An RT Regulations Summary

NJDEP UPDATES 7:26E TECHNICAL REQUIREMENTS FOR SITE REMEDIATION

New Jersey Department of Environmental Protection (DEP) Commissioner Bradley M. Campbell announced the issuance of updated Technical Requirements for Site Remediation. Included are:

- Regulations to expedite testing of drinking water wells at risk of contamination and to help prospective purchasers of Brownfields sites obtain and redevelop these properties.
- The new requirements are included in the re-adoption and amendments of DEP's Technical Rules, which were last updated in 1999.
- For the first time, the new rules formally adopt cleanup standards for ground and surface waters. These rules also expand the requirements for long-term monitoring of restricted properties to prevent exposure to soil and ground water contamination remaining at a site.
- DEP is adding new requirements for more immediate testing of potentially impacted drinking water wells when ground water contamination is first detected.
- To promote Brownfield sites redevelopment, DEP will permit non-liable developers to perform a well survey and potable well sampling within 30 days after purchasing a contaminated property, rather than requiring these activities prior to purchase. This provision offers an effective balance by letting Brownfields site redevelopers get to closing while ensuring the timely protection of public health.
- The newly revised Technical Rules also incorporate New Jersey's Ground Water Quality Standards and Surface Water Quality Standards as the minimum remediation standards for ground and surface water.
- A related provision included in the amendments now requires that current ground water use and the potential for human and environmental exposure be considered when determining an appropriate remedial action for ground water contamination.
- In addition, DEP is requiring more complete long-term monitoring and reporting when cleanup work is finished, but contamination remains. In these cases, restrictions such as institutional and engineering controls are implemented to prevent any future exposure to the contamination.

The regulations appeared in the New Jersey Register on February 3, 2003.

A summary of the DEP Tech Rules prepared by RT follows.

KEY HIGHLIGHTS

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TABLE 3

TYPES OF REMEDIAL ACTION

ACTIVE GROUNDWATER REMEDIAL ACTION

DEED NOTICE

ENGINEERING CONTROLS (Includes caps, fences, remediation systems and others)

GROUNDWATER CLASSIFICATION EXCEPTION AREAS

INNOVATIVE REMEDIAL ACTION TECHNOLOGY

INSTITUTIONAL CONTROLS (Includes CEAs, Deed Notices and DERs)

INTERIM RESPONSE

LIMITED RESTRICTED USE REMEDIAL ACTION (Requires Institutional Controls **but not** Engineering Controls)

NATURAL GROUNDWATER REMEDIATION

REMOVAL

RESTRICTED USE STANDARD (means that a site was remediated only to a point where certain restricted uses can occur)

TREATMENT

DETAILED PROVISIONS INCLUDE:

Effective Date

Any work conducted after adoption publication date (2/3/03) shall be in full compliance with this chapter, except that work conducted pursuant to workplans which were submitted to the Department prior to adoption publication date may be conducted pursuant to N.J.A.C. 7:26E in effect as of August 2, 1999, as long as work is conducted within six months of Department approval of the workplan.

7:26E-1.4- Notification

The person responsible for conducting the remediation, excluding remediations of areas of concern that consist of underground storage tanks storing heating oil for on-site consumption in a one to four family residential building, shall notify the following persons in writing:

1. The Department, prior to the initiation of any sampling activities at a contaminated site which is not already known to the Department pursuant to either a Department regulatory reporting requirement or Department oversight of the remediation;

2. The municipal clerk of each municipality in which the site is located, if the site is not RCRA or CERCLA subject, 45 calendar days prior to:

i. The submission of the remedial action selection report to the Department pursuant to N.J.A.C. 7:26E-5.2; or

ii. The finalization of the engineering design plans for the selected remedial action of sites being remediated where Department pre-approval of a remedial action workplan is not required or sought; and

3. The Department, and the municipal clerk of each municipality in which the site is located, 45 calendar days prior to the implementation of the remedial action when Department pre-approval of the remedial action workplan is not required unless written notification has otherwise been provided.

(b) Whenever immediate environmental concern conditions are identified, the person responsible for conducting the remediation shall immediately notify the Department case manager or the hotline (609-292-7172) if no case manager is assigned or the case manager is unavailable. Stabilization of the immediate environmental concern condition shall be initiated immediately under Department oversight pursuant to N.J.A.C. 7:26C. If an interim response action in response to an immediate environmental concern is to be conducted, the person responsible for conducting the action shall immediately notify the Department and the municipal clerk of each municipality in which the site is located of the intent to conduct the interim response action. If the remediation is being conducted in response to an emergency situation the notifications to the Department required pursuant to (a) above will be satisfied through compliance with N.J.A.C. 7:1E.

7:26E-1.6 DOCUMENTING COMPLIANCE WITH THE TECHNICAL REQUIREMENTS

(a) All work being conducted at a site pursuant to this chapter, whether or not being done with Department oversight, shall be documented and included in reports which follow the format and contain the information required pursuant to the reporting sections of N.J.A.C. 7:26E-2 through 8.

(b) When the remediation is conducted with Department oversight, the person responsible for conducting the remediation shall submit workplans (if applicable) and reports in a timely manner pursuant to the schedule contained in the oversight document.

(c) In order to provide flexibility in the technical requirements for site remediation described in this chapter, the Department has identified certain limited situations, as specified, when alternate sampling, analytical, or investigatory methods may be used without Department pre-approval.

(d) Any person responsible for conducting the remediation may petition the Department for a variance from any of the requirements in N.J.A.C. 7:26E-2 through 6 inclusive pursuant to the procedural criteria in (d)1 and the substantive criteria in (d)2.

7:26E-1.7 CRITERIA FOR GOING BEYOND THE MINIMUM TECHNICAL REQUIREMENTS

(a) The Department may require additional work beyond the minimum technical requirements set

forth in this chapter for whenever necessary for the Department to ensure adequate protection of human health and the environment, based on:

1. The number or magnitude of the discharge(s) being investigated;

2. The nature of the substances discharged;

3. A change in the certification or other authorization of the laboratory performing analyses previously submitted for the site in question or any other site;

4. The identification of additional exposure pathways not otherwise fully investigated pursuant to the minimum requirements;

5. The identification of additional receptors not otherwise fully investigated pursuant to the minimum requirements;

6. Distance to and sensitivity of receptors;

7. When the Department determines that additional data or information is needed to fully evaluate the site; and

8. Any other site-specific conditions the Department identifies which necessitate the need for additional work.

7:26E-1.8 KEY DEFINITIONS

"Area of concern" means any existing or former location where hazardous substances, hazardous wastes, or pollutants are or were known or suspected to have been discharged, generated, manufactured, refined, transported, stored, handled, treated, disposed, or where hazardous substances, hazardous wastes, or pollutants have or may have migrated, including, but not limited to, all current and former:

1. Bulk storage tanks and appurtenances, including, without limitation:
   i. Tanks and silos;
   ii. Rail cars;
   iii. Piping, above and below ground pumping stations, sumps and pits; and
   iv. Loading and unloading areas;

2. Storage and staging areas, including:
   i. Storage pads and areas;
   ii. Surface impoundments and lagoons;
   iii. Dumpsters; and
   iv. Chemical storage cabinets or closets;

3. Drainage systems and areas, including, without limitation:
   i. Building floor drains and piping, sumps and pits, including trenches and piping from sinks that potentially receive process waste;
   ii. Roof leaders (when process operation's vent to roof);
   iii. Drainage swales and culverts;
   iv. Storm sewer collection systems;
   v. Storm water detention ponds and fire ponds;
   vi. Surface water bodies;
   vii. Leach fields; and
   viii. Dry wells and sumps;

4. Discharge and disposal areas, including, without limitation:
   i. Areas of discharges pursuant to N.J.A.C. 7:1E;
   ii. Waste piles as defined by N.J.A.C. 7:26;
   iii. Waste water treatment, collection and disposal systems, including, without limitation, septic systems, seepage pits and dry wells;
   iv. Landfills;
   v. Landfarms;
   vi. Sprayfields;
   vii. Incinerators; and
   viii. Historic fill material areas or any other fill material areas;

5. Other areas of concern, including, without limitation:
   i. Electrical transformers and capacitors;
   ii. Hazardous materials storage or handling areas;
   iii. Waste treatment areas;
   iv. Discolored areas or spill areas;
   v. Open areas away from production operations;
   vi. Areas with stressed vegetation;
   vii. Other discharge areas;
   viii. Underground piping including industrial process sewers;
   ix. Compressor vent discharges;
   x. Non contact cooling water discharges;
   xi. Areas that may have received floodwater or stormwater runoff from potentially contaminated areas; and

xii. Any other area suspected or containing contaminants;

6. Ground water areas of concern, including, without limitation, present or past regulated activities under the New Jersey Pollutant Discharge Elimination System (NJPDES) Discharge to Ground Water regulations, N.J.A.C. 7:14A, including: seepage pits; dry wells; lagoons; and septic systems which received industrial waste; and
7. Surface water areas of concern, including, without limitation, all surface water areas and associated sediment which receive or may have received any point or non-point source discharge from the site.

“Background groundwater contamination” means concentrations of hazardous substances, hazardous waste and pollutants in groundwater that originated from either natural sources (that is, non-man-made) or upgradient, offsite discharges (that is, man-made, non-site related discharges). Background groundwater contamination may include, but is not limited to, the same contaminants present both on the site and off the site at upgradient locations, or parent contaminants detected off the site at upgradient locations and daughter products of these parent contaminates detected on the site.

"Deed notice" means a document which is identical in wording to N.J.A.C. 7:26E, Appendix E and which provides notice of the following for a specific real property:

1. That the contamination on the real property exists at a level above the applicable unrestricted use soil remediation standards;

2. The restrictions to the applicable property due to contamination; and

3. The engineering controls applicable to the property.

“Diligent inquiry” means:

1. Conducting a diligent search of all documents which are reasonably likely to contain information related to the object of the inquiry, which documents are in such person's possession, custody or control, or in the possession, custody or control of any other person from whom the person conducting the search has a legal right to obtain such documents; and

2. Making reasonable inquiries of current and former employees and agents whose duties include or included any responsibility for hazardous substances, hazardous wastes, or pollutants, and any other current and former employees or agents who may have knowledge or documents relevant to the inquiry.

"Engineering controls" means any physical mechanism to contain or stabilize contamination or ensure the effectiveness of a remedial action. Engineering controls may include, without limitation, caps, covers, dikes, trenches, leachate collection systems, signs, fences, physical access controls, ground water monitoring systems and ground water containment systems including, without limitation, slurry walls and ground water pumping systems.

"Ground water use area" means any area, as determined by a well search conducted pursuant to N.J.A.C. 7:26E-3.7(e)3 and an evaluation of the current and potential groundwater uses of an area using a 25-year planning horizon pursuant to N.J.A.C. 7:26E-8.3(b)4ii, where any domestic, irrigation, industrial, public supply well, or well with a water allocation permit exists, is proposed, or where there is reasonable expectation a well will be installed within the 25-year planning horizon.

"Highly permeable soils" means soils having less than 15 percent silts and/or clays. Soils may be classified in the field using a standard system texture analysis.

"Historic fill material" means non-indigenous material, deposited to raise the topographic elevation of the site, which was contaminated prior to emplacement, and is in no way connected with the operations at the location of emplacement and which includes, without limitation, construction debris, dredge spoils, incinerator residue, demolition debris, fly ash, or non-hazardous solid waste. Historic fill material does not include any material which is substantially chromate chemical production waste or any other chemical production waste or waste from processing of metal or mineral ores, residues, slag or tailings. In addition, historic fill material does not include a municipal solid waste landfill site.

"Immediate environmental concern" means a condition which poses an acute threat to human health or a direct threat to the drinking water of the State including, but not limited to:

1. Dermal contact, inhalation or ingestion

of contaminated materials;

2. Potable water supplies contaminated above the applicable drinking water standard; and

3. Contaminants which are confirmed to exist in an occupied or confined space, producing a toxic or harmful gas resulting in a potential for an acute short-term human health exposure, or producing an oxygen deficient atmosphere, or resulting in demonstrated physical damage to essential underground services.

"Injury" means any adverse change or impact of a discharge on a natural resource or impairment of a natural resource service, whether direct or indirect, long term or short term, and includes the partial or complete destruction or loss of the natural resource.

"Institutional controls" means a mechanism used to limit human activities at or near a contaminated site, or to ensure the effectiveness of the remedial action over time, when contaminants remain at a site at levels above the applicable remediation standard which would allow for the unrestricted use of the property. Institutional controls may include, without limitation, structure, land, and natural resource use restrictions, well restriction areas, classification exception areas, deed notices, and declarations of environmental restrictions.

"Limited restricted use remedial action" means any remedial action for soil that requires the continued use of institutional controls but does not require the use of an engineering control in order to meet the established health risk or environmental standards.

"Natural background soil level" means the chemical concentration of a substance which is found in soil and which is not attributable to human activity.

"Natural ground water remediation" means any form of ground water remediation in which only degradation, retardation, and dispersion mechanisms are used to achieve applicable remediation standards. For active ground water remediations, this definition shall also apply to portions of plumes that are not captured by the active ground water remediation, but are expected to be naturally remediated after separation from the source plume.

“Prospective purchaser” means any person contemplating acquiring contaminated property who:

(i) is not in any way responsible under any statute, federal or state, or common law for any hazardous substances, hazardous wastes, or other pollutants discharged at a contaminated site, and

(ii) is not a corporate successor to, or capitalized by, any person who is in any way responsible under any statute, federal or state, or common law for any hazardous substances, hazardous wastes, or other pollutants discharged at a contaminated site.

"Remedial action selection" means the process of selecting the most appropriate remedy for a site or area of concern that will ensure protection of the public health, and safety and the environment, based upon careful consideration of a variety of factors, including, without limitation, future site use, surrounding land uses, remediation goals and objectives, cost, implementability, reliability and effectiveness.

"Remediation" or "remediate" means all necessary actions to investigate and cleanup or respond to any known, suspected, or threatened discharge including, as necessary, the preliminary assessment, site investigation, remedial investigation, and remedial action; provided however, that "remediation" or "remediate" shall not include the payment of compensation for damage to, or loss of, natural resources.

"Remediation standards" means the combination of numeric standards that establish a level or concentration, and narrative standards, to which contaminants must be treated, removed or otherwise cleaned for soil, ground water or surface water, as provided by the Department pursuant to N.J.S.A. 58:10B-12, in order to meet the health risk or environmental standards.

“Restricted use remedial action” means any remedial action for soil that requires the continued use of engineering and institutional controls in order to meet the established health risk or environmental standards.

"Restricted use standard" means a numeric soil remediation standard which, when achieved, restores the contaminated soil to a condition suitable for only certain specified uses.

“Site investigation” means the collection and evaluation of data adequate to determine whether or not discharged contaminants exist at a site or have migrated or are migrating from the site at levels in excess of the applicable remediation standards. A site investigation shall be developed based upon the information collected pursuant to the preliminary assessment. The requirements of a site investigation are set forth at N.J.A.C. 7:26E-3.

"Timely manner" means that, except for immediate environmental concern cases, the person

responsible for conducting the remediation completes the remedial activities at a contaminated site or area of concern either:

1. Within five years, if soil is the only contaminated media at the site and the remediation will achieve unrestricted or limited restricted use standards; or

2. In compliance with a remedial action schedule approved in writing by the Department.

"Unrestricted use remedial action" means any remedial action for soil that does not require the continued use of either engineering or institutional controls to meet the established health risk or environmental standards.

"Unrestricted use standard" means a numeric soil remediation standard that, when achieved, restores the contaminated soil to a condition or quality suitable for any use. The unrestricted use standard is the lowest of any numeric standard, without limitation, any residential soil remediation standard, any non-residential soil remediation standard and any applicable impact-to-groundwater soil standard.

7:26E-1.9 HEALTH AND SAFETY PLAN

Any person conducting remediation activities shall prepare a site-specific health and safety plan.

7:26E-1.13 MINIMUM GROUND WATER AND SURFACE REMEDIATION STANDARDS

(a) This section sets forth the minimum remediation standards that apply to ground water and surface water for purposes of the remediation of a contaminated site pursuant to this chapter.

(b) The minimum ground water remediation standards are:

1. The following numeric ground water remediation standards:

i. The Ground Water Quality Standards, N.J.A.C. 7:9-6, Appendix, Tables 1 and 2;

ii. The standards resulting from application of the procedures in N.J.A.C. 7:9-6.7(c)2 through 6, for the derivation of a new criterion where a specific contaminant is not listed in N.J.A.C. 7:9-6, Appendix, **Table 1**; and

iii. The standards resulting from application of the procedures in N.J.A.C. 7:9-6.7(c)3, for the derivation of a new criterion when the Department determines that current scientific information indicates that a specifically listed numeric criterion is no longer appropriate. The Department will post standards developed pursuant to (b)1ii and iii above on the Department's web site at http://www.state.nj.us/dep/wmm/bfbm/is_text.html; and

2. The following narrative ground water remediation standards:

i. The general groundwater quality policies in N.J.A.C. 7:9-6.2;

ii. The narrative groundwater quality criteria in N.J.A.C. 7:9-6.7;

iii. The groundwater quality antidegradation policy in N.J.A.C. 7:9-6.8;

iv. The remediation requirements in N.J.A.C. 7:26E- 1 through 8 in order to both:

(1) Address the adverse impact of the contamination on the ground water itself; and

(2) Limit additional risks posed by the contamination to the public health and safety and to the environment;

v. Removal, treatment, or containment of free and residual product pursuant to N.J.A.C. 7:26E-6.1(d);

vi. Ensure no release of contaminants to the ground surface, structures or air in concentrations that pose a threat to human health; and

vii. The following factors, as applicable on a site-specific basis, for selecting an appropriate ground water remedial action:

(1) The location of the contaminated site relative to groundwater use;

(2) The potential human and environmental exposure to the groundwater contamination;

(3) The present, projected, and potential groundwater use at the site and in the area surrounding the site over the 25 years after the selection of the ground water remedy;

(4) Ambient groundwater quality at the site and in the area surrounding the site resulting from both natural and human activities;

(5) The physical and chemical characteristics of the contaminants of concern; and

(6) The criteria in N.J.A.C. 7:26E-6.3(d)1i, to determine when natural remediation is appropriate as a remedial action for groundwater contamination.

(c) The person responsible for conducting the remediation is not required to remediate groundwater to a level or concentration that is lower than the level or concentration of the regional natural background level or concentration for any particular hazardous substance or pollutant.

(d) The Department will not accept alternate numeric groundwater remediation standards developed based on a site-specific risk assessment.

(e) The minimum surface water remediation standards are:

1. The more stringent of either the numeric New Jersey Surface Water Quality Standards pursuant to N.J.A.C. 7:9B-1.14(c) and (d) or the numeric Federal Surface Water Criteria, 40 CFR Part 131; and

2. The following narrative surface water remediation standards:

i. The general surface water quality policies included in N.J.A.C. 7:9B-1.5;

ii. The narrative surface water quality criteria included in N.J.A.C. 7:9B-1.14;

iii. The remediation requirements in N.J.A.C. 7:26E- 1 through 8 in order to both:

(1) Address the adverse impact of the contamination on the surface water itself; and

(2) Limit additional risks posed by the contamination to the public health and safety and to the environment;

iv. Removal, treatment, or containment of free and residual product pursuant to N.J.A.C. 7:26E-6.1(d); and

v. The following narrative criteria, as applicable on a site-specific basis, for selecting an appropriate surface water remedial action:

(1) The location of the contaminated site relative to surface water use;

(2) The potential human and environmental exposure to the surface water contamination;

(3) The present and projected surface water use at the site and in the area surrounding the site;

(4) Ambient surface water quality at the site and in the area surrounding the site resulting from both natural and human activities; and

(5) The physical and chemical characteristics of the contaminants of concern.

(f) The Department will not accept alternate numeric surface water remediation standards developed based on a site-specific risk assessment.

SUBCHAPTER 2. QUALITY ASSURANCE FOR SAMPLING AND LABORATORY ANALYSIS

7:26E-2.1 QUALITY ASSURANCE REQUIREMENTS

The person responsible for conducting the remediation shall ensure that the quality assurance procedures in the regulations are followed for all sampling and laboratory analysis activities.

Key provisions now include:

Non-aqueous samples to be analyzed for volatile organics shall be sampled using the procedures specified in either USEPA SW846 Method 5035 (USEPA Publication “Test Methods for Evaluating Solid Waste”, third edition, final update III, December 1996, as amended and supplemented) or the USEPA Contract Laboratory Program Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, Revision OLMO4.2 as amended and supplemented. All samples are to be preserved in the field with the appropriate preservation solution except for the following:

i. Samples that contain high levels of carbonates which would result in rapid or vigorous reaction when the sample is added to the vial containing sodium bisulfate may be shipped in vials without preservative;

ii. Oily waste samples when the solubility of the waste is unknown may be shipped in vials without preservative; or

iii. Samples collected using a field core sampling/storage device (i.e., En Core® or equivalent; En Core® is a product of En Novative Technologies Inc. of Green Bay Wisconsin) and the samples are shipped to and analyzed by the laboratory within 48 hours of sampling or the samples are shipped to the laboratory and transferred to vials containing the appropriate preservation solution within 48 hours of sampling need not be preserved in the field.

For solid sample analysis, including without limitations, soils and sediments, all results shall be reported on a dry weight basis, except for those results required by the method to be otherwise reported.

Methods acceptable to the Department shall be utilized for the determination of the presence of free and/or residual product in soil or water. Such methods include, without limitation, visual identification of sheens or other visible product, measurable thickness of product on the water table, the use of field instruments, ultraviolet fluorescence, soil-water agitation, centrifuging, and hydrophobic dye testing.

For contaminants that in their pure phase and at standard state conditions (20 degrees Celsius to 25 degrees Celsius and one atmosphere pressure) have densities greater than water, free and/or residual product shall be considered to be present if the contaminant is detected in ground water at concentrations equal to or greater than one percent of the water solubility of the contaminant if ground water contains only that organic contaminant. If a mixture of such contaminants is present, then the effective water solubility of the contaminant shall be estimated for this determination.

Gas chromatography methods with a mass spectrometer detector system shall be used for analysis of volatile/semi-volatile contaminants (exclusive of herbicides, pesticides, and PCBs). Chromatography methods with a mass spectrometer detector system shall be used for the analysis of organic analytes amenable only to non-gas chromatographic methods. A mass spectrometer detector system is not required if:

Sampling methods, sample preservation requirements, sample handling times, decontamination procedure for field equipment, and frequency for field blanks, field duplicates and trip blanks shall conform to applicable industry methods such as those specified in the NJDEP "Field Sampling Procedures Manual" in effect as of the date on which sampling is performed. The person responsible for conducting the remediation shall document the rationale for any deviations from the methods in the "Field Sampling Procedures Manual" pursuant to N.J.A.C. 7:26E-1.6(c).

Samples shall be preserved in the field immediately after collection and submitted to the laboratory as Soon as possible and no later than 48 hours after sample collection.

Field screening methods are limited as follows:

1. Field screening methods for all sampling matrices (soil, water, air, interior surfaces) can only be used under the following conditions:
i. For contaminant delineation if contaminant identity is known or if there is reasonable certainty that a specific contaminant may be present (for example, benzene, toluene, ethylbenzene, xylene in the case of sampling for a gasoline release); or

ii. To bias sample location to the location of greatest suspected contamination.

Field screening methods shall not be used to verify contaminant identity or clean zones. However, where 10 or more samples are required for initial characterization sampling at an area of concern, field screening methods listed in (b) 3 and 4 below may be used to document that up to 50 percent of

sampling points within the area of concern are not contaminated.

The field screening methods described in the version of the following references in effect as of the date of the field screening activities may be used:

i. The NJDEP "Field Sampling Procedures Manual";

ii. The NJDEP Site Remediation Program "Field Analysis Manual";

iii. "Field Measurements," EPA/530/UST-90-003; or
iv. The "Field Screening Methods Catalog," EPA/540/2-88/005.

Samples from each area of concern shall be analyzed for contaminants which may be present.

Analysis of Target Compound List plus 30/Target Analyte List (TCL + 30/TAL) or Priority Pollutant plus 40 (PP + 40) scans, petroleum hydrocarbons, and pH shall be conducted when contaminants in an area are unknown or not well documented, although a limited contaminant list may be used subject to the Department's review of documentation pursuant to N.J.A.C. 7:26E-1.6(c).

