New Jersey Department of Environmental Protection

Site Remediation Program

Immediate Environmental Concern Technical Guidance

AUGUST 2011

Version 1.0

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IMMEDIATE ENVIRONMENTAL CONCERN TECHNICAL DOCUMENT

I. INTENDED USE OF GUIDANCE DOCUMENT

This guidance is designed to help the person responsible for conducting remediation to comply with the Department of Environmental Protection (Department) requirements established by the Technical Requirements for Site Remediation (Technical Rules), N.J.A.C. 7:26E, SRRA N.J.S.A. 58:10C and the ARRCS Rule at N.J.A.C. 7:26C. Because this guidance will be used by many different people that are involved in the remediation of a contaminated site such as Licensed Site Remediation Professionals (LSRP), Non-LSRP environmental consultants and other environmental professionals, the generic term "investigator" will be used to refer to any person that uses this guidance to remediate a contaminated site on behalf of a remediating party, including the remediating party itself.

This guidance supersedes previous DEP guidance issued on this topic.

Emergency Response vs. Immediate Environmental Concern

An Immediate Environmental Concern (IEC) response is not the same as an emergency response action. Emergency response actions are imminent or existing threats such as chemical tanker spills, leaking drums and explosive hazards. In rare instances, Vapor Intrusion (VI) conditions may be caused by toxic or harmful sub-surface contaminants which have migrated into an occupied or confined space in a building, producing a toxic atmosphere that is immediately dangerous to life and health due to an oxygen deficient atmosphere, or results in the collection of explosive gasses. Explosive gasses are defined as levels that exceed 10 percent of the lower explosive limit (10% LEL) for that compound. In these cases, the investigator shall immediately notify emergency responders and the Department upon knowledge of the results/measurements (N.J.A.C. 7:26E 1.18). After the emergency condition has been mitigated, further response and reporting requirements should follow the IEC guidelines.

This guidance was prepared with stakeholder input. The following people were on the committee who prepared this document:

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II. PURPOSE

The purpose of the Immediate Environmental Concern (IEC) technical guidance is to provide a single document that can be followed to address IEC conditions involving potable water, vapor

intrusion and/or direct contact exposure scenarios. This document incorporates technical guidance, the Site Remediation Reform Act N.J.S.A. 58:10C-1 et seq. (SRRA), the Technical Requirements for Site Remediation N.J.A.C. 7:26E (Technical Rules), Administrative Requirement for the Remediation of Contaminated Sites N.J.A.C. 7:26C (ARRCS) and provides tools and examples to aid the investigator in addressing IEC cases. Throughout this document the word "should" refers to technical guidance and the word "shall" refers to the requirements of the SRRA or the Technical Rules. When a requirement of either SRRA or the Technical Rules is specified, the citation is included in the document. This document was written to include both technical guidance and the rules to be more beneficial to the user so they do not need to cross-reference multiple documents to determine how an IEC case must be addressed. This guidance also details procedures for identification, notification, receptor control, receptor delineation, and source remediation and is written to aid the investigator in addressing the more common types of IEC conditions. It does not anticipate every scenario and, therefore, requires professional judgment for situations not directly included.

IEC cases are priority remedial cases that involve exposure to contaminants that may result in risks to human health. As required in IEC cases, the investigator should act quickly, effectively and within the regulatory and mandatory timeframes to eliminate or minimize ongoing exposures. Overall, IEC cases differ from most remedial cases in that actual human exposure is occurring or is likely occurring. The IEC guidance compliments the Vapor Intrusion Guidance (VIG) and is designed to be used in tandem. An IEC condition may be identified in any phase of the remedial process and shall be addressed in accordance with the Technical Requirements N.J.A.C. 7:26E-1.13 regardless of the remedial phase of the site. This guidance also includes suggested remedial actions related to source control for IEC conditions. Unknown sources causing IEC conditions are handled by the Department's publicly funded program in a similar manner.

As soon as the investigator reports the IEC to the Department, a case manager will be assigned. The case manager will provide guidance and serve as a point of contact. Some cases may require additional considerations beyond this guidance document and should be addressed in consultation with the IEC case manager.

This technical guidance is intended to help the investigator implement the following statues, regulations and guidance documents.

Rule Citation
N.J.A.C. 7:26C
N.J.A.C. 7:26E
N.J.S.A. 58:10C
Vapor Intrusion Guidance

III. DOCUMENT OVERVIEW

The Site Remediation Reform Act (SRRA), enacted in May 2009, required the Department to

develop new regulations and technical guidance that provide clear direction for the investigator on a number of issues involving contaminated sites. As directed by SRRA, this technical guidance document was developed to address potable water, vapor intrusion and direct contact IEC conditions.

Regulatory and mandatory timeframes differ for each IEC condition. Each type of IEC condition has five regulatory time frames and one mandatory time frame. Details of the time frames for each type of IEC are explained in N.J.A.C. 7:26 E-1.14 and the following sections of this guidance. The regulatory timeframes are associated with each of the five major tasks. All timeframes begin from the date of discovery of the IEC condition and are in calendar days. (NOTE: For cases with existing IEC conditions as of November 4, 2009, the timeframes began on November 4, 2009).

The Department may grant requests for extensions for both regulatory and mandatory time frames according to N.J.A.C. 7:26C-3.2 and 3.5 respectively. The investigator must request an extension 30 days prior to the due date and must submit the time extension form found on the Department's website. All the timeframes are in days and all days are calendar days.

The investigator shall complete five major tasks to address the IEC condition, as per N.J.A.C. 7:26E-1.14. First, the investigator shall follow the Initial Notification procedures to report the IEC condition to the Department. Second, the investigator shall address any receptors impacted by contamination from their site by following the Interim Response Action procedures. The next three tasks, to be conducted concurrently, require that the investigator provide an Engineered System Response Action for impacted receptors, conduct a Receptor Delineation and initiate Source Control. The five tasks are summarized below and are explained for each type of IEC condition.

A. Initial Notification

Immediately upon the identification of an IEC condition, the investigator is to notify the Department's Hotline (1-800-WARN DEP) and the existing case manager if assigned. Typically, notification will be completed following a review of final laboratory data as soon as the deliverable(s) is available for review. The investigator should assume the final laboratory data is valid (unless otherwise noted within the data package), begin notification and not wait for a data validation report from the Department.

B. Interim Response Action

The investigator shall provide an interim response action to mitigate receptor exposure. These actions may include providing bottled water, appropriate ventilation or eliminating direct contact.

C. Engineered System Response Action

An engineered system response is required to control receptor exposure. Controlling receptor

exposures involves reducing contamination to below acceptable standards. This action may include but is not limited to installation of a Point of Entry Treatment (POET) system or connection to a public supply for potable water; sub-slab depressurization for vapor intrusion; and, soil removal or capping to prevent direct contact. An IEC condition remains, even if an engineered response has been implemented to address impacts to the receptor(s).

D. Receptor Delineation

Receptor delineation is the processes of determining if there are impacts to potential receptors. The investigator may need to collect and analyze samples from potential receptors depending on their location and distance. Depending on the results from the initial receptor delineation sampling, additional sampling may be required to delineate the full extent of receptor impact.

E. Source Control

Source control is the process of eliminating the transition of contaminants into the environment which has caused an IEC condition. The overall goal of source control is to eliminate the cause of the IEC condition so that protection of public health does not rely solely on receptor controls. Examples of source control are excavating contaminated soil, removing free product, or excavating a leaking under ground storage tank. The specific source of contamination that leads to an IEC condition shall begin to be addressed as part of the remediation of the IEC condition.

IV. PROCEDURES

The following sections explain how each one of the three IEC conditions shall be addressed. These procedures identify tasks that must be completed according to the rule and guidance that should be followed to accomplish these tasks.

A. Potable Water IEC Technical Guidance Procedures

This document was written to include both technical guidance and the rules to be more beneficial to the user and to reduce the need to cross-reference multiple documents to determine how to address an IEC case. Throughout this document, the word “should” refers to guidance and the word “shall” refers to the requirements of the SRRA or the Technical Rules. When requirements of either the SRRA or the Technical Rules are specified, the citation will be included in the document.

1. Identification

Immediate Environmental Concern (IEC) cases exist at sites where discharges of hazardous substance(s) have resulted in the presence of chronic levels of contaminants above the Class II Ground Water Remediation Standards (GWRS), per N.J.A.C. 7:26D-2.2. This applies to water from a domestic well used for potable purposes or when water contamination above federal and state drinking water standards (Maximum Contaminant Levels) is found in surface waters used

for public water supplies. Samples used for these determinations are raw water samples taken before any treatment.

During the course of an investigation, the investigator may discover contamination that is not attributable to the site but is likely to be related to another contaminant source. The investigator will use best professional judgment supported by site-specific data to determine if the contamination is related to another contaminated site. Generally, this information includes, but is not limited to historical site information, site and regional characteristics, hydrogeology, geology of the area, and contaminant concentrations and characterization.

If contamination is determined not to be related to the site, the investigator indentifying the IEC case shall report the unrelated IEC condition to the Department's Hotline. When calling the Hotline (1-877-WARN DEP) for this circumstance, inform the Hotline operator that it is "an unknown source IEC" (N.JA.C. 7:26E-1.14(b)1). The investigator shall also submit an IEC Response Action Form (located at www.state.nj.us/dep/srp/srra/forms) within the specified regulatory timeframe (14 Days), and include justification and documentation supporting their determination of an unknown source per N.JA.C. 7:26E-1.14(b)3. Include all analytical data, maps and figures, and other information used to make the determination. The requirements are found at N.J.A.C. 7:26E-3.7(g) to support a claim that all or part of the ground water contamination is caused by a background source. These requirements may not be directly applicable to confirming another contaminant source, but the concepts outlined there may be helpful in the documentation of another contaminant source.

After the Department reviews the claim with the supporting information, the Department will inform the investigator of its decision regarding source of contamination. It is recommended that the investigator proceed with the IEC procedures outlined in this document until the Department has provided a conclusion regarding the IEC claim. If the Department concurs that the contamination is not related to the site, the investigator is not responsible for conducting any further action for the IEC condition. (The investigator may be eligible to make a claim against the Spill Compensation and Control Act Fund. Contact the Spill Fund administrator to determine eligibility). If the IEC condition is determined to be from an unknown source, the Department will address the impacted receptors with public funds. If a portion of the contamination is related to the site and is creating an IEC condition, the investigator shall continue to address the IEC condition pursuant to N.J.A.C. 7:26E-1.14 and this technical guidance. If there is a comingled plume from multiple sites, the investigators from each site should negotiate between themselves what portions each will address. If the investigator cannot resolve how to divide the responsibility and address the IEC condition, the Department will address the receptors with public funds and will commence enforcement and/or seek cost recovery.

The potable water IEC technical guidance procedures primarily address the remediation of contaminated private wells used for drinking water. When an IEC condition occurs in public water supply wells or surface water intakes, the investigator should coordinate with the Department's IEC case manager, water purveyor and the Department's Bureau of Safe Drinking Water Implementation to enact appropriate measures to protect public health.

Throughout the IEC process, the investigator shall submit all IEC related data within 14 days of receipt from the laboratory to the Department's Office of Data Quality (ODQ) for data validation per. N.JA.C. 7:26E-2.1(a)16. The data shall be submitted with a Full Laboratory Data Deliverables Form (located at www.state.nj.us/dep/srp/srra/forms) to the ODQ. Once the data is validated by the Department, a Data Validation Report will be emailed to the investigator. If there are issues, such as data being qualified, the investigator may contact the ODQ and discuss the usability of the data.

2. Initial Notification (Day 1)) N.J.A.C. 7:26E-1.14(b)1

When a potable water IEC is identified, immediately call the Department Hotline (1-877-WARN DEP) and notify the assigned SRP case manager, if one is assigned. When calling the Hotline, the caller should inform the Hotline operator that they are reporting an "IEC case".

3. Interim Response Action (5 Days) N.J.A.C. 7:26E-1.14(b)2

Within 5 days of the date of discovery of the IEC condition, the investigator should notify the receptor of the contamination and shall implement an interim response action to address any receptor impacted by contamination from the site.

Written notification of the test results, their significance and future actions should be sent to any impacted property owner (and occupant, if applicable). The investigator shall provide a copy to the local health department, municipal clerk, and Department within 5 days per N.J.A.C. 7:26E-1.14(b)2. It should be explained in the written notification letter that when a well is contaminated above Ground Water Remediation Standards (GWRS), the well is not considered acceptable for potable purposes such as drinking or cooking. In addition, the letter should contain information on specific future interim response actions that will be provided by the investigator such as delivering bottled water and conducting additional sampling. Examples of letters for the owner/occupant and local officials are provided at the Department's website www.state.nj.us/dep/srp/guidance/srra. The investigator should also call any impacted property owner (and occupant, if applicable) and provide the test results.

