
COMMUNITY AIR MONITORING PLAN
HUNTS POINT PARCEL D
CLEARING AND TREE GRINDING
Bronx, New York

Prepared For:



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SECTION 1 - INTRODUCTION

Consolidated Edison Company of New York, Inc. (Con Edison) will be performing clearing, landscaping and tree grinding activities at the Hunts Point Parcel D Site (the Site) located in Bronx, New York, a parcel located within the former Hunts Point Gas Works, a former Manufactured Gas Plant (MGP). The parcel is a 7.23-acre vacant area with the exception of a 40-foot by 50-foot area in the northeast corner of the parcel, which is utilized by Con Edison as a gas pump house and metering building.

Parcel D is bound to the west by Food Center Drive and a railroad spur, to the north and south by commercial properties, and to the east by the confluence of the Bronx and East Rivers. Historic Site and topographic maps show no evidence of MGP structures, however MGP structures such as water and oil holding tanks, buildings, and a large gas holder were located adjacent to the Site to the south and west.

Con Edison requires an additional lay down area to support an upcoming project to be completed adjacent to the Site. Con Edison has identified this laydown area (approximately 40 feet by 60 feet) to be in the northern portion of the Site, immediately adjacent to the existing gas pump house and metering building within an easement owned by Con Edison. In order to construct this laydown area, the existing debris/trash, vegetation and trees will need to be cleared and removed. As such, the scope of work for establishing the laydown area consists of removing existing trash, vegetation and debris from this area. Vegetation removal will include grinding of existing trees to a depth of approximately 6-inches below ground surface (bgs). No excavation of Site soils will be conducted during this scope of work. Additionally, no off-site backfill materials will be imported to the Site.

Given that the scope of work includes grinding existing trees to approximately 6-inches bgs, a Community Air Monitoring Plan (CAMP) is required for these specific intrusive activities at the Site. This CAMP is not intended for use in establishing action levels for worker respiratory protection; rather, it is intended to provide a measure of protection from potential airborne contaminants for the downwind community including on-site workers not directly involved with the intrusive field activities, abutting commercial businesses and their customers, and the public in general. The action levels and procedures specified herein require continued and increased monitoring, corrective actions to better control emissions, and/or temporary work activity shutdown. Implementation of this CAMP also serves to document that field activities did not expose the public to airborne contamination emanating from the intrusive field activities performed at the Site.

SECTION 2 - BASIS FOR CAMP

2.1 *Purpose and Objectives*

The New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan requires real-time monitoring for volatile organic compounds (VOCs) and particulates (dust) at the upwind and downwind perimeter of work areas when intrusive field activities are conducted at contaminated sites. Additionally, based on Site history, monitoring for hydrogen sulfide (H₂S) and hydrogen cyanide (HCN) at the upwind and downwind Site perimeter is also necessary when intrusive field activities are conducted at the Site. In general, the purpose of this CAMP is to comply with the NYSDOH Generic CAMP to ensure that the community and public are not exposed to hazardous constituents at levels above accepted guidance and reference limits during the intrusive field activities being conducted at the Site.

Specific objectives of the Site CAMP are as follows:

- Provide an early warning system to alert Con Edison's field team that concentrations of target compounds in ambient air are approaching action levels due to intrusive field activities;
- Assess and monitor whether vapor and dust emission control measures are effective in maintaining or reducing ambient air levels of target compounds below action levels, allowing appropriate adjustments to be made (if necessary); and
- Develop a comprehensive and permanent record of all air monitoring and sampling results, equipment calibration and maintenance records, daily Site log notes and other pertinent information related to the CAMP.

2.2 *Target Compounds*

The target compounds for this CAMP are those contaminants known or suspected to be present in MGP source materials generated during former MGP operations in the vicinity of the Site and have the potential to be released into the ambient air during intrusive field activities. Also included are contaminants generated by the intrusive field activities that have the potential to be released to the air and to migrate beyond the Site perimeter (i.e., dust). The target compounds will consist of total VOCs, H₂S, HCN, and dust (PM₁₀).

2.3 *Action Levels*

The following action levels have been established for the CAMP.

Target Compound	Action Level
Total VOCs	5 ppm (primary) 25 ppm (secondary)
H ₂ S	5 ppm (primary) 25 ppm (secondary)
HCN	3 ppm (primary) 25 ppm (secondary)
PM ₁₀	100 ug/m ³ (primary) or visible dust migration 150 ug/m ³ (secondary) or visible dust migration

Action levels are further detailed in [Table 1](#). Action levels for total VOCs and PM₁₀ are based on those presented in NYSDOH's generic CAMP, included in [Appendix A](#). Action levels for H₂S and HCN are based on Permissible Exposure Limits (PELs) or Threshold Limit Values (TLVs) specified by the Occupational Safety and Health Administration (OSHA) and the American Conference of Government Industrial Hygienists (ACGIH).