For all petroleum storage and discharge areas, sample analysis shall be conducted pursuant to the requirements in Table 2-1. Samples taken in non-petroleum storage and discharge areas shall be analyzed for the stored material.

If tentatively identified compounds or unknown compounds are detected at concentrations in excess of the applicable remediation standard, they shall be addressed in either of two ways:

1. If the area will be remediated and it is likely that the concentration of the tentatively identified compounds/unknown compounds will be reduced by the remediation, the tentatively identified compounds/unknown compounds shall be analyzed in post remediation samples to document that it is no longer present in excess of the applicable remediation standard; or

An attempt shall be made to positively identify and accurately quantify the tentatively identified compounds/unknown compounds using an analytical method consistent with this section so that a remediation standard can be developed. (See **Table 1** for analytical requirements)

SUBCHAPTER 3. PRELIMINARY ASSESSMENT AND SITE INVESTIGATION

7:26E-3.1 Preliminary Assessments

(a) The purpose of a preliminary assessment is to identify the presence of any potentially contaminated areas of concern. If any potentially contaminated areas of concern are identified, then there is a need for a site investigation pursuant to N.J.A.C. 7:26E-3.3. If no potentially contaminated areas of concern are identified, then no further remediation is required at the site.

(b) A preliminary assessment is the first step in the process to determine whether or not a site is contaminated. For required contents, see **Table 2**.

7:26E-3.2 Preliminary Assessment Report

(a) The person responsible for conducting the remediation shall prepare a preliminary assessment report following the required format in the regulations. Scaled plans are required.

USGS quadrangle map must now include a bar.

4. For each area of concern identified at the site, which has not been remediated under Department oversight, the report shall contain a recommendation that either:

i. The area of concern is potentially contaminated, and thus additional investigation or remediation is required; or

ii. The area of concern is not believed to contain contaminants above the applicable remediation standards, in which case the preliminary assessment report shall include documentation for this belief; and

5. For each area of concern identified at the site, for which a No Further Action Letter was issued, the person responsible for conducting the remediation shall compare the contaminant concentrations remaining in the area of concern or the site with the Department's applicable remediation standards at the time of comparison, and the report shall contain a recommendation that either:

i. The area of concern contains contaminants above the numerical remediation standard applicable at the time of comparison, however, no further remediation is required because:

(1) The contaminant concentrations remaining in the area of concern or the site are less than an order of magnitude greater than the numerical remediation standard applicable at the time of comparison;

(2) The area of concern or the site was remediated using engineering and institutional controls approved by the Department and these controls are still protective of public health, safety and the environment; or

(3) The area of concern or the site were remediated to an approved site specific remediation standard and all of the factors and assumptions which are the basis for deriving the site specific remediation standard remain valid for the site;

ii. The area of concern or site contains contaminants above the numerical remediation standards applicable at the time of comparison and further remediation is required because:

(1) The contaminant concentrations remaining in the area of concern or the site are more than an order of magnitude greater than the numerical remediation standard applicable at the time of comparison;

(2) The area of concern or site was remediated using engineering and institutional controls approved by the Department and these controls are no longer protective of public health, safety and the environment; or

(3) The area of concern or the site were remediated to an approved site specific remediation standard

TABLE 1
ANALYTICAL REQUIREMENTS FOR
PETROLEUM STORAGE AND DISCHARGE AREAS[11]

Sampling Objective	Soil Initial Screening/ Post-Remediation[1]	Water Initial Screening
Gasoline, Mineral Spirits	VO+10[2], Lead[7]	VO+10[2], MTBE[3] TBA[3], Lead[7]
Kerosene, Jet Fuel	VO+10[2] Naphthalenes[5]	B/N+15[2], VO+10[2]
Fuel Oil No. 2, Diesel Fuel	TPHC[9]	B/N+15[10], VO+10[2]
Fuel Oil Nos. 4 & 6, Hydraulic Oils, Cutting Oil, Crude Oil, Lubricating Oil	TPHC, PAH[8]	B/N+15[10], VO+10[2]
Waste Oil	TPHC[6], VO+10[2], B/N+15[10] PCBs, Priority Pollutant Metals or EPA Target Analyte List	PP+40 or TCL/TAL[4]
Waste Vehicular Crankcase Oil Waste Mineral Oil	TPHC[6], VO+10[2] B/N+15[10], PCBs, lead TPHC	VO+10[2], B/N+15[10]

Footnotes

1. Analytical parameters may be limited based on previous analytical results.
2. EPA target compound list volatile organic or priority pollutant volatile organic scans including xylene with a library search.
3. Methyl-tertiary-butyl-ether (MTBE), tertiary-butyl alcohol (TBA) analysis required if gasoline tanks were in service after 1979 and 1969 respectively.
4. Priority Pollutant plus forty (PP+40) including xylene, excluding PCB/pesticide analysis, or EPA Target Compound List plus 30 and EPA Target Analyte List, excluding PCB/pesticide analysis.
5. Naphthalene, including Naphthalene, Methyl Naphthalenes, Dimethyl Naphthalenes; may be analyzed in B/N + 15 fraction or in VO fractions; if analyzed in VO fraction, instrument must be calibrated for these analytes. Quantitation of all isomers found shall be performed against at least one Methyl Naphthalene standard and at least one Di-Methyl Naphthalene standard.
6. Total Petroleum Hydrocarbon (TPHC) analysis required on all samples. Other parameters required on 25 percent of samples where TPHC was detected (minimum of one sample); other parameters shall be analyzed for in the sample with the highest TPHC.
7. Lead Analysis required if source was or is leaded gasoline.
8. TPHC analysis required on all samples. Polynuclear aromatic hydrocarbons (per EPA Priority Pollutant List) analysis required on 25 percent of samples where TPHC exceeds 100 ppm (minimum of one sample); samples for PAH analysis shall be those with the highest TPHC concentration.
9. TPHC analysis required on all samples; VO + 10 analysis required on 25 percent of samples in which TPHC level in soil exceeds 1000 PPM (minimum of one sample); samples for VO analyses shall be those with the highest TPHC concentration.
10. EPA Target Compound List Base Neutral or Priority Pollutant Base Neutral scan with a library search.
11. Analyses are required on all samples unless otherwise noted.

TABLE 2 PRELIMINARY ASSESSMENT REQUIREMENTS

A preliminary assessment shall be based on diligent inquiry and include an evaluation of the following:

1. Historical information concerning the site history shall be part of the preliminary assessment unless the remediation is directed at either a specific discharge event (rather than a particular area of concern) or any underground tank or underground tank system. The site history shall include an evaluation of the following to the extent available from diligent inquiry:

i. Site history information from recognized sources including, but not limited to, the following:

- Fire Insurance Maps;
- MacRae's Industrial Directory;
- Title and Deed;
- Site plans and facility as-built drawings;
- (5) Federal, State, county and local government files; and
- (6) The Department Geographic Information System;

ii. The site history from the time the site was naturally vegetated, including without limitation:

(1) Names of all owners and operators;

(2) Dates of ownership of each owner;

(3) Dates of operation of each operator; and

(4) Brief descriptions of the past industrial/commercial usage of the site by each owner and operator;

iii. All raw materials, finished products, formulations and hazardous substances, hazardous wastes, and pollutants which are or were present on the site, including intermediates and by-products;

iv. Present and past production processes, including dates, and their respective water use and shall be identified and evaluated, including ultimate and potential discharge and disposal points and how and where materials are or were received onsite (for example, rail, truck);

v. All former and current containers, container or bulk storage areas, above and below ground tanks, above and below ground waste and product delivery lines, surface impoundment's, landfills, septic systems and other structures, vessels, conveyances or units that contain or previously contained hazardous substances, hazardous waste, and pollutants, including:

(1) Type;

(2) Age;

(3) Dimension of each container;

(4) Location;

(5) Chemical content;

(6) Integrity (for example, tank test reports);

(7) Volume;

(8) Construction materials; and

(9) Inventory control records unless a Department-approved leak detection system pursuant to N.J.A.C. 7:1E or 7:14B has always been in place and there is no discharge history;

vi. If the site area exceeds two acres, an interpretation of the aerial photographical history of the site, based on available current and historical color, black and white and infrared aerial photographs (scale 1:18,000 or less) of the site and surrounding area at a frequency which provides the evaluator with a historical perspective of site activities. The photographic history shall date back to 1932 or to the earliest photograph available. Aerial photographic coverage is available for review at the New Jersey Department of Environmental Protection and Energy, Tidelands Management Program, Aerial Photo Library, 9 Ewing Street, Trenton, New Jersey;

vii. Any data or information concerning known discharges that have occurred on the site;

viii. Remediation activities previously conducted or currently underway at the site including dates of previous discharges, remedial actions, and all existing sampling data concerning contaminants at the site. If a government agency was involved, the name of the lead government agency, case identification number, and current case status;

ix. All remedies previously approved by the Department in a remedial action workplan or equivalent document to determine if the remedy remains protective of public health, safety and the environment;

x. All existing environmental sampling data concerning contaminants at the site;

xi. Any known changes in site conditions or new information developed since completion of previous sampling or remediation;

xii. All Federal, State and local environmental permits including permits for all previous and current owners or operators, applied for or received, or both, for the site including:

(1) The name and address of permitting agency;

(2) The reason for the permit;

(3) The permit identification number;

(4) The application date;

(5) The date of approval, denial, or status of application;

(6) The name and current address of all permittees;

(7) The reason for denial, revocation or suspension if applicable; and

(8) The permit expiration date;

xiii. All administrative, civil and criminal enforcement actions for alleged violations of environmental laws concerning the site, including:

(1) The name and address of agency that initiated the enforcement action;

(2) Date of the enforcement action;

(3) The section of statute, rule or permit allegedly violated;

(4) The type of enforcement action;

(5) A description of alleged violations;

(6) The resolution or status of violation and enforcement action; and

(7) A description of any potential environmental impact which may have resulted from the alleged violation; and

xiv. All areas where non-indigenous fill materials were used to replace soil or raise the topographic elevation of the site, including the dates of emplacement.

2. The person conducting the preliminary assessment shall conduct a site visit to verify the findings in (c)1 above.

and some or all of the factors and assumptions which were the basis for deriving the site specific remediation standard are no longer valid;

iii. The area of concern or site does not contain contaminants above the numerical remediation standard applicable at the time of comparison and no further remediation is required; or

iv. The contaminant concentration remaining in the area of concern or the site is more than order of magnitude greater than the numerical remediation standard applicable at the time of comparison. Any person who is liable for contamination pursuant to N.J.S.A. 58:10-23.11g may be required to conduct further remediation.

(b) The documentation required for (a)5 above shall include a table comparing the levels of contaminants remaining in the area of concern, the numerical remediation standards which are contained in the approved remedial action workplan and the numerical remediation standards applicable at the time of comparison. The table shall contain all sampling results, including, but not limited to, sample location, sample media, field and laboratory identification numbers, method detection limits as necessary, and analytical results for the area of concern.

(c) The Department will determine the extent to which prior submissions or completions may satisfy the specific items required for the preliminary assessment. If the Department approves any such prior work in writing, then that work may be included as part of the preliminary assessment.

7:26E-3.3 Site Investigations

(a) The purpose of a site investigation is to determine if any contaminants are present at the site, or as necessary, have emanated or are emanating from the site above any of the applicable unrestricted use remediation standards or if no further remediation is required. If such contaminants are present at the site, then additional remediation is necessary.

(b) A site investigation shall be conducted based upon the information collected pursuant to the preliminary assessment requirements in N.J.A.C. 7:26E-3.1 and shall satisfy all of the following requirements:

1. The general sampling requirements in N.J.A.C. 7:26E-3.4;

2. The building interior sampling requirements in N.J.A.C. 7:26E-3.5, if applicable;

3. The soil sampling requirements in N.J.A.C. 7:26E-3.6;

4. The ground water sampling requirements in N.J.A.C. 7:26E-3.7, if applicable;

5. The surface water and sediment sampling requirements in N.J.A.C. 7:26E-3.8, if applicable;

6. The area specific sampling requirements in N.J.A.C. 7:26E-3.9;

7. The background soil sampling requirements in N.J.A.C. 7:26E-3.10, if applicable;

8. The ecological evaluation requirements in N.J.A.C. 7:26E-3.11; and

9. The historic fill requirements in N.J.A.C. 7:26E-3.12, if applicable.

(c) If required pursuant to an oversight document or other applicable rule, the person responsible for conducting the remediation shall submit reports pursuant to N.J.A.C. 7:26E-3.13 in accordance with the schedules contained in the oversight document or other applicable rule.

(d) It is often appropriate to phase the site investigation so that the areas of concern most likely to be contaminated above the applicable remediation standards are sampled first. If at any time during the site investigation, any contamination is found above the applicable remediation standards, then the site investigation may be discontinued and the remediation continued at either the remedial investigation or remedial action phase.

7:26E-3.4 Site Investigation - General Sampling Requirements

(a) Sampling shall be conducted in all potentially contaminated areas of concern, whether relating to current or former uses of the site to determine whether or not any contaminants are present above the applicable unrestricted use remediation standard.

1. Sampling shall be biased to the suspected location of greatest contamination.

2. Samples shall be biased based on professional judgment, area history, discolored soil, stressed vegetation, drainage patterns, field instrument measurements, odor, or other field indicators.

3. Sampling locations shall comply with requirements listed in N.J.A.C. 7:26E-3.5 through 3.9.

4. If access to sampling locations required pursuant to N.J.A.C. 7:26E-3.5 through 3.12 is impractical due to physical obstructions or safety hazards, and no practical sampling alternatives are available, upon prior verbal or written approval by the Department, sampling may be modified subject to the technical criteria in N.J.A.C. 7:26E-1.6(c)3. Confirmation of any verbal or written approval by the Department shall be provided in the site investigation report. For verbal approvals, the date of the verbal approval and the name of the Department representative who granted the approval shall be provided in written correspondence to the Department within seven days of the verbal approval.
(c) Composite sampling shall not be conducted, except as necessary for waste classification pursuant to N.J.A.C. 7:26-8.

7:26E-3.5 Site Investigation - Building Interiors

The site investigation of building interiors shall be conducted when contaminants inside the building have the potential to migrate to the environment outside the building or when contaminants outside the building have the potential to migrate into the building. Minimum requirements for investigating contaminants inside buildings which have the potential to migrate to the environment outside the building are specified in N.J.A.C. 7:26E-3.9, and requirements for investigating contaminants outside buildings which have the potential to migrate into buildings shall be specified by the Department on a site specific basis.

7:26E-3.6 Site Investigation - Soil

(a) The site investigation shall satisfy the following requirements for all soil investigations:

1. A survey for buried drums, tanks or waste using test pits, ground penetrating radar, magnetometry electromagnetics, or other techniques capable of detecting metal containers and other waste to an average depth of 20 feet or deeper shall be conducted if:

i. There have been any reports of buried drums, tanks or waste;

ii. Ground water contamination is detected and no source has been identified; or

iii. Aerial photographic history of the site indicates the presence of drums, tanks or waste in or adjacent to regraded and/or filled areas.

2. Soil samples shall be collected for chemical analysis and to provide a profile of subsurface conditions. The profile shall meet the following:

Logs shall be prepared for all soil samples to document subsurface conditions including, without limitation, soil types and description of non-soil materials, field instrument measurements, depth to ground water, if ground water is encountered and document, if present, soil mottling, presence of odor, vapors, soil discoloration, and free and/or residual product, as determined pursuant to N.J.A.C. 7:26E-2.1(a)11;

Soil shall be classified according to one of the standard systems (for example, Burmeister, Unified, or United States Department of Agriculture);

All borings shall be performed in accordance with the Subsurface and Percolating Waters Act, N.J.S.A. 58:4A-4.1 et seq. In addition, a monitoring well permit shall be obtained from the Department prior to drilling any soil boring greater than 25 feet below grade.

For soil borings to a depth of less than 25 feet below grade, the Department recommends soil not be returned to the boring hole. If contaminated

materials are returned to the boring hole, then the person responsible for conducting the remediation shall address the presence of this contamination as part of the remedial action workplan; and

3. Initial characterization soil samples (except samples being analyzed for volatile organics) shall be collected at zero to six inches below grade except as required pursuant to N.J.A.C. 7:26E-3.9 (Area Specific).

4. All soil samples to be analyzed for volatile organics shall be collected as follows:

i. A bulk sampling device that will collect an intact core (e.g., split-spoon) shall be used to minimize contaminant loss during sampling; and
ii. Each core shall be field screened with a properly calibrated direct reading instrument equipped with a photoionization detector (PID), flame ionization detector (FID), or other suitable instrument capable of detecting the contaminants pursuant to N.J.A.C. 7:26E-2.1(b) to select samples for volatile organics analysis using the following criteria:

(1) If field measurement readings are detected above background:

(A) The coring shall be extended until either background readings are achieved, ground water is encountered, or bedrock is encountered; and

(B) An undisturbed sample from the six-inch interval registering the highest field measurement reading shall be collected, at a minimum, using the appropriate sample collection method and sampling device for volatile organics analysis pursuant to the requirements specified in N.J.A.C. 7:26E-2.1(a)4; or

(2) If all intervals register the same field measurement reading or all field measurement readings do not exceed background:

(A) The coring shall be extended to ground water, bedrock, or 10 feet, whichever is encountered first; and

(B) One undisturbed sample at a minimum, from the six-inch interval at the bottom of the soil boring shall be collected, using the appropriate sample collection method and sampling device for volatile organics analysis pursuant to the requirements specified in N.J.A.C. 7:26E-2.1(a)4; and

iii. Contaminants that cannot be detected with field-screening instruments shall be sampled in accordance with the requirements at N.J.A.C. 7:26E-3.4(a).

5. In all cases, samples shall be collected in discrete six-inch increments. If more or less than a six-inch increment is sampled because of poor sample recovery or other field logistical problems, an explanation shall be provided in the soil log.

6. Additional sampling of increments below those specified in (a) 3 and 4 above shall be completed in cases where the surface has been regraded or if physical evidence in borings indicate the possible presence of contamination.

7. If the designated soil sampling point is within the saturated zone, a sample of the saturated soil shall be collected, when sample recovery is possible, and analyzed.

(b) Soil gas detection methods may be used to bias soil or ground water sample locations.

7:26E-3.7 Site Investigation - Groundwater

(a) Except as provided in (b) below, the site investigation of each area of concern shall include at least one ground water sample if any soil contaminant detected in the area of concern has a water solubility greater than 100 milligrams per liter at 20 degrees Celsius to 25 degrees Celsius as documented by a peer-reviewed reference; and

1. All of the soil between the contaminant and the saturated zone is less than 15 percent silt and clay; or

2. Any part of the area of concern at which the soil contamination was detected is located within 2,000 feet of a public supply well, as determined from a map of public supply wells which is available from the Department's Bureau of Revenue, Maps and Publications (609-777-1038) or through the Department's Internet home page (http://www.state.nj.us/dep/njgs, then select "Geodata"). A ground water sample is not required if documentation acceptable to the Department is provided in the site investigation report (N.J.A.C. 7:26E-3.13) demonstrating that ground water sampling was not necessary.

(b) Ground water sampling may not be necessary during a site investigation for a particular area of concern if the person responsible for conducting the remediation documents that ground water contamination from the discharge is unlikely based criteria: identified in the regulations.

(c) The site investigation of ground water shall be conducted for the purposes of a site investigation pursuant to N.J.A.C. 7:26E-3.3(a) according to the following:

1. The Quality assurance and quality control requirements per to N.J.A.C. 7:26E-2;

2. Ground water samples may be taken pursuant to any generally acceptable sampling method pursuant to N.J.A.C. 7:26E-1.6(c).

Sampling methods generally acceptable to the Department include, but are not limited to, those specified in the NJDEP Field Sampling Procedures Manual or the NJDEP Alternative Ground Water Sampling Techniques Guide in effect as of the date on which the sampling is performed; and

3. The ground water sampling points shall be located in:

i. The excavation of any source(s) of contaminants, if possible, including without limitation, tanks, tank distribution systems, and underground injection control (UIC) units such as seepage pits, septic systems, dry wells or other injection wells regulated under N.J.A.C. 7:14A-5; or

ii. The expected downgradient flow direction of the area of concern and within 10 feet of the area of concern; ground water flow direction shall be predicted based on topographic relief, the location of surface water bodies, structural controls in the bedrock or soils, location of pumping wells and subsurface conduits at or below the water table. Ground water flow direction may also be predicted based on data from adjacent sites if ground water flow direction at the adjacent site has been determined pursuant to N.J.A.C. 7:26E-3.7(e)3iv.

(d) The minimum number of ground water samples collected shall be as follows:

1. At least one ground water sample for each area of concern which is classified as an Underground Injection Control (UIC) unit including, without limitation, seepage pits, septic systems, dry wells or other injection wells regulated under N.J.A.C. 7:14A-5 sampled pursuant to N.J.A.C. 7:26E-3.9(e)3;

2. At least one ground water sample for sites with leaking underground storage tanks and tank fields containing up to three tanks with a maximum capacity of 10,000 gallons per tank. If a leaking tank is excavated, the ground water sampling point shall be located within the excavation, if possible;

3. Pump islands and associated piping greater than 25 feet from the tank field shall be considered separate areas of concern and shall require a separate ground water sample location; and

4. At least one ground water sample for all other areas of concern unless the area of concern is within 10 feet hydraulically upgradient of a ground water sampling location.

(e) The results of each ground water site investigation analysis shall be evaluated as follows:

1. If the contaminant concentrations found in all ground water samples are below the applicable remediation standards, no

further remediation is necessary for ground water;

2. If the contaminant concentrations found in any ground water samples exceed the applicable remediation standards, the ground water may be resampled to confirm the presence of contamination; this confirmation sampling shall include at least two additional samples taken over a 30 day period, the results of which may be averaged with the original result to determine compliance with the applicable remediation standards; and

3. If ground water contamination is confirmed, the person responsible for conducting the remediation shall, except as provided in (f), below:

ii. Within six weeks after identifying ground water contamination, conduct a well search meeting the requirements in **Table 3**.

TABLE 3 WELL SEARCH REQUIREMENTS

(1) Locating wells through a file search using all available Department, county and local records for all monitoring and domestic wells within one-half mile of each point of groundwater contamination, and all irrigation, industrial, public supply wells, and wells with water allocation permits within one mile of the area of concern. Available Department records include without limitation, paper, microfiche, electronic and antique well records maintained by the Bureau of Water Allocation. The Department Geographic Information System shall be used as part of the file search. If the site is located in a groundwater use area the Department will determine if further action, such as a door-to-door survey, is required;

(2) Identifying the type of well and the status of the well (active, inactive, properly abandoned pursuant to N.J.A.C. 7:9D), including, as available, total depth, casing length, open bore hole or screened interval, copies of well records and/or well logs on file with the Department's Bureau of Water Allocation, and any additional records available in county or municipal records; and

(3) Documenting all sources referenced in performing the well search, including agencies that were unable to provide the information requested, including the name of the person within each agency that was contacted and when, and that the request for information was denied or information was unavailable;

ii. Within two weeks after completing the well search, determine if any potable wells exist within 1000 feet of each area of concern with groundwater contamination and:

(1) Within 24 hours after determining the existence of a potable well, notify the assigned case manager by telephone. If a case manager is not assigned, notify the Department hotline at 1-877 WARNDEP or (877) 927-6337;

(2) Within eight weeks after identifying the potable wells, sample each existing potable well identified pursuant to the well search suspected to be contaminated by the site in question; and

(3) Within 45 days after completing sampling of the potable wells, submit all analytical results to the Department as full laboratory data deliverables, pursuant to N.J.A.C. 7:26E-2(a)13.

iii. Perform the following actions if any of the analytical results for the potable well samples collected pursuant to (e) 3ii(2) indicate that any of the potable wells are contaminated above the drinking water standards for contaminants that are suspected to be from the site:

(1) Within two weeks after submitting the analytical results to the Department, identify each potable well that exists within 1000 feet to one-half mile of each area of concern with groundwater contamination and perform all sampling and reporting requirements as set forth at (e)3ii; and

(2) Repeat the process of identifying and sampling potable wells pursuant to (e)3i, ii and iii(1) above, by identifying and sampling potable wells at each successive half-mile intervals until either no more potable wells are identified, or no contaminants above the drinking water standard are identified;

iv. Determine the direction of groundwater flow for each affected aquifer as follows:

(1) Install a minimum of three groundwater monitoring wells or piezometers in each affected aquifer or water bearing zone to determine the groundwater flow direction in that zone. Install and survey the monitoring wells or piezometers pursuant to N.J.S.A. 58:4A-4.1 et seq. and N.J.A.C. 7:26E-4.4(g) to provide for adequate triangulation;

(2) Collect a minimum of two rounds of synoptic static water levels a minimum of 30 calendar days apart to provide a more accurate indication of the groundwater flow direction. The water levels may be taken to evaluate seasonal variations in flow direction;

(3) If the site is located in an area that is tidally influenced, synoptic ground and surface water levels shall be collected during two fair weather sampling events separated by a minimum 30-day period where each event entails collecting hourly water levels from all applicable wells and the surface water for a minimum 71 hour period; and

(4) Collect water level measurements and determine groundwater flow direction, taking into account activities in the area which may affect flow direction, such as pumping wells or seasonally used pumping wells and injection wells; and

v. Conduct a groundwater remedial investigation pursuant to N.J.A.C. 7:26E-4.4.