Also within the first 5 days, the investigator shall implement an interim response action to remediate receptor exposure per N.J.A.C. 7:26E 1.14(b)2i. These actions may include such things as providing bottled water or installing a point of entry water treatment (POET) system.

4. IEC Information Submittal (Day 14) N.J.A.C. 7:26E-1.14(b)3

Within 14 days, the investigator shall submit to the Department, an IEC Response Action Form, IEC potable spreadsheet (located at www.state.nj.us/dep/srp/srra/forms) and an IEC map per N.J.A.C. 7:26E 1.14(b)3. The IEC Potable Spreadsheet shall be submitted and should include all

test results, actions taken for each IEC condition identified, and property information. All properties sampled with results that are above standards or below standards should be listed in the spreadsheet. It is equally important to identify where the contamination does and does not exist.

The IEC map should be plotted on a scaled lot and block map based on the most recent version of a municipal tax map. The following should be included in the IEC map:

- plotted sample locations, including locations sampled and above standards and locations sampled but below standards
- title block with the name of the case, Program Interest (PI) number or Incident number/Communications Center number
- date, scale, north arrow, street names, lot and block numbers
- name of a Licensed Site Remediation Professional (if involved with the case)
- location of potable well samples and ground water monitor well samples

On the IEC map, the location of the well samples using symbols to represent contaminant concentrations. For example, an open circle should be used to identify a non-detect sample for any contaminants, a circle shaded only on the bottom half should represent a result greater than non-detect, but less than the applicable standard and a completely shaded circle should represent a sample greater than the applicable standard. An example of an IEC map is shown in Appendix A.

The IEC Response Action Form, spreadsheet and IEC map should be submitted in two formats: regular mail and electronically to the Bureau of Case Assignment and Initial Notice. Send the electronic submittal to the Department by attaching it to an email. (When the Department portal is operational, this procedure will be revised.) The mailing address is on the IEC Response Action Form. If an IEC case manager is already assigned, the investigator will electronically submit the package to the IEC case manager.

When the Department receives the IEC Response Action Form and the required information, an IEC case manager will be assigned for only the IEC portion of the case. The IEC case manager will contact the investigator. All investigator communications with the Department will then be through the IEC case manager.

It is recommended the investigator frequently communicate with the assigned IEC case manager to stay up to date on issues and provide information to public and local officials. It is suggested that the investigator establish a schedule for providing updates on the status of the case to the case manager. It is also suggested that updates be provided to the case manger every 2 weeks in the beginning of the case when time frames are shorter. During the source control phase, updates should be provided on a monthly basis. An update should consist of a phone call and/or email explaining the progress since the last update. If new sample data is received or remediation activities have occurred, revise the spreadsheet and the map and email to the case manager. If

problems are occurring, it is important to communicate them to the case manager. If these problems result in project delays, the case manger may grant a time extension. The investigator should be familiar with the requirements for requesting a time extension.

If it is determined that the contamination resulting in the IEC condition is from a source not related to the site, then the investigator shall notify the owner/occupant and provide the required information to the Department. Then as noted in section A.1., the Department will address the IEC condition through the Publicly Funded Remediation Program.

5. Engineered System Response Action (60 Days) N.J.A.C. 7:26E-1.14(b)5

Within 60 days from receipt of analytical results indicating that an IEC condition exists, the investigator shall implement an engineered system response action to remediate the impacted well(s) per N.J.A.C. 7:26E-1.14(b)5. Engineered systems may include the use of a POET system or the connection to a public water supply system. An engineered system shall provide potable water to the whole house. Providing bottled water or point-of-use (POU) treatment systems are not considered an engineered system response action. An under the counter system which treats one faucet or treatment installed on the end of a faucet are examples of POU systems.

Confirmation testing of the initial analytical results is not required, but if elected, shall be completed within 60 days from receipt of results of the initial sample. No additional time is provided for taking an initial confirmation sample. If a confirmation sample confirms that contaminant levels exceed GWRS, then an engineered system shall be implemented. If the analytical results of the confirmation sample show contaminant concentrations at or below GWRS, then a second confirmation sample shall be taken. An additional 30 days will be given to collect and analyze the second confirmation sample and to implement an engineering system if one is still required. If two of the three test results exceed GWRS, then an engineered system shall be installed. Installation of an engineered system is not required if two of the three test results are at or below GWRS. At this point, the investigator should request the IEC case manager remove the IEC status from the case.

Specifications for standard POET systems provided by the Department should be used when a POET system is installed as an engineered system response action. The POET specifications, found on the Department's website at www.state.nj.us/dep/srp/guidance/srra/poet_specs provides guidance on the minimum design criteria and minimum monitoring and maintenance frequency. The investigator should be aware that elevated levels of radon in the well water could cause the granular activated carbon to become radioactive. It is possible that unsafe conditions can occur due to the increased radiation level. Take appropriate precautions such as more frequent Granular Activated Carbon (GAC) changes or shielding to prevent radiation levels from becoming unsafe. The POET specification provides guidance on operating a POET in areas with high radon in ground water.

A post-installation sample should be collected to confirm that the system is functioning properly. Results of the post-installation sample are considered part of the installation of the system and should be taken within the 60-day timeframe for implementing an engineered system response action. The investigator should report the sample results to the property owner/occupant, and shall copy the Department and local health department.

6. Receptor Delineation (60 Days)

A receptor delineation investigation of potential impacts to other nearby receptors should be conducted within 60 days of the date of discovery of the IEC condition. Receptor delineation and implementation of receptor controls should to be conducted concurrently.

Upon discovery of an IEC condition, the investigator should conduct a well search and identify all potable wells within a 500-foot radius of the impacted well(s). If the well location cannot be found, the investigator should use the home location. Within 60 days, sample and analyze all wells identified within a 500-foot radius of the affected well(s). If the ground water flow direction is known, sampling may be limited to wells located 250 feet up gradient, 500 feet side-gradient and 500 feet down gradient of the impacted well(s).

If the number of properties within this range presents logistical issues due to a large number of samples needed, contact the assigned IEC case manager to discuss a modified plan and/or a possible time extension to complete the delineation. If any potable delineation sample shows contaminant levels above GWRS, additional outward receptor sampling should be conducted to delineate the full extent of wells impacted with contaminants related to the site. The additional sampling should be conducted using the procedures outlined above and should continue until all samples show contaminant concentrations below GWRS. Appendix B contains a series of maps showing a graphical representation of how receptor evaluation sampling should be conducted.

Initial contact with potential receptors should be in writing with copies submitted to the local health department and the Department. If needed, these letters should be followed up with phone calls and an additional letter. The investigator should contact the IEC case manager regarding the delineation sampling schedule, as well as any access issues. The investigator should document in writing any lack of response to repeated attempts to contact potential receptors. Letters should be sent certified or a similar method to document receipt/delivery to potential receptors. Certified receipts can be beneficial if there is a dispute whether a potential receptor was contacted.

If additional impacted potable wells are found during the delineation process, the time frame for providing the engineered response action for the new receptor will be 60 days from discovery of the additional contaminated well(s). However, discovering additional receptors does not reset the timeframes for submitting any of the required reports.

7. IEC Engineered System Response Action Report (120 Days) N.J.A.C. 7:26E-1.14(c)

An IEC Engineered System Response Action Report shall be submitted within 120 days after the IEC is first identified. The report shall consist of the following:

- narrative summary of remedial work performed including the interim response actions and engineered system response actions that were implemented within the 60-day timeframe (include such things as number of locations sampled, number IEC conditions found and number of IEC conditions remediated)
- detailed receptor delineation information
- updated IEC Immediate Response Action Form
- IEC map
- IEC Potable Spreadsheet
- Geographic Information System (GIS) compatible IEC map that can be loaded in the Department's IMAP or Geo Web system

The Department can generate a map in the GIS IMAP system for the investigator if these directions are followed:
The investigator shall submit an electronic copy of the IEC Potable Spreadsheet via email to srpgis@dep.state.nj.us.
1) Provide in the subject line of the email:
- Program Interest (PI) number
- the words "IEC Potable"

2) Provide in the body of the email:
- name of company making submission
- name, email address and phone number of the professional who prepared the submission
- site name – as it is known to the Department
- street address, municipality and county for the site

3) Name the IEC Potable Spreadsheet file as follows:
- PI number of the site
- date of the submission
- IECP (designating an Immediate Environmental Concern for Potable)

For example, if the DEP Program Interest Number is 000123; the date of submittal is May 13, 2011; and the type of case is a Potable Water IEC, the spreadsheet file name should be 000123_051311IECP.

The 120-day reports will be submitted in two formats: regular mail and electronically to the Bureau of Case Assignment and Initial Notice and the case manager. The mailing address is on

the IEC Response Action Form.

If numerous receptors are found during the delineation process and are being addressed through receptor controls, an initial IEC Engineered System Response Action Report shall be submitted within 120 days summarizing the implemented engineered system response actions to date.

As additional remedial activities for receptors are conducted, an updated IEC Engineered System Response Action Report should be submitted every 30 days until all impacts to receptors have been mitigated. This will eliminate the need for a report on each receptor.

8. Source Control (1 Year) N.J.A.C. 7:26E-1.14(d)

Within one year after identifying an IEC condition, the investigator shall identify all contaminant source areas contributing to the IEC condition and begin contaminant source control. While contaminant source control shall start within one year, it is not required to be completed within that timeframe. The goal of starting source control in one year is to remove the contaminants that are creating the IEC condition. Examples of source areas that should have source control started within one year are leaking tanks, contaminated soils and floating product. A plan to conduct source removal is not considered source removal.

The investigator should also create a Currently Known Extent (CKE) map. The CKE map represents an area that encompasses all properties with potable well contamination above GWRS. The CKE area is drawn on the IEC map when all the sample data is plotted. If a property exceeds the GWRS and the lot is equal to or less than 3 acres, the entire lot boundary should be used in the delineation. If a property exceeds the GWRS and the lot is greater than 3 acres, the location of the well should be used as the reference point for plotting. For lots greater than 3 acres, if the location of the well is unknown, the location of the home should be used as the reference point. Using a straight line, connect the lot perimeters for all lots that exceed an applicable standard(s) to delineate a polygon area encompassing all lots exceeding the standards. When the polygon is drawn, lots around the perimeter of the polygon may be bisected. For any bisected lot that is 3 acres or less in size, the entire lot should be encompassed in the CKE area. If a lot is bisected and is greater than 3 acres, the CKE line will remain as drawn. Appendix C shows the step by step process for drawing a CKE map.

A monitoring and maintenance plan shall be created that specifies actions to maintain controls for impacted receptors and monitoring of potential receptors (N.J.A.C. 7:26E-1.14(d)). The monitoring and maintenance plan will specify the schedule for sampling and maintaining both potable wells and monitor wells within the CKE area and the surrounding perimeter. Potable wells within the CKE that do not have mitigation systems should be sampled periodically to determine if the contamination is migrating. Any potable wells with detectable levels of a contaminant of concern (COC), but at or below GWRS, should be included in future sampling events. Perimeter sampling will consist of sampling adjacent wells outside of the CKE area. The

investigator should use professional judgment to determine these wells in consultation with the IEC case manager. The goal of the perimeter monitoring is to determine if the groundwater contamination is migrating and if it is impacting wells that are outside of the CKE area. On an annual basis, the sampling plan should address potential impacts to nearby receptors with unprotected wells.

The monitoring and maintenance plan shall also include a monitoring and maintenance schedule for all remediation systems such as POET systems (N.J.A.C. 7:26E-1.14(d)2). Guidance for monitoring and maintenance of a Granular Activated Carbon POET system is found in the Department's website at www.state.nj.us/dep/srp/guidance/srra/poet_specs.

An IEC Source Control Report also shall be submitted within 1 year (N.J.A.C. 7:26E-1.14) and should include the following:

- updated IEC Immediate Response Action Form
- updated IEC Potable Spreadsheet
- description of the source control measures initiated
- identified source areas
- detailed receptor delineation
- engineered system response actions
- monitoring and maintenance plan for any mitigation system
- monitoring plan for wells located near wells impacted by IEC conditions
- Department generated Data Validation Report
- GIS compatible map for the CKE area that can be loaded in the Department's IMAP or Geo Web system

The one-year report will be both electronically submitted and mailed to the Bureau of Case Assignment and Initial Notice. Send the electronic submittal to the case manager. The mailing address is on the IEC Response Action Form. For submitting the GIS compatible IEC map, follow the directions in the previous section on the Engineered System Response Action Report.