SECTION 3 - SCOPE OF WORK

3.1 *Overview and Schedule*

The key elements proposed to meet the objectives of this CAMP consist of the following:

- Data collection at two (2) location stations in a configuration that accounts for upwind/downwind prevailing wind direction patterns relative to the primary areas of intrusive field activities. The proposed locations will be configured such that for each major prevailing wind sector, one measurement point will be in an upwind location and one measurement point will be in a downwind location;
- Data collection during the full duration of intrusive field activities. Data collection during the intrusive work will allow monitoring for action levels and will document air quality during the intrusive field activities at the perimeter of the Site, and
- Primary monitoring by real-time methods of the target compounds. Real-time monitoring data will be made available to Con Edison's field team, the NYSDEC, and the NYSDOH.

Tree grinding activities are scheduled to be conducted in mid-October 2020 and are expected to be completed within approximately one (1) week. The CAMP will be approved and implemented before intrusive field activities begin, and once monitoring commences, it will be continuous for the full duration of intrusive work. Works hours shall normally be 7:00 AM to 3:30 PM from Monday through Friday.

3.2 *Monitoring Locations*

Two (2) portable monitoring station locations are being proposed for the Site. The number and location of these stations were selected based on several factors summarized as follows:

- The overall size of the Site and lateral extent of the intrusive work area; and
- The location of the commercial businesses adjacent to the Site.

The intrusive work area will be limited to the 40 feet by 60 feet laydown area and will include the specific locations where existing trees will be ground down to approximately 6-inches bgs. Due to the limited nature of the intrusive activities, adequate coverage can be maintained by utilizing two (2) air monitoring stations. This coverage is accomplished by placing one monitoring station directly upwind, and one monitoring station directly downwind of the prevailing wind direction. The locations of the monitoring stations will be adjusted as necessary to account for upwind/downwind prevailing wind direction patterns relative to the areas of intrusive activities.

3.3 *Real-Time Monitoring*

Real-time monitoring utilizing a conventional air monitoring system is the primary measurement for this CAMP. Real-time monitoring will be performed for total VOC, H₂S, HCN, and PM₁₀ at both locations for the entire duration of intrusive work activities.

Each air monitoring station will be equipped with a MultiRAE Plus to monitor total VOCs, H₂S, and HCN, and a dust meter configured for PM₁₀ (DustTrak). Each meter will be equipped with data logging capabilities. Air monitoring equipment will be contained in a “case like” enclosure mounted on a tripod. The data collection will consist of total VOCs, H₂S, and HCN, and dust (PM₁₀) at the two monitoring stations.

Each monitoring station will be equipped with visual alarms. Visual alarms will consist of flashing lights mounted on top of the air monitoring stations. The visual alarms will be triggered when a primary action level is exceeded for any of the target compounds.

3.4 *Monitoring Personnel*

Monitoring activities will be performed by appropriately trained and experienced individuals. Training shall include completion of a 40-hour hazardous waste activities training course in compliance with OSHA Standard 29 CFR 1910, as well as an 8-hour refresher course within the last year. Monitoring personnel will also be experienced or trained in the calibration, operation, and routine maintenance of the specific monitoring equipment being utilized for the CAMP.

SECTION 4 - DATA COLLECTION METHODOLOGIES

For this CAMP, data collection methodologies for the target compounds consist of real-time monitoring methods. The real-time monitoring system will be equipped with data logging capabilities capable of calculating 15-minute running average concentrations and storing of a minimum of 24 hours of data.

4.1 *VOCs, H₂S, and HCN*

A MultiRAE Plus will be utilized for the real-time total VOC, H₂S, and HCN measurement portion of the CAMP. MultiRAE technology allows dependable, linear, part-per-million range readings for VOCs, H₂S, and HCN. MultiRAE-based measurements are easy to perform, accurate, and a proven monitoring approach. [Appendix B](#) includes a data sheet for the MultiRAE.

4.2 *Particulate Matter (PM₁₀)*

A DustTrak Aerosol Monitor 8530 (or equivalent) will be employed for the real-time total PM₁₀ measurement portion of the CAMP. This instrument is capable of measuring PM₁₀ in a range including the action levels (100 – 150 ug/m³) and with appropriate resolution (1 ug/m³ or better). The DustTrak is a light-scattering photometer that uses optical measurement techniques, a commonly used, widely available, and versatile monitoring approach. Photometer-based PM₁₀ measurements are easy to perform, accurate, and a time-proven monitoring approach. [Appendix B](#) includes a data sheet for the DustTrak Aerosol Monitor 8530.

