APPENDIX H

Quality Assurance Project Plan

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QUALITY ASSURANCE PROJECT PLAN

Noor Petroleum Service Station
aka Jersey Oil, North Brunswick Gulf

1696 Route 130
North Brunswick, Middlesex County, New Jersey

ECC HORIZON File: N-NB1696G

NJDEP PI NO. 010180
NJDEP CASE NO. 01-08-30-1546-07

Prepared for:
1696 Route 130, LLC

QUALITY ASSURANCE PROJECT PLAN

Noor Petroleum Service Station
aka Jersey Oil, North Brunswick Gulf
1696 Route 130
North Brunswick, Middlesex County, New Jersey

Prepared By:

ECC Horizon
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July 28, 2025

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TABLE OF CONTENTS

FIGURES

TABLES

ACRONYMS

Alpha	Alpha Analytical Laboratories, Inc.
AOC	Area of Concern
AST	Aboveground Storage Tank
BN	Base Neutral Compound
CLP	Contract Laboratory Program
DQI	Data Quality Index
DQO	Data Quality Objective
EPH	Extractable Petroleum Hydrocarbons
ft bgs	Feet Below Ground Surface
FSPM	Field Sampling Procedures Manual
GQS	Groundwater Quality Standards
IARS	Indoor Air Remediation Standard
IRM	Interim Remedial Measure
LSRP	Licensed Site Remediation Professional
N.J.A.C.	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
PCE	Tetrachloroethylene
PID	Photoionization Detector
PRCR	Person Responsible for Conducting the Remediation
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RAO	Response Action Outcome
RAR	Remedial Action Report
RAW	Remedial Action Workplan
RIR	Remedial Investigation Report (Addendum)
SGSL	Soil Gas Screening Level
SRS	Soil Remediation Standards
TBA	Tertiary Butyl Alcohol
TCE	Trichloroethene
UST	Underground Storage Tank
VOC	Volatile Organic Compound

1.0 Background

The property located at 1696 Route 130 (Site) is an active gasoline service station that is owned by 1696 Route 130, LLC (Party Responsible for Conducting the Remediation ("PRCR")). The property is identified in the New Jersey Department of Environmental Protection (NJDEP) Data Miner database as Jersey Oil and is alternately known as Noor Petroleum Service Station or North Brunswick Gulf. The Site location is shown on **Figure 1**. Site features are shown on **Figure 2**.

On 8/30/2001, an underground storage tank (UST) for the service station was punctured during an environmental investigation, causing a loss of gasoline from the UST. The release was reported to the New Jersey Department of Environmental Protection (NJDEP), which assigned Incident Number 01-08-30-1546-07 to the release. As a result of the release, soil and groundwater at the site was impacted with Volatile Organic Compounds (VOCs) from the gasoline. Trichloroethene (TCE), base neutral compounds (BNs) and metals were subsequently detected in groundwater samples, implying there have been additional releases at the Site. On 7/27/23, Environmental Compliance and Control, Inc. (dba ECC Horizon) was retained as environmental consultant and Peter Smith was retained as the Licensed Site Remediation Professional (LSRP) for the Site.

In accordance with N.J.A.C. 7:26E-2.2, ECC Horizon has prepared this site-specific Quality Assurance Project Plan (QAPP) that describes, in specific terms, the policies, organizations, objectives, functional activities and Quality Assurance/Quality Control (QA/QC) activities that will achieve the data quality objectives of the Site. Sampling activities will be conducted in accordance with the latest updates to the NJDEP *Field Sampling Procedures Manual* (FSPM).

2.0 Project Definition

Remedial action is required to reduce or eliminate soil and groundwater contamination that has been caused by releases of VOCs and BNs. The LSRP has been retained to pursue an Area of Concern (AOC) Response Action Outcome (RAO-A) for the identified AOCs at the Site. The RAO may be subject to engineering and/or institutional controls. The LSRP has not been retained to provide a Site-Wide RAO (RAO-E).

The proposed remedial action will consist of bioenhancing the naturally occurring subsurface microbial biota to speed attenuation of the contaminant mass. This will be done through a series of microbial and nutritive emplacements into the groundwater system, coupled with liquid carbon and oxygenation of groundwater.

ECC Horizon will collect soil and groundwater samples for laboratory analysis throughout and following the remedial action. The laboratory data will be used to document the effectiveness of the remedial action and will be used to make any needed remedial adjustments.

2.1 Areas of Concern

The site has 14 AOCs. Only AOCs 4 and 14 are inactive. The AOCs are:

- AOC-1: Historic & current USTs locations
- AOC-2: Former gasoline pump island
- AOC-3: Area behind station where a high level of lead was detected.
- AOC-4: One 550-gallon unregulated UST used to store heating oil for on-Site consumption
- AOC-5: One 275-gallon unregulated heating oil aboveground storage tank (AST).
- AOC-6: Two 275-gallon waste oil ASTs inside a concrete containment pad with a berm.
- AOC-7: Storm drains behind the station.
- AOC-8: Swale/drainage ditch that receives outfall from the storm drains.
- AOC-9: Two former floor drains in service area
- AOC-10: Three former hydraulic lifts in service area
- AOC-11: Former septic system
- AOC-12: Former parts cleaning basin
- AOC-13: Groundwater medium
- AOC-14: Soil medium

The location of each active AOC is shown on **Figure 3**.

2.2 Contaminants of Concern

Contaminants that exceeded the NJDEP Groundwater Quality Standards (GQS) in 2025 are:

- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- Benzene
- Cyclohexane
- 1,2-Dichloroethane
- Ethylbenzene
- Indeno(1,2,3-cd)pyrene
- 2-Methylnaphthalene
- Methylcyclohexane
- MTBE
- Naphthalene
- Tertiary butyl alcohol (TBA)
- Trichloroethylene (TCE)
- Tetrachloroethylene (PCE)
- Toluene
- Vinyl chloride
- Xylenes
- VOC TICs
- BN TICs

Metals that exceeded the GQS when last tested at a well are:

- Arsenic
- Lead
- Nickel
- Sodium

ECC Horizon has conducted very limited soil sampling. The only contaminant that exceeded a Soil Remediation Standard (SRS) from ECC Horizon sampling was ethylbenzene. However, other VOCs, BNs, metals and Extractable Petroleum Hydrocarbons (EPH) may be present on site above a SRS.

2.3 Laboratory Services

An independent, state-certified laboratory will be utilized for all laboratory services. The two designated project laboratories are Hampton-Clarke, Inc., NJDEP Certification Nos. 07071 and

07069, located at 2 Madison Road, Fairfield, New Jersey, 07004, and Pace Analytical, 8 Walkup Drive, Westborough, Massachusetts, 01581, certification no. L2250164. The contract laboratories will report data using the NJDEP Reduced Data Deliverables format unless otherwise directed. The NJDEP has certified these subcontract laboratories for the analytical parameters that are needed at this site. The contract laboratory may be changed if needed to another laboratory that is certified for the required parameters in the State of New Jersey.

For the purposes of field measurements (pH, conductivity, dissolved oxygen, oxidation reduction potential), ECC Horizon has been certified by the NJDEP to perform this service as a laboratory. If ECC Horizon staff are not available to conduct field measurements, another laboratory certified to collect these parameters will be utilized.

