SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT

FORMER NUHART PLASTIC MANUFACTURING SITE

280 FRANKLIN STREET, BROOKLYN, NEW YORK NYSDEC SITE #224136

PREPARED FOR DUPONT STREET DEVELOPERS, LLC

PREPARED BY

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OCTOBER 2015

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Former NuHart Plastic Manufacturing Site 280 Franklin Street, Brooklyn, New York

NYSDEC Site #224136

Prepared By: FPM Group Prepared For: Dupont Street Developers, LLC

I Stephanie O. Davis, CPG certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Supplemental Remedial Investigation Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved Work Plan and any DER-approved modifications.

and, CPb 2

Stephanie O. Davis, CPG Vice President

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1.0 INTRODUCTION

1.1 Purpose

This Supplemental Remedial Investigation (SRI) Report documents environmental investigation services performed by FPM Group, Ltd. (FPM) at the Former NuHart Plastic Manufacturing Site (NYSDEC #224136), located at 280 Franklin Street, Brooklyn, New York (Site). This investigation (TCE Additional Investigation) was performed to complete the delineation of the nature and extent of trichloroethylene (TCE) and related chlorinated volatile organic compound (CVOC) impacts in offsite soil vapor that may be associated with the TCE-impacted area identified in the northeast portion of the Site.

The investigation was conducted in conformance with the New York State Department of Environmental Conservation (NYSDEC)-approved TCE Additional Investigation Work Plan (March 19, 2015) approved by the NYSDEC on March 23, 2015. Any variations from the approved Work Plan are described in Section 3.1.8. This SRI Report summarizes relevant data from previous environmental investigations performed by other environmental investigators, details fieldwork methods and sample collection procedures during implementation of the Work Plan, documents laboratory analysis of the samples collected (soil vapor), and provides conclusions and recommendations based on the results of the investigation.

1.2 Objectives

A Remedial Investigation of the Site was conducted by Ecosystems Strategies, Inc. (ESI) and documented in a draft RI Report (May 2, 2014). During the RI an area of TCE-impacted soil, groundwater, and soil vapor was identified in the northeast portion of the Site; delineation was not complete. ESI conducted a further investigation of the TCE-impacted area that included onsite and offsite soil, groundwater and soil vapor sampling. The results of this investigation were summarized in a November 25, 2014 email from ESI to the NYSDEC and demonstrated that an additional investigation was necessary to complete the delineation of Site-related offsite CVOC impacts in soil vapor. In a December 12, 2014 email correspondence the NYSDEC requested an additional investigation of the Site-related CVOC impacts in soil vapor and assessment of the potential for soil vapor intrusion (SVI) in several offsite buildings. This email included a plan showing the requested sampling locations and media.

The SRI was conducted for the purposes of:

- Completing the determination of the nature and extent of offsite Site-related CVOC contamination in soil vapor.
- Assessing whether the potential for SVI is present at select offsite properties in the area where Site-related CVOC soil vapors may be present.
- Obtaining information sufficient to determine an appropriate remedial action with respect to Site-related offsite soil vapor impacts.

2.0 SITE DESCRIPTION

2.1 Site Location and Description

The approximately one-acre Site is identified on the city tax map as Block No. 2487, Lots No. 1, 10, 12, 72 and 78. The Site is comprised of the western portion of a vacant industrial building complex (the former NuHart Plastic Manufacturing facility) located in the Greenpoint section of Brooklyn, Kings County, New York. A Site Location Map, indicating the IHWDS boundary, is provided as Figure 2.1.1.

The Site is bordered immediately to the north by commercial/industrial buildings across Clay Street, to the east by remaining portions of the NuHart facility, to the south by multi-family residential structures across Dupont Street, and to the west by a New York City Park (Newtown Barge Playground) across Franklin Street. Residential buildings are located further to the east of the NuHart facility.

The Site was entered into the New York State Inactive Hazardous Waste Disposal Site (IHWDS) Remedial Program (also known as the State Superfund Program) in July 2010 and is identified as NYSDEC Site No. 224136. This investigation work documented herein was performed under this program.

Former industrial operations at the Site have impacted onsite and offsite soil and groundwater with phthalates and lubricating oil likely released from onsite tanks and piping networks. Phthalates and a phthalate/oil mixture are present as widespread light non-aqueous phase liquid (LNAPL) impacting soil and floating on the groundwater. Dissolved groundwater contamination associated with the LNAPL is generally limited to phthalates. Investigation of the LNAPL-related impacts was conducted during the RI of the Site and the results are reported in the RI Report, which was submitted to the NYSDEC in July 2015. LNAPL-related issues will not be discussed further herein.

During the RI localized impacts from a release of CVOCs were discovered onsite. The nature and extent of Site-related CVOC contamination were further investigated during the RI and the results of these investigations are included in the RI Report. However, the offsite extent of CVOC impacts in soil vapor was not delineated during the RI. Therefore, an additional investigation of the Site-related CVOC impacts in soil vapor was conducted and is documented herein. An assessment of the potential for soil vapor intrusion in several offsite buildings was requested by the NYSDEC but has not been conducted as the owners of the offsite buildings have not provided access for the necessary sampling. Therefore, the data from the nearby soil vapor sampling locations have been used to provide this assessment.

A NYSDEC petroleum spill (No. 0601852) has been reported for the NuHart property located to the east of the Site due to a release of petroleum from former underground storage tanks (USTs). The spill area is located east of the Site and is the subject of a separate remedial action. Data generated during the spill investigation have been incorporated into this SRI Report as needed to document environmental conditions related to the delineation of the Site-related CVOCs.

2.2 Physical Setting

Based on the United States Geological Survey (USGS) Topographic Map of the Brooklyn, New York Quadrangle, the Site is located in a relatively level urban area. In general the surface elevation ranges from 17 to 23 feet above mean sea level (MSL), with gentle downward slopes to the west-northwest, toward the confluence of the nearby East River and



Newtown Creek. The Site is located within an industrial building, with a concrete floor at elevations generally matching or slightly above grade level along Dupont Street.

USGS reports describe the subsurface materials in the general vicinity of the Site as unconsolidated fill overlying salt-marsh deposits and alluvium, typically underlain by till and ground moraine of the Upper Glacial Aquifer. Crystalline bedrock is documented in this general area of Brooklyn at approximately 30 feet below surface grade (bsg).

Subsurface soils exposed in borings at the Site during the RI were noted to generally consist of variable-texture sands, with some deeper areas of silt and clay (generally below 10 to 12 feet bsg). Historic fill materials containing sand, broken masonry, and other anthropogenic debris were encountered at 0 to 4 feet bsg. No bedrock was encountered during the RI borings, which were extended to a maximum depth of 30 feet bsg. Borings conducted during a recent geotechnical investigation of the Site encountered bedrock between 60 and 65 feet bsg.

Soil borings were not performed during the investigation reported herein as this investigation pertained solely to soil vapor.

Monthly well gauging data from September 2012 through March 2014 during the RI indicated that groundwater depth ranges from approximately 7 to 12 feet bsg, with minimum groundwater depths generally recorded during the winter. Groundwater flow at the Site is in an overall westerly direction, towards the East River, which is located approximately 450 feet west of the Site. In the apparent TCE source area groundwater flow appears to be somewhat more north-northwest and is likely influenced by the proximity of Newtown Creek. Groundwater elevations are somewhat tidally influenced to the west of the Site.

2.3 History of Site and Previous Environmental Investigations

The Site history and previous environmental investigations are described in detail in the RI Report and are not repeated herein, with the exception of information pertaining to the Site-related CVOC impacts.

Commercial uses of the property prior to 1950 included manufacturing (metalworking, light fixtures, soap and waterproofing materials); after 1950 the building complex was primarily used for the production, storage, and shipping of plastic and vinyl products by several tenants (the last tenant ceased operation in 2004). Previous reports identified the presence of USTs containing plasticizers, lubricating oil, chemicals and fuel oil associated with the plastic manufacturing operations. Onsite CVOC storage and/or use were not identified in any of the previous reports and were not documented to have been associated with historic Site operations.

Early investigations conducted onsite prior to the listing of the Site generally did not include testing for CVOCs. However, an Interim Investigation Report issued by ESI in April 2010 documents an investigation completed just prior to the listing of the Site. This investigation included groundwater testing for a full list of VOCs and TCE was detected at 15 micrograms per liter (μ g/L) in offsite well MW-13 (located to the northwest of the Site). No other significant concentrations of CVOCs were found in any other samples during this investigation.

The RI conducted after the Site was listed included CVOC testing and resulted in the discovery of a limited area of CVOC-impacted soil near the northeast corner of the Site. Areas of CVOC-impacted groundwater and soil vapor were identified in association with this source soil and additional delineation investigations were conducted. The results of these

investigations are integrated with the results of the investigation documented herein, as discussed in Section 4 of this report.

Although the manufacturing operations conducted onsite did not specifically use CVOCs, manufacturing operations have the potential to involve limited CVOC use for certain operations. Therefore, the discovery of CVOC source soil during the RI is not inconsistent with past operations, and fact that the source is limited supports the understanding that CVOC use was not a significant part of the former operations at this Site.

3.0 TCE ADDITIONAL INVESTIGATION

The TCE Additional Investigation documented herein was performed in accordance with a March 19, 2015 work plan, which was approved by the NYSDEC on March 23, 2015. Any deviations from this work plan are documented in the relevant sections below and summarized in Section 3.1.8. This investigation included soil vapor sampling and assessment of the potential for SVI in an offsite area to the north and northwest of the Site. Copies of the work plan and NYSDEC approval are included in Appendix A.

3.1 General Provisions

3.1.1 Investigation Personnel and Subcontractors

All investigation activities were conducted or overseen by a qualified environmental professional (QEP) and additional properly-qualified environmental professionals employed by FPM. Resumes of the FPM personnel involved in this investigation are included in Appendix B.

FPM supervised the advancement of borings for soil vapor sampling performed by Associated Environmental Services (AES). The Health and Safety Plan (HASP) for this work was reviewed with all onsite AES personnel prior to the start of work. FPM personnel served as the Site Health and Safety officer during all work. FPM personnel collected all soil vapor samples.

Laboratory services were subcontracted to Centek Laboratories, Inc., a New York State Department of Health (NYSDOH) certified laboratory (ELAP Certification Number 11830). Data Usability Summary Report (DUSR) preparation was conducted by Apex Companies of Bohemia, New York (Apex).

3.1.2 Access Requests, Utility Markout and Permitting

Outreach to the offsite private property owners for access for SVI sampling was initiated by FPM on March 20, 2015, including mailing letters (regular and registered mail) and door-todoor contacts on March 26, 2015. Confirmation of receipt of five of the seven letters was received and two letters were returned as "refused". Copies of the access correspondence and responses are included in Appendix A. None of the access requests provided by mail was approved and none of the contacts made on March 26, 2015 provided access.

In May 2015 the NYSDEC provided this information to the New York State Department of Health (NYSDOH) and requested that the NYSDOH conduct outreach to the private property owners. The NYSDOH successfully contacted one owner (48 Commercial Street) and obtained verbal agreement to allow access. FPM followed up with the owner and resent the access agreement; an approved access agreement was received on June 8, 2015 and sampling was conducted at this property on June 19, 2015.

To date, offsite access for SVI sampling has not been obtained from any of the other properties. Therefore, the soil vapor data obtained from nearby areas were used to assess potential SVI concerns for the offsite properties not sampled during this investigation. In the event that access is provided and additional data are obtained, the NYSDEC will be provided with the additional data, which will be documented in a report.

Prior to the initiation of intrusive fieldwork on Clay Street and Commercial Street a request for a complete utility markout in the investigation areas was submitted by the direct-push contractor AES as required by New York State Department of Labor regulations. Underground utility locations were marked and a field check of the utility markout was conducted prior to the intrusive fieldwork.

Sidewalk opening permits were also secured by AES prior to conducting intrusive activities. In late March 2015 AES proceeded to obtain sidewalk-opening permits; permits were obtained for the Clay Street locations but permits could not be obtained for the two contemplated locations associated with Commercial Street due to the presence of major electric and gas utilities. This access issue was discussed with the NYSDEC and use of existing data associated with the Greenpoint Landing project was contemplated as an alternative to fill this data gap. The NYSDEC subsequently made copies of the Greenpoint Landing RI reports available to FPM for this purpose.

3.1.3 Agency Notification

The NYSDEC was notified by FPM via telephone and email prior to the initiation of intrusive fieldwork.

3.1.4 Equipment Decontamination and Calibration

Prior to the initiation of fieldwork, all dedicated field equipment with the potential to contact samples was properly decontaminated by AES or FPM; decontamination was conducted prior to mobilization to the field and was confirmed by FPM prior to the start of work. Dedicated disposable field equipment was confirmed to be contained in its original packaging, and visually assessed in the field for cleanliness. As described below, the field sampling procedures used only the dedicated disposable sampling equipment.

During intrusive activities a calibrated photoionization detector (PID) was utilized by FPM to screen all boreholes for the potential presence of organic vapors and to conduct community air monitoring. A calibrated dust meter was also used to conduct community air monitoring. Prior to the initiation of fieldwork, the PID and dust meter were properly calibrated by FPM in accordance with protocols set forth by the equipment manufacturers.

3.1.5 Investigation-Derived Waste

Waste materials generated during this investigation that required disposal were limited to spent sample tubing and nitrile gloves worn by field personnel. These materials were collected and properly disposed as solid waste.

Soil cuttings were generated from the upper part of each borehole due to the proximity of utilities and the need to advance the upper portion of each borehole by hand-operated equipment (post-hole digger). The resulting cuttings were visually observed and screened for organic vapors by FPM. As no indications of potential contamination were noted and the sample locations were not onsite, the cuttings were returned to the borehole from which they originated following the completion of sampling.

3.1.6 Field Observations, CAMP Monitoring, and Sample Collection and Custody

Assessments of field conditions (e.g., visible indications of contamination and PID readings) were made during the collection of all samples. FPM personnel maintained field logs documenting field observations and measurements, copies of which are included in Appendix C.

FPM implemented the Community Air Monitoring Plan (CAMP) during intrusive field activities. CAMP monitoring included using calibrated instruments to monitoring for organic vapors and particulates (dust) during intrusive activities. The CAMP monitoring logs are

included in Appendix C. No exceedances of the CAMP criteria were noted during the CAMP monitoring and no complaints of any kind were received from the community.

All soil vapor samples were collected in accordance with the protocols in the NYSDECapproved work plan. Dedicated, disposable gloves were worn by all personnel handling samples, and collected vapor samples were contained in into laboratory-supplied containers. All sample containers were transported to the laboratory using appropriate procedures, as further described in Section 3.2.1 below.

3.1.7 Data Evaluation

The term "guidance level," as used in this report, refers to the concentration of a particular contaminant above which remedial actions may be more likely. The purpose of establishing guidance levels is to provide criteria for assessing the data from the sampled media (soil vapor, in this investigation) relative to conditions that are likely to present a threat to public health or the environment, given the existing and probable future uses of the Site and surrounding area. Soil vapor with contaminant concentrations exceeding guidance levels is considered more likely to warrant remediation.

The NYSDOH has not established official guidance levels for VOCs in soil vapor. However, the NYSDOH's October 2006 *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* contains guidance useful for assessing soil vapor conditions. VOCs in soil vapor for which the NYSDOH provides some guidance are highlighted in this report and the associated data summary tables and figures to facilitate an assessment of the investigation findings.

In this report soil data are referenced in units of micrograms per kilogram (ug/kg) and groundwater data are referenced in units of micrograms per liter (μ g/L). Laboratory results for soil vapor are referenced in units of micrograms per cubic meter (μ g/m³).

3.1.8 Variations from the Approved Work Plan

There were no significant deviations from the NYSDEC-approved work plan that were critical to the validity of the conclusions presented in Section 4.0. Variations from the approved work plan are discussed in the relevant sections of this report and are summarized as follows:

- Access was not provided to most of the private properties for which SVI sampling had been requested by the NYSDEC. The NYSDEC requested assistance from the NYSDOH with conducting outreach to the private property owners, but access for SVI sampling has not been obtained from any of the private properties except for 48 Commercial Street. Therefore, the soil vapor data obtained from nearby areas were used to assess potential SVI concerns during this investigation, as discussed further in Section 3.2.6.
- Sidewalk opening permits could not be obtained for the two contemplated soil vapor sampling locations associated with Commercial Street due to the presence of major electric and gas utilities. This access issue was discussed with the NYSDEC and use of existing data associated with the Greenpoint Landing project was contemplated as an alternative to fill this data gap. The NYSDEC subsequently made copies of the Greenpoint Landing RI reports available to FPM for this purpose and the applicable data were used, as further discussed in Section 3.2.6 of this report.

3.2 Investigation Procedures and Results

3.2.1 Sample Collection Procedures, Management, and Testing

Soil vapor samples were collected from the SV-1 to SV-4 locations on April 23 and 24, 2015. These locations are in the sidewalks on the north and south sides of Clay Street, as shown on Figure 3.2.1.1. A soil vapor sample was collected from the SG-5 location on the 48 Commercial Street property on June 19, 2015. Previous soil vapor sampling locations associated with this Site, the Site monitoring wells, and relevant soil vapor sampling locations associated with the Greenpoint Landing project are also shown on this figure.

Soil vapor sampling was conducted from borings that were installed through the sidewalk areas or pavement (48 Commercial Street) using hand-operated equipment for the upper parts of the borings and mechanized direct-push equipment, as needed, for the deeper parts of the borings, consistent with the approved work plan. Dedicated Teflon sample tubing was inserted into each boring to near the bottom. The bottom one foot of the boring around the open end of the tubing was backfilled with clean silica sand. The remainder of each boring was backfilled with bentonite, which was hydrated to seal each boring.

Following sample tubing installation, the space around each sampling point was enclosed and sealed (with a metal hemisphere and clay) and a tracer gas (helium) was introduced into the enclosure. A vacuum pump was then utilized to purge the standing air from the tubing and open soil interval. At least three tubing volumes were purged at a rate of 0.2 liters per minute prior to sample collection. A helium detector (Radiodetection Multi-vapor Leak Locator, model MDG 2002) was used to determine if helium was being drawn into the sample tubing. None of the sample locations exhibited any evidence of helium bypassing.

Following purging and helium testing, the soil vapor samples were each collected over an approximate two-hour period using a laboratory supplied one-liter stainless steel Summa canister with a calibrated two-hour flow controller. For each sampling canister, the pre- and post-sample canister pressure, start and stop times, and location of each sampling point was recorded. An ambient air sample was also collected in the same manner during the April sampling event; this sample was obtained from a location on the south side of Clay Street near SV-1.

All of the collected samples were managed under chain-of-custody procedures and transmitted via overnight courier to the selected NYSDOH ELAP-certified laboratory (Centek) for testing. The soil vapor samples were tested for VOCs using the TO-15 Method. The analyses were performed in accordance with the NYS ASP with Category B deliverables provided in an electronic format. The resulting laboratory reports are included in Appendix D and the data have been uploaded to the NYSDEC's electronic information management system (EIMS).

3.2.2 Fieldwork Observations

The samples were collected from beneath concrete sidewalk slabs, unpaved areas within the sidewalks, and from beneath pavement. No significant PID readings, odors or other evidence suggestive of potential contamination were noted during either soil vapor sampling event and the results from the ambient air sample did not suggest that a significant source of atmospheric VOCs was present in the vicinity of the April 2015 sample locations.

3.2.3 Quality Assurance/Quality Control

Site-specific quality assurance/quality control (QA/QC) samples were collected during this investigation in general accordance with the Quality Assurance Project Plan (QAPP) for this



Site, including a duplicate sample and a trip blank sample during the April sampling event and a duplicate sample during the June sampling event. A trip blank sample was not collected during the June sampling event as the laboratory did not provide the requested trip blank canister in the canister shipment and schedule constraints precluded a delay. This issue is assessed in the associated DUSR for the June data. The FPM QEP reviewed the results of the QA/QC samples, which indicated that no significant cross-contamination had occurred between samples and that the analytical precision is acceptable.

In addition, the Category B laboratory data packages were provided to the DUSR preparer (Apex) and DUSRs were developed, copies of which are included in Appendix D. The DUSRs identified no significant concerns for data quality and confirmed that the data are of acceptable quality for their intended use.

3.2.4 Laboratory Results

Soil vapor data collected during this investigation are summarized in Table 3.2.4.1 and are compared to NYSDOH guidance, as discussed below. Soil vapor sampling locations and detections of TCE and related CVOCs are shown on Figure 3.2.4.1; this figure also includes soil vapor data from previous investigations of the Site and from relevant locations on the Greenpoint Landing property for reference.

TCE and/or tetrachloroethylene (PCE) were detected at the SV-1 through SV-3 locations and at the SG-5 location at up to 1,100 µg/m³ and 8.9 µg/m³, respectively. Neither TCE nor PCE was detected at the SV-4 location. The TCE detections at SV-1, SV-2, and SG-5, when compared to the NYSDOH Matrix 1, were at levels where monitoring or mitigation could be indicated, depending on associated indoor air concentrations. None of the PCE detections were sufficiently elevated to present a potential SVI concern. The VOC cis-1,2dichloroethene (cis-DCE), a breakdown product of TCE, was found at the SV-1, SV-2, and SG-5 locations, but none of the detections was sufficiently elevated to present a potential SVI concern. Vinyl chloride (VC), a further breakdown product of TCE, was detected only at SV-1; the VC detections were at levels where monitoring or mitigation could be indicated, depending on associated indoor air concentrations. Carbon tetrachloride was found at a very low level in SV-4; this detection does not present an SVI concern.

Several other VOCs, including petroleum constituents, refrigerants, and non-chlorinated solvents, were detected at all sampling points. Most of these detections were not highly elevated and were noted to be within the typical ranges of indoor air background levels in commercial buildings, as shown on Table 3.2.4.1. Several petroleum constituent detections at SV-4, including ethylbenzene, xylenes, and toluene, were noted to be somewhat elevated. This location is on the north side of Clay Street to the east of the Site and the levels of these constituents at SV-3, closer to the Site, were lower. These detections at SV-4 are suggestive of a potential offsite petroleum source (unrelated to the Site) on the north side of Clay Street.

The benzene level at SV-1 was noted to be higher than at the other locations. SV-1 is located in proximity to petroleum Spill #0601852, which is on the former NuHart facility located just to the east of the Site. It is likely that the benzene at this location is associated with this spill.

3.2.5 Nature and Extent of Site-Related Soil Vapor Impacts

As shown by the TCE concentration contours on Figure 3.2.4.1, soil vapor impacted by TCE and related CVOCs is present beneath the northeastern portion of the Site building. The impacts are greatest in the vicinity of SG-3, 2SB-2 and 2SB-3 and appear to coincide with

TABLE 3.2.4.1 SOIL VAPOR ANALYTICAL DATA - 2015 FORMER NUHART PLASTIC MANUFACTURING FACILITY, SITE #224136 280 FRANKLIN STREET, BROOKLYN, NEW YORK

Sample Number	SV-1	SV-1D (duplicate)	SV-2	SV-3	SV-4	Trip Blank	Ambient	SG-5	SG-5D (duplicate)	Indoor Air Background Levels,	
Date		4/24/15						6/1	9/15	Commercial *	
Volatile Organic Compounds in micrograms per cubic meter											
1,1,1-Trichloroethane	ND	ND	2.1	ND	ND	ND	ND	ND	ND	2.6 - 33.0	
1,2,4-Trimethylbenzene	9.8	11	9.3	9.8	190	ND	ND	4.1	3.9	1.7 - 13.7	
1,3,5-Trimethylbenzene	2.3	2.3	2.9	3.3	83	ND	ND	2.4	2.5	ND - 4.6	
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	150	150	ND - 1.7	
2,2,4-Trimethylpentane	38	43	76	8.9	44	ND	ND	6.1	ND	-	
4-Ethyltoluene	3.7	3.8	5.5	5.9	110	ND	ND	1.3	1.2	ND - 5.9	
Acetone	100	120	490	510	570	ND	12	480	500	32.4 - 120.2	
Benzene	1,600	1,600	19	11	41	ND	0.45 J	60	67	2.1 - 12.5	
Bromodichloromethane	ND	ND	0.80 J	ND	ND	ND	ND	ND	ND	-	
Carbon disulfide	0.84	1.1	17	8.7	15	ND	ND	22	20	ND - 6.4	
Carbon tetrachloride	ND	ND	ND	ND	0.69 J	ND	0.75 J	ND	ND	ND - 0.7	
Chloroform	ND	ND	16	ND	1.2	ND	ND	ND	ND	ND - 1.4	
Chloromethane	ND	ND	ND	0.85	ND	ND	0.87	ND	ND	2.1 - 4.4	
cis-1,2-Dichloroethene	11	11	3.2	ND	ND	ND	ND	6.0	6.0	ND	
Cyclohexane	38	42	7.9	3.6	8.3	ND	ND	24	28	-	
Ethyl acetate	6.8 J	5.8 J	20	120	160	ND	0.54 J	ND	ND	ND - 9.5	
Ethylbenzene	11	10	48	14	330	ND	ND	5.1	5.1	ND - 7.6	
Freon 11 (Trichlorofluoromethane)	ND	ND	1.7	1.6	5.7	ND	1.7	1.1	0.90	ND - 54.0	
Freon 113 (Trichlorotrifluoroethane)	ND	ND	1.8	ND	ND	ND	ND	ND	ND	ND - 1.8	
Freon 12 (Dichlorodifluoromethane)	ND	ND	2.2	2.9	2.4	ND	2.9	3.4	2.6	4.8 - 32.9	
Heptane	25	27	40	20	32	ND	0.49 J	23	24	ND - 3.1	
Hexane	74	78	25	ND	ND	ND	ND	47	42	1.6 - 15.2	
Isopropyl alcohol	ND	ND	ND	49	53	ND	1.5	ND	ND	-	
Xylene (m,p)	37	31	100	42	1,200	ND	ND	9.4	9.4	4.1 - 28.5	
Methyl Ethyl Ketone	ND	ND	56	55	50	ND	1.1	47	37	3.3 - 13.5	
Methyl Isobutyl Ketone	ND	ND	23	9.4 J	10 J	ND	ND	3.2	2.5	-	
Methylene chloride	ND	ND	4.0	3.8	4.9	ND	0.80	1.0	0.80	ND - 16.0	
Xylene (o)	11	10	25	12	520	ND	ND	6.6	6.8	ND - 11.2	
Tetrachloroethylene	8.7	8.9	7.9	0.88 J	ND	ND	ND	6.0	6.3	ND - 25.4	
Toluene	60	56	240	80	1,100	ND	2.9	9.4	8.3	10.7 - 70.8	
Trichloroethene	140	120	1,100	0.81	ND	ND	ND	9.4	9.9	ND - 6.5	
Vinyl Chloride	44	43	ND	ND	ND	ND	ND	ND	ND	ND	

Notes:

Only compounds detected in one or more samples are reported. See laboratory reports for complete data.

ND = Not detected.

J = Analyte detected at or below quantitation limits.

- = Background concentration not established.



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Sample Location SV-2 Sample Location SV-4

CVOC-impacted groundwater in this area, as discussed below. The impacts do not extend fully beneath the Site and are not found at the west, southwest or south Site boundaries.

The Site-related CVOC soil vapor impacts extend offsite to the east beneath a portion of the adjoining former NuHart facility, but do not extend to the east end of this building or to the offsite SV-3 location on the south side of Clay Street.

Site-related CVOC soil vapor impacts extend to the north, across Clay Street, but do not extend as far northward as the north side of Commercial Street, as demonstrated by soil vapor data from Greenpoint Landing (discussed below). The soil vapor data from the 48 Commercial Street property (SG-5) support this understanding as the levels of both PCE and TCE were lower at this location than in the next closest location to the south (3SB-1). In general, the impacts appear to decrease to the east and west of the 3SB-1 location on the north side of Clay Street. The distribution of TCE on the north side of Clay Street to the east of 3SB-1 does not correlate well with groundwater data or with the groundwater flow direction in this area and it is possible that there is an offsite TCE source on the north side of Clay Street.

These data support the conclusion that the source of elevated CVOCs in soil vapor at the Site is a limited solvent "hot spot" with an associated limited area of impacted groundwater. The CVOC-impacted soil vapor beneath the northeastern portion of the Site does not appear to affect the western or southern portions of the Site. The CVOCs in soil vapor have migrated offsite in a limited manner to the east and north, generally consistent with groundwater flow and vapor-phase dispersion. The soil vapor impacts do not extend to residential properties to the east of the Site.

Generally low levels of other VOCs were detected in soil vapor throughout the Site and vicinity; these detections are consistent with concentrations typically encountered in urban settings with historic industrial uses. Some levels of petroleum-related VOCs may be associated with the known petroleum spill located on the former NuHart facility just to the east of the Site and additional offsite petroleum vapor detections to the north and east may be associated with an offsite source.

3.2.6 Assessment of Potential SVI for Offsite Properties

As discussed above in Section 3.1.8, access was not provided to most of the private properties for which SVI sampling had been requested by the NYSDEC. In addition, as noted above, soil vapor sampling could not be performed along Commercial Street due to the presence of major electric and gas utilities. Therefore, the soil vapor data obtained from nearby areas were used to assess potential SVI concerns and the potential extent of Site-related CVOC impacts in soil vapor during this investigation.

To address the absence of soil vapor samples on Commercial Street, existing data associated with the Greenpoint Landing project were used to evaluate soil vapor conditions in proximity to Commercial Street. The relevant Greenpoint Landing soil vapor data are shown at the SV-7 through SV-9 locations on the north side of Commercial Street (see Figure 3.2.4.1). The SV-7 location is significantly to the west of the Site and outside of the area where Site-related TCE impacts are present in soil vapor. The primary CVOCs at SV-7 are carbon tetrachloride and cis-DCE; very little TCE (up to 8.48 ug/m³) is present at this location. We conclude that the soil vapor conditions at SV-7 associated with the Greenpoint Landing property are not Site-related. The SV-8 and SV-9 locations on the Greenpoint Landing property do not show any detections of CVOCs. Therefore, based on the Greenpoint Landing data, which demonstrate no detections of Site-related CVOCs in the

area north of the CVOCs in soil vapor identified on Clay Street, Site-related TCE impacts do not appear to extend to Commercial Street.

The available soil vapor data were used to evaluate potential SVI concerns for the targeted private properties that could not be sampled. These private properties are located between Clay Street and Commercial Street, in the area to the north of the Site, as generally depicted on Figure 3.2.4.1. This figure also shows the soil vapor data from locations in nearby proximity. These data show that TCE and related CVOCs are present in nearby soil vapor sampling locations on the north side of Clay Street (3SB-2, 3SB-1, SV-2, SV-4, and SG-5) at concentrations ranging from ND to 6,290 ug/m³ (TCE), ND to 28.9 ug/m³ (cis-DCE), and ND to 102 ug/m³ (PCE). All of these CVOCs were reported as non-detect in the two soil vapor sample locations on the north side of Commercial Street. As the concentrations of these CVOCs are documented to decrease between Clay Street and Commercial Street, it is reasonable to conclude that the concentrations of these CVOCs are less beneath the private properties than the concentrations observed at the sample locations on the north side of Clay Street at the sample locations on the north side of these CVOCs are less beneath the private properties than the concentrations observed at the sample locations on the north side of Clay Street at the sample locations on the north side of Clay Street at the sample locations on the north side of these CVOCs are less beneath the private properties than the concentrations observed at the sample locations on the north side of Clay Street.

Of the detections on the north side of Clay Street, only the TCE levels at 3SB-2, 3SB-1, and SV-2, and the PCE level at 3SB-1 have the potential to present an SVI concern for adjoining properties to the north. The 3SB-1 and 3SB-2 locations adjoin 48 Commercial Street, which is a paved fenced property with no buildings, and which has been sampled. At the present time there is no potential for SVI at this property due to the absence of buildings. If a building were present on this property, the TCE level in soil vapor beneath this property would present an SVI concern.

The 15 Clay Street property, which is a commercial/industrial property developed with one building, is located just to the northeast of the 3SB-1 location and somewhat to the west of the SV-2 location. The TCE levels at these locations range from 1,100 to 6,290 ug/m³ and PCE is present at 3SB-1 at 102 ug/m³; it is likely that soil vapor containing TCE and/or PCE is present beneath this building.

The SV-2 location adjoins 19 Clay Street, a commercial/industrial property with a building. The TCE level at SV-2 is 1,100 ug/m³; it is likely that soil vapor containing TCE is present beneath this building.

The SV-4 location adjoins 29 Clay Street, a commercial/industrial property with a building. None of the detections at SV-4 presents an SVI concern and, therefore, there does not appear to be a potential SVI concern for this building.

3.3 Qualitative Human Health Exposure Assessment – Soil Vapor

A qualitative human health exposure assessment was presented in the RI Report for this Site. The assessment was conducted to qualitatively assess the potential impacts of known environmental contaminants associated with the Site on human health. Both current (existing conditions) and future use (proposed residential or mixed residential/commercial use) scenarios were considered during this assessment, which considered all Site media (soil, groundwater and soil vapor). The portion of this exposure assessment pertaining to soil vapor has been updated to incorporate the additional findings of this investigation.

The RI exposure assessment determined that direct contact and/or inhalation of soil vapor from SVI, generated during soil excavation, or otherwise released from subsurface areas during intrusive activities, are the most likely exposure pathways. SVI exposures at the Site under current conditions are likely to be insignificant as the building is not occupied. A CAMP would be implemented at the Site (and, as required, at offsite areas) during intrusive remedial activities to monitor air quality and minimize potential exposures to vapors for both construction workers and the public.

For the Site, future remedial activities are anticipated to decrease the potential for SVI and redevelopment activities would, if necessary, include SVI mitigation measures, most likely including installation of a sub-slab depressurization system (SSDS) at a new Site building, or a fully-ventilated garage in contact with soil. These mitigation measures would eliminate or significantly reduce the potential for SVI onsite and are the typical mitigation measures for NYSDEC sites with SVI concerns.

The offsite soil vapor sampling conducted during the RI and this investigation suggests that SVI is a potential concern for 15 and 29 Clay Street. However, the potential for SVI at these properties cannot be confirmed unless access for SVI sampling is provided by the property owners. SVI may also present a concern at 48 Commercial Street if a building is constructed on this property in the future. Remedial activities to be conducted for the Site are likely to reduce the source of TCE and related CVOC vapors. Over time, source reduction is likely to reduce the potential for SVI in offsite buildings.

4.0 CONCLUSIONS

FPM has completed the additional investigation of TCE in offsite soil vapor for the Former NuHart Plastic Manufacturing Site, located at 280 Franklin Street, Brooklyn, New York, to the extent feasible based on access constraints. The investigative work was performed to complete the delineation of the nature and extent of TCE and related CVOC impacts in offsite soil vapor that may be associated with the TCE-impacted area identified in the northeast portion of the Site.

Site-related CVOC impacts have been delineated for soil, groundwater, and soil vapor based on the results of this investigation and previous investigations overseen by the NYSDEC. The nature and extent of CVOC impacts in each of these media is summarized as follows:

> Soil

Soil sampling locations and detections of CVOCs in soil were presented in the RI Report prepared by ESI. CVOC concentrations in soil are compared to the 6NYCRR Part 375 Soil Cleanup Objectives (SCOs) for unrestricted use and restricted residential use. Figure 7 from the RI Report is included in Appendix E and summarizes the CVOC detections and exceedances of SCOs for unrestricted use for CVOCs in soil. None of the CVOC detections exceeded the SCOs for restricted residential use.

CVOC concentrations above SCOs for unrestricted use were detected in several borings performed in the northeastern portion of the Site and extending a short distance offsite to the north, beneath the sidewalk on the south side of Clay Street. The CVOCs noted to exceed the SCOs include TCE, cis-DCE, and one detection of vinyl chloride. These exceedances generally coincide with the area where the highest CVOC detections are noted in soil vapor, including locations beneath the northeastern portion of the Site and locations immediately offsite to the north, beneath the sidewalk adjoining the south side of Clay Street. No exceedances of the SCOs for unrestricted use were noted for any CVOCs elsewhere on the Site or offsite and CVOC impacts in soil have been delineated.

Groundwater

Groundwater sampling locations and detections of significant CVOCs in groundwater were presented in the RI Report prepared by ESI. CVOC concentrations in groundwater are compared to the NYSDEC's Class GA Ambient Water Quality Standards and Guidance Values (Standards). Figure 10 from the RI Report summarizes the exceedances of Standards for the CVOCs (see Appendix E).

Concentrations of TCE, cis-DCE, and/or vinyl chloride in excess of their Standards have been detected at various times at onsite wells MW-34 and MW-35, and offsite wells MW-8, MW-12, MW-13, MW-17, MW-18, MW-29, MW-32, MW-38, MW-39 and MW-40. In general, the highest concentrations of CVOCs are detected at onsite well MW-34 and offsite wells MW-8 and MW-40, located immediately north and east, respectively, of the apparent source area on the northeastern portion of the Site. CVOC concentrations decrease significantly to the east, west, and south of these wells, with more moderate decreases noted to the northwest, in the apparent direction of local groundwater flow in this area.

The significant reduction in CVOC concentrations away from the apparent source area, and an absence of significant CVOC concentrations in upgradient wells are consistent with the understanding that the CVOC source area is limited.

> Soil Vapor

Soil vapor impacted by TCE and related CVOCs is present beneath the northeastern portion of the Site building, with the greatest impacts coinciding with CVOC-impacted groundwater in this area. The impacts do not extend fully beneath the Site and are not found beneath the western or southern portions of the Site, as shown in Figure 5 in Appendix E.

The CVOCs in soil vapor have migrated offsite in a limited manner to the east and north of the Site, generally consistent with groundwater flow and vapor-phase dispersion. The Site-related CVOC soil vapor impacts extend offsite to the east beneath a portion of the adjoining former NuHart facility, but do not extend to the east end of this building or to the vicinity of residential properties to the east of the Site.

Site-related CVOC soil vapor impacts extend to the north, across Clay Street, but do not extend as far northward as the north side of Commercial Street, as demonstrated by soil vapor data from Greenpoint Landing. In general, the impacts appear to decrease to the east and west of the 3SB-1 location on the north side of Clay Street. The distribution of TCE on the north side of Clay Street to the east of 3SB-1 suggests that it is possible that there is an offsite TCE source on the north side of Clay Street.

Other VOCs were detected in soil vapor throughout the Site and vicinity at generally low levels consistent with typical urban settings with historic industrial uses. Some petroleum-related VOCs may be associated with the known petroleum spill located on the former NuHart facility just to the east of the Site and additional offsite petroleum vapor detections on the north side of Clay Street may be associated with an offsite source.

APPENDIX A

SUPPORTING DOCUMENTS



FPM Group, Ltd. FPM Engineering Group, P.C. formerly Fanning, Phillips and Molnar

CORPORATE HEADQUARTERS 909 Marconi Avenue Ronkonkoma, NY 11779 631/737-6200 Fax 631/737-2410

VIA EMAIL

March 19, 2015

Mr. Bryan Wong Environmental Engineer New York State Department of Environmental Conservation Division of Environmental Remediation, Region 2 47-40 21st Street Long Island City, NY 11101

Re: TCE Additional Investigation Work Plan Former NuHart Plastic Manufacturing Site, NYSDEC #224136 280 Franklin Street, Brooklyn, New York FPM File No. 1134g-15-12

Bryan:

This TCE Additional Investigation Work Plan (TCEWP) has been prepared by FPM Group (FPM) in response to your December 12, 2014 correspondence (attached) requesting a work plan for additional investigation of the offsite extent of trichloroethylene (TCE) vapor impacts associated with the TCE-impacted area identified in the northeast portion of the above-referenced Site. The TCE Additional Investigation will include soil vapor, sub-slab soil vapor, indoor air, and ambient air testing intended to delineate the offsite extent of Site-related TCE soil vapor impacts associated with the Site. A site plan showing the requested sampling locations (green dots and yellow squares) is also attached.

These activities will be conducted as part of a Supplemental Remedial Investigation (SRI) for this Site. The SRI is intended to supplement the TCE investigation work in the Remedial Investigation of the Site conducted by Ecosystems Strategies, Inc. in accordance with the requirements and procedures in the Remedial Investigation Work Plan (RIWP) and associated documents approved by the New York State Department of Environmental Conservation (NYSDEC) for this Site. Existing conditions encountered during field activities may necessitate modifications to this TCEWP; any changes will be documented in the SRI Report (SRIR) to be prepared by FPM. All sampling during this investigation will be performed in accordance with the protocols in the New York State Department of Health (NYSDOH) Soil Vapor Intrusion Guidance Document (October 2006).