SECTION 5 - ACTION LEVELS AND PROCEDURES

Action levels for the target compounds are defined in Section 2.3. How the action levels are triggered and their associated procedures are described below and summarized in [Table 1](#). There are two types of action levels, and action levels for VOCs, H₂S, HCN, and PM₁₀ are assessed on a relative basis (i.e., a downwind concentration is compared to an upwind concentration to see if the action level is triggered).

5.1 VOCs, H₂S, and HCN

The primary action level for total VOCs and H₂S is 5 ppm, and 3 ppm for HCN, based on a 15-minute averaging period and is assessed on a relative basis between downwind and upwind measurements. This action level will be reached if a 15-minute average total VOC, H₂S, and HCN level measured at the downwind stations exceeds the action level for the same 15-minute period at the designated upwind station by 5 ppm for VOCs, and H₂S, and 3 ppm for HCN. If the action level is triggered, then work activities must be temporarily halted and monitoring continued. However, once triggered, if downwind total measured concentrations rapidly decrease to below action levels relative of the upwind concentrations, then work activities can resume with continued monitoring.

If downwind total VOC or H₂S levels persist at concentrations between 5 - 25 ppm above the upwind level, or HCN levels persist at concentrations between 3 – 25 ppm above the upwind level, then:

- Work activities must be halted;
- The source of vapors identified;
- Corrective actions implemented to abate emissions; and
- Monitoring continued.

Following completion of these steps, work activities will resume provided that total concentrations of target compounds 200 feet downwind of the work area, or half the distance to the nearest potential receptor, whichever is less, are below specified action levels over the background for the 15-minute average.

After the implementation of vapor control measures or at any time, if downwind total VOC, H₂S, or HCN levels exceed the secondary action level of 25 ppm over the upwind level, then work must be stopped and a meeting will be held with Con Edison's field team to re-evaluate work activities, vapor control measures, and recommend further corrective actions.

Work can only resume if vapor control measures are successful in reducing downwind total VOC or H₂S concentration levels to less than 5 ppm above the upwind level, or less than 3 ppm above the upwind level for HCN.

5.2 *Particulate Matter (PM₁₀)*

The primary action level for PM₁₀ is 100 ug/m³ based on a 15-minute averaging period and it is assessed on a relative basis between downwind and upwind measurements. This action level will be reached if a 15-minute average PM₁₀ level measured at the downwind station exceeds the PM₁₀ level for the same 15-minute period at the upwind station by 100 ug/m³. Additionally, the action level will also be reached if visible emissions of airborne dust are observed migrating beyond the Site perimeter. If the PM₁₀ action level is triggered by either of these events, then dust suppression techniques must be employed and monitoring continued.

If downwind PM₁₀ levels persist at readings between 100 - 150 ug/m³ above the upwind level for 45 minutes (three measurement cycles), work activities may resume with dust suppression techniques in place, but only if no visible emissions of dust are observed migrating beyond the Site perimeter.

After the implementation of dust control measures, if downwind PM₁₀ levels continue to persist above the secondary action level of 150 ug/m³ over the upwind level or 100 ug/m³ over the upwind level with visible emissions present, then work must be stopped and a meeting will be held with Con Edison's field team to re-evaluate work activities, dust suppression measures, and recommend further corrective actions.

Work can resume once dust control measures are successful in reducing downwind PM₁₀ levels to less than 150 ug/m³ above the upwind level and there is no visible dust migration beyond the perimeter of the Site.

SECTION 6 - QUALITY ASSURANCE

6.1 Equipment Calibration

Field analytical equipment will be calibrated immediately prior to each day's use. The calibration procedures will conform to manufacturer's standard instructions. This calibration will ensure that the equipment is functioning within the allowable tolerances established by the manufacturer and required by the CAMP. Records of all instrument calibration and instrument manuals will be maintained on-site.

6.2 Preventive Maintenance Procedures

Equipment, instruments, tools, gauges, and other items requiring preventive maintenance will be serviced in accordance with the manufacturer's specified recommendations and written procedures developed by the CAMP operator. A list of critical spare parts will be established and these spare parts will be available for use in order to avoid downtime. A service contract for rapid instrument repair or backup instruments may be substituted for the spare part inventory.

All maintenance records will be documented and traceable to the specific equipment, instruments, tools, and gauges. Records produced shall be reviewed and maintained at the Site.