2.4 Project Team

The project team members will be responsible for collecting and analyzing site data, and will consist of the following persons:

LICENSED SITE REMEDIATION PROFESSIONAL

Peter Smith, PG, LSRP
Technical Director
LSRP of Record - License No. 574060
Langan Engineering and Environmental Services, LLC (Langan)
973-560-4265

SENIOR PROJECT MANAGER

Christopher D. Mazur
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973-989-8010, X-131

QUALITY ASSURANCE COORDINATOR / PROJECT MANAGER

William Weaver
Project Manager
ECC Horizon
973-989-8010, X-203

FIELD SCIENTIST / FIELD SUPERVISOR

Brian Rappaport
Senior Remediation Technician

ECC Horizon
973-989-8010

LABORATORY CONTACTS

Cynthia Pagut
Technical Director
Pace Analytical
NJ Certification MA935
201-812-9072

Dale Baker
Regional Project Manager
Hampton-Clarke, Inc.
NJ Certification Nos 07071 & 07069
973-830-9773

ECC Horizon staff will conduct and supervise field activities as directed by project team members. Changes to the project team, if any, will be annotated to this QAPP.

2.5 Data Collection

ECC Horizon staff, subcontractor personnel under ECC Horizon supervision, or Langan staff will collect site data. Data from other sources will be evaluated by the Project Team for usability and will be considered usable if the data are (1) collected by a person with the education, training, experience, and certification or license (if required) for collecting the specific data, and (2) consistent with collection and usability guidelines and protocols established by NJDEP and the industry.

All data collection activities will comply, to the extent possible, with any existing guidance or regulatory requirements of the NJDEP, including the requirements of the FSPM. This document describes data collection procedures that will result in data that meets the data quality requirements of Section 3, below. Necessary deviations from standard or established procedures will be documented and disclosed to the Project Team members, who will evaluate whether the data meets data quality usability requirements.

2.5.1 Data Completeness

Data completeness is the percentage of the collected data that are usable for making defensible conclusions. For attainment purposes, the data completeness should be 100%. Attainment data that are not usable for making defensible conclusions will be re-collected. For investigational and

permit documentation purposes, data completeness may be less than 100% if sufficient alternative data are available to achieve a reasonable level of scientific probability that the data in question are accurate and representative of true field conditions. Reasonable probability is a 95% probability. Data gaps will be closed prior to completion of each remedial phase of work.

2.5.2 Sampling Design and Points of Compliance

Sampling data will be collected to assess and characterize the quality of mediums across the site. Performance objectives are the NJDEP Soil Remediation Standards, the NJDEP Class II-A GQS, and the NJDEP Indoor Air Remediation Standards (IARS). A summary of the sampling performance objectives are provided in **Table 1**. A summary of the sampling locations and frequency are provided in **Table 2**.

Soil

Interim Remedial Measures (IRMs) have been conducted across the site to remediate soil. Some contaminated soil remains beneath the old pump island and possibly beneath the site building. These areas are to be treated for fuel compounds. After treatment, soil in these areas will be evaluated through compliance sampling. Soils in other previously remediated AOCs will be evaluated to confirm the effectiveness of the IRM activities.

Groundwater

Groundwater will be evaluated by collecting and testing groundwater samples from monitoring wells installed within the area of contamination and at locations outside the area of contamination. Any additional monitoring wells will be installed using a New Jersey licensed well installer who will install the wells in accordance with N.J.A.C. 7-9D. A sufficient number of monitoring wells will be installed and sampled to evaluate the quality of groundwater in three dimensions in all areas where contamination has migrated. Wells that are designed to sample groundwater below the water table will utilize 5-foot long well screens or less whenever possible. If well screens longer than 5 feet are installed below the water table, low-flow sampling will be used to limit the sample zone along the wells screen to a five-foot interval.

At a minimum, each contaminated AOC will have one source monitoring well, one monitoring wells installed in each lateral direction for delineation, and one vertical delineation monitoring well. Any treatment area will have a minimum of one sentinel well positioned downgradient of the contaminant plume, and at least one vertical sentinel well. Following groundwater treatment, groundwater attainment will be demonstrated by collecting compliant groundwater samples from the adversely affected monitoring wells at seasonally low and seasonally high groundwater levels.

VI Pathway

Soil vapor beneath an occupied or potentially occupied structure will be evaluated where groundwater exceeds a Groundwater Screening Level within 30 feet of the structure for fuel VOCs, and within 100 feet for non-fuel VOCs. Exceedances of the Soil Gas Screening Levels beneath a building will require indoor air sampling within each floor of the building and any distinct occupancies. Sampling will utilize Summa canisters with sample ports configured for either 8 hours or 24 hours depending on occupancy use. Commercial building that have soil gas exceedances only of VOC compounds that are used in the business operation within the building are not required to conduct indoor air sampling.

2.6 Remediation Approach

To remediate groundwater, we anticipate applying liquid carbon, microbial enhancements, nutritional supplements, and oxygenation compounds through temporary direct-push treatment wells to treat the affected subsurface area. The anticipated depth of the direct push treatment intervals is 5 to 30 feet below ground surface (ft bgs). Treatments will be limited to the site property. Treatment of groundwater will be conducted pursuant to a Discharge to Groundwater/ Permit by Rule (PBR) issued by the Department.

ECC Horizon personnel will monitor groundwater parameters and collect groundwater samples in accordance with the PBR to ensure that site conditions remain within the allowable parameters of the permit. The permit will stipulate the monitoring frequency and analytical parameters of data collection, as well as any reporting requirements. All groundwater samples will be collected pursuant to the FSPM. Post-treatment groundwater samples will be collected pursuant to the PBR, applicable guidance, and attainment requirements.

2.7 Anticipated Schedule

The following work schedule is anticipated for the 2025/26/27 calendar years:

DESCRIPTION	ANTICIPATED START DATE	ANTICIPATED COMPLETION DATE
Remedial Investigation Report Addendum and Remedial Action Workplan (RIRA/RAW) Submission	--	July 2025
Treatment	November 2025	November 2027
Groundwater Sampling	February 2026	July 2028
Remedial Action Report (RAR) and Remedial Action Permit (RAP)	August 2028	October 2028
Well Abandonments after CEA Lift Approval	November 2028	December 2028

DESCRIPTION	ANTICIPATED START DATE	ANTICIPATED COMPLETION DATE
(partial network closure after RAP approval, if requested)		
Response Action Outcome (Soil-Only issued after RAP approval, if RAP is requested)	December 2028	December 2028

If a RAP is requested and approved, the timeframe to closure will be recalculated based on data that are available at that time. Medium responses to any treatment technology are unpredictable. As a result, this schedule and the completion timeframes are subject to change as work progresses.

3.0 Data Quality Objectives

Data Quality Objectives (DQOs) ensure that data collected as part of the remedial action at the site are of sufficient quality to make project decisions. The intended use of the data, the procedures available for laboratory and field analyses, and the available resources to collect data all factor into DQOs. Once the DQOs have been established, analytical methods that are capable of supporting the DQOs are selected.

3.1 DQO Confidence Level

The USEPA has defined certain analytical and confidence levels that support the DQOs and define the type of data that can be used for particular purposes. DQO levels range from 1 to 5 in increasing order of precision, difficulty, speed, and cost. This project will utilize the following DQO levels, as follows:

Level I. Level I data consist of various subjective assessments that are used to initially characterize site conditions. Level 1 data cannot accurately assess contaminant compositions or quantify the amount of contaminant material that is present at a Site but can provide general guidance for directing investigation and remedial activities in real time. Level 1 data can be used to reduce the volume of higher-level data that may otherwise be needed to guide investigations or remedial actions, and thereby accelerate the timeframe completion for site activities.

Level II. Level II data consists of field analyses that utilize portable analytical test kits and screening instruments. These assessments are semi-quantitative and rely on proper calibration and utilization of testing equipment through suitable calibration standards, reference materials, sample preparation equipment, and operator training. These data are standard tools for screening materials at a site.

Level III. Level III data consist of laboratory analyses conducted in a mobile or off-site laboratory that is not a Contract Laboratory or Contract Laboratory Program (CLP) certified. These data are reproducible and reliable due to quality assurance/quality control (QA/QC) procedures that govern the data generation and verification process but may not be able to attain the level of precision, accuracy or reproducibility that are needed to demonstrate environmental compliance pursuant to state requirements. This level of data is usable for all site purposes except regulatory compliance.