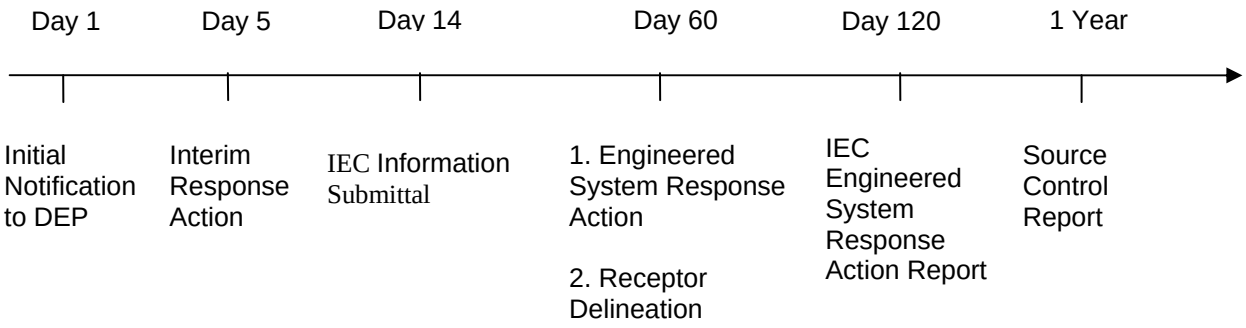
Once all requirements of the one-year report are complete, the IEC oversight by the Department's IEC case manager will end. The Department's active IEC designation ends at this point. However there will still be a record that an IEC condition was present at the site. The investigator will continue with sampling, report submittals and appropriate remedial activities in accordance with the applicable regulatory and mandatory timeframes.

9. Annual Monitoring and Maintenance Plan Report

Annually, the investigator should submit a Monitoring and Maintenance Plan Report to the Bureau of Compliance Assistance and Initial Notice if operation, maintenance or monitoring is needed. Do not send this report to the IEC Case Manager because the manager will no longer be involved. The report will include a copy of the approved monitoring and maintenance plan, a description of the monitoring and maintenance conducted in the past year and a summary of the data. All data should be validated and included in the IEC Potable Spreadsheet. Upon issuance of the Response Action Outcome (RAO) permit, the Annual Monitoring and Maintenance report including any operation, maintenance and monitoring requirements will be incorporated therein.

Figure 4-1 below is a graphical representation of the timeline for addressing a Potable IEC case.

Figure 1
Potable Water IEC Timeline



B. Vapor Intrusion IEC Technical Guidance Procedures

This document was written to include both technical guidance and the rules to be more beneficial to the user and to reduce the need to cross-reference multiple documents to determine how to address an IEC case. Throughout this document the word "should" refers to technical guidance and the word "shall" refers to the requirements of the SRRA or the Technical Rules. When requirements of either the SRRA or the Technical Rules are specified, the citation will be included in the document.

1. Identification

A Vapor Intrusion (VI) Immediate Environmental Concern (IEC) exists when there is a chronic exposure that exceeds a Rapid Action Level(s) (RAL) in a building, a contaminant source related to the site exists and there is a demonstrated pathway between the two. The investigator should refer to the Vapor Intrusion Guidance (VIG) for technical guidance for addressing VI cases (www.nj.gov/dep/srp/guidance/vaporintusion). The RALs are listed in Table 2 of the Department's Vapor Intrusion website. Currently the RALs are calculated for 13 commonly used chemicals based on the residential scenario. The contaminant pathway is demonstrated using the criteria established in the VIG. Contamination related to the site is the responsibility of the investigator. The investigator shall call the Department's Hotline to report the IEC condition.

During the course of an investigation, the investigator may discover contamination that is not attributable to the site but is likely to be related to another contaminant source. The investigator will use professional judgment supported by site-specific data to determine if the contamination is related to another contaminated site. Generally, this information includes, but is not limited to the following: historical site information, site and regional characteristics, hydrogeology, geology of the area, contaminant concentrations and characterization.

If contamination is determined not to be related to the site, the investigator indentifying the IEC case shall report the unrelated IEC condition to the Department's Hotline. When calling the Hotline (1-877-WARN DEP) for this circumstance, inform the Hotline operator that it is "an unknown source IEC" (N.JA.C. 7:26E-1.14(b)1). The investigator shall also submit an IEC Response Action Form (located at www.state.nj.us/dep/srp/srra/forms) within the specified regulatory timeframe (14 Days), and include justification and documentation supporting their determination of an unknown source per N.JA.C. 7:26E-1.14(b)3. Include all analytical data, maps and figures, and other information used to make the determination. The requirements are found at N.J.A.C. 7:26E-3.7(g) to support a claim that all or part of the ground water contamination is caused by a background source. These requirements may not be directly applicable to confirming another contaminant source, but the concepts outlined there may be helpful in the documentation of another contaminant source.

After the Department reviews the claim with the supporting information, the Department will inform the investigator of its decision regarding the source of the contamination. It is recommended that the investigator proceed with the IEC procedures outlined in this document until the Department has provided a conclusion regarding the IEC claim. If the Department concurs that the contamination is not related to the site, the investigator is not responsible for

conducting any further action for the IEC condition. (The investigator may be eligible to make a claim against the Spill Compensation and Control Act Fund. Contact the Spill Fund administrator to determine eligibility). If the IEC condition is determined to be from an unknown source, the Department will address the impacted receptors with public funds. If a portion of the contamination is related to the site and is creating an IEC condition, the investigator shall continue to address the IEC condition pursuant to N.J.A.C. 7:26E-1.14 and this technical guidance. If there is a comingled plume from multiple sites, the investigators from each site should negotiate between themselves what portions each will address. If the investigator(s) cannot resolve how to divide the responsibility and address the IEC condition, the Department will address the receptors with public funds and will commence enforcement and/or seek cost recovery.

VI cases with levels that are between the Indoor Air Screening Levels and the RALs are not IECs cases but are referred to as Vapor Concern (VC) cases. Separate technical guidance for VC cases is located in the Interim Vapor Concern Technical Guidance document (www.state.nj.us/dep/srp/guidance/srra/draft vapor_concern_interim_tech_guide). There may be cases where both IEC and VC conditions exist and the case must be handled as an IEC. However, individual properties shall be addressed as an IEC if they meet the IEC criteria or as a VC if they meet the VC criteria.

VI cases can be complicated so the following examples were provided to help the investigator with addressing complex VI IEC situations.

Example1: In situations where a VI situation exists in a vacant building with contaminant levels above the RALs, an IEC condition exists even though there is no current human receptor. This situation is considered an IEC because the building may be used in the future. Since there are no human receptors, the implementation of an Engineered System Response Action can be temporarily postponed. The LSRP should certify on a regular basis that the building is unoccupied. If the building use changes and is to be reoccupied, the VI IEC condition must be remediated with an engineered system response. Since the case is an IEC, all other requirements of the Technical Rules and IEC Technical Guidance are to be followed. This includes conducting a receptor delineation, submitting an IEC Engineered System Response Action Report and Submitting a Source Control Report.

Example 2: A situation when contamination from a site impacts an adjacent commercial building that uses chemicals, but the commercial business does not use the contaminant of concern coming from the site. For example, a drycleaner impacts an auto repair shop with the drycleaner's PCE levels above the Rapid Action Levels (RAL), however, the auto shop does not use PCE. Even though the Occupational Safety and Health Administration (OSHA) covers the auto repair shop for the chemicals that they use, PCE is not used at the shop, so the Indoor Air RALs would apply to the PCE contamination. In this situation, PCE triggers an IEC situation at the auto repair shop.

Example 3: When a commercial facility has an exceedance of an indoor air standard and uses the same contaminants of concern (COC) in their facility, Occupational Safety and Health Administration (OSHA) indoor air quality standards apply. These air quality standards are usually much higher than indoor air concentrations found in cases where vapor intrusion occurs. The Department is not responsible for enforcement of OSHA standards. Thus, this would not be an IEC situation.

Example 4: A VI IEC case exists, an Engineered System Response Action is implemented and the contaminant of concern is reduced below the indoor air screening levels. The case does not convert from an IEC to a Vapor Concern case. The case shall continue to follow the Tech Rules for IECs and the IEC Technical Guidance.

Example 5: In general, the Department does not require the collection of indoor air samples in structures that handle the same COCs associated with the site investigation. This is due to the difficulty in determining whether air contaminants present in a structure are from operational activities within the facility or from vapor intrusion. However, sub-slab soil gas and indoor air sampling should be conducted in those areas of a building or structure under one roof (e.g., strip mall or an office area) not associated with the storage or use of the vapor intrusion related COC. In these situations, indoor air results exceeding the NJDEP Indoor Air Rapid Action Levels (with a verified VI pathway complete) would constitute an IEC situation.

VI screening levels can be found at the Vapor Intrusion website at http://www.nj.gov/dep/srp/guidance/vaporintrusion/vig_tables.pdf. Table 1 (Generic Vapor Intrusion Screening Levels) of the VIG includes Ground Water Screening Levels, Soil Gas Screening Levels (residential and non-residential) and Indoor Air Screening Levels (residential and non-residential). The RALs are in Table 2 (NJDEP Action Levels for Indoor Air).

2. Initial Notification (Day 1) N.J.A.C. 7:26E-1.14(b)1

When a VI IEC is identified, immediately call the Department Hotline (1-877-WARN DEP) and notify the assigned SRP case manager, if one is assigned. When calling the Hotline, the caller should inform the Hotline operator that they are reporting an “IEC case”.

3. Interim Response Action and IEC Information Submittal (14 Days) N.J.A.C. 7:26E-1.14(b)2

Within 14 days of the date of discovery of the IEC condition, the investigator should notify the receptor of the contamination and shall implement an interim response action to address any receptor impacted by contamination from the site.

Written notification of the test results, their significance and future actions should be sent to any impacted property owner (and occupant, if applicable). The investigator shall provide a copy to the local health department, municipal clerk, Department and New Jersey Department of Health

and Senior Services within 14 days per N.J.A.C. 7:26E- 1.4. Explain in the written notification letter that when indoor air RALs are exceeded immediate action shall be taken to reduce contaminant levels in the building. In addition, the letter should contain information on specific future interim response actions that will be provided by the investigator such as conducting additional sampling. Examples of letters for the owner/occupant and local officials are provided at the Department's website www.state.nj.us/dep/srp/guidance/srra. The investigator should also call any impacted property owner (and occupant, if applicable) and provide the test results.

Also within the first 14 days, the investigator shall implement an interim response action to remediate receptor exposure per N.J.A.C. 7:26E 1.14(b)2ii. These actions may include such things as caulking cracks, increasing ventilation or providing a carbon air purifier.

Also within 14 days, the investigator shall submit to the Department, an IEC Response Action Form, VI: IEC/VC spreadsheet (located at www.state.nj.us/dep/srp/srra/forms) and an IEC map per N.J.A.C. 7:26E 1.14(b)3. The VI: IEC/VC Spreadsheet shall be submitted and should include all test results, actions taken for each IEC condition identified, and property information. All properties sampled with results that are above standards or below standards should be listed in the spreadsheet. It is equally important to identify where the contamination does and does not exist.

The IEC map should be plotted on a scaled lot and block map based on the most recent version of a municipal tax map. The following should be included in the IEC map:

- plotted sample locations, including locations sampled and above standards and locations sampled but below standards
- title block with the name of the case, Program Interest (PI) number or Incident number/Communications Center number
- date, scale, north arrow, street names, lot and block numbers
- name of the Licensed Site Remediation Professional (if involved with the case)
- location of indoor air and subslab samples

On the IEC map, identify the location of samples using symbols to represent contaminant concentrations. For example, an open circle should be used to identify a sample showing concentrations below Indoor Air Screening Levels for any contaminants; a circle shaded on the bottom half only will represent a result greater than Indoor Air Screening Levels but less than or equal to RALs; and a completely shaded circle will represent a sample greater than RALs. An example of an IEC map is shown in Appendix A.

The IEC Response Action Form, spreadsheet and IEC map should be submitted in two formats: regular mail and electronically to the Bureau of Case Assignment and Initial Notice. Send the electronic submittal to the Department by attaching it to an email. (When the Department portal is operational, this procedure will be revised.) The mailing address is on the IEC Response Action Form. If an IEC case manager is already assigned, the investigator will electronically

submit the package to the IEC case manager.

When the Department receives the IEC Response Action Form and the required information, an IEC case manager will be assigned for only the IEC portion of the case. The IEC case manager will contact the investigator. All investigator communications with the Department will then be through the IEC case manager.

It is recommended the investigator frequently communicate with the assigned IEC case manager to stay up to date on issues and provide information to public and local officials. It is suggested that the investigator establish a schedule for providing updates on the status of the case to the case manager. It is also suggested that updates be provided to the case manger every 2 weeks in the beginning of the case when time frames are shorter. During the source control phase, updates should be provided on a monthly basis. An update should consist of a phone call and/or email explaining the progress since the last update. If new sample data is received or remediation activities have occurred, revise the spreadsheet and the map and email to the case manager. If problems are occurring, it is important to communicate them to the case manager. If these problems result in project delays, the case manger may grant a time extension. The investigator should be familiar with the requirements for requesting a time extension.