(f) A prospective purchaser shall commence a potable water investigation no later than 30 calendar days after acquiring the property, in accordance with the requirements and schedule in (e)3, above.

(g) To support a claim that all or part of groundwater contamination detected in onsite groundwater samples is caused by background groundwater contamination, a background groundwater investigation shall be conducted meeting the requirements in the regulations.

3. Background monitoring well(s) shall be sampled concurrently with collection of onsite ground water samples for all onsite contaminants believed to be originating from background sources;

4. Results of the background ground water investigation shall be evaluated as follows:

i. No further remediation is required for ground water if:

(1) Contaminants detected in the area of concern monitoring well, as well as the contaminants' parent products, were never historically used on the site as documented pursuant to N.J.A.C. 7:26E-3.1 and 3.3;

(2) There is no additional evidence of an onsite discharge; and

(3) Contamination is present in the background monitoring well(s); and

ii. Additional remediation may be required when contamination is present in the area of concern monitoring well but not in the background monitoring well or contamination is present in both the area of concern monitoring well and the background monitoring well. In these cases, the Department shall consider the contribution of the background contamination in the determination of the applicable ground water remediation standards for the site. Factors for determining the contribution of the offsite contamination to onsite contamination shall include, but not be limited to, contaminant attenuation rates, contaminant degradation rates, and ground water flow velocity; and

5. The person responsible for conducting the remediation shall notify the Department pursuant to N.J.A.C. 7:26E-1.4(g) if that person determines, pursuant to (f)4 above, that ground water contamination exists upgradient of the site. The person responsible for conducting the remediation shall notify their assigned case manager, or if they are not assigned a case manager, the Department hotline at (609) 292-7172.

7:26E-3.8 Site Investigation - Surface Water and Sediment

(a) If a surface water body is on or adjacent to the site, the person responsible for conducting the remediation shall determine if there is any evidence that discharges to the surface water

body have occurred or are occurring. Such evidence shall include, without limitation:

1. Known historical or on-going discharges to the surface water body, as determined pursuant to N.J.A.C. 7:26E-3.1;

2. Stressed vegetation, sheens, seeps, discolored soil or sediment along the shoreline or on the surface water body;
3. Evidence of stream impacts from historical discharges including historical ecological studies documenting differences in organism population density and diversity in areas potentially impacted by the site relative to areas not impacted by the site; or

4. Existing onsite ground water contamination in excess of the applicable State Surface Water Quality criteria, N.J.A.C. 7:9B or the Federal Surface Water Quality criteria, 40 C.F.R. Part 131, whichever is more stringent, which discharges to the surface water body. Onsite ground water contamination in excess of the applicable surface water criteria shall be delineated to the applicable surface water criteria. Ground water delineation samples shall be collected along the ground water flow path between the area of concern and the surface water body and analyzed for applicable contaminants.

(b) If there is evidence that discharges to the surface water body have occurred, pursuant to (a) above, then a surface water investigation is required. The investigation of surface water and sediment shall be conducted according to the requirements in the regulations.

7:26E-3.9 Site Investigation - Area Specific Requirements

(a) The site investigation shall also satisfy the following sampling requirements for bulk storage tanks and appurtenances, including, without limitation, all in-use and out of service storage tanks with a storage capacity greater than 55 gallons, and associated piping and fill points.

1. For above ground tanks over unpaved soil:

i. Sampling around tanks with shell or bottom in direct contact with soil now or in the past shall meet all the following criteria:

(1) Sampling to detect surface contamination shall be conducted around the base of the tank with at least one sample per 100 linear feet, and shall include expected areas of contamination based on soil discoloration/odors, history of repairs/replacement, soil beneath valves, or low areas where spills or leaks from valves may accumulate.

(2) Unless the tank has always been in compliance with N.J.A.C. 7:1E-2 and has no discharge history, at least one boring shall be located adjacent to or within two feet of the tank and continuous two foot split spoon sampling performed to the water table (if water table is less than 10 feet). The sample in each boring evidencing the highest apparent contamination based on soil discoloration, odor, field screening result or other field indicator shall be laboratory analyzed. If there is no evidence of contamination, samples shall be collected from the zero to six- inch interval above the saturated zone. At least one boring shall be located in the expected downgradient ground water flow direction from the tank. For tanks in excess of 100 feet in circumference, at least three borings, spaced equidistantly, are required.

(3) In cases where the depth to ground water is greater than 10 feet, sampling shall be conducted to 10 feet as in (a)1i(2) above. If there is no evidence of contamination, samples shall be collected at 9.5 to 10 feet.

ii. Elevated tanks (that is, shell or bottom not in contact with ground) require soil sampling when there is any physical or documentary evidence of discharges, when soil discoloration is observed or when field monitoring or other evidence indicates that a discharge has occurred.

(1) At least one soil sample shall be taken below tanks which store or may have stored hazardous substances, hazardous wastes, or pollutants that do not cause obvious soil discoloration (such as volatile organics), in the area most likely to be contaminated, including without limitation, valve or former leak or rupture areas. If samples cannot be obtained from below the tank because soils are not accessible to sampling equipment, the sample may be located within two feet of the tank.

2. For above ground tanks over paved surfaces:

i. Soil around above ground tanks on paved surfaces shall be sampled pursuant to (b)1 below (Pads) if there are stained soils adjacent to pad or if the potential contaminant would not cause discoloration (volatile organics), or if there is a history of spillage or other evidence that a discharge has occurred.

ii. Tanks within a paved containment area shall be sampled at the drainage discharge point, if one exists, pursuant to (d) below (Drainage Areas).

iii. Soil sampling below the pavement shall be conducted only when the pavement has deteriorated so as to allow potential contaminant contact with the soil, or if pavement was not present over the life of the tank or former tanks.

iv. Instead of sampling soil beneath pavement, samples around the pad may be taken pursuant to (b)1 below subject to the Department's review of documentation pursuant to N.J.A.C. 7:26E-1.6(c) specifying why boring through pavement was not considered practical (for example, concrete slabs with berms, synthetic liners).

3. For underground storage tanks:

i. Underground storage tanks and distribution systems containing potential contaminants shall be evaluated to identify any past or present discharges. No sampling is required for tanks and distribution systems which have always had secondary containment and leak detection pursuant to N.J.A.C. 7:14B and no discharge history. At least four soil samples around each tank shall be collected. If tanks will be closed, refer to N.J.A.C. 7:26E-6.3(b) for requirements.

(1) The soil samples shall be collected within two feet of the tank with one sampling location located at each end, and additional sampling locations located along the length of the entire tank pursuant to (a)3i(2) below;

(A) If sampling within two feet of the tank is not possible due to the presence of bedding gravel, or there are safety considerations (such as danger of tank puncture), which have been identified through field investigations or review of as built plans, soil samples shall be taken as close as possible to the tank. However, no samples shall be collected from further than five feet from the tank and a ground water sample shall be collected within five feet and down-gradient of the tank.

(B) If, because of safety considerations, the distance between adjacent tanks precludes locating soil samples between the tanks, a ground water sample may be collected within five feet and down gradient of the tanks, at the appropriate depth in lieu of the required soil samples between the tanks;

(2) The total number of required sampling locations per tank are as follows:

Tank Capacity Gallons	**Approximate Length in (Feet)**	**# Sampling Locations**
56-2,000	to 10'	4
2,001-10,000	to 30'	6

10,001-25,000	to 40'	8
25,000 +	to 40'+	10

(3) Soil samples collected for analysis shall be taken at zero to six inches below the tank bottom unless the tank is within the saturated zone (see (a)3ii(5) below);

(4) Additional soil samples for volatile organics analysis shall be collected in accordance with the requirements at N.J.A.C. 7:26E-3.6(a)4.

(5) For underground storage tanks within the saturated zone:

(A) If volatile organic compounds are considered potential contaminants, either a soil investigation shall be conducted as stated in (B) below, or a ground water sample shall be collected at the appropriate depth pursuant to N.J.A.C. 7:26E-3.7(c) through (e);

(B) If volatile organic compounds are not considered potential contaminants, a soil investigation shall be conducted. For a soil investigation, samples shall be collected zero to six inches above the saturated zone if the potential contaminant's density is less than water, and zero to six inches below the depth of the tank bottom if the potential contaminant's density is greater than water;

ii. Precision tests pursuant to N.J.A.C. 7:14B-6.5(a)3 may be used in lieu of soil samples if tanks are beneath buildings or otherwise inaccessible and it is the original tank with no history of leaks or repairs, or if there is insufficient soil to collect a sample (for example, tank is located in bedrock).

iii. To verify tank contents for out of service tanks, one sample shall be taken of any product or residue remaining in the tank and analyzed using ASTM fingerprint method D3328 or other appropriate method.

4. For all above grade piping:

i. Sampling is necessary if there is evidence of a discharge (for example, discolored soil, etc.) or reports of past discharges.

ii. Any sampling conducted shall be pursuant to (e) below (Discharge/Disposal Areas).

5. For all below grade piping:

i. Below grade piping shall be evaluated to identify any past or present discharges using soil samples located zero to six inches below the piping and within two feet of piping unless the system has always had secondary containment with leak detection pursuant to N.J.A.C. 7:14B and no discharge history. If any soil or bedding material is encountered that is less than 15 percent silt/clay, samples for volatile organic compounds shall be collected at the first less permeable soil horizon encountered below the pipe, or at zero to six inches above the saturated zone, or at 9.5 to 10 feet below the pipe, whichever is encountered first. Precision tests pursuant to N.J.A.C. 7:14B-4.3(j) may be used if the piping is original and there is no history of discharges or repairs.

ii. For total piping length of one to 15 feet, a minimum of one soil sample shall be collected. An additional soil sample shall be collected for each additional 15 linear feet of piping or portion thereof from 16 to 50 feet of piping length. Sampling locations shall be biased to include joints, dispensers, and other potential discharge areas.

iii. Piping runs within two feet of another pipe run may be considered a single pipe run. Soil samples for multiple pipe lines shall be collected midway between/among the lines, or biased toward any pipe for which evidence of a discharge exists. For pipes that are separated by a distance greater than two feet vertically, soil samples shall be collected below each pipe, pursuant to (a)5i above.

iv. For total piping lengths in excess of 50 feet, sampling frequency may be reduced subject to the Department's review of documentation pursuant to N.J.A.C. 7:26E-1.6(c) specifying why the reduced number was considered adequate.

6. For all loading and unloading areas:

i. Exposed soils at loading or unloading areas associated with tanks shall be sampled at a minimum rate of one sample per fill connection or valved discharge point;

ii. For loading or unloading points located over impervious cover, sampling shall be conducted pursuant to N.J.A.C. 7:26E-1.6(b)1 below (Pads).

(b) The site investigation shall also satisfy the following requirements for all storage and staging areas, dumpsters and transformers, whether temporary or permanent, including exposed soil areas adjacent to above ground vessels on pads; tank loading/unloading areas on pads; dumpster staging areas; electrical transformers, heat exchanger and other outdoor equipment and drum storage pads.

1. For all pads:

i. Pads shall have a minimum of one sampling location per side adjacent to exposed soil for sides up to 30 feet long; for sides greater than 30 feet long, one additional sample location is required for each additional 30 feet of length;

ii. Each sampling point shall be located immediately adjacent to the pad and biased toward the expected location of greatest contamination;

iii. If a pad shows evidence of deterioration that may allow contaminant contact with the soil, or its surface has been modified (repaved), or aerial photographs or site history indicate potential for previous discharges to the soil, soil samples beneath the pad shall be collected pursuant to N.J.A.C. 7:26E-1.6(b)2ii below; and

iv. Bermed pads and pads surrounded by impermeable cover shall be sampled at any drainage discharge point pursuant to (d) below (Drainage Areas).

2. For all storage and staging areas over permeable cover:

i. Storage and staging areas with evidence of discharges which are or were used for storage of hazardous substances, hazardous wastes, or pollutants shall be sampled pursuant to (e) below (Spills/ Disposal Areas).

ii. Sample frequency shall be one per 900 square feet of surface area to characterize soils below a storage or staging area up to 300 feet in perimeter with a minimum of one sample. Sample frequency may be reduced for larger areas subject to the Department's review of documentation pursuant to N.J.A.C. 7:26E-1.6(c) specifying why sample frequency was considered adequate. Sampling locations shall be biased toward the suspected location of greatest contamination based on low points, drainage patterns, discoloration, stressed vegetation, field instrument measurements or other field indicators.

(c) The site investigation shall satisfy the following requirements for all surface impoundment's, including without limitation, lagoons, fire ponds, waste ponds or waste pits, storm water detention basins, excavations, natural depressions or diked areas, which are designed to hold an accumulation of liquid substances or substances containing free liquids. Active surface impoundments with impermeable liners which may be damaged as a result of sample collection shall have liner integrity verified by physical inspection and/or evaluation of monitoring well water quality data associated with the surface impoundment, if available.

1. Sediments within all unlined surface impoundments shall be sampled if the impoundment receives runoff from areas of potential contaminant sources;

2. Sediment sample locations shall be biased towards inflow/ outflow areas, and areas where sediments may be expected to accumulate;

3. Core samples shall be taken for contaminant analysis and to fully characterize sediment type, thickness of sediment layers, and vertical extent of sediment.

4. Distinct layers of sediments thicker than six inches, as evidenced by color, particle size, or other physical characteristics, shall be sampled individually.

5. Sediment quantity within the surface impoundment shall be estimated.

(d) The site investigation shall also satisfy the following requirements for all drainage systems.

1. For all floor drains and collection systems, if there is reason to believe contaminants were discharged into the floor drain or collection system:

i. The point of discharge for any floor drain or collection system shall be sampled if the system discharges or ever may have discharged to soil, ground water or surface water;

ii. If the point of discharge is unknown, tracer tests (for example, dye or smoke) shall be conducted to determine the discharge point(s);

iii. Collection system integrity shall be documented by representative soil sampling at potential leak areas, video inspection, hydrostatic test or pressure test. Other methods may be acceptable, subject to the Department's review of documentation pursuant to N.J.A.C. 7:26E-1.6(c) specifying why the methods were considered effective; and

iv. Sampling soil below floor drains, or collection system laterals, shall be conducted when corrosives (as defined in N.J.A.C. 7:26 or, if plastic piping is or was used, organic solvents are considered corrosive) are or were discharged to floor drains or the collection system or there has been a history of collection system discharges, rupture or repairs. In such cases, representative soil sampling at known or suspected leak areas is required for potential contaminants.

2. Soil at each roof leader discharge point shall be sampled if storage units or process operations using hazardous substances, hazardous wastes, or pollutants vent or may have vented to the roof;

3. For all swales and culverts:

i. Sampling shall be conducted when the swale/culvert receives or received runoff from other contaminated areas of concern;

ii. Sediment and soil sampling shall be conducted at the points where contamination from runoff/spills enter or have entered the drainage system; and

iii. If flow could have scoured sediments from the receiving structure, sampling shall be conducted at onsite downgradient structures laden with sediments;

4. For all storm sewer and spill containment collection systems:

i. Sampling shall be conducted when the collection system is or was the runoff/spill discharge point from other contaminated areas of concern;

ii. Sediment sampling shall be conducted at the manhole, catchbasin, sump, or other structure where contaminated runoff or discharges enter the drainage system;

iii. Sampling shall be conducted in the soils around catch basins, manholes, sumps or other structures which contain or may have contained hazardous substances, hazardous wastes, or pollutants, and are not hydraulically sound (that is, water percolates through the floor and walls), through the use of adjacent soil borings. A single boring located within two feet of the downstream side of the structure shall be sampled at a depth corresponding to the bottom of the structure. If highly permeable soils are encountered and volatile organics sampling is required, sample at the next lower permeability soil horizon or zero to six inches above the saturated zone, or at 9.5 to 10 feet, whichever is encountered first; and

iv. Ground water discharging from storm sewer systems which contain dry weather flow (that is, five days following the most recent rainfall) shall be sampled at the discharge point and analyzed for potential contaminants discharged or potentially discharged into the system; and

5. For all boiler and compressor discharges, if there is reason to believe a potential contaminant discharge has occurred, sampling shall be conducted pursuant to (e) below (Discharge/Waste Disposal Areas).

(e) The site investigation shall also satisfy the following requirements for all discharge and waste disposal systems and areas.

1. For any discharge areas and areas of discolored soil or stressed vegetation where specific requirements are not otherwise provided in this section:

i. Each distinct area shall be evaluated independently as an area of concern; and

ii. Initial characterization samples shall be biased based on field indicators such as soil discoloration, stressed vegetation, or field instrument measurements toward those areas of greatest suspected contamination.

Sample frequency shall be at least one sample for every 900 square feet for areas up to 300 feet in perimeter. Sample frequency may be reduced for larger areas, subject to the Department's review of documentation pursuant to N.J.A.C. 7:26E-1.6(c) specifying why the reduced sample frequency was considered adequate.

2. Above ground treatment systems shall be sampled pursuant to the requirements for the functional portions of the system pursuant to (a) above (Tanks). For example, any above ground waste treatment tanks over unpaved soil shall be sampled pursuant to (a)1 above.

3. For below grade wastewater treatment systems:

i. For tanks, septic tanks, separators, and neutralization pits, two samples shall be collected from within the tank, one aqueous and one sludge sample, for analysis unless documentation acceptable to the Department pursuant to N.J.A.C. 7:26E-1.6(c) is provided in the site investigation report (N.J.A.C. 7:26E-3.13) specifying why such sampling was not considered necessary to confirm that only sanitary waste was discharged to the system during the entire life of the system. Documentation shall include, without limitation, an affidavit certifying that only sanitary waste was ever discharged to the system and that no present or former floor drains, sinks, or other units in process areas were ever connected to the system.

ii. For septic disposal fields:

(1) Soil borings shall be completed as specified below for onsite disposal fields unless documentation acceptable to the Department is provided in the site investigation report (N.J.A.C. 7:26E-3.13) specifying why soil borings were not considered necessary to confirm that only sanitary waste was discharged to the system pursuant to (e)3i above.

(2) At least one boring per 500 square feet of field area shall be completed, with a minimum of four borings per disposal field.

(3) Borings shall be located within two feet of the edge of the bed area in active disposal fields, but shall be angled so that samples are taken below the infiltrative surface as defined in N.J.A.C. 7:9A-2.1, and directly below laterals within abandoned fields.

(4) Borings shall be located to include the first five feet of the infiltrative surface as defined in N.J.A.C. 7:9A-2.1 and shall be spaced so that samples are representative of the entire disposal field.

(5) Soil samples shall be taken at a depth corresponding to zero to six inches below the bottom of the infiltrative surface as defined in N.J.A.C. 7:9A-2.1.

(6) If material to be sampled has less than 15 percent silt and/or clay and volatile organics samples are required, volatile organics soil samples shall be taken at the first lower permeability soil horizon or at zero or six inches above the saturated zone, or at 9.5 to 10 feet, whichever is encountered first.

iii. For cesspools, seepage pits, as defined in N.J.A.C. 7:9A-2.1, and dry wells:

(1) Sampling shall be conducted in accordance with (e)3iii(2) through (5) below, unless documentation acceptable to the Department is provided in the site investigation report (N.J.A.C. 7:26E-3.10) specifying why sampling was not considered necessary, for example, to confirm that only sanitary waste or storm water was discharged to the system pursuant to (e)3i above;

(2) One representative sample of sludge/sediment in each pit shall be obtained for laboratory analysis;

(3) A soil boring shall be placed within two feet of the suspected downgradient side of the pit and shall extend to a minimum of two feet below the pit bottom. The soil shall be cored and inspected for evidence of discharge and samples collected in accordance with N.J.A.C. 7:26E-3.4(a)1 and 2. If warranted, samples obtained for volatile organics analysis shall be collected as follows:

(A) Each core shall be field screened with a properly calibrated photoionization detector or flame ionization detector (PID/FID) or other suitable instrument pursuant to N.J.A.C. 7:26E-2.1(b);

(B) If field measurement readings are detected above background, coring shall be extended until background readings are achieved, or ground waste or bedrock is encountered;

(C) An undisturbed sample from the six inch interval registering the highest field measurement reading shall be collected and analyzed for volatile organics;

(D) If all intervals register the same measurement or, although not recommended, a PID/FID or similar instrument was not used, an undisturbed sample shall be collected from the six inch interval below the base of the pit or if volatile organics are of concern;

(I) If soil consists of 50 percent or more silt and/or clay, sample at six to 12 inches;

(II) If soil consists of 15 to 50 percent silt and/or clay, sample at 18 to 24 inches;

(III) If soil consists of less than 15 percent silt and/or clay, collect a sample from the six inch interval encompassing the interface between the soil at the base of the pit and the next lower soil horizon consisting of 15 percent or more silt and/or clay; or the six inch interval above the saturated zone; or the six inch interval above bedrock; or at 9.5 to 10 feet, whichever is encountered first.

(4) If the pit bottom is within two feet of the saturated zone or bedrock, a ground water sample will be obtained within two feet of the suspected downgradient side of the pit; and
(5) At a minimum, the laboratory analysis shall target the contaminants suspected to have been discharged to the seepage pit.

iv. Collection lines shall be sampled pursuant to (d)1 above (Floor Drains).

(f) The site investigation shall also satisfy the following requirements for any other potentially contaminated areas away from process areas not otherwise addressed pursuant to (a) through (e) above:

1. The sample locations shall be biased toward suspected areas of the greatest contamination. If there is no basis for biasing, then random sampling of these areas is required as follows, except as provided in (f)2 below:

i. The area to be sampled shall be gridded and each grid node given an identification number;

ii. The grid nodes chosen for sampling shall be based on the numbers selected from a random number chart;

iii. Areas of less than 10 acres shall be sampled at a rate of at least one sample for every two acres; and

iv. Areas greater than 10 acres may be sampled at a reduced frequency subject to the Department's review of documentation pursuant to N.J.A.C. 7:26E-1.6(c) specifying why a reduced frequency was considered appropriate, but a minimum of five locations shall be sampled.

2. If the person responsible for conducting the remediation documents, pursuant to N.J.A.C. 7:26E-1.6(c), that the area is not and has not been used for any purpose which may have included hazardous substances, hazardous wastes, or pollutants, including, without limitation, the activities described in (a) through (e) above, then no samples are required. Such documentation shall be based upon the following:

i. An aerial photographic history pursuant to N.J.A.C. 7:26E-3.1(c)1vi (Preliminary Assessment); and

ii. An affidavit signed by the person certifying the site investigation attesting that, based on diligent inquiry, no potential contaminants were discharged in the area.

7:26E-3.10 Site Investigation - Background Investigation in Soil

(a) If during the site investigation, a suspected contaminant is found in any area of concern in excess of the applicable remediation standard, the following approach may be used to demonstrate to the Department that the contaminant concentration is due to natural background:

1. Demonstrate that a previous background investigation in the region of the site, conducted pursuant to (a)3 below, identified contaminant concentrations in soil in the region of the site at the same concentration as the soil found on the site under investigation;

2. Demonstrate that the contaminant concentrations at the site are due to natural background conditions as follows:

i. The contaminant of concern was never used, stored, or disposed on the site as documented pursuant to N.J.A.C. 7:26E-3.1;

ii. The chemical concentrations detected in the soil at the site are within the ranges reported in appropriate references for background levels for New Jersey;

iii. The distribution of the chemical in the soil does not follow a concentration gradient indicative of a discharge; and

iv. Soil boring logs indicate the samples were not collected from historic fill material; or

3. Conduct a background soil investigation as required in the regulations.

(b) If during the site investigation a contaminant concentration is found in any area of concern in excess of the applicable remediation standard, it may be demonstrated to the Department that the elevated contaminant concentration is not due to an onsite discharge on a case by case basis.