Level IV. Level IV data are characterized by QA/QC protocols and documentation of procedures that comply with CLP analytical service requirements. This level of data is usable for all site purposes except those specifically requiring Level V.

Level V. Level 5 data utilize non-standard methods or analyses that have been modified or developed for site-specific purposes. Method development or method modification may be required for specific constituents or detection limits.

Historic and Secondary Data. Historic and secondary data come from institutions, processes or people that were not under the control of the site investigator, or that were collected for purposes unrelated to site activities. This data can be used to assess the general expected limits of initial site conditions, potentially contributing conditions from off-site sources, and potential background conditions. Historic and secondary data should be confirmed with primary data if the accuracy and precision of the data are important to the evaluation.

Site data will be used to (1) quantify areas of contamination in soil and groundwater, (2) engineer a remedial action that can effectively remediate contamination, (3) monitor the progress of the remedial action, and (4) verify that post-remedial action environmental conditions have returned to compliance levels. The following DQO confidence levels will be applicable to all media at the property:

- DQO levels I and II are acceptable for delineating the general area of soil and groundwater impact. Activities will consist of soil logging and odor detection by a trained and experienced geologist, engineer, or environmental scientists, and field screening by trained personnel using a PID calibrated to an isobutylene standard.
- DQO level III is acceptable for characterization sampling and the monitoring of site conditions before and during remediation.
- DQO level IV will be used for all permit and compliance testing and may be used for any other monitoring purposes.
- DQO level V is not anticipated to be needed at this site.

3.2 Data Quality Index

The following Data Quality Index (DQI) describes the level of measurement needed to ensure that data are usable for their intended purposes:

- **Precision:** a measure of mutual agreement among individuals of the same property, usually under prescribed similar conditions. Precision is measured in terms of relative percent difference between two data sets from a similar source, or percent relative standard deviation from multiple data sets. Duplicate samples are used to evaluate this DQI. Precision will vary by sample media. Soil duplicate results may vary by up to 35% and still represent acceptable precision, whereas a split

groundwater sample may exhibit acceptable precision at a difference level of up to 20%. To conservatively estimate overall risk, the higher measurement of an original and duplicate sample will generally be used to represent a particular sample point concentration.

- **Accuracy** is the degree of difference between measured and calculated or true values. In laboratory conditions, accuracy is measured by the average percent recovery of standard control spikes. The acceptable level of accuracy for this project will be based on the acceptable percent recovery of laboratory control spikes for each method. The laboratory will evaluate this DQI for its own laboratory data.
- **Representativeness** expresses the degree to which data accurately and precisely represent a characteristic of a population, or parameter variations at a sampling point, or a process condition, or an environmental condition. To ensure that the samples collected at the site are representative of the site conditions, the number of samples collected, and the areas of collection, will conform to the sampling requirements of N.J.A.C. 7:26E and the *FSPM*. To ensure that samples delivered to the laboratory are representative of the site conditions rather than cross-contamination, quality assurance samples will be collected for laboratory analysis as described in Section 4.7, below. Representativeness will be evaluated by the Project Team.
- **Comparability** is the degree to which one set of data can be accurately compared to another set of data that were collected by a different means or analyzed by a different entity. The objectives of the analytical laboratory for comparability are to:

    1. Demonstrate traceability of standards to EPA or other promulgation authorities;

    2. Use standard methodology;

    3. Report results from similar matrices in standard units;

    4. Apply appropriate levels of quality control within the context of the laboratory QA program, (Level III, EPA Data Objectives for Remedial Response Activities, 1987, or equivalent); and,

    5. Participate in inter-laboratory studies to document laboratory performance.

- **Completeness** is a measure of the amount of data obtained from a measuring system compared to the amount that was expected to be obtained under normal conditions.

The goal and objective are 100% completeness. However, due to unforeseen field conditions, laboratory conditions, and analytical limitations (such as matrix interference or required dilution) which could result in data qualification or rejection, it may not be possible to achieve 100% completeness. For compliance purposes, the level of completeness will be 100%. If any data needed for compliance are rejected, additional data will be collected. For monitoring and site evaluation purposes, project completeness may be less than 100% if the available data enables the Project Team to make determinations within a reasonable degree of scientific probability. The Quality Assurance Coordinator will determine if re-sampling or re-analysis are required to meet the data quality objectives.

- **Sensitivity** is the lowest concentration (reporting limit) at which a specific analytical procedure can accurately quantify an analyte concentration. The analytical method used by a laboratory must ensure that the reporting limits are able to detect each analyte at or below its regulatory standard. However, due to sample conditions or laboratory operational limitations (i.e., matrix interference or required dilution), the actual reporting limit for each analyte may not always achieve the required sensitivity. Non-detectable concentrations of analytes that do not meet sensitivity requirements (established at the relevant state standard for the compound of concern) will be identified. Estimated or otherwise qualified data will be appropriately flagged.

4.0 Field Investigation Procedures

The field investigation procedures will conform to the requirements of the New Jersey FSPM, ECC Horizon SOPs, and this QAPP. Any deviation from these procedures, and the reason for deviating, will be documented.

4.1 Communications and Emergency Contacts

All communications and field and monitoring activities will be recorded in a permanent field book as they occur. In the event of an emergency or unexpected field situation, conduct the action(s) described below:

- In the event of a medical or safety emergency contact 911 and then the site Health and Safety Officer.
- In the event of a spill or release to the environment, initiate spill containment and emergency response procedures according to company Standard Operating Procedures and then contact the LSRP or site Health and Safety Officer.
- In the event that unexpected site conditions are encountered during a site visit, contact a supervising Project Team member.
- In the event that field activities cannot be conducted in a manner consistent with this QAPP, the ECC Horizon SOP, or the FSPM, contact a supervising Project Team member.

Contact information is provided in Section 2.3, above.

4.2 Field Equipment and Supplies

Sampling and data collection may utilize the following equipment and supplies:

- Laboratory glassware
- Oil/water interface probe
- Dedicated bailer
- Submersible pump
- Sampling trowels
- Camera
- Field book
- Trowels
- Core barrels with liners
- Split spoon samplers
- Hand augers
- En Core samplers
- Oil/Water interface probe or electric water level meter
- Submersible inertia pumps
- Teflon®-lined polyethylene tubing
- Teflon®-lined bailers
- Temperature, pH, dissolved oxygen, specific conductivity and turbidity meters

- Photoionization Detector (PID), calibrated
- Field logbook and field logs
- Sample preservation chemicals
- Sample Cooler with Ice

Pre-cleaned sampling containers will not be used if they are (a) opened while in storage, (b) stored with contaminated materials, or (c) stored beyond their intended use date. All pre-cleaned materials will have certificates of cleanliness or testing.

4.3 Decontamination Procedures

To avoid cross contamination, all sampling equipment shall be clean and free from the residue of any previous samples. The use of new, dedicated sampling equipment and materials is preferred whenever possible. If equipment or materials are re-used, they should be decontaminated using, at a *minimum,* the following procedure:

- Clean equipment initially and following use with low phosphate detergent;
- Rinse with tap water;
- Reclean as above.
- Rinse with de-ionized water; and
- Air dry

The foregoing procedure does not apply to decontamination of heavy equipment, drilling equipment, or heavily contaminated equipment. All heavy and drilling equipment shall be steam cleaned, where possible, in a pre-designated location prior to use and between locations. Heavily contaminated materials may require multiple washes and rinses, as well as rinsing in dilute hydrochloric acid.