Proposed TCE Additional Investigation Activities

The proposed scope of work for the TCE Additional Investigation is as follows:

 The necessary sidewalk-opening permits will be obtained for the sample locations in the public sidewalks along Commercial and Clay Streets (6 locations) such that the sampling work at these locations can be performed;

- The owners of the four offsite properties (vacant lot, and 15, 19 and 29 Clay Street) will be identified through publicly-available property records maintained by New York City. The reported owners will be contacted via the US Postal Service (registered mail, return receipt) with a standard written access request for FPM to perform the sampling requested by the NYSDEC. The access request will include information regarding the need for sampling and contact information for the NYSDEC, NYSDOH, and FPM, such that any owner questions can be promptly answered. FPM and Site owner representatives will also visit each property to inform occupants of the proposed sampling program, confirm access, and answer questions. FPM will attempt to contact property owners via telephone, if feasible, and will negotiate with the owners within a reasonable range of parameters (e.g.: provide insurance certificates, answer questions) to obtain access. In the event that access to a targeted property is not readily obtained, FPM will notify the NYSDEC regarding the lack of access and will request assistance. This work will be conducted during the permitting process so as not to unduly delay the investigation schedule;
- A professional direct-push/drilling contractor will be used to install the soil vapor implants in the sidewalks (following permit approval) and at the vacant property (following access approval) and conduct the soil vapor sampling. An FPM environmental professional (EP) will be onsite to implement the Community Air Monitoring Plan (CAMP), observe the placement of the implants, and collect the soil vapor samples. The EP will document the CAMP observations, implant construction, and sampling procedures. Sampling procedures will include the use of helium testing in accordance with NYSDOH protocols to confirm that implant bypassing is not occurring. The soil vapor samples retained for analysis will be collected and managed in accordance with the procedures in the NYSDEC-approved RIWP. Site-specific quality assurance/quality control (QA/QC) samples will also be collected in accordance with the Quality Assurance Project Plan (QAPP) for this Site. All investigation-derived waste will be managed in accordance with the RIWP for this Site;
- Following receipt of offsite property access, FPM will obtain a sub-slab soil vapor sample and an indoor air sample at each of the three private property buildings (15, 19, and 29 Clay Street) targeted by the NYSDEC and will also collect an ambient air sample. As these are commercial properties, the samples will be collected over an approximate 8-hour period. Sampling procedures and sample management will be in accordance with the procedures in the NYSDEC-approved RIWP and helium testing will be performed during sub-slab vapor sampling in accordance with NYSDOH protocols to confirm that implant bypassing is not occurring. Site-specific QA/QC samples will also be collected in accordance with the RIWP for this Site. All investigation-derived waste will be managed in accordance with the RIWP for this Site. An FPM EP will conduct this sampling, implement the CAMP, document the CAMP observations and sampling procedures, and complete the NYSDOH building inventory forms for each building sampled;
- All of the collected samples will be managed under chain-of-custody procedures and transmitted to a NYSDOH ELAP-certified laboratory for testing. The soil vapor, sub-slab soil vapor, indoor air, and outdoor air samples will be tested for volatile organic compounds (VOCs) using the TO-15 Method (the TO-15 low-level method will be used for the indoor air and ambient air samples). The analyses will be performed in accordance with the NYS ASP with Category B deliverables and a Data Usability



Summary Report (DUSR) will be prepared for each data package by a qualified outside firm;

- The results of the TCE Additional Investigation will be reviewed together with the
 previously-obtained data related to TCE soil vapor impacts to evaluate if delineation of
 the Site-related TCE soil vapor impacts is complete. All relevant analytical data will be
 compared to applicable regulatory guidance during this evaluation and any significant
 data gaps will be identified; and
- The procedures and results of the TCE Additional Investigation will be documented in the SRIR. This report will include all documentation of the work performed, a description of the investigation procedures, results, and conclusions, and copies of all supporting information. The SRIR will be submitted to the NYSDEC for review and approval.

Schedule

The following schedule is anticipated for this investigation:

- Week of March 16, 2015: Initiate access requests and sidewalk opening permits
- Week of March 23, 2015: Contacts with offsite property occupants for access and to confirm locations
- Week of March 30, 2015: Perform sub-slab and indoor air sampling, pending access
- <u>Early to mid-April 2015</u>: Perform soil vapor sampling, conduct sub-slab and indoor air sampling for properties where access was not previously provided, pending access and permits
- <u>April to May 2015</u>: Laboratory analyses, DUSR preparation, data review, SRIR preparation
- May 29, 2015: Submit SRIR to NYSDEC

Certification

I, Stephanie O. Davis, CPG, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this TCE Additional Investigation Work Plan was prepared in accordance with all applicable statues and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Name Signature

Please confirm NYSDEC approval of the above-described scope of work for the TCE Additional Investigation. Should you require additional information, please do not hesitate to call me at (631) 737-6200, ext. 228.

Very truly yours,

Stephanie O. Davis, CPG Senior Project Manager Vice President

Attachments SOD:tac

Cc: Yi Han, Dupont Street Developers, LLC Peter Sullivan, Esq., Sullivan, P.C.

U:\Rigano LLC\49 Dupont Brooklyn\TCE Investigation\AdditionalTCEinvestigation\TCEAddImvWorkPlan docx

FPM

Davis, Stephanie

From: Sent: To: Cc: Subject:	Wong, Yuk Yin (DEC) [yukyin.wong@dec.ny.gov] Friday, December 12, 2014 3:32 PM Scott Spitzer O'Connell, Jane H (DEC); Boyd, Bridget (HEALTH); Peter Sullivan; Davis, Stephanie; Yi Han (experta8@gmail.com); Paul Ciminello (paul@ecosystemsstrategies.com); Oliva, Louis (DEC) Former NuHart Plastics (site No. 224136) TCE soil vapor
Attachments:	file.hw.224136.2014-12-12.additional_off-site_VI_investigation_relate_to_TCE.pdf

Scott,

As discussed during the December 5, 2014 meeting, you have sent us a figure that show the TCE soil vapor overview map on December 8, 2014.

After reviewing the information provide to us, and internal discussion with NYSDOH, NYSDOH indicated that additional vapor intrusion investigation is needed to obtain data to delineate the soil vapor and assess the potential vapor intrusion on off-site build near the site, the attached figure show the locations that needed to be sampled as follow:

- Total of seven (7) Soil vapor samples
 - o Two soil vapor samples along south sidewalk of commercial street (approximate location), as shown in the attached figure in Green circle
 - Two soil vapor samples along south sidewalk of clay street (approximate location), as shown in the attached figure in Green circle
 - Two soil vapor samples along north sidewalk of clay street (approximate location), as shown in the attached figure in Green circle
 - One soil vapor sample on the vacant lot(located western end of clay street where it meet commercial street) immediately north of the Site
- Collected collocated indoor air samples and sub-slab soil gas samples in each of the three properties (15 clay street, 19 clay street, 29 clay street) [the approximate locations for each property is show in the map as yellow square]
 - Collected one (1) one outdoor air sample

Please provide the department a letter work plan for doing the additional soil vapor intrusion investigation. Please be sure that all the vapor intrusion work must be done in accordance with the NYSDOH Document, "Guidance for evaluating soil Vapor intrusion in the State of New York "dated October 2006).

If you have any questions regarding this please feel free to contact me. Thanks Bryan

From: Scott Spitzer [mailto:scott@ecosystemsstrategies.com] Sent: Monday, December 08, 2014 3:16 PM To: O'Connell, Jane H (DEC); Wong, Yuk Yin (DEC) Cc: Paul Ciminello Subject: Former NuHart Plastics IHWDS, TCE soil vapor overview map

Jane and Bryan,

As discussed on Friday, I've attached an aerial photo showing the surrounding area, with the TCE soil vapor concentrations noted. The image identifies the two new sampling points (3SB-1 and 3SB-2) and notes the new residential construction to the northeast at the end of Clay Street.

Scott Spitzer Director of Environmental Investigations **Ecosystems Strategies, Inc.** 24 Davis Avenue Poughkeepsie, New York 12603 845-452-1658 phone



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 2 47-40 21st Street, Long Island City, NY 11101 P: (718) 482-4995 www.dec.ny.gov

March 23, 2015

Stephanie O. Davis FPM Engineering Group P.C. 909 Marconi Avenue Ronkonkoma, NY 11779

Re: Former Nuhart Plastic Manufacturing Site NYSDEC Site No. 224136 TCE Additional Investigation work plan

Dear Ms. Davis:

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has completed its review of the TCE additional Investigation Work Plan (the Plan) dated March 19, 2015 which was prepared by FPM Engineering Group P.C. on behalf of Dupont Street Developers LLC (the Remedial Party). The Plan is hereby approved.

The Remedial Party and its contractors are solely responsible for safe execution of all invasive and other work performed under the Plan. The Remedial Party and its contractors must obtain all local, state, or federal permits or approvals that may be required to perform work under the Plan. Further, the Remedial Party and its contractors are solely responsible for the identification of utilities that might be affected by work under the Plan and implementation of all required, appropriate, or necessary health and safety measures during performance of work under the approved Plan.

Please notify the Department at least 5 days in advance of the field work related to the Plan. If you have any questions regarding this matter please contact me at (718) 482-4905.

Sincerely,

Bricht Worg, o=NYSDEC, aueDER, email=yywang@gw.dec.state.ny

Bryan Wong Environmental Engineer



ec: Jane O'Connell, Karen Mintzer – NYSDEC Dawn Hetrrick - NYSDOH Joseph Folkman – 49 Dupont Realty Corp. Joseph Brunner, Yi Han – Dupont Street Developers LLC Peter Sullivan – Sullivan P.C.



FPM Group, Ltd. FPM Engineering Group, P.C. formerly Fanning, Phillips and Molnar

CORPORATE HEADQUARTERS 909 Marconi Avenue Bonkonkoma, NY 11779 631/737-6200 Fax 631/737-2410

March 19, 2015

Enrico A. Manetta 101 Malba Drive Whitestone, NY 11357

Access Request for Soil Vapor Sampling RE: 48 Commercial Street, Brooklyn, NY FPM File No. 1134g-15-11

Dear Property Owner:

The New York State Department of Environmental Conservation (NYSDEC) has required the responsible party for the Former NuHart Plastic Manufacturing Site (NYSDEC #224136). located at 280 Franklin Street, Brooklyn, New York to perform sampling at several properties adjoining the Site across Clay Street to the north. One of these properties is identified as 48 Commercial Street, Brooklyn, New York (Brooklyn Tax Map: Block 2482, Lot 4).

The NYSDEC has required that soil vapor be tested at 48 Commercial Street, with your concurrence. FPM Group, Ltd. (FPM) has been contracted to perform this work on behalf of the responsible party. We respectfully request your assistance in completing this NYSDEC requirement by allowing FPM access to the property at 48 Commercial Street to perform the required work.

The proposed work for soil vapor sampling includes drilling an approximately one-inch-diameter hole into the soil beneath the payement to a depth of approximately five feet to collect a soil vapor sample. Subsurface utilities will be marked in the street prior to sampling and FPM will coordinate with you or a property representative to ensure that no subsurface structures are located beneath the selected soil vapor sample location. The sample location will be backfilled as needed and the pavement patched when the sampling is complete. This work typically does not result in significant disturbance or mess and FPM will clean up our work area before leaving the premises. Upon receiving authorization from you, the work will take place. This sample is requested to be collected in the near future, so a prompt response is appreciated.

Please confirm that you will permit access to the property at 48 Commercial Street, Brooklyn, New York for this required sampling work by signing the attached access agreement and returning a signed copy to the undersigned via email or mail. Thank you for your assistance in this matter. Please feel free to contact Mr. John Bukoski or Ms. Stephanie Davis of FPM with any questions you may have. Contact information is provided below:

Mr. John Bukoski or Ms. Stephanie Davis FPM Group, Ltd. 909 Marconi Avenue Ronkonkoma, New York 11779 Phone: (631) 737-6200 Email: i.bukoski@fpm-group.com or s.davis@fpm-group.com You may also contact the NYSDEC Project Manager for this site if you have any questions about the requirement for this sampling:

Bryan Wong NYSDEC Div. of Environmental Remediation 47-40 21st Street Long Island City, NY 11101 Phone: (718) 482-4905 yukyin.wong@dec.ny.gov

Thank you for your assistance in the completion of this study.



Soil Vapor Sampling Related to Former NuHart Plastic Manufacturing Site, NYSDEC #224136

AGREEMENT FOR ACCESS

I, ______, as the owner of the property located at 48 Commercial Street, Brooklyn, New York, hereby grant permission for FPM Group (FPM) to access my property to conduct soil vapor sampling as directed by the New York State Department of Environmental Conservation (NYSDEC).

It is understood that sampling will include collection of a soil vapor through the property pavement and that I will provide access to accommodate the sampling. If possible, either I or another knowledgeable party designated by me, will be present during the sampling to identify areas where underground obstructions (e.g., underground storage tanks, underground utilities, sanitary pools, drainage facilities, etc.) may be present. I acknowledge that FPM, the responsible party for the Former NuHart Plastic Manufacturing Site, and others, including the NYSDEC, may rely on the information that I, or another designated knowledgeable party, provide relative to these potential obstructions.

The work to be performed will include placing tubing through the pavement and into the soil beneath the pavement. The tubing will be installed through a small hole to be cut through the pavement. The hole will be cut in a manner so as to be minimally visible. A soil gas sample will be collected from this location via the tubing and the tubing will be removed following the sampling. The small, approximate 1 inch-diameter hole will be backfilled as needed upon completion of sampling, the pavement surface will be patched, and FPM will remove any waste resulting from this sampling.

Signed:

Date:





FPM Group, Ltd. FPM Engineering Group, P.C. formerly Fanning, Phillips and Molnar CORPORATE HEADQUARTERS 909 Marconi Avenue Ronkonkoma, NY 11779 631/737-6200 Fax 631/737-2410

March 19, 2015

Occupant 48 Commercial Street Brooklyn, NY 11222

RE: Access Request for Soil Vapor Sampling 48 Commercial Street, Brooklyn, NY FPM File No. 1134g-15-11

Dear Property Occupant:

The New York State Department of Environmental Conservation (NYSDEC) has required the responsible party for the Former NuHart Plastic Manufacturing Site (NYSDEC #224136), located at 280 Franklin Street, Brooklyn, New York to perform sampling at several properties adjoining the Site across Clay Street to the north. One of these properties is identified as 48 Commercial Street, Brooklyn, New York (Brooklyn Tax Map: Block 2482, Lot 4).

The NYSDEC has required that soil vapor be tested at 48 Commercial Street, with your concurrence. FPM Group, Ltd. (FPM) has been contracted to perform this work on behalf of the responsible party. We respectfully request your assistance in completing this NYSDEC requirement by allowing FPM access to the property at 48 Commercial Street to perform the required work.

The proposed work for soil vapor sampling includes drilling an approximately one-inch-diameter hole into the soil beneath the pavement to a depth of approximately five feet to collect a soil vapor sample. Subsurface utilities will be marked in the street prior to sampling and FPM will coordinate with you or a property representative to ensure that no subsurface structures are located beneath the selected soil vapor sample location. The sample location will be backfilled as needed and the pavement patched when the sampling is complete. This work typically does not result in significant disturbance or mess and FPM will clean up our work area before leaving the premises. Upon receiving authorization from you, the work will take place. This sample is requested to be collected in the near future, so a prompt response is appreciated.

Please confirm that you will permit access to the property at 48 Commercial Street, Brooklyn, New York for this required sampling work by signing the attached access agreement and returning a signed copy to the undersigned via email or mail. Thank you for your assistance in this matter. Please feel free to contact Mr. John Bukoski or Ms. Stephanie Davis of FPM with any questions you may have. Contact information is provided below:

Mr. John Bukoski or Ms. Stephanie Davis FPM Group, Ltd. 909 Marconi Avenue Ronkonkoma, New York 11779 Phone: (631) 737-6200 Email: j.bukoski@fpm-group.com or s.davis@fpm-group.com You may also contact the NYSDEC Project Manager for this site if you have any questions about the requirement for this sampling:

Bryan Wong NYSDEC Div. of Environmental Remediation 47-40 21st Street Long Island City, NY 11101 Phone: (718) 482-4905 yukyin.wong@dec.ny.gov

Thank you for your assistance in the completion of this study.



Soil Vapor Sampling Related to Former NuHart Plastic Manufacturing Site, NYSDEC #224136

AGREEMENT FOR ACCESS

I, ______, as the occupant of the property located at 48 Commercial Street, Brooklyn, New York, hereby grant permission for FPM Group (FPM) to access my property to conduct soil vapor sampling as directed by the New York State Department of Environmental Conservation (NYSDEC).

It is understood that sampling will include collection of a soil vapor through the property pavement and that I will provide access to accommodate the sampling. If possible, either I or another knowledgeable party designated by me, will be present during the sampling to provide access to facilitate access. I acknowledge that FPM, the responsible party for the Former NuHart Plastic Manufacturing Site, and others, including the NYSDEC, may rely on the information that I, or another designated knowledgeable party, provide relative to the property.

The work to be performed will include placing tubing through the pavement and into the soil beneath the pavement. The tubing will be installed through a small hole to be cut through the pavement. The hole will be cut in a manner so as to be minimally visible. A soil gas sample will be collected from this location via the tubing and the tubing will be removed following the sampling. The small, approximate 1 inch-diameter hole will be backfilled as needed upon completion of sampling, the pavement surface will be patched, and FPM will remove any waste resulting from this sampling.

Signed:

Date:




Engineering and Environmental Science

FPM Group, Ltd. FPM Engineering Group, P.C. *formerly* Fanning, Phillips and Molnar

CORPORATE HEADQUARTERS 909 Marconi Avenue Ronkonkoma, NY 11779 631/737-6200 Fax 631/737-2410

March 19, 2015

Occupant 19 Clay Street Brooklyn, NY 11222

RE: Access Request for Sub-slab Soil Vapor and Indoor Air Sampling 19 Clay Street, Brooklyn, NY FPM File No. 1134g-15-11

Dear Property Occupant:

The New York State Department of Environmental Conservation (NYSDEC) has required the responsible party for the Former NuHart Plastic Manufacturing Site (NYSDEC #224136), located at 280 Franklin Street, Brooklyn, New York to perform sampling at several properties adjoining the Site across Clay Street to the north. One of these properties is identified as 19 Clay Street, Brooklyn, New York (Brooklyn Tax Map: Block 2482, Lot 9).

The NYSDEC has required that sub-slab soil vapor and indoor air be tested at 19 Clay Street, with your concurrence. FPM Group, Ltd. (FPM) has been contracted to perform this work on behalf of the responsible party. We respectfully request your assistance in completing this NYSDEC requirement by allowing FPM access to the building 19 Clay Street to perform the required work.

The proposed work for sub-slab vapor sampling includes drilling an approximately one-inchdiameter hole into the floor slab of the building to a depth of approximately six inches below the slab surface to collect a soil vapor sample. Subsurface utilities will be marked in the street prior to sampling and FPM will coordinate with you or a property representative to ensure that no subsurface structures are located beneath the selected soil vapor sample location and that the location is in an inconspicuous area. An indoor air sample will be collected near this location at the same time that the soil vapor sampling is performed. The sample location will be backfilled with cement to grade when the sampling is complete. This work typically does not result in significant disturbance or mess and FPM will clean up our work area before leaving the premises. Upon receiving authorization from you, the work will take place. These samples are required to be collected over an 8-hour period and during the heating season, which ends on March 31st, so a prompt response is appreciated.

Please confirm that you will permit access to the building 19 Clay Street, Brooklyn, New York for this required sampling work by signing the attached access agreement and returning a signed copy to the undersigned via email or mail. Thank you for your assistance in this matter. Please feel free to contact Mr. John Bukoski or Ms. Stephanie Davis of FPM with any questions you may have. Contact information is provided below:

Mr. John Bukoski or Ms. Stephanie Davis FPM Group, Ltd. 909 Marconi Avenue Ronkonkoma, New York 11779 Phone: (631) 737-6200 Email: <u>j.bukoski@fpm-group.com</u> or <u>s.davis@fpm-group.com</u> RONKONKOMA, NY & ROME, NY & SAN ANTONIO, TX & SPOKANE, WA & LANCASTER, CA & MIDWEST CITY, OK & MT. HOLLY, NJ • LAS VEGAS, NV You may also contact the NYSDEC Project Manager for this site if you have any questions about the requirement for this sampling:

Bryan Wong NYSDEC Div. of Environmental Remediation 47-40 21st Street Long Island City, NY 11101 Phone: (718) 482-4905 yukyin.wong@dec.ny.gov

Thank you for your assistance in the completion of this study.



Sub-slab Soil Vapor and Indoor Air Sampling Related to Former NuHart Plastic Manufacturing Site, NYSDEC #224136

AGREEMENT FOR ACCESS

I, ______, as the occupant of the property located at 19 Clay Street, Brooklyn, New York, hereby grant permission for FPM Group (FPM) to access the premises to conduct soil vapor and air sampling as directed by the New York State Department of Environmental Conservation (NYSDEC).

It is understood that sampling will include collection of sub-slab soil vapor and indoor air samples and that I will provide access to accommodate the sampling. If possible, either I or another knowledgeable party designated by me, will be present during the sampling to facilitate access. I acknowledge that FPM, the responsible party for the Former NuHart Plastic Manufacturing Site, and others, including the NYSDEC, may rely on the information that I, or another designated knowledgeable party, provide relative to the property.

The work to be performed will include installing tubing through the building slab and into the sub-slab soil beneath the building. The tubing will be installed through a small hole to be cut through the slab to approximately six inches below the slab. The hole will be cut in a manner so as to be minimally visible. A soil gas sample will be collected from this location via the tubing and the tubing will be removed following the sampling. An indoor air sample will also be collected in proximity to the sub-slab sampling point. The small, approximate 1 inch-diameter hole will be filled with cement upon completion of sampling and FPM will remove any waste resulting from this sampling.

Signed:

Date:





FPM Group, Ltd. FPM Engineering Group, P.C. formerly Fanning, Phillips and Molnar

CORPORATE HEADQUARTERS 909 Marconi Avenue Ronkonkoma, NY 11779 631/737-6200 Fax 631/737-2410

March 19, 2015

Occupant 29 Clay Street Brooklyn, NY 11222

RE: Access Request for Sub-slab Soil Vapor and Indoor Air Sampling 29 Clay Street, Brooklyn, NY FPM File No. 1134g-15-11

Dear Property Occupant:

The New York State Department of Environmental Conservation (NYSDEC) has required the responsible party for the Former NuHart Plastic Manufacturing Site (NYSDEC #224136), located at 280 Franklin Street, Brooklyn, New York to perform sampling at several properties adjoining the Site across Clay Street to the north. One of these properties is identified as 29 Clay Street, Brooklyn, New York (Brooklyn Tax Map: Block 2482, Lot 53).

The NYSDEC has required that sub-slab soil vapor and indoor air be tested at 29 Clay Street, with your concurrence. FPM Group, Ltd. (FPM) has been contracted to perform this work on behalf of the responsible party. We respectfully request your assistance in completing this NYSDEC requirement by allowing FPM access to the building 29 Clay Street to perform the required work.

The proposed work for sub-slab vapor sampling includes drilling an approximately one-inchdiameter hole into the floor slab of the building to a depth of approximately six inches below the slab surface to collect a soil vapor sample. Subsurface utilities will be marked in the street prior to sampling and FPM will coordinate with you or a property representative to ensure that no subsurface structures are located beneath the selected soil vapor sample location and that the location is in an inconspicuous area. An indoor air sample will be collected near this location at the same time that the soil vapor sampling is performed. The sample location will be backfilled with cement to grade when the sampling is complete. This work typically does not result in significant disturbance or mess and FPM will clean up our work area before leaving the premises. Upon receiving authorization from you, the work will take place. These samples are required to be collected over an 8-hour period and during the heating season, which ends on March 31st, so a prompt response is appreciated.

Please confirm that you will permit access to the building 29 Clay Street, Brooklyn, New York for this required sampling work by signing the attached access agreement and returning a signed copy to the undersigned via email or mail. Thank you for your assistance in this matter. Please feel free to contact Mr. John Bukoski or Ms. Stephanie Davis of FPM with any questions you may have. Contact information is provided below:

Mr. John Bukoski or Ms. Stephanie Davis FPM Group, Ltd. 909 Marconi Avenue Ronkonkoma, New York 11779 Phone: (631) 737-6200 Email: <u>j.bukoski@fpm-group.com</u> or <u>s.davis@fpm-group.com</u> RONKONKOMA, NY * ROME, NY * SAN ANTONIO, TX * SPOKANE, WA * LANCASTER, CA * MIDWEST CITY, OK * MT. HOLLY, NJ • LAS VEGAS, NV You may also contact the NYSDEC Project Manager for this site if you have any questions about the requirement for this sampling:

Bryan Wong NYSDEC Div. of Environmental Remediation 47-40 21st Street Long Island City, NY 11101 Phone: (718) 482-4905 yukyin.wong@dec.ny.gov

Thank you for your assistance in the completion of this study.



Sub-slab Soil Vapor and Indoor Air Sampling Related to Former NuHart Plastic Manufacturing Site, NYSDEC #224136

AGREEMENT FOR ACCESS

I, ______, as the occupant of the property located at 29 Clay Street, Brooklyn, New York, hereby grant permission for FPM Group (FPM) to access the premises to conduct soil vapor and air sampling as directed by the New York State Department of Environmental Conservation (NYSDEC).

It is understood that sampling will include collection of sub-slab soil vapor and indoor air samples and that I will provide access to accommodate the sampling. If possible, either I or another knowledgeable party designated by me, will be present during the sampling to facilitate access. I acknowledge that FPM, the responsible party for the Former NuHart Plastic Manufacturing Site, and others, including the NYSDEC, may rely on the information that I, or another designated knowledgeable party, provide relative to the property.

The work to be performed will include installing tubing through the building slab and into the sub-slab soil beneath the building. The tubing will be installed through a small hole to be cut through the slab to approximately six inches below the slab. The hole will be cut in a manner so as to be minimally visible. A soil gas sample will be collected from this location via the tubing and the tubing will be removed following the sampling. An indoor air sample will also be collected in proximity to the sub-slab sampling point. The small, approximate 1 inch-diameter hole will be filled with cement upon completion of sampling and FPM will remove any waste resulting from this sampling.

Signed:

Date:





FPM Group, Ltd. FPM Engineering Group, P.C. formerly Fanning, Phillips and Molnar

CORPORATE HEADQUARTERS 909 Marconi Avenue Ronkonkoma, NY 11779 631/737-5200 Fax 631/737-2410

March 19, 2015

Nicole Associates, LLC 29 Clay Street Brooklyn, NY 11222

RE: Access Request for Sub-slab Soil Vapor and Indoor Air Sampling 19 and 29 Clay Street, Brooklyn, NY FPM File No. 1134g-15-11

Dear Property Owner:

The New York State Department of Environmental Conservation (NYSDEC) has required the responsible party for the Former NuHart Plastic Manufacturing Site (NYSDEC #224136), located at 280 Franklin Street, Brooklyn, New York to perform sampling at several properties adjoining the Site across Clay Street to the north. Two of these properties are identified as 19 and 29 Clay Street, Brooklyn, New York (Brooklyn Tax Map: Block 2482, Lots 9 and 53).

The NYSDEC has required that sub-slab soil vapor and indoor air be tested at 19 and 29 Clay Street, with your concurrence. FPM Group, Ltd. (FPM) has been contracted to perform this work on behalf of the responsible party. We respectfully request your assistance in completing this NYSDEC requirement by allowing FPM access to the buildings at 19 and 29 Clay Street to perform the required work.

The proposed work for sub-slab vapor sampling includes drilling an approximately one-inchdiameter hole into the floor slab of each building to a depth of approximately six inches below the slab surface to collect a soil vapor sample. Subsurface utilities will be marked in the street prior to sampling and FPM will coordinate with you or a property representative to ensure that no subsurface structures are located beneath the selected soil vapor sample locations and that the locations are in inconspicuous areas. An indoor air sample will be collected near each location at the same time that the soil vapor sampling is performed. The sample locations will be backfilled with cement to grade when the sampling is complete. This work typically does not result in significant disturbance or mess and FPM will clean up our work areas before leaving the premises. Upon receiving authorization from you, the work will take place. These samples are required to be collected over an 8-hour period and during the heating season, which ends on March 31st, so a prompt response is appreciated.

Please confirm that you will permit access to the buildings at 19 and 29 Clay Street, Brooklyn, New York for this required sampling work by signing the attached access agreement and returning a signed copy to the undersigned via email or mail. Thank you for your assistance in this matter. Please feel free to contact Mr. John Bukoski or Ms. Stephanie Davis of FPM with any questions you may have. Contact information is provided below:

Mr. John Bukoski or Ms. Stephanie Davis FPM Group, Ltd. 909 Marconi Avenue Ronkonkoma, New York 11779 Phone: (631) 737-6200 Email: <u>j.bukoski@fpm-group.com</u> or <u>s.davis@fpm-group.com</u> RONKONKOMA, NY & ROME, NY & SAN ANTONIO, TX & SPOKANE, WA & LANCASTER, CA & MIDWEST CITY, OK & MT. HOLLY, NJ + LAS VEGAS, NV You may also contact the NYSDEC Project Manager for this site if you have any questions about the requirement for this sampling:

Bryan Wong NYSDEC Div. of Environmental Remediation 47-40 21st Street Long Island City, NY 11101 Phone: (718) 482-4905 yukyin.wong@dec.ny.gov

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Thank you for your assistance in the completion of this study.



Sub-slab Soil Vapor and Indoor Air Sampling Related to Former NuHart Plastic Manufacturing Site, NYSDEC #224136

AGREEMENT FOR ACCESS

I, ______, as the owner of the property located at 19 and 29 Clay Street, Brooklyn, New York, hereby grant permission for FPM Group (FPM) to access my property to conduct soil vapor and air sampling as directed by the New York State Department of Environmental Conservation (NYSDEC).

It is understood that sampling will include collection of sub-slab soil vapor and indoor air samples and that I will provide access to accommodate the sampling. If possible, either I or another knowledgeable party designated by me, will be present during the sampling to identify areas where underground obstructions (e.g., underground storage tanks, underground utilities, sanitary pools, drainage facilities, etc.) may be present. I acknowledge that FPM, the responsible party for the Former NuHart Plastic Manufacturing Site, and others, including the NYSDEC, may rely on the information that I, or another designated knowledgeable party, provide relative to these potential obstructions.

The work to be performed will include installing tubing through the building slab and into the sub-slab soil beneath the buildings. The tubing will be installed through small holes to be cut through the slabs to approximately six inches below the slabs. The holes will be cut in a manner so as to be minimally visible. A soil gas sample will be collected from each location via the tubing and the tubing will be removed following the sampling. An indoor air sample will also be collected in proximity to the sub-slab sampling points. The small, approximate 1 inch-diameter holes will be filled with cement upon completion of sampling and FPM will remove any waste resulting from this sampling.

Signed:

Date:





FPM Group, Ltd. FPM Engineering Group, P.C. formerly Fanning, Phillips and Molnar

CORPORATE HEADQUARTERS 909 Marconi Avenue Ronkonkoma, NY 11779 631/737-6200 Fax 631/737-2410

March 19, 2015

Occupant 15 Clay Street Brooklyn, NY 11222

RE: Access Request for Sub-slab Soil Vapor and Indoor Air Sampling 15 Clay Street, Brooklyn, NY FPM File No. 1134g-15-11

Dear Property Occupant:

The New York State Department of Environmental Conservation (NYSDEC) has required the responsible party for the Former NuHart Plastic Manufacturing Site (NYSDEC #224136), located at 280 Franklin Street, Brooklyn, New York to perform sampling at several properties adjoining the Site across Clay Street to the north. One of these properties is identified as 15 Clay Street, Brooklyn, New York (Brooklyn Tax Map: Block 2482, Lot 7).

The NYSDEC has required that sub-slab soil vapor and indoor air be tested at 15 Clay Street. with your concurrence. FPM Group, Ltd. (FPM) has been contracted to perform this work on behalf of the responsible party. We respectfully request your assistance in completing this NYSDEC requirement by allowing FPM access to the building 15 Clay Street to perform the required work.

The proposed work for sub-slab vapor sampling includes drilling an approximately one-inchdiameter hole into the floor slab of the building to a depth of approximately six inches below the slab surface to collect a soil vapor sample. Subsurface utilities will be marked in the street prior to sampling and FPM will coordinate with you or a property representative to ensure that no subsurface structures are located beneath the selected soil vapor sample location and that the location is in an inconspicuous area. An indoor air sample will be collected near this location at the same time that the soil vapor sampling is performed. The sample location will be backfilled with cement to grade when the sampling is complete. This work typically does not result in significant disturbance or mess and FPM will clean up our work area before leaving the premises. Upon receiving authorization from you, the work will take place. These samples are required to be collected over an 8-hour period and during the heating season, which ends on March 31st, so a prompt response is appreciated.

Please confirm that you will permit access to the building 15 Clay Street, Brooklyn, New York for this required sampling work by signing the attached access agreement and returning a signed copy to the undersigned via email or mail. Thank you for your assistance in this matter. Please feel free to contact Mr. John Bukoski or Ms. Stephanie Davis of FPM with any questions you may have. Contact information is provided below:

Mr. John Bukoski or Ms. Stephanie Davis FPM Group, Ltd. 909 Marconi Avenue Ronkonkoma, New York 11779 Phone: (631) 737-6200 Email: j.bukoski@fpm-group.com or s.davis@fpm-group.com RONKONKOMA, NY · ROME, NY · SAN ANTONIO, TX · SPOKANE, WA · LANCASTER, CA · MIDWEST CITY, OK · MT. HOLLY, NJ · LAS VEGAS, NV You may also contact the NYSDEC Project Manager for this site if you have any questions about the requirement for this sampling:

Bryan Wong NYSDEC Div. of Environmental Remediation 47-40 21st Street Long Island City, NY 11101 Phone: (718) 482-4905 yukyin.wong@dec.ny.gov

Thank you for your assistance in the completion of this study.



Sub-slab Soil Vapor and Indoor Air Sampling Related to Former NuHart Plastic Manufacturing Site, NYSDEC #224136

AGREEMENT FOR ACCESS

I, ______, as the occupant of the property located at 15 Clay Street, Brooklyn, New York, hereby grant permission for FPM Group (FPM) to access the premises to conduct soil vapor and air sampling as directed by the New York State Department of Environmental Conservation (NYSDEC).

It is understood that sampling will include collection of sub-slab soil vapor and indoor air samples and that I will provide access to accommodate the sampling. If possible, either I or another knowledgeable party designated by me, will be present during the sampling to facilitate access. I acknowledge that FPM, the responsible party for the Former NuHart Plastic Manufacturing Site, and others, including the NYSDEC, may rely on the information that I, or another designated knowledgeable party, provide relative to the property.

The work to be performed will include installing tubing through the building slab and into the sub-slab soil beneath the building. The tubing will be installed through a small hole to be cut through the slab to approximately six inches below the slab. The hole will be cut in a manner so as to be minimally visible. A soil gas sample will be collected from this location via the tubing and the tubing will be removed following the sampling. An indoor air sample will also be collected in proximity to the sub-slab sampling point. The small, approximate 1 inch-diameter hole will be filled with cement upon completion of sampling and FPM will remove any waste resulting from this sampling.

Signed:

Date:





FPM Group, Ltd. FPM Engineering Group, P.C. formerly Fanning, Phillips and Molnar CORPORATE HEADQUARTERS 909 Marconi Avenue Ronkonkoma, NY 11779 631/737-6200 Fax 631/737-2410

March 19, 2015

Davrich Realty Corp. c/o Steven Heller 15 Clay Street Brooklyn, NY 11222

RE: Access Request for Sub-slab Soil Vapor and Indoor Air Sampling 15 Clay Street, Brooklyn, NY FPM File No. 1134g-15-11

Dear Property Owner:

The New York State Department of Environmental Conservation (NYSDEC) has required the responsible party for the Former NuHart Plastic Manufacturing Site (NYSDEC #224136), located at 280 Franklin Street, Brooklyn, New York to perform sampling at several properties adjoining the Site across Clay Street to the north. One of these properties is identified as 15 Clay Street, Brooklyn, New York (Brooklyn Tax Map: Block 2482, Lot 7).

The NYSDEC has required that sub-slab soil vapor and indoor air be tested at 15 Clay Street, with your concurrence. FPM Group, Ltd. (FPM) has been contracted to perform this work on behalf of the responsible party. We respectfully request your assistance in completing this NYSDEC requirement by allowing FPM access to the building at 15 Clay Street to perform the required work.

The proposed work for sub-slab vapor sampling includes drilling an approximately one-inchdiameter hole into the floor slab of the building to a depth of approximately six inches below the slab surface to collect a soil vapor sample. Subsurface utilities will be marked in the street prior to sampling and FPM will coordinate with you or a property representative to ensure that no subsurface structures are located beneath the selected soil vapor sample location and that the location is in an inconspicuous area. An indoor air sample will be collected near this location at the same time that the soil vapor sampling is performed. The sample location will be backfilled with cement to grade when the sampling is complete. This work typically does not result in significant disturbance or mess and FPM will clean up our work area before leaving the premises. Upon receiving authorization from you, the work will take place. These samples are required to be collected over an 8-hour period and during the heating season, which ends on March 31st, so a prompt response is appreciated.

Please confirm that you will permit access to the building at 15 Clay Street, Brooklyn, New York for this required sampling work by signing the attached access agreement and returning a signed copy to the undersigned via email or mail. Thank you for your assistance in this matter. Please feel free to contact Mr. John Bukoski or Ms. Stephanie Davis of FPM with any questions you may have. Contact information is provided below:

Mr. John Bukoski or Ms. Stephanie Davis FPM Group, Ltd. 909 Marconi Avenue Ronkonkoma, New York 11779 Phone: (631) 737-6200 Email: <u>j.bukoski@fpm-group.com</u> or <u>s.davis@fpm-group.com</u> RONKONKOMA, NY • ROME, NY • SAN ANTONIO, TX • SPOKANE, WA • LANCASTER, CA • MIDWEST CITY, OK • MT. HOLLY, NJ • LAS VEGAS, NV You may also contact the NYSDEC Project Manager for this site if you have any questions about the requirement for this sampling:

Bryan Wong NYSDEC Div. of Environmental Remediation 47-40 21st Street Long Island City, NY 11101 Phone: (718) 482-4905 yukyin.wong@dec.ny.gov

Thank you for your assistance in the completion of this study.



Sub-slab Soil Vapor and Indoor Air Sampling Related to Former NuHart Plastic Manufacturing Site, NYSDEC #224136

AGREEMENT FOR ACCESS

I, ______, as the owner of the property located at 15 Clay Street, Brooklyn, New York, hereby grant permission for FPM Group (FPM) to access my property to conduct soil vapor and air sampling as directed by the New York State Department of Environmental Conservation (NYSDEC).

It is understood that sampling will include collection of sub-slab soil vapor and indoor air samples and that I will provide access to accommodate the sampling. If possible, either I or another knowledgeable party designated by me, will be present during the sampling to identify areas where underground obstructions (e.g., underground storage tanks, underground utilities, sanitary pools, drainage facilities, etc.) may be present. I acknowledge that FPM, the responsible party for the Former NuHart Plastic Manufacturing Site, and others, including the NYSDEC, may rely on the information that I, or another designated knowledgeable party, provide relative to these potential obstructions.

The work to be performed will include installing tubing through the building slab and into the sub-slab soil beneath the building. The tubing will be installed through a small hole to be cut through the slab to approximately six inches below the slab. The hole will be cut in a manner so as to be minimally visible. A soil gas sample will be collected from this location via the tubing and the tubing will be removed following the sampling. An indoor air sample will also be collected in proximity to the sub-slab sampling point. The small, approximate 1 inch-diameter hole will be filled with cement upon completion of sampling and FPM will remove any waste resulting from this sampling.

Signed:

Date:

FPM





APPENDIX B

INVESTIGATION PERSONNEL



Engineering and Environmental Science



Ms. Davis has diversified experience in geology and hydrogeology. Her professional technical experience includes groundwater, soil, and soil vapor investigations, design and management of soil and groundwater remediation projects, design and installation of groundwater containment systems, design and evaluation of soil vapor mitigation systems, groundwater flow modeling, aquifer testing and interpretation, evaluation of site compliance with environmental regulations, environmental permitting, and personnel training. Ms. Davis presently manages several large-scale investigation and remedial programs, including program scopes, budgets, staffing, and schedules.

Functional Role	Title	Years of Experience
Senior Project Manager	Corporate Vice President	30+

Personal Data

Education

M.S./1984/Geology/University of Southern California B.S./1981/Geology/Bucknell University

Registration and Certifications

Certified Professional Geologist #9487, (AIPG) 1995 California Registered Geologist #5192, 1991 Pennsylvania Registered Geologist #PG-000529-G, 1994 OSHA – Approved 40 hour Health and Safety Training Course (1990)

OSHA - Approved 8 hour Health and Safety Training Refresher Courses (1991-Present)

OSHA-Approved 8-hour Site Safety Supervisor Training Course (2008)

National Ground Water Association

Long Island Association of Professional Geologists USEPA Triad Training for Practitioners

Employment History

- 1993-Present FPM Group
- 1992-1993 Chevron Research and Technology Co.
- 1990-1992 Chevron Manufacturing Co.

1984-1990 Chevron Exploration, Land, and Production Company

Continuing Education

- Treatment of Contaminated Soil and Rock
- Groundwater Pollution and Hydrology
- Environmental Law and Regulation
- o Remedial Engineering
- o Soil and Foundation Engineering
- o Environmental Geochemistry
- Project Management Professional (PMP) training

Detailed Experience

Site Investigations

• **Program Manager** for ongoing investigation and remedial projects at several New York State Inactive Hazardous Waste Disposal sites, Voluntary Cleanup Program (VCP) sites, and Brownfield Cleanup Program (BCP) sites. Investigations have included site characterization, Remedial Investigations/Feasibility Studies (RI/FS), and Resource Conservation and Recovery Act (RCRA) facility investigations and closures. Remedial services have included contaminated soil removal; ORC and HRC injections; design, installation, and operation of air sparge/soil vapor extraction (AS/SVE) systems and sub-slab depressurization systems (SSDS), capping, and other remedial services.

- Program Manager, NYS BCP Site, Far Rockaway, NY. Managed all aspects of preapplication investigation, BCP application, RI Work Plan development, and Citizen Participation Plan (CPP) for a chlorinated solvent site. Responsible for scope development, NYSDEC and NYSDOH coordination, budget, schedule, staffing, and report management.
- Program Manager, Site Characterization (SC) for NYS Inactive Hazardous Waste Disposal Site, Flushing, NY. Responsible for SC scope development, budget, schedule, SC Work Plan and report review, staffing, and agency negotiations for a chlorinated solvent site undergoing residential redevelopment.
- **Program Manager** for all Phase I ESA, Phase II investigations, and remediation projects for a major commercial developer on Long Island, New York. Projects have included environmental services associated for the purchase and redevelopment of office buildings, aerospace facilities, former research and development facilities, and large manufacturing plants. Remedial services have included RCRA closures, UIC closures, tank removals, and BCP projects.
- Program Manager, **Remedial** Investigation/ . Study (RI/FS), Levittown, Feasibility NY. Managed all aspects of RI/FS for a Class 2 Inactive Hazardous Waste Disposal (Superfund) site involving chlorinated solvents. Responsibilities included RI/FS scope, budget and schedule development, RI/FS work plan, HASP, CAMP, and QAPP, coordination with client, tenants, and regulatory agencies, report review, remedial approach development, and conceptual design.