7:26E-3.11 Site Investigation - Ecological Evaluation

(a) A baseline ecological evaluation shall be completed for each contaminated site or area of concern, except an area of concern that consists of an underground storage tank storing heating oil for on-site consumption in a one to four family residential building. This baseline evaluation shall be qualitative in nature and based on site investigation sample results and a site inspection by a person experienced in the use of techniques and methodologies for conducting ecological risk assessments in accordance with EPA guidance. This evaluation shall be used to determine when further sampling and evaluation is required, pursuant to N.J.A.C. 7:26E-4.7. The results of the baseline evaluation shall be included as part of the site investigation report submitted to the Department. The baseline ecological evaluation shall:

1. Evaluate all data identified or collected in the preliminary assessment and the site investigation to identify all of the site-specific contaminants that are of ecological concern. Contaminants of ecological concern shall include, without limitation, those that exhibit the ability to biomagnify or bioaccumulate, or contaminants with concentrations that exceed applicable standards, criteria or guidelines recommended by

the Department, NOAA, U.S. Department of the Interior, EPA or other Federal natural resource agencies for use in conducting ecological assessments and investigations. Such standards, criteria and guidelines are listed in the regulations.

2. Identify environmentally sensitive natural resources within the site boundaries and on properties immediately adjacent to the site. The boundaries of these sensitive areas shall be defined to the extent necessary to estimate the sensitive area size and location with respect to the contaminated site or area of concern. The Department of Geographic Information System shall be used as a source of information for identifying these sensitive areas;

3. Identify potential contaminant migration pathways to any environmentally sensitive natural resources identified in (a)2 above; or any observations of potential impact to the identified environmentally sensitive natural resources that might be attributed to site contamination; such observations shall include, but not be limited to:

   i. Stressed or dead vegetation;

   ii. Discolored soil, sediment or water;

   iii. Absence of biota in a specified area of the system as compared to other similar areas of the same system; or

   iv. Presence of a seep or discharge; and

4. Draw conclusions regarding the need to conduct further investigations. Continued ecological investigations shall be required during the remedial investigation, pursuant to N.J.A.C. 7:26E-4.7, whenever the baseline evaluation indicates the co-occurrence of the following conditions:

   i. Contaminants of ecological concern exist onsite;

   ii. An environmentally sensitive natural resource exists on, or immediately adjacent to, the site; and

   iii. Potential contaminant migration pathways to an environmentally sensitive natural resource exist, or an impact to an environmentally sensitive natural resource is indicated based on visual observation.

7:26E-3.12 Site Investigation - Historic Fill Material

(a) If historic fill material is present at the site, it may be assumed that the fill material is contaminated above an applicable residential soil remediation standard and a remedial investigation of the historic fill material may be conducted pursuant to N.J.A.C. 7:26E-4.6(b).

(b) As an alternative to (a) above, if historic fill material is present at the site, it may demonstrated that the historic fill is not contaminated above the applicable residential soil remediation standards on a case by case basis.

(c) An appropriate number of ground water samples (minimum of one sample) are required when a high degree of certainty is needed to document that ground water is not contaminated, including, without limitation, if the historic fill site is in an area where ground water is used for potable water. All ground water sampling shall be conducted pursuant to N.J.A.C. 7:26E-3.7(c).

7:26E-3.13 Site Investigation Report

(a) The site investigation report shall present and discuss all of the information identified or collected pursuant to N.J.A.C. 7:26E-3.3 through 3.12.

(b) The site investigation report shall include all of the detailed requirements in the regulations and the following new items.

   iii. The results of the well search conducted pursuant to N.J.A.C. 7:26E-3.7(e)3, using the well search format at Appendix B; and

   iv. The direction of ground water flow, as determined pursuant to N.J.A.C. 7:26E-3.7(e)3iv.

(c) The site investigation report shall also include the following data and information:

1. Results of all analyses, copies of all laboratory data sheets and the required laboratory data deliverables pursuant to N.J.A.C. 7:26E-2.1 (Quality Assurance Requirements). Laboratory data deliverables may be submitted as a separate attachment;

2. A summary table of analytical methods and quality assurance indicators pursuant to N.J.A.C. 7:26E-2.2(a)1v;
3. A table summarizing all sampling results, including sample location, media, sample depth, field and laboratory identification numbers, analytical results, and comparison to applicable remediation standards organized by area of concern:

i. All contaminant concentrations exceeding the applicable remediation standards shall be identified;

ii. Samples with method detection limits (MDLs) (or practical quantitation levels (PQLs) if available) exceeding the applicable remediation standard shall be identified and an explanation provided in the table key;

iii. Soils/solids sample results shall be reported in milligrams per kilogram on a dry weight basis, and aqueous sample results shall be reported in micrograms per liter;

iv. All ground water data for the same aquifer zone shall be located in the same section of the table; and

v. The data in the summary table shall be presented both as a hard copy and an electronic deliverable using the format outlined in detail in the Site Remediation Program's Electronic Data Interchange Manual in effect as of the date the report is submitted. The Electronic Data Interchange Manual may be obtained at http://www.state.nj.us/dep/srp/hazsite/index.html *or by calling (609) 292-9418. Electronic deliverables are not required if the summary table is prepared as part of the remediation of a specific discharge event or for an area of concern that consists of a storage tank storing heating oil for on-site consumption in a one to four family residential building where there has been no groundwater impact.*

(1) The following locational information shall be submitted:

(A) Horizontal data points shall be reported in New Jersey state plane coordinates using the North American Datum of 1983 (NAD 1983), in accordance with the Department's Mapping and Digital Data Standards at N.J.A.C 7:1D Appendix A, using units of U.S. survey feet;

(B) Locational information collected in latitude and longitude shall be converted to New Jersey state plane coordinates. Conversion programs can be obtained at http://www.state.nj.us/dep/srp/hazsite/index.html.

(2) All vertical data points should be reported as depth below ground surface, and in mean sea level using the North American Vertical Datum of 1988 (NAVD 1988) in accordance with the Department's mapping and digital data guidance which can be referenced at http://www.state.nj.us/dep/gis/.

(3) All submissions of electronic data which contain locational information should also include a metadata file. For guidance in creating a metadata file, see the version of the Department's mapping and digital data guidance recent to the time of submission. This guidance document is located at http://www.state.nj.us/dep/gis/.

(d) The site investigation report shall also include the following legible maps and diagrams:

1. Site and area of concern base maps pursuant to N.J.A.C. 7:26E-3.2(a)3i;
2. Sample location map(s), including:

i. All sample locations, sample depths and contaminant concentrations shall

also be plotted on the map. Where an entire contaminant class is not detected or is less than the applicable remediation standard, contaminants need not be listed individually;

ii. Map scale (including bar scale) and orientation (including north arrow);

iii. Field identification numbers for all samples; and

iv. If more than one map is submitted, maps shall be presented as overlays, keyed to the base map in (d)1 above; sample locations may be superimposed on the site or area of concern map in (d)1 above. Alternatively, individual maps may be submitted which have a common coordinate system and common scale, provided each map details the features of the base map in (d)1, above;

3. If applicable, a map of the distribution of surface water, structure and airborne contaminants, including sample location numbers and contaminant concentrations;

4. Photos may be submitted to document the location of all soil and sediment sample locations; and

5. A ground water elevation contour map and a Contour Map Reporting Form set forth in Appendix G, incorporated herein by reference, for each aquifer for which groundwater flow was determined. Each map shall indicate the direction of groundwater flow relative to site features, and include a north arrow and bar scale.

SUBCHAPTER 4. REMEDIAL INVESTIGATIONS

7:26E-4.1 Remedial Investigation Requirements

(a) A remedial investigation is necessary at each area of concern with contaminants which exceed the applicable unrestricted use soil remediation standards or the applicable groundwater or surface water remediation standard pursuant to N.J.A.C. 7:26E-1.13. The purposes of a remedial investigation are to:

1. Delineate the horizontal and vertical extent of contaminants in all media at the site pursuant to (b) below;

2. Determine the general surface and subsurface characteristics of the site, including, without limitation, the depth to ground water;

3. Identify the migration paths and actual or potential receptors of contaminants on or through air, soil, bedrock, sediment, ground water, surface water, and structures at a contaminated site;

4. Collect and evaluate all data necessary to evaluate remedial action alternatives. These data may be gathered through studies including, without limitation, treatability studies, bench scale studies and pilot scale studies (these studies may be conducted pursuant to EPA 540/2-89/058 "Guide for Conducting Treatability Studies Under CERCLA").

i. Any such data collection, shall be initiated as soon as the general extent of contamination is known, usually after the first delineation phase and, at a minimum, these studies shall be initiated by the end of the second delineation phase;

5. Collect and evaluate all data necessary to evaluate the actual and potential ecological impacts and to characterize all natural resource injuries, including the nature and extent of injury to soil, water, flora and fauna, caused by the contaminants of potential ecological concern at the site;

6. Collect all data necessary to develop permit limitations for any discharge to an environmental medium which may be required for any remedial action alternative under consideration;

7. Identify containment and/or stabilization activities to prevent contaminant exposure to onsite receptors and to prevent the offsite migration of contaminants while remedial alternatives are being evaluated.

(b) The delineation of the horizontal and vertical limits of contamination to the applicable unrestricted use remediation standard for all media shall be conducted as part of the remedial investigation. When the future use of an area under investigation is known to be restricted and the property owner has agreed to

place a deed notice on the property appropriately restricting its use, the person responsible for conducting the remediation may delineate the horizontal and vertical limit of the soil contamination to the applicable restricted use standard or the applicable ground water impact soil cleanup criteria, whichever is lower. The person responsible for conducting the remediation at the site shall determine if soil contamination has migrated off the property, at any depth, above the applicable unrestricted use standard. Delineation samples shall be biased to identify any migration paths of the contaminant. Samples shall be biased based on professional judgment, area history, discolored soil, stressed vegetation, drainage patterns, field instrument measurements, odor and other field indicators. Delineation shall be accomplished by either:

1. Presentation of sample data that indicates contamination is below the applicable remediation standard. This may be accomplished after a remedial action has been implemented; or

2. By establishment of a contaminant gradient as follows:

i. Contaminant levels decrease by:

(1) Ten percent or more between the initial characterization sample and each of two sequential delineation samples; or

(2) A factor of five or more between the initial characterization sample and a single delineation sample; and

ii. Once a contaminant gradient has been established, the approximate limits of contamination may be reasonably estimated by extrapolation in order to complete the remedial investigation. However, when a contaminant gradient is used to estimate the limits of contamination, the extent of contamination above the applicable unrestricted use remediation standard shall be confirmed using laboratory analyses prior to the completion of a remedial action; and

3. If a vertical soil contaminant gradient has not been established to the water table:

i. For contaminants having water solubility greater than 100 milligrams per liter at 20 degrees Celsius to 25 degrees Celsius, saturated zone soil shall be delineated for residual product pursuant to N.J.A.C. 7:26E-2.1(a)11, and for direct contact soil cleanup criteria; and

ii. For other contaminants, delineate for direct contact soil cleanup criteria.

7:26E-4.2 Remedial Investigation Workplan

(a) If a remedial investigation workplan is required by the Department in an oversight document or by the ISRA or UST programs, the workplan shall include proposals to complete all applicable requirements pursuant to N.J.A.C. 7:26E-4.1 and 4.3 through 4.7. The remedial investigation workplan shall be presented in a format that corresponds to the outline of this section.

New requirements are that:

Photos shall include a bar scale.

iii. A copy of the United States Geologic Survey (USGS) 7.5 minute topographic quadrangle that includes the site and an area of at least a one mile radius around the site shall be required. This map shall be that USGS revision in effect at the time of the report and shall clearly note the facility location and property boundaries. When a portion of the USGS quadrangle is used, the scale (including a bar scale), north arrow, contour interval, longitude and latitude, along with the name and date of the USGS quadrangle shall be noted on the map;

7:26E-4.3 Remedial Investigation of Soil

(a) The remedial investigation shall include an investigation of all soil which may contain contaminants above the applicable soil remediation standards.

(b) The remedial investigation of the soil shall be conducted for the purposes of a remedial investigation pursuant to N.J.A.C. 7:26E-4.1

according to the requirements in the regulations.

7:26E-4.4 Remedial Investigation of Groundwater

(a) A remedial investigation of ground water for an area of concern shall be conducted if:

1. A ground water sample previously collected from that area of concern contains a contaminant above the applicable ground water remediation standard;

2. A soil sample collected from that area of concern within two feet of the saturated zone or bedrock contains a contaminant above the applicable soil remediation standard;

3. A soil sample collected in the area of concern anywhere in the soil column contains a contaminant above the applicable soil remediation standard and the contaminant is not going to be actively remediated or removed;

4. Any contaminant in an area of concern has a water solubility greater than 100 milligrams per liter at 20 degrees Celsius to 25 degrees Celsius as listed in a peer reviewed reference; and

i. All of the soil between the contaminant and the saturated zone is less than 15 percent silt and/or clay; or

ii. Any part of the area of concern at which the soil contamination was detected is located within 2,000 feet of a public supply well, as determined from a map of such wells which is available from the Department Bureau of Revenue—Maps and Publications (609-777-1038) or through the Department's Internet home page (http://www.state.nj.us/dep/njgs, then select "Geodata"). A ground water sample is not required if documentation acceptable to the Department is provided in the remedial investigation report (N.J.A.C. 7:26E-4.8) specifying why such sampling was not considered necessary.

(b) A ground water sample may not be necessary in a remedial investigation for a particular area of concern if the person responsible for conducting the remediation documents that ground water contamination from the discharge is unlikely based on the criteria spelled out in the regulations.

(d) Ground water samples shall be taken pursuant to acceptable professional methods, such as those described in the NJDEP Field Sampling Procedures Manual in effect as of the date the samples were taken. The person responsible for conducting the investigation may implement an alternate sampling method not described in the Manual, subject to the Department's review of documentation pursuant to N.J.A.C. 7:26E-1.6(c).

(e) All initial ground water sampling points shall be located in:

1. The excavation of each source of a contaminant, if possible, including without limitation, tanks and tank distribution systems, and Underground Injection Control (UIC) units such as seepage pits, septic systems, dry wells or other injection wells regulated under N.J.A.C. 7:14A-5; or

2. The expected downgradient flow direction of the area of concern and within 10 feet of the area of concern; ground water flow direction shall be predicted based on topographic relief, the location of surface water bodies, structural controls in the bedrock or soils, location of pumping wells and subsurface conduits at or below the water table.

(f) The minimum number of ground water samples collected shall be as follows:

1. At least one ground water sample for each area of concern which is classified as an Underground Injection Control (UIC) unit including, without limitation, seepage pits, septic systems, dry wells or other injection wells regulated under N.J.A.C. 7:14A-5;

2. At least one ground water sample for sites with leaking underground storage tanks and tank fields containing up to three tanks with a maximum capacity of 10,000 gallons per tank. If a leaking tank is excavated, the ground water sampling point shall be located within the excavation, if possible;

3. Pump islands and associated piping greater than 25 feet from the tank field shall

be considered separate areas of concern and shall require a separate ground water sample location; and

4. At least one ground water sample for all other areas of concern unless the area of concern is within 10 feet hydraulically upgradient of a ground water sampling location.

(g) All ground water monitoring wells and piezometers shall:

1. Be constructed pursuant to N.J.A.C. 7:9D. Variations from the well construction procedures in N.J.A.C. 7:9D shall be proposed to the assigned case manager prior to requesting a variance under N.J.A.C. 7:9D. Failure to install a well or piezometer in accordance with current well construction specifications in N.J.A.C. 7:9D can result in rejection of results, and requirements to decommission the well or piezometer;

2. Be installed after the required well drilling permits are obtained pursuant to N.J.A.C. 7:9D;

3. Be installed by a licensed New Jersey well driller pursuant N.J.A.C. 7:9D;

4. Have split spoon samples collected during drilling through unconsolidated or overburden material using American Society of Testing Materials (ASTM) Method D1586-84, incorporated herein by reference, if appropriate. Split spoon samples shall be logged every five feet and at any change in soil lithology and at all zones that show obvious signs of contamination. At least one drilling location per area of concern shall include continuous split spoon samples to define the subsurface stratigraphy. Drilling logs shall include all data required pursuant to N.J.A.C. 7:26E-3.6 (Soil Investigations). Other methods may be used if documentation acceptable to the Department is provided indicating that the methods were appropriate;

5. Have a sufficient number of rock cores collected during the drilling of bedrock monitoring wells, piezometers and other borings, if appropriate, to obtain a general understanding of the fracture patterns beneath the site. The corings shall be conducted using the ASTM 2113 Diamond Drilling Method, as amended and supplemented, incorporated herein by reference. Other methods may be used if documentation acceptable to the Department is provided indicating that the methods were appropriate. The core logs shall include:

i. Lithology;

ii. Fracture frequency;

iii. Degree of weathering;

iv. Fracture spacing;

v. Orientation of fractures;

vi. Odors and discoloration in the rock core;

vii. Percent recovery; and

viii. Any other information appropriate for the investigation.

6. If appropriate, an evaluation of the bedrock structure at the site including strike and dip of the bedding planes, orientation of faults, joints and fractures; plunges and trends of folds, must be completed through a field evaluation. Published geologic literature may be used if appropriate.

7. Be surveyed by a New Jersey licensed surveyor as follows:

i. The inner well casing must be surveyed to the nearest hundredth (0.01) foot in relation to the permanent, on-site datum and horizontally to an accuracy of one-tenth of a second latitude and longitude; and

ii. A permanent water level measurement mark shall be etched onto the top of the inner well casing to allow for accurate, consistent and comparable water level measurements over time.

8. Be developed to yield a non-turbid discharge, when possible;

9. Be decommissioned upon completion of the investigation in accordance with

N.J.A.C. 7:9D unless otherwise approved by the Department;

10. Have the monitoring well permit number and site specific well identification number prominently displayed and permanently affixed to the monitoring well; and

11. Be constructed with a locking cap and generally protected from damage and vandalism. Any damage or vandalism to a monitoring well or piezometer shall be reported to the Department, and the damaged monitoring well or piezometer shall be properly repaired or decommissioned in accordance with N.J.A.C. 7:9D.

(h) The results of initial ground water analyses shall be evaluated as follows:

1. If the contaminant concentrations found in all ground water samples are below the applicable remediation standards, no further remediation is necessary for ground water;

7:26E-4.5 Remedial Investigation of Surface Water, Wetlands and Sediment

(a) The remedial investigation shall include an investigation of any surface water, wetlands and sediments which may have been impacted by contamination emanating from the site.

(b) The remedial investigation of surface water, wetlands and sediment shall be conducted for the purposes of a remedial investigation pursuant to the requirements for the appropriate media in N.J.A.C. 7:26E-3.4 and 4.1 according to the quality assurance and quality control requirements pursuant to N.J.A.C. 7:26E-2.

(c) The surface water investigation shall be conducted pursuant to (d) below to evaluate the relationship between contaminated ground water, sediments and surface waters, unless:

1. Documentation acceptable to the Department pursuant to N.J.A.C. 7:26E-1.6(c) is provided with the remedial investigation report (N.J.A.C. 7:26E-4.8) specifying why this migration pathway was not considered significant; or

2. The Department approves a less stringent water quality analysis:

i. Based on site-specific conditions; and

ii. Supported by appropriate supporting documentation.

(d) The surface water investigation shall include:

1. Sampling designed to account for seasonal or short-term flow and water quality fluctuations (dry vs. wet weather), system hydraulics (obtaining flow proportioned samples) and potential contaminant characteristics (density, solubility).

2. A receiving water body analysis on any surface water body to which contaminated groundwater is discharging, including a water quality analysis program with sampling stations upstream and downstream of the contaminated site, any existing point source discharges at that site, and any proposed discharge locations as follows:

i. Procedures in accordance with the methods identified in (d)2ii below, including, without limitation:

(1) Water quality sampling for each constituent of concern potentially emanating from a site;

(2) At least two sample sets must be taken during critical, low flow conditions;

(3) At least one sediment sample shall be taken and analyzed for the appropriate parameters identified in (d)2i(1) above, during one of the sampling events;

(4) For non-tidal water bodies, samples shall be taken at the area of discharge, and at least one location downstream;

(5) For tidal water bodies, samples shall be taken at the area of discharge at high, low, and slack tides; and

(6) Depending upon site-specific conditions, additional samples may be necessary to define loads from other point sources, tributaries, and other non-point sources; and

ii. All methods shall be consistent with generally accepted professional methods, such as those described in the NJDEP "Field Procedures Manual For Water Data Acquisition," or the EPA handbook "Instream Sampling for Waste Load Allocation Applications;" any deviations from these two documents shall be documented pursuant to N.J.A.C. 7:26E-1.6.

7:26E-4.6 Remedial Investigation of Landfills and Historic Fill Material

(a) The remedial investigation shall include, unless the remedial investigation is being conducted pursuant to ISRA, an investigation of all landfills as follows:

1. The remedial investigation of landfills shall be conducted pursuant to N.J.A.C. 7:26E-4.1 according to the quality assurance and quality control requirements pursuant to N.J.A.C. 7:26E-2;

2. Landfill investigations shall characterize the contents of the landfill through a complete file review, which shall include a review of the Department's Geographic Information System. In addition, the horizontal and vertical extent of fill material and impact on the soil, ground water, air and surface waters shall be evaluated;

3. The boundaries of the landfill shall be identified through geophysical sensing techniques, or subsurface exploration techniques including test pits or borings, or an aerial photographic history, or local government records, or use of the Department's Geographic Information System. Other methods may be used if documentation acceptable to the Department pursuant to N.J.A.C. 7:26E-1.6(c) is provided in the remedial investigation report (N.J.A.C. 7:26E-4.8) specifying why the methods were considered appropriate; and

4. The person responsible for conducting the remediation shall review all records pertaining to the landfill to determine if any hazardous waste pursuant to N.J.A.C. 7:26 may have been disposed in the landfill.

(b) The remedial investigation of historic fill material shall identify the location of the fill and characterize the fill material, including a determination of the presence of any contaminated non-historic fill material and any free and/or residual product pursuant to N.J.A.C. 7:26E-2.1(a)11, as follows:

1. The remedial investigation of historic fill material shall be conducted to identify the location, vertical limits, and physical characteristics of the historic fill material using borings, test pits, or trenches. All contaminated fill material, including both historic and non-historic fill, shall be logged and mapped. The investigation shall include:

i. At least four borings or test pits per acre of historic fill material with a minimum of four borings or test pits per site. The location of the borings or test pits shall be representative of the areal extent of the fill and shall be advanced through the fill material to native soil, meadow mat, or bedrock so that the vertical limit of the fill material is established. If the contaminated fill material extends below the water table, borings or test pits shall extend below the water table as necessary to establish the vertical limit of the fill material;

2. The remedial investigation of historic fill material shall identify the horizontal boundaries of the contaminated fill material area as follows:

i. A minimum of four borings or test pits shall be installed in non-fill areas spaced equidistantly around the perimeter of the contaminated fill material area;

ii. If fill material is known to be ubiquitous in the vicinity of the site, aerial photos or other applicable documentation, such as information obtained from the Department's Geographic Information System, may be submitted in lieu of perimeter borings or test pits to verify that historic fill is site-wide; and

iii. Delineation of historic fill material is not required beyond the property boundary;

3. The historic fill material may be characterized by using the optional historic fill database maximum and average contaminant levels for historic fill material as set forth in Table 4-2 below or by collecting and analyzing contaminant characterization samples from each type of historic fill present (for example, ash and demolition debris are considered to be different types of fill material) to determine the site specific contaminant levels, as follows:

i. At least four samples per acre, per fill type are required;

ii. The actual number and location of samples collected shall be based on the variability of fill types and contaminant ranges present in a historic fill area and selected in accordance with N.J.A.C. 7:26E-3.4(a);

iii. At least one sample for laboratory analysis shall be collected from each boring and analyzed as follows:

(1) Analysis of rubble, ash, cinders, and dredge spoils shall be conducted for total petroleum hydrocarbons and priority pollutant metals in all samples, polynuclear aromatic hydrocarbons (per EPA Priority Pollutant List) and PCB analysis required on 25 percent of the samples, biased to samples having the highest total petroleum hydrocarbon levels, and field screening for volatile organic compounds shall be conducted during the installation of all exploratory borings and test pits with volatile organic laboratory analysis performed on all samples with elevated field instrument measurements (greater than five times background);

(2) Any other fill material shall be analyzed for total petroleum hydrocarbon in all samples, and Priority Pollutant plus forty analysis or EPA Target Compound List/Target Analyte List analysis shall be conducted for 25 percent of all samples;

(3) In addition to contaminant analysis required in (b)3iii(1) and (2) above, samples shall also be analyzed for any other suspected contaminants based on diligent inquiry of the origin of the fill material and site history; and

(4) If more than one type of historic fill material is encountered in any boring or test pit, one sample is required for each type of fill material encountered. For example, if ash and demolition debris are encountered in the same boring, one sample of each is required from that boring; and

4. Areas of concern located in historic fill material shall be investigated independently of the historic fill material. To differentiate between contaminants in fill and those from site discharges, an evaluation of the contaminant type and concentration gradient in each area of concern and the contaminant distribution in the fill shall be conducted. If this evaluation is not conclusive the Department may require additional data or information;

5. If at any time during the remedial investigation of fill material the person responsible for conducting the remediation encounters materials that do not meet the definition of historic fill material because it includes material which is substantially chromate chemical production waste or any other chemical production waste or waste from processing of metal or mineral ores, residues, slag or tailings, free and/or residual product, as determined pursuant to N.J.A.C. 7:26E-2.1(a)11, or containerized waste, the remediation of each such area shall be conducted as a separate area(s) of concern pursuant to N.J.A.C. 7:26E-4; and

6. An appropriate number of ground water samples (minimum of one sample) are required when a high degree of certainty is needed to document that ground water is not contaminated, including, without limitation, if the historic fill site is in an area

where ground water is used for potable water. Any ground water sampling shall be conducted pursuant to N.J.A.C. 7:26E-3.7(c).