TABLES

Table 1
Action Levels and Procedures

Contaminant	Action Level	Action Taken
VOCs	< 5 ppm above background	None
	5 - 25 ppm above background	Temporarily halt work and continue monitoring. If levels decrease to < 5 ppm above background, resume work. If levels persist for 30 minutes, hold Site meeting with field personnel to review work activities. If levels persist for 45 minutes, stop work, identify source, implement corrective action, and continue monitoring.
	> 25 ppm above background	Stop work and hold meeting. Resume work only if levels are reduced to < 5 ppm above background.
H ₂ S	< 5 ppm above background	None
	5 - 25 ppm above background	Temporarily halt work and continue monitoring. If levels decrease to < 5 ppm above background, resume work. If levels persist for 30 minutes, hold Site meeting with field personnel to review work activities. If levels persist for 45 minutes, stop work, identify source, implement corrective action, and continue monitoring.
	> 25 ppm above background	Stop work and hold meeting. Resume work only if levels are reduced to < 5 ppm above background.
HCN	< 3 ppm above background	None
	3 - 25 ppm above background	Temporarily halt work and continue monitoring. If levels decrease to < 3 ppm above background, resume work. If levels persist for 30 minutes, hold Site meeting with field personnel to review work activities. If levels persist for 45 minutes, stop work, identify source, implement corrective action, and continue monitoring.
	> 25 ppm above background	Stop work and hold meeting. Resume work only if levels are reduced to < 3 ppm above background.
Particulate Matter (PM ₁₀)	<100 ug/m ³ above background and no visible off-site dust migration	None
	100–150 ug/m ³ above background or visible off-site dust migration	Employ dust suppression techniques and continue monitoring. If levels persist for 45 minutes, continue work with dust suppression only if no visible off-site dust migration. If visible off-site dust migration persists for 45 minutes, stop work, identify source, implement corrective action, and continue monitoring. Resume work only if no visible off-site dust migration.
	>150 ug/m ³ above background	Stop work and hold site meeting. Resume work only if levels are reduced to < 150 ug/m ³ above background and no visible off-site dust migration.

APPENDIX A

NYSDOH GENERIC COMMUNITY AIR MONITORING PLAN

Appendix 1A

New York State Department of Health Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.
4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed $150 \text{ mcg}/\text{m}^3$ above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than $150 \text{ mcg}/\text{m}^3$ above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within $150 \text{ mcg}/\text{m}^3$ of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix 1B

Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.
2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.
3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM₁₀) with the following minimum performance standards:
 - (a) Objects to be measured: Dust, mists or aerosols;
 - (b) Measurement Ranges: 0.001 to 400 mg/m³ (1 to 400,000 :ug/m³);
 - (c) Precision (2-sigma) at constant temperature: +/- 10 :g/m³ for one second averaging; and +/- 1.5 g/m³ for sixty second averaging;
 - (d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
 - (e) Resolution: 0.1% of reading or 1g/m³, whichever is larger;
 - (f) Particle Size Range of Maximum Response: 0.1-10;
 - (g) Total Number of Data Points in Memory: 10,000;
 - (h) Logged Data: Each data point with average concentration, time/date and data point number
 - (i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
 - (j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
 - (k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
 - (l) Operating Temperature: -10 to 50° C (14 to 122° F);
 - (m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.
4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.
5. The action level will be established at 150 ug/m³ (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m³, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m³ above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m³ continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM₁₀ at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

- (a) Applying water on haul roads;
- (b) Wetting equipment and excavation faces;
- (c) Spraying water on buckets during excavation and dumping;
- (d) Hauling materials in properly tarped or watertight containers;
- (e) Restricting vehicle speeds to 10 mph;
- (f) Covering excavated areas and material after excavation activity ceases; and
- (g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m³ action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

APPENDIX B

FIELD EQUIPMENT DATA SHEETS



MultiRAE

Wireless portable six-gas monitor with advanced VOC detection capability

The MultiRAE is the most advanced portable chemical detector on the market. The MultiRAE delivers the broadest PID sensor range in its class and the versatility to support 25 intelligent interchangeable sensor options (such as PID, NDIR for combustibles and CO₂, ammonia, chlorine, formaldehyde, and phosphine) to fully meet the monitoring needs in a variety of applications, including industrial hygiene, personal protection, leak detection, and HazMat response.

The MultiRAE's optional wireless capability improves safety by providing commanders and safety officers real-time access to instrument readings and alarm status from any location¹ for better situational awareness and faster incident response.



MultiRAE used for worker exposure monitoring at an oil refinery

Applications

- Industrial hygiene, personal protection, and leak detection in industries such as:
 - Aviation (wingtankentry)
 - Chemical
 - Environmental
 - Oil and gas
 - Pharmaceutical
 - Shipping/marine
- HazMat response
- Clandestine drug labs



- Highly versatile and customizable
- Best PID in its class (0 to 5,000 ppm range, 0.1 ppm resolution)
- Man Down Alarm with real-time remote wireless notification
- Compliant with MIL-SPEC-810G performance standard
- Fully automatic bump testing and calibration with AutoRAE 2