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- Project Manager, RCRA Facilities Investigation (RFI), Barksdale AFB, LA, AFCEE. Responsible for all aspects of field program planning, solicitation and selection of subcontractors, mobilization and establishment of a field office, supervising multiple field crews, installation and sampling of monitoring wells, collection and soil samples, data tracking and management and preparation of an RFI report. The scope of work included characterization of the nature and extent of groundwater and soil contamination at thirteen Solid Waste Management Units (SWMUs), performing a base-wide evaluation of background contaminant concentrations, and developing a long-term monitoring (LTM) program for the base.
- Field Services Manager, UST Investigation, Plattsburgh AFB, NY, AFCEE. Responsible for field crew training, coordination of sampling crews at multiple sites, sample labeling, handling, tracking, and shipping, field data management and remote field office management. The scope of work included collection of over 450 groundwater samples to characterize groundwater conditions in the vicinity of 150 USTs using a Geoprobe sampling rig, well points, and rapid turnaround-time analysis.
- **Project Manager** for site investigation activities, including soil vapor sampling, soil sampling and analysis, groundwater sampling and analysis, and geotechnical evaluation for numerous sites in Suffolk County, New York. The resulting data were utilized by a major supermarket company in the negotiations for the purchase of the properties and in the property remediation prior to development.
- Project Manager, Site Investigation, Bronx, NY, NYCT. Managed field sampling and data analysis activities, including soil vapor analysis, soil sample analysis, and groundwater sampling and analysis at an active commercial bus terminal. Made recommendations for site remediation, including UST removal, soil excavation and disposal, and free-phase product extraction.
- Project Manager, RCRA Facilities Investigation, City of Richmond, CA. Prepared RFI work plan, incorporating existing geologic, chemical, and historical data, evaluating newly-acquired site data, and developing recommendations for further investigation and remedial action at a former municipal landfill.
- Project Manager, Site Investigation, Bay Shore, NY. Manufacturing facility. Managed onsite and offsite soil and groundwater sampling program. Compiled and evaluated data and prepared a comprehensive report of the investigation results for the Suffolk County Department of Health

- Engineering and Environmental Science

Services (SCDHS) and NYS Department of Environmental Conservation (NYSDEC). Proposed remediation technologies for onsite soil contamination and onsite and offsite groundwater contamination.

- Project Manager, Site Investigation, Newark Airport, NJ, FAA. Managed and conducted a soil and groundwater sampling program adjacent to Runway 29. Analyzed chemical analytical data and developed recommendations.
- Project Manager, Remedial Investigation, Richmond Refinery, CA. Supervised and conducted drilling, soil sampling, cone penetrometer testing, and well installation at a refinery process water effluent treatment system and former municipal landfill.
- Senior Hydrogeologist, multiple sites, NY metro area. Supervised drilling, installation, development, and sampling of monitoring wells at numerous sites in the greater New York metro area. Utilized resulting stratigraphic, hydrologic, and chemical analytical data to evaluate site conditions.
- Program Manager, multiple sites, major New York Metro area automobile dealer. Managed all investigation and remedial activities for a major automobile retailer with multiple facilities. Sites included tanks, petroleum spills, underground injection control (UIC) systems, soil vapor intrusion issues, and hazardous waste management. Responsible for work scope and budget preparation, staffing and oversight, client and regulatory agency interactions, addressing insurance issues, reporting and certification, and project closeouts.
- Program Manager, SWTP groundwater monitoring program, Town of East Hampton. Managed groundwater sampling and reporting for the Scavenger Waste Treatment Plant (SWTP). Responsibilities included oversight of well installation, purging and sampling the SWTP groundwater monitoring wells, and providing data to the Town for reporting purposes.

Remediation

• Program Manager, NYSDEC BCP site, NY City, major real estate developer. In responsible charge of all investigation and remedial activities at a NYSDEC BCP site in New York City. Prepared the Remedial Investigation and Remedial Work Plan; coordinated with the owner, other contractors, and the NYSDEC; prepared for and conducted citizen participation activities; supervised all waste characterization, profile preparation, and waste management; developed the Final Engineering Report (FER) and Site Management Plan (SMP) for

FPM group _

NYSDEC approval; and ensured that all remedial requirements were met such that the Certificate of Completion (COC) was issued. Continuing activities include coordination of the ongoing site management, communications with the NYSDEC and NYSDOH, and preparation of the annual Certification Report.

- Program Manager, Major Oil Storage Facility (MOSF) closure, Glen Harbor, NY. Real estate developer. Responsibilities included coordination of the work scope with the NYSDEC and NCDOH, development of work plans for tanks, UIC, and petroleum spill closure, budget and schedule development, staffing and oversight, reporting and certification, and closeout of all environmental issues such that residential redevelopment could proceed.
- Program Manager, Delineation and Remedial Services, NYS Spill Site, St. James, NY. Responsible for client and agency coordination, budget, schedule, staffing, remedial design and reporting for a petroleum release at a Service Station property with offsite impacts.
- Program Manager, RCRA Closure Site, Freeport, NY. Managed all aspects of RCRA Closure of a former printing facility, including scope, budget and schedule development, Closure Plan, NYSDEC interactions, QAPP, and specifications for contractor services.
- Program Manager, Sub-slab depressurization system (SSDS), Brooklyn, NY. Managed all aspects of SSDS implementation, including delineation sampling, remedial design, budget and schedule, construction services testing, reporting, and O&M manual development for a former dry cleaner site in an active shopping center.
- Program Manager, SSDS, Bronx, NY. • Responsible for all aspects of SSDS implementation for a former dry cleaner site in a mixed-use building, including delineation sampling, SSDS design, construction contractor services, testing, reporting, and O&M manual development.
- Project Manager, Soil Remediation, Hauppauge, NY. Metal plating facility. Planned remedial project and managed contractor support for soil remediation. Project was completed and approved by SCDHS.
- Remedial Design, AS/SVE projects. Developed pilot test plans, evaluated pilot test results, and prepared conceptual designs for several air sparge/soil vapor extraction (AS/SVE) systems to treat petroleum and/or chlorinated solvent VOCs. These systems were subsequently installed and Ms. Davis provides ongoing review of system operations and remedial monitoring results.

Engineering and Environmental Science

- Program Manager, Waste soil management, Brooklyn, NY. Travelers Insurance. In responsible charge of several task orders for waste characterization of a 90,000-cy construction soil stockpile at а municipal sewer facility. included Responsibilities development and implementation of Sampling and Analysis Plans (SAP), coordination of staffing, review of lab data, preparation of Field Sampling Summary Reports (FSSR), coordination with disposal facilities, and preparation of waste profiles.
- Program Manager, NYS Inactive Hazardous Waste Disposal (Superfund) site, Hicksville, NY. Property owner. Responsibilities included implementing pre-demolition developing and investigations, developing and implementing remedial actions (source removal) in conjunction with retail redevelopment, conceptual design and installation of sub-slab depressurization systems (SSDSs), maintaining ongoing OM&M programs.
- Project Manager, Remedial projects, Patchogue, NY. US Tape. Designed and performed indoor underground storage tank abandonment program, leaching pool remediation plan, and managed contractor support for closure activities at a manufacturing facility. SCDHS provided oversight and approval.
- Senior Hydrogeologist, Remedial design for a landfill, Richmond, CA. Contributed to the design of a groundwater containment and remediation system for a former municipal landfill, including subsurface groundwater barrier walls and extraction wells.
- Project Manager, Soil remediation, Carle Place, NY, Kimco. Designed remedial plan and supervised soil remediation activities at an active construction site involving excavation and disposal of 5,000 tons of PCB-, metal-, and petroleumcontaminated soil. NYSDEC oversaw and approved the completed remediation.
- Project Manager, Groundwater containment system, Richmond, CA. Coordinated technical aspects of groundwater barrier wall construction, including routing, permitting, design, material selection, and field activities.
- Project Manager, Multiple UIC investigations and closures, Suffolk and Nassau Counties, NY Responsible for investigation and remediation of contaminated cesspool and stormwater drain pool in systems. Fully conversant with SCDHS SOP 9-95 and USEPA UIC regulations for investigation and cleanup of leaching pool systems, including Action Levels and Cleanup Standards, groundwater monitoring criteria, and remedial requirements.

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• Project Coordinator, UIC Closure, Hempstead, NY. Coordinated and supervised all aspects of waste management for a UIC closure, including disposal facility review, waste sampling and classification, manifesting, project closeout, and taxation issues.

Hydrogeologic Evaluations

- Project Manager, well permitting, East Hampton, NY. Private client. Prepared Engineer's Report for Long Island Well Permit for a 230-gpm irrigation supply well. Responsible for evaluation of well interference, salt water upcoming, impacts from contaminants, and other factors affecting the proposed well. Performed well design (gravel pack size, screen size, etc.) for numerous groundwater wells on Long Island. Familiar with sieve analyses, well construction and development methods.
- Senior Hydrogeologist, groundwater modeling, East Hampton, NY. Utilized Visual Modflow to evaluate the impact of a contaminant plume on a proposed SCWA wellfield. Model development included evaluation of recharge, aquifer properties, subsurface stratigraphy, boundary conditions, plume source and concentration, and various wellfield locations and pumping rates.
- Hydrogeologist, aquifer testing, Manhattan, NY. NYCT. Participated in a multi-day, multi-well aquifer pumping test for NYCT. Responsible for operating and maintaining data logging equipment, coordinating manual water level measurements, and analyzing resulting drawdown data.
- Hydrogeologist, aquifer evaluation, Brooklyn, NY. NYCT. Evaluated subsurface geologic conditions for subway site utilizing existing boring logs, topographic, and historic map data.
- Hydrogeologist, aquifer testing, Queens, NY. NYCT. Performed slug tests on monitoring wells at an East Side Access site, and evaluated hydrologic properties using the HYDROLOGIC ISOAQX computer program.
- Hydrogeologist, remedial wells, Deer Park, NY. USEPA. Supervised drilling, installation and development of groundwater extraction, injection, and monitoring wells at a Superfund site. Interpreted aquifer and well performance from development data and recommended modification of drilling and development procedures.
- Hydrogeologist, aquifer testing, NYC, NYCT. Performed aquifer pumping and slug tests and evaluated hydrologic properties using the computer program AQTESOLV.

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- Hydrogeologist, aquifer evaluation, Mattituck Airport, Mattituck, NY. Performed water level and water quality monitoring at a NYSDEC Superfund site. Constructed groundwater elevation contour maps and utilized chemical analytical data to predict contaminant plume migration.
- Senior Hydrogeologist, DEIS services, Lazy Point, NY. Town of East Hampton. Prepared a detailed evaluation of groundwater conditions and potential impacts for a water extension to Lazy Point for a draft Environmental Impact Statement (DEIS). Evaluated current and historic groundwater data and analytical models to determine potential impacts for both Lazy Point and the drinking water source area and prepared associated portions of the DEIS.

Landfills

- Program Manager, Greenhouse gas monitoring program, Town of Islip, NY. Responsibilities include scope and budget management, staffing, client and USEPA coordination, reporting review, and troubleshooting.
- Project Manager, Landfill Closure Investigations, Town of East Hampton, NY. Prepared Closure Investigation work plans, including Hydrogeologic investigations, methane investigations, surface leachate investigations, and vector investigations. Prepared final Closure Investigation Reports, approved by the NYSDEC.
- Project Manager, Landfill monitoring networks, Town of East Hampton, NY. Supervised installation of groundwater and methane monitoring wells at the landfills, including hollow-stern auger and mud-rotary well installations, split-spoon soil sampling and boring log preparation, oversight and interpretation of wireline electric logging, and completion of initial baseline monitoring events.
- Hydrogeologist, Landfill groundwater monitoring, NJ, private client. Performed groundwater sampling at a radio tower facility constructed on a landfill. Analyzed results and made recommendations.
- Hydrogeologist, Landfill gas monitoring, Town of East Hampton, NY. Conducted methane monitoring at two landfills over a multi-year period.
- Program Manager, Landfill monitoring programs, Town of East Hampton, NY. Supervises ongoing groundwater and methane monitoring programs, including field team coordination, communications with the Town, report scheduling, data review, and report review

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prior to distribution to the client and NYSDEC. Negotiated successfully with NYSDEC for reduced monitoring frequencies based on historic monitoring results.

- Senior Hydrogeologist, Landfill plume modeling, Town of East Hampton, NY. Conducted groundwater flow modeling to evaluate the nature and extent of a landfill plume and its fate. Findings were presented at public meetings and were used to determine the configuration of the landfill's groundwater monitoring network.
- Hydrogeologist, Septage lagoon Superfund site, Town of East Hampton, NY. Conducted sampling of former septage lagoons at a landfill. Evaluated the resulting data and prepared a delisting petition for this NYSDEC Superfund site.
- Hydrogeologist, containment system modeling, Richmond, CA. Used the FLOW PATH modeling program to predict groundwater flow directions and evaluate extraction well locations and pumping rates for a groundwater containment and remediation system at a former municipal landfill.
- Program Manager, Landfill gas monitoring program, Town of Islip, NY. Manages monthly methane monitoring for all landfills, including onsite and offsite monitoring wells, methane collection systems, and flare systems. Data is recorded electronically and downloaded to computer for formatting prior to expedited delivery to Town.
- Program Manager, Landfill monitoring reporting program, Town of Smithtown, NY. Supervised and reviewed production of quarterly and annual monitoring reports for all monitoring programs at the landfills for Town compliance with NYSDEC requirements, including tabulation and reporting of groundwater and methane monitoring data, solid waste and recycling collection data, yard waste composting operations, and landfill leachate collection and disposal data.
- Program Manager, Landfill remediation, Town of Huntington, NY. An historic landfill was removed from parkland under the NYSDEC's ERP. Responsibilities included work scope development, schedule and budget management, staffing, client and regulatory agency coordination and reporting, and report review and certification.

Environmental Data Analysis

Ms. Davis has participated in multiple sessions of environmental geochemistry training provided by environmental geochemists, including physical chemistry, thermodynamics, ionic interactions, complexation, biologic effects, and other basic

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principles. Training also included field sampling procedures and effects on chemical data, chemical analytical methods and equipment, and QA/QC procedures and interpretation. Attended periodic environmental chemistry training sessions hosted by environmental laboratories and participated in handson training in data and QA/QC evaluation.

- Data Evaluation, multiple projects. Reviewed and evaluated numerous soil, groundwater, product, indoor/ambient air, and soil vapor chemical analytical datasets, including evaluation of batch and site-specific QA/QC samples, laboratory narratives, comparison to regulatory agency criteria, historic data, and background data.
- **QAPPs, multiple projects**. Developed and implemented numerous QAPP, including QAPP design, sample delivery group (SDG) evaluations, sampling procedures and sequences, and QA/QC sample preparation/collection.
- **DUSR Preparation, multiple projects.** Prepared Data Usability Summary Reports (DUSRs) for numerous chemical analytical datasets for projects overseen by USEPA, NYSDEC and other regulatory agencies, including soil, groundwater, soil vapor, indoor air, and ambient air datasets.
- Electronic Data Deliverables, multiple projects. Implemented protocols and procedures for all FPM sites for which NYSDEC Electronic Data Deliverables (EDDs) are required. Responsibilities included staff training, data package QA/QC, client interactions, budget and schedule impact assessments, and dissemination of EDD training information.
- Data Evaluation, multiple sites. Performed forensic assessments of historic environmental chemical analytical data to resolve apparent discrepancies with modern data and other inconsistencies.
- Leachate test assessments. Assessed leachate test protocols and results to determine the most applicable methods to evaluate and develop soil cleanup objectives for non-regulated compounds.
- Organic parameter breakdown assessments. Interpreted numerous organic parameter datasets to evaluate breakdown sequences, likely original parameters, and rates of degradation.
- Insitu remediation assessments, multiple sites. • Formulated numerous chemical treatment plans for insitu remediation, including assessment of contaminant concentrations and distribution, processes chemical and indicators. natural attenuation indicators, additional stociometric demands, and hydrogeologic factors.

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Community Impacts

- Community Monitoring Plans. multiple hazardous waste sites. Developed Community Air Monitoring Plans (CAMP) for investigation and projects, including monitorina remediation procedures, action levels, and mitigation measures for odors, traffic, noise, dust, and/or vapors with the potential to affect surrounding communities. Each CAMP was reviewed and approved by the NYSDEC and NYSDOH and was implemented under agency oversight. Presented CAMP findings at numerous community meetings. Addressed community and agency questions and issues
- Vector Assessments, multiple landfill sites, Long Island, NY. Evaluated and implemented abatement for vectors (rodents, flies, and seagulls) in association with landfill closures, including inspection and reporting of vector populations, development of vector abatement plans, and assisting Town personnel with vector abatement.
- Odor Abatement, NYSDEC BCP site, NYC, NY. Major real estate developer. Developed and implemented an odor abatement plan for highlyodorous soil discovered during a remedial project. The site was surrounded by three public schools; complaints following discovery of odorous soil resulted in a job shutdown until the nuisance was abated. The odor abatement plan was prepared and implemented within 24 hours and involved immediate covering of the odorous soil followed by spot excavation and removal during non-school hours (night work) and the use of odor-controlling foam. The removal was completed within one week without further incident. The NYSDEC and NYSDOH approved the completed work, allowing the job to recommence.
- Vector Assessment, transfer station, Town of East Hampton, NY. Conducted inspections of intense fly infestations at a Town transfer station building to identify the locations and migration pathways of flies inside the building and to develop an abatement plan. This plan was successfully implemented and abated the nuisance flies.
- Soil Vapor Intrusion Assessments, multiple sites. Developed and implemented air and soil vapor investigations of residential and commercial properties, as approved by the NYSDEC/NYSDOH, to evaluate potential air quality impacts and determine if mitigation or monitoring was necessary. Monitoring/mitigation designs were developed for NYSDEC/NYSDOH approval.
- CAMP Monitoring, multiple sites. Conducted odor, dust, noise, and organic vapor monitoring in communities surrounding environmental sites. Data were collected and interpreted in accordance

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with NYSDEC and/or NYSDOH guidance and the results were submitted to these agencies together with recommendations for mitigation, if appropriate.

• Project Manager, Environmental data assessment, Windmill Village, Town of East Hampton, NY. Evaluated environmental data obtained during due diligence testing for a proposed housing development. Recommended additional sampling and confirmed the absence of impacts.

Expert Witness/Technical Services

- Expert Witness/Technical Services, residential project, Glen Harbor, NY. Private client. Provided expert witness and technical services regarding environmental conditions and remedial procedures for residential redevelopment of a former oil terminal, including preparing and obtaining NYSDEC and NCDOH approval of remedial work plans, preparing remedial cost estimates and schedules, and providing testimony at a public hearing before the Town Board from which a change of zone was requested. The proposed change of zone, although subject to considerable public opposition, was approved, redevelopment associated allowing and remediation of the property to move forward.
- Expert Witness/Technical Services, petroleum spill site, Westbury, NY. Private client. Provided expert witness and technical services to a petroleum company defending NYSDEC cost recovery claims for a petroleum spill. The spill site involved two very large petroleum releases at gasoline stations adjoining the defendant's property. Services provided included evaluating tank tests, groundwater, soil and soil vapor chemical analytical data, petroleum fingerprint data, remediation activities and costs. Prepared numerous detailed timelines of activities, large displays of site information and subsurface conditions, and cost allocation calculations. Conducted a detailed subsurface investigation to evaluate stratigraphic conditions.
- Expert Technical Services, development site, Village of Larchmont, NY. Assisted the Village in successfully opposing the construction of a very large superstore in the adjoining community, including evaluating previous environmental investigations, developing cost estimates and scopes of work for a full environmental site assessment, preparing scoping cost estimates for likely remediation scenarios, preparing technical documents in support of the Village's position, and making a presentation at a public hearing. The proposed project was subsequently withdrawn.

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- Expert Hydrogeologist Services, development site, Town of Carmel, NY. Provided technical evaluation of a proposed water district. The proposed water district would impact existing residents due to limited available water supplies and likely impact on existing wells. The work included evaluation of aquifer pumping tests, determining impacts on nearby wells, assessment of likely increased water demand, preparation of supporting documents, and presentations at project hearings. The proposed project was subsequently conditionally approved by the NYSDEC with significant modifications to protect the water rights of existing residents.
- Expert Technical Services, solvent plume site, Nassau County, NY. Private client. Provided technical support to a property owner subject to a USEPA investigation as the potential source of a large chlorinated solvent plume, including evaluation of a plume-wide RI/FS, detailed review of property historic information, multiple meetings with the USEPA, client and counsel, and identification of additional potential source areas.
- Expert Witness Affidavits, multiple projects. Prepared affidavits regarding environmental conditions at client properties in support of pending legal actions, including landfill issues, wetlands and navigatable waterway issues, and petroleum spills.
- Expert Technical Services, road construction projects. Westchester County. NY. Croton Watershed Clean Water Coalition. Provided technical services to the CWCWC to assess impacts from proposed road construction projects on the Kensico Reservoir and other New York City water supply system facilities. This work included evaluating stormwater pollutant loading calculations, assessing impacts to wetlands, promoting application of more accurate stormwater runoff calculation methods, assessing proposed stormwater management techniques, presenting at public meetings, preparing technical statements for submittal to regulatory agencies, and participating in the NYSDOT SWPPP Guidance committee

Health and Safety

 Health and safety monitoring, multiple sites. Implemented HASP monitoring at investigation and remediation sites during intrusive activities, including calibration and operation of photoionization detector (PID) and flame ionization detector (FID) for organic vapors and combustible gas indicator (CGI) for methane. Compared results to applicable action levels and implemented protective measures as necessary.

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- CAMP monitoring, multiple sites. Performed community monitoring, including monitoring for noise, particulates (dust), and organic vapors. Recorded observations and compared to applicable action levels. Calibrated and operated noise meters, particulate monitors, and PID/FID.
- Radiation screening, multiple sites. Performed screening for radiation at select sites, including operating Geiger counter in different radiation modes and obtaining background readings.

Miscellaneous Projects

- **Phase I ESAs**. Performed numerous Phase I Site Assessments for residential and industrial sites in the metropolitan New York area.
- Environmental Trainer. Conducted aquifer pumping and soil vapor extraction test training. Instructed classes for site investigation methods, aquifer pumping test analysis, and risk assessment.
- **Project Management.** Performs a wide range of project management functions, including development and management of project budgets and schedules, coordination of field and office staffing, document preparation, review, editing, and interaction with clients, regulatory, legal, real estate, consultant, and compliance personnel.
- Field Mapping Studies. Organized, supervised, and conducted field mapping studies in Alaska.
- **Downhole Logging**. Directed petroleum well site geophysical logging operations and interpreted geophysical well logs.
- **Geophysical Data Interpretation**. Processed and interpreted seismic reflection data and constructed seismic velocity models.
- **Regulatory Evaluations**. Assisted and reviewed regulator's revision of proposed risk assessmentbased UST cleanup guidelines. Reviewed proposed USEPA NPDES permits for remediation system effluent.
- **Geologic Mapping**. Constructed and interpreted structural and stratigraphic cross sections, and structure contour, fault surface, isochore, and isopach maps.

Regulatory Compliance

• Site Audits. Has conducted numerous site audits for regulatory compliance, particularly with respect to Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Responsibility and Liability Act (CERCLA), the Clean Water Act (CWA) and Clean Air Act (CAA).

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- RCRA compliance audits. Conducted inspections and reporting regarding underground and aboveground storage tanks (USTs and ASTs), hazardous waste storage facilities, waste management and reporting requirements, and hazardous waste storage area closures in compliance with RCRA.
- CERCLA Compliance. Oversees and coordinates environmental site assessments (ESAs) for compliance with CERCLA requirements for a wide variety of facilities including operating and historic industrial sites manufacturing plants, abandoned facilities, and multi-property Brownfield sites.
- Superfund Sites. Managed multiple investigation and remedial projects at state and federal Superfund sites. Is very familiar with all phases of CERCLA projects including PA/SI, RI, FS, RD and RA. Has overseen activities at many Superfund sites from investigation through closure.
- CWA Projects. Conducted investigation and remediation of Class V underground injection control (UIC) Systems, investigation and acquisition of UIC discharge permits, and discharges into surface water bodies.
- CAA Compliance Projects. Conducted facility investigations for emissions sources, including paint booths, fume hoods, process discharges and other point sources. Sampled and evaluated remediation system discharges for CAA compliance, recommended emissions treatment when required.

Representative DOD Projects

- Barksdale RFI, Barksdale AFB, LA, \$520K-Lead Geologist for RFI for multiple Base-wide sites at Barksdale AFB, including landfills, petroleum spills, fire training areas, sewage treatment plans, and chemical spills. Managed field crews and sampling of soil, groundwater, and waste, performed sample and waste management, and coordinated with Base representatives. Prepared RFI Report, including analytical data reports, CS, and recommendations.
- Barksdale LTM Program, Barksdale AFB, LA, \$1.7M-Lead Geologist for LTM Program for Basewide Barksdale groundwater, including landfills, petroleum spills, fire training areas, sewage treatment plants, and chemical spills. Supervised field crews, managed samples and waste, prepared LTM Reports and made recommendations for LTM optimization.

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 Site Characterization, Plattsburgh AFB, NY, \$720K-Field Team Leader for SC investigation of fuel oil USTs and petroleum spills at Base housing, officers' quarters, and support building prior to transition of these areas to other uses. Working for AFCEE, developed and conducted an SC for over 200 USTs, including soil and groundwater sampling to identify petroleum contamination. Supervised several field crews in an accelerated sampling program to complete the SC prior to winter conditions. Prepared SC Report submitted to and approved by the NYSDEC.

MGP Site Experience

- Field Sampling Services. Soil Investigation, Brooklyn Union Greenpoint MGP site. Conducted soil sampling and screening activities during tank removal activities at this former MGP facility. Tasks included visual observations, screening with a calibrated PID, soil sampling, interfacing with the client, subcontractors and NYSDEC personnel, and report preparation.
- Program Manager. Soil Vapor Intrusion Investigation and Mitigation, Brooklyn MGP site. Developed and implemented a soil vapor intrusion (SVI) investigation following the discovery of chlorinated solvents in soil vapor beneath a shopping center constructed on an MGP site. Managed all scheduling, budget and contract issues. Reviewed results and developed an SVI mitigation plan to address the chlorinated solvent vapors. Oversaw design and installation of a subslab depressurization system (SSDS) to address SVI. This work was completed on time and within budget.
- Field Team Supervisor. Soil Remediation, Brooklyn Union Coney Island MGP site. Responsible for coordinating all field activities associated with segregation and removal of leadpaint impacted soil from MGP waste at this NYSDEC-listed MGP site. Conducted preexcavation waste characterization, implemented HASP, oversaw subcontractor and FPM staff, coordinated with client and NYSDEC, managed waste manifesting, conducted community air monitoring, and prepared remediation report.



Engineering and Environmental Science



Mr. Bukoski is an Environmental Scientist with diversified experience in both the Federal and private sector, including groundwater and soil investigations and evaluation, soil remediation projects, soil vapor intrusion evaluation, aquifer testing and interpretation, design and management of soil and groundwater remediation projects, groundwater flow modeling, evaluation of site compliance with environmental regulations, and environmental permitting.

Functional Role	Title	Years of Experience
Environmental Scientist	Project Manager	16

Personal Data

Education

B.S./1998/Environmental Science/SUNY Buffalo

Registration and Certifications

- OSHA 40-hr and current 8-hr Health and Safety Training Course (1999-present)
- OSHA-Approved 8 hour Health and Safety Training Refresher Courses (2000-Present)
- OSHA-Approved 8-hr Site Safety Supervisor Training Course (2008)

MTA NYC Transit Track Safety Certification

National Groundwater Association

Long Island Association of Professional Geologists Advanced Technologies for Natural Attenuation Certification

Employment History

1999-present	FPM Group
1991-1998	Sutherland's Office Centre
1985-1991	United States Marine Corps

Detailed Experience

Site Investigations

- Performed Phase I Environmental Site Assessments and Phase II Investigations for numerous sites in New York State, including office buildings, aerospace facilities, former research and development facilities, and large manufacturing plants.
- Provided oversight and coordination for ongoing investigation and remedial projects at several New York State Inactive Hazardous Waste Disposal (Superfund) Sites, Voluntary Cleanup Program (VCP) Sites, and Brownfield Cleanup Program (BCP) Sites. Investigations included Site Characterization (SC), Remedial Investigation/ Feasibility Studies (RI/FS), and RCRA Facility Investigations. Remedial services have included contaminated soil removals: UIC closures. ORC and HRC injections; design, installation and operation of air sparge/soil vapor extraction (AS/SVE) systems; sub-slab depressurization systems (SSDS) and, capping.

- Managed site investigation activities, including soil vapor and air sampling, soil sampling and analysis, groundwater sampling and analysis, and geotechnical evaluation for numerous supermarket sites in Suffolk County, New York in support of negotiations for property purchases and redevelopment.
- Investigated several petroleum-contaminated spill sites at Griffiss AFB, Rome, NY. Performed soil and groundwater sampling via Geoprobe, installed groundwater wells for monitoring and assessment of attenuation. Proposed remediation technologies for soil and groundwater contamination. Analyzed chemical data and prepared a Site Investigation (SI) Report.
- Investigated several chlorinated solventcontaminated sites at Griffiss AFB, Rome, NY. Performed aquifer testing to establish direction of groundwater flow. Collected groundwater samples and analyzed the chemical data to identify the constituents of concern. Proposed remediation technologies for groundwater contamination.
- Supervised drilling installation, development, and sampling of monitoring wells at numerous sites in the greater New York metropolitan area. Utilized resulting stratigraphic, hydrologic, and chemical analytical data to evaluate site conditions. Prepared investigation reports identifying site history, contaminant characteristics, sampling methods, and site-specific lithology.
- Managed landfill monitoring projects at several landfills in Suffolk County. Collected and evaluated methane and groundwater monitoring data. Prepared reports documenting monitoring results and provided recommendations regarding methane collection, stormwater runoff, capping, and other landfill management strategies.
- Performed long-term monitoring projects at several landfills at Griffiss AFB. Collected groundwater, leachate, and surface water samples. Evaluated resulting data and prepared monitoring reports for state and federal agency review.

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Remediation

- Performed investigation and remedial activities at a NYSDEC BCP site in New York City. Assisted in preparing the Remedial Investigation and Remedial Work Plan; coordinated with the owner, contractors, and the NYSDEC; conducted citizen participation activities; performed waste characterization, waste profiles, and waste management; assisted in developing the Site Management Plan (SMP) for NYSDEC approval.
- Performed waste characterization of a 90,000-cy construction soil stockpile at a municipal sewer facility. Responsibilities included development and implementation of Sampling and Analysis Plan (SAP), evaluation of lab data, preparation of Field Sampling Summary Reports (FSSR), coordination with disposal facilities, and preparation of waste profiles.
- Developed pilot test plans, evaluated pilot test results, and prepared conceptual designs for several air sparge/soil vapor extraction (AS/SVE) systems to treat petroleum and/or chlorinated solvent VOCs. Provided construction oversight for system installation. Performed routine system operation monitoring and evaluated system performance. Prepared system installation and monitoring reports.
- Assisted in the design of a soil remediation plan and performed construction and soil remediation oversight for a metal parts plating and manufacturing facility in Suffolk County, New York. Remediated numerous leaching pools impacted with petroleum compounds and metals. Prepared a UIC Closure Report for USEPA approval.
- Assisted in the design and oversight of indoor underground storage tank abandonment program, leaching pool remediation plan, and managed contractor support for a tape measure manufacturing facility in Suffolk County, New York. SCDHS provided oversight and approval.

Hydrogeologic Evaluations

- Performed well design (gravel pack size, screen size, etc.) for numerous groundwater wells and variable depths on Long Island. Experience includes sieve analyses, well construction and development methods.
- Performed aquifer pumping and slug tests and evaluated hydrologic properties using the computer program AQTESOLV for several sites in New York City and Long Island.

- Participated in multi-day, multi-well aquifer pumping test for New York City Transit (NYCT). Responsible for operating and maintaining data logging equipment, coordinating manual water level measurements, and analyzing resulting drawdown data.
- Performed water level and water quality monitoring at several sites in Nassau and Suffolk Counties. Constructed groundwater elevation contour maps and utilized chemical analytical data to predict contaminant plume migration.
- Supervised drilling, installation and development of groundwater monitoring wells at three sites within Griffiss AFB, NY and numerous sites in New York City and Long Island. Performed aquifer testing and constructed groundwater elevation contour maps to delineate plumes and predict contaminant plume migration.

Landfills

- Managed ongoing groundwater and methane monitoring programs for Town of East Hampton landfills. Responsibilities included field team coordination, communications with the Town, report scheduling, data package review, and report preparation for distribution to the client and NYSDEC.
- Managed and conducted quarterly methane monitoring at Springs-Fireplace Road and Montauk Landfills for the Town of East Hampton. Tabulated resulting data, evaluated historic methane monitoring results, and recommended appropriate actions including methane monitoring well installations and a methane extraction system. Performed off-site methane monitoring on private property confirm methane containment. Prepared quarterly monitoring reports for submittal to the Town and NYSDEC.
- Performed monthly methane monitoring and prepared monitoring reports for all Town of Islip Landfills. Monitoring program included onsite and offsite methane wells, methane collection systems, and flare systems. Data was recorded electronically and downloaded to computer for formatting prior to delivery to Town. Prepared monthly monitoring reports for submittal to the Town and NYSDEC.
- Produced quarterly and annual monitoring reports for all monitoring programs at Town of Smithtown landfill. Project included tabulation and reporting of groundwater and methane monitoring data, solid waste and recycling collection data, yard waste

FPM group

Engineering and Environmental Science

composting operations, and landfill leachate collection and disposal data.

Water Quality Monitoring

- Conducted groundwater monitoring for the Town of Riverhead, including sampling a multi-depth monitoring well network, analysis and interpretation of analytical and hydrogeologic data, and monitoring reporting in accordance with NYSDEC requirements. Responsibilities including sampling, communications with the Town, laboratory data package review, and report preparation for distribution to the client and NYSDEC.
- Conducted investigation and remedial projects at several New York State BCP Sites. Tasks included contaminated soil removal, groundwater remediation and long-term monitoring, groundwater plume evaluation, and preparation and submittal of annual reports to the NYSDEC.
- Coordinated and performed onsite and offsite groundwater monitoring at various petroleum release sites on Long Island, the New York metropolitan area and in Westchester County in accordance with NYSDEC requirements. Utilized resulting stratigraphic, hydrologic, and chemical analytical data to evaluate site conditions. Prepared work history, plans identifying site contaminant characteristics, sampling methods, and site-specific lithology. Monitoring programs generally included installation and sampling of a multi-depth monitoring well network utilizing standard or low flow sampling techniques, analysis and interpretation of analytical and hydrogeologic data, and reporting.
- Performed water level and water quality monitoring at an industrial site in Mattituck, NY. Constructed groundwater elevation contour maps and utilized chemical analytical data to predict contaminant plume migration. Prepared reports, coordinated with the property owner and NYSDEC, and developed a closure plan.
- Conducted numerous investigations and remediation of contaminated cesspool and stormwater drain pool systems in Suffolk County. Fully conversant with SCDHS, SOP 9-95 for investigation and cleanup of leaching pool systems, including Action Levels and Cleanup Standards, groundwater monitoring criteria, and remedial requirements.

Griffiss Air Force Base

 Conducted several Site Investigations for AFCEE. Performed soil and groundwater sampling, aquifer testing, and recommended cleanup procedures necessary for the closure and conversion of the Base. Responsible for compliance with all applicable laws including CERCLA, SARA, RCRA, and NCP.

Roslyn Air National Guard Station

 Conducted several Site Investigations for Roslyn ANGS. Performed soil and groundwater sampling, aquifer testing, and mold evaluations. Prepared reports documenting recommended cleanup procedures necessary for the closure and conversion of the Base. Responsible for compliance with all applicable laws including CERCLA, SARA, RCRA, and NCP.

Health and Safety

- Performed health and safety monitoring at investigation and remediation sites during intrusive activities. Monitoring included calibration and operation of photoionization detectors (PIDs), flameionization detectors (FIDs), dust monitors, and combustible gas indicators (CGI). Compared results to applicable action levels and undertook preventative/protective measures as necessary.
- Performed community monitoring, including monitoring for noise, particulates (dust), and organic vapors at several sites throughout New York State. Recorded observations and compared to applicable action levels. Implemented calibration and operation programs and training for noise meters, particulate monitors, PIDs, and FIDs.
- Performed screening for radiation at several sites. Operated Geiger counters in different radiation modes and compared data to background readings.

Miscellaneous Projects

- Performed unexploded ordnance evaluations and mapping for the United States Marine Corps at several munitions ranges in 29 Palms, California, and Camp Lejeune, North Carolina.
- Conducted land survey and mapping for the United States Marine Corps at several artillery ranges in 29 Palms, California and Camp LeJeune, North Carolina.

Richard J. Baldwin, C.P.G., P.G.

Apex Companies, LLC, Project Director

Mr. Baldwin is a hydrogeologist with more than twenty five years of experience in the fields of environmental consulting, hydrogeology and geology with particular experience in conducting and supervising environmental investigations and remedial actions at industrial, private, Federal and publicly-owned facilities and sites. Additionally, Mr. Baldwin has experience in evaluating potential environmental impacts of projects including golf courses, housing developments, senior housing, schools and retail shopping centers. For the last several years, Mr. Baldwin's work has focused primarily on sites and facilities located in the Long Island, New York City and Upstate New York areas. He has extensive knowledge and experience pertaining to Long Island's federally-designated sole-source drinking water aquifer system. Mr. Baldwin has extensive experience in evaluating complex laboratory data packages to ensure that they are precise, accurate, repeatable and comparable.

Education

- Graduate Course Work, San Jose State University, 1985-1988
- BA Geology, San Francisco State University, 1982

Professional Registrations

- Professional Geologist, PG-000552-G, Commonwealth of Pennsylvania
- Certified Professional Geologist, CPG #9158, Amer.Inst. of Prof. Geologists
- OSHA Certification, 40-hour Health and Safety Training at Hazardous Waste Sites
- OSHA Certification, 8-hou Refresher Health and Safety Training at Hazardous Waste Sites
- OSHA Certification, 8-hour Management Training
- OSHA Certification, 8-hour Radiation Safety Training

Continuing Education

- Princeton Groundwater
 Hydrogeology and Pollution
 course
- Environmental Law and Regulations Course, U.C. Berkeley Extension
- NGWA MODFLOW and MODPATH Modeling Course
- NGWA Visual MODFLOW
 Modeling Course

Typical Project Experience

Mr. Baldwin has extensive experience in the selection, design, installation and maintenance of a wide range of soil and groundwater remediation systems. Remedial systems have included both active and passive free-product recovery, traditional groundwater pump and treat, soil-vapor extraction, air sparging, bioventing, bioremediation, excavation impacted-soil management and natural attenuation.

Mr. Baldwin has been the principal-in-charge and directly responsible for hundreds of projects related to the wireless telecommunications field. He has overseen the conduct of hundreds of Phase I Environmental Site Assessments (ESAs) and limited Phase II ESAs. He has developed and implemented Soil and Groundwater Management Work Plan to address environmental impairment issues. He has been instrumental in developing appropriate mitigation measures with various project team members including site acquisition, legal counsel and headquarters level staff.

Mr. Baldwin has evaluated the potential environmental impacts of proposed projects including golf courses, housing developments, senior housing, schools, automobile repair facilities and retail shopping centers. The potential impacts included those to groundwater quality from herbicide/pesticide application, disposal of sanitary waste and school laboratory waste and the impacts to soil quality from handling and disposal of hazardous materials, leaking underground storage tanks, historic disposal of hazardous waste and pesticide/herbicide application. These impacts were evaluated through a variety of means including the collection and analysis of soil and groundwater samples, geo- and organic-chemistry modeling, groundwater fate and transport modeling and basic research of materials, their uses and their potential migration pathways. Mr. Baldwin has provided expert witness services for various venues ranging from NYSDEC spill and hazardous waste sites to potential noise impacts.

Mr. Baldwin has been involved in hundreds of subsurface soil and groundwater investigations ranging from Phase I & II Environmental Site Assessments (ESAs) to Remedial Investigations. Investigation and delineation techniques have included soil borings, groundwater monitoring well networks, hydropunch/GeoProbe sampling, surface and borehole geophysical methods, soil-gas surveys, aquifer testing, surface water and sediment sampling, waste characterization (soils piles, drums, USTs, ASTs, landfills, etc), test pits, and computer fate and transport modeling. Materials investigated have included petroleum products (heating/fuel oil and gasoline), PCB oils, coal tar, heavy metals, chlorinated solvents, explosives, pesticides, herbicides and buried medical waste.

Mr. Baldwin has been in the forefront of both evaluating and addressing shallow soils on Long Island which have been impacted by pesticides (particularly arsenic) and herbicides. This important issue is particularly of concern due to the re-development of agricultural lands for residential and educational end uses. Mr. Baldwin has work closely with the SCDHS and Town of Brookhaven to develop effective and easily implementable Soil Management Plans.

Mr. Baldwin works closely with the U.S. Environmental Protection Agency (EPA), New York State Department of Environmental Conservation (NYSDEC) Region 1, Region 2, Region 3 and Central Office, New York State Department of Health (NYSDOH), Suffolk County



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Department of Health Services (SCDHS) and Nassau County Department of Health (NCDOH). Mr. Baldwin also works with local planning and review boards including the Town of East Hampton, Town of Southampton, Town of Babylon, Town of Brookhaven, Village of Patchogue, Village of Great Neck and New York City on issues ranging from groundwater quality to historic resources to noise impacts.

Mr. Baldwin's projects include supervising and performing Remedial Investigations/Feasibility Studies (RI/FSs), Interim Remedial Actions (IRMs), and implementation of selected remedies at NYSDEC Class 2 and 2a Inactive Hazardous Waste Disposal sites. Other work, conducted with the NYSDEC, includes evaluating and implementing large-scale groundwater and soil treatment systems to remediate MTBE.

Environmental Data Analyses

Mr. Baldwin has received multiple sessions of environmental geochemistry training provided by environmental geochemists, including physical chemistry, thermodynamics, ionic interactions, complexation, biologic effects, and other basic principles. Training also included field sampling procedures and effects on chemical data chemical analytical methods and equipment, and QA / QC procedures and interpretation.

Mr. Baldwin has reviewed and evaluated numerous soil, groundwater, product, indoor / ambient air and soil vapor chemical analytical datasets, including evaluation of batch and site-specific QA / QC samples, laboratory narratives, comparison to regulatory agency criteria, historic data, and background data.