7:26E-4.7 Remedial Investigation of Ecological Receptors

(a) If further ecological investigation is required pursuant to N.J.A.C. 7:26E-3.11(a)4, additional investigation shall be conducted during the remedial investigation to characterize the extent of contamination along contaminant migration pathways and within an environmentally sensitive natural resources. Neither an ecological investigation nor an ecological risk assessment is required for contaminated ground water, but see N.J.A.C. 7:26E-4.8(c)12 for reporting requirements. Ecological investigations and risk assessments shall be conducted by a person experienced in the use of techniques and methodologies for conducting ecological risk assessments in accordance with EPA guidance. Ecological investigations and risk assessments shall be conducted in accordance with EPA and other Federal guidance, as applicable, including, without limitation, those listed in the regulations.

7:26E-4.8 Remedial Investigation Report

(a) The remedial investigation report shall comply with all requirements in N.J.A.C. 7:26E-3.13 (site investigation report) and in addition shall present and discuss any additional information collected pursuant to N.J.A.C. 7:26E-4.1 through 4.7 and the approved remedial investigation workplan as outlined in N.J.A.C. 7:26E-4.2 if applicable. The remedial investigation report shall be presented in a format that corresponds to the outline of this section.

(b) The remedial investigation report shall include the following:

1. Historical information pursuant to N.J.A.C. 7:26E-4.2(b)3;

2. Physical setting pursuant to N.J.A.C. 7:26E-4.2(b)4, including but not limited to:

i. The results of the groundwater flow direction confirmation conducted pursuant to N.J.A.C. 7:26E-4.4(h)3ii; and

ii. The results of the updated well search conducted pursuant to N.J.A.C. 7:26E-4.4(h)3v, including a conclusion as to whether any wells may be impacted by the contaminant plume. The results of the well search shall be presented on the well search form at Appendix B.

3. Technical overview pursuant to N.J.A.C. 7:26E-3.13(b)3 and, in addition, the following items shall be discussed:

i. A summary of the results of any treatability, bench scale, or pilot studies conducted to support remedy selection;

ii. A summary of the results of any data collected to develop permit limitations for any permits which may be required during potential remedial actions; and

iii. A summary of the results of any ecological assessments conducted; and

4. Findings/recommendations pursuant to N.J.A.C. 7:26E-3.13(b)4.

(c) The remedial investigation report shall include the detailed following data and information as required in the regulations:

New requirements include:

1. Site and area of concern base maps pursuant to N.J.A.C. 7:26E-4.2(b)3i. If more than one map is submitted pursuant to (d)2 below, maps shall be presented as overlays, keyed to the base map *or each map shall include all the information shown on the base map.* Sample locations may be superimposed on the base maps.

2. Sample location map(s), including:

i. All ground water, soil, sediments and other sample locations; sample depth and contaminant concentration shall also be plotted on the map;

ii. Map scale *(including bar scale)* and orientation *(including north arrow);*

iii. Field identification numbers for all samples;

iv. A groundwater elevation contour map and a completed Contour Map reporting Form (see Appendix G) for each set of static water level measurements for each aquifer for which groundwater flow was determined, indicating the direction of groundwater flow and site features, and including a north arrow and appropriate bar scale;

SUBCHAPTER 5. REMEDIAL ACTION SELECTION

7:26E-5.1 Remedial Action Selection

(a) The purpose of remedial action selection is to select, develop and implement the most appropriate remedial action for a particular contaminated site or area of concern being investigated pursuant to N.J.A.C. 7:26E-3 and 4. **Table 4** has a list of the types of remedial action available.

(b) A person selecting a remedial action shall first establish the remedial action objectives/goals for the site or area of concern by:

1. Identifying all media of concern;

2. Selecting applicable remediation standards based on the current and future land use for the site;

(d) The remedial investigation report shall include the following legible maps and diagrams:

TABLE 4

TYPES OF REMEDIAL ACTION

ACTIVE GROUDNWATER REMEDIAL ACTION

DEED NOTICE

ENGINEERING CONTROLS (Includes caps, fences, remediation systems and others)

GROUNDWATER CLASSIFICATION EXCEPTION AREAS

INNOVATIVE REMEDIAL ACTION TECHNOLOGY

INSTITUTIONAL CONTROLS (Includes CEAs, Deed Notices and DERs)

INTERIM RESPONSE

LIMITED RESTRICTED USE REMEDIAL ACTION (Requires Institutional Controls **but not** Engineering Controls)

NATURAL GROUNDWATER REMEDIATION

REMOVAL

RESTRICTED USE STANDARD (means that a site was remediated only to a point where certain restricted uses can occur)

TREATMENT

3. For each media of concern, selecting between active treatment versus containment and exposure controls; and

4. For contaminated soil, selecting among an unrestricted use, limited restricted use or restricted use remedial action.

(c) A person responsible for conducting a remediation for a site shall select a remedial action that reduces or eliminates exposure to contaminants above the applicable remediation standard. In determining the appropriate remedial action that will reduce or eliminate exposure to contaminants above the applicable remediation standard, the person responsible for conducting the remediation shall select, develop and implement a remedial action that is based on the following factors:

1. The ability of the remedial action to protect the public health and safety and the environment, including:

i. The technical performance and effectiveness of the remedial action in attaining compliance with the applicable remediation standards;

ii. The reliability of the remedial action in maintaining compliance with the applicable remediation standards;

iii. The degree to which the proposed remedial action reduces toxicity, mobility, or volume of contaminants through treatment, reuse or recycling;

iv. The degree to which the remedial action minimizes risks and short-term impacts associated with the implementation of the remedy and with any contamination left on-site, while still providing long-term protection; and

v. The degree to which the potential for off-site migration of contamination through erosion, subsurface migration or other migration pathways is mitigated or eliminated;

2. The implementability of the proposed remedial action, including:

i. The engineering and scientific feasibility and availability of the technologies that the proposed remedial action would employ. If treatability, bench scale, or pilot studies have been conducted pursuant to N.J.A.C. 7:26E-4.1(a)4, these results shall be utilized to determine whether or not the proposed remedial action is technically feasible;

ii. The ability of the person responsible for conducting the remediation to implement the proposed remedial action within a reasonable time frame. A proposed remedial action will be considered timely if it will achieve the applicable remediation standard within five years from the time the remedy is implemented, or in the case where Department approval of a remedial action workplan is required or sought, five years from remedial action workplan approval. Remedial actions to address immediate environmental concerns shall be considered timely as specified by the Department in an oversight document pursuant to N.J.A.C. 7:26C; and

iii. The property owner's written agreement to the implementation of the limited restricted use or restricted use remedial action including all requirements for engineering and institutional controls pursuant to N.J.A.C. 7:26E-8;

3. The consistency of the proposed remedial action with other applicable Federal, State and local laws and regulations, including, without limitation, the provisions of the Pinelands Protection Act, P.L. 1979, c.111 (N.J.A.C. 13:18A-1 et seq.), any rules promulgated pursuant thereto, and the provisions of section 502 of the National Parks and Recreation Act of 1978, 16 U.S.C. §4711;

4. The potential impacts of the proposed remedial action on the local community, including, without limitation:

i. The potential impacts to the community identified by the responses that the person responsible for conducting the remediation receives from the notice provided to the local government in accordance with N.J.A.C. 7:26E-1.4 (a); and

ii. The degree to which the proposed remedial action is consistent with the local land use Master Plan; and

5. The potential for the selected action to cause natural resource injury.

Examples of remedial actions that may cause natural resource injury and include, without limitation:

(1) Pumping ground water that deprives a wetland of its primary water source;

(2) Capping a landfill which involves destroying adjacent wetland; and

(3) Pump and treat ground water remedial action with discharge to surface water.

Examples of information that would be evaluated when assessing a ground water remedial action are listed in the regulations.

(d) A person responsible for conducting the remediation may select an innovative remedial action technology for any site, area of concern or contaminated media, upon review and approval of an application submitted to the Department. The application requirements are included in the regulations.

7:26E-5.2 Remedial Action Selection Report

(a) The person responsible for conducting the remediation shall demonstrate to the Department that the proposed remedial action is appropriate by submitting a remedial action selection report to the Department for approval, prior to implementation of the remedial action, when:

1. The selected remedial action is a restricted use remedial action, except for interim response actions immediately necessary to contain or stabilize a discharge in order to prevent damage to public health, safety or the environment.

2. The selected remedial action utilizes an innovative remedial action technology;

3. The selected remedial action will take longer than five years to complete from the time the remedial action is implemented, or the remedial action workplan is approved by the Department; or

4. The selected remedial action is being implemented to address ground water, surface water or sediment contamination or ecological impact.

(b) A remedial action selection report is not required if the site being remediated is subject to the requirements for preparing a feasibility study pursuant to CERCLA or a corrective measures study pursuant to RCRA.

(c) The remedial action selection report shall be presented in a format that corresponds to the outline of this section, except that for innovative remedial action technologies the format shall include the information required at N.J.A.C. 7:26E-5.1(d), and shall include:

1. A detailed description of the selected remedial action including, without limitation, specifications for engineering and institutional controls and a plan for monitoring of such controls pursuant to N.J.A.C. 7:26E-8;

2. A list of the remediation standards that the proposed remedial action will comply with for each media of concern at each area(s) of concern;

3. A discussion of how the proposed remedial action satisfies all of the criteria pursuant to N.J.A.C. 7:26E-5.1(c), (d), if applicable, and (e); and

4. The Department may require the submittal of any additional information regarding remedial action selection which is necessary for the Department to determine if the remedy is appropriate.

(d) Where Department pre-approval of a remedial action workplan is required pursuant to N.J.A.C. 7:26E-6.1(b), or sought, the remedial action selection report should be submitted in conjunction with the final remedial investigation report, N.J.A.C. 7:26E-4.8. If the remedial action selection report is not submitted with the final remedial investigation report, the remedial action selection report shall be submitted with the remedial action workplan, N.J.A.C. 7:26E-6.2.

(e) Where Department pre-approval of a remedial action workplan is not required or sought, the remedial action selection report shall be submitted with the remedial action report, N.J.A.C. 7:26E-6.7.

SUBCHAPTER 6. REMEDIAL ACTION

7:26E-6.1 Remedial Action Requirements

(a) The person responsible for conducting the remedial action shall notify the Department and the local governing body pursuant to N.J.A.C. 7:26E-1.4. **Table 4** has a list of the types of remedial action available.

(b) Each remedial action implemented at a contaminated site shall:

1. Be approved by the Department prior to implementation, if a remedial action selection report is also required pursuant to N.J.A.C. 7:26E-5.2(a);

2. Comply with all applicable remediation standards in effect at the time the remedial action workplan is approved by the Department, provided, however, that if the applicable numeric remediation standards decrease by an order of magnitude or more prior to the issuance of a No Further Action Letter for the area of concern or the site, the person responsible for conducting the remediation shall be responsible for any additional necessary remediation to achieve the new remediation standards;

3. Comply with all applicable Federal, State, and local laws, regulations, and requirements; and

4. Not in itself cause an uncontrolled or unpermitted discharge or transfer of contaminants from one media to another.

(c) Single phase remediations, where the remedial action is conducted concurrently with sampling to delineate the contamination and to confirm contaminant removal, are acceptable.

(d) Free and/or residual product determined to be present pursuant to N.J.A.C. 7:26E-2.1(a)11 shall be treated or removed when practicable, or contained when treatment or removal are not practicable. Likewise, natural ground water remediation for dissolved phase contamination may be implemented if it is determined by the Department that active ground water remediation for the dissolved phase is impracticable or not cost-effective. Decisions regarding the practicability of a remedial decision shall be made by the Department on a case by case basis. Natural remediation of free and/or residual product will not be allowed.

(e) Institutional controls shall be required whenever a restricted use remedy or a limited restricted use remedy is used to remediate a site.

(f) The person responsible for conducting the remediation of historic fill material shall do so pursuant to N.J.A.C. 7:26E-6.2(c). Remedies for any other fill material, not meeting the definition of historic fill material, shall be selected pursuant to N.J.A.C. 7:26E-5.1.

7:26E-6.2 Remedial Action Workplan (RAW)

(a) If a remedial action workplan is required by the Department in an oversight document or pursuant to the ISRA or UST programs, or if the person responsible for conducting the remediation elects to obtain Department pre-approval for the workplan, the workplan shall be submitted in accordance with the schedule contained in that document, if applicable, and shall be presented in a format that corresponds directly to the outline of this section. The required items are summarized in **Table 5**.

7:26E-6.3 Specific Remedial Action Requirements

(a) As a first priority during remedial action, contaminants in all media shall be contained and/or stabilized to prevent contaminant exposure to receptors and to prevent further movement of contaminants through any pathway.

(b) See **Table 6** for the requirements to be followed for the closure of an underground storage tank.

TABLE 5 RAW OUTLINE/REQUIREMENTS

1. The remedial investigation report, pursuant to N.J.A.C. 7:26E-4.8, shall be presented as the first section of the remedial action workplan. If the remedial investigation report was previously submitted to the Department, either a summary of the report or a copy of the findings/recommendation section of the report may be submitted;

2. A sampling summary table for post remediation samples pursuant to N.J.A.C. 7:26E-4.2 (remedial investigation workplan).

3. A proposal to complete all requirements in N.J.A.C. 7:26E-6;

4. The identification of all applicable remediation standards;

5. A detailed description of the remedial action and the remedial technology to be conducted for each area of concern;

6. The identification of all areas where remedial action will be conducted on a scaled site map pursuant to N.J.A.C. 7:26E-4.8 (remedial investigation report). In addition, the map shall specify:

i. The location of remedial treatment units;

ii. The volume of each environmental medium to be remediated;

iii. The vertical and horizontal extent of area to be remediated;

iv. The location, depth and concentration of all contaminants in excess of the remediation standard; and

v. Sample locations, depths and parameters for all post-construction samples;

7. A quality assurance project plan including proposed sampling and analytical methods pursuant to N.J.A.C. 7:26E-2.2;

8. A list of all required permits;

9. If any construction activity is planned, the following items shall be provided in the workplan:

i. The location of any such construction facilities with additional details describing construction design;

ii. All applicable requirements and standards relating to construction for onsite remedial units including inspection and professional engineer certification.

10. A description of soil and sediment erosion control and monitoring, and dust and odor control and monitoring procedures to be implemented during remedial activities, if applicable;

11. A health and safety plan pursuant to N.J.A.C. 7:26E-1.9;

12. A detailed description of site restoration plans to comply with N.J.A.C. 7:26E-6.4 (post-remediation action requirements);

13. A description of procedures for dismantling and removal of remedial structures and equipment from the site, if applicable;

14. A cost estimate of the remedial action;

15. The proposed completion date of the remedial action and a schedule of the remedial action as required pursuant to N.J.A.C. 7:26E-6.5;

16. The following documentation whenever a deed notice is required as a component of the remedial action:

i. A copy of the property owner's written agreement to record the deed notice, pursuant to N.J.A.C. 7:26E-8.2(b); and

ii. A draft deed notice, including all of the exhibits, pursuant to N.J.A.C. 7:26E-8.2(c);

17. All documentation required pursuant to N.J.A.C. 7:26E-8.3 whenever a classification exception area is to be established; and

18. A plan for the maintenance and evaluation of all engineering and institutional controls pursuant to N.J.A.C. 7:26E-8.5, 8.6, and 8.7, as applicable.

(b) If contaminated soil will be reused at a site, an evaluation pursuant to N.J.A.C. 7:26E-6.4(d) shall be conducted and a soil reuse proposal shall be submitted to the Department as part of the remedial action workplan. The soil reuse proposal may also be submitted at any time during the remediation process, as appropriate. At a minimum, the soil reuse proposal shall include:

1. A description of the originating site or area of concern by the submission of a remedial investigation report or, as applicable, a remedial action report for the contaminated soil. If the reports were previously submitted to the Department, a summary of the report may be submitted;

2. A determination in accordance with N.J.A.C. 7:26-8.5 as to the waste classification of the soil, including any supporting data requested by the Department; and

3. A detailed description of the proposed reuse and conditions at the site of reuse including:

i. The location of the site including state, county, municipality, block and lot numbers;

ii. The volume of soil to be reused;

iii. Identification of the specific location on the site where the reuse will be conducted on a scaled maps pursuant to N.J.A.C. 7:26E-3.2(a)3i through iii;

iv. The depth to ground water on the receiving site, including the method of determination;

v. The receiving site use;

vi. A discussion of the performance, effectiveness and reliability of the proposed reuse and any potential negative impacts to human health, safety or the environmental as a result of the reuse; and

vii. All other applicable data and information required pursuant to (a)8 through 15.

(c) If historic fill material will not be treated or removed from the site, engineering and institutional controls shall be proposed in accordance with the Department's procedures in effect at the time of proposal, provided that the information is pursuant to N.J.A.C. 7:26E-4.8(c)14 and the following documentation is presented in the remedial action workplan:

1. A statement that all other areas of concern located in the historic fill material area have been addressed as separate areas of concern. Remedies for any such areas, not meeting the definition of historic fill material, shall be selected pursuant to N.J.A.C. 7:26E-5.1.

TABLE 6 UST CLOSURE REQUIREMENTS

1. The associated piping shall be drained and the tanks pumped out and cleaned thoroughly using the American Petroleum Institute's recommended Practice for the Abandonment or Removal of Used Underground Service Tanks, as amended and supplemented. Copies can be obtained from the American Petroleum Institute, 1220 L Street Northwest, Washington, DC 20005;

2. All of the openings in the tank shall be plugged except for one vent hole;

3. The soil around the tank shall be excavated and the tank shall be removed and secured;

4. After the tank is secured, it shall be examined for holes and the Department hotline at 1-877 WARNDEP or (877) 927-6337 shall be called if any holes are discovered and/or a discharge has been confirmed pursuant to N.J.A.C. 7:14B-7.3, unless a discharge from the tank was previously reported to the Department;

5. The tank shall then be prepared for disposal by labeling the tank regarding its site of origin, ultimate destination site and the substance(s) that were stored in it during its use as a storage tank; and

6. The tank shall be removed from the site according to all applicable laws and regulations.

i. During tank removal, the following observations shall be made and documented:

(1) A description of tank condition (with photographic documentation);

(2) The excavation floor and sidewalls shall be examined for any physical evidence of soil contamination;

(A) When tanks that contained volatile organics, including No. 2 fuel oil, diesel fuel, gasoline, kerosene, jet fuel, waste oil, are removed, the excavation floor and sidewalls shall be field screened with a properly calibrated flame ionization detector (FID), or photoionization detector (PID) along transects spaced no more than five feet apart.

(B) If the tank did not contain volatile organics (for example, No. 4, No. 6 fuel oil), the excavation shall be examined visually for evidence of a discharge.

(3) If there is no evidence of a discharge, soil samples for laboratory analysis shall be taken immediately after tank removal as follows:

(A) If there is no ground water in the excavation, center line soil samples are required at a frequency equal to the total length of the tank divided by five (minimum of one sample), provided that samples are spaced equidistantly and that the outermost samples obtained are no greater than 2.5 feet from each respective end of the tank. If the total length of a tank is not evenly divisible by five, one additional sample shall be obtained for any fraction remaining;

(B) If there is ground water in the excavation, soil samples shall be taken as follows:

(I) If potential contaminants have a specific gravity of one or less, independent of the number of tanks in the excavation, one sample shall be taken from the zero to six inch interval above the water table from each excavation sidewall for every 30 linear feet of sidewall (minimum of one sample per sidewall); except that, for no. 2 fuel oil or diesel oil tanks of 550 gallon capacity or less, one sample, biased to the suspected location of greatest contamination, shall be taken from one excavation sidewall at the zero to six inch interval above the water table;

(II) If potential contaminants have a specific gravity of more than one, samples shall be taken pursuant to (b)6i(3)(A) above; or

(III) If the tanks contained mixed substances such that some contaminants had a specific gravity of more than one and some contaminants had a specific gravity of less than one (for example no. 6 fuel, or waste oil potentially contaminated with chlorinated solvents), samples shall be taken below the water table pursuant to (b)6i(3)(A) above, and, independent of the number of tanks in the excavation, from the zero to six inch interval above the water table from each excavation sidewall for every 30 linear feet of sidewall (minimum of one sample per sidewall); and

(IV) Soil samples taken from below the water surface shall be taken using appropriate sediment sampling methods; and

(4) If there is evidence of a discharge and a soil remedial action will occur, refer to N.J.A.C. 7:26E-6.4. If there is evidence of a discharge, but there is insufficient soil to conduct a soil remedial action, (for example, tank is located in bedrock) or any portion of the tank is located within or immediately above the ground water table, a ground water sample shall be taken pursuant to N.J.A.C. 7:26E-3.7(c);

(5) If there is any evidence of ground water contamination, including without limitation, a sheen or odor, a ground water sample shall be collected pursuant to N.J.A.C. 7:26E-3.7; and

(6) A description of product type and quantity spilled from tank or tank system during excavation.

ii. The following requirements shall be followed for the abandonment in-place of a physically accessible underground storage tank. If contamination is detected above an applicable remediation standard and remedial action will occur, the tank system shall be removed to facilitate remedial action, if feasible. If it is not feasible to remove the tank system, a certification shall be submitted, signed and sealed by a licensed New Jersey professional engineer, stating why the removal is not feasible:

(1) The tank system and associated piping shall be drained and the system pumped out and cleaned thoroughly using American Petroleum Institute guidance applicable at the time of cleaning. Because vapors in the tank atmosphere will be displaced during the tank cleaning and abandonment operation, particular emphasis shall be placed on health and safety concerns;

(2) After the tank is cleaned, the tank shall be inspected and any areas of questionable integrity, including, without limitation, any cracks or corrosion, or evidence of discharge, shall be documented. Photographs may be submitted to document that the integrity of the system has been breached, if the evidence is clearly visible in the photograph;

(3) Upon completion of tank cleaning, soil sampling shall be conducted by completing borings through the bottom of the tank, along the center line, at a frequency equal to the total length of the tank divided by five (minimum of one sample), provided that the samples are spaced equidistantly and that the outermost samples obtained are no greater than 2.5 feet from each respective end of the tank. If the total length of a tank is not evenly divisible by five, one additional sample shall be obtained from any fraction remaining;

(4) Additional soil samples for volatile organics analysis shall be collected in accordance with the requirements at N.J.A.C. 7:26E-3.6(a)4;

(5) If ground water has been determined to be in contact with the tank invert and there is no evidence of a discharge, sampling shall be conducted in accordance with N.J.A.C. 7:26E-3.9(a)3i(5);

(6) Decommissioning of the tank system, including all fill pipes, shall be completed by completely filling the tank system with sand, cement or other inert material with similar physical/chemical properties;

(7) All fill pipes shall be removed to a depth of a minimum of one foot below ground surface; and

(8) Procedures shall comply with all local ordinances;

iii. If the underground storage tank is located under a permanent structure or is physically inaccessible or a certification is submitted, signed and sealed by a licensed New Jersey professional engineer, stating that the sampling requirements at (b)6ii(3), (4), and (5) above for closure of the underground storage tank will cause damage to an adjacent structure, an alternate method for documenting the integrity of the tank may be submitted pursuant to N.J.A.C. 7:26E-1.6(d);

iv. No sampling is required for the closure (removal or abandonment) of an underground storage tank system which has always had secondary containment and leak detection pursuant to N.J.A.C. 7:14B, provided that there is no evidence of a discharge during tank closure and no history of any leaks or repairs; and

v. All piping systems associated with the underground tank shall be remediated in accordance with N.J.A.C. 7:26E-3.9(a)5.