If it is determined that the contamination resulting in the IEC condition is from a source not related to the site, then the investigator shall notify the owner/occupant and provide the required information to the Department. Then as noted in section A.1., the Department will then address the IEC condition through the Publicly Funded Remediation Program.

4. Engineered System Response Action (60 Days) N.J.A.C. 7:26E-1.14(b)5

Within 60 days from receipt of analytical results indicating that an IEC condition exists, the investigator shall implement an engineered system response action to remediate the VI IEC condition in the entire building(s) (N.J.A.C. 7:26E-1.14(b)5). Engineered systems include the use of sub-slab depressurization systems which is the presumptive remedy for this type of IEC. Specifications for VI remediation systems are provided in the VIG. Caulking cracks and the use of carbon air purifiers is not considered an Engineered System Response Action. An engineered system shall remediate the vapor intrusion IEC condition.

Confirmation testing of the initial analytical results that identified the original IEC condition is not required; but, if elected, shall be completed 60-days from receipt of results from the initial sample and prior to remedial action being taken. No additional time is given for taking an initial confirmation sample. If the results from a confirmation sample confirm that contaminant levels exceed RALs, an engineered system shall be implemented. If the analytical results of the confirmation sample show contaminant concentrations below RALs, a second confirmation sample should be taken. If a second confirmation sample is required, an additional 30 days will be given to collect and analyze the second confirmation sample and to implement an engineering

system if still required. If two of the three test results exceed RALs, an engineered system shall be installed. Installation of an engineered system is not required if two of the three test results do not exceed RALs. At this point, the investigator should request the case manager to remove the IEC status from the case.

A post-installation sample should be collected to confirm that the system is functioning properly. Results of the post-installation sample are considered part of the installation of the system and should be taken within the 60-day timeframe for implementing an engineered system response action. The investigator should report the sample results to the property owner/occupant, and shall copy the Department and local health department.

5. Receptor Delineation (60 Days)

A receptor delineation investigation of potential impacts to other nearby receptors should be conducted within 60 days of the date of discovery of the IEC condition. Receptor delineation and implementation of receptor controls should to be conducted concurrently. Within 60-days of discovery of an IEC condition, the investigator should identify and sample all buildings within 100 feet of the impacted building for contaminants other than petroleum hydrocarbon (PHC) and 30 feet for PHC. Identify any additional building at risk and conduct additional vapor intrusion investigation pursuant to N.J.A.C. 7:26E-1.18.

If the number of properties within this range presents logistical issues due to a large number of samples needed, contact the assigned IEC case manager to discuss a modified plan and/or a possible time extension to complete the delineation. If any vapor intrusion delineation sample shows contaminant levels above RALs, additional outward receptor sampling should be conducted to delineate the full extent of buildings impacted with contaminants related to the site. The additional sampling should be conducted using the procedures outlined above and should continue until all samples show contaminant concentrations below RALs. Appendix B contains a series of maps showing a graphical representation of how receptor evaluation sampling should be conducted.

Initial contact with potential receptors should be in writing with copies submitted to the local health department and the Department. If needed, these letters should be followed up with phone calls and an additional letter. The investigator should contact the IEC case manager regarding the delineation sampling schedule, as well as any access issues. The investigator should document in writing any lack of response to repeated attempts to contact potential receptors. Letters should be sent certified or a similar method to document receipt/delivery to potential receptors. Certified receipts can be beneficial if there is a dispute whether a potential receptor was contacted.

If additional impacted buildings are found during the delineation process, the time frame for providing the engineered response action for the new receptor will be 60 days from discovery of the additional contaminated building(s). However, discovering additional receptors does not reset

the timeframes for submitting any of the required reports.

6. IEC Engineered System Response Action Report (120 Days) N.J.A.C. 7:26E-1.14(c)

An IEC Engineered System Response Action Report shall be submitted within 120 days after the IEC is first identified. The report shall consist of the following:

- narrative summary of remedial work performed including the interim response actions and engineered system response actions that were implemented within the 60-day timeframe (include such things as number of locations sampled, number IEC conditions found and number of IEC conditions remediated)
- detailed receptor delineation information
- updated VI Immediate Response Action Form
- IEC map
- VI: IEC/VC Spreadsheet
- Geographic Information System (GIS) compatible IEC map that can be loaded in the Department's IMAP or Geo Web system

The Department can generate a map in the GIS IMAP system for the investigator if these directions are followed:
The investigator shall submit an electronic copy of the VI: IEC/VC Spreadsheet via email to srpgis@dep.state.nj.us.
1) Provide in the subject line of the email:
- Program Interest (PI) number
- the words "IEC/VC Vapor Intrusion"

2) Provide in the body of the email:
- name of company making submission
- name, email address and phone number of the professional who prepared the submission
- site name – as it is known to the Department
- street address, municipality and county for the site

3) Name the VI: IEC/VC Spreadsheet file as follows:
- PI number of the site
- date of the submission
- IECVI (designating an Immediate Environmental Concern or Vapor Concern for a vapor intrusion case)

For example, if the DEP Program Interest Number is 000123; the date of submittal is May 13, 2011; and the type of case is a Vapor intrusion IEC, the spreadsheet file name should be 000123_051311IECVI.

The 120-day reports will be submitted in two formats: regular mail and electronically to the Bureau of Case Assignment and Initial Notice and the case manager. The mailing address is on the IEC Response Action Form.

If numerous receptors are found during the delineation process and are being addressed through receptor controls, an initial IEC Engineered System Response Action Report shall be submitted within 120 days summarizing the implemented engineered system response actions to date. As additional remedial activities for receptors are conducted, an updated IEC Engineered System Response Action Report should be submitted every 30 days until all impacts to receptors have been mitigated. This will eliminate the need for a report on each receptor.

7. Source Control (1 Year) N.J.A.C. 7:26E-1.14(d)

Within one year after identifying an IEC condition, the investigator shall identify all contaminant source areas contributing to the IEC condition and begin contaminant source control. While contaminant source control shall start within one year, it is not required to be completed within that timeframe. The goal of starting source control in one year is to remove the contaminants that are creating the IEC condition. Examples of source areas that should have source control started within one year are leaking tanks, contaminated soils and floating product. A plan to conduct source removal is not considered source removal.

A monitoring and maintenance plan shall be created that specifies actions to maintain controls for impacted receptors and monitoring of potential receptors (N.J.A.C. 7:26E-1.14(d). The monitoring and maintenance plan will specify the schedule for sampling and maintaining mitigation systems. The investigator should use professional judgment to determine these buildings/sample locations in consultation with the IEC case manager. The goal of the monitoring is to determine if contamination is migrating and if it is impacting other buildings. On an annual basis, the sampling plan should address potential impacts to nearby receptors.

The monitoring and maintenance plan shall also include a monitoring and maintenance schedule for all remediation systems such as subslab depressurization systems (N.J.A.C. 7:26E-1.14(d)2).

An IEC Source Control Report also shall be submitted within one year (N.J.A.C. 7:26E-1.14) and include the following:

- updated IEC Immediate Response Action Form
- updated VI: IEC/VC Spreadsheet
- description of the source control measures initiated
- identified source areas
- detailed receptor delineation
- engineered system response actions
- monitoring and maintenance plan for any mitigation system
- monitoring plan for buildings located near buildings impacted by IEC conditions
- Department generated Data Validation Report

• GIS compatible map for the IEC area that can be loaded in the Department's IMAP or Geo Web system

The one-year report will be both electronically submitted and mailed to the Bureau of Case Assignment and Initial Notice. Send the electronic submittal to the case manager. The mailing address is on the IEC Response Action Form. For submitting the GIS compatible IEC map, follow the directions in the previous section on the Engineered System Response Action Report.

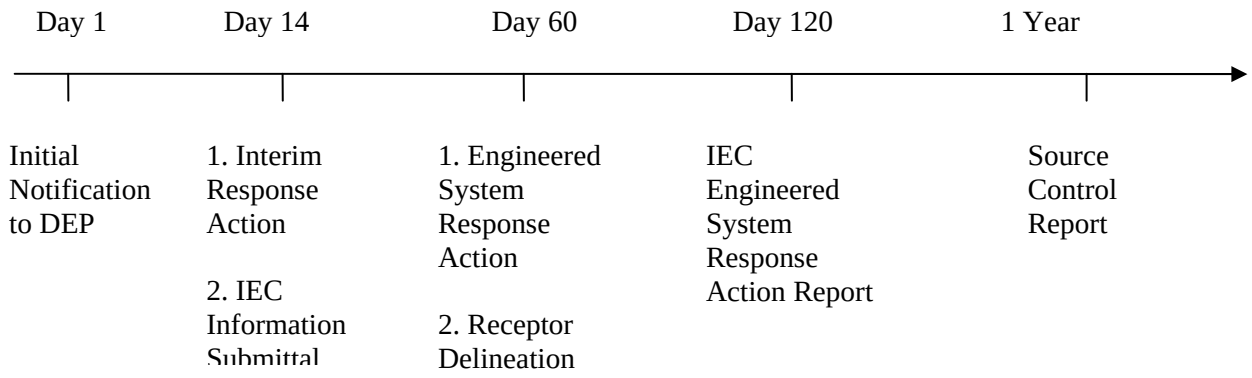
Once all requirements of the one-year report are complete, the IEC oversight by the Department's IEC case manager will end. The Department's active IEC designation ends at this point. However there will still be a record that an IEC condition was present at the site. The investigator will continue with sampling, report submittals and appropriate remedial activities in accordance with the applicable regulatory and mandatory timeframes.

8. Annual Monitoring and Maintenance Plan Report

Annually, the investigator should submit a Monitoring and Maintenance Plan Report to the Bureau of Compliance Assistance and Initial Notice if operation, maintenance or monitoring is needed. Do not send this report to the IEC Case Manager because the manager will no longer be involved. The report will include a copy of the approved monitoring and maintenance plan, a description of the monitoring and maintenance conducted in the past year and a summary of the data. All data should be validated and included in the VI: IEC/VC Spreadsheet. Upon issuance of the Response Action Outcome (RAO) permit, the Annual Monitoring and Maintenance report including any operation, maintenance and monitoring requirements will be incorporated therein.

Figure 4-2 below is a graphical representation of the timeline for addressing a Vapor Intrusion IEC case.

Figure 2
Vapor Intrusion IEC Timeline



C. Direct Contact IEC Technical Guidance Procedures

This document was written to include both technical guidance and the rules to be more beneficial to the user and to reduce the need to cross-reference multiple documents to determine how to address an IEC case. Throughout this document the word “should” refers to technical guidance and the word “shall” refers to the requirements of the SRRA or the Technical Rules. When requirements of either the SRRA or the Technical Rules are specified, the citation will be included in the document.

1. Identification

A Direct Contact IEC has contamination above the acute health effect levels in the upper 6 inches of the soil column and there is actual or potential for human contact via dermal contact, ingestion or inhalation. Acute health effect means that an adverse human health impact could result from an exposure of less than 2 weeks. The potential for exposure is based on site-specific conditions, and therefore, the investigator shall evaluate the reasonable likelihood of exposure. As an example, a residential backyard with exposed soil or limited surface cover would have a high likelihood of exposure verses the same contamination under a paved commercial parking lot. When an area used by sensitive receptors is contaminated (for example a school, residence or daycare facility), the investigator should evaluate the upper 2 feet of the soil column to determine if an IEC condition exists. Certain highly acidic or basic compounds (which normally includes pH levels 2 and under, and more than 12.5) discharged onto soil also could present an acute exposure hazard.

The Department does not currently have promulgated acute health effect levels for soils. Until such time that the Department promulgates the levels for soils, determinations of “acute” levels may be made on a site-specific basis if there is a reasonable likelihood that the concentration of the compound of concern in soil/sediment would cause an acute human health reaction through dermal contact, ingestion or inhalation. As noted above, this determination should be based upon site-specific conditions, including but limited to the presence of the impacted soil at a property used for daycare, school or residential purposes (versus a non-residential scenario), the presence of existing surface cover over the impacted soil, and the general toxicity of the compound/contaminant of concern. The investigator should rely upon professional judgment and on a variety of available toxicological references in the assessment of a Direct Contact IEC condition.

Examples of Direct Contact IEC include as follows:
- Arsenical compounds, such as rat poison, spilled onto soil in a high traffic area whereby contact with this soil could result in an acute health impact;
- Chromic acid spills could render soil highly acidic where direct contact could result in burns; and
- High concentrations of phenol and phenolic compounds could cause burns when direct contact occurs.

The investigator can contact the Bureau of Environmental Evaluation and Risk Assessment at (609) 984-1825 if assistance is needed when determining whether an IEC Direct Contact situation exists.

During the course of an investigation, the investigator may discover contamination that is not attributable to the site but is likely to be related to another contaminant source. The investigator will use professional judgment supported by site-specific data to determine if the contamination is related to another contaminated site. Generally, this information includes, but is not limited to historical site information, site and regional characteristics, hydrogeology, geology of the area, contaminant concentrations and characterization.