FEATURES & BENEFITS

- Wireless access to real-time instrument readings and alarm status from any location¹
- Unmistakable five-way local and remote wireless notification of alarm conditions, including Man Down Alarm¹
- Intelligent sensors store calibration data, so they can be swapped in the field²
- Extensive on-board gas libraries (190 VOCs and 55 combustible gases)
- Largest display in its class
- Continuous datalogging (6 months for 5 sensors, 24x7)
- Device Management with Honeywell SafetySuite

MultiRAE Specifications

INSTRUMENT SPECIFICATIONS ⁴	
SIZE	7.6" H x 3.8" W x 2.6" D (193 x 96.5 x 66 mm)
WEIGHT	31 oz (880 g)
SENSORS	25 intelligent interchangeable field-replaceable sensors including PID for VOCs, electrochemical sensors for toxic gases and oxygen, combustible LEL and NDIR sensors, and CO ₂ NDIR sensor
BATTERY OPTIONS, RUNTIME ⁵ AND RECHARGE TIME	- Rechargeable Li-ion (~12-hr. runtime, < 6-hr. recharge time) - Extended duration Li-ion (~18-hr. runtime, < 9-hr. recharge time) - Alkaline adapter with 4 x AA batteries (~6-hr. runtime)
DISPLAY	Monochrome graphical LCD display (128 x 160) with backlighting. Automatic screen "flip" feature.
DISPLAY READOUT	- Real-time reading of gas concentrations; PID measurement gas and correction factor; Man Down Alarm on/off; visual compliance indicator; battery status; datalogging on/off; wireless on/off and reception quality. - STEL, TWA, peak, and minimum values
KEYPAD BUTTONS	3 operation and programming keys (Mode, Y/+, and N/-)
SAMPLING	Built-in pump. Average flow rate: 250 cc/min. Auto shutoff in low-flow conditions
CALIBRATION	Automatic with AutoRAE 2 Test and Calibration System or manual
ALARMS	Wireless remote alarm notification; audible (95 dB @ 30 cm), vibration, visible (flashing bright red LEDs), and on-screen indication of alarm conditions - Man Down Alarm with pre-alarm and real-time remote wireless notification ¹
DATALOGGING	Continuous datalogging (6 months for 5 sensors at 1-minute intervals, 24/7) - User-configurable datalogging intervals (from 1 to 3,600 seconds)
COMMUNICATION AND DATA DOWNLOAD	- Data download and instrument set-up and upgrades on PC via desktop charging and PC comm. cradle, travel charger, or AutoRAE 2 Automatic Test and Calibration System - Wireless data and alarm status transmission via built-in RF modem (optional)
WIRELESS NETWORK	ProRAE Guardian Real-Time Wireless Safety System or EchoView Host-based Closed-Loop System
WIRELESS RANGE (TYPICAL)	MultiRAE to RAElink3 [Z1] Mesh modem ~330 feet (100 meters) MultiRAE to EchoView Host, RAE Mesh Reader or RAEPoint ~660 feet (200 meters) MultiRAE to Wi-Fi Access Point ~330 feet (100 meters)
OPERATING TEMPERATURE	-4° to 122°F (-20° to 50°C)
HUMIDITY	0% to 95% relative humidity (non-condensing)
DUST AND WATER RESISTANCE	IP-65 ingress protection rating (dust-tight and waterproof against hosing jets coming from all directions)
SAFETY CERTIFICATIONS	CSA: Class I, Division 1, Groups A, B, C and D, T4 Class II, Division 1; Groups E, F, G; T85°C ATEX: 0575 II 1G Ex ia IIC T4 Ga 2G Ex ia d IIC T4 Gb with IR Sensor installed I M1 Ex ia I Ma IECEX: Ex ia IIC T4 Ga Ex ia d IIC T4 Gb with IR Sensor installed I M1 Ex ia I Ma IECEX/ANEX: Ex ia IIC T4 Ga Ex ia d IIC T4 Gb with IR Sensor installed Ex ia I Ma
EMC/RFI	EMC directive: 2004/108/EC
PERFORMANCE TESTS	MIL-STD-810G and 461F compliant. LEL CSA C22.2 No. 152; ISA-12.13.01
LANGUAGES	Arabic, Chinese, Czech, Danish, Dutch, English, French, German, Indonesian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish, and Turkish - Four years on Liq O ₂ sensors - Three years on CO and H ₂ S sensors
WARRANTY	- Two years on non-consumable components and catalytic LEL sensors - One year on all other sensors, pump, battery, and other consumable parts
WIRELESS FREQUENCY	ISM license free band. IEEE 802.15.4 Sub 1GHz, Wi-Fi 802.11 b/g
WIRELESS APPROVALS RADIO MODULE	FCC Part 15, CER&TTE, Others ⁶ Supports RM900A