Reusable groundwater sampling equipment such as submersible pumps shall be decontaminated by thoroughly washing all internal and external surfaces with detergent and water and rinsing with both potable and de-ionized water prior to use. All sample tubing shall be disposable and dedicated to individual wells.

Field instruments shall be cleaned as per the manufacturer's instructions. Probes, such as those used in pH and conductivity meters, and thermometers, must be rinsed with de-ionized water prior to, and after, each use. Avoid bringing field instruments into contact with heavily contaminated media.

4.4 Sample Designation

Sample designation will consist of an alpha-numeric name of at least two components as described below. Soil samples will have a third component sample designation.

- Sample type: The first component, which identifies the sample type, will consist of a 2-letter code as follows:

  SB - Soil Boring Sample
  PE - Post Excavation Sample
  SS - Soil Sample
  IW - Injection Well Sample
  MW- Monitoring Well Sample
  TW - Temporary Well Sample

- Sample Location: The second component identifies the sample location using a unique number or number and letter for the sample type and corresponds to a specified location on a scaled site plan. Letters S, M, D, D2, etc. can be used with groundwater sample identifiers to indicate the relative depth of a well screen within an aquifer.
- Sample Identification: The third component is always offset with parentheses ( ) from the sample location, and indicates the interval from which the sample was collected in feet. All samples of soil will have this component. This component is optional for other sample media and should be used only to indicate intervals that can vary.
- Instead of the two-letter sample type code listed above, QA/QC samples will be labeled with the following suffixes:

  TB - Trip Blank
  FB – Field Blank
  MS/MSD – Matrix Spike and Matrix Spike Duplicate
  DUP – Field Duplicate Sample

The label of a field duplicate sample shall not reference the sampling location or depth of the sample that was collected. This information shall be indexed to the duplicate sample ID and recorded in the field book.

Example of an identification number is given below:

MW-1S(25): Monitoring well 1 screened shallow, with a groundwater sample collected at 25 feet depth.

4.5 Field Records

All field records are evidentiary documents that may be subject to discovery and litigation. The site manager, designee, or other team member may be required to testify in legal proceedings regarding any field activity. As a result, field records should document, to the extent practicable, all critical components of the field activity by providing sufficient information to reconstruct the activity. Field records will be used by the LSRP to make regulatory decisions. Inaccurate, misleading or incomplete field records that can result in improper decisions by the LSRP are not acceptable.

Field logbook entries must be legibly written and provide an unbiased, concise, detailed record of field activities. A new page shall be used each day to begin field book entries. The first written page shall include the date, time, site name, location, ECC Horizon personnel on site and their responsibilities, the names of other on-site personnel, and observed weather conditions. The remaining pages will be numerically serialized, contain the total number of pages for the daily entry, the site number, and the name or initials of the logbook preparer. The logbook must contain the staff member's printed name on the cover page.

All logbook entries shall be made in ink. Waterproof ink is recommended. All entries shall be accompanied by the appropriate military time (such as 1530 instead of 3:30). Errors shall be lined through and initialed. Field records shall conform to the ECC Horizon SOP and the New Jersey *FSPM*.

Examples of appropriate field book records include:

- Equipment used on site: manufacturer, model, equipment number, owner.
- Full names of personnel on site.
- Summary of pertinent site or telephone conversations, including full name of person spoken to.
- Record of telephone conversations.
- A site map or sketch.
- A chronological record of sampling activity.
- Descriptions of samples collected, including sample matrix, physical description (color, texture, odor, soil type, anthropogenic material content, etc.) and any other important or distinguishing sample characteristics.
- Description of preservatives used in samples, and handling processes.

- Sample locations triangulated to permanent recognizable landmarks.
- Decontamination procedures, if used.
- Well condition prior to opening.
- VOC headspace concentration of wells that are opened if VOCs are a contaminant of concern.
- Well construction including diameter, material, outer casing design.
- Depth to groundwater and product if applicable.
- Depth of obstructions that may be encountered in a well.
- Description of samples, location, and depth.
- Site sketch showing the location of all samples.

The above list is not comprehensive. Sample numbers shall correspond to sample locations on a site sketch in the logbook. The offer and/or act of providing split samples to a thirty party (responsible party, government official, consultant, etc.) must be documented.

Control and maintenance of field logbooks and records is the responsibility of each field staff member. Each field staff member shall make an electronic copy of each daily field record upon returning to the office. Sampling log forms may be used, but only to supplement field book entries. Sample descriptions and sampling processes must be included in the field book.

4.6 Pre-Sampling Procedures

Prior to sampling, the investigator is required to complete certain procedures that pertain to the sample media as described below.

INSTRUMENTS: Calibrate all required field instruments (PID, pH meter, conductivity meter, zip probe) pursuant to the operations manual(s), ECC Horizon SOP(s), and laboratory procedures. Record results in logbook. Service all instruments on a schedule that is sufficient to retain calibration and accuracy. Maintain calibration and service records at the Project Team office location. Records shall indicate the make, model, and serial number of the equipment being serviced or calibrated, the service or calibration procedure being performed, and a description of the service or calibration results. A copy of the service records shall be maintained in an electronic format.

SOIL: Prior to sampling, evaluate soil structure and composition and enter observations into a logbook. If VOCs are a contaminant of concern, screen recovered cores and other soil samples every 6-inches with a PID and examine for visual and other indications of contaminant impact. Evaluate selected soil samples using a jar headspace method if the work order requires. Record all information in a bound logbook.

GROUNDWATER: Immediately after breaking the pressure cap seal on each monitoring well, measure the head space with a PID being careful not to release vapors. After measuring the headspace, remove cap, allow groundwater to equilibrate, and gauge the well using an oil/water probe. Alternatively, use an electronic water level meter if there is no possibility that product is in the well. Measure the depth of water to the nearest hundredth of a foot from the measuring mark on the well riser, or from the highest point on the riser if there is no mark. Record the data in the field book. Decontaminate the instrument prior to using in another well.

SOIL VAPOR or INDOOR AIR: Follow NJDEP VI Sampling Guidance for procedures.

SURFACE WATER: Surface water sampling is not required at this time. If surface water sampling subsequently is required, then a supplemental section will be prepared and attached to this QAPP.

SEDIMENT: Sediment sampling is not required at this time. If sediment sampling is subsequently is required, a supplemental section will be prepared and attached to this QAPP.

Data collection activities at this site will, at a minimum, be directed and supervised by a licensed subsurface evaluator or Project Manager, and the LSRP. Data and samples will be collected only by qualified persons. Qualifications are established for work tasks by demonstrating a level of education, training, and experience that would be generally acceptable within the environmental industry. An individual with a valid Subsurface Evaluator's license or an LSRP license is assumed to be qualified to collect data at the site. Groundwater parameter data shall be collected by a qualified person pursuant to analytical laboratory licensing requirements of the NJDEP. Survey data shall be collected by a licensed surveyor. Wells shall be installed by a licensed well installer. Soil borings shall be bored by a licensed soil borer.

Disposable gloves shall be worn by all sampling personnel and will be changed between sampling points and after decontaminating field equipment. Field and procedural data shall be recorded in a bound field logbook. Field sampling data sheets may supplement, but not replace, logbook entries.

Data will be collected in accordance with the NJDEP *FSPM*, ECC Horizon SOP, and project work orders.

4.7 Quality Control Procedures

All sample containers will be labeled with location ID before they are filled. Samples will be placed into a cooler and cooled with ice to no more than 4°C. The sampling technician will ensure that ice remains in the sample cooler at all times and will maintain physical control of the sample cooler until relinquished to a project team member, courier, or laboratory. Samples will be recorded on a chain-of-custody form prior to leaving the site, and the form will accompany the sample cooler at all times. All persons who establish custody of any sample at any time will sign the chain of custody form, including multiple sampling technicians, if used.