If contamination is determined not to be related to the site, the investigator indentifying the IEC case shall report the unrelated IEC condition to the Department's Hotline. When calling the Hotline (1-877-WARN DEP) for this circumstance, inform the Hotline operator that it is "an unknown source IEC" (N.JA.C. 7:26E-1.14(b)1). The investigator shall also submit an IEC Response Action Form (located at www.state.nj.us/dep/srp/srra/forms) within the specified regulatory timeframe (14 Days), and include justification and documentation supporting their determination of an unknown source per N.JA.C. 7:26E-1.14(b)3. Include all analytical data, maps and figures, and other information used to make the determination.

After the Department reviews the claim with the supporting information, the Department will inform the investigator of its decision regarding source of contamination. It is recommended that the investigator proceed with the IEC procedures outlined in this document until the Department has provided a conclusion regarding the IEC claim. If the Department concurs that the contamination is not related to the site, the investigator is not responsible for conducting any further action for the IEC condition. (The investigator may be eligible to make a claim against the Spill Compensation and Control Act Fund. Contact the Spill Fund administrator to determine eligibility). If the IEC condition is determined to be from an unknown source, the Department will address the impacted receptors with public funds. If a portion of the contamination is related to the site and is creating an IEC condition, the investigator shall continue to address the IEC condition pursuant to N.J.A.C. 7:26E-1.14 and this technical guidance. If there is a comingled plume from multiple sites, the investigators from each site should negotiate between themselves what portions each will address. If the investigator(s) cannot resolve how to divide the responsibility and address the IEC condition, the Department will address the receptors with public funds and will commence enforcement and/or seek cost recovery.

Throughout the IEC process, the investigator shall submit all IEC related data within 14 days of receipt from the laboratory to the Department's Office of Data Quality (ODQ) for data validation per. N.JA.C. 7:26E-2.1(a)16. The data shall be submitted with a Full Laboratory Data Deliverables Form (located at www.state.nj.us/dep/srp/srra/forms) to the ODQ. Once the data is validated by the Department, a Data Validation Report will be emailed to the investigator. If there are issues, such as data being qualified, the investigator may contact the ODQ and discuss the usability of the data.

2. Initial Notification (Day 1) N.J.A.C. 7:26E-1.14(b)1

When a direct contact IEC is identified, immediately call the Department Hotline (1-877-WARN DEP) and notify the assigned SRP case manager, if one is assigned. When calling the Hotline, the caller should inform the Hotline operator that they are reporting an "IEC case".

3. Interim Response Action (5 Days) N.J.A.C. 7:26E-1.14(b)2

Within 5 days of the date of discovery of the IEC condition, the investigator should notify the receptor of the contamination and shall implement an interim response action to address any receptor impacted by contamination from the site.

Written notification of the test results, their significance and future actions should be sent to any impacted property owner (and occupant, if applicable). The investigator should provide a copy to the local health department, municipal clerk and Department within 5 days per N.J.A.C. 7:26E-1.4. Explain in the written notification letter that when there are exceedances of acute health levels immediate action shall be taken to reduce exposure. Examples of letters for the owner/occupant and local officials are provided at the Department's website www.state.nj.us/dep/srp/guidance/srra. The investigator should also call any impacted property owner (and occupant, if applicable) and provide the test results.

Also within the first 5 days, the investigator shall implement an interim response action to remediate receptor exposure per N.J.A.C. 7:26E 1.14(b)2i. These actions may include such things as installing a variety of temporary and or permanent controls such as a physical barrier, weighted tarp or cap to control contact or dust generation; fencing to preclude entry to the area; or excavation and removal of contamination.

4. IEC Information Submittal (Day 14) N.J.A.C. 7:26E-1.14(b)3

Within 14 days, the investigator shall submit to the Department, an IEC Response Action Form, and IEC Direct Contact spreadsheet (located at www.state.nj.us/dep/srp/srra/forms) and an IEC map per N.J.A.C. 7:26E 1.14(b)3. All properties sampled with results that are above standards or below standards should be listed in the spreadsheet. It is equally important to identify where the contamination does and does not exist.

The IEC map should be plotted on a scaled lot and block map based on the most recent version of a municipal tax map. The following should be included in the IEC map:

- plotted sample locations, including locations sampled and above standards and locations sampled but below standards
- title block with the name of the case, Program Interest (PI) number or Incident number/Communications Center number

- date, scale, north arrow, street names, lot and block numbers
- name of the Licensed Site Remediation Professional (if involved with the case)
- location of samples

Identify the location of the samples using symbols to represent contaminant concentrations. For example, an open circle should be used to identify a non-detect sample for any contaminants, a circle shaded only on the bottom half should represent a result greater than non-detect, but less than the acute concentrations and a completely shaded circle should represent a sample greater than the acute concentrations. An example of an IEC map is shown in Appendix A.

The IEC Response Action Form, spreadsheet and IEC map should be submitted in two formats: regular mail and electronically to the Bureau of Case Assignment and Initial Notice. Send the electronic submittal to the Department by attaching it to an email. (When the Department portal is operational, this procedure will be revised.) The mailing address is on the IEC Response Action Form. If an IEC case manager is already assigned, the investigator will electronically submit the package to the IEC case manager.

When the Department receives the IEC Response Action Form and the required information, an IEC case manager will be assigned for only the IEC portion of the case. The IEC case manager will contact the investigator. All investigator communications with the Department will then be through the IEC case manager.

It is recommended the investigator frequently communicate with the assigned IEC case manager to stay up to date on issues and provide information to public and local officials. It is suggested that the investigator establish a schedule for providing updates on the status of the case to the case manager. It is also suggested that updates be provided to the case manger every 2 weeks in the beginning of the case when time frames are shorter. During the source control phase, updates should be provided on a monthly basis. An update should consist of a phone call and/or email explaining the progress since the last update. If new sample data is received or remediation activities have occurred, revise the spreadsheet and the map and email to the case manager. If problems are occurring, it is important to communicate them to the case manager. If these problems result in project delays, the case manger may grant a time extension. The investigator should be familiar with the requirements for requesting a time extension.

If it is determined that the contamination resulting in the IEC condition is from a source not related to the site, then the investigator shall notify the owner/occupant and provide the required information to the Department. The Department will then address the IEC condition through the Publicly Funded Remediation Program.

5. Engineered System Response Action (60 Days) N.J.A.C. 7:26E-1.14(b)5

Within 60 days from receipt of analytical results indicating that an IEC condition exists, the investigator shall implement an engineered system response action to remediate the Direct Contact condition. An engineered system may include permanent caps made of materials such as asphalt, concrete, or clay/soil with subsurface marker system. All engineered systems that are used when contamination will remain above a concentration and will allow the unrestricted use of the property require that an institutional control such as a deed notice be placed on the impacted area per N.J.A.C. 7:26E-8.1(b)1.

6. Receptor Delineation (60 Days)

A receptor delineation investigation of potential impacts to other nearby receptors should be conducted within 60 days of the date of discovery of the IEC condition. Samples from all AOCs shall be collected and analyzed for direct contact threats. The potential for a threat in any given area is based on site-specific conditions, such as stressed vegetation, as well as the investigator's professional judgment. The most important issue is the location of the IEC threat relative to other potential receptors such as schools or day care facilities. Receptor delineation and implementation of receptor controls are to be conducted concurrently.

If the number of properties with potential direct contact threats presents logistical issues due to a large number of samples needed, contact the assigned IEC case manager to discuss a modified plan and/or a possible time extension to complete the delineation.

Initial contact with potential receptors should be in writing with copies submitted to the local health department and the Department. If needed, these letters should be followed up with phone calls and an additional letter. The investigator should contact the IEC case manager regarding the delineation sampling schedule, as well as any access issues. The investigator should document in writing any lack of response to repeated attempts to contact potential receptors. Letters should be sent certified or a similar method to document receipt/delivery to potential receptors. Certified receipts can be beneficial if there is a dispute whether a potential receptor was contacted.

If additional impacted receptors are found during the delineation process, the time frame for providing the engineered response action for the new receptor will be 60 days from discovery of the additional contamination. However, discovering additional receptors does not reset the timeframes for submitting any of the required reports.

7. IEC Engineered System Response Action Report (120 Days) N.J.A.C. 7:26E-1.14(c)

An IEC Engineered System Response Action Report shall be submitted within 120 days after the IEC is first identified N.J.A.C. 7:26E-1.14(c). The report shall consist of the following:

• narrative summary of remedial work performed including the interim response actions and engineered system response actions that were implemented within the 60-day timeframe (include such things as number of locations sampled, number IEC conditions found and number of IEC conditions remediated)
• detailed receptor delineation information
• updated Direct Contact Immediate Response Action Form
• IEC map
• Direct Contact: IEC Direct Contact Spreadsheet
• Geographic Information System (GIS) compatible IEC map that can be loaded in the Department's IMAP or Geo Web system

The Department can generate a map in the GIS IMAP system for the investigator if these directions are followed:
The investigator shall submit an electronic copy of the IEC Direct Contact Spreadsheet via email to srpgis@dep.state.nj.us.
1) Provide in the subject line of the email:
• Program Interest (PI) number
• the words "IEC Direct Contact"

2) Provide in the body of the email:
• name of company making submission
• name, email address and phone number of the professional who prepared the submission
• site name – as it is known to the Department
• street address, municipality and county for the site

3) Name the IEC Direct Contact Spreadsheet file as follows:
• PI number of the site
• date of the submission
• IECDC (designating an Immediate Environmental Concern for a Direct Contact case)

For example, if the DEP Program Interest Number is 000123; the date of submittal is May 13, 2011; and the type of case is a Direct Contact IEC, the spreadsheet file name should be 000123_051311IECDC.

The 120-day reports will be submitted in two formats: regular mail and electronically to the Bureau of Case Assignment and Initial Notice and the case manager. The mailing address is on the IEC Response Action Form.

If numerous receptors are found during the delineation process and are being addressed through receptor controls, an initial IEC Engineered System Response Action Report shall be submitted within 120 days summarizing the implemented engineered system response actions to date. As additional remedial activities for receptors are conducted, an updated IEC Engineered System Response Action Report should be submitted every 30 days until all impacts to receptors have been mitigated. This will eliminate the need for a report on each receptor.

At any time following the identification and confirmation that an IEC condition exists, the investigator may elect to complete remediation of the direct contact situation through the removal of the source area. Source area removal may be completed via soil excavation or other means deemed appropriate by the investigator and the assigned IEC case manager. Successful source area removal will be confirmed through the review of post-remedial sampling results. If the source area removal is completed within the first 60 days (following IEC identification) and it is demonstrated that the IEC condition is no longer present, the investigator may submit the Source Control Report instead of the IEC Engineered System Response Action report within 120 days. The content of the Source Control Report is detailed in the next section.

8. Source Control (1 Year) N.J.A.C. 7:26E-1.14(d)

Within one year after identifying an IEC condition, the investigator shall identify all contaminant source areas contributing to the IEC condition and begin contaminant source control. While contaminant source control shall start within one year, it is not required to be completed within that timeframe. The goal of starting source control in one year is to remove the contaminants that are creating the IEC condition. Examples of source areas that should have source control started within one year are leaking tanks, contaminated soils and floating product. A plan to conduct source removal is not considered source removal.

A monitoring and maintenance plan shall be created that specifies actions to maintain controls for impacted receptors and monitoring of potential receptors (N.J.A.C. 7:26E-1.14(d)). The monitoring and maintenance plan will specify the schedule for sampling and maintaining mitigation systems. The investigator should use professional judgment to determine sample locations in consultation with the IEC case manager. The goal of monitoring is to determine if contamination is migrating and if it is impacting other areas. On an annual basis, the sampling plan should address potential impacts to nearby receptors.

The monitoring and maintenance plan shall also include a monitoring and maintenance schedule for all remediation systems such as a cap (N.J.A.C. 7:26E-1.14(d)2).

An IEC Source Control Report also shall be submitted within one year (N.J.A.C. 7:26E-1.14(d)) and include the following:

- updated IEC Immediate Response Action Form
- updated IEC Direct Contact Spreadsheet
- description of the source control measures initiated
- identified source areas
- detailed receptor delineation
- engineered system response actions
- monitoring and maintenance plan for any mitigation system
- monitoring plan for contamination migration

- Department generated Data Validation Report
- GIS compatible map for the IEC area that can be loaded in the Department's IMAP or Geo Web system

The one-year report will be both electronically submitted and mailed to the Bureau of Case Assignment and Initial Notice. Send the electronic submittal to the case manager. The mailing address is on the IEC Response Action Form. For submitting the GIS compatible IEC map, follow the directions in the previous section on the Engineered System Response Action Report.