SENSOR SPECIFICATIONS ⁴	RANGE	RESOLUTION
PID SENSORS		
VOC 10.6 EV (EXT. RANGE)	0 to 5,000 ppm	0.1 ppm
COMBUSTIBLE SENSORS		
CATALYTIC LEL	0 to 100% LEL	1% LEL
NDIR (0-100% LEL METHANE)	0 to 100% LEL	1% LEL
NDIR (0-100% VOL. METHANE)	0 to 100% Vol.	0.1% Vol.
CARBON DIOXIDE SENSOR		
CARBON DIOXIDE (CO ₂) NDIR	0 to 50,000 ppm	100 ppm
ELECTROCHEMICAL SENSORS		
AMMONIA (NH ₃)	0 to 100 ppm	1 ppm
CARBON MONOXIDE (CO)	0 to 500 ppm	1 ppm
CARBON MONOXIDE (CO), EXT. RANGE	0 to 2,000 ppm	10 ppm
CARBON MONOXIDE (CO), H ₂ -COMP.	0 to 2,000 ppm	10 ppm
CARBON MONOXIDE (CO) + HYDROGEN SULFIDE (H ₂ S) COMBO	0 to 200 ppm	0.1 ppm
CHLORINE (CL ₂)	0 to 50 ppm	0.1 ppm
CHLORINE DIOXIDE (CLO ₂)	0 to 1 ppm	0.03 ppm
ETHYLENE OXIDE (ETO-A)	0 to 100 ppm	0.5 ppm
ETHYLENE OXIDE (ETO-B)	0 to 10 ppm	0.1 ppm
FORMALDEHYDE (HCHO)	0 to 10 ppm	0.05 ppm
HYDROGEN CYANIDE (HCN)	0 to 50 ppm	0.5 ppm
HYDROGEN SULFIDE (H ₂ S)	0 to 100 ppm	0.1 ppm
METHYL MERCAPTAN (CH ₃ -SH)	0 to 10 ppm	0.1 ppm
NITRIC OXIDE (NO)	0 to 250 ppm	0.5 ppm
NITROGEN DIOXIDE (NO ₂)	0 to 20 ppm	0.1 ppm
OXYGEN (O ₂)	0 to 30% Vol.	0.1% Vol.
OXYGEN (LIQ O ₂)	0 to 30% Vol.	0.1% Vol.
PHOSPHINE (PH ₃)	0 to 20 ppm	0.1 ppm
PHOSPHINE (PH ₃ H)	0 to 20 ppm	0.1 ppm
SULFUR DIOXIDE (SO ₂)	0 to 20 ppm	0.1 ppm

- ¹ Additional equipment and/or software licenses may be required to enable remote wireless monitoring and alarm transmission.
² RAE Systems recommends calibrating sensors on installation.
³ A two-gas combination sensor is required for a 6-gas configuration.
⁴ Specifications are subject to change.
⁵ Specification for non-wireless monitors.
⁶ Contact RAE Systems for country specific wireless approvals and certificates.

Ordering Information (MODEL: PGM-6228)

- Wireless¹ and non-wireless configurations are available
- Refer to the Portables Pricing Guide for part numbers for monitors, accessories, sampling and calibration kits, gas, sensors, and replacement parts

For more information

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Device Management with
Honeywell SafetySuite



honeywellanalytics.com/SafetySuite

Honeywell

DUSTTRAK™ II AEROSOL MONITORS MODELS 8530, 8530EP AND 8532

DESKTOP OR HANDHELD
UNITS FOR ANY ENVIRONMENT,
ANY APPLICATION



DustTrak™ II Aerosol Monitors are battery-operated, data-logging, light-scattering laser photometers that give you real-time aerosol mass readings. They use a sheath air system that isolates the aerosol in the optics chamber to keep the optics clean for improved reliability and low maintenance. From desktop and desktop with external pump models to a handheld model, the DustTrak II offers a suitable solution for harsh industrial workplaces, construction and environmental sites and other outdoor applications, as well as clean office settings. The DustTrak II monitors measure aerosol contaminants such as dust, smoke, fumes and mists.

Features and Benefits

All Models

- + Real-time mass concentration readings and data-logging allow for data analysis during and after sampling
- + Measure aerosol concentrations corresponding to PM1, PM2.5, Respirable, and PM10 size fractions, using a variety of inlet conditioners
- + Easy-to-use graphical user interface with color touch-screen for effortless operation

Handheld Model (8532)

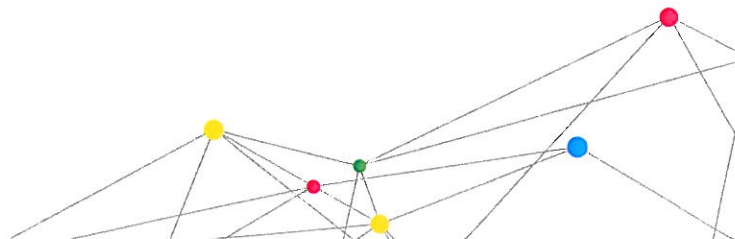
- + Long life internal pump for continuous sampling
- + Single-point data collection for walk through surveys
- + Lightweight design with ergonomic handle for portable applications