The sample cooler will be delivered to the laboratory within 4 days or more rapidly if required by analytical method or rule. Samples will be processed at the laboratory within established holding times for the methods. Samples and residuals will be held by the laboratory for 60 days, after which they will be discarded unless alternative arrangements are made.

Trip blanks, field blanks, matrix spike and matrix spike duplicate samples (MS/MSD) will provide a quantitative basis for validating the analytical data. The MS/MSD analyses may be batched. A summary of the anticipated QA/QC samples for each media is included in **Table 2**.

4.7.1 Trip Blanks

Trip blanks provided by the laboratory will consist of 40 ml sample vials with de-ionized, analyte-free water. One trip blank shall at all times accompany any sample container holding samples for VOC analysis. The trip blanks originate at the laboratory and are returned to the laboratory without opening. Each trip blank shall be analyzed for VOCs to detect possible contamination during shipment.

4.7.2 Field Blanks

Field Blanks shall be collected at the minimum rate of 1 per day per 20 samples. Field blanks shall be collected by passing laboratory-prepared, de-ionized, analyte-free water over the sampling equipment in the area where the samples are being processed and collecting the water into the sample containers. The field blanks shall be analyzed for VOCs to detect possible cross-contamination from the sampling equipment or atmospheric vapors.

NOTE: Field blanks are not required for soil sampling of VOCs using En-Core® style samplers.

4.7.3 Matric Spike Samples

Matrix spike and matrix spike duplicate (MS/MSD) sample pairs are analyzed by the laboratory to provide a quantitative measure of the laboratory's precision and accuracy. Laboratory personnel will specify samples for MS/MSD analysis from batch samples, which may or may not correspond to project samples.

4.7.4 Field Duplicate Samples

Field duplicate samples assess the laboratory's ability to reproduce results accurately by comparing the laboratory results from two samples collected at the same location. Field duplicate samples shall be collected at the rate of 1 per 20 samples and shall be submitted as "blind" samples to the laboratory. Field duplicate samples shall be prepared as "split" samples in aqueous sampling.

4.8 Reconciliation with DQOs

Upon completion of each sampling event and receipt of laboratory analytical data, evaluations of the data precision, accuracy, and completeness will be made by the Project Manager and LSRP. If data quality does not comply with the project requirements, the data may be discarded or qualified for use. The reasons for the failure will be evaluated and the necessary corrective actions will be implemented.

If equipment failure, calibration, or maintenance of equipment is the cause of data quality degradation, then corrections will be implemented and samples re-analyzed. If sampling error is the cause of data quality degradation, then the sampling methods or protocols will be corrected and additional samples collected, if needed. If completeness,

representativeness, and comparability goals are not met, data will be qualified, and resampling will be performed as the project budget allows.

Data limitations will be detailed in each report submittal. Any change to sampling methodology, processing, or analytical method will be updated by appending a supplemental update to the QAPP.

5.0 Analytical and other Data Requirements

The analytical and sampling and analysis requirements for the site are found in **Table 2**.

5.1 Laboratory Deliverables

The laboratory will provide all soil and groundwater data in electronic, reduced deliverable format unless otherwise requested. Potable water, air, and EPH samples, if any, will be provided in full deliverable format. HAZSITE electronic deliverables will be provided with the electronic copy of each laboratory data report.

5.2 Data Records Management

All field information will be recorded in bound field books using permanent ink and recorded in electronic format on the corporate server. Field books and any paper records will be archived at the Site Team's office location.

Errors discovered in records will be corrected by entering a single line through the error and writing the corrected information above the error. The person correcting a record will initial the correction and place the date of correction next to the initial. If the person correcting the record is not the person who made the initial record, then the correcting person shall explain the correction in a permanent memo that will be included in the project file.

Physical records may be converted to electronic records that accurately record the information on the physical records. Electronic copies of original field records must be photographed or scanned. All field records, laboratory records, and records on which the LSRP relies will be retained by ECC Horizon for the duration of the project plus 5 years.

All records on which the LSRP relies in rendering decisions must be maintained by the LSRP indefinitely. Copies of such records will be provided to the LSRP upon request. Copies of such records must also be included with the final remediation document to the NJDEP and must include copies of all contractual documents for the project.

5.3 Data Verification

Field records and data will be provided to a Project Team member for review as soon as possible after collection or generation. The Project Team member will review field records and data deliverables for legibility, usability, and completeness within 1 week of receipt. Any noted deficiencies will be corrected as soon as possible thereafter.

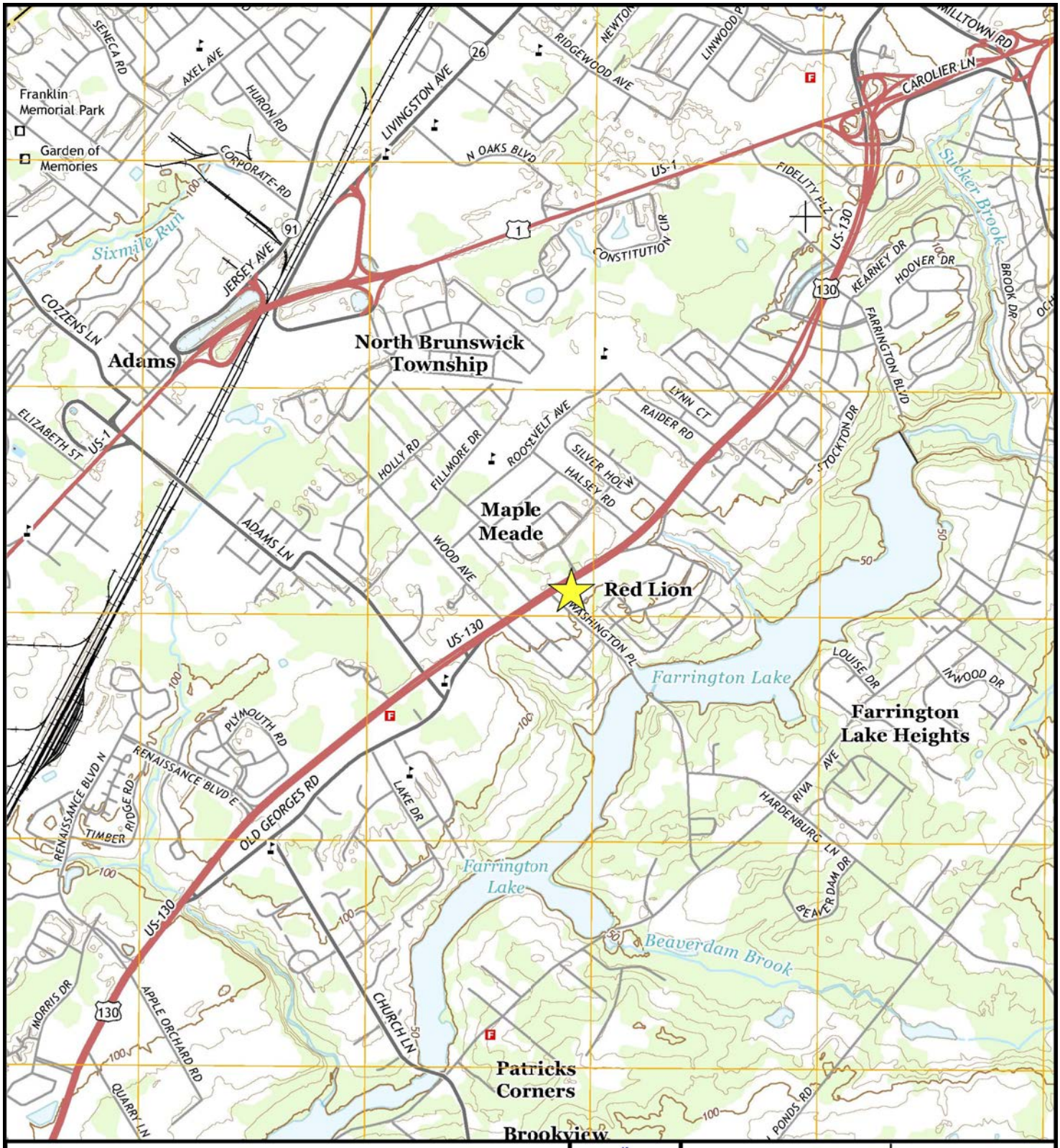
Field records will conform to the specifications and requirements of the QAPP and referenced documents herein. Data will be compared to the DQOs to evaluate data usability. Laboratory data will conform to laboratory data reporting requirements.