When submitting a remedial action workplan for natural ground water remediation, the person responsible for conducting the remediation shall demonstrate to the Department that:

1. Groundwater contaminant concentrations will decrease to applicable remediation standards pursuant to N.J.A.C. 7:26E-1.13 through degradation, retardation, or dispersion under present site conditions.

i. The person responsible for conducting the remediation shall evaluate the following site conditions to determine the viability of natural remediation:

(1) Contaminant mass, as determined by free or residual product and dissolved phase delineation and dissolved contaminant concentrations;

(2) Dissolved oxygen content of ground water;

(3) Presence or absence of microorganisms in soil and ground water;

(4) Ground water flow velocity; and

(5) Applicable physical and chemical characteristics of contaminants and contaminant degradation products present in both soil and ground water;

ii. The person responsible for conducting the remediation may evaluate the following site conditions to determine the viability of natural remediation, if applicable:

(1) Sorptive and desorptive characteristics of the soil; and

(2) Other applicable physical and chemical characteristics of soil;

2. Free and/or residual product in the unsaturated and saturated zones, as determined pursuant to N.J.A.C. 7:26E-2.1(a)11, is treated or removed, if practicable, or contained if treatment or removal are not practicable;

3. All soil contamination in the unsaturated zone has been or will be remediated to the applicable numeric soil remediation standard in accordance with a schedule approved by the Department;

4. Ground water contamination has been delineated to the remediation standard applicable to the nearest downgradient receptor;

5. Ground water contaminated above the applicable standard will not reach the nearest downgradient receptor, as estimated by an appropriate ground water flow/contaminant transport model selected pursuant to N.J.A.C. 7:26E-4.4(h)3iv;

6. The fate of the contaminant plume has been documented pursuant to N.J.A.C. 7:26E-8.3(b)2;

7. Contaminant levels in ground water do not present a vapor risk to any receptors. This determination shall be made on a case-by-case basis;

8. Predicted impacts to potential receptors are consistent with the current and potential ground water uses based on a 25-year planning horizon as projected by local and county land use documents. This shall include, without limitation, information pertaining to the existence of water lines, proposed future installation of water lines, local and/or county ordinances restricting installation of potable wells;

9. All necessary access agreements needed to monitor the ground water quality pursuant to (e) below have been obtained; and

10. If a classification exception area needs to be established, the person responsible for conducting the remediation has provided the Department all necessary information in accordance with N.J.A.C. 7:26E-8.

(e) Monitoring and performance requirements for natural remediation are as follows:

1. A ground water monitoring program shall be implemented to monitor plume characteristics and movement, to calibrate the model used to estimate the eventual extent of the plume, and to assess the effectiveness of the natural ground water remediation. This program shall consist of

the following:

i. Sampling shall be conducted on a quarterly basis at monitoring wells associated with the natural remediation, for a minimum of eight quarters, including:

(1) At least one area of concern monitoring well located at the source area to monitor plume conditions at the source area;

(2) At least one plume sampling point located downgradient of the source area but within the contaminant plume except as provided in (e)1i(3) below;

(3) At least one plume fringe monitoring well located at the limit of the plume, as determined pursuant to (d)4 above. Depending on the areal extent of the contaminant plume, the Department may determine that one monitoring well may satisfy the requirements of both (e)1i(2) above and this subparagraph; and

(4) At least one downgradient sentinel well located beyond the zone delineated pursuant to (d)4 above. Contaminant levels in this sentinel well shall remain below the applicable standard. The sentinel well shall be located no closer than three years travel time to the nearest potential downgradient receptor and no further than five years travel time from the delineated downgradient extent of the contaminant plume;

2. A classification exception area shall be established for the area of the aquifer impacted by the migrating contaminant plume, pursuant to N.J.A.C. 7:26E-8;

3. Data collected pursuant to (e)1 above shall be evaluated and the person responsible for conducting the remediation shall document the effectiveness of that natural ground water remediation as follows:

i. No further remediation is required for ground water if:

(1) Contaminant levels in the sentinel well do not exceed the applicable standards at any time during the monitoring program. A proposal regarding the duration of the monitoring program at the sentinel well may be made by the person responsible for conducting the remediation, based upon site specific data;

(2) The contaminant levels at the source area monitoring well(s) are at or below the applicable standards for two consecutive seasonal high water table monitoring events; and

(3) The contaminant concentrations at all plume monitoring wells are at or below the applicable standards for two consecutive quarterly monitoring events;

ii. Additional remediation will be required if:

(1) Contaminant levels in the sentinel well exceed the applicable standards;

(2) The contaminant levels detected in any of the plume or plume fringe monitoring wells installed pursuant to (e)1i(2) and/or (3) above are not reflective of the contaminant levels predicted by the ground water flow/contaminant transport model; or

(3) Contaminant levels are not decreasing in any area of concern monitoring well, as demonstrated by applying the statistical Mann-Whitney U-Test to eight consecutive quarters of ground water sampling data. The test shall be applied to individual contaminants detected in each area of concern monitoring well, pursuant to Appendix C, incorporated herein by reference; and

iii. Proposals to sample the monitoring wells at a decreased frequency for the purpose of monitoring the Classification Exception Area shall be

considered by the Department if:

(1) Contaminant levels in the sentinel well do not exceed the applicable standards at any time during the monitoring program. A proposal regarding the duration of the monitoring program at the sentinel well shall be made by the person responsible for conducting the remediation, based upon site-specific data;

(2) The contaminant levels detected in the plume or plume fringe monitoring wells above are reflective of the contaminant levels predicted by the groundwater flow/contaminant transport model; and

(3)Contaminant levels above the applicable remediation standard remain, but a decreasing trend of contaminant levels is demonstrated in, at a minimum, the area of concern monitoring well(s). The decreasing trend shall be demonstrated by applying the statistical Mann-Whitney U-Test to eight consecutive quarters of ground water sampling data. The test shall be applied to individual contaminants detected in each monitoring well pursuant to Appendix C; and

4. Ground water sample data shall not be averaged for the purpose of the Mann-Whitney U-Test.

5. Alternative non-parametric statistical tests may be proposed. The Department shall determine the acceptability of such tests on a case by case basis.

7:26E-6.4 Post Remedial Action Requirements – See Tables 7 and 8

See **Table 9** for Soil Reuse Sampling Requirements

TABLE 7 POST REMEDIAL ACTION REQUIREMENTS – SOILS

The following sampling shall document the effectiveness of the remedial action:

1. All sampling shall be conducted pursuant to N.J.A.C. 7:26E-3.3 through 3.12 and 4.1 through 4.7.

2. For soils, if excavation is conducted, the minimum post remediation sampling frequency shall be:

i. For excavations less than 20 feet in perimeter, at least one bottom sample and one sidewall sample biased in the direction of surface runoff.

ii. For excavations 20 to 300 feet in perimeter:

(1) For surface spills, one sample from the top of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.

(2) For subsurface spills, one sample from the bottom of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.

iii. For larger excavations, sampling frequency may be reduced if documentation acceptable to the Department is provided in the remedial action progress report (N.J.A.C. 7:26E-6.6) or the remedial action report (N.J.A.C. 7:26E-6.7) if the remedial action is completed in less than three months. Documentation shall specify why the reduced sample frequency was considered adequate.

iv. For volatile organics bottom samples taken within 24 hours of excavation, samples shall be taken from the zero to six inch interval at the excavation floor. Samples taken after 24 hours shall be taken at six to 12 inches. For excavations open longer than two weeks, volatile organics sample depth for bottom samples shall be in accordance with N.J.A.C. 7:26E-3.6(a)4 (site investigation requirements).

v. Each excavation within a larger excavation shall be considered a separate excavation and shall comply with (a)2i through iv above.

vi. For tanks, if contaminated soil is removed, post remediation soil samples for laboratory analysis shall be taken immediately after contaminated soil removal pursuant to N.J.A.C. 7:26E-6.3(b)6i(3). If the excavation is enlarged horizontally beyond the immediate tank removal area, additional soil samples shall be taken pursuant to (a)2i through iv above.

3. For soils, if in situ remediation is conducted, the minimum post-remediation sampling frequency shall be one sample per 900 square feet of contaminated area. Where the contaminated zone exceeds two feet in depth, one additional sample per 900 square feet of contaminated area shall be taken or each two feet of depth.

4. Post-remediation sample locations and depth shall be biased towards the areas and depths of highest contamination identified during previous sampling episodes unless field indicators such as field instrument measurements or visual contamination identified during the remedial action indicate that other locations and depths may be more heavily contaminated. In all cases, post-remediation samples shall be biased toward locations and depths of the highest expected contamination.

5. If the extent of contamination above the applicable residential soil remediation standard was estimated during the remedial investigation, the extent of contamination above the applicable residential soil remediation standard shall be confirmed using laboratory analysis prior to the completion of a remedial action or the execution of a deed notice.

TABLE 8 - POST REMEDIAL ACTION REQUIREMENTS
GROUNDWATER SOIL AND WETLANDS RESTORATION
WELLS AND SOIL FILL

If the Department established a groundwater classification exception area as part of the remedial action, sampling shall be conducted pursuant to N.J.A.C. 7:26E-8.6(a)7i.

(b) All areas subject to remediation shall be restored, to the extent practicable, to pre-remediation conditions with respect to topography, hydrology and vegetation, unless alternate restoration is approved by the Department pursuant to N.J.A.C. 7:26E-1.6(d).

1. Sites located adjacent to or in wetlands or in or near other environmentally sensitive natural resources, may have further requirements under N.J.A.C. 7:7E (Coastal Zone Management) or N.J.A.C. 7:7A (Wetlands Act).

2. Fill material used to restore a site after the remediation has been completed shall be similar in physical properties to the material removed unless otherwise approved in advance by the Department. Fill used for new building foundations or other construction in remediated areas are exempt from this requirement.

i. If the excavated material is native soil, the fill shall be of equal or less permeability than the soil removed.

ii. If the excavated material is not native soil, the fill material shall be of equal or less permeability than the native soil in or adjacent to the area of concern or, at a minimum, have a permeability equal to or less than that of loam.

iii. Fill shall be uncontaminated pursuant to any applicable remediation standard and free of extraneous debris or solid waste.

iv. Documentation of the quality of the fill shall be provided by a certification stating that it is virgin material from a commercial or noncommercial source or decontaminated recycled soil.

v. Uncontaminated soil from the site pursuant to any applicable remediation standard may be returned to excavations or may be used elsewhere on the site.

vi. The bills of lading shall be provided to the Department to document the source(s) of fill. The documentation shall include:

(1) The name of the affiant and relationship to the source of the fill;

(2) The location where the fill was obtained, including the street, town, lot and block, county, and state, and a brief history of the site which is the source of the fill; and

2. A statement that to the best of the affiant's knowledge and belief the fill being provided is not contaminated pursuant to any applicable remediation standards and a description of the steps taken to confirm such.

(c) After completion of remediation all monitoring and extraction wells shall be decommissioned in accordance with N.J.A.C. 7:9D unless otherwise approved by the Department.

(d) If contaminated soils will be reused at a site, a soil reuse evaluation proposal shall be conducted and submitted to the Department prior to the reuse of contaminated soils

TABLE 9 SOIL REUSE SAMPLING/REQUIREMENTS

1. The contaminated soil intended for reuse shall be fully characterized and delineated pursuant to the site investigation, N.J.A.C. 7:26E-3, and remedial investigation, N.J.A.C. 7:26E-4, or, if the soil has not been fully characterized and delineated, the soil shall be sampled in accordance with all applicable requirements at N.J.A.C. 7:26E-1, 2, 3.4, and 3.6, at the following frequencies:

i. Field screening methods, if available pursuant to N.J.A.C. 7:26E-2.1(b), shall be used to determine sample locations. Each 20 cubic yards of soil shall be screened with borings or test pits throughout the depth of the soil pile, at two foot intervals. Two samples shall be collected for laboratory analysis for the first 100 cubic yards of excavated material and one sample for each additional 100 cubic yards; or

ii. If contamination is not detectable by field screening methods, samples shall be collected for laboratory analysis from mid-depth in the pile at a frequency of one sample per 20 cubic yards for the first 100 cubic yards of soil and one sample for each additional 100 cubic yards; and

iii. For quantities of soil greater than 1,000 cubic yards, a lower sampling frequency may be acceptable, subject to prior Departmental approval pursuant to N.J.A.C. 7:26E-1.6(d);

2. When soils are excavated to access underground storage tank systems or other subsurface structures and there is no evidence of a discharge pursuant to N.J.A.C. 7:26E-6.3(b), soil analysis of the excavated soil is not required prior to reuse. The results of post-remedial sampling required pursuant to N.J.A.C. 7:26E-6.3 shall be evaluated prior to reuse of the soils to confirm that no discharge occurred at the underground storage tank system; and

3. Excavated soil from drill cuttings or test pit excavations, may be returned to the original location provided that:

i. The activity was performed in accordance with the Subsurface and Percolating Waters Act, N.J.S.A. 58:4A-4.1;

ii. Neither free nor residual product is present, as determined pursuant to N.J.A.C. 7:26E-2.1(a)11;

iii. The contamination present shall be addressed as part of the remediation of the area of concern; and

iv. The replacement of the soil shall not pose any additional threat to public health, safety or the environment.

(e) If the Person responsible for conducting the remediation required for real property not owned by that person does not obtain the property owner's written consent to implement the institutional and/or engineering control at the property and to record a deed notice, the person shall remediate the property to an applicable unrestricted soil remediation standard.

7:26E-6.5 Remedial Action Schedule and Progress Reports

(a) The person responsible for conducting the remediation shall prepare a schedule of the remedial action pursuant to this section if the remedial action requires more than three months to complete.

(b) The person responsible for conducting the remediation shall include the following in the remedial action schedule:

1. Monthly time frames, for the initiation and completion of each remedial action task, including a consideration of Department review time for submitted reports. Specific dates shall not be listed, as these will be contingent upon Department approval of the remedial action workplan;

2. Time frames for contractor bidding/review/acceptance process;

3. A critical path schedule for all Federal, State, and local permit applications and final permit approvals;

4. A listing of all anticipated report submittals to the Department including, without limitation, progress reports, groundwater monitoring reports, post-remedial action data reports for individual areas of concern, construction design reports and final remedial action reports;

5. Time frames for submission of remedial action progress reports pursuant to N.J.A.C. 7:26E-6.6 and the remedial action report pursuant to N.J.A.C. 7:26E-6.7, including consideration of:

i. Review times of not only the person preparing each report, but all other persons who will be reviewing the report prior to submission to the Department, including, but not limited to, owners, operators, subcontractors, and legal advisors; and

ii. Laboratory analysis and data reduction time;

6. A timeframe for submitting a request for a waste classification to the Department for disposal or treatment of waste generated during implementation of the remedial action; and

7. A timeframe for site restoration pursuant to N.J.A.C. 7:26E-6.4(b), and the Department's final inspection.

(c) Within thirty (30) calendar days after the Department approves the remedial action workplan, the person responsible for conducting the remediation shall revise the remedial action schedule to identify the projected month/year for each task, and submit the revised schedule to the Department.

7:26E-6.6 Remedial Action Progress Reports

(a) The person responsible for conducting the remediation shall submit remedial action progress reports to the Department pursuant to this section and according to the remedial action schedule pursuant to N.J.A.C. 7:26E-6.5.

*(c) The person responsible for conducting the remediation shall include **Table 10** items in each remedial action progress report, as appropriate:*

7:26E-6.7 Remedial Action Report

*(a) The person responsible for conducting the remediation shall prepare a remedial action report in a format that corresponds directly to the outline shown in **Table 11** when the remedial action is completed, except as noted in (e), below.*

TABLE 10 REMEDIAL ACTION PROGRESS REPORT REQUIREMENTS

1. A description of each remedial action:

i. Scheduled to be initiated or completed during the reporting period;

ii. Actually initiated or completed during the reporting period; and

iii. Scheduled but not initiated or not completed during the reporting period, including the reasons for the noncompliance with the Department approved schedule;

2. Discussion of problems and delays in the implementation of the remedial action workplan, including proposals for corrections;

3. Any proposal for a deviation from, or modification to, the approved remedial action workplan. The Department must approve proposed modifications in writing prior to implementation;

4. A revised schedule pursuant to N.J.A.C. 7:26E-6.5, to reflect the changes described pursuant to (b)1 through 3, above;

5. The status of all permit applications relative to the critical path schedule for permits in the remedial action schedule pursuant to N.J.A.C. 7:26E-6.5(b)3;

6. A list of each remedial action to be performed during the next reporting period;

7. The cost of each remedial action, including:

i. An annual summary of all remedial action costs incurred to date; and

ii. A revised cost estimate for remedial actions remaining to be performed;

8. A tabulation pursuant to N.J.A.C. 7:26E-3.13(c)3, of all sampling results received during the reporting period and a summary of the data and any conclusions in a format consistent with N.J.A.C. 7:26E-4.8;

9. For active groundwater remedial actions:

i. Groundwater elevation contour maps representative of groundwater flow conditions immediately preceding initiation of the active groundwater remedial action and during the active groundwater remedial action;

ii. Graphs depicting changes in contaminant concentrations over time for all contaminated monitoring wells and all downgradient delineation monitoring wells;

iii. A summary, in narrative and table format, of the volume of groundwater treated since the last reporting period, and the total volume of groundwater treated since the active remedial action commenced;

iv. A summary regarding groundwater contamination stating that either:

(1) Contamination remains at concentrations above the applicable remediation standards, and a proposal detailing what additional remedial actions will be taken to address this contamination; or

(2) All contamination concentrations are at or below the applicable remediation standards;

10. For natural remediation groundwater remedial actions:

i. A summary table of the groundwater monitoring results collected; and

ii. If applicable, conclusions whether data indicate that natural remediation is no longer appropriate, and submit a revised remedial action workplan, pursuant to N.J.A.C. 7:26E-6.2;

11. A description of all wastes generated as a result of the remedial action, including:

i. Tabulation of waste classification and/or characterization samples collected, including the physical state of the material (solid, liquid, sludge), the volume of material, number of samples collected, analyses performed and results;

ii. A listing of all types and quantities of waste generated by the remedial action during the reporting period and to date;

iii. The name of the disposal facility used;

iv. The transporters' dates of disposal; and

v. If appropriate, the manifest numbers of each waste shipment; and

12. Any additional support documentation that is available (for example, photographs).

TABLE 11 REMEDIAL ACTION REPORT REQUIREMENTS

1. All information contained in the remedial investigation report pursuant to N.J.A.C. 7:26E-4.8; or if previously submitted to the Department, a summary of the following information from that report:

i. General history of the site;

ii. A description of the physical setting of the site; and

iii. A summary, by area of concern, of the concentration of contaminants with a comparison to the applicable remediation standards;

2. A summary, by area of concern, of all remedial actions completed;

3. A list of the remediation standards achieved for each remedial action;

4. "As-built" diagrams for any permanent structures including, without limitation, caps or other remediation structures and engineering controls;

5. A detailed description of site restoration activities, if applicable, pursuant to N.J.A.C. 7:26E-6.4(b);

6. A report of the remedial action costs, including a cost estimate to monitor, maintain, and certify the protectiveness of each engineering and/or institutional control pursuant to N.J.A.C. 7:26E-8; and

7. Information pursuant to (c) through (e), below, as applicable.

(c) The person responsible for conducting the remediation shall include the following in the soil remedial action section and sediment remedial action section of the report:

1. Tables and figures pursuant to N.J.A.C. 7:26E-4.8 containing all pre- and post-remedial data keyed appropriately so that:

i. Completion of the remedial action is documented; and

ii. The volume of contaminated soil or sediment which was remediated is clearly indicated;

2. Fully executed manifests documenting any offsite transport of waste material; and

3. A copy of the final draft deed notice, including all of the exhibits, pursuant to N.J.A.C. 7:26E-8.2, if applicable;

(d) The person responsible for conducting the remediation shall include graphs depicting changes in contaminant concentrations over time for all monitoring wells in the active groundwater remedial action section of the report.

(e) The person responsible for conducting the remediation shall, upon satisfying the requirements of N.J.A.C. 7:26E-6.3(e)3, include the following in the natural remediation groundwater remedial action section of the report:

1. A summary table of the groundwater monitoring results collected pursuant to N.J.A.C. 7:26E-6.3(e)1;

2. A discussion of the results of the Mann-Whitney U-Test applied pursuant to N.J.A.C. 7:26E-6.3(e)3;

3. A conclusion that either:

i. The groundwater quality is now in compliance with the applicable remediation standards and,

therefore, the groundwater classification exception area is no longer necessary; or

ii. The groundwater contamination is expected to decrease over time and to be in compliance with the applicable remediation standards consistent with the model used to estimate the eventual extent of the plume, and, therefore, that the groundwater classification exception area is still necessary; and

4. If the groundwater classification exception area is still necessary, a plan for the monitoring, maintenance, and certification of the protectiveness of each classification exception area pursuant to N.J.A.C. 7:26E-8

SUBCHAPTER 7. PERMIT IDENTIFICATION AND APPLICATION SCHEDULE

7:26E-7.1 Permit Identification

(a) Any person conducting a remedial action shall identify all relevant Federal, State and local permits or permit modifications or certifications needed to implement the selected remedial action a list of typical permits or certifications that may be required can be found in the regulations.

(b) Any person conducting a remedial action shall apply for and obtain all required permits prior to initiating the remedial action.

(c) Any person conducting a remedial action pursuant to an oversight document or the ISRA or UST programs, shall develop a permit application schedule to identify the timeframes for application and issuance/approval pursuant to N.J.A.C. 7:26E-6.5(b)3.

SUBCHAPTER 8. ENGINEERING AND INSTITUTIONAL CONTROLS

7:26E-8.1 General Requirements

(a) The purpose of this subchapter is to present the requirements for the use of engineering and institutional controls as part of remedial actions for contaminated sites.

(b) Any person proposing to use engineering and/or institutional controls shall:

1. Propose a deed notice, pursuant to N.J.A.C. 7:26E-8.2, whenever:

i. Soil contamination will remain above a concentration that would allow for the unrestricted use of the property; or

ii. A ground water remedial action includes containment.

2. Demonstrate in the remedial action workplan submitted to the Department pursuant to N.J.A.C. 7:26E-6.2(a), that:

i. The selected remedial action will remain protective of the public health and safety and of the environment for as long as the contamination exists above a concentration that would allow for the unrestricted use of the property;

ii. Access to the site or area of concern, and human exposure to the contamination at the site or area of concern, can both be controlled when necessary to ensure the protectiveness of the remedial action; and

iii. The current and planned future uses of the site or area of concern will be consistent with all engineering and institutional controls; and

3. Monitor each engineering and institutional control until such time that the Department approves in writing the removal of the control.

(c) In evaluating the protectiveness of a remedial action that includes an engineering and/or institutional control, the Department will consider site-specific conditions, including, but not limited to:

1. The concentration of contaminants;

2. The mobility and toxicity of the contaminants;

3. The presence of free and/or residual product, off-spec or discarded product or by-product from a manufacturing or industrial process, containerized wastes, or buried waste;

4. The current surrounding land uses;

5. The implementability of the control over the long term; and

6. Any other factors that are relevant to evaluating the protectiveness of the remedial action.

7:26E-8.2 Deed Notice Requirements

(a) The person responsible for conducting the remediation of a site that includes a soil remedial action that includes a proposed deed notice shall:

1. If that person is the owner of the site, record a deed notice for the site pursuant to (c) and (d) below; or

2. If that person is not the owner of the site provide the Department documentation of the owner's consent to record the necessary deed notice pursuant to (b) below.