Desktop Models (8530 and 8530EP)

- + Energy-efficient, long lasting external pump for continuous, unattended, 24/7, outdoor monitoring applications (Model 8530EP only)
- + Long life internal pump for shorter work-shift or IAQ sampling applications (Model 8530)
- + Gravimetric reference sampling capability for custom reference calibrations
- + Automatic zeroing (with optional zero module) to minimize the effect of zero drift
- + STEL alarm setpoint for tracking 15-minute average mass concentrations
- + Environmental protected and tamper-proof secure (with an optional environmental enclosure)
- + Inlet sample conditioning (with optional heated inlet sample conditioner) to reduce the effect of humidity on photometric mass measurements (for use with an environmental enclosure)
- + Cloud Data Management System as hosted by Netronix™



UNDERSTANDING, ACCELERATED



Desktop Models: Ideal for Long-Term Surveys and Remote Monitoring Applications

The DustTrak II is offered as a standard desktop (Model 8530), as well as a desktop with external pump (Model 8530EP.) Both models have manual and programmable data logging functions, making them ideal for unattended applications. The standard desktop model is most suitable for indoor, continuous monitoring, while the desktop with external pump is designed for 24/7 unattended, remote monitoring outdoors.

The DustTrak II desktop models come with USB (device and host), Ethernet, and analog and alarm outputs allowing remote access to data. User adjustable alarm setpoints for instantaneous or 15-minute short-term excursion limit (STEL) are also available on desktop models. The alarm output with user-defined setpoint alerts you when upset or changing conditions occur.

The DustTrak II desktop monitors have several unique features:

- + Measure aerosols in high concentrations up to 400 mg/m³.
- + External pump (Model 8530EP) with low power consumption for continuous, unattended monitoring in remote outdoor locations.
- + Gravimetric sampling capability using a 37-mm filter cassette which can be inserted in-line with the aerosol stream allowing you to perform an integral gravimetric analysis for custom reference calibrations.
- + Zeros automatically using the external zeroing module. This optional accessory is used when sampling over extended periods of time. By zeroing the monitor during sampling, the effect of zero drift is minimized.
- + STEL alarm feature for tracking 15-minute average mass concentrations when alarm setpoint has been reached for applications like monitoring fugitive emissions at hazardous waste sites.
- + Provide for environmental protection and tamper-proof security using an environmental enclosure. This optional accessory encloses the instrument within a waterproof, lockable, custom-designed case.
- + Condition the sample air stream before entering the instrument optics using a heated inlet sample conditioner (designed for use with an environmental enclosure.) This optional accessory is used in humid environments. By conditioning the sample, the humidity and water vapor are minimized, reducing elevated measurements.

Handheld Models: Perfect for Walk-Through Surveys and Single-Point Data Collection Applications

The DustTrak II Handheld Model 8532 is lightweight and portable. It is perfect for industrial hygiene surveys, point source location monitoring, indoor air quality investigations, engineering control evaluations/validation, and for baseline trending and screening. Like the desktop models, it has manual and programmable data logging functions. In addition, the handheld model also has a single-point data logging capability. Single-point data collection is used for walk-through industrial hygiene surveys and indoor air quality investigations.

Applications	Desktop	Handheld
Aerosol research studies	+	+
Baseline trending and screening	+	+
Engineering control evaluations		+
Engineering studies		+
Epidemiology studies	+	+
Indoor air quality investigations	+	+
Industrial/occupational hygiene surveys	+	+
Point source monitoring		+
Outdoor environmental monitoring	+	
Process monitoring	+	+
Remote monitoring	+	
Battery Performance		
Models 8530 and 8530EP (Typical) 6600 mAH Li-Ion Battery Pack (P/N 801680)	1 Battery	2 Batteries
Battery runtime (hours)	Up to 6	Up to 12
Charge time* (hours) in DustTrak	4	8
Charge time* (hours) in external battery charger (P/N 801685)	4	8

Model 8532 (Typical) 3600 mAH Li-Ion Battery Pack (P/N 801681)	Battery
Battery runtime (hours)	Up to 6
Charge time* (hours) in DustTrak	4
Charge time* (hours) in external battery charger (P/N 801686)	4