5.4 Corrective Actions

Deviations from the QAPP will be identified by the QA Coordinator and be corrected, to the extent practicable. If the QAPP requires amending, a QAPP amendment will be attached and distributed to affected persons.

5.5 Distribution

A copy of this QAPP and any amendments will be provided to all team members and field personnel.



LEGEND

SITE LOCATION

IMAGE FROM
USGS 7.5' TOPOGRAPHIC MAP
NEW BRUNSWICK, NJ
2014

Scale 1 : 24000

1000 0 1000 2000 3000 feet

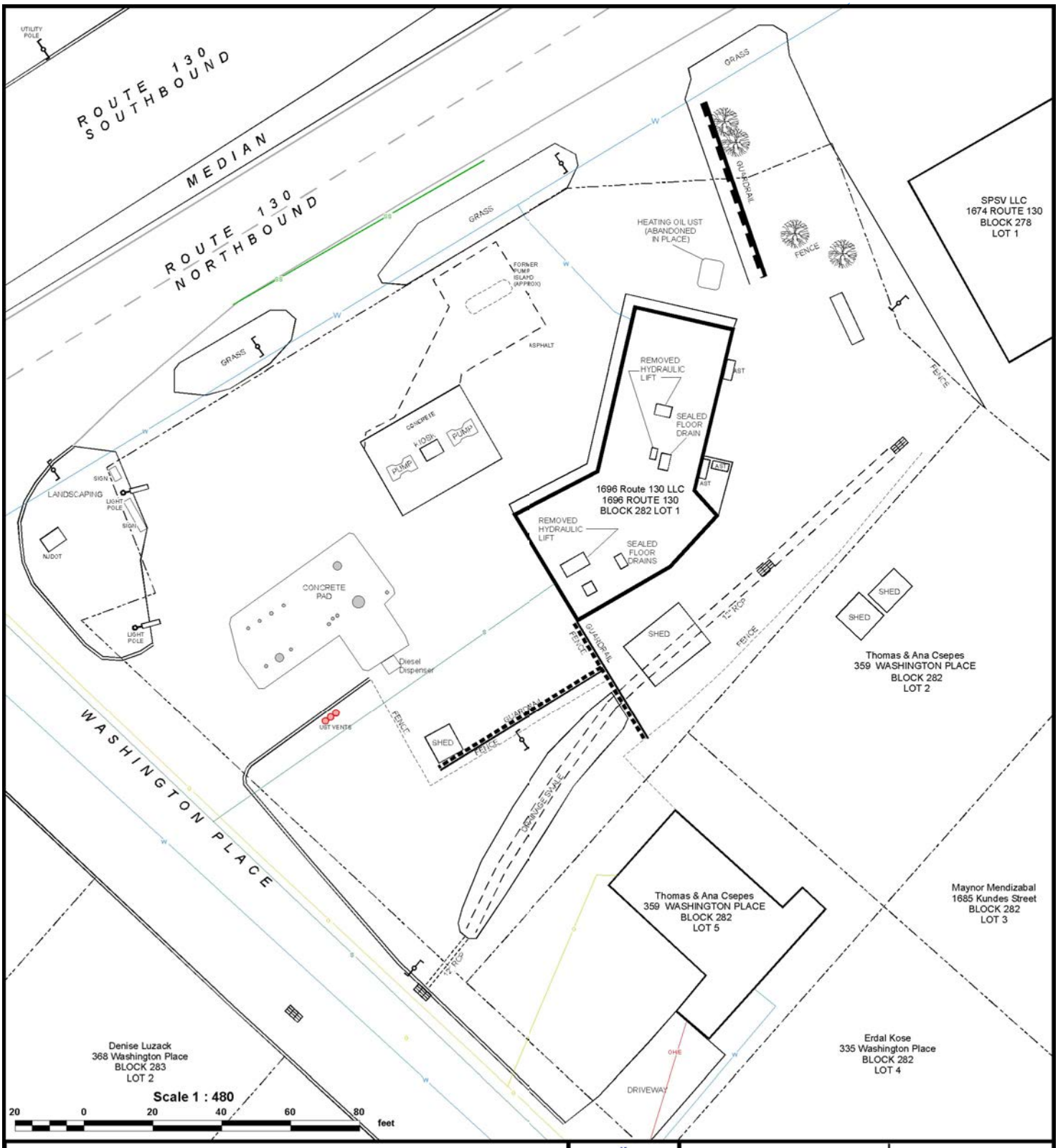
ECC HORIZON
NJ/NY Region
One Emery Avenue
Randolph, NJ 07869
973-989-8010
www.ecchorizon.com

FIGURE 1

SITE LOCATION

Jersey Oil / North Brunswick Gulf Service Station
1696 Georges Road, Route 130, N. Brunswick, NJ 08902

PROJECT	DRAFTED	CHECKED	APPROVAL DATE	REV
N-NB1696G	PS	PS	7/18/25	



LEGEND

N

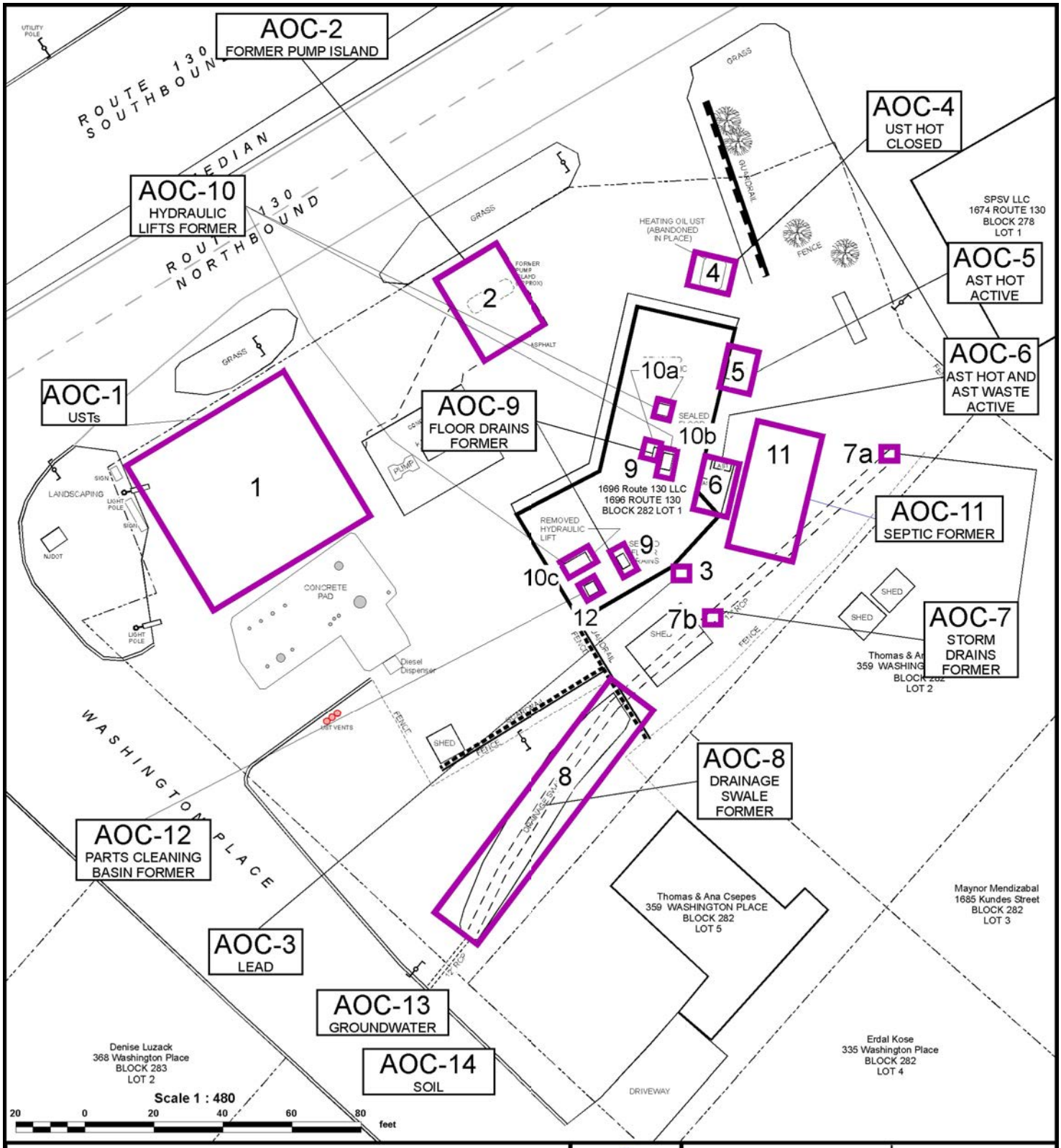
ecc HORIZON
NJ/NY Region
One Emery Avenue
Randolph, NJ 07869
973-989-8010
www.ecchorizon.com

