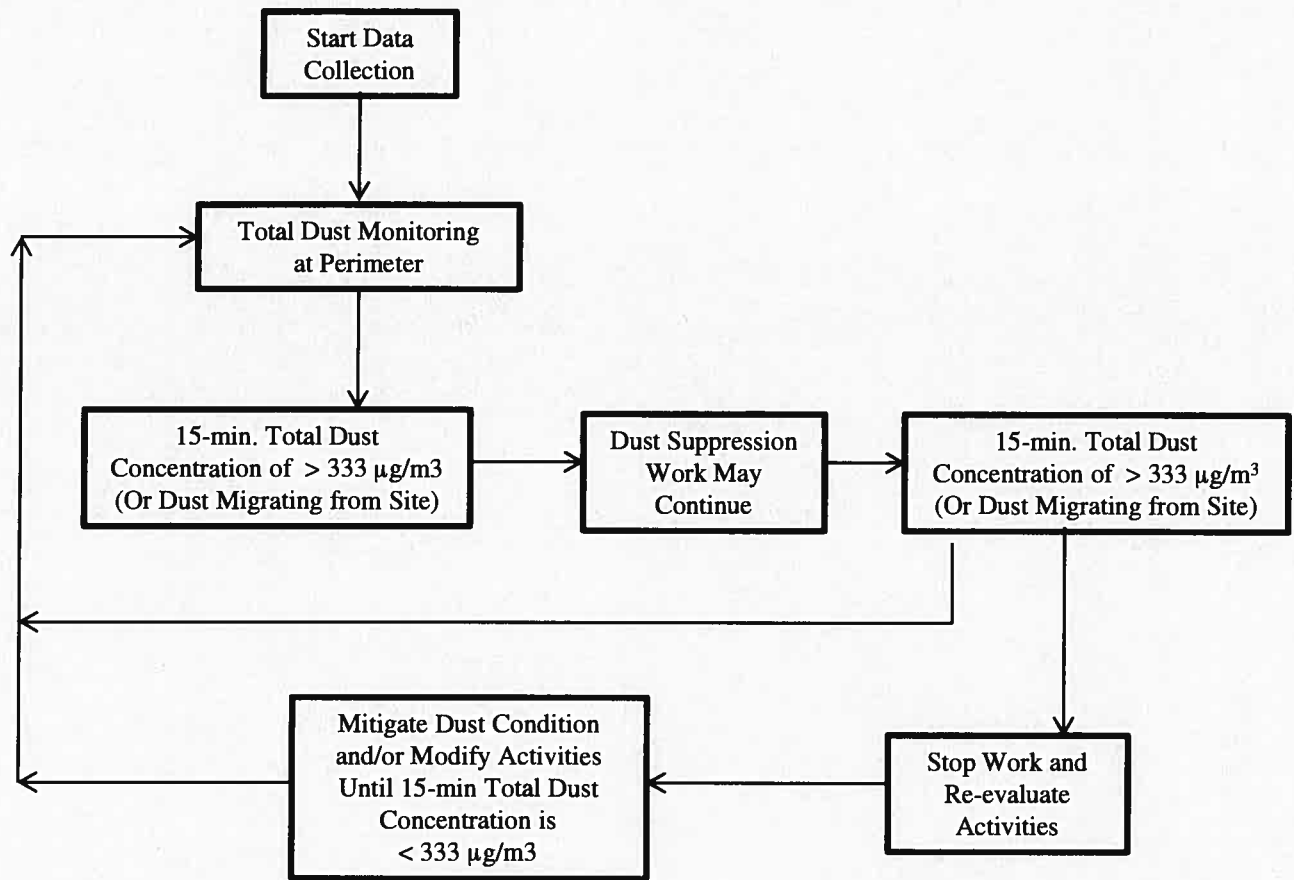


Figure 4: Real-time Total Dust Action Level Response Flow Chart for Exclusion Zone Monitors