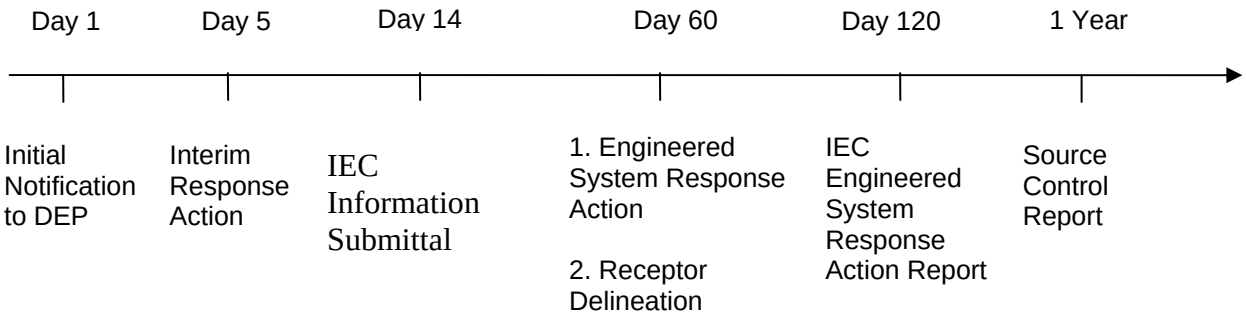
Once all requirements of the one-year report are complete, the IEC oversight by the Department's IEC case manager will end. The Department's active IEC designation ends at this point; however a record will exist that an IEC condition was present at the site. The investigator will continue with sampling, report submittals and appropriate remedial activities in accordance with the applicable regulatory and mandatory timeframes.

9. Annual Monitoring and Maintenance Plan Report

Annually, the investigator should submit a Monitoring and Maintenance Plan Report to the Bureau of Compliance Assistance and Initial Notice if operation, maintenance or monitoring is needed. Do not send this report to the IEC Case Manager because the manager will no longer be involved. The report will include a copy of the approved monitoring and maintenance plan, a description of the monitoring and maintenance conducted in the past year and a summary of the data. All data should be validated and included in the IEC Direct Contact Spreadsheet. Upon issuance of the Response Action Outcome (RAO) permit, the Annual Monitoring and Maintenance report including any operation, maintenance and monitoring requirements will be incorporated therein.

Figure 4-3 below is a graphical representation of the timeline for addressing a Direct Contact IEC case.

Figure 3
Direct Contact IEC Timeline

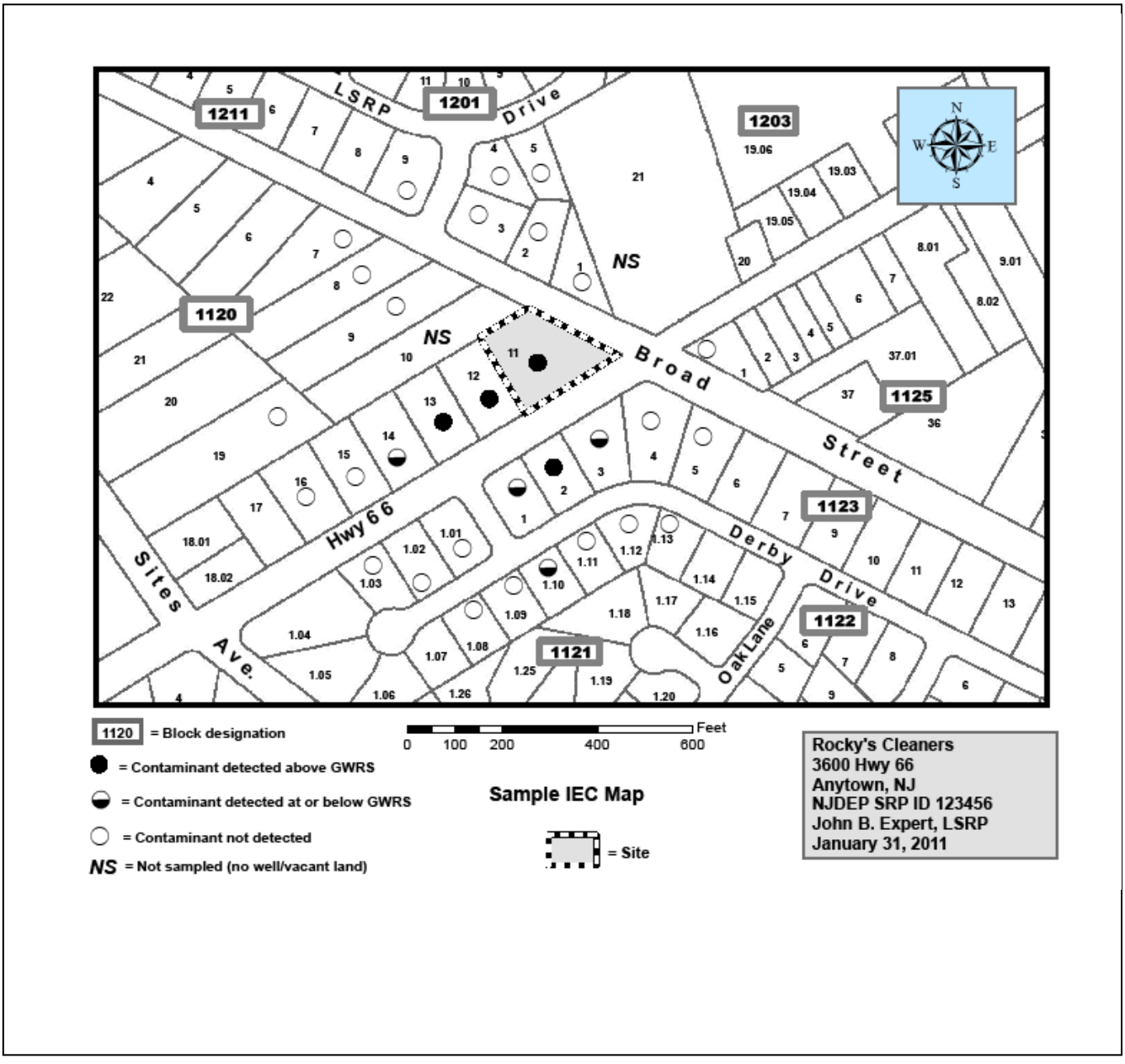


V. References

1. Site Remediation Reform Act (SRRA) (N.J.S.A. 58:10C)
2. Technical Requirements for Site Remediation (Technical Requirements): 7:26E-1.14 (immediate environmental concern cases); 7:26E-1 .15 through 7:26E-1 .18 (receptor evaluation – general and reporting, land use, ground water, vapor intrusion)
3. Vapor Intrusion Guidance (located at www.nj.gov/dep/srp/guidance/vaporintusion)
4. Administrative Requirements for the Remediation of Contaminated Sites 7:26C