FIGURE 2

Site Features

Jersey Oil / North Brunswick Gulf Service Station
1696 Georges Road, Route 130, N. Brunswick, NJ 08902

PROJECT	DRAFTED	CHECKED	APPROVAL DATE	REV
N-NB1696G	WW	WW	03/07/2025	



LEGEND

Area of Concern

NJ/NY Region
One Emery Avenue
Randolph, NJ 07869
973-989-8010
www.ecchorizon.com

FIGURE 3

Areas of Concern

Jersey Oil / North Brunswick Gulf Service Station
1696 Georges Road, Route 130, N. Brunswick, NJ 08902

PROJECT	DRAFTED	CHECKED	APPROVAL DATE	REV
N-NB1696G	WW	WW	03/07/2025	

TABLE 1
Sampling Performance Objectives
Noor Petroleum Service Station / Jersey Oil
1696 Route 130
North Brunswick, Middlesex County, NJ 08902
PI No. 010180
NJDEP Case No. 01-08-30-1546-07

	Soil Samples	Groundwater Samples	Drinking Water	Vapor Samples
ANALTICAL REQUIREMENTS				
VOC Analyses	EPA 8260 +15 TICs	EPA 8260/624 sim + 15 TICs	EPA 524.2	TO-14, TO-15, TO-17 plus naphthalene
BN Analyses	EPA 8270 + 15 TICs	EPA 8270/625 sim +15 TICs	EPA 525.3	n/a
EPH Analyses	NJDEP EPH	n/a	n/a	n/a
Metals Analyses	Lead 6010B	EPA 200 series and 1631	EPA 200 series and 1631	n/a
QA/QC REQUIREMENTS				
Field Blank Frequency	1 per day	1 per day	n/a	n/a
Trip Blank Frequency	n/a	1 per cooler shipment	1 per cooler shipment	n/a
Duplicate Frequency	1 per 20 samples	1 per 20 samples	n/a	n/a
Site-Specific MS/MSD Required	None	None	n/a	None
DELIVERABLE REQUIREMENTS				
List Used	TAL/TCL	TAL/TCL	NPDWR	TO-14, 15, or 17
Deliverables	NJ Reduced / Hazsite	NJ Reduced / Hazsite	Full Data Deliverables / Hazsite	Full Data Deliverables / Hazsite

TABLE 2
Sampling Locations and Frequency
Noor Petroleum Service Station / Jersey Oil
1696 Route 130
North Brunswick, Middlesex County, NJ 08902
PI No. 010180
NJDEP Case No. 01-08-30-1546-07

Sample Type	Minimum Number of Sampling Points	Rate or Location	Acceptance Criteria
Soil Delineation Samples	6	source area, laterally each direction, vertical	Compliance Point
Soil Post-Excavation Compliance Samples	5	1 per 30 linear feet of sidewall - positively biased, 1/sidewall, base	Compliance Point
Groundwater Delineation and Compliance Samples	1	Source Area	Compliance Point
	1	Upgradient - min 20 feet	Compliance Point
	2	Sidegradient - min 20 feet	Can project to compliance point if less than 1 order of magnitude
	1	Downgradient - min 20 feet	Can project to compliance point if less than 1 order of magnitude
	1	Vertical	Compliance Point
Subslab Soil Gas Evaluation	1	Sample Frequency per Table 3-2 of the Vapor Intrusion Technical Guidance	Test Point
Vapor Intrusion Evaluation	1	Sample Frequency per Table 3-3 of the Vapor Intrusion Technical Guidance	Compliance Point

APPENDIX I

EDD Confirmation Emails

Outlook

010180, LSR100001, 01-08-30-1546-07, HB311362, (Directory: L2368492) - Passed

From DEP SRPEDD [DEP] <SRPEDD@dep.nj.gov>
Date Thu 7/25/2024 6:25 PM
To wweaver@ecchorizon.com <wweaver@ecchorizon.com>

9 attachments (45 KB)

DTST.TXT; EDSA_Error_Log.html; erdtst-7-2-0.txt; erresult-7-2-0.txt; ersample-7-2-0.txt; HZRESULT.TXT; HZSAMPLE.TXT; rstp-7-2-0.txt; SampleLoc-7-2-0.KML;

The EDD submission via email from (wweaver@ecchorizon.com) on (7/25/2024 1:04:35 PM) with the subjectline "[EXTERNAL] 010180, LSR100001"

The following identifiers were in the DTST file:

- Directory: L2368492
- DESC: SSSG 11/16/23
- SRPID: 10180
- Submit Date: 7/25/2024

This submission has been issued an SRP Catalog ID: HB311362

Submission status: Passed.

Please do **not** resubmit.

EDD data deliverable must be submitted only once.
- To fulfill Key Document requirements attach only a copy of this email as an appendix to the document.
- Do **not** resubmit any approved EDD deliverable as part of a portal submission.

Email ID: OEM_112956

Sub ID:SUB_849547

William Weaver

From: DEP SRPEDD [DEP] <SRPEDD@dep.nj.gov>
Sent: Tuesday, July 2, 2024 5:01 PM
To: Renzo Santamaria
Subject: 010180, LSR100001, 01-08-30-1546-07, HB310414, (Directory: L2371783) - Passed
Attachments: DTST.TXT; EDSA_Error_Log.html; erdtst-7-2-0.txt; erresult-7-2-0.txt; ersample-7-2-0.txt; HZRESULT.TXT; HZSAMPLE.TXT; rstp-7-2-0.txt; SampleLoc-7-2-0.KML

The EDD submission via email from (rsantamaria@ecchorizon.com) on (7/1/2024 12:06:30 PM) with the subjectline "[EXTERNAL] 010180, LSR100001"

The following identifiers were in the DTST file:

- Directory: L2371783
- DESC: 12/27/23 GW Sampling
- SRPID: 10180
- Submit Date: 7/1/2024

This submission has been issued an SRP Catalog ID: HB310414

Submission status: Passed.