Mr. Baldwin has been responsible for the development and implementation of numerous Quality Assurance Project Plans (QAPP), including QAPP design, sample delivery group (SDG) evaluations, sampling procedures and sequences, and QA / QC sample preparation/collection.

Mr. Baldwin has attended periodic environmental chemistry training sessions hosted by environmental laboratories and participated in hands-on training in data and QA / QC evaluation.

Mr. Baldwin has prepared Data Usability Summary Reports (DUSRs) for numerous chemical analytical datasets for projects overseen by the USEPA, NYSDEC and other regulatory agencies. Datasets evaluated have included soil, groundwater, soil vapor, indoor air and ambient air.

Mr. Baldwin has performed forensic assessments of historic environmental chemical analytical data to resolve apparent discrepancies with modern data and other dataset inconsistencies.

Mr. Baldwin has interpreted numerous organic parameter datasets to evaluate breakdown sequences, likely original parameters and rates of degradation.

Mr. Baldwin has formulated numerous chemical treatment plans for insitu remediation of environment contaminants, including assessment of contaminant concentrations and distribution, chemical processes and indicators, natural attenuation indicators, additional stociometric demands and hydrogeologic factors.

Selected Project Experience

Project Director for Major NY Metro Airport Project

Mr. Baldwin is part of a large project team which has been tasked by a coalition of major airlines to evaluate the efficacy of re-instituting the delivery of jet fuel via a water-borne barge delivery system. As part of the project, Mr. Baldwin evaluated the requirements for permits from various agencies including the NYSDEC, USACE, NYSDOS and New York City. Mr. Baldwin has also been providing ongoing evaluations of potential project design scenarios which required the evaluation of existing data sets (e.g., bathymetric surveys, former permits, etc.), conducting costbenefit analyses assuming various dredge spoil disposal options, etc. This is a major, on-going project with long-term ramifications at all of the major New York Metropolitan airport facilities.

Project Director for Ferry Terminal Project, Glen Cove, NY

The City of Glen Cove Industrial Development Agency (IDA) has acquired Federal Stimulus Funding to develop a ferry terminal along their waterfront area in order to provide passenger ferry service from the North Shore of Long Island to the New York Metropolitan Area, and potentially to selected Connecticut locations. The selected site is part of the former Li Tungsten and Captains Cove Federal and New York State Department of Environmental Conservation (NYSDEC) Superfund Sites. Both sites were subject to remedial actions and were "closed" by both the United States Environmental Protection Agency (USEPA) and NYSDEC circa 2000. A wide range of contaminant types were potentially associated with both sites including solvents, petroleum, oils, heavy metals and radiation. The



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NYSDEC and IDA required the preparation of a Soil Management Plan (SMP) as potentially-impacted soils and bottom sediments were potentially going to be encountered as part of the project. Mr. Baldwin successfully prepared and executed a Dredging / Excavation (D / E) Work Plan which detailed the requirements to field screen all excavated soils and dredge spoils with a radiation detector, photo-ionization detector (PID) and by visual / olfactory inspection. Based upon the results of the field screening, excavated soils and dredge spoils were to be addressed by one of the following: 1) cleared for use as on-site backfill materials; 2) disposed of as non-hazardous, regulated materials; or, 3) as hazardous waste. Mr. Baldwin was also responsible for designing and implementing a sediment sampling and analyses program to: 1) evaluate ambient creek bottom conditions with respect to a wide-range of contaminant types; and, 2) confirm the chemical conditions of the "new sea floor" prior of dredging and excavation activities. Mr. Baldwin also successfully applied for a received a NYSDEC Case-specific Beneficial Use Determination (BUD) finding as part of a cost-effective materials disposal option, as well as successfully applying for a NYSEC Long Island Well permit required as part of continuing project support activities.

Project Director for Marina Property, Glen Cove, NY

Mr. Baldwin was responsible for conducting turn-key environmental and engineering services for this active marina facility. The services included: 1) conducting a high-resolution bathymetric survey of the marina's basin in order to evaluate effective depths / vessel mooring and access restrictions; 2) successful acquisition of a United States Army Corps of Engineers (USACE) / NYSDEC Joint Application permit to repair a failed bulk head; 3) preparation of a full engineered design package to rebuild a failing dock-side water supply system; 4) conduct of a land-ward and marine geotechnical evaluation to determine the suitability of sub-surface materials for future construction projects; 5) collection and analyses of multiple bottom sediment samples to evaluate same for dredging issues; and, 6) participation in the marina design team. As part of this, Apex participated in multiple site meetings to discuss dock geometry, future infrastructure repair requirements, future regulatory permitting requirements, travel lift slip issues, potential future dredging protocols, etc.

Project Director for Marina Property, Patchogue, NY

Mr. Baldwin was responsible for providing turn-key environmental and engineering services for this active marina facility. These services included: 1) conduct of a high-resolution bathymetric survey of the marina's basin in order to evaluate effective depths / vessel mooring and access restrictions; 2) Preparation and submission of a USACE / NYSDEC Joint Application permit for maintenance dredging /marina infrastructure improvement; 3) preparation of a full engineered design package to rebuild a failing travel lift rail system; 4) contractor oversight; and, 5) Participation in the marina design team. As part of this, Apex has participated in multiple site meetings to discuss dock geometry, future infrastructure repair requirements, future regulatory permitting requirements, travel lift slip issues, potential future dredging protocols, etc.

Project Director for 10-Year Dredging and Beach Nourishment Program, Yarmouth, MA

Mr. Baldwin has been responsible for providing permit application preparation services for the Town of Yarmouth on Cape Cod. There are currently 37 Town-wide sites which are subject to multiple local, State and Federal permits for maintenance dredging and beach nourishment activities. The Town of Yarmouth's wetlands and waterways represent a highly-valuable, yet fragile ecosystem/resource. Current and historic dredging and beach nourishment practices on a site-by-site basis over the past decades have resulted in a confusing and difficult-to-manage situation with respect to this highly-complex system. Apex recommended that a 10-Year Town-wide Dredging and Beach Nourishment Program be approved and implemented wherein all 37 Yarmouth and Dennis dredge and beach nourishment sites are included/managed under one comprehensive management program. This will allow for effective use of Town resources, as well as ensuring that the dredge/nourishment sites are appropriately managed within appropriate regulatory guidelines. Again, the overall goal of this program is to allow the Town of Yarmouth to manage more effectively its waterways and beaches.

New York State Department of Environmental Conservation, Groundwater Evaluation and Treatment, Taconic Developmental Disabilities Services Office, Wassaic, NY

Worked on a public water supply site in New York conducting a full-scale groundwater investigation in the vicinity of the facility's supply wells which have been impacted by MTBE. Multiple well clusters were installed surrounding the high-capacity wells to evaluate subsurface conditions. One impacted well was converted to a remediation well to provide hydraulic capture of the MTBE plume prior to its impacting the remaining downgradient wells. A large-scale granulated-activated carbon (GAC) system was installed to treat the water extracted from the well. A 40,000-pound GAC unit was also installed in standby mode to address the facility's drinking water should the concentrations of MTBE ever warrant treatment. Several rounds of groundwater investigation were also conducted to confirm the MTBE source area as a nearby gasoline service station. Pilot testing was conducted and an on-site groundwater treatment system was being designed to provide source area remediation.



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New York State Department of Environmental Conservation, Potable Water Treatment System, Village of Brewster, NY

Designed and constructed a supplemental water treatment system at a public water supply plant to address MTBE contamination in the system prior to its distribution. The treatment system consisted of a large air stripping tower, installed in line with an existing air stripper to remove the MTBE to non-detectable concentrations. Additionally, a source area investigation was being conducted to determine the potential source(s) of the MTBE contamination.

New York State Department of Environmental Conservation, Potable Water Treatment System, Sullivan Correctional Facility, Fallsburg, NY

Worked with the NYSDEC to evaluate, design and install a supplemental water treatment system to address MTBE present in a New York State Correctional Facility's drinking water. All four of the facility's wells were impacted. Several remedial options including utilizing GAC or air strippers were evaluated. The selected alternative was a 20,000-pound GAC system which was installed inline and in standby mode.

New York State Department of Environmental Conservation, Large Scale Investigation / Remediation Project, Lake Success, New York

Managed large-scale site activities at a major Long Island aerospace facility. Activities included operations of ongoing IRMs (soil vapor extraction and groundwater extraction and treatment systems); citizen participation activities; design and implementation of on-site remedies (drywell removal and soil excavation, installation of fencing and an 1,800 gallon per minute groundwater extraction and treatment system); on- and off-site RIs; regulatory compliance activities; client interactions; multi-task, multi-contractor scheduling and management; and general project management. As part of the RI, prepared a large three-dimensional groundwater flow and particle model utilizing Visual MODFLOW and MODPATH. The model was then utilized to design an optimum groundwater treatment system.

Prepared a scoping plan and RI report for an Inactive Hazardous Waste Disposal site in New York under the NYSDEC Superfund program. The work involved evaluating the nature and extent of halogenated solvents in soil and groundwater both on and off of the site. Was responsible for overseeing all phases of the report preparation, including communications with the NYSDEC and for implementing the citizen participation program. Also involved in the preparation of the FS report and selection of the final remedy which included the use of an innovative groundwater treatment technology, in-well air stripping.

Project Director for Marina Property Assessment, Hampton Bays, NY

The owner of this active marina facility was served with a Notice of Violation (NOV) by the NYSDEC for various environmental issues, mostly related to on-site petroleum storage / delivery systems, as well as impacts potentially associated with marine-activity uses such as vessel bottom paint removal and application, use of preserved woods, vessel maintenance activities, housing-keeping issues, etc. Apex was responsible, with input from the NYSDEC, for developing and implementing a Site Investigation Program to investigate potential soil and groundwater impacts associated with the aforementioned on-site practices. Based upon the results of the investigation, Apex was able to conclude that the fuel distribution system was not leaking and that groundwater was not deleteriously impacted. Minor areas of impacted soil, likely from vessel bottom cleaning activities, were identified. Apex prepared and implemented a NYSDEC-approved Remedial Action Plan which included the following: 1) targeted removal of metals-impacted soils; 2) conversion of the existing gasoline / diesel underground storage tank (UST) / sub-grade distribution system to non-regulated biofuel use; 3) confirmation of facility use of aboveground storage tanks (ASTs) equipped with double-walled containment, 4) permitting a vessel-washing rinsate containment/treatment system; and, 5) use of asphaltic/concrete paving as engineering controls to minimize future potential user contact with remaining impacted soils.

Project Manager for Dredge Spoils Quality Investigation, New London, CT.

Mr. Baldwin was retained by a not-for-profit group concerned that the planned disposition of dredge spoils from the Thames River associated with the US Navy nuclear submarine base would negatively impact the lobster fishery of off Fishers Island in the Long Island Sound. Mr. Baldwin directed the field team which collected gravity cores from along the portion of the Thames River slated for dredging. Mr. Baldwin utilized the services of a nationally-recognized laboratory to analyze the bottom sediment samples for a wide-range of contaminants. Other than potentially elevated concentrations of dioxins, the bottom sediments proved to be relatively free of anthropogenic contaminants.



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Project Director for Marina Property Assessment, Center Moriches, NY.

Mr. Baldwin was responsible for conducting an evaluation of environmental conditions at this active marina which was under consideration for re-development with residential housing. Issues evaluated included soil and groundwater conditions associated with on-site vessel repair, bottom paint application/removal, USTs and dredge spoils. Based upon the results of the investigation, impacted soils were excavated, transported to and disposed of at an appropriately-licensed facility. The dredge spoils were not impacted above regulatory criteria and required not special actions. Based upon the results of the investigation of the investigation and remediation activities, the Suffolk County Department of Health Services approved the site for residential re-development.

Senior Project Manager for Former La Salle Military Academy, Oakdale, NY.

Mr. Baldwin was part of project team that conducted a feasibility study for the redevelopment of a portion of this former educational facility. A major component of the Feasibility Study was the evaluation of an on-site boat basin and associated building infrastructure (e.g., a team house) with respect to potential dredging requirements, permitting issues, bottom sediment conditions and marina design.

Former Hess Terminal, Patchogue River, Patchogue, NY.

Mr. Baldwin conducted a site investigation program at this former major fuel oil terminal site to evaluate the efficacy of same for residential re-development, which would have included a residence-use only marina. The site had been the subject of previous site remediation activities, and the NYSDEC had closed its spill file assuming that the site would only be utilized for commercial or industrial purposes. Soil, groundwater, soil vapor and outdoor ambient air samples were collected and analyzed as part of this evaluation. The results of the investigation indicated that additional soil remediation would have been required to make the property suitable for residential re-development. Additionally, the NYSDEC would have likely required the installation and operation of sub-slab depressurization systems for all on-site residential buildings prior to their approving the plans for the site.

Former Lumber Yard Facility, Arverne, NY.

Mr. Baldwin provided environmental consulting services associated with planned redevelopment of a six-acre parcel of land located on the Barbados Basin. The client proposed to construct and operate a boat marina with associated catering hall/shopping complex on this former lumber yard. An exhaustive site investigation including a geophysical survey, soil and groundwater testing and wetlands/permit evaluation was conducted in accordance with the New York City Environmental Quality Review (CEQR) regulations. Also conducted an exhaustive feasibility study regarding stormwater runoff /sanitary waste disposal options. The results of the investigation indicated that historic fill materials on the subject property contained actionable concentrations of lead. Prepared a site specific Soil Management Plan for submission to the New York City Department of Environmental Protection (NYCDEP). The NYCDEP agreed with the remedial option of capping the lead-impacted fill materials under two feet of clean fill to prevent future site users from coming into contact with same.

Dielectric Fluid Release, Village of Port Washington, NY.

During excavation activities being conducted for installing a team building at a Town-owned marina facility, Town of North Hempstead personnel encountered and broke a major, unmarked buried electric line. This rupture caused the immediate and catastrophic release of an estimated 30,000 gallons of dielectric fluid. Mr. Baldwin was retained by the Town of North Hempstead to oversee the cleanup of surface materials, as well as the evaluation of dielectric fluid floating on top of the water table. Adsorbent booms were placed and maintained along the associated wetlands and all identified areas of impacted soils were remediated. A series of monitoring wells were installed and evaluated to ensure the absence of dielectric fluid floating on the water table which would eventually discharge to the adjacent water way. Based upon the work conducted, the released dielectric fluid did not contain polychlorinated biphenyls (PCBs), and the NYSDEC was satisfied that the released had been adequately remediated.

Brownfield Re-development, Greenport, NY.

Mr. Baldwin managed one of the few active NYSDEC Brownfield sites on Long Island utilizing New York State Environmental Bond Act funding. The work included evaluating a large Village-owned undeveloped water-front property for the presence of undocumented USTs utilizing surface geophysical techniques, removing the USTs and associated impacted soils and preparing Site Investigation and Remedial Action reports. Responsible for all regulatory interactions, subcontractor management and Citizen Participation Plan implementation. The work was conducted concurrently with the redevelopment of the site for use as a public park including a water-front walk way, amphitheater and historic carousal.

Preliminary Site Assessment, Concord Naval Weapons Station, Concord, NY.

Mr. Baldwin was the Project Manager responsible for conducting an environmental investigation in the portion of the Concord Naval Weapons Station known as the Tidal Area. The investigation included collecting and analyzing soil, sediment and groundwater samples from adjacent to and within on-site wetlands. Mr. Baldwin also utilized an aerial



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magnetic survey to identify anomalies on a nearby off-shore island which could potentially represent buried railcars full of munitions which were reportedly buried after a major WW II explosion which killed hundreds of people. Mr. Baldwin conducted the field investigation which evaluated the nine magnetic anomalies which turned out to be ship wrecks, a crane, gas well heads, miscellaneous debris, etc. No anomalies representative of buried rail cars were observed. Mr. Baldwin was responsible for conducting a geotechnical evaluation of the materials making up the island, known as Bay Muds, which due to their very poor shear strength, could not have been excavated sufficiently to allow for burial of the rail cars. Therefore, it was Mr. Baldwin's belief that the reported burial of the rail cars full of munitions was incorrect.

Site Investigation Activities, Saint George Ferry Terminal, Staten Island NY

Mr. Baldwin was responsible for implementing a groundwater evaluation of the major ferry terminal site to evaluate the most efficacious means of removing two, large out-of-service No. 6 fuel oil USTs. The work including setting up and conducting a tidal influence study, major aquifer pumping test and conducting three-dimensional groundwater modeling. Evaluated and recommended the use of sheet piling surrounding the two USTs to isolate same from the surrounding aquifer materials and protect the adjacent buildings. The recommended remedial approach was implemented and the USTs were successfully removed with minimal de-watering required and the adjacent buildings were successfully protected.

Bottom Sediment Evaluation, Lake Success, NY

As part of a major environmental investigation of a nearby New York State Superfund site, Mr. Baldwin was responsible for the collection and analysis of bottom sediment samples from Lake Success and two on-site stormwater recharge basins. The results of the investigation indicated that the bottom sediment conditions in the on-site recharge basins and Lake Success were very similar leading to the conclusion that the observed impacts to the basins were likely non-site related and typical of stormwater runoff. Further, a bathymetric survey and at-depth water quality investigation was conducted for Lake Success.

Stormwater Retention Basin Bottom Sediment Evaluation, Lake Success, NY

As part of a major environmental investigation of a New York State Superfund site, Mr. Baldwin was responsible for evaluating the thickness of potentially impacted bottom sediments in two on-site stormwater recharge basins. The basins had reportedly been subject to discharge on impacted non-contact cooling waters and other site process waters. As a cost-saving measure, and in order to collected as much data as quickly as possible, Apex utilized an innovative investigation approach of transecting the surfaces of both frozen basins with a ground-penetrating radar (GPR) units. The GPR data was then cross-correlated with direct field measurements collected utilizing more standard techniques (e.g., gravity coring, penetration tests, etc.) to confirm the accuracy of the geophysical technique. The final data set was utilized to evaluate potential remedial techniques and costs.

Terrestrial/Martian Analogue Evaluation, Dry Valley Lakes, Antarctica

While at the United States Geological Survey (USGS), Mr. Baldwin participated on a project team which evaluated the physical and biota conditions of ice-covered lakes in the Dry Valley Region of Antarctica. Such conditions (e.g., ice-covered lakes in an otherwise frozen, low-precipitation region) were believed to be a strong terrestrial analogue for potential lakes which may have formed in the distant past in the Valles Marineris Canyon System on Mars. The biota of the Dry Valley ice-covered lakes was dominated by primitive stromatolites mounds, with much of the sedimentary section dominated by sand and gravel which had migrated through the ice cover. The overall purpose of the work was to assist NASA in evaluating future Mars landing sites with the highest potential for providing fossilized evidence for life on Mars.

Riverine Sediment Evaluation, Thames River, New London, CT

Mr. Baldwin was retained by a not-for-profit group concerned that the planned disposition of dredge spoils from the Thames River associated with the US Navy nuclear submarine base would negatively impact the lobster fishery of off Fishers Island in the Long Island Sound. Mr. Baldwin directed the field team which collected gravity cores from along the portion of the Thames River slated for dredging. Mr. Baldwin utilized the services of a nationally-recognized laboratory to analyze the bottom sediment samples for a wide-range of contaminants. Other than potentially elevated concentrations of dioxins.

Additional information upon request



APPENDIX C

FIELD OBSERVATIONS
Project: Site Location:		NuHart Plastics Site			
		280 Franklin St Brook	·····		
Sample ID	<u>SV-1</u>		Canister ID	129	
Sampler	JB		Canister Volume	<u>1L</u>	
Location	. <u></u>		Flow Controller ID	172	
Height	<u>-5 ft</u>		Flow Controller Setting	<u>2 hr</u>	
Sample Typ	e (sub-slal	o, soil gas, amb, indoor)	soil gas		

Reading	Date	Time	Vacuum
Initial Canister Vacuum	4/24/2015	0730	-30
Final Canister Vacuum	4/24/2015	0910	-7

Weather or Ambient C	onditions:	Clear, Wind 8mph NW, 55 degrees F	
Purge Data:	Purged	three volumes	·····
Helium Check Data:	Helium o	check performed, seal confirmed	
Comments:			

Project: Site Location:		NuHart Plastics Site				
		280 Franklin St Brooklyn				
Sample ID	<u>SV-1</u>		Canister ID	1189		
Sampler	JB		Canister Volume	<u>1L</u>		
Location			Flow Controller ID			
Height	<u>-5 ft</u>		Flow Controller Setting	2 hr		
Sample Typ	e (sub-slab	, soil gas, amb, indoor) <u>soil gas</u>			

Reading	_Date	Time	Vacuum
Initial Canister Vacuum	4/24/2015	0730	-30
Final Canister Vacuum	4/24/2015	0910	-7

Weather or Ambient Cor	ditions: Clear, Wind 8mph NW, 55 degrees F
Purge Data:	Purged three volumes
Helium Check Data:	Helium check performed, seal confirmed
Comments:	

Project: Site Location:		NuHart Plastics Site				
		280 Franklin St Brooklyn				
Sample ID	<u>SV-2</u>		Canister ID	1181		
Sampler	<u>JB</u>		Canister Volume	<u>1L</u>		
Location			Flow Controller ID	145		
Height	<u>-5 ft</u>		Flow Controller Setting	<u>2 hr</u>		
Sample Typ	e (sub-slal	o, soil gas, amb, indoor)	soil gas			

Reading	Date	Time	Vacuum
Initial Canister Vacuum	4/24/2015	0740	-30
Final Canister Vacuum	4/24/2015	0930	-3

Weather or Ambient Cor	nditions:	Clear, Wind 8mph NW, 55 degrees F
Purge Data:	Purged th	nree volumes
Helium Check Data:	<u>Helium c</u>	heck performed, seal confirmed
Comments:		

Project: Site Location:		NuHart Plastics Site				
		280 Franklin St Brooklyn				
Sample ID	<u>SV-3</u>		Canister ID	367		
Sampler	JB		Canister Volume	<u>1L</u>		
Location			Flow Controller ID	146		
Height	-5 ft	<u></u>	Flow Controller Setting	2 hr		
Sample Typ	e (sub-slab,	soil gas, amb, indoor) soil gas			

Reading	Date	Time	Vacuum
Initial Canister Vacuum	4/24/2015	0755	-30
Final Canister Vacuum	4/24/2015	0950	-4

Weather or Ambient Co	nditions:	Clear, Wind 8mph NW, 55 degrees F
Purge Data:	Purged t	hree volumes
Helium Check Data:	Helium o	heck performed, seal confirmed
Comments:		

Project:		NuHart Plastics Site			
Site Location:		280 Franklin St Brook	ranklin St Brooklyn		
Sample ID	<u>SV-4</u>		Canister ID	419	
Sampler	JB		Canister Volume	<u>1L</u>	
Location			Flow Controller ID	176	·····
Height	<u>-5 ft</u>		Flow Controller Setting	2 hr	
Sample Typ	e (sub-sla	b, soil gas, amb, indoor)	soil gas		

Reading	Date	Time	Vacuum
Initial Canister Vacuum	4/24/2015	0805	-30
Final Canister Vacuum	4/24/2015	1000	-7

Weather or Ambient Cor	nditions:	Clear, Wind 8mph NW, 55 degrees F
Purge Data:	Purged t	hree volumes
Helium Check Data:	Helium o	heck performed, seal confirmed
Comments:		

Project: Site Location:		NuHart Plastics Site				
		280 Franklin St Brooklyn				
Sample ID	<u>SV-4</u>		Canister ID	141		
Sampler	JB		Canister Volume	<u>1 L</u>		
Location	***********		Flow Controller ID	124		
Height	<u>-5 ft</u>		Flow Controller Setting	2 hr		
Sample Typ	e (sub-slab	, soil gas, amb, indoor)	soil gas			

Reading	Date	Time	Vacuum
Initial Canister Vacuum	4/24/2015	0805	-30
Final Canister Vacuum	4/24/2015	1000	1

Weather or Ambient Co	nditions:	Clear, Wind 8mph NW, 55 degrees F
Purge Data:	Purged t	hree volumes
Helium Check Data:	Helium c	heck performed, seal confirmed
Comments:		

Project:	Nultart Pla	astic (280 Franklin)	11345-15-12
Site Location:	48 Comm	nercial	
Sample ID <u>Sc</u>	5-5	Canister ID	
Sampler	Stt	Canister Volume	11-
Location <u>48</u>	Commercial	Flow Controller ID	149
Height <u>-4</u>	· · · · · · · · · · · · · · · · · · ·	Flow Controller Setting	1 hr
Sample Type (sub-slat	o, soil gas, amb, indoor)	soilgas	

Reading	Date	Time	Vacuum
Initial Canister Vacuum	6/19/15	1005	-30
Final Canister Vacuum	6/19/15	1100	-5

Weather or Ambient Co	nditions: Clear, Wind S-8 NW, 25%	
Purge Data:	Purged three volumes	
Helium Check Data:	Helium check performed, no bypassing, seal confirmed	,
Comments:		

Project:	Nuttert Plastic (280 Franklin)	1/349-15-12
Site Location:	48 Commercial	

Sample ID	S6-5D	Canister ID	_/9/	
Sampler	JB/GH	Canister Volume	/ <i>k</i>	-
Location	48 Commercial	Flow Controller ID	110	
Height	-4'	Flow Controller Setting	1 hr	
Sample Type	e (sub-slab, soil gas, amb, indoor)	soil gas		

Reading	Date	Time	Vacuum
Initial Canister Vacuum	1/19/15	1010	-30
Final Canister Vacuum	6/19/15	1105	2

Weather or Ambient Cor	nditions: <u>Clear</u> , Wind 5-8 NW, 75%
Purge Data:	Purged three volumes
Helium Check Data:	Helium check performed, no bypassing, seal confirmed
Comments:	



Location: 49 Dupont St, New York, NY

Date: 4/23/15

Organizations	Staff	Equipment
Associated Environmental	Jose	Geoprobe
FPM Group	RM and JB	PID, dust monitor

On-Site Visitors	Purpose
Brian Wong-DEC	Inspection

Description of Daily Activities		
FPM	Air and dust monitoring	
Associated Env	SV implant installations	

Weather Conditions			
	AM	PM	
Temperature, estimated (°F)	48	57	
Weather Conditions	Cloudy	Cloudy	
Prevailing Wind, estimated (mph)	10	10	
Wind Gusts?	No	No	
Wind Direction	W	W	

Monitoring				
	Dust (u	ıg/m³)	Organic Va	apors (ppm)
Time	Upwind	Downwind	Upwind	Downwind
0845	45	44	0	0
1025	43	41	0	0
1110	45	46	0	0
1145	36	39	0	0
1230	46	44	0	0
1350	39	32	0	0
1430	40	42	0	0



Location: 49 Dupont St, Brooklyn, NY

Date: 4/24/15

Organizations	Staff	Equipment
FPM Group	JB	PID, dust monitor

On-Site Visitors	Purpose
None	

Description of Daily Activities		
FPM	Air and dust monitoring; soil vapor sampling	

Weather Conditions			
	AM	PM	
Temperature, estimated (°F)	47	58	
Weather Conditions	Clear	Clear	
Prevailing Wind, estimated (mph)	8	8	
Wind Gusts?	No	No	
Wind Direction	NW	NW	

Monitoring				
	Dust (ug/m ³)		Organic Va	apors (ppm)
Time	Upwind	Downwind	Upwind	Downwind
0750	37	38	0	0
0855	40	41	0	0
1015	36	39	0	0
1105	38	44	0	0
1210	39	32	0	0
1315	44	39	0	0



Location: 48 Commercial Street

Date: 6/19/15

Organizations	Staff	Equipment
FPM Group	JB	PID, dust monitor

On-Site Visitors	Purpose
None	

Description of Daily Activities								
FPM Air and dust monitoring; soil vapor sampling								

	Weather Conditions									
	AM	PM								
Temperature, estimated (°F)	72	82								
Weather Conditions	Clear	Clear								
Prevailing Wind, estimated (mph)	5-8	5-8								
Wind Gusts?	No	No								
Wind Direction	NW	NW								

	Monitoring									
	Dust (u	ıg/m³)	Organic Vapors (ppm)							
Time	Upwind	Downwind	Upwind	Downwind						
0800	29	32	0	0						
0955	34	31	0	0						
1115	36	31	0	0						
1320	37	35	0	0						

APPENDIX D

LABORATORY REPORTS AND DUSRS

CENTEK LABORATORIES, LLC

ANALYTICAL QC SUMMARY REPORT

CLIENT: FPM Group, Ltd. C1504099 Work Order: **Project:** 49 Dupont

TestCode: 1ugM3_TO15

Sample ID ALCS1UGD-050115	SampType: LCSD	TestCo	de: 1ugM3_T(015 Units: ppbV		Prep Dat	le:		RunNo: 962	25	
Client ID: ZZZZZ	Batch ID: R9625	Test	No: TO-15			Anatysis Dat	le: 5/2/201	5	SeqNo: 113	1541	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	1.200	0.15	1	0	120	70	130	1.21	0.830	30	<u> </u>
1,1,2,2-Tetrachloroethane	1.230	0.15	1	0	123	70	130	1.19	3.31	30	
1,1,2-Trichloroethane	1.110	0.15	1	0	111	70	130	1.13	1.79	30	
1,1-Dichloroethane	1.190	0.15	1	0	119	70	130	1.13	5.17	30	
1,1-Dichlorcethene	1.060	0.15	1	0	106	70	130	1.04	1.90	30	
1,2,4-Trichlorobenzene	1.100	0.15	1	0	110	70	130	0.91	18.9	30	
1,2,4-Trimethylbenzene	0.7500	0.15	٩	0	75.0	70	130	0.74	1.34	30	
1,2-Dibromoethane	1.210	0.15	1	0	121	70	130	1.19	1.67	30	
1,2-Dichlorobenzene	1.090	0.15	1	0	109	70	130	1.04	4.69	30	
1,2-Dichloroethane	1.100	0.15	1	0	110	70	130	1.04	5.61	30	
1,2-Dichloropropane	1.020	0.15	1	0	102	70	130	0.99	2.99	30	
1,3,5-Trimeihylbenzene	0.9500	0.15	1	0	95.0	70	130	0.9	5.41	30	
1,3-butadiene	0.8700	0.15	1	0	87.0	70	130	0.84	3.51	30	
1,3-Dichlorobenzene	1.080	0.15	1	0	108	70	130	1.09	0.922	30	
1,4-Dichlorobenzene	1.130	0.15	1	0	113	70	130	1.1	2.69	30	
1.4-Dioxane	0.7600	0.30	1	0	76.0	70	130	0.74	2.67	30	
2,2,4-trimethylpentane	0.9000	0.15	1	0	90.0	70	130	0.92	2.20	30	
4-ethyitoluene	0.8200	0.15	1	0	82.0	70	130	0.86	4.76	30	
Acetone	0.8200	0.30	1	0	82.0	70	130	0.73	11.6	30	
Allyl chloride	0.8000	0.15	1	0	80.0	70	130	0.78	2.53	30	
Benzene	1.050	0.15	1	0	105	70	130	1.03	1.92	30	
Benzyl chloride	0.7200	0.15	1	0	72.0	70	130	0.8	10.5	30	
Bromodichloromethane	1.200	0.15	1	0	120	70	130	1.15	4.26	30	
Bromoform	1.290	0.15	1	0	129	70	130	1.22	5.58	30	
Bromomethane	1.010	D.15	1	0	101	70	130	0.98	3.02	30	

Qualifiers:

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Results reported are not blank corrected

E Value above quantitation range

ND Not Detected at the Reporting Limit

Analyte detected at or below quantitation limits Spike Recovery outside accepted recovery limits S

Holding times for preparation or analysis exceeded H

R RPD outside accepted recovery limits

CLIENT: FPM Group, Ltd. Work Order: C1504099

Project: 49 Dupont

TestCode: 1ugM3_TO15

Sample ID ALCS1UGD-050115	SampType: LCSD	TestCo	de: 1ugM3_T(D15 Units: ppbV		Prep Dat	te:		RunNo: 9625		
Client ID: ZZZZZ	Batch ID: R9625	Test	lo: TO-15			Analysis Dat	te: 5/2/201	5	SegNo: 113	3541	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	Highl.imit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon disulfide	1.180	0.15	1	0	118	70	130	1.11	6.11	30	
Carbon tetrachloride	1.230	0.15	1	0	123	70	130	1.23	0	30	
Chlorobenzene	1.150	0.15	1	0	115	70	130	1.06	8.14	30	
Chloroethane	0.9700	0.15	1	C	97.0	70	130	0.97	0	30	
Chloroform	1.060	0.15	1	0	106	70	130	1.02	3.85	30	
Chloromethane	0.9700	0.15	1	0	97.0	70	130	0.98	1.03	30	
cis-1,2-Dichloroethene	1.030	0.15	1	0	103	70	130	0.99	3.96	30	
cis-1,3-Dichloropropene	1.030	0.15	1	0	103	70	130	0.98	4.98	30	
Cyclohexane	0.9500	0.15	1	0	95.0	70	130	0.95	0	30	
Dibromochloromethane	1.250	0.15	1	0	125	70	130	1.26	0,797	30	
Ethyl acetate	0.9200	0.25	1	0	92.0	70	130	0.71	25.8	30	
Ethylbenzene	0.9600	0.15	1	0	96.0	70	130	0.91	5.35	30	
Freon 11	1.150	0.15	1	0	115	70	130	1.18	2.58	30	
Freon 113	1.190	0.15	1	0	119	70	130	1.13	5,17	30	
Freon 114	1.110	0.15	1	0	111	70	130	1.06	4.61	30	
Freon 12	1.120	0.15	1	0	112	70	130	1.07	4.57	30	
Heptane	0.8400	0.15	1	0	84.0	70	130	0.84	0	30	
Hexachloro-1,3-butadiene	1.250	0.15	1	0	125	70	130	1.06	16.5	30	
Hexane	0.9300	0.15	1	0	93.0	70	130	0.94	1.07	30	
isopropyl alcohol	0.9400	0.15	1	0	94.0	70	130	0.75	22.5	30	
m&p-Xylene	2.020	0.30	2	0	101	70	130	1.8	11.5	30	
Methyl Butyl Ketone	0.9000	0.30	1	0	90.0	70	130	1.01	11.5	30	
Methyl Ethyl Ketone	0.8900	0.30	1	Q	89.0	70	130	0.83	6.98	30	
Methyl isobulyl Kelone	0.7400	0.30	1	0	74.0	70	130	0.72	2.74	30	
Methyl tert-butyl ether	1.000	0.15	1	0	100	70	130	0.91	9.42	30	
Methylene chloride	0.8700	0.15	1	0	87.0	70	130	0.87	O	30	
o-Xylene	1.090	0.15	1	0	109	70	130	0.95	13.7	30	
Propylene	0.8300	0.15	1	0	83.0	70	130	0.8	3.68	30	
Styrene	0.9700	0.15	1	0	97.0	70	130	0.82	16.8	30	
Tetrachloroethylene	1.250	0.15	1	O	125	70	130	1.26	0.797	30	
Telrahydrofuran	0.8900	0.15	1	Û	89.0	70	130	0.82	8.19	30	

Qualifiers:

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Results reported are not blank corrected Analyte detected at or below quantitation limits E Value above quantitation range

ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits S

FPM Group, Ltd. CLIENT: C1504099

Work Order:

Project:

49 Dupont

TestCode: 1ugM3_TO15

Sample ID ALCS1UGD-050115	SampType: LCSD	TestCoo	ie: 1ugM3_T(015 Units: ppbV		Prep Date:			RunNo: 9625		
Client ID: ZZZZZ	Batch ID: R9625	TestM	io: TO-15			Analysis Date: 5/2/2015			SeqNo: 113541		
Analyte	Result	PQL	PQL SPK value SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	1.140	0.15	1	0	114	70	130	1.07	6.33	30	
trans-1,2-Dichloroethene	1.190	0.15	1	0	119	70	130	1.09	8.77	30	
trans-1,3-Dichloropropene	0.9800	0.15	1	0	98.0	70	130	0.93	5.24	30	
Trichloroethene	1.230	0.15	1	0	123	70	130	1.18	4.15	30	
Vinyl acetale	1.030	0.15	1	0	103	70	130	0.95	8.08	30	
Vinyl Bromide	1.120	0.15	1	0	112	70	130	1.07	4.57	30	
Vinyl chloride	1.020	0.15	1	0	102	70	130	0.98	4.00	30	
Surn Bromofluorobenzene	0.9400	0	1	0	94.0	70	130	0	0	30	
Sample ID ALCS1UGD-050415	SampType: LCSD	TesiCoo	TesiCode: 1ugM3_TO15 Units: ppbV		Prep Date:				RunNo: 9626		
Client ID: ZZZZZ	Batch ID: R9626	TestNo: TO-15			Analysis Date: 5/5/2015			5	SeqNo: 114676		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	1.260	0.15	1	0	126	70	130	1.14	10.0	30	
1,1,2,2-Tetrachloroethane	1.140	0.15	1	0	114	70	130	1.26	10.0	30	
1,1,2-Trichloroethane	1.240	0.15	1	0	124	70	130	1.23	0.810	30	
1,1-Dichloroethane	1.170	0.15	1	0	117	70	130	1.14	2.60	30	
1,1-Dichloroethene	1.020	0.15	1	0	102	70	130	1.05	2.90	30	
1,2,4-Trichlorobenzene	0.7900	0.15	1	0	79.0	70	130	0.83	4.94	30	
1,2,4-Trimethylbenzene	0.7800	0.15	1	0	78.0	70	130	0.7	10.8	30	
1,2-Dibromoethane	1.280	0.15	1	0	128	70	130	1.14	11.6	30	
1,2-Dichlorobenzene	0.8800	0.15	1	0	88.0	70	130	1.05	17.6	30	
1,2-Dichloroethane	1.040	0.15	1	0	104	70	130	1.05	0.957	30	
1,2-Dichloropropane	1.050	0.15	1	0	105	70	130	1.16	9.95	30	
1,3,5-Trimethylbenzene	0.7000	0.15	1	0	70.0	70	130	0.81	14.6	30	
1,3-butadiene	0.7900	0.15	1	0	79.0	70	130	0.78	1.27	30	
1,3-Dichlorobenzene	0.9000	0.15	1	0	90.0	70	130	1.06	16.3	30	
1,4-Dichlorobenzene	0.8700	0.15	1	0	87.0	70	130	1.03	16.8	30	
1,4-Dioxane	< 0.30	0.30	1	0	0	70	130	1.29	0	30	S
2,2,4-trimethylpenlane	0.8800	0.15	1	0	88.0	70	130	0.91	3.35	30	

Qualifiers:

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Results reported are not blank corrected

Ε Value above quantitation range

ND Not Detected at the Reporting Limit

Holding times for preparation or analysis exceeded Н

RPD outside accepted recovery limits R

Analyte detected at or below quantitation limits S Spike Recovery outside accepted recovery limits

Page 3 of 5

CLIENT: FPM Group, Ltd. Work Order: C1504099

Project: 4

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49 Dupont

TestCode: lugM3_TO15

Sample ID ALCS1UGD-050415	SampType: L	.CSD	TestCod	e: 1ugM3_T(D15 Units: ppbV		Prep Da	te:		RunNo: 962		
Client ID; ZZZZZ	Batch ID: F	1 9626	TestN	o: T O-15			Analysis Da	le: 5/5/201	15	SeqNo: 114	1676	
Analyte	Ŧ	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-ethyltoluene	0	.7700	0.15	1	0	77.0	70	130	0.82	6.29	30	
Acetone	0	0.7600	0.30	1	0	76.0	70	130	0.79	3.87	30	
Allyl chloride	0	.7300	0.15	1	0	73.0	70	130	0.96	27.2	30	
Benzene		1.050	0.15	1	0	105	70	130	1.03	1.92	30	
Benzyl chloride		1.070	0.15	1	0	107	70	130	0.8	28.9	30	
Bromodichloromethane		1.250	0.15	1	0	125	70	130	1.25	0	30	
Bromoform		1.270	0.15	1	0	127	70	130	1.27	0	30	
Bromomelhane		1.020	0.15	1	0	102	70	130	1.07	4.78	30	
Carbon disulfide		1.090	0.15	1	0	109	70	130	1.11	1.82	30	
Carbon letrachloride		1.230	0.15	1	0	123	70	130	1.22	0.816	30	
Chlorobenzene		1.100	0.15	1	0	110	70	130	1.04	5.61	30	
Chloroethane	C	0.9000	0.15	1	0	90.0	70	130	0.83	8.09	30	
Chloroform		1.030	0.15	1	0	103	70	130	1.03	0	30	
Chioromethane	C).9400	0.15	1	0	94.0	70	130	1.07	12.9	30	
cis-1,2-Dichloroethene	C	0.9700	0.15	1	0	97.0	70	130	0.94	3,14	30	
cis-1,3-Dichloropropene	C).9600	0.15	1	0	96.0	70	130	1.14	17.1	30	
Cyclohexane	C	0.9000	0.15	1	D	90.0	70	130	0.94	4.35	30	
Dibromochloromethane		1.250	0.15	1	0	125	70	130	1.3	3.92	30	
Ethy! acetate		1.010	0.25	1	0	101	70	130	0.84	18.4	30	
Ethylbenzene	C	0.9200	0.15	1	0	92.0	70	130	0.94	2.15	30	
Freon 11		1.220	0.15	1	0	122	70	130	1.11	9,44	30	
Freon 113		1.220	0.15	1	0	122	70	130	1.16	5.04	30	
Freon 114		1.080	0.15	1	0	108	70	130	1.1	1.83	30	
Freon 12		1.150	0.15	1	0	115	70	130	1.11	3.54	30	
Heplane	C	0.8500	0.15	1	0	85.0	70	130	0.91	6.82	30	
Hexachloro-1,3-butadiene	C	0.8800	0.15	1	0	88.0	70	130	1.26	35.5	30	R
Hexane	C	0.8600	0.15	1	0	86.0	70	130	0.93	7.82	30	
Isopropyl alcohol	C	0.7500	0.15	1	0	75.0	70	130	0.87	14.8	30	
m&p-Xylene		1.590	0.30	2	0	79.5	70	130	1.8	12.4	30	
Methyl Bulyl Kelone		< 0.30	0.30	1	0	0	70	130	1.46	0	30	S
Methyl Ethyl Kelone	C	0.7500	0.30	1	D	75.0	70	130	0.79	5.19	30	

Qualifiers:

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Results reported are not blank corrected

E Value above quantitation range

ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

Analyte detected at or below quantitation limits

S Spike Recovery outside accepted recovery limits

RPD outside accepted recovery limits

R

CLIENT: FPM Group, Ltd. Work Order: C1504099

Project:

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49 Dupont

TestCode: 1ugM3_TO15

Sample ID ALCS1UGD-050415	SampType: LCSD	TestCo	be: 1ugM3_T	015 Units: ppbV		Prep Da	te:		RunNo: 96:	26		
Client ID: ZZZZZ	Batch ID: R9626	TestNo: TO-15				Analysis Date: 5/5/2015				SeqNo: 114676		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Vai	%RPD	RPDLimit	Qual	
Methyl Isobulyl Ketone	< 0.30	0.30	1	0	0	70	130	1.24	0	30	S	
Methyl tert-butyl ether	0.9100	0.15	1	0	91.0	70	130	0.89	2.22	30		
Methylene chloride	0.7700	0.15	1	0	77.0	70	130	0.77	0	30		
o-Xylene	0.9000	0.15	1	0	90.0	70	130	1.05	15.4	30		
Propylene	0.9400	0.15	1	0	94.0	70	130	0.81	14.9	30		
Styrene	0.7700	0.15	1	Û	77.0	70	130	0.92	17.8	30		
Tetrachloroethylene	1.250	0.15	1	0	125	70	130	1.25	0	30		
Tetrahydrofuran	0.8300	0.15	1	0	83.0	70	130	0.75	10.1	30		
Toluene	1.110	0.15	1	0	111	70	130	1.07	3.67	30		
trans-1,2-Dichloroethene	1.210	0.15	1	0	121	70	130	1.06	13.2	30		
trans-1,3-Dichloropropene	1.030	0.15	1	0	103	70	130	1.04	0.966	30		
Trichloroethene	1.270	0.15	1	0	127	70	130	1.29	1.56	30		
Vinyl acetate	0.8600	0.15	1	0	86.0	70	130	0.96	11.0	30		
Vinyl Bromide	1.140	0.15	1	0	114	70	130	1.07	6.33	30		
Vinyl chloride	0.9600	0.15	1	0	96.0	70	130	0.95	1.05	30		
Surr: Bromofluorobenzene	0.8600	0	1	0	86.0	70	130	0	0	30		

Qualifiers:

į.