* Of a fully depleted battery

Cloud Data Management System for 24/7 remote dust monitoring



DustTrak II Aerosol Monitor Features

All Models

- + Li-Ion rechargeable batteries
- + Internal and external battery charging capabilities
- + Outlet port for isokinetic sampling applications
- + User serviceable sheath flow and pump filters
- + Logged test pause and restart feature
- + Logged test programming
 - + Color touch screen—either manual mode or program mode
 - + TrakPro™ Data Analysis Software via a PC
- + User adjustable custom calibration settings
- + Instantaneous alarm settings with visual and audible warnings
- + Real-time graph display
- + View statistical information during and after sampling
- + On-screen instrument status indicators:
FLOW, LASER and FILTER
- + Filter service indicator for user preventative maintenance

Desktop Models (8530 and 8530EP)

- + Long life external pump (8530EP)
- + Internal pump (8530)
- + Hot swappable batteries
- + Gravimetric reference sample capability
- + STEL alarm setpoint

Optional Accessories

- + Auto zeroing module
- + Protective environmental enclosure (8535 and 8537)
- + Heated inlet sample conditioner (for use with an environmental enclosure)
- + Cloud Data Management System as hosted by Netronix™

Handheld Model (8532)

- + Long life internal pump
- + Single-point data collection for walk through surveys

Easy to Program and Operate

The graphical user interface with color touch-screen puts everything at your fingertips. The easy-to-read display shows real-time mass concentration and graphical data, as well as other statistical information along with instrument pump, laser and flow status, and much more. Perform quick walk-through surveys or program the instrument's advanced logging modes for long-term sampling investigations. Program start times, total sampling times, logging intervals, alarm setpoints and many other parameters. You can even set up the instrument for continuous unattended operation.

TrakPro™ Software Makes Monitoring Easier than Ever

TrakPro™ Data Analysis Software allows you to set up and program directly from a PC. It even features the ability for remote programming and data acquisition from your PC via wireless communication options or over an Ethernet network. As always, you can print graphs, raw data tables, and statistical and comprehensive reports for record keeping purposes.



Desktop Monitor with
External Pump, Model 8530EP

SPECIFICATIONS

DUSTTRAK™ II AEROSOL MONITORS MODELS 8530, 8530EP AND 8532

Sensor Type

90° light scattering

Particle Size Range

0.1 to 10 µm

Aerosol Concentration Range

8530 Desktop	0.001 to 400 mg/m³
8530EP Desktop with External Pump	0.001 to 400 mg/m³
8532 Handheld	0.001 to 150 mg/m³

Resolution

±0.1% of reading or 0.001 mg/m³, whichever is greater

Zero Stability

±0.002 mg/m³ per 24 hours at 10 sec time constant

Flow Rate

3.0 L/min set at factory, 1.40 to 3.0 L/min, user adjustable

Flow Accuracy

±5% of factory set point, internal flow controlled

Temperature Coefficient

+0.001 mg/m³ per °C

Operational Temp

32 to 120°F (0 to 50°C)

Storage Temp

-4 to 140°F (-20 to 60°C)

Operational Humidity

0 to 95% RH, non-condensing

Time Constant

User adjustable, 1 to 60 seconds

Data Logging

5 MB of on-board memory (> 60,000 data points)
45 days at 1 minute logging interval

Log Interval

User adjustable, 1 second to 1 hour

Physical Size (H x W x D)

Handheld	4.9 x 4.8 x 12.5 in. (12.5 x 12.1 x 31.6 cm)
Desktop	5.3 x 8.5 x 8.8 in. (13.5 x 21.6 x 22.4 cm)
External Pump	4.0 x 7.0 x 3.5 in. (10.0 x 18.0 x 9.0 cm)
Weight	
Handheld	2.9 lb (1.3 kg), 3.3 lb (1.5 kg) with battery
Desktop	3.5 lb (1.6 kg), 4.5 lb (2.0 kg)-1 battery, 5.5 lb (2.5 kg)-2 batteries
External Pump	3.0 lb (1.4 kg)

Communications

8530

USB (host and device) and Ethernet. Stored data accessible using flash memory drive

8530EP

USB (host and device) and Ethernet. Stored data accessible using flash memory drive plus, cable assembly for external pump

8532

USB (Host and device). Stored data accessible using flash memory drive

Power-AC

Switching AC power adapter with universal line cord included, 115-240 VAC

Analog Out

8530/8530EP

User selectable output, 0 to 5 V or 4 to 20 mA. User selectable scaling range

Alarm Out

8530/8530EP

Relay or audible buzzer
Relay
Non-latching MOSFET switch
+ User selectable set point
+ -5% deadband
+ Connector 4-pin, Mini-DIN connectors
Audible buzzer

8532

Screen

8530

5.7 in. VGA color touchscreen

8532

3.5 in. VGA color touchscreen

Gravimetric Sampling

8530/8530EP

Removable 37 mm cartridge (user supplied)

CE Rating

Immunity
Emissions

EN61236-1:2006
EN61236-1:2006

Specifications are subject to change without notice.

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