Please do **not** resubmit.

EDD data deliverable must be submitted only once.
- To fulfill Key Document requirements attach only a copy of this email as an appendix to the document.
- Do **not** resubmit any approved EDD deliverable as part of a portal submission.

Email ID: OEM_111934
Sub ID:SUB_842784

William Weaver

From: DEP SRPEDD [DEP] <SRPEDD@dep.nj.gov>
Sent: Tuesday, February 27, 2024 11:13 AM
To: Renzo Santamaria
Subject: 010180, LSR100001, 01-08-30-1546-07, HB305235, (Directory: L2371783) - Passed
Attachments: DTST.TXT; EDSA_Error_Log.html; erdtst-7-2-0.txt; erresult-7-2-0.txt; ersample-7-2-0.txt; HZRESULT.TXT; HZSAMPLE.TXT; rstp-7-2-0.txt; SampleLoc-7-2-0.KML

The EDD submission via email from (rsantamaria@ecchorizon.com) on (2/26/2024 2:20:07 PM) with the subjectline "[EXTERNAL] 010180, LSR100001"

The following identifiers were in the DTST file:

- Directory: L2371783
- DESC: SS 12/5/23
- SRPID: 10180
- Submit Date: 2/25/2024

This submission has been issued an SRP Catalog ID: HB305235

Submission status: Passed.

Please do **not** resubmit.

EDD data deliverable must be submitted only once.
- To fulfill Key Document requirements attach only a copy of this email as an appendix to the document.
- Do **not** resubmit any approved EDD deliverable as part of a portal submission.

Email ID: OEM_105969
Sub ID:SUB_805862

William Weaver

From:	DEP SRPEDD [DEP] <SRPEDD@dep.nj.gov>
Sent:	Tuesday, October 8, 2024 7:21 PM
To:	Renzo Santamaria
Subject:	010180, LSR100001, 01-08-30-1546-07, HB314170, (Directory: L2433860) - Passed
Attachments:	DTST.TXT; EDSA_Error_Log.html; erdtst-7-2-0.txt; erresult-7-2-0.txt; ersample-7-2-0.txt; HZRESULT.TXT; HZSAMPLE.TXT; rstp-7-2-0.txt; SampleLoc-7-2-0.KML

The EDD submission via email from (rsantamaria@ecchorizon.com) on (10/7/2024 11:42:04 AM) with the subjectline "[EXTERNAL] 010180, LSR100001"

The following identifiers were in the DTST file:

- Directory: L2433860
- DESC: 6/14/24 SS Sampling
- SRPID: 10180
- Submit Date: 10/7/2024

This submission has been issued an SRP Catalog ID: HB314170

Submission status: Passed.

Please do **not** resubmit.

EDD data deliverable must be submitted only once.
- To fulfill Key Document requirements attach only a copy of this email as an appendix to the document.
- Do **not** resubmit any approved EDD deliverable as part of a portal submission.

Email ID: OEM_116073
Sub ID:SUB_869117

William Weaver

From: DEP SRPEDD [DEP] <SRPEDD@dep.nj.gov>
Sent: Wednesday, August 14, 2024 8:55 AM
To: Renzo Santamaria
Subject: 010180, LSR100001, 01-08-30-1546-07, HB312093, (Directory: L2443329) - Passed
Attachments: DTST.TXT; EDSA_Error_Log.html; erdtst-7-2-0.txt; erresult-7-2-0.txt; ersample-7-2-0.txt; HZRESULT.TXT; HZSAMPLE.TXT; rstp-7-2-0.txt; SampleLoc-7-2-0.KML

The EDD submission via email from (rsantamaria@ecchorizon.com) on (8/13/2024 11:44:41 AM) with the subjectline "[EXTERNAL] 010180, LSR100001"

The following identifiers were in the DTST file:

- Directory: L2443329
- DESC: 7/30/24 GW Sampling
- SRPID: 10180
- Submit Date: 8/13/2024

This submission has been issued an SRP Catalog ID: HB312093

Submission status: Passed.

Please do **not** resubmit.

EDD data deliverable must be submitted only once.
- To fulfill Key Document requirements attach only a copy of this email as an appendix to the document.
- Do **not** resubmit any approved EDD deliverable as part of a portal submission.

Email ID: OEM_113763
Sub ID:SUB_854575

William Weaver

From: Brian Rappaport
Sent: Tuesday, July 15, 2025 7:18 PM
To: William Weaver; Christopher Mazur
Subject: Fwd: 010180, LSR100001, 010180, HB324778, (Directory: L2503621) - Passed
Attachments: DTST.TXT; EDSA_Error_Log.html; erdtst-7-2-0.txt; erresult-7-2-0.txt; ersample-7-2-0.txt; HZRESULT.TXT; HZSAMPLE.TXT; rstp-7-2-0.txt; SampleLoc-7-2-0.KML

Get Outlook for iOS

From: DEP SRPEDD [DEP] <SRPEDD@dep.nj.gov>
Sent: Tuesday, July 15, 2025 7:06 PM
To: Brian Rappaport <brappaport@ecchorizon.com>
Subject: 010180, LSR100001, 010180, HB324778, (Directory: L2503621) - Passed

The EDD submission via email from (brappaport@ecchorizon.com) on (7/15/2025 2:55:05 PM) with the subjectline "[EXTERNAL] 10180, LSR10001, 01-08-30-1546-07, JAN 21 2025 (L2503621) EDD Submission"

The following identifiers were in the DTST file:

- Directory: L2503621
- DESC: 01/21/25 GW Sampling
- SRPID: 10180
- Submit Date: 07/15/2025

This submission has been issued an SRP Catalog ID: HB324778

Submission status: Passed.

Please do **not** resubmit.

EDD data deliverable must be submitted only once.
- To fulfill Key Document requirements attach only a copy of this email as an appendix to the document.
- Do **not** resubmit any approved EDD deliverable as part of a portal submission.

Email ID: OEM_127911
Sub ID:SUB_944781

Outlook

Fwd: 010180, LSR100001, 010180, HB324769, (Directory: L2503865) - Passed

From Brian Rappaport <brappaport@ecchorizon.com>
Date Tue 7/15/2025 7:19 PM
To William Weaver <wweaver@ecchorizon.com>; Christopher Mazur <cmazur@ecchorizon.com>

9 attachments (247 KB)

DTST.TXT; EDSA_Error_Log.html; erdtst-7-2-0.txt; erresult-7-2-0.txt; ersample-7-2-0.txt; HZRESULT.TXT; HZSAMPLE.TXT; rstp-7-2-0.txt; SampleLoc-7-2-0.KML;

From: DEP SRPEDD [DEP] <SRPEDD@dep.nj.gov>
Sent: Tuesday, July 15, 2025 6:55 PM
To: Brian Rappaport <brappaport@ecchorizon.com>
Subject: 010180, LSR100001, 010180, HB324769, (Directory: L2503865) - Passed

The EDD submission via email from (brappaport@ecchorizon.com) on (7/15/2025 2:55:07 PM) with the subjectline "[EXTERNAL] 10180, LSR10001, 01-08-30-1546-07, JAN 22 2025 (L2503865) EDD Submission"

The following identifiers were in the DTST file:

- Directory: L2503865
- DESC: 01/22/25 GWS
- SRPID: 10180
- Submit Date: 07/15/2025

This submission has been issued an SRP Catalog ID: HB324769

Submission status: Passed.

Please do **not** resubmit.

EDD data deliverable must be submitted only once.
- To fulfill Key Document requirements attach only a copy of this email as an appendix to the document.
- Do **not** resubmit any approved EDD deliverable as part of a portal submission.

Email ID: OEM_127902

Sub ID:SUB_944792