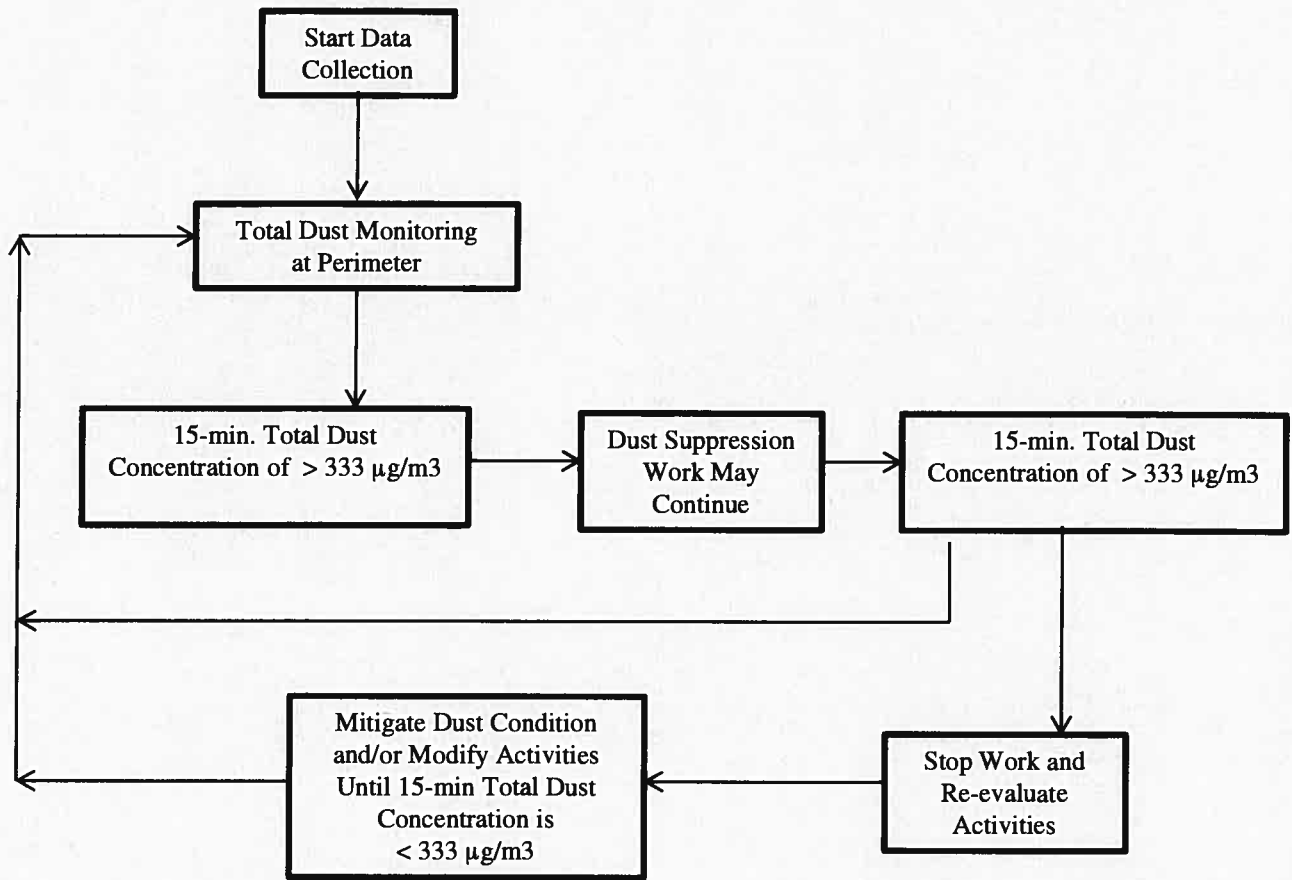
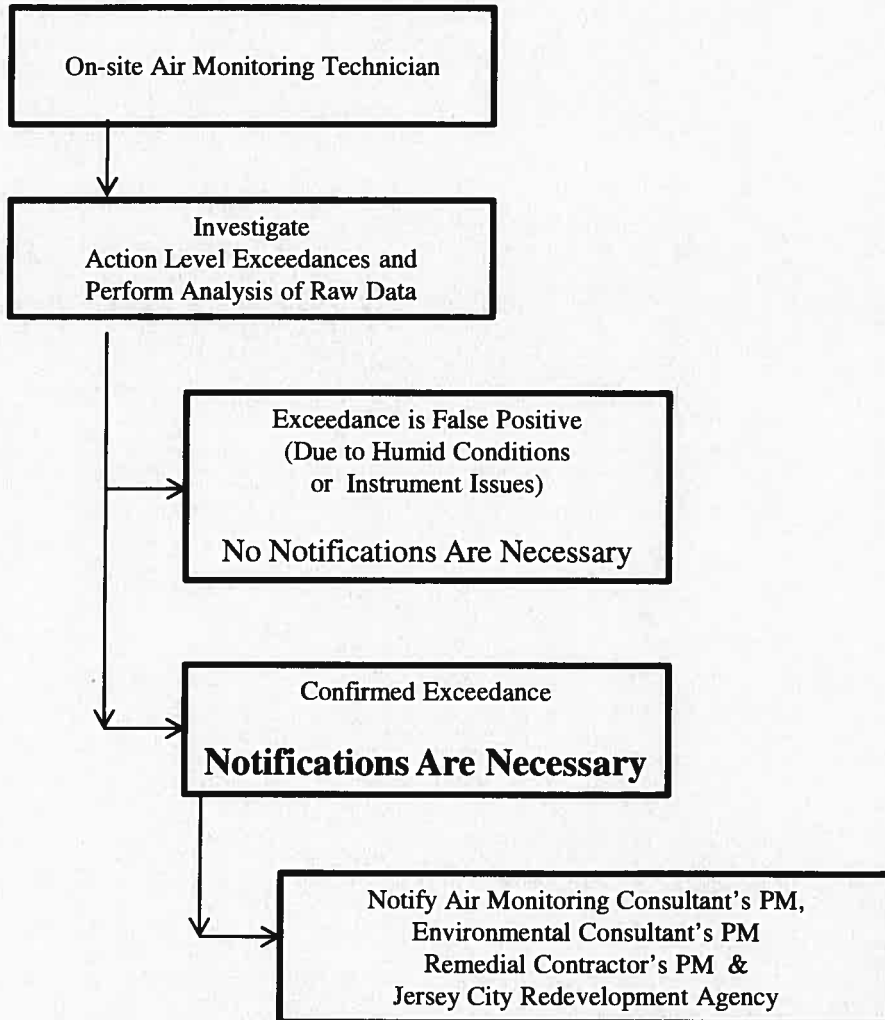