Results reported are not blank corrected

E Value above quantitation range

ND Not Detected at the Reporting Limit

Holding times for preparation or analysis exceeded H

R RPD outside accepted recovery limits

Analyte detected at or below quantitation limits S Spike Recovery outside accepted recovery limits

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA\AM050425.D Vial: 20 Acq On : 5 May 2015 12:28 am Operator: RJP Sample : ALCS1UGD-050415 Inst : MSD #1 Misc : A415_1UG Multiplr: 1.00 MS Integration Params: RTEINT.P Quant Time: May 07 13:29:39 2015 Quant Results File: A415_1UG.RES Quant Method : C:\HPCHEM\1\METHODS\A415 lUG.M (RTE Integrator) Title : TO-15 VOA Standards for 5 point calibration Last Update : Tue Apr 28 11:01:13 2015 Response via : Initial Calibration DataAcq Meth : 1UG_RUN R.T. QIon Response Conc Units Dev(Min) Internal Standards 1) Bromochloromethane10.3012814067m r1.00 ppb0.0335) 1,4-difluorobenzene12.51114611031.00 ppb0.0350) Chlorobenzene-d516.94117488901.00 ppb0.03 System Monitoring Compounds 66) Bromofluorobenzene 18.50 95 32334 0.86 ppb 0.03 Spiked Amount 1.000 Range 70 - 130 Recovery = 86.00%
Spiked Amount
1.000
Range
70 - 130
Recovery
= \$6.00*

Target Compounds
Qvalue

2) Propylene
4.47
113220
0.94 ppb
91

3) Freon 12
4.52
85
72410
1.15 ppb
98

4) Chloromethane
4.73
85
56307
1.08 ppb
94

6) Vinyl Chloride
4.95
62
13602
0.96 ppb
90

8) 1.3-butadiene
5.05
39
12213
0.79 ppb
92

9) Bromomethane
5.42
94
19617
1.02 ppb
95

10) Chloroethane
5.61
64
5589
0.90 ppb
80

11) Ethanol
5.75
45
5295
1.03 ppb
80

12) Acrolein
6.37
56
6053m⁴
0.76 ppb
95

13) Toppropyl alcohol
6.59
45
17421m_4
0.75 ppb
91

14) Freon 11
7.02
96
18102
1.02 ppb
98

 Target Compounds Qvalue

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\AM050425.DVial: 20Acq On : 5 May 2015 12:28 amOperator: RJPSample : ALCS1UGD-050415Inst : MSD #1Misc : A415_1UGMultiplr: 1.00MS Integration Params: RTEINT.PQuant Time: May 07 13:29:39 2015Quant Method : C:\HPCHEM\1\METHODS\A415_1UG.M (RTE Integrator)Title : TO-15 VOA Standards for 5 point calibrationLast Update : Tue Apr 28 11:01:13 2015Response via : Initial CalibrationDataAcq Meth : 1UG_RUN

	Compound	R.T.	QION	Response	Conc Unit	Qvalue
48)	trans-1,3-dichloropropene	15.01	75	23940	1.03 daa	94
49)	1,1,2-trichloroethane	15.31	97	28032	1.24 ppb	97
51)	Toluene	15.07	92	34610	1.11 ppb	95
53)	Dibromochloromethane	15.99	129	59342m 🖇	1.25 ppb	
55)	1,2-dibromoethane	16.24	107	41404	1,28 ppb	98
56)	Tetrachloroethylene	16.05	164	33552m	1.25 ppb	
57)	Chlorobenzene	16.99	112	47833	1.10 ppb	99
59)	Ethylbenzene	17.22	91	67053	0.92 ppb	98
60)	m&p-xylene	17.41	91	93994	1.59 ppb	96
61)	Nonane	17.74	43	29012	0.81 ppb	98
62)	Styrene	17.83	104	29955	0.77 ppb	95
63)	Bromoform	17.96	173	64941m	1.27 ppb	
64)	o-xylene	17.86	91	60960	0.90 ppb	100
65)	Cumene	18.38	105	62292	0.75 ppb	97
67)	1,1,2,2-tetrachloroethane	18.29	83	53976	1.14 ppb	99
68)	Propylbenzene	18.91	91	72094m	0.79 ppb	
69)	2-Chlorotoluene	18.95	91	71242m	0.95 ppb	
70)	4-ethyltoluene	19.06	105	55513m	0.77 ppb	
71)	1,3,5-trimethylbenzene	19.12	105	60366m	0,70 ppb	
72)	1,2,4-trimethylbenzene	19.56	105	52097m	0.78 ppb	
73)	1,3-dichlorobenzene	19,86	146	39317	0.90 ppb	98
74)	benzyl chloride	19.93	91	43180m	1.07 ppb	
75)	1,4-dichlorobenzene	20.00	146	34561	0.87 ppb	96
77)	1,2-dichlorobenzene	20.31	146	39964	0.88 ppb	94
78)	1,2,4-trichlorobenzene	22.18	180	14328m	0.79 ppb	
80)	Hexachloro-1,3-butadiene	22.43	225	39520 🗸	0.88 ppb	98



280 Franklin Street, Brooklyn, NY DATA USABILITY SUMMARY REPORT April 24, 2015 Soil Vapor / Air Samples (SDG No. C1504099) Lab Report # C1504099

This data usability summary report (DUSR) was prepared in accordance with *Appendix 2B* of New York State Department of Environmental Conservation (NYSDEC) DER-10 using the entire original laboratory report, including the sample data summary report and the extended data package. The sampling event included four primary soil vapor samples, one ambient air sample and associated quality assurance / quality control (QA / QC) samples collected on April 24, 2015.

Sample Collection

The samples were collected in labeled laboratory-provided sample containers; no issues with sample containers or labeling were reported by the laboratory. All of the sample canisters exhibited measurable vacuums at the end of the sampling period.

Sampling procedures, including collection of field QA / QC samples, were reported to have been in accordance with the procedures presented in the NYSDEC-approved Quality Assurance Project Plan (November 2011) for this project. All sample collection was conducted under Chain of Custody (COC) procedures.

Field QA / QC samples, including a blind duplicate sample and a trip blank sample, were collected to evaluate field sampling methods and laboratory procedures.

Sample Analyses

The samples were transmitted to and analyzed by Centek Laboratories, LLC at their Syracuse, New York facility, which is New York State Department of Health-certified for the analyses performed. The samples were prepared and analyzed for volatile organic compounds (VOCs) (including isopropyl alcohol [IPA]) using EPA Method TO-15. The analytical method and analytes are appropriate for the intended use of the data. The sample holding times were met and no problems with sample receipt or handling were reported by the laboratory.

All of the soil vapor samples required dilution for 1,2,4-trimethylbenzene, 1,3,5trimethylbenzene, 2,2,4-trimethylpentane, 4-ethyltoluene, acetone, benzene, carbon disulfide, chloroform, cis-1,2-dichloroethene, cyclohexane, ethyl acetate, ethylbenzene, heptane, hexane, isopropyl alcohol, m&p-xylenes, methyl ethyl ketone, methyl isobutyl ketone, o-xylenes, toluene, tricholoroethene and / or vinyl chloride. The reporting limits have been adjusted accordingly.



QA / QC Results

Surrogate Samples

Surrogate recoveries and internal standard responses were elevated and did not meet criteria for samples C1504099-002, 003, 004 and 005, apparently due to the presence on a non-target, interfering compound(s). The affected samples were analyzed at elevated dilutions and the resulting analyses met criteria. These results indicate that the data are anticipated to be accurate.

Trip Blanks

A trip blank sample was collected on 9/24/15 which was transported with the project sample canisters. Trip blank samples are used to verify that cross-contamination between samples did not occur in the field, in transit or in the laboratory. No VOCs were detected at concentrations exceeding their respective RLs in the trip blank sample. These data indicated that cross contamination between samples did not occur and affect the overall quality of the data set.

Blind Duplicate Samples

A blind duplicate sample was collected and utilized to evaluate the precision of the laboratory analyses. The results from the duplicate sample (SV-1D) and the associated parent sample (SV-1) are very similar for all analytes.

Based on the blind duplicate sample results, the laboratory results are likely to be precise for the remaining VOCs.

Method Blank Samples

Method blank (MB) samples were analyzed by the laboratory to evaluate for the potential for cross contamination associated with the sample preparation and analysis. The MB results did not show concentrations of analytes above their method detection limits and / or the reporting limits. Based upon the MB data, cross contamination associated with sample preparation and analysis does not appear to present a concern.

Laboratory Control Samples and Duplicates

Laboratory control samples (LCSs) and duplicates (LCSDs) were used by the laboratory to verify the accuracy and precision of the analyses. The original laboratory data package included the incorrect LCSD package for ALCCS1UGD-050415. The revised LCSD printout attached to this DUSR has been revised and should be attached to the original data package with the original data excerpted. The LCS / LCSD results were all within established guidelines, with the following exception:

• The spike recovery (%REC) failed limit in the LCS for ALCS1UG-050415 for methyl butyl ketone (high %REC).



• The spike recovery or the Relative Percent Difference (%RPD) failed limits in the LCSD for ALCS1UG-050415 for the following three VOCs: 1,4-dioxane (low %REC), hexachloro-1,3-butadiene (high %RPD) and methyl butyl ketone (low %REC).

Based upon the LCS / LCSD results, and as none of the VOCs which exhibited LCS / LCSD excursions were detected in any of the samples, the data do not appear to have been significantly affected by laboratory-related accuracy or precision issues.

Questions and Responses as per DER-10

1. Is the data package complete as defined under the current requirements for the NYSDEC ASP Category B or USEPA CLP deliverables?

The data package is complete. The external and internal chain of custody forms are present and complete. The case narrative and sample analysis summaries are present and complete. The analytical QA / QC summary forms, including surrogate recovery forms, LCS forms, IDL forms, initial and continuing calibration summary forms, standards raw data, tuning criteria report, and MB data are all present and complete. The data report forms, including sample prep logs, injection logs, and examples of the calculations used to determine the sample concentrations are all present and complete. The raw data used to identify and quantify the contract-specified analytes are present and complete.

2. Have all holding times been met?

All samples were received and analyzed within the EPA-recommended holding times for the analyses performed.

3. Do all the QC data: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data, fall within the protocol-required limits and specifications?

No – Although the majority of QC data were found to fall within the protocol-required limits and specifications, minor exceptions were noted above; however, these exceptions do not appear to significantly affect the data set.

4. Have all of the data been generated using established and agreed-upon analytical protocols?

Yes - all of the data were generated using TO-15 for VOCs.

5. Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?

Yes – a representative number of raw data results were compared with the reported data results to confirm that the reported analytical results (identification and quantification) are substantiated by the raw data.



6. Have the correct data qualifiers been used?

Yes – results below the quantitation limit and above the method detection limit have been J-qualified and results analyzed for but not detected have been U-qualified.

7. Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheets from the data package been attached to the DUSR?

Yes – exceedances have been noted in the DUSR and the corresponding QC summary sheets are attached.

Conclusions

The soil vapor / air samples were reported to have been collected in accordance with the NYSDEC-approved QAPP for this project. No field or laboratory conditions occurred that would result in non-valid analytical data other than as noted above. The data appear to be adequate for their intended purpose.

Attachments



TABLE 3.2.4.1

SOIL VAPOR ANALYTICAL DATA - APRIL 2015 FORMER NUHART PLASTIC MANUFACTURING FACILITY, SITE #224136 280 FRANKLIN STREET, BROOKLYN, NEW YORK

Sample Number	SV-1	SV-1D (duplicate)	SV-2	SV-3	SV-4	Trip Blank	Ambient	Indoor Air Background Levels, Commercial *
Volatile Organic Compounds in micro	ograms per	cubic meter						1
1,1,1-Trichloroethane	ND	ND	2.1	ND	ND	ND	ND	2.6 - 33.0
1,2,4-Trimethylbenzene	9.8	11	9.3	9.8	190	ND	ND	1.7 - 13.7
1,3,5-Trimethylbenzene	2.3	2.3	2.9	3.3	83	ND	ND	ND - 4.6
2,2,4-Trimethylpentane	38	43	76	8.9	44	ND	ND	-
4-Ethyltoluene	3.7	3.8	5.5	5.9	110	ND	ND	ND - 5.9
Acetone	100	120	490	510	570	ND	12	32.4 - 120.2
Benzene	1,600	1,6 00	19	11	41	ND	0.45 J	2.1 - 12.5
Bromodichloromethane	ND	ND	0.80 J	ND	ND	ND	ND	-
Carbon disulfide	0.84	1.1	17	8.7	15	ND	ND	ND - 6.4
Carbon tetrachloride	ND	ND	ND	ND	0.69 J	ND	0.75 J	ND - 0.7
Chloroform	ND	ND	16	ND	1.2	ND	ND	ND - 1.4
Chloromethane	ND	ND	ND	0.85	ND	ND	0.87	2.1 - 4.4
cis-1,2-Dichloroethene	11	11	3.2	ND	ND	ND	ND	ND
Cyclohexane	38	42	7.9	3.6	8.3	ND	ND	1 2
Ethyl acetate	6.8 J	5.8 J	20	120	160	ND	0.54 J	ND - 9.5
Ethylbenzene	11	10	48	14	330	ND	ND	ND - 7.6
Freon 11 (Trichlorofluoromethane)	ND	ND	1.7	1.6	5.7	ND	1.7	ND - 54.0
Freon 113 (Trichlorotrifluoroethane)	ND	ND	1.8	ND	ND	ND	ND	ND - 1.8
Freon 12 (Dichlorodifluoromethane)	ND	ND	2.2	2.9	2.4	ND	2.9	4.8 - 32.9
Heptane	25	27	40	20	32	ND	0.49 J	ND - 3.1
Hexane	74	78	25	ND	ND	ND	ND	1.6 - 15.2
Isopropyl alcohol	ND	ND	ND	49	53	ND	1.5	-
Xylene (m,p)	37	31	100	42	1,200	ND	ND	4.1 - 28.5
Methyl Ethyl Ketone	ND	ND	56	55	50	ND	1.1	3.3 - 13.5
Methyl Isobutyl Ketone	ND	ND	23	9.4 J	10 J	ND	ND	
Methylene chloride	ND	ND	4.0	3.8	4.9	ND	0.80	ND - 16.0
Xylene (o)	11	10	25	12	520	ND	ND	ND - 11.2
Tetrachloroethylene	8.7	8.9	7.9	0.88 J	ND	ND	ND	ND - 25.4
Toluene	60	56	240	80	1,100	ND	2.9	10.7 - 70.8
Trichloroethene	140	120	1,100	0.81	ND	ND	ND	ND - 6.5
Vinyl Chloride	44	43	ND	ND	ND	ND	ND	ND

Notes:

Only compounds detected in one or more samples are reported. See laboratory report for complete data.

ND = Not detected.

J = Analyte detected at or below quantitation limits.

- = Background concentration not established.



CEN	TEK LABORATORIES, L	LC Date: 01-hun-15
CLIENT:	FPM Group, Ltd.	ang ng n
Project:	49 Dupont	CASE NARRATIVE
Lab Order:	C1504099	

Samples were analyzed using the methods outlined in the following references:

Compendium of Methods for the Determination of Toxic Organic Compounds, Compendium Method TO-15, January 1999 and Centek Laboratories, LLC SOP TS-80:

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objective except as indicated in the corrective action report(s). All samples were received and analyzed within the EPA recommended holding times. Test results are not Method Blank (MB) corrected for contamination.

NYSDEC ASP samples:

Canisters should be evacuated to a reading of less than or equal to 50 millitorr prior to shipment to sampling personnel. The vacuum in the canister will be field checked prior to sampling, and must read 28" of Hg (± 2 ", vacuum, absolute) before a sample can be collected. After the sample has been collected, the pressure of the canister will be read and recorded again, and must be 5" of Hg (± 1 ", vacuum, absolute) for the sample to be valid. Once received at the laboratory, the canister vacuum should be confirmed to be 5" of Hg, ± 1 ". Please record and report the pressure/vacuum of received canisters on the sample receipt paperwork. A pressure/vacuum reading should also be taken just prior to the withdrawal of sample from the canister, and recorded on the sample preparation log sheet. All regulators are calibrated to meet these requirements before they leave the laboratory. However, due to environmental conditions and use of the equipment Centek can not guarantee that this criteria can always be achieved.

See Corrective Action: [3213] IS did not meet criteria.

	RIES, LLC			,	S	ample Re	ceipt	Checklist	I.	
Client Name FPM - RONKONKOMA				Date and	Time	Receive			4/30/2015	
Work Order Numbe C1594089				Received	by	NM				
Checklist completed by	- 4-3	0-1	5	Reviewed	đby _.	Indipes	>	4/30 Dane	15	
Mətrix:	Carrier name:	FedE:	x Ground							
Shipping container/cooler in good condition?		Yes	2	No 🗍	i	Not Preson	<u>. </u>			
Custody seals intact on shippping container/con	bler?	Yes	<u> </u>	No 🗍	1	Not Presen				
Custody seals intact on sample bottles?		Yes		No 🗔	1	Not Presen	Y			
Chain of custody present?		Yes		No 🗍						
Chain of custody signed when relinquished and	received?	Yes		No 🗌						
Chain of custody agrees with sample labels?		Yes		No 🗀						
Samples in proper container/bottle?		Yes	X .	No 🗔						
Sample containers intacl?		Yes	×.	No 💭						
Sufficient sample volume for indicated test?		Yes	2	No 🗌						
All samples received within holding time?		Yes	<u>.</u>	No 🗋						
Container/Temp Blank temperature in complian	ce?	Yes	<u>v</u>	No 🗔						
Water - VOA vials have zero headspace?	No VOA vials subm	iilled 1	V	Yes	\Box	No []				
Water - pH acceptable upon receipt?		Yes	<u>_</u>	No 🗹						
	Adjusted?		Chee	cked by						
Any No and/or NA (not applicable) response ma	ist be detailed in the co	nnmen	is section i	oe 						
Client contacted	Date contacted:		· · · · · · · · · · · · · · · · · · ·	P	erson	contacted				
Contacted by:	Regarding:									
Comments:			~							

Corrective Action



Date: 21-May-15

· · · · · · · · · · · · · · · · · · ·		
CLIENT:	FPM Group, Ltd.	Client Sample (D: SV-1
Lab Order:	C1504099	Tag Number: 129.172
Projeci;	49 Dupont	Collection Date: 4/24/2015
Lab HD:	C1504099-002A	Matrix: AfR

Analyses	Result	**Limit Qu	ial Units	DF	Date Analyzed
1UG/M3 BY METHOD TO15		TO-15			Analyst: RJP
1,1,1-Trichloroethane	< 0.82	0.82	ug/m3	1	5/1/2015 5:39:00 PM
1,1,2,2-Tetrachioroethane	< 1.0	1.0	ug/m3	1	5/1/2015 5:39:00 PM
2,1,2-Trichloroethane	< 0.82	0.82	ug/m3	\$	5/1/2015 5:39:00 PM
1,1-Dichlorosthane	< 0.61	0.61	ug/m3	1	5/1/2015 5:39:00 PM
1,1-Dichloroethene	< 0.59	0.59	ug/m3	1	5/1/2015 5:38:00 PM
1.2,4-Trichlorobenzene	< 1.1	1.1	ug/m3	1	5/1/2015 5:39:00 PM
1,2,4-Trimethylbenzono	9.8	D.74	ug/m3	1	5/1/2015 5:39:00 PM
1,2-Dibromoethane	< 1.2	1.2	ug/m3	1	5/1/2015 5:39:00 PM
1,2-Dichlorobenzene	< 0.90	0.90	ug/m3	1	5/1/2015 5:39:00 PM
1,2-Dichloroethane	< 0.61	G.61	ug/m3	1	5/1/2015 5:39:00 PM
1,2-Dichloropropane	< 0,69	0.69	ug/m3	1	5/1/2015 5:39:00 PM
1,3,5-Trimethylbenzene	2.3	0.74	ug/m3	1	5/1/2015 5:39:00 PM
1.3-butadiene	< 0.33	0.33	ug/m3	1	5/1/2015 5:39:00 PM
1,3-Dichlorobenzene	< 0.90	0.90	ug/m3	1	5/1/2015 5:39:00 PM
1.4-Dichforobenzene	< 0.90	0.90	ug/m3	1	5/1/2015 5:39:00 PM
1,4-Dioxane	< 1.1	1.1	ug/m3	1	5/1/2016 5:39:00 PM
2,2,4-trimethylpentane	38	7.0	ug/m3	10	5/1/2015 9:22:00 PM
4-ethyftoluene	3.7	0.74	ug/m3	1	5/1/2015 5:39:00 PM
Acetone	100	28	ug/m3	40	5/1/2015 9:59:00 PM
Ally? chlorida	< 0.47	0.47	ug/m3	1	5/1/2015 5:39:00 PM
Benzene	1600	130	ug/m3	270	5/4/2015 8:54:00 PM
Benzyl chloride	< 0.86	G.86	ug/m3	1	5/1/2015 5:39:00 PM
Bromodichloromethane	< 1.D	1.0	ug/m3	1	5/1/2015 5:39:00 PM
Bromoform	< 1.5	1.6	មច្ច/៣3	1	5/1/2015 5:39:00 PM
Bromomethane	< 0.58	0.58	ug/m3	1	5/1/2015 5:39:00 PM
Camon disulte	0.84	0.47	ug/m3	1	5/1/2015 5:38:00 PM
Carbon tetrachloride	< 0.94	0.94	ug/m3	1	5/1/2015 5:39:00 PM
Chiorobenzene	< 0.69	0.69	ug/m3	1	5/1/2015 5:39:00 PM
Chioroethane	< 0.40	0.40	ug/m3	1	5/1/2015 5:39.00 PM
Chloreform	< 0.73	0,73	ug/m3	1	5/1/2015 5:39:00 PM
Chloremeihane	< 0.31	0.31	ug/m3	5	5/1/2015 5:39.00 PM
cis-1,2-Dichloroethene	11	0.59	ug/m3	t	5/1/2015 5:39:00 PM
cis-1,3-Dichloropropene	< 0.68	0.68	ug/m3	1	5/1/2015 5:39:00 PM
Cyclohexane	38	5.2	ug/m3	10	6/1/2015 9:22:00 PM
Dibromochloromethane	< 1.3	1.3	ug/m3	1	5/1/2016 5:39:00 PM
Ethyl acetate	6.8	9.C J	ug/m3	10	5/1/2015 9:22:00 PM
Ethylbenzene	11	6.5	ยฐ/เข3	10	5/1/2015 9:22:00 PM
Freon 11	< 0.84	0.84	ug/m3	1	5/1/2015 5.39:00 PM
Freen 113	< 1.1	1.1	ug/m3	1	5/1/2015 5:39:00 PM
Freon 114	< 1.0	1.0	ug/m3	1	5/1/2015 5:39:00 PM

•• Reporting Limit Qualifiers:

B Analyte detected in the associated Method Blank

H Holding times for preparation or mailysis exceeded

Non-routine analyte. Quantitation estimated.

JN

s Spike Recovery outside accepted recovery limits

Results reported are not blank corrected .

E Value above quantitation range

J Analyte detected at or helow quantitation limits.

NO Not Detected at the Reporting Limit

Page 3 of 14

Project:	49 Дироля			Collection Date:	4/24/3	2015
Lub ID:	C1504099-002A	194 - Martin Anna 2011 - 1974 - 1946		Matrix:	AIR	
Anolygar		Result	**Limit Qua	Units	DF	Date Analyzed
Anaryses			•		0.0004259610	
UG/M3 BY ME	THOD TO15		TO-15			Analyst: RJP
UG/M3 BY ME Freon 12	THOD TO15	< 0,74	TO-15 0.74	Eırı\gu	1	Analyst: RJP 5/1/2015 5:39:00 PM

Heptane	25	6.1	ug/m3	10	5/1/2015 9:22:00 PM
Hexachloro-1,3-butadiene	< 1.5	1.6	ug/m3	1	5/1/2015 5.39:00 PM
Hexane	74	5.3	ug/m3	10	5/1/2015 9:22:00 PM
tsopropyl alcohol	< 0.37	0.37	ug/m3	1	5/1/2015 5:39:00 PM
m&p-Xylene	37	13	ug/m3	10	5/1/2016 9:22:00 PM
Methyl Butyl Ketone	< 1.2	t.2	ug/m3	3	5/1/2015 5:39:00 PM
Methyl Ethyl Ketone	< 0.88	0.88	ug/m3	1	5/1/2015 5:39:00 PM
Methyi Isobutyi Ketone	< 1.2	1.2	ug/m3	7	5/1/2015 5:39:00 PM
Methyl tert-butyl ether	< 0.54	0.54	ug/m3	۲	5/1/2015 5:39:00 PM
Methylene chlorida	< 0.52	0.52	ug/m3	t	5/1/2015 5-39:00 PM
a-Xylene	11	6.5	ug/m3	10	5/1/2015 9:22:00 PM
Propylene	< 0.26	0.26	ug/m3	1	5/1/2015 5:39:00 PM
Styrene	< 0.64	0.64	ug/m3	1	5/1/2015 5:39:00 PM
Tetrachloroethylene	8.7	1.D	ug/m3	1	5/1/2015 5:39:00 PM
Tetrahydrofuran	< 0.44	0.44	ug/m3	1	5/1/2015 5:39:00 PM
Toluene	60	5.7	ughn3	10	5/1/2015 9:22:00 PM
trans-1,2-Dichtoroethene	< 0.59	0.59	ug/m3	1	5/1/2015 5:39:00 PM
trans-1,3-Dichloropropene	< 0.68	0.68	ug/m3	1	5/1/2015 5:39:00 PM
Trichloroethene	140	32	ug/m3	40	5/1/2015 9:59:00 PM
Vinyl acetate	< 0.53	0.53	ug/m3	1	5/1/2015 5:39:00 PM
Vinyl Bromide	< 0.66	0.66	ug/m3	1	5/1/2015 5:39:00 PM
Viny! chloride	44	3.8	ug/m3	10	5/1/2015 9:22:00 PM

Qualifiers:	**	Reporting Limit		Results reported are not
	ß	Analyte detected in the associated Method Blank	£	Value atsuve quantitatio
	1.5	Holding times for preparation or analysis exceeded	J	Analyte detected at or b

- 3N Non-routine analyte, Quantifution estimated.
- S Spike Recovery outside accepted recovery limits

blank corrected

- aguer te
- elow quantitation limits

ND Not Detected at the Reporting Limit

Page 4 of 14

Date: 21-May-15

CUIENT.	EDM Group I td			Client Commis ID.	11. (2. 12. 17. (2. 17	·····
	(1.0) OTOPP, 1.00.			Cheffe Sample 1D:	1100	170
Lan Urder:	C1304099			1 ag isumber:	1169.	172
Project:	49 Dupont			Collection Date:	4/24/2	2015
Lab ID:	C1504099-003A			Matrix:	AIR	
Analyses		Result	**Limit	Qual Units	DF	Date Analyzed
UGAMS BY ME	THOD TO15		TO	-15		Analyst: RJP
1.1,1-Trichioroet	hane	< 0.82	0.82	ug/m3	1	5/1/2015 6:17:00 PM
1.1.2.2-Tetrachic	proethane	< 1.0	1.0	ug/m3	1	5/1/2015 6:17:00 PM
1.1.2-Trichtoroet	hane	< 0.82	0.82	ug/m3	1	5/1/2015 6:17:00 PM
1.1-Dichloroetha	De	< 0.61	0.61	ug/m3	1	5/1/2015 6:17:00 PM
1.1-Dichtoroethe	ne	< 0.59	0.59	ug/m3	1	5/1/2015 6:17:00 PM
1.2.4-Trichlorobe	enzene	< 1.1	1.1	ug/m3	1	5/1/2015 6:17:00 PM
1,2,4-Trimethylb	еплеле	11	0.74	ug/m3	1	5/1/2015 6:17:00 PM
1,2-Dibromoetha	ne	< 1.2	1.2	ug/m3	1	5/1/2015 6:17:00 PM
1,2-Dichlorobenz	tene	< 0.90	0.90	ug/m3	H	5/1/2015 5:17:00 PM
1,2-Dichloroetha	n⊕	< 0.61	0.61	ug/m3	1	5/1/2015 6:17:00 PM
1,2-Dichloreprop	ane	< 0.69	0.69	ug/m3	1	5/1/2015 6:17:00 PM
1,3,5-Trimethylbo	enzene	2.3	0.74	ug/m3	1	5/1/2015 6:17:00 PM
1,3-butadiene		< 0.33	0.33	ug/m3	1	5/1/2015 6:17:00 PM
1,3-Dichlorobenz	ene	< 0.90	0.90	ug/m3	1	5/1/2015 6:17:00 PM
1,4-Dichlorobertz	ene	< G .90	0.90	ug/m3	1	5/1/2015 6:17:00 PM
1,4-Dioxane		< 1.1	1.1	ug/m3	1	5/1/2015 6:17:00 PM
2,2,4-trimethylpe	ntane	43	0.70	ug/m3	1	5/1/2015 6:17:00 PM
4-ethylloluene		3.8	0.74	Lg/m3	1	5/1/2015 6:17:00 PM
Acetona		120	28	Ug/m3	40	5/1/2015 11:11:00 PM
Allyl chioride		< G.47	0.47	ud/m3	1	5/1/2015 6:17:09 PM
Benzone		1600	130	ua/m3	270	5/4/2015 9-30-00 PM
Benzyl chioride		< 0.66	0.86	vo/m3	1	5/1/2015 6:17:00 PM
Bromodichiorome	ethano	< 1.0	1.0	ua/m3	1	5/1/2015 6:17:00 PM
Bromoform		< 1.6	1.6	up/m3	1	5/1/2015 6:17:00 PM
Bromomethane		< 0.58	0.58	uo/m3	1	5/1/2015 6:17:00 PM
Carbon disulfide		1.1	0.47	ug/m3	1	5/1/2015 6:17:00 PM
Carbon tetrachlor	ride	< 0.94	0.94	uo/m3	1	5/1/2015 6:17:00 PM
Chlorobenzane		< 0.69	0.69	uo/m3	1	5/1/2015 5:17:06 PM
Chloroethane		< 0.40	0 43	u@/m3	i	5/1/2015 6:17:00 PM
Chloroform		50.73	0.73	uo/m3	1	5/1/2015 6:17:00 PM
Chloromethane		< 0.31	0.31	uo/m3	i.	5/1/2015 6-17:00 PM
cis-1 2-Dichloroa	there	11	5.9	ug/m3	10	5/1/2015 10:35:00 PM
cis-1,3-Dichlorop	тореле	< 0.68	0.68	uo/m3	1	5/1/2015 6:17:00 PM
Cyclohexane		42	52	uo/m3	10	5/1/2015 10:35:00 PM
Dibromachforom	ethane	<13	13	ua/m3	1	5/1/2015 6:17:03 PM
Ethyl acetate		5.0	0.0 0 0	Emilia L	10	5/1/2015 10:35:00 DM
Ethylbenzene		10	0.0 8.5	10/013	10	5/1/2015 10:35:00 PM
Freen 11		< 0.84	0.84	10/03	1	5/1/2015 6:17:00 PM
		. 0.07	0.04	D.Series		ALL MARKED AND ALL AND ALL AND ALL AND AND ALL AND A
Freen 113		e 1 1	1 2	10(10)	1	5/1/2015 6-17-00 DM

Qualifiers: ** Reporting Limit

. Results reported are not blank corrected

B Analyte detected in the associated Method Blank

H Holding times for propuration or analysis exceeded

5N Non-routine analyte. Quantitation estimated.

S Spike Recovery untside accepted recovery limits

8 Value above quantitation range

J Analyte detected at or below quantification limits

ND Not Detected at the Reporting Limit

Page 5 of 14

Date: 21-May-15

CLIENT:	FPM Group, Ltd.			Client	Sample ID:	SV-11	D
Lab Order:	C1504099			Та	g Number:	1189.	172
Deniect	49 Dunout			Colle	ction Date:	4/24/	2015
Troject.	a) chapter of a				Mateive	A 112	
Lab 10:	C1504099-003A				WINDIAL	And	
Analyses		Result	**Limit	Qual Unit	5	DF	Date Analyzed
1UG/M3 BY ME	ETHOD TO15		TO-	15			Analyst: RJP
Freon \$2		< 0.74	0.74	ug/m	3	1	5/1/2015 6:17:00 PM
Heptane	and a set of the second se	27	6.1	រព្វ/គោ	3	10	5/1/2015 10:36:00 PM
Mexachioro-1,3	butadiene	< 1.6	1.6	ug/m	3	1	5/1/2015 6:17:00 PM
Hexane		78	5.3	ug/m	3	10	5/1/2015 10:35:00 PM
Isopropyl alcohi	o)	< 0.37	0.37	ug/m	3	1	5/1/2015 6:17:00 PM
m&p-Xylene		31	13	ug/m	3	10	5/1/2016 10:35:00 PM
Methyi Butyi Ke	tone	< 1.2	1.2	មទ្ធ/ពា	3	1	5/1/2015 6:17:00 PM
Methyl Ethyl Ke	etone	< 0.88	0.88	ug/m	3	1	5/1/2015 6:17:00 PM
Methyl Isobutyl	Ketone	< 1.2	1.2	ug/m	3	1	5/1/2015 6:17:00 PM
Methyl tert-buty	/l ether	< 0.54	0.54	បព្វ/កា	3	1	5/1/2015 8:17:00 PM
Methylena chlor	ride	< 0.52	0.52	ug/mi	3	1	5/1/2015 6:17:00 PM
o-Xylene		10	6.5	ug/m	3	10	5/1/2015 10:36:00 PM
Propylene		< 0.26	0.26	ug/m	3	1	6/1/2015 6:17:00 PM
Styrene		< 0.64	0.64	ug/m	3	1	5/1/2015 6:17:00 PM
Tetrachloroethy	lene	8.9	1.0	แญ/ก	3	1	5/1/2015 6:17:00 PM
Tetrahydroforan	1	< 0.44	0.44	ug/m	3	1	5/1/2015 6:17:00 PM
Toluene	A CALLER AND	56	5.7	ug/m	3	10	5/1/2015 10:35:00 PM
trans-1,2-Dicnic	proethene	< 0.59	D.59	ug/m	3	1	5/1/2015 6:17.00 PM
trans-1,3-Dichlo	oropropene	< 0.68	0.68	ug/m	3	1	5/1/2015 6:17:00 PM
Trichloroethene		120	32	ញ់រំខួប	ţ	40	5/1/2015 11:11:00 PM
Vinyl acetate		< 0.53	0.53	Ug/mi	3	1	5/1/2015 6:17:00 PM
Vinyl Bramide		< 0.66	0.66	ug/m	3	1	5/1/2015 6:17:00 PM
Vinyl chloride		49	38	unim	3	10	5/1/2015 10:35:00 204

...... Qualifiers:

** Reporting Limit

- B Analyte detected in the associated Method Blank
- 14 Holding times for preparation or analysis exceeded

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- IN Non-routine analyte. Quantitation estimated.
- S Spike Recovery outside accepted recovery limits

. Results reported are not blank corrected

E Value above quantitation range

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- 3 Analyte detected at or below quantitation limits
- ND Not Detected at the Reporting Limit

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FPM Group, Ltd.