(b) The person responsible for conducting the remediation that proposes a remedial action that

includes a deed notice shall provide the Department with a copy of the property owner's consent to record a deed notice as part of the remedial action workplan pursuant to N.J.A.C. 7:26E-6.2(a)16, as follows:

1. If the property owner is any local, county, state or federal government agency, and a deed is not associated with the property, such as roads and sidewalks, then the person responsible for conducting the remediation shall submit written documentation of the owner's agreement to provide notice pursuant to (c) below as follows:

i. For a municipality, then the written agreement shall be in the form of a formal resolution by the municipal government;

ii. For a county, then the written agreement shall be in the form of a formal resolution by the county freeholders; or

iii. For a State or Federal governmental agency, the head of the agency or their designee shall sign the written agreement; or

2. If the property owner is any other person than the person responsible for conducting the remediation, then the person responsible for conducting the remediation shall provide the Department with written documentation of the owner's agreement to record a deed notice for the site.

(c) The person responsible for conducting the remediation proposing a remedial action that requires the owner of the site to record a deed notice, shall comply with the following procedures for drafting a deed notice for the Department's approval as follows:

1. For a property that is owned by a local, county, state or federal government agency (except as provided in 2 below), and no deed is associated with the site, the person responsible for conducting the remediation shall submit a draft notice worded pursuant to (d) below, to serve as the notice in lieu of a deed notice;

2. For a property that is owned by the U.S. Department of Defense, and no deed is associated with the site, the person responsible for conducting the remediation shall draft an amendment to the Base Master Plan or Land Use Control Assurance Plan worded pursuant to (d) below, to serve as the notice in lieu of a deed notice; or

3. For a property that is owned by any person not described in (c) 1 or 2 above, then the person responsible for conducting the remediation shall provide the Department with a draft deed notice pursuant to (d) below.

(d) The person responsible for conducting the remediation who elects to use a deed notice as part of a remedial action for a contaminated site shall submit a draft deed notice to the Department, as part of the remedial action work plan pursuant to N.J.A.C. 7:26E-6.2(a)16, that:

1. Is worded exactly as the model document in N.J.A.C. 7:26E, Appendix E; and

2. Includes copies of all required maps that:

i. Are compatible with the "New Jersey Department of Environmental Protection Mapping the Present to Protect New Jersey's Future: Mapping and Digital Data Standards," in N.J.A.C. 7:1D, Appendix A;

ii. Are compatible with the most recent version of the Department's "Guidance for the Submission and Use of Data in GIS Compatible Formats Pursuant to "Technical Requirements for Site Remediation" at http://www.state.nj.us/dep/srp/regs/techgis/techgis05.htm;

iii. Are on 8.5" x 11" paper (using multiple sheets if necessary);

iv. Are scaled at one inch to 200 feet or less;

v. Are clean, clear, and legible; and

vi. Include:

(1) A bar scale;

(2) A north arrow;

(3) A legend;

(4) The applicable Master Site name and number;

(5) Tax Block and Lot numbers; and

(6) The date prepared.

(e) The person responsible for conducting the remediation who proposes to use a deed notice as part of a remedial action for a contaminated site shall submit a final draft of the deed notice to the Department as part of the remedial action report pursuant to N.J.A.C. 7:26E-6.6, unless the Department directs its submission at an earlier time.

(f) Within forty-five (45) calendar days after the receipt of the Department's written approval of the final deed notice submitted pursuant to (e), above, the person responsible for conducting the remediation shall comply with the following as applicable:

1. If there is a deed for the property, have the owner of the property record the deed notice with the office of each county recording officer responsible for recording deeds for each county in which the site is located;

2. If the property to which the notice applies is a local, county or state roadway, provide a paper copy of the document referenced in N.J.A.C. 7:26E-8.2(c)1, and an electronic copy in a read only format, including all of the exhibits, to the following, as applicable:

i. Each road department of each municipality in which the site is located;

ii. Each road department of each county in which the site is located;

iii. The New Jersey Department of Transportation; and

iv. Utility companies with easements on the roadway, and

3. In all other circumstances, provide a paper copy of the recorded deed notice, stamped "Filed", or notice, as applicable, and an electronic copy in a read only format, including all of the exhibits, to those individuals and groups listed in (g) below.

(g) Within forty-five (45) calendar days after receipt of the Department's written approval of the final deed notice submitted pursuant to (e), above, provide, as applicable, a paper copy of the recorded deed notice or document referenced in N.J.A.C. 7:26E-8.2(c)1, and an electronic copy in read only format, including all exhibits, to the following:

1. The Department's assigned case manager;

2. The municipal clerk, mayor and town council of each municipality in which the site is located;

3. The local, county, and regional health department in each municipality and county in which the site is located;

4. Each gas, electric, water, sewer, cable company and all other utilities that service the site or have a license or easement to cross the site;

5. The New Jersey Realtors Association;

6. The Pinelands Commission if the site is located within an area subject to the jurisdiction of the Pinelands Commission; and

7. Any other person who requests a copy.

(h) Any person who chooses to redevelop or change the use of a site in a manner inconsistent with a remedial action that includes an engineering and/or institutional control, or conduct additional remediation or other activities that may compromise the integrity of an engineering control, such that the remedy no longer meets the applicable health risk standard, or is no longer protective of public health, safety and of the environment, shall obtain the Department's prior written approval of such activities as follows by submitting :

1. A memorandum of agreement application, pursuant to N.J.A.C. 7:26C-3, for the Department's oversight of activity, if the person is not already subject to the Department's oversight for the site;

2. A remedial action workplan pursuant to N.J.A.C. 7:26E-6.2 prior to implementation of such activities; and

3. A request to the Department, pursuant to (i) below, to remove or modify, as appropriate, the declaration of environmental restrictions or deed notice.

(i) Any person may submit a written request along with the memorandum of agreement application, at the address provided at N.J.A.C. 7:26C-1.4(e), to remove or modify a remedial action that includes an engineering and/or institutional control. The person shall submit a copy of the existing deed notice or declaration of environmental restrictions stamped "filed" and the reason for the removal or modification based on the following:

1. The performance of subsequent remediation;

2. A change in conditions at the site;

3. The Department's revision of soil remediation standards; or

4. A change in the maintenance or monitoring requirements in this Chapter.

(j) The Department will evaluate the request submitted pursuant to (h) above and within 90 calendar days after the Department's receipt of the written request will either:

1. Approve the request with the condition that:

i. The property owner records with the office of each county recording officer, pursuant to N.J.A.C. 7:26E-8.2(f), a notice executed by the Department, that the use of the site is no longer restricted or that the restriction has been changed and that the declaration of environmental restrictions or deed notice is therefore either terminated or modified. Any Department approved modified declaration of environmental restrictions or deed notice delineating the new restrictions shall be recorded pursuant to N.J.A.C. 7:26E-8.2;

ii. The applicant provides written notice to each municipality in which the site is located, with a copy to the Department sent to the address provided at N.J.A.C. 7:26C-1.4, of the removal or change of the restrictive use conditions;

iii. The applicant provides an electronic copy in a read only format, of all information required in N.J.A.C. 7:26E-8.2(c), for the approved modified declaration of environmental restrictions or deed notice as required pursuant to N.J.A.C. 7:26E-8.2(f) and (g); or

2. Issue a written denial of the request.

7:26E-8.3 Ground Water Classification Exception Areas

(a) A ground water classification exception area serves as an institutional control by providing notice that there is ground water pollution in a localized area caused by a discharge at a contaminated site. The area and depth of ground water pollution will be determined based on actual ground water contamination, as well as, fate and transport modeling. The Department will establish a ground water classification exception area as part of a remedial action for ground water at a contaminated site when the ground water does not meet the ground water quality standards, pursuant to N.J.A.C. 7:9-6.

*(d) The person responsible for conducting the remediation shall submit the following information shown in **Table 12** to the Department as part of the remedial action workplan pursuant to N.J.A.C. 7:26E-6.2.*

TABLE 12 CEA SUBMITTAL REQUIREMENTS

1. For each ground water sampling point, a list of all contaminants and their concentrations, that do not meet the groundwater quality standards, from the most recent 24 months of ground water sampling;

2. A description of the fate and transport of the contaminant plume, using the most mobile and persistent contaminants present that exceed the ground water quality standards, including:

i. The horizontal and vertical distances that the contaminated ground water plume is expected to travel before contaminant concentrations decrease to or below the applicable ground water quality standards;

ii. A proposed expiration date for the classification exception area; and

iii. All other information required by Appendix F;

3. The following maps consistent with the requirements of N.J.A.C. 7:26E-8.2(d)2;

i. A USGS Quadrangle map (paper copy only), indicating the location of the site;

ii. A map, in paper and electronic formats, indicating the predicted extent of the ground water contaminant plume; and

iii. A map (paper copy only) showing all properties, according to tax block and lot with a reference to the year of the referenced tax map, under which the contaminant plume is located and is expected to migrate;

4. Information regarding current and projected use of the ground water in the aquifer(s) in which the ground water classification exception area is located, as follows:

i. The current ground water use based on the most recent well search conducted pursuant to this chapter; and

ii. The future ground water use for a 25-year planning horizon based on the following, without limitation:

(1) The New Jersey Water Supply Master Plan;

(2) Department of Environmental Protection, Bureau of Water Allocation;

(3) Municipal master plans;

(4) Zoning plans;

(5) Local water purveyor plans and planning data pertaining to the existence of water lines and proposed future installation of water lines;

(6) Local planning officials;

(7) County and local boards of health; and

(8) Local and/or county ordinances restricting installation of potable wells.

5. Copies of the certified letters, return receipt requested, notifying the following persons of the need to establish the ground water classification exception area:

i. The municipal and county clerks for each municipality and county in which the ground water classification exception area will be located;

ii. The local, county and regional health department for each municipality and county in which the ground water classification exception area will be located;

iii. The designated County Environmental Health Act agency for each county in which the ground water classification exception area will be located;

iv. The county planning board for each county in which the ground water classification exception area will be located;

v. The Pinelands Commission if the ground water classification exception area will be located within the jurisdiction of that Commission;

vi. New Jersey Department of Environmental Protection, Water Supply Administration:

(1) Bureau of Safe Drinking Water; and

(2) Bureau of Water Allocation; and

vii. If the ground water classification exception area is located in a ground water use area, each owner of any real property within the ground water classification exception area.

(c) The Department will establish a ground water classification exception area based upon the projected area of the contaminant plume in the ground water, pursuant to (b), above.

(d) The Department may revise or reestablish a ground water classification exception area at any time to more accurately reflect ground water conditions using any relevant data, including any data submitted along with the certification required by N.J.A.C. 7:26E-8.6.

(e) The Department will remove a ground water classification exception area based upon ground water data, collected pursuant to N.J.A.C. 7:26E-8.6(a)7, that indicate that the contaminant concentrations in the ground water meet all of the applicable ground water quality standards.

7:26E-8.4 Monitoring, Maintenance, And Biennial Certification - Who Has Obligation And When

(a) The persons responsible for monitoring the protectiveness of a remedial action that includes an engineering and/or institutional control and for submitting the biennial certifications pursuant to this subchapter include, without limitation, each of the following:

1. Any person with a legal obligation to conduct the remediation, including, without limitation, each of the following:

i. A person in any way responsible, pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11a et seq., for the hazardous substance that was the subject of the remedial action that includes the engineering and/or institutional control;

ii. The owner of the site of the discharge at the time of the remedial action that includes the engineering and/or institutional control;

iii. An owner or operator that triggered the Industrial Site Recovery Act, N.J.S.A. 13:1K-6 et seq., for the industrial establishment that was the subject of the remedial action that includes the engineering and/or institutional control;

iv. An owner or operator of an underground storage tank that was the subject of the remedial action that includes the engineering and/or institutional control;

v. A holder of a security interest in the site, who actively participated in the management of the site or underground storage tank facility, that was the subject of the remedial action that includes the engineering and/or institutional control; or

vi. A holder of a security interest in the site, who negligently caused a new discharge at the site after the date of foreclosure on a security interest in the site or the underground storage tank facility, that was the subject of the remedial action that includes the engineering and/or institutional control;

2. Once the engineering or institutional control is in place, each owner, lessee and operator of any property that is subject to an engineering or institutional control; this obligation may be limited to the period of that person's ownership, tenancy, or operation depending on that person's continuing liability of the remediation pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11gd

(b) The obligations in this subchapter for the monitoring, maintenance and certifying the protectiveness of remedial actions that include engineering and/or institutional controls apply to all of the persons described in (a) above, for sites with an engineering or institutional control that continues in effect after [THE EFFECTIVE DATE OF THIS AMENDMENT], regardless of the date the control was established.

(c) The persons responsible for monitoring the protectiveness of a remedial action that includes an engineering and/or institutional control shall submit to the Department a certification, pursuant to this section and consistent with N.J.A.C. 7:26C-1.2 (a)1, according to the following schedule:

1. For a deed notice and any engineering controls that are described in the deed notice, every two years on the anniversary of the date stamped on the deed notice that indicates when the deed notice was recorded;

2. For a ground water classification exception area, every two years on the

anniversary of the date that the Department established the ground water classification exception area; and

3. For all other engineering and institutional controls, every two years on the anniversary of when the engineering or institutional control was in place for the site.

(d) The persons responsible for submitting biennial certifications for sites with multiple engineering and/or institutional controls for the remediation of contaminated soil at a site shall:

1. Submit one biennial certification for all remedial actions and all engineering and institutional controls for the site; and

2. Submit to the Department the first biennial certification when the first biennial certification is due to the Department pursuant to (c) above, and biennially thereafter on that same date.

(e) Submissions required pursuant to this subchapter shall be made to the Department as follows:

1. For deed notices and related engineering controls as follows:

i. If the Department continues to oversee any aspect of the remediation at the site, submit information to the following address:

Department of Environmental Protection
Division of Remediation Management and Response
(Insert name of Bureau overseeing the remediation)
P.O. Box 028
401 E. State Street
Trenton, NJ 08625-0028

v. If the Department has issued no further action letters for all areas of concern at the site, submit information to the following address:

Department of Environmental Protection
Division of Remediation Management and Response
Bureau of Operation, Maintenance, and Monitoring
Deed Notice Inspection Program
P.O. Box 413
401 E. State Street
Trenton, NJ 08625-0413

2. For ground water classification exception areas, submit information to the Bureau that established the ground water classification exception area as follows:

Department of Environmental Protection
Division of Remediation Management and Response
(Insert name of appropriate Bureau)
P.O. Box 028
401 E. State Street
Trenton, NJ 08625-0028

7:26E-8.5 Monitoring, Maintenance, And Biennial Certification - Requirements For Deed Notices And Declarations Of Environmental Restrictions (DERS)

(a) The persons responsible for monitoring the protectiveness of a remedial action that includes a deed notice or declaration of environmental restrictions shall complete the requirements shown in ***Table 13.***

(d) If the person(s) having the obligation for complying with this section pursuant to N.J.A.C. 7:26E-8.4(a)2 changes:

1. The person who is relinquishing the obligation shall notify the Department of the name, address and telephone number of the person assuming the responsibility and the effective date of the change;

2. The person who is assuming the obligation to comply with (c), above, shall submit a letter signed and certified pursuant to N.J.A.C. 7:26E-1.5, stating that he/she is assuming the obligation for compliance with (a) through (c), above; and

3. The letters required by (d)1 and 2 above shall be submitted to the Department within 30 days of the effective date of the change.

7:26E-8.6 Monitoring, Maintenance, And Biennial Certification - Specific Requirements For Ground Water Classification Exception Areas

(a) The persons responsible for monitoring the protectiveness of a remedial action that includes a ground water classification exception area shall: follow the requirements in ***Table 14*** *.*

7:26E-8.7 Monitoring, Maintenance, and Biennial Certification - Engineering And Institutional Controls

(a) The persons responsible for monitoring the protectiveness of a remedial action that includes any other engineering or institutional control not ***included*** *in N.J.A.C. 7:26E-8.5 or 8.6 shall: follow the requirements* ***Table 15****.*

TABLE 13 BIENNIAL REPORT AND CERTIFICATION REQUIREMENTS FOR DEED NOTICES AND DERS

1. Determine whether any actual or pending zoning or land-use change is consistent with the use restrictions in the deed notice or declaration of environmental restrictions or could undermine the protectiveness of the remedial action that includes a deed notice or declaration of environmental restrictions in a manner such that could prevent:

   i. The remedial action which includes the engineering and/or institutional controls from meeting the applicable health risk standard, see, N.J.S.A. 5810B-12g(3)(b); and

   ii. The remedial action, which includes the engineering and/or institutional controls, from continuing to be protective of public health, safety, and of the environment, see, N.J.S.A. 58:10B-12g.

2. Conduct periodic inspections of the site to identify whether:

   i. Any excavation or other disturbance activities have taken place within the restricted areas; and

   ii. Any disturbances of the soil at the site have resulted in unacceptable exposure to the soil contamination;

3. Compare New Jersey laws, remediation standards, and other regulations applicable at the time the engineering or institutional control was established with any relevant subsequently promulgated or modified laws, regulations or remediation standards to determine whether:

   i. Any changes in applicable laws, regulations, or remediation standards have occurred; and

   ii. Each engineering and/or institutional control comply with the requirements of the new laws and regulations; and

4. Develop a detailed log of how the persons responsible for monitoring the protectiveness of the remedial action have maintained and evaluated the engineering control in compliance with this section. The log shall be completed for the time since the first certification due date pursuant to N.J.A.C. 7:26E-8.4(e), or the last certification and monitoring report was submitted to the Department, whichever is more recent.

(b) The persons responsible for monitoring the protectiveness of a remedial action shall prepare a monitoring report that includes the following information:

1. The name, address and telephone number of the person responsible for maintaining the engineering and institutional controls;

2. Site identifiers (as applicable):

   i. Master Site Name;

   ii. Master Site Number;

   iii. ISRA ID Number;

   iv. Case No. or Incident Report Number;

   v. UST Registration Number;

   vi. Date of each no further action letter for the site;

   vii. Name of the Department's Case Manager for the site at the time of each no further action letter;

   viii. Street address;

   ix. Tax block and lot number; and

   x. Name of each municipality and county in which the site is located;

3. A description of the:

   i. Physical characteristics of the site; and

   ii. The current site operations;

4. A description of each remedial action for the site that included the deed notice or declaration of environmental restrictions;

5. The results of the comparison of applicable laws and regulations pursuant to (a)5 above;

6. The maintenance and evaluation log for each engineering control pursuant to (a)6 above;

7. The dates and results of inspections and maintenance, including all test and sampling results, of each engineering and/or control;

8. A description of any changes in applicable laws, regulations or remediation standards and a proposal for all changes in the remedial action to comply with those changes;

9. A description of any additional action taken to ensure the protectiveness of the remedial action; and

10. A conclusion as to whether each remedial action that includes an engineering and/or institutional control remains protective of the public health and safety and the environment.

(c) The persons responsible for monitoring the protectiveness of a remedial action shall:

1. Certify to the Department that:

   i. The deed notice or declaration of environmental restrictions, including all engineering controls, is being properly maintained; and

   ii. The remedial action that includes the deed notice or declaration of environmental restrictions continues to be protective of the public health and safety and the environment;

2. Include with the certification a written monitoring report pursuant to (b) above, along with an electronic copy of the monitoring report and certification, in a read only format acceptable to the Department;

3. Submit the certification and the report required by (c)2 above, according to the schedule in N.J.A.C. 7:26E-8.4(c), to:

   i. The municipal and county clerks for each municipality and county in which any property included in the deed notice or declaration of environmental restrictions is located;

   ii. The local, county and regional health department for each municipality and county in which any property included in the deed notice or declaration of environmental restrictions is located;

   iii. Each owner of the property which is included in the deed notice or declaration of environmental restrictions; and

   iv. The Department, at the appropriate address as indicated in N.J.A.C. 7:26E-8.4(e)7, along with the name and address of each person that was sent a copy of the certification pursuant to i. through iii. above.

TABLE 14 MONITORING, MAINTENANCE AND BIENNIAL REPORT AND CERTIFICATION REQUIREMENTS FOR CEA AREAS

1. Compare the laws, Ground Water Quality Standards, and other regulations, applicable at the time the Department established the ground water classification exception area, with any relevant subsequently promulgated or modified laws or regulations to determine whether:

i. Any subsequently promulgated or modified laws or regulations apply to the site;

ii. Each ground water classification exception area complies with the requirements of the new laws and regulations;

2. Determine whether there are any planned changes within the 25-year water use planning horizon for the aquifer(s) in which the ground water classification exception area is located since the Department established the ground water classification exception area or the last completed biennial review, whichever is more recent. This determination shall be made by reviewing all plans, records and other relevant information from the following sources, without limitation:

i. The New Jersey Water Supply Master Plan;

ii. Department of Environmental Protection, Bureau of Water Allocation;

iii. Municipal master plans;

iv. Zoning plans;

v. Local water purveyor plans and planning data pertaining to the existence of water lines and proposed future installation of water lines;

vi. Local planning officials;

vii. Local and county ordinances restricting installation of potable wells; and

viii. County and local boards of health;

3. Identify whether there have been any actual changes in the ground water use in the water use planning area since the Department established the ground water classification exception area or the last completed biennial review, whichever is more recent. Identify changes by:

i. Completing a Department computer generated well search (contact the Bureau of Water Allocation) for all wells within one mile up-gradient, side-gradient and down-gradient of the ground water classification exception area; and

ii. Identifying all wells, other than ground water monitoring wells, installed within one mile up-gradient, side-gradient and down-gradient of the ground water classification exception area since the Department established the ground water classification exception area or the last completed biennial review, whichever is more recent;

4. Inspect all ground water monitoring wells associated with the ground water classification exception area and maintain a log for each monitoring well as follows:

i. Inspect the physical integrity of each well including, determining:

(1) The identification, integrity, and location of the well;

(2) The presence of a functioning pad lock; and

(3) The presence of any additional security measures such as a fence or patrolling of the site;

ii. Report to the Department, pursuant to N.J.A.C. 7:26E-4.4(g)11 any damaged monitoring wells and either repair or decommission damaged monitoring wells pursuant to N.J.A.C. 7:9D or replace the monitoring wells, as necessary; and

iii. For monitoring wells used to establish the ground water classification exception area that have been decommissioned pursuant to N.J.A.C. 7:9D, a copy of the well closure report shall be included with the first report, pursuant to (b)7 below, submitted after each well is decommissioned;

5. Identify any land use disturbance, such as the installation of a detention basin, that may intercept the water table within the area of the ground water classification exception area that could result in a contaminated discharge to surface water. If any such disturbances are identified, sample the ground water/surface water downgradient and proximate to the land use disturbance to determine whether the ground water meets the more stringent of either:

i. The New Jersey Surface Water Quality Criteria, N.J.A.C. 7:9B; or

ii. The Federal Surface Water Quality Criteria, 40 CFR Part 131;

6. Determine whether:

i. Any of the actual or proposed changes in the ground water use identified pursuant to 2 and 3 above, have influenced or may influence the protectiveness of the remedial action that includes the ground water classification exception area; and

ii. There is a need to reevaluate the fate and transport of the ground water contamination plume and to revise the ground water classification exception area to ensure that the remedial action remains protective of the public health and safety and the environment; and

7. Assess ground water quality as follows:

i. Within 120 calendar days after the projected expiration of the ground water classification exception area, collect at least two rounds of ground water samples such that the time between sampling events shall account for seasonal fluctuations in the ground water table and the number of ground water samples collected are representative of the entire horizontal and vertical extent of the ground water classification exception area;

ii. Evaluate the results of the ground water sampling conducted pursuant to 7i above, to determine whether the contaminant concentrations in the ground water have either:

(1) Decreased to or below the applicable ground water quality standards throughout the entire classification exception area; or

(2) Not decreased to or below the applicable ground water quality standards throughout the entire classification exception area; and

iii. At any other time prior to the projected expiration of the ground water classification exception area, ground water sampling is optional to determine whether the ground water meets the applicable ground water quality standards. The number of samples collected and the time between sampling events shall be consistent with 7i above. If ground water samples indicate that contaminant concentrations have decreased to or below the applicable ground water quality standards throughout the ground water classification exception area, then any person may request that the Department remove the ground water classification exception area.