Figure 5: Action Level Communication Protocol



John F. Tregidgo

To: Douglas Neumann
Subject: RE: Draft Deliberative - High-level comments on AMP for Berry Lane

From: Amin, Prabal [<mailto:Prabal.Amin@WestonSolutions.com>]
Sent: Friday, May 11, 2012 1:33 PM
To: 'Kehayes,Stephen'; Douglas Neumann; Delisle, Benjamin
Cc: Doyle,David; Cozzi,Tom; Garrison, Alanna
Subject: RE: Draft Deliberative - High-level comments on AMP for Berry Lane

Steve,

Based on our review, all of the responses from Dresdner Robin are acceptable with the exception of the first one. The collection of 24-hour samples would not allow for an appropriate comparison to the established AAC for hexavalent chromium which is based on an 8-hour exposure while work is being performed. These issues were previously vetted while the air monitoring program for Site 114 was being developed. To be consistent with the air monitoring approach implemented at Site 114, our suggestion would be to perform 8-hour sampling at all of the perimeter monitors, and also 24-hour sampling at 1 or 2 of the perimeter monitoring locations. We would also suggest that Dresdner Robin reach out to the air experts at AECOM for any needed clarification on the air monitoring approach employed at Site 114 so that consistency is maintained.

If you have any questions, please contact me.

Thanks.

Prabal

Prabal N. Amin, P.E.
Weston Solutions, Inc.
205 Campus Drive
Edison, NJ 08837
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Voice: 732-417-5857
Fax: 732-417-5801

From: Kehayes,Stephen [<mailto:Stephen.Kehayes@dep.state.nj.us>]
Sent: Wednesday, May 09, 2012 12:37 PM
To: 'Douglas Neumann'; Delisle, Benjamin
Cc: Amin, Prabal; Doyle,David; Cozzi,Tom
Subject: RE: Draft Deliberative - High-level comments on AMP for Berry Lane

Prabal, please advise.

Thank you,
Steve

From: Douglas Neumann [<mailto:Neumann@DresdnerRobin.com>]
Sent: Wednesday, May 09, 2012 12:06 PM
To: Kehayes,Stephen; Delisle, Benjamin
Cc: 'Amin, Prabal'; Doyle,David; Cozzi,Tom
Subject: RE: Draft Deliberative - High-level comments on AMP for Berry Lane

Steve/Prabal:

Provided below for your consideration is our response to your comments on the Air Monitoring Plan.

Comment

Please provide a rationale as to why a 24-hour sample collection duration was chosen for perimeter air samples instead of an 8-hour duration. The AAC for hexavalent chromium was calculated based upon an 8-hour exposure duration, and 8-hour sample data is more accurate for comparison to the AAC.

Response

Daily remediation activities will likely exceed 8 hours per day. Sampling for 24 hours will entirely cover both remediation activities and after hour events (should they occur). From a risk management standpoint, it is our opinion that a 24 hour sampling duration provides valuable information that can be used to defend against claims of exposure during non remediation work activities. Further, a 24 hour sampling duration will decrease laboratory analysis detection limits by 3X when compared to an 8 hour sample duration. Lastly, the results from a 24 hour sampling duration can be compared to the 8 hour AAC if needed using simple arithmetic.