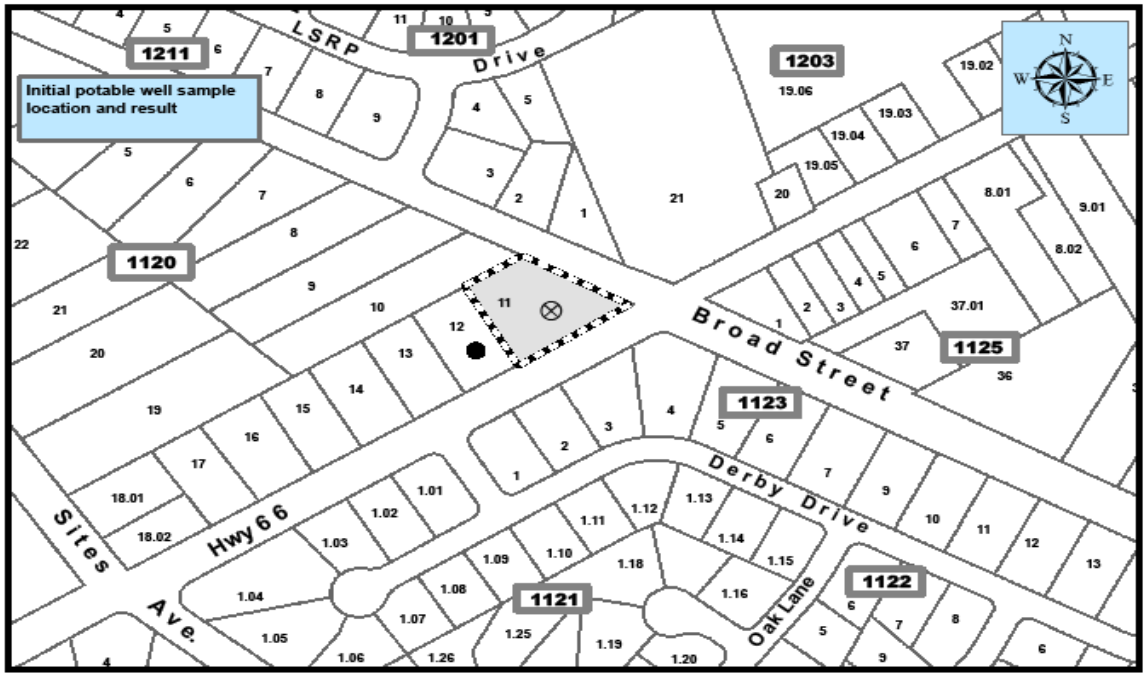
APPENDIX A

IEC MAP EXAMPLE



APPENDIX B

RECEPTOR DELINEATION MAPS



1120 = Block designation

= Contaminant detected above GWRS

= Contaminant detected at or below GWRS

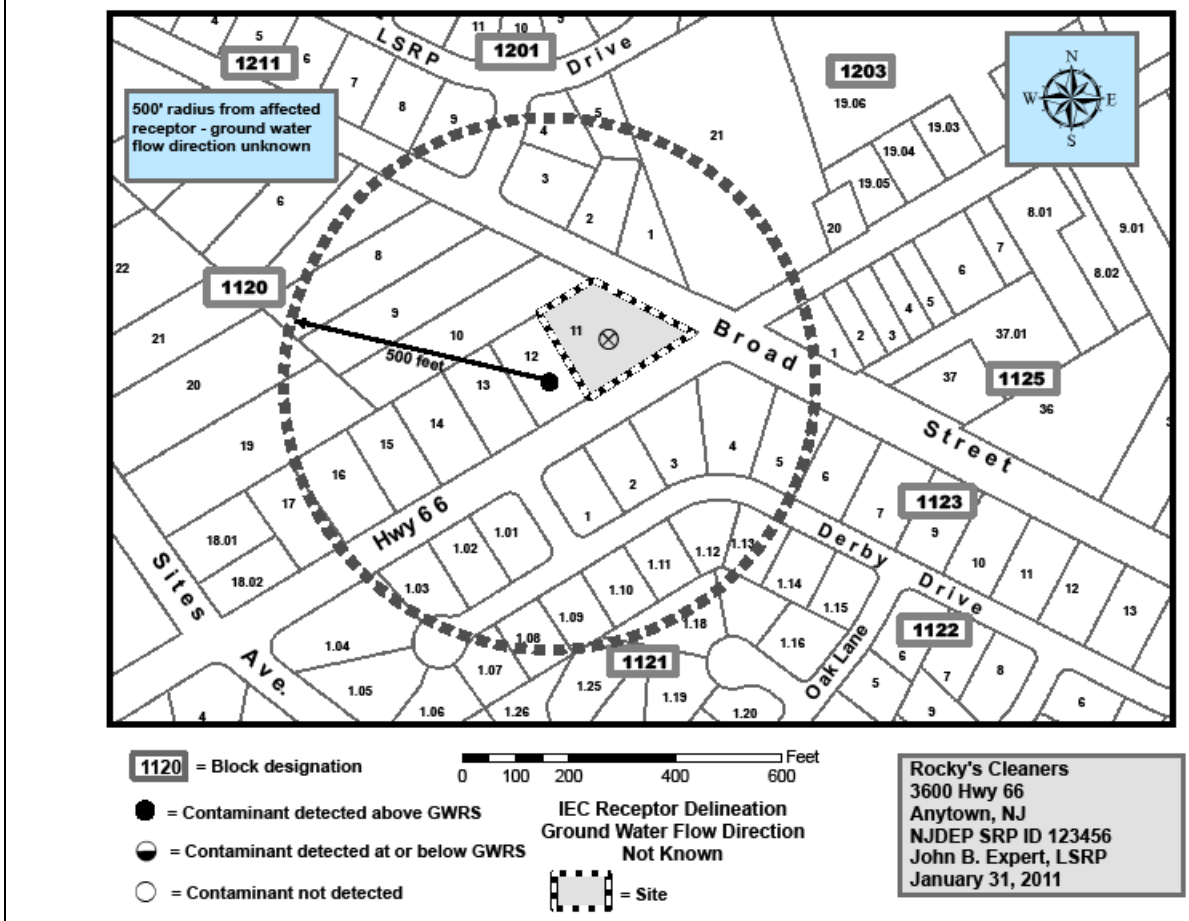
= Contaminant not detected

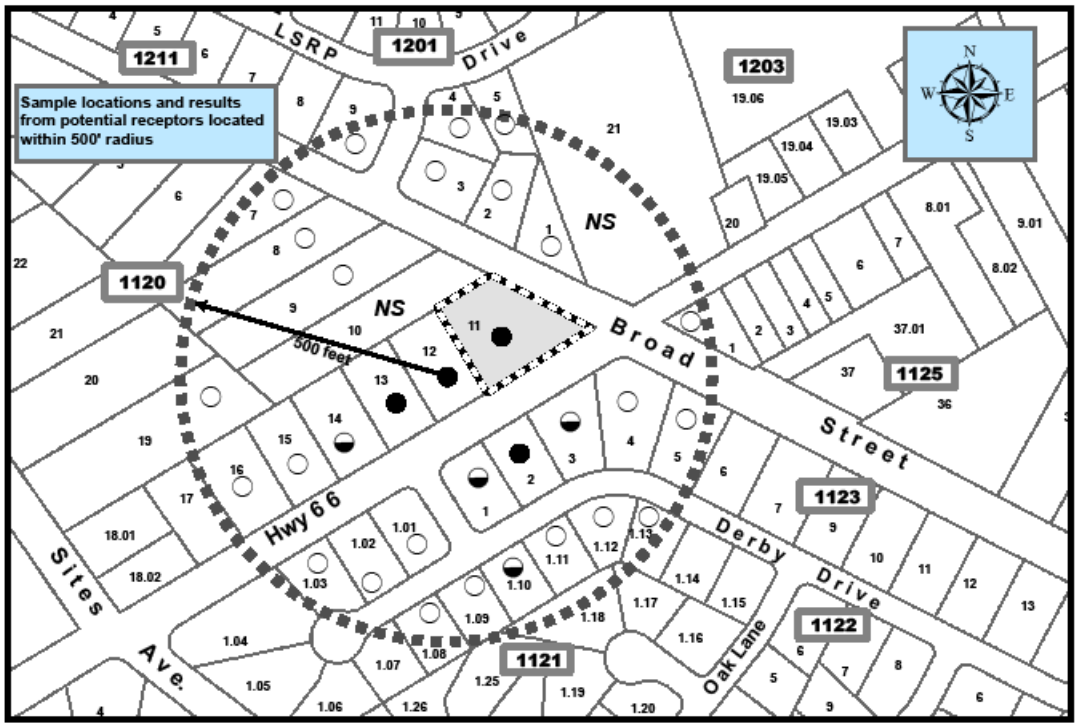
Feet
0 100 200 400 600

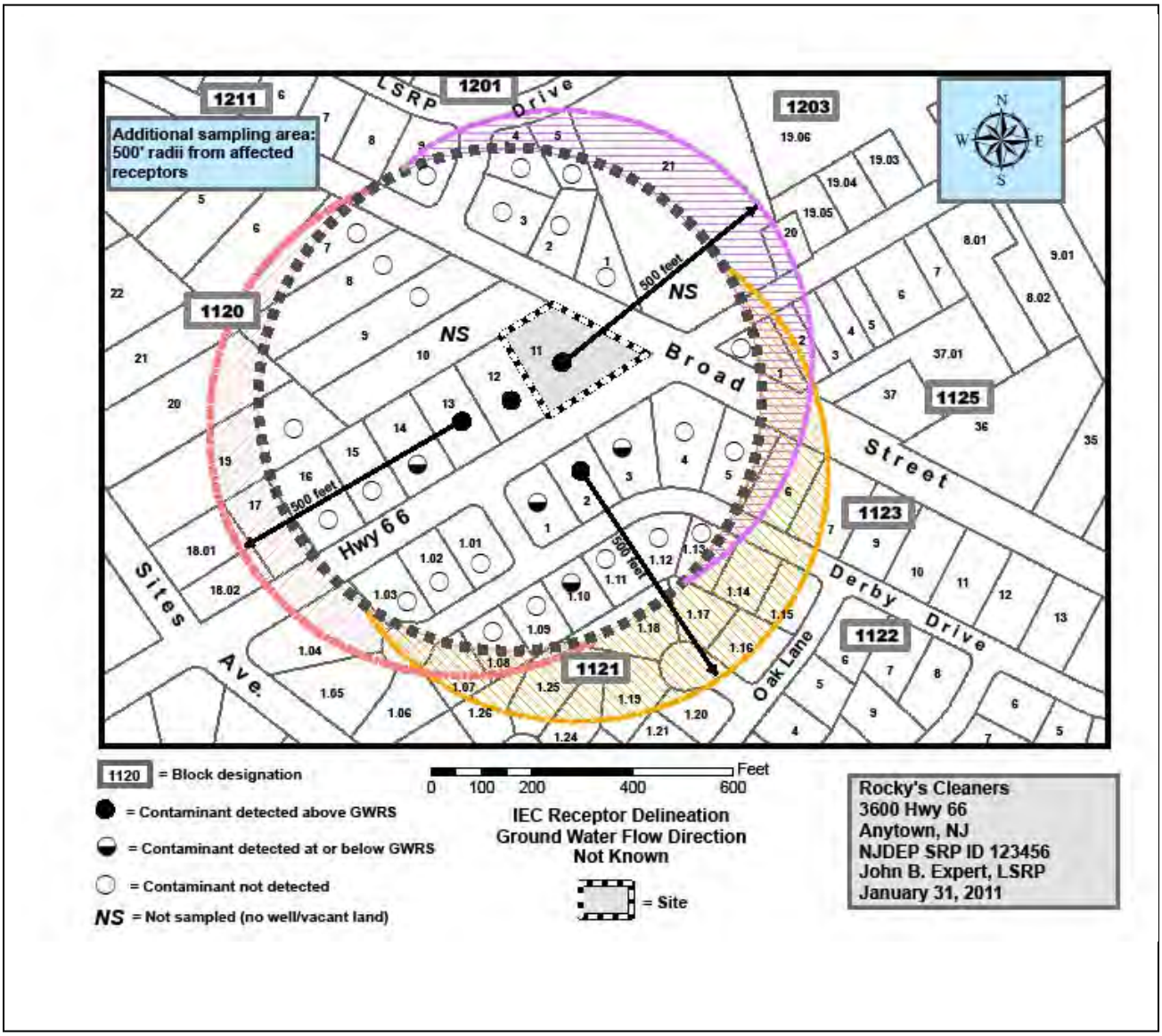
Initial Potable Well Sample

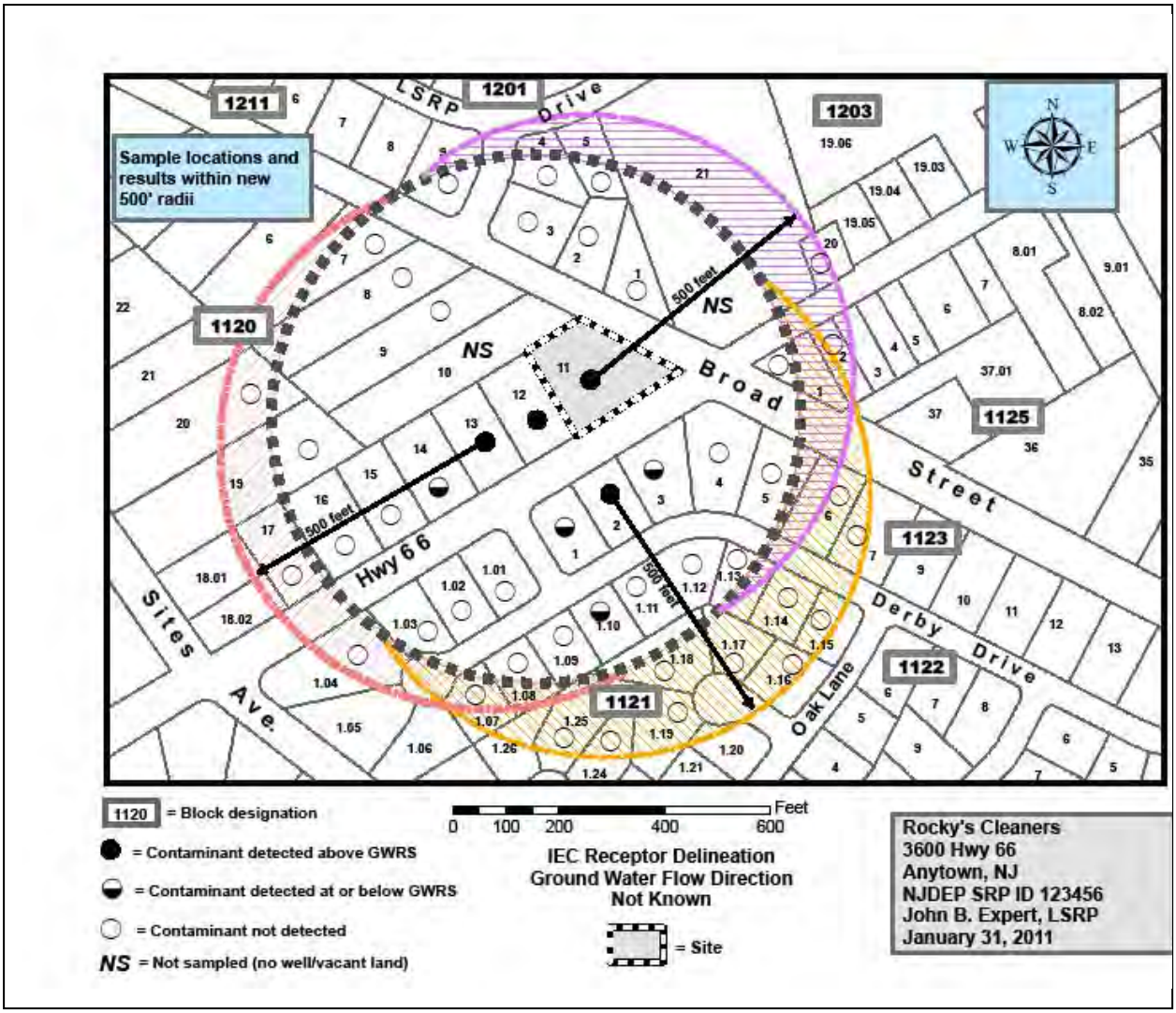
= Site

Rocky's Cleaners
3600 Hwy 66
Anytown, NJ
NJDEP SRP ID 123456
John B. Expert, LSRP
January 31, 2011


1211
1201
LSRP
Drive
1203
500' radius from affected receptor - ground water flow direction unknown
N
W
E
S
1120
500 feet
Broad
Street
1125
Hwy 66
1123
Derby
Drive
Sites
Ave.
1122
Oak Lane
1121
1120 = Block designation
= Contaminant detected above GWRS
= Contaminant detected at or below GWRS
= Contaminant not detected
Feet
0 100 200 400 600
IEC Receptor Delineation
Ground Water Flow Direction
Not Known
= Site
Rocky's Cleaners
3600 Hwy 66
Anytown, NJ
NJDEP SRP ID 123456
John B. Expert, LSRP
January 31, 2011