C1504099

CLIENT:

Lab Order:

Collection Date: 4/24/2015 Project: 49 Dupont Matrix: AlR Lab ID: C1504099-004A the second s DF Analyses Result ** Limit Oual Units Date Analyzed Analyst: RJP 1UG/M3 BY METHOD TO15 TO-15 2.1 5/1/2015 6:54:00 PM 0.82 ug/m3 1 1,1.5-Trichloroethano 1,1.2,2-Tetrachloroethane < 1.0 1.0 ug/m3 1 5/1/2015 6:54:00 PM < 0.82 0.82 Lg/m3 1 5/1/2015 6:54:00 PM 1.1.2 Trichloroethane 1,1-Olchloroothane < D.61 0.61 ug/m3 1 5/1/2015 6:54:00 PM 1,1-Dichloroethene < 0.59 G.59 ug/m3 1 5/1/2015 6:54:00 PM 1.2.4-Trichtorobenzene < 1.1 1.1 ug/m3 1 5/1/2015 8:54:00 PM 10 1.2.4-Trimethylbenzene 9.3 7.4 ug/m3 5/1/2015 11:47:00 PM 1,2-Dipromoethane <12 1.2 ug/m3 1 5/1/2015 B:54:00 PM 1.2-Dichtorobanzene < 0.90 0.90 5/1/2015 6:54:00 PM Ja/m3 ٩ 5/1/2015 6:54:00 PM 0.61 1.2-Dichioroethade < 0 61 ug/m3 f 1.2-Dichioropropane < 0.69 0 69 5/1/2015 6:54:00 PM ug/m3 1 1,3,5-Trimethylbenzene 2.9 0.74 ug/m3 1 5/1/2015 6:54:00 PM 1 3-butadiene < 0.33 0.33 ug/m3 1 5/1/2015 6:54:00 PM 1.3-Dichlorobenzene < 0.90 0.90 5/1/2015 6:54.00 PM ug/m3 1 1.4-Dichlorobenzene < 0.90 0.90 5/1/2015 6:54:00 PM 1 ug/m3 1.4-Dioxane < 1.1 1.1 ug/m3 1 5/1/2015 0:54:00 PM 2,2,4-trimethylpentane 76 10 5/1/2015 11:47:00 PM 7.0 ug/m3 4-sthyltoluene 5.5 0.74 5/1/2015 6:54:00 PM ug/m3 1 Acetone 490 90 64 ug/m3 5/4/2015 10:05:00 PM Allyl chloride < 0.47 0.47 5/1/2015 6:54:00 PM ug/m3 1 5/1/2015 11:47:00 PM Benzene 10 19 4.8 ug/m3 Benzyl chloride < 0.86 0.86 ug/m3 ۶ 5/1/2015 6:54:00 PM Bromodichloromethane 0.60 1.0 ug/m3 1 5/1/2015 6:54:00 PM Bromoform < 1.6 1.6 ug/m3 1 5/1/2015 0:54 00 PM Bromomethane < 0.58 0.58 ug/m3 5/1/2015 6:54:00 PM 1 Carbon disulfide 17 4.7 10 5/1/2015 11:47:00 PM ug/m3 Carbon tetrachtoride < 0.94 0.94 5/1/2015 6:64:00 PM ug/m3 1 Chlorobonzene < 0.69D 69 1 ug/m3 5/1/2015 6:54:00 PM Chloroethane < 0.40 0.40 1 5/1/2015 6.54:00 PM ug/m3 Chloroform 16 7.3 10 5/1/2015 11:47:00 PM up/m3 Chloromethane < 0.31 0.31 ug/m3 1 5/1/2015 6:54:00 PM cis-1,2-Dichloroethene 3.2 0.59 ug/m3 5/1/2015 6:54:00 PM 1 ug/m3 cls-1,3-Dichloropropene < 0.68 0.68 5/1/2015 6:54:00 PM 1 ug/m3 Cyclohexane 7.9 5.2 10 5/1/2015 11:47:00 PM Dibromochloromethane < 1.3 1.3 ug/m3 ł 5/1/2015 6:54:00 PM Ethyl acetale 20 9.D ug/m3 10 5/1/2015 11:47:00 PM Ethylbenzene 10 48 8.5 ug/m3 5/1/2015 11:47:00 PM Frean 11 1.7 0.84 ug/m3 í 5/1/2015 6:64:00 PM Freon 113 1.8 1.1 ug/m3 1 5/1/2015 6:54:00 PM

Qualificrs: *4 Reporting Limit

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B Analyte detected in the associated Method Blank

< 1.0

н Holding times for preparation or analysis exceeded

JN Non-routine analyte. Quantitation estimated,

S Spike Recovery outside accepted recovery limits

1 Results reported are not blank corrected

Ē Value above quantitation range

ug/m3

1.0

J Analyte detected at or below quantilation limits

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ND Not Detected at the Reporting Limit Page 7 of 14

5/1/2015 6:54:00 PM

Date: 21-May-15

Client Sample 1D: SV-2

Tag Number: 1181,145

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Date: 21-May-15

CLIENT:	FPM Group, Ltd	0.11.000.00 ⁻ 1.000 2 .		Client Sampl	e file: SV-7		
Lah Order	C'1584099			Tug Nun	aher 1181	145	
D	10 Doursed			Collection I	Doto: 4/24/	2015	-
Project:	49 Dilpom			Concention 1	DALC: 4(24):	5015	
Lab ID:	C1504099-004A		2428 WILLIAM WILLIAM	IV] A	atrix: AIR		
Analyses		Result	**Limit +	Qual Units	DF	Date Analyzed	
1UG/M3 BY ME	ETHOD TO15		TO-	15	₩	Analyst: RJP	
Freor 12		2.2	Q.74	ug/m3	1	5/1/2015 6:54:00 PM	
Heptane		40	6.1	ug/m3	10	5/1/2015 11:47:00 PM	
Hexachioro-1,3	-butadiene	< 1.6	1.8	ug/m3	1	5/1/2015 6:54:00 PM	
Hexane		25	5.3	ug/m3	10	5/1/2015 11:47:00 PM	
Isopropyl alcoh	Oł	< 0.37	0.37	ug/m3	1	5/1/2015 6:54:00 PM	
m&p-Xylene		100	13	ug/m3	10	5/1/2016 11:47:00 PM	
Methyl Butyl Ke	tone	< 1.2	1.2	ug/m3	1	5/1/2015 6:54:00 PM	
Methyl Ethyl Ke	itone	56	8.8	ug/m3	10	5/1/2016 11:47:00 PM	
Methyl Isobutyl	Ketone	23	12	ug/m3	10	5/1/2015 11:47:00 PM	
Methyl tert-buty	lether	< 0.54	0.54	ug/m5	5	5/1/2015 6:54:00 PM	
Methylene chlor	ride	4.0	0.52	ະ ເຊ/m3	9	5/1/2015 6:54:00 PM	
p-Xytene	and the second	25	6.5	ug/m3	10	5/1/2015 11:47:00 PM	
Propylene		< 0.26	0.26	Ug/m3	1	5/1/2015 6:54:00 PM	
Styrene		< 0.64	0.64	ug/m3	1	6/1/2015 6:54:00 PM	
Tetrachloroethy	fene	7.9	÷ 0	ug/m3	1	5/1/2015 6:54:00 PM	
Tetrahydrofuran	r	< 0.44	0.44	ug/m3	1	5/1/2015 6:54:00 PM	
Taluana		240	23	ug/ni3	40	5/2/2015 12:23:00 AM	
trans-1,2-Dichlo	roethene	< 0.59	0.59	ug/m3	1	5/1/2015 6:54:00 PM	
trans-1,3-Dichlo	ropropene	< 0.6B	0.68	ug/m3	1	5/1/2015 6:54 00 PM	
Trichloroethene		1100	75	ug/m3	90	5/4/2015 10:05:00 PM	
Viny! acetate		< 0.53	0.53	ug/m3	1	5/1/2015 6:54:00 PM	
Vinyl Bromide		< 0.66	0 66	սց/m3	1	5/1/2015 6:54:00 PM	
Vinyl chloride		< 0.38	0.38	ug/m3	1	5/1/2015 6:64:00 PM	

Qualifiers: " Reporting Linak

- B Analyte detected in the associated Method Blank
- 14 Holding times for preparation or analysis exceeded
- JN Non-routine analyte. Quantitation estimated,
- 8 Spike Recovery outside accepted recovery limits

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- E. Vislue above quantitation range
 - The second state of the second s
- J Analyte detouted at or below guantitation limits
- ND Not Detected at the Reporting Limit

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Date: 21-May-15

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CLIENT:	FPM Group, Ltd.			с.:-::-:: С	lient Sample ID:	SV-3	····
Lab Order	C1504099				Tae Number:	367.146	
Dustant	10 Durant				Collection Date:	4/24/20	15
r-roject:	49 Dupon				Concerton Date.	A 10	
Lab ID:	C1504099-005A				eviatirix:	AIR	
Analyses		Result	**Limit	Qual	Units	DF	Date Analyzed
1UGIM3 BY MET	THOD TO15		то	0-15			Analyst: RJP
1,1.1-Trichloraeth	hane	< 0.82	0.82		ug/m3	1	5/1/2015 7:32:00 PM
1,1.2,2-Tetrachio	roethane	< 1.0	1.0		ug/m3	1	5/1/2015 7:32:00 PM
1,1,2-Trichloroeth	hano	< 0.82	0.82		սք/m3	1	5/1/2015 7:32:00 PM
1,1-Dichloroethar	né	< 0.61	0.61		ug/m3	1	5/1/2015 7:32:00 PM
1,1-Dichloroether	ne	< 0.59	0.59		ug/m3	1	5/1/2015 7:32:00 PM
1.2.4-Trichlorobe	nzene	< F.1	1.1		ug/m3	1	5/1/2015 7:32:00 PM
1.2,4-Trimethylbe	enzene	9.8	7.4		ug/m3	to	5/2/2015 12:59:00 AM
1,2-Dibromoetha	()¢	< 1.2	1.2		ug/m3	ť	5/1/2015 7:32:00 PM
1.2-Dichlorobenz	ene	< 0.90	0.90		ug/m3	1	5/1/2015 7:32:00 PM
1,2-Dichloroethan	he	< 0.61	0.61		ug/m3	1	5/1/2015 7:32:00 PM
1,2-Dichloropropa	ane	< 0.69	0.69		vg/m3	1	5/1/2015 7:32:00 PM
1,3,5-Trimethylbe	azene	3.3	0.74		ບອຸ/ຄາ3	1	5/1/2015 7:32:00 PM
1,3-butadiene		< 0.33	0.33		ug/m3	1	5/1/2015 7:32:00 PM
1,3-Dichlorobenze	ene	< 0.90	0.90		ug/m3	1	6/1/2015 7:32:00 PM
1,4-Dichlorobenz	4Re	< 0.90	Ð.90		ug/m3	1	5/1/2015 7:32:00 PM
1.4-Dioxane		< 1.1	11		va/m3	1	5/1/2015 7:32:00 PM
2,2,4-trimethylper	htane	8.9	7.0		มน/m3	10	5/2/2015 12:59:00 AM
4-ethyltoluene		5.9	0.74		ug/m3	1	5/1/2015 7:32:00 PM
Acetone		510	190		uo/m3	270	5/4/2015 10:41:00 PM
Allyl chloride		< 0.47	0.47		ແດ/ເກລີ	1	5/1/2015 7:32:00 PM
Banzene		11	4.8		uo/m3	10	5/2/2015 12:59:00 AM
Benzyl chloride		< 0.B6	0.86		up/m3	1	5/1/2015 7:32:00 PM
Bromodichlorome	thane	< 1.0	1.0		up/m3	1	5/1/2015 7:32:00 PM
Bromoform		< 1.6	1.6		ug/m3	1	5/1/2015 7:32:00 PM
Bromomethace		< 0.58	0.58		ug/m3	1	5/1/2015 7-32 DO PM
Carbon disulfide		8.7	4.7		ug/m3	10	5/2/2015 12:59:00 AM
Carbon tetrachior	ide	< 0.94	0.94		ug/m3	1	5/1/2015 7:32:00 PM
Chiorobenzene		< 0.69	D 69		un/m3	1	5/1/2015 7:32:00 PM
Chloroethane		< 0.40	n 40		ugim3	1	5/1/2016 7:32:00 PM
Chioroform		< 0.73	0.73		uo/m3	1	5/1/2015 7:32:00 PM
Chioromethane		0.75 0.85	0.91		ua/m3	1	5/1/2015 7 32 CA PM
cis-1 2-Dichloroet	hene	c 0 50	0.50		ind and	1	5/1/2015 7-32-00 PM
cls-1 3-Dichloron	anene	< 1 AR	0.44		ug/m3	1	5/3/2015 7-32-00 PM
Cyclobeyaco	Abaue	20.00	0.00		undun 3	1	511/2010 7-32/00 FM
Dibromechlorome	lhana	2.0 - 1 7	4.5		Lun ford	1	5/1/2015 7:32:00 PIY
Elive postate	and ite	400	1.3		ugano	40	5/7/2015 1:32:00 1/19
Ethylban sand		120	30 £ 4		นมูลกร	40	5/2/2010 1.30:00 AM
Europa 14		14	0.0		ug/mo	10	5/4/2015 12:09:00 AM
Froon 143		1.0	0.84		19/103 19/103		5/1/2015 7:52:00 PM
Freen 114		< 1.3	1.1		າດໃຫລ	1	5/1/2015 7.32,00 PM
Fiegn (!4	• • • • •	•1.0 ••••••	τ.u		พษณะ		5/1/2015 /.5233 MM

Qualifiers: " Reporting Limit

B Analyte detected in the associated Method Blank

14 Flobding times for preparation or analysis exceeded

JN Non-routine analyte Quantitation estimated

5 Spike Recovery muside accepted recovery limits

.... . Resolts reported are not blank corrected

1. Value above quantitation range

J Analyte detected at or below quantitation limits

ND Not Detected at the Reporting Limit

Page 9 of 14

Date: 21-May-15

CLIENT:	FPM Group, Ltd.			0	Client Sample 1D:	SV-3	
Lab Order:	C1504099				Tag Number:	367.1	46
Project:	49 Dupont				Collection Date:	4/24/2	2015
Lab ID:	C1504099-005A				Matrix:	AIR	
				•••••		· ···	
Analyses		Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 BY MI	ETHOD TO15		тс	-15			Analyst: RJP
Freon 12		2.9	0.74		ug/m3	í	5/1/2015 7:32:00 PM
Heptane		20	6.1		Em/tpu	10	6/2/2015 12:59:00 AM
Hexachloro-1,3	-buladiene	< 1.6	1.6		ug/m3	1	5/1/2015 7:32:00 PM
Нехыпе		< 0.53	0.53		ug/m3	1	5/1/2015 7:32:00 PM
isopropyl alcoh	0	49	3.7		ug/m3	30	5/2/2015 12:59:00 AM
m&p-Xylene		42	13		ug/m3	10	5/2/2015 12:59:00 AM
Methyl Butyl Ke	atone	< 1.2	1.2		ug/m3	\$	6/1/2015 7:32:00 PM
Methyl Ethyl Ke	tone	55	8.8		ug/m3	10	5/2/2015 12:59:00 AM
Methyl Isobutyl	Kelone	9.4	12	L	ug/m3	10	5/2/2015 12:59:00 AM
Methyl tert-buty	d ethor	< 0.54	0.54		ug/m3	F	5/1/2015 7:32:00 PM
Methylene chip	ride	3.8	0.52		ug/m3	1	5/1/2015 7:32:00 PM
o-Xylene		12	6.5		ug/m3	10	5/2/2015 12:59:00 AM
Propylene		< 0.26	0.26		ug/m3	1	5/1/2015 7:32:00.PM
Styrene		< 0.64	0.64		ug/in3	1	5/1/2015 7:32:00 PM
Tetrachloroethy	lene	0.88	1.0	J	ug/m3	1	5/1/2015 7:32:00 PM
Tetrahydrolurar	1	< 0.44	0.44		ug/m3	1	5/1/2015 7:32:00 PM
Toluene		80	23		ug/m3	40	5/2/2015 1:35:00 AM
trans-1,2-Dichic	prosthene	< 0.59	0.59		ug/m3	1	5/1/2015 7:32:00 PM
trans-1,3-Dichlo	propropene	< 0.66	0.68		ug/m3	1	5/1/2015 7:32:00 PM
Trichlorosthene		G.81	0.81		ug/m3	1	5/1/2015 7:32:00 PM
Vinyl acetate		< 0.53	0.53		vg/m3	1	5/1/2015 7:32:00 PM
Vinyi Bromide		< 0.66	0.66		បច្ច/m3	1	5/1/2015 7:32:00 PM
Vinyt chloride		< 0.38	038		ug/m3	1	5/1/2015 7:32:00 PM

Qualifiers:	**	Reporting Limit		Results reported are not blank concered	
	в	Analyte detected in the associated Method Blank	£	Value above quantitation range	
	H	Holding littles for preparation or analysis exceeded	1	Analyte detected at or below quantitatio	et limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit	
	5	Spike Recovery notside accepted recovery limits			Page 10 of 14

Date: 21-May-15

CLIENT	FPM Group, Ltd.		(Client Sample ID:	SV-4	
Lab Order: C1504099 Project: 49 Dupont		Tag Number Collection Date			: 419.176 : 4/24/2015	
Analyses		Result	**Limit Qual	Units	DF	Date Analyzed
1UG/M3 BY ME	THOD TO15		TO-15			Analyst: RJP
1,1,1-Trichloroethane		< 0.82	0.82	ug/m3	1	5/1/2015 8:10:00 PM
1.1.2.2-Tetrachloroethane		< 1.0	1.0	ug/m3	1	5/1/2015 8:10:00 PM
1,1,2-Trichloroethane		< 0.82	0.82	ug/m3	1	5/1/2015 8:10:00 PM
1.1-Dichloroethane		< 0.61	0.61	ug/m3	1	5/1/2015 B:10:00 PM
1, f-Dichloroethene		< 0.59	0.59	ug/m3	1	5/1/2015 B:10:00 PM
1,2,4-Trichtorobenzene		< 1.1	1.1	ug/m3	1	5/1/2015 8:10:00 PM
1,2.4-Trimethylbenzene		190	29	ug/m3	40	5/2/2015 2:48:00 AM
1,2-Dibromoethane		< 1.2	1.2	ug/m3	1	5/1/2015 8:10:00 PM
1,2-Dichlorobenzena		< 0.90	0.90	ug/m3	1	5/1/2015 8:10:00 PM
1,2-Dichloroethane		< 0.61	0.61	ug/m3	1	6/1/2015 8:10:00 PM
1,2-Dichtoropropage		< 0.69	0.69	ug/m3	1	5/1/2015 8:10:00 PM
1,6,5-Trimethylbenzene		83	29	ug/m3	40	5/2/2015 2:46:00 AM
1,3-butadiene		< 0.33	0.33	ug/m3	1	5/1/2015 8:10:00 PM
1,3-Dichlorobenzens		< 0.90	0.90	ug/m3	5	5/1/2015 8:10:00 PM
1,4-Dichtorobenzene		< 0.90	0.90	ug/m3	1	5/1/2015 8:10:00 PM
1,4-Dioxane		< 1.1	1.1	ug/m3	1	5/1/2015 8:10:00 PM
2,2,4-trimethylpentane		44	7.0	ug/m3	10	5/2/2016 2:10:00 AM
4-ethyltoicene		110	29	ug/m3	40	5/2/2015 2:46:00 AM
Acetone	CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTÓR DE LA CONTRACT	570	190	ug/m3	270	5/5/2016 7:19:00 AM
Allyl chloride		< 0.47	0.47	บตู/กา3	1	5/1/2015 8:10:00 PM
Benzene		41	4.8	ug/m3	10	5/2/2015 2:10:00 AM
Banzyl chloride		< 0.86	0.86	ug/m3	1	5/1/2015 8:10:00 PM
Bromodichloromethane		< 1.0	1.0	มูด/เกา3	1	5/1/2015 8:10:00 PM
Bromoform		< 1.6	2,6	ug/m3	1	5/1/2015 8:10:00 PM
Bromomethane		< 0.58	0.58	ua/m3	1	5/1/2015 8:10:00 PM
Carbon disulfide		15	4.7	uo/m3	10	5/2/2015 2:10:00 AM
Carbon tetrachtoride		0.69	0.94 J	របា/ជា3	1	5/1/2015 8:10:00 PM
Chlorobenzene		< 0.69	0 69	ug/m3	1	5/1/2015 8:10:00 PM
Chloroethane		< 0.40	0.40	ug/m3	1	5/1/2015 8:10:00 PM
Chloroform		1.2	0.73	ug/m3	1	5/1/2015 8:10:00 PM
Chloromethane		< 0.31	0.31	ug/m3	1	5/1/2015 8:10:00 PM
cis-1,2-Dichloron	cis-1,2-Dichloroethene		0.59	ug/m3	1	5/1/2015 8:10:00 PM
cis-1,3-Dichloropropene		< 0.68	0.68	ug/m3	1	5/1/2015 6:10:00 PM
Cyclohexane		8.3	5.2	U¢/m3	10	5/2/2015 2:10:00 AM
Dibromochtorom	nethane	< 1.3	1.3	ug/m3	1	5/1/2015 8:10:00 PM
Ethyl acetate		160	36	uo/m3	40	5/2/2015 2:46:00 AM
Ethylbenzene		330	170	ud/m3	270	5/5/2015 7-19:00 AM
Freen 11		5.7	0.84	unim3	1	5/1/2015 8:10:00 PM
Freen 113		< 1.1	11	un/m3	1	5/1/2015 8-10-00 PM
Freen 114		<10	10	lic/m3	1	5/1/2015 8:10:00 PM
		5 1.0	1.9	a Birita		51112010 G. 10.00 PM

B Analyte detected in the associated Method Blank

11 folding times for preparation or analysis exceeded

JN Non-routine analyte, Quantitation estimated. Spike Recovery outside accepted recovery lamits s

E Value above quantitation range

J Analyte detected at or below quantitation limits

ND Not Detected at the Reporting Limit

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Centek Laboratorics, LLC

Date: 21-May-15

CLEENT	FPM Group 1 id				lient Sample 1	D: SV-4	1997, 199 <u>8 - 1997 - 1997 - 1997</u> , 1988 - 201
Lab Order:	C1 504099				Tao Numbe	r: 419 1	76
Deviasta	40 Dupont				Collection Dat	P: 6/740	2015
Project.	47 Dupon				Motei	×1 412	
Lab 135:	C1304099-000A				115611		
Analyses		Result	**Limit	Qual	Units	DF	Date Analyzed
1UG/M3 BY ME	ETHOD TO15		TC	-15			Analyst: RJP
Freon 12		2.4	0.74		ug/m3	1	5/1/2015 8:10:00 PM
Heptans		\$2	6.1		ug/m3	10	5/2/2015 2:10:00 AM
Hexachloro-1,3	-butadiene	< 1.₿	1.6		ug/m3	1	5/1/2015 8:10:00 PM
Нехале		< D.53	0.53		មព្វ/ជា3	1	5/1/2015 8:10:00 PM
isopropyl alcoh	oi	53	3.7		ug/m3	10	5/2/2015 2:10:00 AM
m&p-Xylene		1200	350		ug/m3	270	5/5/2015 7:19:00 AM
Methyl Butyl Ke	tone	< 1.2	1.2		ug/m3	1	5/1/2015 8:10:00 PM
Methyl Ethyl Ke	lone	50	8.8		ug/m3	10	5/2/2015 2:10:00 AM
Methyl Isobutyl	Ketone	10	12	Ł	ug/m3	10	5/2/2015 2:10:00 AM
Methyl tert-buty	leiher	< 0.54	D.54		ug/mS	1	5/1/2015 8:10:00 PM
Mathylene chior	ride	4,9	0.52		ug/m3	1	5/1/2015 8:10:00 PM
o-Xylene		520	170		ug/m3	270	5/5/2015 7:19:00 AM
Propylene		< 0.26	0.26		ug/m3	1	5/1/2015 8:10:00 PM
Styrene		< 0.64	0.64		ug/m3	1	5/1/2015 8:10:00 PM
Tetrachloroethy	lene	< 1.0	1.0		ug/m3	1	5/1/2015 8:10:00 PM
Tetrahydrofuran	1	< 0.44	0.44		ug/m3	1	5/1/2015 8:10:00 PM
Toluane		1100	150		ug/m3	270	5/5/2015 7:19:00 AM
Irans-1,2-Dichlo	roethene	< 0.59	0.69		ug/m3	1	5/1/2015 8:10-00 PM
trans-1,3-Dichlo	ropropene	< 0.68	0.68		ug/m3	1	5/1/2015 8:10:00 PM
Trichloroethene		< 0.81	0.81		ug/m3	1	5/1/2015 8:10:00 PM
Vinyl acetate		< 0.53	0.53		ug/m3	1	5/1/2015 8:10:00 PM
Vinyl Bromide		< 0.66	0.66		ug/m3	ŧ	5/1/2015 8:10:00 PM
Vinyl chloride		< 0.38	0.38		ug/m3	1	5/1/2015 8:10:00 PM

Qualifiers:

- ** Reporting Limit
 - B Analyte detected in the associated Mothod Black.
 - El Holding tinues for preparation or unnitysis exceeded

- 3N Non-routine analyte, Quantitation estimated.
- \$ Spike Recovery outside accepted recovery limits

Results reported are not blank corrected

- E Value above quantitation range
- J Analyte detected at or below quantitation limits
- ND Not Detected at the Reporting Limit

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Centek Laboratories, LLC

Corrective Action Report

Date Initiated: 01 Initiated By: Re	-May-15 Issell Pellegrino	Corrective Action Report ID: 3213 Department: MSVO/	4
	Corrective Act	ion Description	
CAR Summary:	15 did not meet criteria.		
Description of Nonconformance Root/Cause(s):	IS was high and did not meet crit on the chromatographic evidence concentration of interfering comp	erla for samples C1504099-002,003,004 & 006. I a, it appears that the contamination is from a high wunds.	Based
Description of Corrective Action w/Proposed C.A.:	SampleS were analyzed further a in a canister it is difficult to see a	is dilutions with criteria being met. Due to matrix to not a submitted.	being
Performed By:	Russell Pellegrino	Completion Date: 05-May-15	
	Client N	n there in an an internal at the tractice of the A	
Client Notification Comment:	Required: No Notified	By:	1.72. A.L. L.
	Quality Ass	urance Review	
Nonconformance 1	ype: Deficiency		
Further Action required by QA:	Monitor IS for poor matrix. At this submitted	time no further corrective action taken. All sets of	i data
			1.2007-1.2200-2
		1.1979/Management 1991-1991-1991-1991-1991-1991-1991-199	
	Approval	and Closure	
Technical Director Deputy Tech. Di	With Dall	Close Date: 06-May-	-15
QA Officer Approva	l: <u>Milliam Bobbin</u> Nick Scala	QA Date: 06-May-	-15

	• • • • • • • • • • • • • • • • • • •				
Last Updated BY	russ	Updated.	01-Jun-2015 12:33 PM	Reported: 01-Jun-2015 12:33 F	<u>,</u>

Date: 21-May-15



QC SUMMARY REPORT SURROGATE RECOVERIES

CLIENT:	FPM Group, Ltd.	
Work Order:	C1504099	
Project:	49 Dupont	
Test No:	TO-15	Matrix: A
Sample ID	BR4FBZ	
ALCS1UG-050115	\$ 105	
ALCSIUG-050415	94.0	
ALCS100D-0501	15 94.0	
ALCSIUGD-0504	15 86.0	
AMBIUG-050115	81.0	······································
AMB1UG-050415	88.0	na an a
C1504099-001A	83.0	
C1504099-002A	122	
C1504099-003A	102	
CI504099-004A	97.U	
C1504099-005A	: 117	
C1504099-006A	m	
C1504099-007A	81.0	
C1504099-005A C1504099-006A C1504099-007A	117 111 81.0	



1

Centek Laboratories, LLC

GC/MS QA-QC Check Report

Tune File : C:\HPCHEM\1\DATA\AM050103.D Tune Time : 1 May 2015 10:10 am

Daily Calibration File : C:\HPCHEM\1\DATA\AM050103.D

			(BFB)		(191)	(182)	(153)
		(the second second second	1/808	01490	64655
File	Sample Resource Merson	DL	Surrogate	e Recovery %	Internal St	andard Resp	
AM050104.D	ALCS1UG-05011	5	105		17447	77030	60744
AM050105.D	AMB1UG-050115		81		15595	62640	\$7384
AM050110.D	C1504099-007A		81		15334	62037	46022
AM050111.D	C1504099-001A		83		14616	66318	51037
AM050112.D	C1504099-002A	1 5 101	122		20408	98283	951.58*
AM050113.D	C1504099-003A		102		21360	98898	94607*
AM050114.0	C1504099-004A		97		20828	89196	90732*
AM050115.D	C1504099-005A		117		20035	84269	75570
AM050116.0	C1504099-006A		111		18802	84766	87188*
AM050117.D	C1504099-001A	5X	90		14398	63583	49940
AM0503.18.0	C1504099-002A	10X	106		18170	79711	57449
AM050119.D	C1504099-002A	40%	94		15328	66707	45018
AM050120.D	C1504099-003A	10%	110		17287	77731	62141
AM050121.D	C1504099-003A	40X	83		15606	65921	49749
AM050122,D	C1504099-004A	10X	103		16452	77031	65153
AM050123.D	C1504099-004A	4 0 X	95		1.5248	67933	49674
AM050124.D	C1504099-005A	3.0X	123		15548	71148	56243
AM050125.D	C1504099-005A	40X	100		13970	70741	48214
AM050126.D	C1504099-006A	10X	107		17553	72924	69942
AM050127.D	C1504099-006A	4 0 X	96		15473	66614	56005
AM050128.D	ALCS1UGD-05013	15	94		16055	73363	55803

t - fails 24hr time check * - fails criteria

Created: Thu May 21 09:12:38 2015 MSD #1/

GC/MS QA-QC Check Report

Tune File : C:\HPCHEM\1\DATA\AM050403.D Tune Time : 4 May 2015 9:33 am

Daily Calibration File : C:\HPCHEM\1\DATA\AM050403.D

	(BFB	}			(IS1)	(15	2)	(IS3)	
					25335	5	77554	57804	3
File	Sample	DL		Surrogate	Recovery	\$	Internal	Standard	Responses
AM050404.D	ALCS1UG-05041	5 5	94 94			1625	0 7	4324	55543
AM050405.D	AMB1UG-050415		88			1211	3 5	2611	42625
AM050418.D	C1504099-001A	10%	76			1187	4 4	7836	41898
AM050419.D	C1504099-002A	270X	78			1243	5 5	4550	39407
AM050420,D	C1504099-003A	270X	92		- Statements week	1184	7	8603	33062*
AM050421.D	C1504099-004A	90X	97			1224	7 4	6890	36529
AM050422.D	C1504099-005A	270X	79			995	7 4	6757	37722
AM050425.D	ALCS1UGD-0504	15	86			1217	5 6	1103	48890
AM050430.D	C1504099-006A	270X	75			1000	G 5.	2625	43870
t - fai	ils 24hr time	check	* E	ails crite	eria				

Created: Thu May 21 09:14:56 2015 MSD #1/

Centek Laboratories, LLC

Date: 21-May-15

Lah ID; (CI 504099-007A		212 SEPT 12 March	Matrix:	AIR	
Project: 4	9 Dupont			Collection Date:	4/24/201	:5
Lab Order: (CI 504099			Tag Number:	195	
CLIENT: F	PM Group, Ltd.		C	lient Sample ID;	Trip Bla	nk

1UG/M3 BY METHOD TO15		TO-15		100 M	Analyst: RJP
1.1.1-Trichtorosthane	< 0.82	D.82	ug/m3	1	5/1/2015 4:24:00 PM
1,1,2,2-Tetrachloroethane	< 1.0	1.0	Lig/m3	1	5/1/2015 4:24:00 PM
1,1,2-Trichloroethane	< 0.82	0.82	ug/m3	ł	5/1/2015 4:24:00 PM
1,1-Dichloroethane	< 0.61	0.61	ug/m3	1	5/1/2015 4:24:00 PM
1.1-Dichlaroethene	< 0.59	0.59	ug/m3	1	5/1/2015 4:24:00 PM
1.2.4-Trichlorobenzene	< 1.1	1.1	ug/m3	3	5/1/2015 4:24:00 PM
1,2,4-Trimethylbenzene	< 0.74	0.74	ug/m3	1	5/1/2015 4:24:00 PM
1,2-Dibromoethane	< 1.2	1.2	មហ្វ/ជាថិ	1	5/1/2015 4:24:00 PM
1.2-Dicalorobenzene	< 0.90	0.90	ug/m3	2	5/1/2015 4:24:00 PM
1,2-Dichloroethane	< 0.61	0.51	ug/m3	1	5/1/2015 4:24:00 PM
1,2-Dichloropropane	< 0.69	0.69	ug/m3	1	5/1/2015 4:24:00 PM
1,3,5-Trimothylbenzene	< 0,74	0.74	ug/m3	1	5/1/2015 4:24:00 PM
1.3-butadiene	< 0.33	0.33	ug/m3	1	5/1/2015 4:24:00 PM
1.3-Dichlorobenzene	< 0.90	0.90	ug/m3	1	5/1/2015 4:24:00 PM
1,4-Dichlorobenzene	< 0.90	0 90	ug/m3	1	5/1/2015 4:24:00 PM
1.4-Dioxane	< 1.1	1.1	ug/m3	1	5/1/2015 4:24:00 PM
2.2.4-Inmethylpentane	< 0.70	0.70	ug/m3	1	5/1/2015 4:24:00 PM
4-sthyltoluene	< 0.74	0.74	ug/m3	1	5/1/2015 4:24:00 PM
Acetone	< 0.71	D.71	ug/in:3	1	5/1/2015 4:24:00 PM
Allyl chioride	< 0.47	0.47	ug/m3	1	5/1/2015 4:24:00 PM
Benzene	< 0.48	0.48	ug/m3	1	5/1/2015 4:24:00 PM
Benzyl chloride	< 0.86	0.86	ug/m3	1	5/1/2015 4:24:00 PM
Bromodichloromethene	< 1.0	1.0	ug/m3	1	5/1/2015 4:24:00 PM
Bromoform	< 1.6	1.6	ug/m3	1	5/1/2015 4:24:00 PM
Bromomethana	< 0.58	0.58	ug/m3	1	5/1/2015 4:24:00 PM
Cerbon disulfide	< 0.47	0.47	ug/m3	1	5/1/2015 4:24:00 PM
Garbon tetrachloride	< 0.94	0.94	ag/m3	1	5/1/2015 4:24:00 PM
Chlorobenzene	< 0.69	0.69	ug/m3	t	5/1/2015 4:24:00 PM
Chloroethane	< 0.48	0.40	ug/m3	1	5/1/2015 4:24:00 PM
Chloroform	< 0.73	0.73	ug/m3	1	5/1/2015 4:24:00 PM
Chloromethane	< 0.31	G.31	ug/m3	1	5/1/2015 4:24:00 PM
cia-1,2-Dichloroetnene	< 0.59	0.59	មណ្ឌរពា3	1	5/1/2015 4:24:00 PM
cis-1,3-Dichloropropene	< 0.68	0.68	ug/m3	1	5/1/2015 4:24:00 PM
Cyclohexane	< 0.52	0.52	ug/m3	1	5/1/2015 4:24:00 PM
Dibromochloromethane	< 1.3	1.3	ug/m3	1	5/1/2015 4:24:00 PM
Ethyl acetate	< 0.90	0.90	ug/m3	1	5/1/2015 4:24:00 PM
Ethylbenzene	< 0.55	0.65	Ling/m3	7	5/1/2015 4:24:00 PM
Freon #1	< 0.84	0 84	ug/m3	1	5/1/2015 4:24:00 PM
Freon 113	< 1.1	1.7	ug/m3	1	5/1/2015 4:24 00 PM
Freon 114	< 1.0	1.Q	ug/m3	\$	5/1/2015 4:24:00 PM

Qualifiers: ** Reporting Limit

JN

. Results reported are not blank corrected

d Blank II Value above quantitation range

B Analyte detected in the associated Method Blank
 Holding times for preparation or analysis exceeded.

Non-routine analyte. Quantitation estimated.

S Spike Recovery outside accepted recovery fimits

.1 Analyte detected at or below quantitation limits

ND Not Detected at the Reporting Limit

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Centek Laboratories, LLC

CLIENT:	FPM Group, Ltd.			Client Sample	D: Trip	Blank
Lab Order:	C1504099			Tag Num	her: 195	
Project:	49 Dupont			Collection 1	hte: 4/24	/2015
Lab ID:	C1504099-007A			Ma	trix: AlR	
Analyses		Result	**Limit	Qual Units	DF	Date Analyzed
TUG/M3 BY ME	ETHOD TO15		то	-15		Anaiyst: RJP
Freon 12		< 0.74	0.74	ug/m3	t	5/1/2015 4:24:00 PM
Fleptarte		< 0.61	0.61	ug/m3	1	5/1/2015 4:24:00 PM
Hexachioro-1,3-	-butadiene	< 1.6	1.6	ug/m3	1	5/1/2015 4:24:00 PM
Hexane		< 0.53	0.53	ug/m3	1	5/1/2015 4:24:00 PM
isopropyl alconi	ol	< 0.37	0.37	ug/m3	1	5/1/2015 4:24:00 PM
m&p-Xylena		< 1.3	1.3	มg/m3	ţ	5/1/2015 4:24:00 PM
Methyl Bulyl Ke	tone	< 1.2	1.2	ug/m3	1	5/1/2015 4-24:00 PM
Methyl Ethyl Ke	tone	< 0.88	0.88	ug/m3	1	5/1/2015 4:24:00 PM
Methyl Isobutyl	Kelone	< 1.2	1.2	ug/m3	1	5/1/2015 4:24:00 PM
Methyl text-buly	l ether	< 0.54	0.54	ug/m3	1	5/1/2015 4:24:00 PM
Methylene chlor	ride	< 0.52	U.52	ug/m3	1	5/1/2015 4:24:00 PM
o-Xylene		< 0.65	0.65	ug/m3	1	5/1/2015 4:24:00 PM
Propylene		< 0.26	C.26	ug/m3	1	5/1/2015 4:24:00 PM
Styrene		< 0.64	0.64	ug/m3	1	5/1/2015 4:24:00 PM
Tetrachloroethy	lene	< 1.G	9.0	ug/m3	1	5/1/2015 4:24:00 PM
Tetrahydrofuran	1	< 0.44	0.44	ug/m3	t	5/1/2015 4:24:00 PM
Toiuene		< 0.67	0.57	ug/m3	1	5/1/2015 4:24:00 PM
trans-1,2-Dichlo	rcethene	< 0.59	0.59	vg/m3	1	5/1/2015 4:24:00 PM
trans-1,3-Dichlo	ropropene	< 0.68	0.68	ug/m3	1	5/1/2015 4:24:00 PM
Trichloroethene		< 0.81	0.81	ug/m3	1	5/1/2015 4:24:00 PM
Vinyl acetate		< 0.53	0.53	ug/m3	1	5/5/2015 4:24:00 PM
Vinyl Bromide		< 0.66	0.66	ug/m3	1	5/1/2015 4:24:00 PM
Vinyl chloride		< 0.38	BE.0	Em/gu	1	5/1/2015 4:24:00 PM

Qualifiers:	¢×	Reporting
	-	A CONTRACTOR

- Reporting Limit
- **
 Reporting Limit
 Results reported are not black corrected

 B
 Analyte detected in the associated Method Black
 E
 Value above quantitation range

 R
 Holding times for preparation or analysis exceeded
 J
 Analyte detected at the low quantitation limits

 Non-routine analyte. Quantitation estimated.
 ND
 Not Detected at the Reporting Limit

- S Spike Recovery outside accepted recovery limits

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CENTEK LABORATORIES, LLC

Date: 21-Muy-15

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ANALYTICAL QC SUMMARY REPORT

Page 57 of 360 CLJENT: Work Order: Project: 49 Dupont

FPM Group, Ltd. C1504099

TestCode	1ngM3 (1015

Sample ID AMB1UG-050115	SampType: MBLK	TestCode: 1ugM3_7	O15 Units: ppbV		Prep Da	tø:		RunNo: 967	25	
Client ID; ZZZZZ	Batch ID: R9625	TestNo: TO-15			Analysis Da	le: 5/1/201	15	SecNo: 11	3539	
Analyle	Result	PQL SPK value	SPK Rof Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	< 0.15	0.15								A. / J
1,1,2.2-Tetrachloroethane	< 0.15	0.15								
1,1,2-Trichloroethane	< 0.15	0.15								
1,1-Dichloroethane	< 0.15	0.15								
1,1-Dichloroethene	< 0.15	0.15								
1,2,4-Trichlorobenzene	< 0.15	0.15								
1,2,4-Trimethy/benzene	< 0.15	0.15								
1,2-Dibromoethane	< 0.15	0.15								
1.2-Dichlorobenzene	< 0.15	0.15								
1.2-Dichloroethane	< 0.15	0.15								
1,2-Dichloropropane	< 0.15	0.15								
1,3,5-Trimethylbenzene	< 0.15	0.15								
1,3-bulaciene	< 0.15	0.15								
1,3-Dichlorobenzene	< 0.15	D.15								
1,4-Dichlorobenzene	< 0.15	0.15								
1,4-Dioxane	< 0.30	0.30								
2,2,4-trimethylpentane	~ 0.15	0 15								
4-ethylloluene	< 0.15	0.15								
Acetone	< 0.30	0.30								
Allyt chloride	< 0.15	0.15								
Benzene	= 0.15	0.15								
Benzyl chioride	< 0.15	0.15								
Bromodichioromethane	< 0.15	0.15								
Bromoform	< 0.15	0.15								
Bromomelhane	< 0.15	0.15								
					 I 				•••••••	

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Results reported are not blank corrected

Analyte detected at or below quantitation limits

S Spike Recovery outside accepted recovery limits

Value shove quantitution range Ē

ND Not Detected at the Reporting Limit

Н Holding times for preparation or analysis exceeded

ĸ RPD outside accepted recovery limits

···· CLIENT: FPM Group, Ltd.