Comment

Please provide rationale/calculations to support the use of an exclusion zone action level of 500 ug/m³. Due to the proximity of the exclusion zone to the property perimeter as exclusion zone is moved along the extent of the proposed excavation, the proposed action level of 500 may not be adequately protective of receptors at the fence line, especially in areas where there is large spacing between property perimeter air monitoring locations, e.g. between P1 and P2. [Please note that the action level for the Site 114 exclusion zone is 333 ug/m³ over a five-minute averaging period, with a 333 ug/m³ 15-minute action level and a more conservative 100 ug/m³ one-minute early warning limit at the property fence line locations.]

Response

The exclusion zone action levels are developed to ensure there is protection for the workers only and the 500 ug/m³ is more than adequate to meet this objective. However, your point regarding the proximity of exclusion zone to perimeter of site is well taken. We will therefore utilize 333 ug/m³ for both exclusion zone and perimeter thresholds.

Comment

Please note that the subtraction of upwind / background total dust or hexavalent chromium sample results would not be permitted to achieve compliance with the site-specific action levels. Adjustment for background is not permitted at Site 114.

Response

We will use the 333 ug/m³ threshold as well as the other alert thresholds, without subtracting background data. However, we believe that background data is important information that should be taken into consideration when assessing causes of high result events (should they occur) and when developing corrective actions.

Comment

Weston questions the ability of a single cartridge sampler to collect sufficient sample mass for analysis of both hexavalent chromium and PM₁₀, and recommends that Dresdner Robin confirm with their laboratory that appropriate reporting limits would be achievable for both parameters if dual analyses were run from each cartridge sampler.

Sampling on one filter has many advantages over using two collocated filters for both analyses when you are looking at establishing ratios for Cr+6/Total dust on a site. We have consulted with the laboratory "Travelers" and they have validated this method. Further, our air subconsultant has collected over 5,000 samples using one filter for both OSHA 215 analysis for Cr+6 and NIOSH 0500 for total dust.

I trust that our comments provide sufficient clarification and look forward to your response. We are also available to discuss the matter with you in greater detail via a teleconference call if you think that would be beneficial.

Thank you,

Doug

From: Kehayes, Stephen [<mailto:Stephen.Kehayes@dep.state.nj.us>]
Sent: Tuesday, May 08, 2012 11:06 AM
To: Delisle, Benjamin; Douglas Neumann
Cc: 'Amin, Prabal'; Doyle, David; Cozzi, Tom
Subject: RE: Draft Deliberative - High-level comments on AMP for Berry Lane

Ben, the following are Weston's recommendations on the air sampling plan. They recommend changes to be consistent with the air monitoring plan approved for the 800 Garfield Ave site, which has undergone extensive consideration. Please adopt these changes as they are technically sound and to maintain consistency in how PPG is managed on both sites.

Would you please share a copy of your LSRP Retention Form with Dave Doyle & I once completed? The original goes to the Bureau of Case Assignment & Initial Notice, as indicated on the form. I believe you must submit that within 45 days of yesterday if Jersey City is actively remediating the site..

Thank you,
Steve

From: Amin, Prabal [<mailto:Prabal.Amin@WestonSolutions.com>]
Sent: Tuesday, May 08, 2012 9:51 AM
To: Doyle, David; Kehayes, Stephen
Subject: Draft Deliberative - High-level comments on AMP for Berry Lane

Dave/Steve,

Below are Weston's high level comments on the AMP for Berry Lane provided to us by Dresdner Robin. Please advise on the best way to communicate these to Ben Delisle and Dresdner. Thanks.

- Please provide a rationale as to why a 24-hour sample collection duration was chosen for perimeter air samples instead of an 8-hour duration. The AAC for hexavalent chromium was calculated based upon an 8-hour exposure duration, and 8-hour sample data is more accurate for comparison to the AAC.
- Please provide rationale/calculations to support the use of an exclusion zone action level of 500 ug/m³. Due to the proximity of the exclusion zone to the property perimeter as exclusion zone is moved along the extent of the proposed excavation, the proposed action level of 500 may not be adequately protective of receptors at the fence line, especially in areas where there is large spacing between property perimeter air monitoring locations, e.g. between P1 and P2. [Please note that the action level for the Site 114 exclusion zone is 333 ug/m³ over a five-minute averaging period, with a 333 ug/m³ 15-minute action level and a more conservative 100 ug/m³ one-minute early warning limit at the property fence line locations.]
- Please note that the subtraction of upwind / background total dust or hexavalent chromium sample results would not be permitted to achieve compliance with the site-specific action levels. Adjustment for background is not permitted at Site 114.

- Weston questions the ability of a single cartridge sampler to collect sufficient sample mass for analysis of both hexavalent chromium and PM10, and recommends that Dresdner Robin confirm with their laboratory that appropriate reporting limits would be achievable for both parameters if dual analyses were run from each cartridge sampler.

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