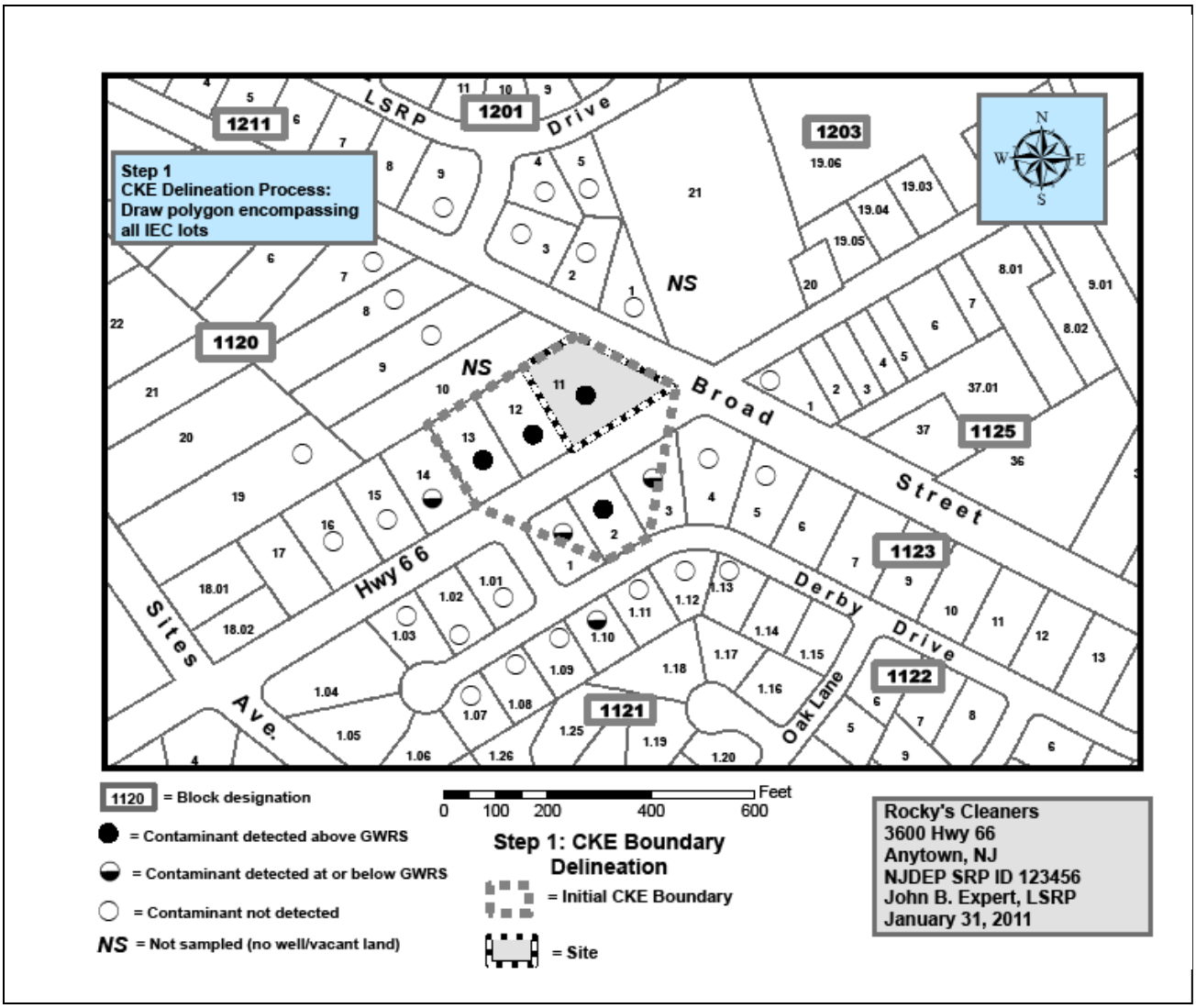

Sample locations and results from potential receptors located within 500' radius
1211
1201
1203
1120
1125
1123
1122
1121
LSRP
Drive
Broad
Street
Hwy 66
Sites
Ave.
Derby
Drive
Oak Lane
500 feet
NS
N
S
E
W
1120 = Block designation
= Contaminant detected above GWRS
= Contaminant detected at or below GWRS
= Contaminant not detected
NS = Not sampled (no well/vacant land)
0 100 200 400 600 Feet
IEC Receptor Delineation
Ground Water Flow Direction
Not Known
= Site
Rocky's Cleaners
3600 Hwy 66
Anytown, NJ
NJDEP SRP ID 123456
John B. Expert, LSRP
January 31, 2011

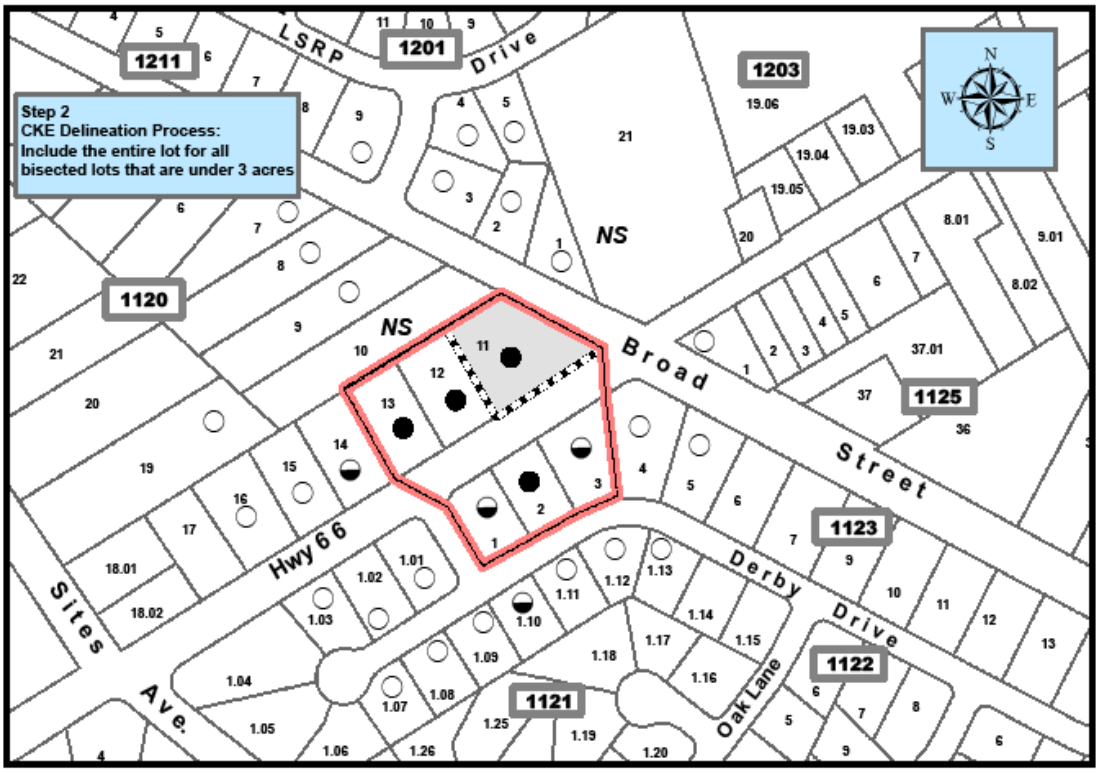

1211
1201
1203
1120
1125
1123
1122
1121
LSRP
Drive
Broad
Street
Hwy 66
Sites
Ave.
Derby
Drive
Oak Lane
Additional sampling area: 500' radii from affected receptors
500 feet
NS
N
S
E
W
1120 = Block designation
= Contaminant detected above GWRS
= Contaminant detected at or below GWRS
= Contaminant not detected
NS = Not sampled (no well/vacant land)
0 100 200 400 600 Feet
IEC Receptor Delineation
Ground Water Flow Direction
Not Known
= Site
Rocky's Cleaners
3600 Hwy 66
Anytown, NJ
NJDEP SRP ID 123456
John B. Expert, LSRP
January 31, 2011


Sample locations and results within new 500' radii
1211
1201
LSRP
Drive
1203
1120
1121
1122
1123
1125
NS
500 feet
Broad
Street
Hwy 66
Sites
Ave.
Derby
Drive
Oak Lane
N
S
E
W
1120 = Block designation
= Contaminant detected above GWRS
= Contaminant detected at or below GWRS
= Contaminant not detected
NS = Not sampled (no well/vacant land)
0 100 200 400 600 Feet
IEC Receptor Delineation
Ground Water Flow Direction
Not Known
= Site
Rocky's Cleaners
3600 Hwy 66
Anytown, NJ
NJDEP SRP ID 123456
John B. Expert, LSRP
January 31, 2011

APPENDIX C

CKE MAPPING PROCESS





1120 = Block designation

● = Contaminant detected above GWRS

◒ = Contaminant detected at or below GWRS

○ = Contaminant not detected

NS = Not sampled (no well/vacant land)

0 100 200 400 600 Feet

Step 2: CKE Boundary Delineation

= Final CKE Boundary

= Site

Rocky's Cleaners
3600 Hwy 66
Anytown, NJ
NJDEP SRP ID 123456
John B. Expert, LSRP
January 31, 2011

APPENDIX D

GLOSSARY

GLOSSARY

Acute Health Effects Levels - contaminant concentrations which may produce adverse health effects over a short period of time (less than 2 weeks) from the ingestion-dermal and inhalation exposure pathways.

Block & lot map - a map used to identify parcels of land by their lot number or letter and the block or subdivision plat in which the lot is located. These maps are often produced by municipalities and used for tax purposes.

Building - an enclosed construction that is over a plot of land, having a roof, door(s) and usually window(s) that is or can be occupied by humans and utilized for a wide variety of activities (e.g., residential, commercial, retail, industrial).

Contaminant of Concern (COC) - New VIG definition: Contaminants of Concern (COC) - site-specific compounds associated with a discharge(s) at or from a site that are detected in environmental media (soil, ground water, surface water, sediment, air) above regulatory criteria. It also includes the degradation byproducts from the COCs.

Currently Known Extent (CKE) – the aerial extent of ground water in which concentrations of one or more hazardous substances exceed the applicable contaminant standard for such hazardous substances.

Engineered System Response Action - a system that is designed to mitigate risk or remediate exposure as part of an IEC condition.

Exposure pathways *from N.J.A.C. 7:26D, Remediation Standards -* the methods by which humans can come into contact with contamination including, but not limited to, the ingestion-dermal and inhalation exposure pathway.

IEC map - a Block & Lot map, as in the type used by municipal tax officials, depicting locations of samples collected during a receptor evaluation.

Immediate Environmental Concern (IEC) *from 7:26E Tech regs* "Immediate environmental concern" means a condition at a contaminated site where any of the following types of contamination or any of the following conditions related to the discharges at the site are found at the site:

1. Contamination in a well used for potable purposes at concentrations at or above the Class II ground water remediation standards;

2. Contamination in indoor air at a level greater than any vapor intrusion rapid action level included in or developed consistent with the Department's Vapor Intrusion Guidance;

3. Contamination in an occupied or confined space producing a toxic or harmful atmosphere resulting in an unacceptable human health exposure, or producing an oxygen-deficient atmosphere, or resulting in demonstrated physical damage to essential underground services;

4. Contamination that exceeds the Department's acute human health exposure levels in surface soil such that dermal contact, ingestion, or inhalation of the contamination could result in an acute human health exposure, as further described in the Department's IEC Guidance; or

5. Any other condition that poses an immediate threat to the environment or to the public health and safety as further described in the Department IEC Guidance.

Ingestion-dermal exposure - the pathway by which humans can come into contact with contamination through the direct ingestion of contamination and the absorption of contamination through the skin.

Inhalation exposure - the pathway by which humans can come into contact with contamination through the inhalation of contamination.

Investigator – The Licensed Site Remediation Professional or the person responsible for conducting the remediation.

Licensed Site Remediation Professional or LSRP - a person defined as such pursuant to the Administrative Requirements for the Remediation of Contaminated Sites rules, N.J.A.C. 7:26C-1.3.

Occupant – a tenant or other person who occupies a building and who is not the owner.

Owners - revised *From 7:10A Licensing of Water Supply -* any municipality, institution, authority, commission, corporation, person or other similar body who owns or controls a property.

Point-of-entry treatment (POET) *from 7:9E the private Well Testing Act rules* - a water treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed to the entire house or building.

Point-of-use treatment *from 7:9E the private Well Testing Act rules -* a water treatment device applied to a single tap for the purpose of reducing contaminants in drinking water at that one tap.

Potable water *from 7:9E the private Well Testing Act rules -* any water used, or intended to be used, for drinking and/or culinary purposes which is free from impurities in amounts sufficient to cause disease or harmful physiological effects, and complies with the bacteriological and chemical quality conforming to applicable standards of the New Jersey Safe Drinking Water Act rules, N.J.A.C. 7:10.

Receptor *from 7:26E Tech regs* - any human which is or may be affected by a contaminant from a contaminated site.

Shall – used to refer to a requirement in the Rule 7:26E. When the word “shall” is used, the citation for the rule is shown in the heading for each section. In some cases the citation will follow the sentence in which “shall” was used directing the reader to the appropriate location in the rule.

Should - used to aid the investigator in performing a task. The investigator is not required to perform the task but if they do deviate from the guidance they must notify the case manger and provide a reason for not following the guidance.

Site-related contaminants - those contaminants present in samples of any media that are not considered “background” contaminants.

Vapor intrusion - the migration of volatile chemicals from the subsurface into overlying buildings through subsurface soils and/or preferential pathways (such as underground utilities) thereby affecting the indoor air quality of a building.

APPENDIX E

ACRONYMS

ACRONYMS

AOC	Area of Concern
CKE	Currently Known Extent
COC	Contaminant of Concern
GIS	Geographic Information System
GWRS	Ground Water Remediation Standards
IEC	Immediate Environmental Concern
LSRP	Licensed Site Remediation Professional
NJAC	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NJSA	New Jersey Statutes Annotated
ODQ	Office of Data Quality
PHC	Petroleum hydrocarbon
PI	Program Interest
POET	Point of Entry Treatment
POU	Point of Use
RAL	Rapid Action Level
RAO	Response Action Outcome
SRP	Site Remediation Program
SRRA	Site Remediation Reform Act
VC	Vapor Concern
VI	Vapor Intrusion
VIG	Vapor Intrusion Guidance

APPENDIX C

IEC MAP EXAMPLE