Work Order: C1504099

Project: 49 Dupont

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Sample ID AMB1UG-050115	ple ID AMB1UG-050115 SampType: MBLK TestCode			Vdqq :shoU 015		Prep Da	ito:		RunNo: 963	RunNo: 9625			
Glient (D: ZZZZZ	Batch ID: R9625	Test	ia: TO-15			Analysis Da	ne: 5/1/20	15	SeqNo: 11	3539			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPOLimit	Qual		
Carbon disulfide	< 0.15	0.15											
Carbon tetrachloride	< 0.15	0.15											
Chlorobenzene	< 0.15	0.15											
Chloroetbane	< 0.15	0.15											
Chloroform	< 0.15	0.15											
Chlorome!hane	< 0.15	0,15											
cis-1,2-Dickloroethene	< 0.15	0.15											
cis-1,3-Dichloropropene	< 0.15	0.15											
Cyclohexane	< 0.15	0.15											
Dibromochloromethane	< 0.15	0.16											
Ethyl acetate	< 0.25	0 25											
Ethylbenzene	< 0.15	0.15											
Freon 11	< 0.15	0.15											
Freon 113	< 0.15	D. 15											
Fieon 114	< 0.15	0.15											
Freon 12	< 0, 15	0.15											
Heptane	< 0.15	0.15											
Hexachloro-1,3-butadiene	< 0.15	0.15											
Hexane	< 0.15	0.15											
isopropyl alcohol	< 0.15	0.15											
m&p-Xylene	< 0.30	G.30											
Methyl Butyl Kelone	< 0.30	0.30											
Methyl Ethyl Kelone	< 0.30	0.30											
Methyl Isobulyl Ketone	< G.30	0.30											
Methyl tert-butyl ether	< 6.15	0.15											
Methylene chloride	< 0.15	0,15											
o-Xylene	< 0.15	0.15											
Propylene	< 0.15	0.15											
Styrene	< 0.15	0.15											
Tetrachloroethylene	< 0.15	0.15											
Tetrahydrofuran	< 0.15	0.15											
Qualifiers: Results repo	rted are not blank corrected		Ε Vulue	shove quantitation ra	nge	•• •	нн	Holding times for	preparation of	analysis excee	તેલ્વ		

TestCode: iugM3_TO15

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3 Analyte detected at or below quantitation limits

S Spike Recovery outside accepted recovery limits

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

CLIENT: FPM Group, Ltd. Work Order: C1504099 Project; 49 Dupont

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TestCode: 1ugM3_TO15

Sample ID AMB1UG-050115	SampType: MBLK	TestCode: 1ugM3_T	015 Units: ppbV		Prep Dat	te:		RunNo: 952	15	
Client ID: ZZZZZ	Batch ID: R9625	TesiNo: TQ-15			Analysis Dal	te: 5/1/201	:5	SeqNo: 113	539	
Anaiyle	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Re! Val	%RPD	RPDLimit	Qual
Tolvene	< 0.15	0.15								
frans-1,2-Dichtoroethene	< 0.15	0.15								
Irans-1,3-Dichloropropene	< 0.15	0.15								
Trichloroethene	< 0.15	0.15								
Vinyl acelate	< 0.15	0.15								
Vinyi Bromide	< 0.15	0.15								
Vinyi chloride	< 0.15	0.15								
Sample ID AMB1UG-050415	SampType: MBLK	TestCode: iugM3_T	O15 Units: ppbV		Рлер Да	le:		RunNo: 962	26	
Client ID: ZZZZZ	Batch ID: R9626	TestNo: TO-15			Analysis Da	le: 5/4/201	15	SegNo 11	3561	
Analyte	Result	POL SPK value	SPK Ref Val	%REC	LowiLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Quał
1,1,1-Trichloroethane	< 0 15	0,15								
1,1,2,2-Tetrachloroethane	< 0.15	0.15								
1,1,2-Trichloroethane	< 0.15	0.15								
1.1-Dichloroethane	< 0.15	0.15								
7.1-Dichtoroelinene	< 0.15	0.15								
1,2,4-Trichlorobenzene	< 0.15	0.15								
1,2,4-Trimethylbenzene	< 0.15	0.15								
1,2-Dibromoethane	< 0.15	0.15								
1,2-Dichlorobenzene	< 0.15	D.15								
1,2-Dichlaraethane	< 0.15	0.15								
1.2-Dichloroorooane	< 0.15	0.15								
1,3,5-Tomethy/benzene	< 0.15	0.15								
1,3-butadiene	< 0.15	0.15								
1,3-Dichlorobenzene	< 0.15	0.15								
1,4-Dichlorobenzene	< 0.15	015								
1,4-Dioxane	< 0.30	0.30								
2,2,4-trimethylpeniane	< 0.75	0.15								
4-ethyltoluene	< 0.15	0.15								

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Results reputed are not black corrected

E Value above quantitation range

ND Not Detected at the Reporting Limit

Analyte detected at or helow quantitation limits 5 Spike Recovery outside accepted recovery limits

н Halding times for preparation or analysis exceeded

RPD outside accepted recovery limits R

Centek Laboratories, LLC

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CLIENT: FPM Group, Ltd. Work Order: C1504099

Project: 49 Dupont

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Sample ID AMB1UG-050415	SampType: MBLK	TestCode: 1ugM3_TO15 Units: ppbV	Prep Date:	RunNo: 9626
Client ID: ZZZZZ	Batch ID: R9626	TestNo: TO-15	Analysis Date: 5/4/2015	SeqNo: 113561
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Acetone	< 0.30	0.30		
Allyl chloride	< 0.15	0.15		
Benzene	< 0.15	Q 15		
Benzyl chloride	< 0.15	0.15		
Bromodichloromethane	< 0.15	0.15		
@romoform	< 0.15	0.15		
Bromethane	< 0.15	0.15		
Carbon disulfide	< 0.15	0.15		
Carbon tetrachloride	< 0.15	0.15		
Chlorobenzene	< 0.15	0.15		
Chloroethane	< D. 15	0.15		
Chioroform	< 0.15	0.15		
Chioromethane	< 0.15	0.15		
cis-1,2-Dichloroethene	< 0.15	0.15		
cis-1,3-Dichloropropene	< 0.15	0.15		
Cyclohexane	< 0.15	0.15		
Dibromochlaromethane	< 0.15	0.15		
Ethyi acetale	< 0.25	0 25		
Ethylbenzene	< 0.15	0.15		
Freor 11	< C.15	D.15		
Freon 113	< 0.15	0.15		
Freen 114	< 0.15	Q.15		
Freon 12	< 0.15	D. 15		
Heptane	< 0.15	0.15		
Hexachioro-1.3-butadiene	< 0.15	0.15		
Нехале	< 0.15	0.15		
Isopropyl alcohol	< 0.15	0.15		
m&p-Xytene	< 0.30	0.30		
Methyl Butyl Ketone	< 0.30	0.30		
Melhyl Ethyl Ketone	< 0.30	0.30		
Methyl Isobutyl Ketone	< 0.30	e.30		
Qualifiers: Results roport	ted are not blank corrected	E. Value above quantitation rat	ige li Holding times f	or preparation or analysis exceeded

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1 Analyte detected at or below quantitation limits

5 Spike Recovery outside accepted recovery limits

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery litnits

CLIENT: FPM Group, Ltd. Work Order: CI504099

Project: 49 Dupont

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Sample ID AMB1UG-050415	SampType: MBLK	TestCode: 1ugM3_TO15 Units: ppbV	Prep Date:	RunNo: 9626				
Client ID: ZZZZZ	Batch ID: R9628	TesiNo: TD-15	Analysis Date: 5/4/2015	SeqNo: 113561				
Analyle	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPO RPDLimit Qual				
Methyl ten-butyl ether	< 0.15	0.15						
Methylene chloride	< 0.15	0.15						
o-Xylene	< 0.15	0.15						
Propylene	< 0.15	0.15						
Styrene	< 0.15	0.15						
Tetrachloroethylene	< 0.15	Q.15						
Tetrahydrofuran	< 0.15	0.15						
Tofuene	< 0 15	0.15						
trans-1,2-Dichloroethene	< 0.15	0.15						
trans-1,3-Dichloropropene	< 0.15	0.15						
Trichloroethene	= 0.15	0.15						
Vinyl acetate	< 0.15	0.15						
Vinyl Bromide	< 0.15	0.15						
Vinyl chloride	< 0.15	0.15						

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Qualifiers:

Results reported are not blank corrected

ND Not Detected at the Reporting Limit

R RPD outside accepted reenvery limits

Centek Laboratories, LLC

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- Analyte detected at or below quantitation limits 3
- S

Spike Recovery outside accepted recovery limits

E Value above quantitation range

CENTEK LABORATORIES, LLC

Date: 21-May-15

ANALYTICAL OC SUMMARY REPORT

TestCode: 1ugM3 TO15

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CLIENT: FPM Group, Ltd. Work Order:

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C1504099

Project: 49 Dupont

Sample ID ALCS1UG-050115 SampType: LCS TestCoda: 1ugM3 TO15 Units: ppbV Prep Date: RunNo: 9625 Client ID: ZZZZZ Batch ID: R9625 TestNo: TO-15 Analysis Date: 5/1/2015 SegNo: 113540 Analyte Result POL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual 1,1,1-Trichloroethane 1.210 0.15 7 0 121 70 130 1,1,2,2-Teirachloroethane 1.190 0.15 1 a 119 70 130 0 70 130 1,1,2-Trichloroethane 1.130 0.15 1 113 1.1-Dichloroethane 1,130 0.15 0 113 70 130 1 1.1-Dichloroethene 1.040 0.15 1 Û. 104 70 130 1,2,4-Trichlorobenzene 0.9100 0.15 0 91.0 70 130 1 1,2,4-Trimethylbenzene 0.7400 0.15 1 D 74.0 70 130 ٥ 70 130 1,2-Dibromoethane 1.190 C.15 1 119 0.15 0 104 130 70 1,2-Dichlorobenzene 1.040 1 1.040 0 104 70 \$30 1,2-Dichloroetnane 0.15 1 D 99.0 130 1,2-Dichloropropane 0.9900 0.15 1 70 0.9000 70 130 1,3,5-Trimeinylbenzene 0.15 1 Ð 90.00 1,3-butadiene 0.8400 0.15 1 Ð 84.0 70 130 1.090 0.15 Ð 109 70 130 1.3-Dichlorobenzene 1 1,4-Dichlorobenzene 1.100 0.15 1 D 110 70 130 0.7400 0.30 Ð 74.0 70 130 1.4-Dioxane 1 0 92.0 70 130 0.9200 0.15 1 2,2,4-trimethylpentane 130 0.8600 0.15 Ð 86.0 70 4-ethyltoluene 1 0 73.0 130 Acelone 0.7300 0.30 1 70 G 78.0 70 130 Allyl chloride 0.7800 0.15 1 1.030 D.15 3 3 \$03 70 130 Benzene 0 60.08 70 130 Benzyl chioride 0.8000 0.15 1 ð 115 70 130 0.15 Bromodicoloromethane 1.150 1 t30 ť 0 122 70 1.220 0.15 Bromoform

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Bromomethane

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Results reported are not blank corrected

F. Value above quantitation range

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ND Not Detected at the Reporting Limit

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98.0

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits R

130

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Analyte detected at or below quantitation limits S Spike Recovery outside accented recovery fimits

0.9800

0.15

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CLIENT: FPM Group, Ltd.

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C1504099 Work Order:

Project: 49 Dupont

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Conce:	fugM3_1015	

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Sample ID ALCS1UG-050115	TestCod	ie: 1ugM3_T	015 Units: ppbV	V Prep Date:				RunNo: 9625			
Client ID: ZZZZZ	Baich ID: R9625	Test	No: TO-15			Analysis Da	te: 5/1/201	5	SegNo: 113	3540	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon disulfide	1.110	D.15	1	Û	\$11	70	130				
Carbon tetrachloride	1 230	0.15	ŧ	0	123	70	130				
Ch!orobenzene	1.060	0.15	1	0	106	70	130				
Chloroelhane	0.9700	0.15	1	0	97.0	70	130				
Chloreform	1.020	0.15	1	Û	102	70	130				
Chioromethane	0.9600	0.15	1	0	98.0	70	130				
as-1,2-Dichloroethene	0.9900	0.15	1	0	99.0	79	130				
cis-1,3-Dichloropropene	0.9800	0.15	1	Q	98.0	70	130			4	
Cyclohexane	0.9500	0.15	1	0	95 0	70	130				
Dibromochloromethane	1.260	0.15	4	0	126	70	130				
Ethyl acetate	0.7100	0.25	1	0	710	70	130				
Ethylbenzene	0.9100	0 15	1	0	91.0	70	130				
reon 1t	1 180	0.15	1	0	118	70	130				
геол 113	1 130	0.15	1	0	113	70	130				
freon 114	1.06G	0.15	1	0	106	70	130				
reon 12	1 070	0.15	1	0	107	70	130				
Heotane	0.8400	0.15	1	0	84,0	70	130				
lexachloro-1,3-butadiene	1.060	0.15	1	0	106	70	130				
fexane	0.9400	0.15	1	٥	94.0	70	130				
sopropyl alcohol	0.7500	0.15	1	0	75.0	70	130				
n&p-Xviene	1.800	0.30	2	Q	90.0	70	130				
Methyl Butyl Ketone	1.010	0.30	1	D	101	70	130				
Jeihyt Ethyl Ketone	0.8300	0.30	5	0	83.0	70	130				
Wethyl Isobulyl Ketone	0.7200	0.30	1	D	72.0	70	130				
Weihyt tert-butyl ether	0.9100	0.15	1	Ð	91.0	70	130				
dethylene chloride	0.8700	0.15	1	D	87.0	70	130				
xviene	0.9500	0 15	1	0	95.0	70	130				
Stanylene	0.8600	0.15	1	0	60.0	70	130				
Sivane	0.8200	D.15	1	D	62.0	70	130				
Tetrachloroethylene	1,260	0.15	1	0	126	70	130				
Terrahydrofuran	0.8200	0.15	1	0	82.0	70	130				

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Results reported are not blank corrected

£ Value show quantilation range

ND Not Detected at the Reporting Limit

Analyte detected at or below quantitation limits Spike Recovery outside accepted recovery limits S

Holding times for preparation or analysis exceeded £1

RPD outside accepted recovery limits J¢.

------FPM Group, Ltd.

CLIENT: Work Order: C1504099

Project: 49 Dupont

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TestCode: 1ugM3_TO15

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Sample ID ALCS1UG-050115	SampType: LCS	TestCo	te: fugM3_to	015 Units: ppbV		Prep Dat	e:		RunNo: 962	25	
Client ID: ZZZZZ	Batch ID: R9825	Test	fo: TQ-15			Anatysis Dal	ie: 5/1/201	5	SegNo: 113	3540	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tokiene	1.070	0.15	1	Q	107	70	130				
trans-1,2-Dichleroethene	1.090	0.15	1	0	109	70	130				
trans-1,3-Dichloropropene	0.9300	0.15	1	0	93.0	70	130				
Trichloroethene	1.180	0.15	1	0	118	70	130				
Vinyl acetale	0,9500	0.15	1	0	95.0	70	130				
Vinyl Bromide	1.070	0.15	1	٥	107	70	130				
Vinyl chloride	0.9800	0.15	1	0	98.0	70	130				
Sample ID ALCS1UG-050415	SampType: LCS	TestCo	de: 1ugM3_T	D15 Units: ppbV		Prep Dat	te:		RunNo: 962	26	
Client ID: ZZZZZ	Batch ID: R9626	Test	No: 10-15			Analysis Da	le: 5/4/201	15	SeqNo: 11	3562	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	Hightimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	1.140	0.15	1	0	114	70	130				
1,1,2,2-Tetrachtoroethane	1.260	Ð. 15	1	D	126	70	130				
1, 1, 2-Trichloroethane	1.230	0 15	1	0	123	70	130				
1,1-Dichloroethane	1.140	0.25	1	0	114	70	130				
1,1-Dichloroethene	1.050	0.15	1	D	105	70	130				
1,2,4-Trichlorobenzene	0.8300	0.15	1	0	83.0	70	130				
1,2.4-Trimethylbenzene	0.7000	0.15	1	Ð	70.0	70	130				
1,2-Dibromoethane	1.140	0.15	1	0	114	70	130				
1,2-Dichlorobenzene	1.050	0.15	1	0	105	70	130				
1,2-Dichloroethane	t.050	G.15	1	0	105	70	130				
1,2-Dickloropropane	1.160	0.15	1	0	116	70	130				
1.3.5-Trimethylbenzene	0.8100	0.15	1	0	81.0	70	130				
1,3-butadiene	0.7800	0.15	1	0	78.0	70	130				
1,3-Dichlorobenzene	1.060	0.15	1	0	106	70	130				
1,4-Dichlorobenzene	1.030	0.15	1	0	103	70	130				
1,4-Dioxane	1.290	0.30	1	0	129	70	130				
2,2,4-trimethylpentane	0.9100	0.15	1	D	91.0	70	130				
4-ethyltoluene	0.6200	0.15	1	0	82.0	70	130				

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Qualifiers:

Results reported are not blank corrected

Value above quantitation range £

ND Not Detected at the Reporting Limit

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S Spike Recovery outside accepted recovery limits

3 Analyte detected at or below quantitation limits

14 Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits

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CLIENT: FPM Group, Ltd.

Work Order: C1504099

Project: 49 Dupont

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TestCode: 1ugM3_TO15

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Sample ID ALCS1UG-050415	SampType: LCS	TestCo	de: 1ugM3_T(Prep Date; Runs					unNo: 9626		
Client ID: ZZZZZ	Batch ID: R9626	Tesit	No: TO-15			Analysis Dat	e' 5/4/20*	15	SeqNo: 113	1562	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Vel	%RPD	RPDLimit	Qual
Acetone	0.7900	0.30	1	0	79.0	70	130				
Aliyi chloride	0.9600	0.15	1	0	\$5.0	70	130				
Benzene	1.030	0.15	1	0	103	70	130				
Benzyl chloride	0.8000	0.15	1	0	86.0	70	130				
Bromodichloromethane	1.250	0.15	1	0	125	70	130				
Bromoform	1,270	0.15	1	0	127	70	130				
Bromomethane	1.070	0.15	1	0	107	70	130				
Carbon disulfide	1.110	0.15	1	0	111	70	130				
Carbon tetrachloride	1.220	0.15	1	Q	122	70	130				
Chlorobenzene	1.040	0.15	1	0	104	70	130				
Chloroethane	0.8300	0.15	1	0	83.0	70	130				
Chloroform	1.030	0.15	1	0	103	70	130				
Chloromethane	1.070	0.15	1	0	107	70	130				
cis-1.2-Dichloroethene	6.9400	0.15	1	0	94.0	70	130				
cis-1.3-Dichloropropene	1,140	0.15	1	0	114	70	130				
Cyclohexane	0.9400	0.15	1	0	94.0	70	130				
Dibromochloromethane	1.300	0.15	1	0-	130	70	130				
Ethyl aceiate	0.8400	0.25	1	0	84.0	70	130				
Ethylbenzene	0.9400	0.15	1	o	94.0	70	130				
Frepp 11	1,110	0.15	1	Û	111	70	130				
Freen 113	1.160	Ð 15	1	D	116	70	130				
Freen 114	1,100	0.15	s	Ó	\$10	70	130				
Freep 12	1.110	0.15	3	٥	111	70	130				
Неотале	0.9100	0.15	1	0	91.0	70	130				
Hexachloro-1.3-butadiene	1.260	0.15	1	٥	126	70	130				
Нехале	0.9300	0.15	t	0	93.0	70	130				
Isopropyi alcohol	0.8700	0.15	1	0	87.0	70	130				
m&p-Xytene	1.800	0.30	2	0	90.0	70	130				
Methyl Butyl Ketone	1,460	0.30	1	0	146	70	130				5
Methyl Ethyl Ketone	0.7900	0.30	1	a	79.0	70	130				
Methyl Isobutyl Ketone	1.240	0.30	1	٥	124	70	130				
Qualificere: Results reported are not blank corrected			E Value	above quantitation rat	nge		 Fl	Holding times for	preparation or	malysis excee	ded

ND Not Detected at the Reporting Limit

3 Analyte detocted at or below quantitation limits 5 Spike Recovery naturde accepted recovery limits

RPD outside accepted recovery limits R

CLIENT: FPM Group, Ltd.

Work Order: C1504099 49 Dupont

Project:

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TestCode: lugM3_TO15

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Sample ID ALCS1UG-050415	SampType: LCS	TestCo	de: 1ugM3_T	015 Units: ppbV		Prep Da	(8)		RunNo: 96	26	
Client ID: ZZZZZ	Batch ID: R9526	Test	No: TO-15			Analysis Da	le: 5/4/201	15	SeqNo: 11	3582	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl terl-butyl ether	0.8900	0.15	1	0	89.0	70	130				
Methylene chloride	0.7700	0.15	1	0	77.0	70	130				
o-Xylene	1.050	0.15	1	0	105	70	130				
Propylane	0.8100	Q.15	1	0	81.0	70	130				
Styrene	0.9200	0.15	1	0	92.0	70	130				
Tetrachloroethylene	1.250	0.15	1	0	125	70	130				
Tetrahydrofuran	0.7500	0.15	1	0	75.0	70	130				
Toluene	1.070	0.15	7	0	107	70	130				
trans-1,2-Orchioroethene	1.060	0,15	ĩ	Q	105	20	130				
trans-1,3-Dichloropropene	1.040	0.15	1	C	104	70	130				
Trichloroethene	1.290	C.15	1	G	129	70	130				
Vinyl acetale	0.9600	0.15	۴	0	96.0	70	130				
Vinyi Bromide	1.070	0.15	1	0	107	70	130				
Vinyl chloride	0.9500	0.15	ŧ	a	95.0	70	130				

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Qualifiers:

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Results reported are not blank corrected

J Analyte detected at or below quantitation limits

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S Spike Recovery outside accepted recovery limits

E Value above quantitation range

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ND Not Detected at the Reporting Limit

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- Elolding times for preparation or analysis exceeded 11
- R

RPD outside accepted recovery limits

CENTEK LABORATORIES, LLC

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ANALYTICAL QC SUMMARY REPORT

CLIENT: FPM Group, Ltd. Work Order: C1504099 Project: 49 Dupont

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TestCode:	1ugM3_T015
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Sample ID ALCS1UGD-050115	SampType: LCSD	TestCoo	te: 1ugM3_TC	015 Units: ppbV		Prep Da	te:		RunNo: 962	25	
Client ID: ZZZZZ	Batch ID: R9625	Tesh	lo: TO-15			Anaiysis Da	le: 5/2/201	5	SeqNo: 113	1541	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1-Trichloroethane	1.200	0.15	1	0	120	70	130	1.21	0.830	30	
1,1,2,2-Tetrachioroethane	1.230	0.15	1	G	123	70	130	1,19	3.31	30	
1,1,2-Trichlomethane	1.110	0.15	,	0	111	70	130	1.13	1.79	30	
1,1-Dichloroethane	1.190	0.15	ş	0	119	70	130	1.13	5.17	30	
1,1-Dichlorcethene	1.960	0.15	*	0	106	70	130	1.04	1.90	30	
1,2,4-Trichlorobenziene	1,100	0.15	1	0	1:0	70	130	0.91	18.9	30	
1,2,4-Trimethylbenzene	0.7500	0.15	1	0	75.0	70	130	0.74	1.34	30	
1,2-Dibromoethane	1.210	0.15	1	Ð	121	70	13D	1.19	1.67	30	
1,2-Dichlorobenzane	1.090	0.15	1	0	109	70	130	1.04	4.69	30	
1.2-Dichloroethane	1.100	0.15	1	0	110	70	130	1.04	5.61	30	
1,2-Dichloropropane	1.020	0.15	1	0	102	70	130	0 99	2,99	30	
1,3,5-Trimethylbenzene	0.9500	0.15	1	D	95.0	70	130	0.9	5.41	30	
1,3-butadiene	0.8700	0.15	1	0	87.0	70	130	0.84	3.51	30	
1,3-Dichlorobenzene	1.080	0,15	1	D	108	70	130	1.09	0.922	30	
1,4-Dichlorobenzene	1.130	0.15	1	0	113	70	130	1.1	2.69	30	
1,4-Dioxane	0.7600	0 30	1	Ô	76.0	70	130	0.74	2.67	30	
2,2,4-trimethylpentane	0.9000	0.15	1	٥	90.0	78	130	0.92	2.20	30	
4-ethyitoluene	0.8200	0.15	1	0	82.0	70	130	0.85	4 76	30	
Acetone	0.8200	0.30	1	Ô	82.0	70	130	0.73	11.6	30	
Allyi chloride	0.8000	0.15	1	0	80.0	70	130	0.78	2 53	30	
Benzene	1.050	0.15	1	0	105	70	130	1.03	1.92	ЗD	
Benzyl chloride	0.7200	D.15	1	0	72.0	70	130	0.8	10.5	30	
Bromodichloromethane	1.200	0 15	1	0	120	70	130	1.15	4.26	30	
Bromoform	1.290	Q.15	1	0	129	70	130	1.22	5.58	30	
Bromomethane	1.010	Q.15	1	0	101	70	130	0.98	3.02	30	

Qualifiers:

Results reported are not blank corrected

E Value above quantitation range

ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

J Analyte detected at or below quantitation limits

S Spike Recovery outside accepted recovery limits

R RPD outside accepted recovery limits

Page 1 of 5

CLIENT;

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FPM Group, Ltd. Work Order: C1504099 **Project:** 49 Dupont

TestCode: 1ugM3_TO15

Sample ID ALCS1UGD-050115	SampType: LCSD	TestCode. 1ugM3_T015 Units: ppbV Prep Date:						RunNo: 9625			
Client (D: ZZZZZ	Batch ID: R9625	Testh	TestNo. TO-15 Analysis Date: 5/2/2015					15	SegNo: 11	3541	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Caroon disultide	1.180	Q.15	1	0	118	70	130	1.11	6.11	30	
Carbon tetrachloride	1.230	0.15	1	0	123	70	130	1.23	o	30	
Chlorobenzene	1,150	0.15	1	0	115	70	130	1.06	8.14	30	
Chloroethane	G.9700	0,15	1	0	97.0	70	130	0.97	0	30	
Chloroform	1.060	0.15	1	٥	106	70	130	1.02	3.85	30	
Chloromethane	0.9700	0.15	1	0	97.0	70	130	0.98	1.03	30	
cis-1,2-Dichloroeihene	1.030	0.15	1	0	103	70	130	0.99	3.96	30	
cis-1,3-Dichloropropene	1.030	0.15	1	0	103	70	130	0.98	4.98	30	
Cyclohexane	0.9500	0.15	1	0	95.0	70	530	0.95	0	30	
Dibromochloromethane	1,250	0.15	1	0	125	70	130	1.26	0,797	30	
Ethyl acetate	0.9203	0.25	1	0	92 0	70	130	0.71	25.8	30	
Ethylbenzene	0.9600	0.15	1	0	96.0	70	130	0.91	5.35	30	
Freen 11	1.150	D.15	1	0	115	70	130	1.18	2.58	30	
Freon 113	1.190	0.15	1	D	119	70	130	1.13	5.17	30	
Freen 114	1,110	0.15	1	0	111	70	130	1.06	4.61	30	
Freen 12	1.120	0 15	1	Û	112	70	130	1.07	4.57	30	
tieplane	0.8400	0.15	1	0	84.0	70	130	D.84	D	30	
Hexachloro-1,3-butadiano	1.250	0.15	1	0	125	70	130	1.06	15.5	30	
Hexane	0.9300	0.15	1	0	93.0	70	130	0.94	1.07	30	
Isopropyl alcohol	0.9400	0.15	1	0	94.0	70	130	075	22.5	30	
m&p-Xviene	2.020	0.30	2	o	101	70	130	1.8	11.5	30	
Methyl Butyl Kelone	0.9300	0.30	1	0	30.0	70	130	1.01	11.5	30	
Methyl Ethyl Katone	0.8500	0.30	1	D	89 0	70	130	0.83	6.93	30	
Methyl Isobutyl Kelone	0.7400	0.30	1	0	74.0	70	130	0.72	2.74	30	
Mathyl left-bulyl ether	1.000	0.15	1	Q	100	70	130	0.91	9.42	30	
Methylene chloride	0.8700	0.15	1	0	87.0	70	130	0.87	0	30	
c-Xvlene	1.090	0.15	1	0	109	70	130	0.95	13.7	30	
Propylene	0.8300	0.15	1	٥	83.0	70	130	8.0	3.68	30	
Styrene	0.9700	0.15	1	0	97.0	70	130	0.82	16.8	30	
Tetrachloroethytens	1.250	0.15	1	υ	125	70	1.30	1.26	0.797	30	
Tetrahydrofuran	0.8900	0.15	1	¢	89.0	70	130	0.82	8.19	30	
Outslifterse Results reported are not blank corrected E Value above quantitation ma					nge		u	Holding times for	preparation or :	analysis exceed	fed

ND Not Detected at the Reporting Limit

J Analyte detected at or below quantitation limits

S Spike Recovery outside accepted recovery finits

R RPD outside accepted recovery limits

CLIENT: FPM Group. Ltd. Work Order: C1504099

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Project: 49 Dupont

TestCode: lugM3_TO15

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Sample ID ALCS1UGD-050115	SampType: LCSD	TestCode: 1ugM3_TO15 Units: ppbV			Prep Date:				RunNo: 9625		
Client ID: ZZZZZ	Batch ID: R9625	TestN	lo: TO-15		•	Analysis Dat	le 5/2/201	5	SeqNo: 113	1541	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	Hight.imit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	1.140	0.15	\$	0	114	70	130	1.07	6.33	30	
trans-1,2-Dichloroethene	1.190	0.15	T	a	119	70	130	1.09	8.77	30	
trans-1,3-Dichtoropropene	0.9800	C.15	τ	0	98.0	70	130	0.93	5.24	30	
Trichloroethane	1.230	0.15	1	0	123	70	130	1.18	4.15	30	
Vinyt acetale	1.030	0.15	1	o	103	70	130	0.95	8.08	30	
Vinyt Bromide	1.120	0.15	1	0	112	70	150	1.07	4.57	30	
Vinyl chloride	1.020	0.15	1	0	102	70	130	86.0	4.00	30	
Surr Bromofluorobenzene	0.9400	0	1	٥	94.D	70	130	D	0	30	
Sample ID ALCS1UGD-050415	SampType: LGSD	TesiCoc	ie: 1ugM3_T0	015 Units: ppbV		Ртер Оа	(e;		RunNo: 962	26	
Client ID: ZZZZZ	Batch ID: R9626	TestN	to: TO-15			Analysis Dat	te: 5/5/201	i5	SeqNo: 114	675	
Analyte	Result	POL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1, 1, 1-Trichloroethane	1.260	0.15	1	0	126	70	130	1.14	10.0	30	
1,1,2,2-Tetrachloroethane	1.140	0.15	1	0	114	70	130	1.25	10.0	30	
1,1,2-Trichtoroethane	1.240	D.15	1	D	124	70	130	1.23	0.810	30	
1,1-Dichloroethane	1.170	0.15	1	a							
1.1-Dichlorpethene	1.000		-	*	117	70	330	1.14	2.60	30	
	1.020	0.15	1	ò	117	70 70	130 130	1.14 1.05	2.60 2.90	30 30	
1,2,4-Trichtorobenzene	0.7900	0.15 0.15	1	0	117 102 79.0	70 70 70	130 130 130	1.14 1.05 0.83	2.60 2.90 4.94	30 30 30	
1,2,4-Trichtorobenzene 1,2,4-Trimethylbenzene	0.7900 0.7800	0.15 0.15 0.15	1 1 1	0 0 0	117 102 79.0 78.0	70 70 70 70	130 130 130 130	1.14 1.05 0.83 0.7	2.60 2.90 4.94 10.8	30 30 30 30	
1,2,4-Trichtorobenzene 1,2,4-Trimethylbenzene 1,2-Dibromoethene	1.020 0.7900 0.7800 1.280	0.15 0.15 0.15 0.15	1 1 1 1	0 0 0 0	117 102 79.0 78.0 128	70 70 70 70 70	130 130 130 130 130	1.14 1.05 0.83 0.7 1.14	2.60 2.90 4.94 10.8 11.6	30 30 30 30 30	
1,2,4-Trichtorobenzene 1,2,4-Trimethylbenzene 1,2-Dibromoethene 1,2-Dichtorobenzene	1.020 0.7900 0.7800 1.280 0.8800	0.15 0.15 0.15 0.15 0.15 0.15	1 1 1 1	0 0 0 0 0	117 102 79.0 78.0 128 88.0	70 70 70 70 70 70	130 130 130 130 130 130	1.14 1.05 0.83 0.7 1.14 1.05	2.60 2.90 4.94 10.8 11.6 17.6	30 30 30 30 30 30	
1,2,4-Trichtorobenzene 1,2,4-Trimethylbenzene 1,2-Dibromoethene 1,2-Dichtorobenzene 1,2-Dichtorobenzene	1.020 0.7900 0.7800 1.280 0.8800 1.040	0.15 0.15 0.15 0.15 0.15 0.15	1 1 1 1 1	0 0 0 0 0	117 102 79.0 78.0 128 88.0 104	70 70 70 70 70 70 70	130 130 130 130 130 130 130	1.14 1.05 0.83 0.7 1.14 1.05 1.05	2.60 2.90 4.94 10.8 11.6 17.6 0.957	30 30 30 30 30 30 30	
1,2,4-Trichtorobertzene 1,2,4-Trimethylbenzene 1,2-Dibromoethane 1,2-Dichtorobenzene 1,2-Dichtoroethane 1,2-Dichtoroethane	1.020 0.7900 0.7860 1.280 0.8860 1.040 1.050	0.15 0.15 0.15 0.15 0.15 0.15 0.15	1 1 1 1 1 1	0 0 0 0 0 0	117 102 79.0 78.0 128 88.0 104 105	70 70 70 70 70 70 70 70	130 130 130 130 130 130 130 130	1.14 1.05 0.83 0.7 1.14 1.05 1.05 1.16	2.60 2.90 4.94 10.8 11.6 17.6 0.957 9.96	30 30 30 30 30 30 30	
1,2,4-Trichtorobertzene 1,2,4-Trimethylbenzene 1,2-Dipromoethene 1,2-Diphtorobenzene 1,2-Diphtorobethane 1,2-Diphtoropropane 1,3,5-Trimethylbenzene	1.020 0.7900 0.7800 1.280 0.8800 1.040 1.050 0.7000	0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15	1 1 1 1 1 1 1	0 0 0 0 0 0 0	117 102 79.0 78.0 128 88.0 104 105 70.0	70 70 70 70 70 70 70 70 70 70	130 130 130 130 130 130 130 130	1.14 1.05 0.83 0.7 1.14 1.05 1.05 1.16 0.81	2.60 2.90 4.94 10.8 11.6 17.6 0.957 9.95 14.6	30 30 30 30 30 30 30 30	
1,2,4-Trichtorobertzene 1,2,4-Trimethylbenzene 1,2-Dichtorobenzene 1,2-Dichtorobenzene 1,2-Dichtoroethane 1,2-Dichtoropropane 1,3,5-Trimethylbenzene 1,3-butadiene	1.020 0.7900 0.7800 1.280 0.8800 1.040 1.050 0.7000 0.7900	0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15	1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0	117 102 79.0 78.0 128 88.0 104 105 70.0 79.0	70 70 70 70 70 70 70 70 70 70 70	130 130 130 130 130 130 130 130 130 130	1.14 1.05 0.83 0.7 1.14 1.05 1.05 1.16 0.81 0.78	2.60 2.90 4.94 10.8 11.6 17.6 0.957 9.95 14.6 1.27	30 30 30 30 30 30 30 30 30 30	
1,2,4-Trichtorobertzene 1,2,4-Trimethylbenzene 1,2-Dichtorobenzene 1,2-Dichtorobenzene 1,2-Dichtorobenzene 1,2-Dichtoropropane 1,3,5-Trimethylbenzene 1,3-butadiene 1,3-Dichtorobenzene	1.020 0.7900 0.7800 1.280 0.8800 1.040 1.050 0.7000 0.7900 0.9000	0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15	1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0 0 0	117 102 79.0 78.0 128 88.0 104 105 70.0 79.0 \$0.0	70 70 70 70 70 70 70 70 70 70 70	130 130 130 130 130 130 130 130 130 130	1.14 1.05 0.83 0.7 1.14 1.05 1.05 1.16 0.81 0.78 1.06	2.60 2.90 4.94 10.8 11.6 17.6 0.957 9.95 14.6 1.27 16.3	30 30 30 30 30 30 30 30 30 30	
 1,2,4-Trichtorobenzene 1,2,4-Trimethylbenzene 1,2-Dichtorobenzene 1,2-Dichtorobenzene 1,2-Dichtoropropane 1,3-Dichtoropropane 1,3-Dittatiene 1,3-Dittatiene 1,3-Dichtorobenzene 1,4-Dichtorobenzene 	1.020 0.7900 0.7800 1.280 0.8860 1.040 1.050 0.7600 0.7900 0.9000 0.9000 0.8700	0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15	1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0 0 0	117 102 79.0 78.0 128 88.0 104 105 70.0 79.0 90.0 87.0	70 70 70 70 70 70 70 70 70 70 70 70 70	130 130 130 130 130 130 130 130 130 130	1.14 1.05 0.83 0.7 1.14 1.05 1.05 1.16 0.81 0.78 1.06 1.03	2.60 2.90 4.94 10.8 11.6 17.6 0.957 9.95 14.6 1.27 16.3 16.8	30 30 30 30 30 30 30 30 30 30 30 30	
1,2,4-Trichtorobenzene 1,2,4-Trimethylbenzene 1,2-Dichtorobenzene 1,2-Dichtorobenzene 1,2-Dichtoropropane 1,2-Dichtoropropane 1,3,5-Trimethylbenzene 1,3-Duchtorobenzene 1,4-Dichtorobenzene 1,4-Dichtorobenzene 1,4-Dicktorobenzene 1,4-Dicktorobenzene 1,4-Dicktorobenzene	1.020 0.7900 0.7800 1.280 0.8860 1.050 0.7000 0.7900 0.9000 0.8700 < 0.30	0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15	1 1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	117 102 79.0 78.0 128 88.0 104 105 70.0 79.0 90.0 87.0 6	70 70 70 70 70 70 70 70 70 70 70 70 70 7	130 130 130 130 130 130 130 130 130 130	1.14 1.05 0.83 0.7 1.14 1.05 1.05 1.16 0.81 0.78 1.06 1.03 1.29	2.60 2.90 4.94 10.8 11.6 17.6 0.957 9.95 14.6 1.27 16.3 76.3	30 30 30 30 30 30 30 30 30 30 30 30	5

Qualifiers:

. Results reported are not blank corrected

E Value above quantitation range

ND Not Detected at the Reporting Limit

11 Holding times for preparation or analysis exceeded

R RPD nutside accepted recovery listits

J Analyte detected at or below quantitation limits S Spike Recovery outside accepted recovery limits

Page 3 of 5

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CLIENT: FPM Group, Ltd. Work Order: C1504099 Project: 49 Dupont

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TestCode: lugM3_TO15

Sample ID ALCS1UGD-050415	SampType. LCSD	TestCode: 1ugM3_T015 Units: ppbV			Prep Date:				RunNo: 9625		
Client ID: ZZZZZ	Batch ID: R9626	Tast	vio: TO-15			Analysis Da	ie: 5/5/201	5	SeqNo: 114	1676	
Analyle	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-ethyltoluene	0.7700	0.15	1	0	77.0	70	130	0.82	6.29	30	
Acetone	0.7630	0.30	1	0	75.0	70	130	0.79	3.87	30	
Ally1 chloride	0.7300	0.15	3	0	73.0	70	130	0.96	27.2	30	
Benzene	1.050	0.15	1	0	105	70	130	1.03	1.92	30	
Benzyl chloride	1.070	0.15	1	0	107	70	130	0.8	28.9	30	
Bromodichloromethane	1.250	0.15	1	0	125	70	130	1.25	0	30	
Bromoform	1.270	0.15	1	0	127	70	:30	1.27	0	30	
Bromomelhane	1.020	9.15	1	Ð	102	70	130	1.07	4,78	30	
Carbon disulade	1.090	0.15	Ť	0	109	70	130	1.11	1.82	30	
Carbon tetrachloride	1.230	0.15	5	0	123	70	130	1.22	0.816	30	
Chlorobenzene	1.103	0.15	1	0	110	70	130	1.04	5.61	30	
Chloroethane	0.9000	0.15	1	0	90.0	70	130	0.83	8.09	30	
Chloroform	1.030	0.15	1	D	F03	70	130	1.03	0	30	
Chloromethane	0.9400	0.15	1	0	94.0	70	130	1.07	12.9	30	
cis-1,2-Dichloroelhene	0.9700	0 15	1	0	97.0	70	130	0.94	3,14	30	
cis-1,3-Dichloropropene	0.9600	0.15	1	0	96.0	70	130	1.14	17.1	30	
Cyclohexane	0.9000	0 15	1	D	90.0	70	130	0.94	4.35	30	
Dipromochloromethane	1.250	0.15	1	0	125	70	130	1.3	3.92	30	
Ethyl acotato	1.010	0.25	1	0	101	70	130	9.84	18.4	30	
Ethylbenzene	0.9200	0.15	1	0	92.0	70	130	0.94	2.15	30	
Freon 11	1.220	0.15	1	0	122	70	130	1.11	9.44	30	
Freon 113	1.220	D. 15	1	D	122	70	130	1.16	5.04	30	
Freen 114	1.080	0.15	5	0	108	70	130	1.1	1.83	30	
Freon 12	1.150	0.15	5	D	115	70	130	1.11	3.54	30	
Heplane	0.8500	0 15	1	0	85.0	70	130	0.91	6.82	30	
Hexachtoro-1,3-butadiene	0088.0	0.15	1	0	88.0	70	130	1.26	35.5	30	R
Hexane	0.8500	D 15	1	0	86.0	70	139	0.93	7.82	30	
isopropyl alcohol	0.7500	0.15	1	0	75.0	70	130	0.87	14.8	30	
m&p-Xylene	1.590	0.30	2	0	79.5	70	130	1.8	12 4	30	
Methyl Bulyl Ketone	< 0.30	0.30	1	0	a	70	139	1.46	0	30	S
Methyl Ethyl Kelone	0.7500	Q.30	1	Q	75.0	70	130	0.79	5,19	30	

Qoulifiers:

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1

Results reported are not blank corrected

E Value above quantitation range

ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

Analyte detected at or below quantitation limits

S Spike Recovery outside second duration in the

R RPD outside accepted recovery limits

..... FPM Group, Ltd.

C1504099 Work Order: Project: 49 Dupont

CLIENT:

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TestCode: 1ugM3_TO15

Sample ID ALCS1UGD-050415	SampType: LCSD	TasiCo	te indw3_10	015 Units: ppbV		Prep Dat	e:		RunNo: 962	26	
Client ID: ZZZZZ	Batch ID: R9628	Test	to: TO-15			Analysis Dal	e: 5/5/201	5	SeqNo: 114	4676	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl Isobulyl Kelone	< 0.30	0.30	1	0	0	70	130	1.24	0	30	s
Methyl tert-bulyl other	0.9100	0.15	1	0	91.0	70	130	0.89	2.22	30	
Methylene chloride	0.7700	0.15	1	â	77.0	70	130	0.77	0	30	
o-Xylene	0.9000	0.15	1	0	90.0	70	130	1 05	15.4	30	
Propylene	0.9400	0.15	1	Ċ	94.0	70	130	0.81	t4.9	30	
Styrene	0.7700	0.15	1	0	77.0	70	130	0 92	17.8	30	
Tetrachloroethylene	1.250	0.15	1	0	125	70	130	1.25	σ	30	
Tetrahydrofuran	0.8300	0.15	1	0	83.0	70	130	0.75	10.1	30	
Toluena	1.110	0.15	1	0	111	70	130	1 07	3.67	30	
trans-1,2-Dichloroethene	1.210	0.15	1	Q	121	70	130	1.06	13.2	30	
trans-1.3-Dichloropropene	1.030	0.15	1	0	103	70	130	1.04	0.966	30	
Trichloroethene	1.270	0.15	1	0	127	70	130	1.29	1.56	30	
Vinyl acetate	0.8600	0.15	1	0	86.0	70	130	D 96	11.0	30	
Vinyl Bromide	1.140	0.15	1	Û	114	70	130	1.07	6.33	30	
Vinyl chloride	0.9600	0.15	1	0	96.0	70	130	0.95	1.05	30	
Sutt: Bromofluorobenzene	0.8600	0	1	o	86.0	70	130	0	0-	30	

..... Qualifiers:

Results reported are not blank conjected

.. E Value above quantitation range

14 Holding tames for preparation or analysis exceeded

R RPD outside accepted recovery fimits

Analyte detected at or below quantitation limits 5

S Spike Receivery outside accepted recovery limits ND Not Detected at the Reporting Limit

Page 5 of 5

Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA\AM050425.D Acq On : 5 May 2015 12:28 am Sample : ALCS10GD-050415 Vial: 20 Operator: RJP Sample : ALCS1UGD-050415 Misc : A415_1UG Inst : MSD #1 Multiplr: 1.00 MS Integration Params: RTEINT.P Quant Time: May 07 13:29:39 2015 Quant Results File: A415_1UG.RES Quant Method : C:\HPCHEM\1\METHODS\A415 1UG.M (RTE Integrator) Title : TG-15 VOA Standards for 5 point calibration Last Update : Tue Apr 28 11:01:13 2015 Response via : Initial Calibration DataAcq Meth : 10G RUN Internal Standards R.T. QIon Response Conc Units Dev(Min)
 1) Bromochloromethane
 10.30
 128
 14067m *
 1.00 ppb
 0.03

 35) 1,4-difluorobenzene
 12.51
 114
 61103
 1.00 ppb
 0.03

 50) Chlorobenzene-d5
 16.94
 117
 48890
 1.00 ppb
 0.03
 System Monitoring Compounds 66) Bromofluorobenzene 18.50 95 32334 0.86 ppb 0.03 Spiked Amount 1.000 Range 70 - 130 Recovery = 86.00%

 Spiked Amount
 1.000
 Range
 70 - 130
 Recovery
 =
 86.00%

 Target Compounds
 Ovalue

 2) Propylene
 4.47
 41
 13220
 0.94 ppb
 91

 3) Freon 12
 4.52
 85
 72410
 1.15 ppb
 98

 4) Chloromethane
 4.73
 85
 56307
 1.08 ppb
 94

 6) Vinyl Chloride
 4.95
 62
 13602
 0.79 ppb
 90

 8) I.3-butadiene
 5.05
 39
 12213
 0.79 ppb
 92

 9) Bromomethane
 5.42
 94
 19817
 1.02 ppb
 95

 10) Chloroethane
 5.61
 64
 5899
 0.50 ppt
 4
 88

 11) Ethanol
 5.75
 45
 5295
 1.03 ppt
 80

 12) Arcolein
 6.37
 56
 6053mf
 0.76 ppt
 45

 13) Preon 11
 6.22
 100
 70 ppt
 83

 14) Proon 11
 6.22
 100
 70 ppt
 83

 14) Proon 11
 6.23
 107
 70 ppt
 83

 15) Acetone
 Target Compounds Ovalue (#) = qualifier out of range (m) = manual integration AM050425.D A415_1UG.M Wed Jun 03 09:47:53 2015 MSD1

Data File : C:\HPCHEM\1\DATA\AM050425.D Acq On : 5 May 2015 12:28 am Sample : ALCS10GD-050415 Misc : A415_10G Vial: 20 Operator: RJP Inst : MSD #1 Multiplr: 1.00 MS Integration Parame: RTEINT.P Quant Time: May 07 13:29:39 2015 Quant Results File: A415 1UG.RES Quant Method : C:\HPCHEM\1\METHODS\A415_1UG.M (RTE Incegrator) Title : TO-15 VOA Standards for 5 point calibration Last Update : Tue Apr 28 11:01:13 2015 Response via : Initial Calibration DataAcq Meth : 10G_RUN

	Compound	R.T.	QION	Response	Cone Unit	Qvalue
48)	trans-1,3-dichloropropene	15.01	75	23940	1.03 ppb	5454
49)	1,1,2-trichloroethane	15.31	97	28032	1.24 ppb	97
51)	Toluene	15.07	92	34610	1.11 ppb	95
53)	Dibromochloromethane	15.99	129	59342m 🖞	1.25 ppb	
55)	1,2-dibromoethane	16.24	107	41404	1.28 ppb	98
56)	Tetrachloroethylene	16.05	164	33552m	1.25 ppb	
57)	Chlorobenzene	16.99	112	47833	1.10 ppb	99
59)	Bthylbenzene	17.22	91	67053	0.92 ppb	98
60)	m&p-xylene	17.41	91	93994	1.59 opb	96
61)	Nonane	17.74	43	29012	0.81 ppb	98
62)	Styrene	17.83	104	29955	0.77 ppb	95
63)	Bromoform	17.96	173	64941m	1.27 ppb	
61)	o-xylene	17.86	91	60960	0.90 ppb	100
65)	Cumene	18,38	105	62292	0.75 ppb	97
67)	1,1,2,2-tetrachloroethane	18.29	83	53976	1.14 ppb	99
68)	Propylbenzene	18.91	91	72094m	0.79 ppb	
69)	2-Chlorotoluene	18.95	91	71242m	0.95 ppb	
70)	4-ethyltoluene	19.06	105	55513m	0.77 ppb	
71)	1,3,5-trimethylbenzene	19.12	105	60366m ;	0,70 ppb	
72)	1,2,4-trimethylbenzene	19.56	105	52097m	0.78 ppb	
73)	1.3-dichlorobenzene	19.86	146	39317	0.90 ppb	98
74}	benzyl chloride	19.93	91	43180m	1.07 ppb	
75)	1,4-dichlorobenzene	20.00	146	34561	0.87 ppb	96
77}	1,2-dichlorobenzene	20.31	146	39964	0.88 ppb	94
78}	1,2,4-trichlorobenzene	22.38	180	14328m	0.79 ppb	
80)	Hexachloro-1,3-butadiene	22.43	225	39520	0.88 ppb	98

(i) = gualifier out of range (m) = manual integration (+) = signals summed AM050425.D A415 1UG.M Wed Jun 03 09:47:53 2015 MSD1



280 Franklin Street, Brooklyn, NY DATA USABILITY SUMMARY REPORT June 19, 2015, 2015 Soil Vapor Samples (SDG No. C1506069) Lab Report # C1506069

This data usability summary report (DUSR) was prepared in accordance with *Appendix 2B* of New York State Department of Environmental Conservation (NYSDEC) DER-10 using the entire original laboratory report, including the sample data summary report and the extended data package. The sampling event included one primary soil vapor sample and associated quality assurance / quality control (QA / QC) sample collected on June 19, 2015.

Sample Collection

The samples were collected in labeled laboratory-provided sample containers; no issues with sample containers or labeling were reported by the laboratory. All of the sample canisters exhibited measurable vacuums at the end of the sampling period.

Sampling procedures, including collection of field QA / QC samples, were reported to have been in accordance with the procedures presented in the NYSDEC-approved Quality Assurance Project Plan (November 2011) for this project. All sample collection was conducted under Chain of Custody (COC) procedures.

Field QA / QC samples, including a blind duplicate sample, were collected to evaluate field sampling methods and laboratory procedures.

Sample Analyses

The samples were transmitted to and analyzed by Centek Laboratories, LLC at their Syracuse, New York facility, which is New York State Department of Health-certified for the analyses performed. The samples were prepared and analyzed for volatile organic compounds (VOCs) (including isopropyl alcohol [IPA]) using EPA Method TO-15. The analytical method and analytes are appropriate for the intended use of the data. The sample holding times were met and no problems with sample receipt or handling were reported by the laboratory.

All of the soil vapor samples required dilution for 1,4-dichlorobenzene, acetone, benzene, carbon disulfide, cyclohexane, heptane, hexane, methyl ethyl ketone and toluene. The reporting limits have been adjusted accordingly.

QA / QC Results

Surrogate Samples

Surrogate recoveries and internal standard responses were elevated and did not meet criteria for samples C1506069-001A and C1506069-002A, apparently due to the presence on a non-target, interfering compound(s). The affected samples were analyzed at elevated dilutions and the resulting analyses met criteria. These results indicate that the data are anticipated to be accurate.



Trip Blanks

The laboratory did not include a trip blank canister for the sampling program; however, as only one soil vapor sample was collected, a trip blank was not necessary to evaluate for the cross-contamination of samples during shipment.

Blind Duplicate Samples

A blind duplicate sample was collected and utilized to evaluate the precision of the laboratory analyses. The results from the duplicate sample (SG-5D) and the associated parent sample (SG-5) are very similar for all analytes.

Based on the blind duplicate sample results, the laboratory results are likely to be precise for all analytes.

Method Blank Samples

Method blank (MB) samples were analyzed by the laboratory to evaluate for the potential for cross contamination associated with the sample preparation and analysis. The MB results did not show concentrations of analytes above their method detection limits and / or the reporting limits. Based upon the MB data, cross contamination associated with sample preparation and analysis does not appear to present a concern.

Laboratory Control Samples and Duplicates

Laboratory control samples (LCSs) and duplicates (LCSDs) were used by the laboratory to verify the accuracy and precision of the analyses. The LCS / LCSD results were all within established guidelines, with the following exception:

- The spike recovery Relative Percent Difference (%REC) failed limits in the LCS and LCSD for ALCS1UG-062515 for 1,4-dioxane (low %REC), methyl butyl ketone (low %REC) and methyl isobutyl ketone (low %REC).
- The %RPD failed limits in the LCSD for ALCS1UG-062515 for methyl tert-butyl ether (high %REC).

Based upon the LCS / LCSD results, only one VOC was detected in the field sample (i.e., methyl isobutyl ketone). As this VOC was detected in both the field sample and associated blind duplicate sample at very similar and low concentrations, the data do not appear to have been significantly affected by laboratory-related accuracy or precision issues.



Questions and Responses as per DER-10

1. Is the data package complete as defined under the current requirements for the NYSDEC ASP Category B or USEPA CLP deliverables?

The data package is complete. The external and internal chain of custody forms are present and complete. The case narrative and sample analysis summaries are present and complete. The analytical QA / QC summary forms, including surrogate recovery forms, LCS forms, IDL forms, initial and continuing calibration summary forms, standards raw data, tuning criteria report, and MB data are all present and complete. The data report forms, including sample prep logs, injection logs, and examples of the calculations used to determine the sample concentrations are all present and complete. The raw data used to identify and quantify the contract-specified analytes are present and complete.

2. Have all holding times been met?

All samples were received and analyzed within the EPA-recommended holding times for the analyses performed.

3. Do all the QC data: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data, fall within the protocol-required limits and specifications?

No – Although the majority of QC data were found to fall within the protocol-required limits and specifications, minor exceptions were noted above; however, these exceptions do not appear to significantly affect the data set.

4. Have all of the data been generated using established and agreed-upon analytical protocols?

Yes - all of the data were generated using TO-15 for VOCs.

5. Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?

Yes – a representative number of raw data results were compared with the reported data results to confirm that the reported analytical results (identification and quantification) are substantiated by the raw data.

6. Have the correct data qualifiers been used?

Yes – results below the quantitation limit and above the method detection limit have been J-qualified.

7. Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheets from the data package been attached to the DUSR?



Yes – exceedances have been noted in the DUSR and the corresponding QC summary sheets are attached.

Conclusions

The soil vapor / QA/QC samples were reported to have been collected in accordance with the NYSDEC-approved QAPP for this project. No field or laboratory conditions occurred that would result in non-valid analytical data other than as noted above. The data appear to be adequate for their intended purpose.

Attachments



TABLE 3.2.4.1 SOIL VAPOR ANALYTICAL DATA - 2015 FORMER NUHART PLASTIC MANUFACTURING FACILITY, SITE #224136 280 FRANKLIN STREET, BROOKLYN, NEW YORK

Sample Number	SV-1	SV-1D (duplicate)	SV-2	SV-3	SV-4	Trip Blank	Ambient	SG-5	SG-5D (duplicate)	Indoor Air Background Levels,	
Date		4/24/15						6/19/15		Commercial *	
Volatile Organic Compounds in mic	rograms per	cubic meter									
1,1,1-Trichloroethane	ND	ND	2.1	ND	ND	ND	ND	ND	ND	2.6 - 33.0	
1,2,4-Trimethylbenzene	9.8	11	9.3	9.8	190	ND	ND	4.1	3.9	1.7 - 13.7	
1,3,5-Trimethylbenzene	2.3	2.3	2.9	3.3	83	ND	ND	2.4	2.5	ND - 4.6	
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	150	150	ND - 1.7	
2,2,4-Trimethylpentane	38	43	76	8.9	44	ND	ND	6.1	ND	-	
4-Ethyltoluene	3.7	3.8	5.5	5.9	110	ND	ND	1.3	1.2	ND - 5.9	
Acetone	100	120	490	510	570	ND	12	480	500	32.4 - 120.2	
Benzene	1,600	1,600	19	11	41	ND	0.45 J	60	67	2.1 - 12.5	
Bromodichloromethane	ND	ND	0.80 J	ND	ND	ND	ND	ND	ND	-	
Carbon disulfide	0.84	1.1	17	8.7	15	ND	ND	22	20	ND - 6.4	
Carbon tetrachloride	ND	ND	ND	ND	0.69 J	ND	0.75 J	ND	ND	ND - 0.7	
Chloroform	ND	ND	16	ND	1.2	ND	ND	ND	ND	ND - 1.4	
Chloromethane	ND	ND	ND	0.85	ND	ND	0.87	ND	ND	2.1 - 4.4	
cis-1,2-Dichloroethene	11	11	3.2	ND	ND	ND	ND	6.0	6.0	ND	
Cyclohexane	38	42	7.9	3.6	8.3	ND	ND	24	28	-	
Ethyl acetate	6.8 J	5.8 J	20	120	160	ND	0.54 J	ND	ND	ND - 9.5	
Ethylbenzene	11	10	48	14	330	ND	ND	5.1	5.1	ND - 7.6	
Freon 11 (Trichlorofluoromethane)	ND	ND	1.7	1.6	5.7	ND	1.7	1.1	0.90	ND - 54.0	
Freon 113 (Trichlorotrifluoroethane)	ND	ND	1.8	ND	ND	ND	ND	ND	ND	ND - 1.8	
Freon 12 (Dichlorodifluoromethane)	ND	ND	2.2	2.9	2.4	ND	2.9	3.4	2.6	4.8 - 32.9	
Heptane	25	27	40	20	32	ND	0.49 J	23	24	ND - 3.1	
Hexane	74	78	25	ND	ND	ND	ND	47	42	1.6 - 15.2	
Isopropyl alcohol	ND	ND	ND	49	53	ND	1.5	ND	ND	-	
Xylene (m,p)	37	31	100	42	1,200	ND	ND	9.4	9.4	4.1 - 28.5	
Methyl Ethyl Ketone	ND	ND	56	55	50	ND	1.1	47	37	3.3 - 13.5	
Methyl Isobutyl Ketone	ND	ND	23	9.4 J	10 J	ND	ND	3.2	2.5	-	
Methylene chloride	ND	ND	4.0	3.8	4.9	ND	0.80	1.0	0.80	ND - 16.0	
Xylene (o)	11	10	25	12	520	ND	ND	6.6	6.8	ND - 11.2	
Tetrachloroethylene	8.7	8.9	7.9	0.88 J	ND	ND	ND	6.0	6.3	ND - 25.4	
Toluene	60	56	240	80	1,100	ND	2.9	9.4	8.3	10.7 - 70.8	
Trichloroethene	140	120	1,100	0.81	ND	ND	ND	9.4	9.9	ND - 6.5	
Vinyl Chloride	44	43	ND	ND	ND	ND	ND	ND	ND	ND	

Notes:

Only compounds detected in one or more samples are reported. See laboratory reports for complete data.

ND = Not detected.

J = Analyte detected at or below quantitation limits.

- = Background concentration not established.

FPM



Date: 29-Jul-15

Project: 48 Commercial

CASE NARRATIVE

Lab Order: C1506069

Samples were analyzed using the methods outlined in the following references:

Centek Laboratories, LLC SOP TS-80

Compendium of Methods for the Determination of Toxic Organic Compounds, Compendium Method TO-15, January 1999

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objective except as indicated in the corrective action report(s). All samples were received and analyzed within the EPA recommended holding times. Test results are not Method Blank (MB) corrected for contamination.

NYSDEC ASP samples:

Canisters should be evacuated to a reading of less than or equal to 50 millitorr prior to shipment to sampling personnel. The vacuum in the canister will be field checked prior to sampling, and must read 28" of Hg (\pm 2", vacuum, absolute) before a sample can be collected. After the sample has been collected, the pressure of the canister will be read and recorded again, and must be 5" of Hg (\pm 1", vacuum, absolute) for the sample to be valid. Once received at the laboratory, the canister vacuum should be confirmed to be 5" of Hg, \pm 1". Please record and report the pressure/vacuum of received canisters on the sample receipt paperwork. A pressure/vacuum reading should also be taken just prior to the withdrawal of sample from the canister, and recorded on the sample preparation log sheet. All regulators are calibrated to meet these requirements before they leave the laboratory. However, due to environmental conditions and use of the equipment Centek can not guarantee that this criteria can always be achieved.

See Corrective Action: [3256] 1S did not meet criteria.

Centek Laboratories, LLC

Corrective Action Report

Russell Pellegrino Corrective IS did not meet criteria. IS was high and did not me chromatographic evidence of interfering compounds. Samples were analyzed fun a canister it is difficult to se Russell Pellegrino	Department: MSVOA Action Description eet criteria for samples C1506069-001 & 002. Based on the , it appears that the contamination is from a high concentration of ther as dilutions with criteria being met. Due to matrix being in e any signs of problems. All sets of data submitted. Completion Date: 26-Jun-15
Corrective IS did not meet criteria. IS was high and did not me chromatographic evidence of interfering compounds. Samples were analyzed fun a canister it is difficult to se Russell Pellegrino	Action Description eet criteria for samples C1506069-001 & 002. Based on the , it appears that the contamination is from a high concentration of ther as dilutions with criteria being met. Due to matrix being in e any signs of problems. All sets of data submitted. Completion Date: 26-Jun-15
IS did not meet criteria. IS was high and did not me chromatographic evidence of interfering compounds. Samples were analyzed fur a canister it is difficult to se Russell Pellegrino	et criteria for samples C1506069-001 & 002. Based on the it appears that the contamination is from a high concentration of ther as dilutions with criteria being met. Due to matrix being in e any signs of problems. All sets of data submitted. Completion Date: 26-Jun-15
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Samples were analyzed fur n a canister it is difficult to se .: Russell Pellegrino Cli	rther as dilutions with criteria being met. Due to matrix being in e any signs of problems. All sets of data submitted. Completion Date: 26-Jun-15
Russell Pellegrino	Completion Date: 26-Jun-15
Cli	
	ent Notification
Quality	Assurance Review
Monitor all quality control fo action taken. All sets of data	r sample matrix interference. At this time no further corrective a submitted.
Appr	oval and Closure
	n Required: No No Quality e Type: Deficiency Monitor all quality control fo action taken. All sets of data

 Approval and Closure

 Technical Director / Deputy Tech. Dir.:
 Use Date: 27-Jun-15

 QA Officer Approval:
 William Dobbin Vick Scala
 QA Date: 27-Jun-15

 Last Updated BY: russ
 Updated: 19-Aug-2015 9:48 AM
 Reported: 19-Aug-2015 9:49 AM

		Centek Chain of Custody				Site Name: 48 COA	MERCIAL Detection Limit	Report Level
Center Laboratones		143 Midler Parl	k Drive			Project:	5ppby	Level I
and the second s		Syracuse, NY 1	3206			PO#: 11346-	15-10 100/143	
and the second sec		315-431-9730		Vapor Intrusio	n & IAQ	Quote # Q-CD /	RO JUGIMS +TCE .2	5 Cat "B" Like
		www.CentekLa	abs.com			Other: 01/	5096	
TAT Turneround Timer	Check	Rush TAT	Due	Company:	Pm		Company:	
5 Business Dave	M	Surcharge %	Late:	Basadia			Check Here II Same: K	
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3 Business Days		50%		City, State, Zi	9 9 Mari	mi Anno	City, State, Zip	
2 Business Days	$\overline{\Box}$	75%		Kon	Fonkome	NY 11779		
"Next Day by 5pm		100%		Email:	WKOSK: @	PAN- GREEP. LOM	Email:	
"Next Day by Noon		150%						
*Same Day		200%		Phone:	516-381	-3535	Phone:	
*For Same and Next Day Ta	AT Pleas	e Notify Lab		Canister	Regulator	Analysis Request	Comments	Vacuum
Sample ID		Date	Sampled	Number	Number			Start/Stop
					1			
56-5		6/19/15		1189	149	10-15		-30/+5
SG-5D		4		191	110	10-15		-30/-2
							1	
				1	1			
								1
				5				1
				1				
				1	1			
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h				† · · ·	1		· · · · ·	
Chain of Custody	T	Print Name			Signature		Date/Time Courier: CIRCLE O	NE
Sampled by:	-	Town But	es ki		Sond S!	Sulen	Glindis HE FedEX UPS P	ickup/Dropoff
Relinquished by:		Din Bik.	ask.		2015	Bun	Coligher State For LAB USE ONLY	
Received at Lab by:	N	ICK M	ru Dar	ZINO	MI	~	6-23-15 Work Order # C	(506069 3

*** By signing Centek Labs Chain of Custody, you are accepting Centek Labs Terms and Conditions listed on the reverse side.

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CENTEK LABORATORIES, LI	LC	Sample Receipt C	Checklist
Client Name FPM - RONRONKOMA		Date and Time Receive	6/23/20145
More Order Number C1585089		Received by NM	
Chacklist completed by	6-23-15 Date	Reviewed by	6/23/15 Dale
Matrix: Carrier	name: FedEx Ground		
Shipping containet/cooler in good condition?	Yes 🗹	No 🗌 Not Presen 🗋	
Custody seals intact on shippping container/cooler?	Yes 🗔	No 🗋 🔹 Not Presen 🗹	
Custody seals intact on sample bottles?	Yes 🗔	No 🖸 🔹 Not Presen 🖉	
Chain of custody present?	Yes 🗹	No 🚍	
Chain of custody signed when relinquished and received?	Yes 🔀	No 🔤	
Chain of custody agrees with sample tabets?	Yes 😥	No El	
Samples in proper container/bottle?	Үев 🗭	No El	
Sample containers intect?	Yes 🗹	No 🖸	
Sufficient sample volume for indicated test?	Yes 🗹	No []]	
All samples received within holding time?	Yes 🐱	No L	
Container/Temp Blank temperature in compliance?	Yes X	No	
Water - VOA vials have zero headspace? No VOA via	als submitted 😿	Yes 💭 No 🗔	
Water - pH acceptable upon receipt?	Yes 门	No 🗹	
Adjusted?	Che	cked by	
Any No and/or NA (not applicable) response must be detailed	in the comments section	be	
Client contected Date contacted	ed:	Person contacted	
Contacted by: Regarding:			
Comments:			
Corrective Action			



Date: 23-Jul-15

QC SUMMARY REPORT SURROGATE RECOVERIES

CLIENT:	FPM Group, Ltd.			
Work Order:	C1506069			
Project:	48 Commercial			
Test No:	TO-15	Matrix: A		
Sample ID	BR4FBZ			
ALCSIUG-06251	5 - 4 6 5 101			
ALCSIUGD-0625	15_ L C SD 105	1		
AMBIUG-062515	- M.3 80.0		 	···· ···· ··· ···· ···· ···· ···· ····· ····
C1506069-001A	110	6L		
C1506069-002A	117			



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Centek Laboratories, LLC GC/MS QA-QC Check Report

Tune File : C:\HPCHEM\1\DATA2\AM062503.D Tune Time : 25 Jun 2015 9:47 am

Daily Calibration File : C:\HPCHEM\1\DATA2\AM062503.D

			(BFB)		(IS1) 33051	(IS2) 130384	(IS3) 123436
File	Sample	DL	Surrogate	Recovery %	Internal Sta	ndard Respo	mëës
AM062504.D	ALCS1UG-06251	===## 5	101	***********	33350	136629	122980
AM062505.D	AMB10G-062515		80		29331	122201	109057
AM062518.D	C1506069-001A		120 2	failed	68613*	338624*	393133*
AM062519.D	C1506069-002A		117 3	Diller	90815*	452355*	492999*
AM062532.D	C1506069-001A	10x	108	7	27072	126057	124515
AM062534.D	C1506069-002A	10×	104	5	29554	125986	131074
AM062536.D	C1506069-001A	90x	84	(OF	30156	120279	108421
AM062537.D	C1506069-002A	90x	86		29111	122661	108725

t - fails 24hr time check * - fails critería

Created: Thu Jul 23 09:54:25 2015 MSD #1/
CENTEK LABORATORIES, LLC

FPM Group, Ltd.

48 Commercial

C1506069

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ANALYTICAL QC SUMMARY REPORT

TestCode: lugM3_TO15

Sample ID AMB1UG-062515	SampType: MBLK T	es(Code:	1ugM3_T	015 Units: ppbV	Prep Date:				RunNo: 980)4	
Client ID: ZZZZZ	Batch ID: R9804	TestNo:	TO-15			Analysis Da	le: 6/25/2	015	SeqNo: 11	631	
Analyle	Result	POL S	SPK value	SPK Rel Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimil	Qual
1, t, 1-Trichloroethane	< 0 15	0.15									
1,1.2,2-Tetrachloroethane	< 0.15	0.15									
1, 1, 2-Trichloroethane	< 0.15	0.15									
1,7-Dichloroethane	< 0.15	0.35									
1,1-Dichloroethene	< 0.15	0.15									
1,2.4-Trichlorobenzene	< 0.15	0.15									
1,2,4-Trimethylbenzene	< D.15	0.15									
1,2-Dibromoethane	< 0.15	0.15									
1.2-Dichlorocenzene	< 0.15	0.15									
1,2-Dichloroethane	< 0.15	0.15									
1,2-Dichloropropane	< 0.15	0.15									
1,3,5-Trimethylbenzene	< 0.15	0.15									
f.3-buladiene	< 0.15	0.15									
1.3-Dichlorobenzene	< 0.15	0.15									
1,4-Dichlorobenzene	< 0.15	0.15									
1,4-Dioxane	< 0.30	0.30									
2,2,4-trimethylpenlane	< 0.15	0.15									
4-ethylloluene	< 0.15	0.15									
Aceiona	< 0.30	0.30									
Aliy) chloride	< 0.15	0.15									
Senzene	< 0.15	0.15									
Benzyl chloride	< 0.15	0.15									
Bromodichloromethane	< 0.15	0.15									
Bromotorm	< 0.15	0.15									
Stomomethane	< 0,15	0.15									
Ouslitiers: Results repo	nted are not blank corrected		E Value	above quantitation rar			fer .	Holding times for	preparation or a	malysis execcé	leci
J Analyte dete	cted at or below quantitation limits		ND NOLD	etected at the Reportin	ag Limit		R	RPD cutside accept	ned recovery lin	mils	

Work Order: Project:

CLIENT:

S Spike Recovery outside accepted recovery limits

Page 1 of 3

CLIENT: FPM Group, Ltd.

Work Order: C1506069

Project: 48 Commercial

Page 32 of 166

Sample ID AM81UG-062615	SampType: MBLK TestCode: tugM3_T015 Units: ppbV					Prep Da	6e:	RunNo. 9804				
Cilent ID: ZZZZZ	Batch ID: R9804	TestNo:	TO-15			Analysis Da	te: 6/25/20	115	SeqNo: 11	5531		
Analyte	Result	POL	SPK value	SPK Ref Vaf	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Quat	
Carbon disulfide	< 0.15	0.15										
Carbon tetrachloride	< 0.15	0.15										
Chlorobenzene	< 0.15	0.15										
Chloroethane	< 0.15	0.15										
Chloroform	< 0.15	0.15										
Chloromethane	< 0.15	0.15										
cis-1,2-Dichtoroethene	< 0.15	0.15										
cis-1.3-Dichloropropene	< 0.15	0.15										
Cyclohexane	< 0.15	0.15										
Dibromochloromethane	< 0.15	0.15										
Ethyl acelate	< 0.25	0.25		2								
Ethylbenzene	< 0.15	0.15										
Freen 11	< 0.15	0.15										
Freon 113	< 0.15	0.15										
Freon 114	< 0.15	0.15										
Freon 12	< 0.15	0,15										
Heptane	< 0.15	0.15										
i-lexachloro-1,3-buiadiene	< 0.15	0.15										
Hexane	< 0.15	0.15										
Isopropy! alcoho!	< 0.15	0.15										
m&p-Xylene	< 0.39	0.30										
Methyl Butyl Ketons	< 0.30	0.30										
Methyl Ethyl Ketone	< 0.30	0.30										
Methyl Isobutyl Ketope	< 0.30	0.30										
Methyl len-bulyl ether	< 0.15	0.15										
Methylene chloride	< 0.15	0.15										
о-Хујепе	< 0.15	0.15										
Propylene	< 0.15	0.15										
Styrene	< 0.15	0.15										
Tetrachloroethylene	< 0.15	0.15										
Tetrahydrofuran	< 0.15	0.15										

ND Not Detected at the Reporting Limit

J Analyte detected at or below quantitation limits S Spike Recovery outside accepted recovery lumits R RPD outside accepted recovery fimits

TestCode: 1ugM3_TO15

FPM Group, Ltd. C1506069 Work Order:

48 Commercial Project:

TestCode: 1ugM3_TO15

Cample ID AMONING DEDGAR	Company MDLK	TariCada: 4	Oran Data:	Dunkles cons		
Sample ID AMB10G-062515	Samptype. Motik	rescode. Hights_1015 Onts; pppv	Prep Date.	KUM40. 9884		
Client ID: ZZZZZ	Batch ID: R9804	TestNo: TO-15	Analysis Date: 6/25/2015	SeqNo: 115631		
Analyte	Result	POL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Quaf		
Toluene	< 0.15	0.15				
Irans-1,2-Dichloroethene	< 0.15	0.15				
trans-1,3-Dichloropropene	< 0.15	0.15				
Trichloroethene	< 0.15	0.15				
Vinyl acetate	< 0.15	0.15				
Vinyl Bromide	< 0.15	0,15				
Vinyl chloride	< 0.15	0.15				

Qualifiers:

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Results reported are not blank corructed

Analyte detected at or below quantitation limits

Spike Recovery putside accepted recovery limits

E Value above quantitation range

ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

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ĸ RPD outside accepted recovery limits Centek Laboratories, LLC

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Page 3 of 3

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CLIENT:

CENTEK LABORATORIES, LLC

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Date: 23-Jul-15

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ANALYTICAL QC SUMMARY REPORT

TestCode: lugM3_TO15

CLIENT: FPM Group, Ltd. C1506069 Work Order:

Project: 48 Commercial

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Sample ID ALCS1UG-062515	SampType: LCS	TestCode: 1ugM3_T015 Units: ppbV				Prep Dat	te:	Runno: 9804			
Client ID: 22222	Batch ID: R9804	TestN	lo: T O-15			Analysis Dat	te: 6/25/20	15	SeqNo: 115632		
Analyje	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPOLimil	Qual
1,1,1-Trichloroethane	1,130	0.15	1	0	113	70	130				
1,1,2,2-Tetrachloroethane	0.9200	0.15	1	0	92.0	70	130				
1,1,2-Trichloroethane	0.9400	0.15	1	D	94.C	70	130				
1,1-Dichlosoethane	0 9000	0.15	1	0	90.0	70	130				
1,1-Dichloroethene	1.220	0.15	1	O	122	70	130				
1,2,4-Trichlorobenzene	0.7800	0.15	1	D	78.0	70	130				
1,2,4-Trimethylbenzene	0.9700	D.15	1	0	97.0	70	130				
1,2-Dibromoethane	1.000	0.15	1	Þ	100	70	130				
1,2-Dichlorobenzene	1.010	0.15	1	D	101	70	130				
1,2-Dichloroethane	1.040	0.15	1	Q	104	70	130				
1,2-Dichtoropropane	0.8400	0.15	ĩ	9	84,0	70	130				
1,3,5-Trimethylbenzene	1.030	0.15	1	0	103	70	130				
1,3-buladiene	1.240	0.15	t	0	124	70	130				
1,3-Dichtorobenzene	1.070	0.15	1	0	107	70	130				
1,4-Dichlorobenzene	1.060	0.15	1	0	106	70	130				
1,4-Dioxane	0.5900	0.30	1	0	59.0	70	130				S
2,2,4-trimethylpentane	0.7700	0.15	1	0	77.0	70	130				
4-ethyltoluene	1.010	0.15	1	0	101	70	130				
Acetona	1.160	0.30	1	0	116	70	130				
Allyl chloride	1.200	0.15	1	σ	120	70	130				
Benzens	0.9100	0.15	1	0	91.0	70	130				
Benzy! chloride	1.040	0.15	1	Q	104	70	130				
Bromodichloromethane	1.080	0.15	1	0	108	70	130				
Bromoterm	1,110	0.15	1	σ	111	70	130				
Bromomethane	1,270	0.15	1	D	127	70	130				
											and the second se

Results reported are not blank corrected Qualifiers:

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- Analyte detected at or below quantitation limits 3
- E Value above quantitation range ND Not Detected at the Reporting Limit

11 Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

Centek Laboratories, LLC

Spike Recovery outside accepted recovery limits

----CLIENT: FPM Group, Ltd.

Work Order:

48 Commercial Project:

Sample ID ALCS1UG-062515

Client ID: ZZZZZ

Carbon disulfide

Chiorobenzene

Chloromelhane

Cyclohexane

Eihyl acotate

Ethylbenzene

Freen 11

Frean 113

Freon 114

Freon 12

Heptane

Hexane

Isopropyl alcohol

Methyl Butyl Kelone

Methyl Ethyl Kelone

Methyl Isobulyl Ketone

Methyl tert-butyl ether

Methylene chloride

Tetrachloroethylene

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o-Xylene

Styrene

Propylene

m&p-Xylene

cis-1,2-Dichloroethene

cis-1,3-Dichloropropene

Dibromochloromethane

Hexachloro-1.3-butadiene

Chloroethane

Chloroform

Carbon tetrachioride

Analyle

ial						1	festCode: 1	ugM3_TO	15	
SampType: LCS TestCode: 1ugM3_T015 Units: ppbV Balch ID: R9804 TestNo. TO-15					Prep Da Anaiysis Da	te: 1e: 6/25/20	RunNo: 9804 SegNo: 115632			
Result	PQI.	SPK value	SPK Ref Val	%REÇ	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1.350	0.15	1	¢.	135	70	130				s
1.080	0.15	1	٥	108	70	130				
1.020	0.15	1	0	102	70	130				
1.230	0.15	1	0	123	70	130				
1.020	0.15	1	0	102	70	130				

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Qualifiers:

Tetrahydrofuran

Results reported are not blank corrected £ Analyte detected at or below quantitation limits

Value above quantitation range Е

Not Detected at the Reporting Limit ND

Spike Recovery outside accupted recovery limits

1.190

0.8800

0.9600

0.8400

1.110

0.7200

0.9800

1.270

1.290

1.230

1.060

0.7800

1.050

0.8200

1.070

2.050

0.6400

0.7600

0.4200

0.8000

1.290

1.050

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0.8200

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Holding times for preparation or analysis exceeded H

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RPD outside accepted recovery limits R

Centek Laboratories, LLC

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Page 2 of 5

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C1506069

------CLIENT: FPM Group, Ltd.

Project: 48 Commercial

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Sample ID ALCS1UG-062515	SampType: LCS	TestCo	TestCode: 1ugM3_T015 Units: pptv			Prep Da	te:		RunNo: 9804			
Client ID: ZZZZZ	Batch 10: R9804	Test	lo: TO-15		Analysis (Date: 8/25/2015				SeqNo: 115632			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	Lowitimut	HighLimit	RPD Ref Val	%RPD	RPOLimil	Qual	
Toluene	0.9700	0.15	1	0	97.0	70	130					
trans-1,2-Dichloroethene	0.9300	0.15	1	0	93.0	70	130					
trans-1,3-Dichloropropene	0.9400	0,15	1	0	94.0	70	130					
Trichloroethene	0.9900	0.15	1	0	99.0	70	130					
Vinyl acetate	0.7700	0.15	1	٥	77.0	70	130					
Vinyl Bromida	1,170	0.15	1	D	117	70	130					
Vinyl chloride	1.140	0.15	1	Ð	114	70	130					
Sample ID ALCS1UGD-062515	SampType: LCSD	TestCo	de. 1ugM3_T	015 Units: ppbV		Prep Da	le:		RunNo: 98	04		

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Client ID: ZZZZZ	Batch ID: R9804	Test	la: T O-15		Analysis Date: 6/26/2015				SeqNo: 115633		
Analyte	Result	POL	SPK value	SPK Ref Val	%REC	LowLimil	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
t, 1, 1-Trichforoethane	1.170	0.15	1	G	117	70	130	1.13	3.48	30	
1, 1, 2, 2-Tetrachloroelnane	0.9700	0.15	1	0-	97.0	70	130	0.92	5.29	30	
1,1.2-Trichtoroethane	1.040	0.15	1	0	104	20	130	0.94	10.1	30	
1,1-Dichloroethane	0.9260	Q.15	1	O	92.0	70	130	0.9	2.20	30	
1,1-Dichloroethene	1.290	0.15	1	٥	129	70	130	1.22	5.58	30	
1,2,4-Trichlorobenzene	0.9900	0.15	1	D	99.0	70	130	0.78	23.7	30	
1,2,4-Trimethylbenzene	1.060	0.15	- 1	0	106	70	130	0.97	8.87	30	
1,2-Dibromoethane	1.040	0.15	1	0	104	70	130	1	3.92	30	
1,2-Ovchlorobenzene	1.080	0.15	f	0	108	70	130	1 01	6.70	30	
1,2-Dichloroethane	1.060	0.15	1	0	106	70	130	1.04	1.90	30	
1,2-Dichloropropane	0.9000	0.15	1	Ċ.	90.0	70	130	0.84	6.90	30	
1,3,5-Trimethylbenzene	1.090	0.15	1	0	109	70	130	1.03	5.66	30	
1.3-buladiene	1.250	0.15	1	0	125	70	130	1.24	0.803	30	
1,3-Dichlorobenzene	1.100	0.15	1	0	1 76	7D	130	1.07	8.07	30	
1,4-Dichlorobenzene	1.190	0.15	1	0	119	70	130	1.06	11,5	30	
1,4-Dioxane	0.5600	0.30	1	0	56.0	70	130	0.59	5.22	30	S
2,2,4-trimethylpentane	0.7900	0.15	1	0	79.0	70	130	0.77	2.56	30	
4-ethyltoluene	1.050	0.15	1	Q	105	70	130	1.01	3.88	30	

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..... Results reported are not blank corrected Analyte detected at or below quantitation limits

..... F. Value above quantilation range

ND Not Detected at the Reporting Limit

\$ Spike Recovery outside accepted recovery limits

11 Holding times for preparation or analysis exceeded

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R RPD outside accepted recovery limits

CLIENT: FPM Group, Ltd. C1506069

Project: 48 Commercial TestCode: 1ugM3_TO15

			TWO IS AN A R. R. L. CO. L. C.				THE OWNER OF THE OWNER	THE PARTY OF THE P	RAAMA AND AND AND AND AND AND AND AND AND AN		
Sample ID ALCS1UGD-062515	SampType: LCSD	TestCod	le: 1ugM3_T(015 Units: ppbV	Prep Date:				RunNo: 9894		
Client ID: ZZZZZ	Batch ID. R9804	TestN	lo: TO-15			Analysis Dat	te: 6/26/20	15	SeqNo: 115	5633	
Analyle	Result	POL	SPK value	SPK Ref Val	%rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acetone	1.160	0.30	1	٥	116	70	130	1.16	O	30	
Ally) chloride	1.230	0.15	1	٥	123	70	130	1.2	2.47	30	
Benzene	0.9400	0.15	1	0	94.0	70	130	0.91	3.24	30	
Benzy! chloride	1.190	0.15	1	0	119	70	130	1.04	13.5	30	
Bromodichloromethane	1,100	0.15	1	0	110	70	130	1 08	1.63	30	
Bremeform	1.200	0.75	1	0	120	70	130	1.11	7.79	30	
Bromomethane	1 230	0.15	1	0	123	70	130	: 27	3.20	30	
Carbon disulfide	1.219	0.15	1	0	121	70	130	1.35	10.9	30	
Carbon tetrachloride	1.140	0.15	1	٥	214	70	130	1.08	5.41	30	
Chlorobenzene	1.050	0.15	1	0	105	70	130	1.02	2.90	30	
Chloroethane	1.240	0.15	1	D	124	70	130	1.23	0.810	30	
Chloroform	1.030	0.15	1	۵	103	70	130	1.02	0.976	30	
Chloromethane	1.220	0.15	1	0	122	70	130	1.19	2.49	30	
cis-1,2-Dichloroethene	0.9200	0.15	1	D	92.0	70	130	0.8B	4.44	30	
cis-1,3-Dichloropropene	0.9900	0.15	1	٥	99.0	70	130	0.96	3.08	30	
Cyclohexane	0.8400	0.15	1	0	64.0	70	130	0.84	0	30	
Dibromochloromethane	1.09D	0.15	1	٥	109	70	130	1.11	1.82	30	
Ethyl acetate	0.7200	0.25	1	0	72.0	70	130	0.72	C.	30	
Ethylbenzene	1.040	0.15	1	D	104	70	130	0.98	5.94	30	
Freon 11	1.260	0.15	1	٥	126	70	130	1.27	0.791	30	
Freon 113	1.190	0.15	1	Đ	119	70	730	1.29	8.06	30	
Freor 114	1.230	0.15	1	0	123	70	130	1.23	0	30	
Freon 12	1.060	0.15	1	Q	106	70	130	1.06	0	30	
Heplane	0.8100	0.15	1	٥	81.0	70	130	0.78	3.77	30	
Hexachloro-1,3-butadiene	1.270	0.15	1	0	127	70	130	1.05	19.0	30	
Hexane	0.8100	0.15	1	0	81.0	70	130	0.82	1.23	30	
Isopropyl alcohol	1.210	0.15	1	0	121	70	130	1.07	12.3	30	
m&p-Xylene	2.150	0.30	2	C	108	70	130	2.05	4.76	30	
Methyl Butyl Ketone	0.5200	0.30	1	0	52.0	70	130	D.64	20.7	30	S
Methyl Ethyl Ketone	0.7500	6.30	1	0	75.0	70	130	0.76	1.32	30	
Melhyl isobulyl Kelone	0.4800	0.30	1	0	48.0	70	130	0.42	13.3	30	S

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Qualifiers: .

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Results reported are not blank corrected Analyte detected at or below quantitation limits

Value above quantitation range Έ

ND Not Detected at the Reporting Limit

Spike Recovery outside accepted recovery kinits S

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Holding times for preparation ny analysis exceeded 11

R RPD outside accepted recovery limits

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CLIENT: FPM Group, Ltd.

Work Order: C1506069

Project: 48 Commercial

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TestCode: JugM3_TO15

Sample ID ALCS1UGD-062515	SampType: LCSD	TestCode: 1ugM3_TO15 Units: ppbV				Prep Da	e:		RunNo: 9804		
Client ID: 22222	Batch ID: R9804	Test	lo: TO-15			Analysis Da	la: 6/26/20	15	SeqNo: 115533		
Analyte	Result	POL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RFD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	1.270	0.15	1	0	127	70	130	8.0	45.4	30	R
Mathyiene chloride	1.280	0.15	1	D	128	70	130	1.29	0.778	30	
o-Xylene	1.110	0.15	1	Q	111	70	130	1.05	5.56	30	
Propylene	0.7200	0.15	1	D	72.0	70	130	0.79	9.27	30	
Stylene	1.100	0.15	1	0	110	70	130	1.02	7 55	30	
Tetrachloroethylene	1.130	0.15	1	٥	113	70	130	1.09	3.60	30	
Tetrahydrofuran	0.7700	0.15	1	0	77.0	70	130	0.82	6.29	30	
Toluepe	1.060	0.15	1	D	106	70	130	0.97	8.87	30	
trans-1,2-Dichloroethene	1.190	0.15	1	0	119	70	130	0.93	24.5	30	
trans-1,3-Dichloropropene	0.9700	0,15	1	0	97.0	70	130	0.94	3.14	30	
Trichloroethene	1.010	0.15	1	D	101	70	130	0.99	2.00	30	
Vinyl acetate	0.7600	0,15	1	0	76.Q	70	130	6.77	1.31	30	
Vinyl Bromide	1.280	0.15	1	0	128	70	130	1.17	8.98	30	
Vinyl chloride	1.160	0.15	1	0	116	70	130	1.14	174	30	

Qualifiers:

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Results reported are ant blank corrected

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. Value above quantitation range E

ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

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 - J Analyte detected at or below quantitation limits

5 Spike Recovery ontside accepted recovery limits

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APPENDIX E

SUMMARIES OF CVOC IMPACTS