(b) The persons responsible for evaluating the protectiveness of a remedial action that includes a ground water classification exception area shall prepare a monitoring report that includes the following:

1. The name, address and telephone number of the person responsible for preparing the report;

2. Site identifiers, as applicable:

i. Master Site Name and Number;

ii. ISRA ID Number;

iii. Case Number or Incident Report Number;

iv. UST Registration Number;

v. Date of each no further action letter for the site;

vi. Street address;

vii. Tax block and lot number and the year of the tax map from which this information is obtained; and

viii. Name of each municipality and county in which the site is located;

3. A description of:

i. The physical characteristics of the site;

ii. The current site operations; and

iii. Each remedial action that includes a ground water classification exception area;

4. The results, in table format, of the comparison of applicable laws and regulations pursuant to (a)1, above;

5. The results of the evaluation of the changes in ground water use conducted pursuant to (a)2 and 3 above;

6. The maintenance and evaluation log for each monitoring well pursuant to (a)4 above, including:

i. A copy of any report submitted to the Department, pursuant to N.J.A.C. 7:26E-4.4(g)11, concerning damaged monitoring wells; and

ii. A copy of the well closure report for each monitoring well used to establish the ground water classification exception area that has been decommissioned pursuant to N.J.S.A. 58:4A and N.J.A.C. 7:9D since the Department established the ground water classification exception area or the last completed biennial review, whichever is more recent;

7. For each land use disturbance identified pursuant to (a)5, above:

i. A description of the disturbance;

ii. The results of all ground water sampling required pursuant to (a)5, above; and

iii. A discussion of whether the ground water meets the more stringent of either:

(1) The New Jersey Surface Water Quality Criteria, N.J.A.C. 7:9B; or

(2) The Federal Surface Water Quality Criteria, 40 CFR Part 131;

8. A discussion of whether:

i. Any of the actual or proposed changes in the ground water use have influenced or may influence the protectiveness of the remedial action that includes the ground water classification exception area; and

ii. There is a need to reevaluate the fate and transport of the ground water contamination plume and to revise the ground water classification exception area to ensure that the remedial action remains protective of the public health and safety and the environment;

9. When ground water sampling is required pursuant to (a)7, above, present and evaluate the contaminant concentrations in the ground water to determine whether the concentrations have either:

i. Decreased to or below the applicable ground water quality standards throughout the entire classification exception area; or

ii. Not decreased to or below the applicable ground water quality standards throughout the entire classification exception area;

10. A description and map of a proposed revised ground water classification exception area, in both paper and electronic format consistent with the requirements of N.J.A.C. 7:26E-8.2(d)2, if ground water monitoring pursuant to this subchapter indicates that a revision to the ground water classification exception area is necessary;

11. The dates and results of inspections and maintenance, including all test and sampling results, of each ground water classification exception area; and

12. A description of any additional action taken to ensure the protectiveness of the remedial action that includes the ground water classification exception area; and

13. For the first biennial certification required after the projected expiration of the ground water classification exception area, if the contaminant concentrations in the ground water have not decreased to or below the applicable ground water quality standards throughout the classification exception area, the person responsible for evaluating the protectiveness shall submit:

i. A narrative, detailing why ground water contamination is still present; and

ii. A re-evaluation of the ground water quality standards pursuant to N.J.A.C. 7:26E-8.3(b), based on the current configuration of the ground water contaminant plume.

(c) The persons responsible for monitoring the protectiveness of a remedial action that includes a ground water classification exception area shall:

1. Certify in a format acceptable to the Department that, based upon the monitoring report required pursuant to (b), above, the ground water classification exception area continues to provide notice of the ground water contamination and the remedial action continues to be protective of the public health and safety and the environment;

2. Submit a report pursuant to (b), above, in both paper copy and in electronic format acceptable to the Department; and

3. Submit the certification and the report required by (c)1 and 2, above, according to the schedule in N.J.A.C. 7:26E-8.4, to:

i. Each external agency that the Department copied when it established the ground water classification exception area;

ii. Each property owner that the Department copied when it established the ground water classification exception area; and

iii. The Department, at the address in N.J.A.C. 7:26E-8.4, along with the name and address of each person that was sent a copy of the certification pursuant to i and ii, above.

TABLE 15 MONITORING, MAINTENANCE AND BIENNIAL REPORT AND CERTIFICATION REQUIREMENTS FOR AREAS WITH ENGINEERING AND INSTITUTIONAL CONTROLS

1. Monitor each institutional control by:

i. Conducting periodic inspections of the site to ensure that:

(1) The use of the site is consistent with any restrictions in the institutional control; and

(2) The institutional control and the remedial action of which it is a part continue to be protective of the public health and safety and of the environment; and

ii. Evaluating any actual or pending zoning or land-use changes that could undermine the protectiveness of any remedial action for the site;

2. Monitor each engineering control by:

i. Periodically reviewing the documented operation and maintenance records for each engineering control according to the requirements included in the deed notice;

ii. Conducting periodical inspections of each engineering control to determine:

(1) The integrity, operability, and effectiveness of the engineering control; and

(2) Whether the engineering control and the remedial action, of which it is a part, continue to be protective of the public health and safety and of the environment.

3. Compare the laws, remediation standards and other regulations applicable at the time the engineering or institutional control was established with any subsequently promulgated or modified laws, regulations or remediation standards to determine whether or not:

i. Any subsequently promulgated or modified laws or regulations apply to the site;

ii. Each engineering and/or institutional control in place for the site meet those new laws and regulations; and

4. Develop a detailed log of how the persons responsible for monitoring the protectiveness of the remedial action that includes an engineering control have maintained and evaluated the engineering controls in compliance with this section, since the first certification due date pursuant to 7:26E-8.4(d), or the date the persons responsible submitted the last certification and monitoring report to the Department, whichever is more recent.

(b) For each engineering and institutional control, the persons responsible for monitoring the protectiveness of a remedial action that includes any other engineering or institutional control not included in N.J.A.C. 7:26E-8.5 or 8.6 shall prepare a monitoring report that includes the following information:

1. The name, address and telephone number of each person responsible for maintaining the engineering and/or institutional control;

2. Site identifiers (as applicable):

i. Master Site Name;

ii. Master Site Number;

iii. ISRA ID Number;

iv. Case Number or Incident Report Number;

v. UST Registration Number;

vi. Date of each no further action letter for the site that included an engineering and/or institutional control;

vii. Name of the Department's Case Manager for the site at the time of each no further action letter;

viii. Street address;

ix. Tax block and lot number; and

x. Name of each municipality and county in which the site is located;

3. A description of the:

i. Physical characteristics of the site; and

ii. The current site operations;

4. A description of each remedial action for the site that included an engineering or institutional control:

5. The results of the comparison of applicable laws and regulations pursuant to (a)3, above;

6. The maintenance and evaluation log for each engineering control pursuant to (a)4, above;

7. The dates and results of all inspections and maintenance, including all test and sampling results, of each engineering and/or institutional control;

8. A description of any additional action taken to ensure the protectiveness of the remedial action that includes the engineering and/or institutional control; and

9. A conclusion as to whether each remedial action that includes an engineering and/or institutional control remains protective of the public health and safety and of the environment.

(c) The persons responsible for monitoring the protectiveness of a remedial action that includes any other engineering or institutional control not included in N.J.A.C. 7:26E-8.5 or 8.6 shall:

1. Certify to the Department that:

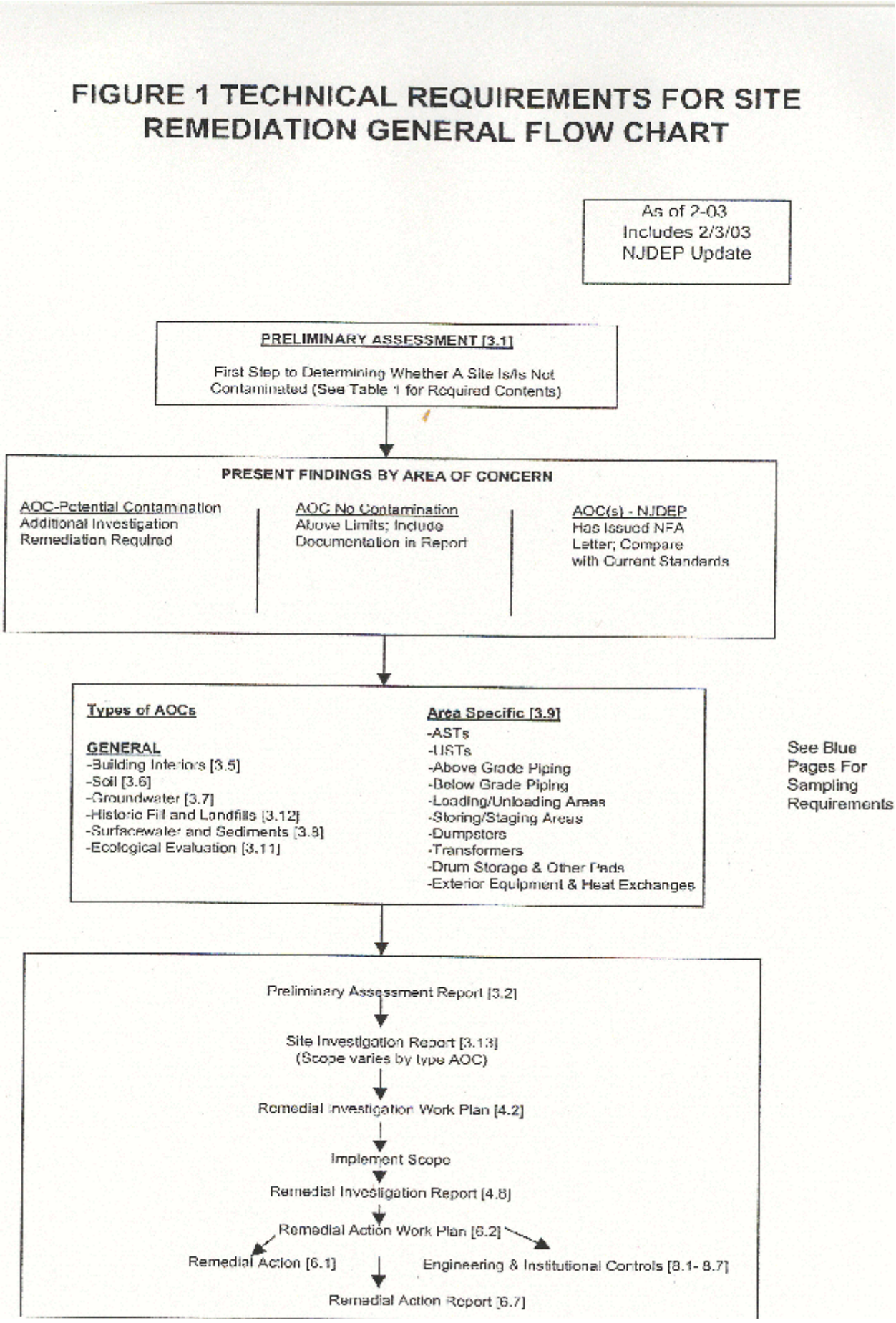
i. Each engineering and institutional control is being properly maintained; and

ii. The remedial action that includes the engineering and institutional controls continues to be protective of the public health and safety and of the environment;

2. Include with the certification a written monitoring report pursuant to (b), above, along with an electronic copy of the monitoring report and certification, in a read only format acceptable to the Department;

3. Submit the certification to the Department pursuant to the schedule and address in 7:26E-8.4(e)1

FIGURE 1 TECHNICAL REQUIREMENTS FOR SITE REMEDIATION GENERAL FLOW CHART



KEY TO 7:26E AOC INVESTIGATION REQUIREMENTS*

SAMPLING REQUIREMENTS

General [3.4]

Building Interior [3.5]

Soil [3.6]

Groundwater [3.7]

Surface water and Sediment [3.8]

Area Specific [3.9]

ASTs	Lagoons/Surface Impoundments	Roof Leaders
USTs	Fire Ponds & Waste Ponds	Swales/Culverts
Above/Below Ground Piping	Stormwater Detention Basins	Diked Areas
Loading/Unloading Areas	Excavations	Drainage Systems
Pods	Depressions	
Storage/Staging Areas Over Permeable Cover		

Background [3.10]

Ecological Evaluation [3.11]

Historic Fill [3.12]

*Also follow NJDEP Field Sampling Procedures Manual

3.4 General

- Sample all AOCs to determine areas above unrestricted use remediation standard.
- Bias samples to locations suspected of greatest contamination - basis - professional judgement, area history, discolored soil, stressed vegetation, drainage patterns, field instrument measurements, odors, or other field indicators
- Sample locations per 3.5 through 3.9.
- Modify sampling locations only per NJDEP approval [7:26E-3.4(a)4]
- No composite sampling

3.5 Building Interiors

- Sample per [3.9] when contaminants inside the building have potential to migrate outside the building.

3.6 Soil

- Investigate to average 20' depth for drums, tanks, or waste using test pits, GPR, magnetiametry or similar techniques if reports of buried drums tanks or wastes or if groundwater contamination detected but no source identified or if aerial photos indicate presence of drums/tanks/wastes near regraded or filled areas.
- Logs must include soil types, description of non-soil materials, field instrument measurements, depth to groundwater, soil mottling, presence of odor, vapors, soil discoloration, and free or residual product [per 2.1(a)11].
- Classify soil per Burmeister, unified or USDA system.
- Boring > 25' may require permit; do not return contaminated cuttings to hole.

3.7 Groundwater

- At least 1 groundwater sample from each AOC if any soil contaminant has water solubility > 100 mg/l at 20^0C to 25^0C, and
    - all soil between contaminant and saturated zones < 15% silt and clay, or
    - any part of AOC within 2000' of public supply well.
- Groundwater sampling may be waived for certain single discharge events [see 3.7(b)]
- Sample per NJ Field Sampling Procedures Manual or NJ Alternative Groundwater Sampling Techniques Guide.
- Groundwater samples from:
    - excavation of source of contaminants or downgradient flow direction within 10' of AOC based on topographic relief, surface water bodies, structural controls in bedrock or soils, locations of pumping wells or subsurface conduits. Can also predict flow direction based on data from adjacent sites.

- Minimum number of samples:

    - at least 1 from UIC, seepage bed, septic system, dry well AOCs;
    - at least 1 from USTs and tank fields with up to 3 tanks and maximum capacity of 10,000 gal/tank;
    - pump islands and piping > 25' from tank field are separate AOCs and require separate sampling location;
    - at least 1 for all other AOCs unless within 10' of groundwater sampling location.

- Compare results:

    - if < applicable remediation standards, no further remediation;
    - if >, can re-sample twice over 30 day period (may average results) and conduct well search within six (6) weeks.

- Sample potable wells

- Continue iterative well search/potable well sampling for entire area above standards.

- Confirm groundwater flow direction in each affected aquifer (minimum 3 wells or piezometers).

- Collect water levels ≥ 30 days apart, hourly samples for 71 hours in tidal areas.

- Be aware of potential pumping or injection wells in vicinity.

- Conduct groundwater remedial investigation [see 4.4].

- If background contamination suspected, see 3.7(g).

- If upgradient contamination determined to be present, notify DEP.

3.8 Surface and Sediment

- Determine if discharge, based on factors such as:

    - known historical or ongoing discharge(s)
    - stressed vegetation, sheens, seeps, discolored soil or sediment on shoreline or in water body
    - ecological study evidence of historical discharge stream impacts affecting organism population or diversity
    - impacted groundwater discharging to surface water body above applicable federal or state criteria.

- Surface water sample for standing body of water.

- Upgradient, downgradient and discharge point samples for flowing water.

- Take into account hydraulics (flow proportional sampling), dry and wet whether flow, seasonal flow and potential contaminant characteristics.

- Analyze sediments when reason to believe impacted:
    - for streams and water bodies per 3.9(d) 3 (swales/culverts)
    - for ponded bodies of water per 3.9(c) (surface impoundments)
- Also analyze for TOC, pH and particle size.

3.9 Area Specific Requirements

All soil sampling depths determined as described in Section 3.6, unless otherwise specified.

(a) Site Investigation (SI) for bulk storage tanks and appurtenances including all in-use and out of service storage tanks (> 55 gallons), piping and fill ports.

1. ASTs Over Unpaved Soil

Direct contact with ground, then:

- 1 soil sample / 100' around tank biased to obvious discharges, repaired portions of tank, valves, or low areas. If > 100' then 3 borings spaced equidistant.
- Screen soil continuously to 10’ or to the water table (which ever is shallower) - Collect 0.5’ with highest apparent contamination. If no impact then collect the 0.5' interval above the saturated zone. If groundwater is > 10 feet below ground surface (bgs) - collect the 9.5-10.0' interval bgs.

Not in direct contact with ground, then:

- Sample soil if there is direct physical or documented evidence of discharge. If discharge - follow requirements for ASTs in direct contact.
- A minimum of 1 sample if the tank contained a hazardous substance, hazardous waste, or pollutant that does not cause staining. Sample in a biased location. If not accessible - sample within 2' of tank.

2. ASTs Over Paved Surface

- Sample pursuant to pads (see (b) 1 below) if there are stained soils adjacent to the pad, or if the potential contaminant would not cause discoloration (volatile organics), or if there is a history of spills or other evidence of a discharge.
- If AST is contained B sample at the drainage discharge point.
- Sample below pavement if it is deteriorated or when pavement was not present over the life of the tank. Samples along the pad if sampling below is not practical due to a concrete slab or a bermed containment structure

3. USTs

- USTs and distribution systems should be evaluated for any past or present discharge. If secondary containment and leak detection have always been present, and no documented discharge - no sampling required. If tank is to be closed - collect samples in accordance with Section 3.6(b).

UST bottom above the saturated zone:

- Samples within 2' of the tank with 1 sample per end, and additional samples along the sides at the following frequency:

Tank Capacity (gallons)	Length (feet)	# Samples
56-2000	to 10	4
2,001-10,000	to 30	6
10,001-25,000	to 40	8
25,000+	> 40	10

- If sampling adjacent to or between tanks is not possible - sample within 5' of tank. Collect 1 groundwater sample within 5= of the downgradient side. Sample from the 0.5' interval below the tank bottom. If the tank is in the saturated zone, follow below. VOC samples to be collected in accordance with 3.6(a)4.

UST bottom below the saturated zone:

- For VOCs - two options: 1) Soil investigation (see below), or 2) Sample groundwater pursuant to 3.7(c through e).
- Sample soil from 0.5’ interval above the saturated zone for contaminants with a specific gravity < water - from the 0.5’ interval below the tank bottom if specific gravity > water.
- Precision tests ok if tank is below a building or inaccessible, is the original tank, with no history or leaks and/or repairs, or if there is not sufficient soil to collect a sample (tank set in bedrock).
- For out of service tanks, the product must be verified by sampling and analyzing it using the ASTM fingerprint method D3328.

4. Above Grade Piping

- Sample if evidence of discharge or reports of past discharge. If required - follow guidelines for Discharge Disposal Areas (see (e) 1 below).

5. Below Grade Piping

- Sample soil unless piping always had secondary containment with leak detection. Precision tests may be used if piping is original and no history of discharges or repairs. If required - collect 1 sample / 15’ of piping (piping length to 50’). If > 50', the sampling frequency may be reduced. Two or more pipes within 2’ can be considered one pipe.

- Sample soil at a rate of 1 sample / per fill connection or valved discharge.
- Impervious cover - use pad guidance (see (b) 1 below).

(b) SI for temporary or permanent storage and staging areas, dumpsters, transformers, above ground tanks, and tank loading/unloading areas or pads

Pads

- Collect 1 sample per side, at a rate of 1 / 30', biased to the expected location of greatest contamination. If pad is deteriorated, has been modified/repaved, or aerial photos / site history show possible discharges, sample soil below at a rate of 1 / 900 ft^2. Sample frequency may be reduced for larger areas.
- For bermed pads, or pads surrounded by impermeable cover, sample at the drainage discharge points (see (e) 1 below).

2. Storage and Staging Areas over Impermeable Cover

- If discharge of hazardous substances, hazardous waste, or pollutants - collect sample at a rate of 1 / 900 ft^2.

(c) SI for all surface impoundments, including lagoons, fire ponds, waste ponds/pits, storm water detention basins, excavations, natural depressions, or diked areas designed to hold an accumulation of liquid substances or substances containing free liquids. If an impermeable liner is present then a groundwater investigation may be used to verify liner integrity.

- Sediment sampling is required if the structure received runoff from potential contaminant sources. Sample biased to inflow/outflow areas and sediment accumulation areas. Characterize sediment type, thickness, vertical extent, and analysis. If layer > 0.5' thick - sample individually. An estimate of sediment volume is required.

(d) SI for all drainage systems

1. Floor Drains / Collection Systems - Investigation required if contaminants were discharged.

- Sample the point of discharge if the system ever discharged to soil, groundwater, or surface water. If discharge point is unknown, a tracer test is required.
- Document collection system integrity by soil sampling (biased), video inspection, or pressure tests.
- Sample below floor drains / collection laterals if corrosives are/were discharged to the system, or if there is a documented history of

system discharges, rupture, or repairs. Soil sampling is required at known/suspected leak areas.

2. Roof Leader Discharge Points - Investigation required if process units using/venting hazardous substances, hazardous wastes, or pollutants on the roof.

    - Sample soil at each roof leader discharge

3. Swales and Culverts - Investigation required if it receives/received runoff form another contaminated area.

    - Sample sediment/soil where contamination entered and exited the system. If sediments are scoured - sample sediment from the downgradient receiving/settling structure.

4. Storm Sewer and Spill Containment System - Investigation required if the structure receives/received runoff/spilled discharge from other contaminated areas.

    - Sample at manholes, catch basins, sumps, or other structures where contaminants enter the system, if the structures contain(ed) hazardous substances, hazardous wastes, or pollutants and the structure is not hydraulically tight. Collect 1 sample within 2'of the downgradient side, from the 0.5' interval below the bottom of the structure. All VOC samples to be collected in accordance with 3.6(a)4. If flowing groundwater is present in the storm sewer following five days without precipitation and/or snow melt - collect sample and analyze for all potential contaminants.

5. Boiler and Compressor Discharges - Sampling is required if there is reason to believe a potential contaminant discharge occurred

    - Sample pursuant to Discharge/Waste Disposal Areas (see (e) 1 below).

(e) SI for all discharge and waste disposal systems and areas.

1. Discharge Areas and Areas of Discolored Soil or Stressed Vegetation

    - Evaluate each distinct area independently as a separate AOC. Bias initial samples based on field indicators. Sample at a frequency of 1 / 900 ft^2 for areas < or = 300' in perimeter. Sample frequency may be reduced for larger areas upon Department approval.

2 Above Ground Treatment Systems

    - The functional portion of the system shall be sampled pursuant to the requirements for ASTs (see (a) 1&2 above).

3. Below Ground Wastewater Treatment Systems (Includes tanks, septic tanks, separators, and neutralization pits)

    - For tanks - collect two samples (1 aqueous and 1 sludge) unless it can be documented (see Section 1.6c) that only sanitary waste was discharged to the system (requires a signed affidavit).
    - For Septic Disposal Fields - Sampling is required unless only sanitary materials have been discharged to the field (see above). Sample at a rate of 1 / 500 ft^2, with a minimum of four samples per field. In active beds, sample within 2' of the edge of the bed, and angle below the infiltrative surface. Samples collected from inactive beds should be biased below laterals and placed to adequately investigate the entire bed - a minimum of the first 5' of infiltrative surface. Sample from the 0.5' interval below the infiltrative surface. Sample VOCs pursuant to 3.6(a)4.
    - For cesspools, seepage pits, and dry wells - Sample unless only sanitary materials have been discharged. If required, sample the sludge/sediment in each pit, and collect 1 soil sample within 2' of the downgradient side of the pit to a minimum of depth of 2' below the pit bottom. Sample according to 3.4(a)1 & 2. Collect VOC samples pursuant to 3.6(a)4. If the pit bottom is within 2' of the saturated zone and/or bedrock - collect 1 groundwater sample within 2' of the downgradient edge of the pit and analyze for potential contaminants.
    - For collection lines - Sample in accordance with guidance for floor drains (see (d) 1 above).

(f) SI for any other potentially contaminated areas away from process areas not otherwise addressed.

1. Sample locations shall be biased to identified / suspected areas of greatest contamination - If biasing is not possible, then random sampling is required: 1) Area gridded and each node given an ID#, 2) Grid nodes shall be selected for sampling through a random # chart at a rate of 1 sample / 2 acres (area < 10 acres). Areas > 10 acres can be sampled at a reduced frequency subject to Department approval.
2. No investigation is required if it can be shown that the area is/has not been used for any purpose which included hazardous substances, hazardous waste, or pollutants. Documentation of this should be based on: 1) An aerial photo history pursuant to 3.1c1vi, and 2) An affidavit signed by the person certifying the Site Investigation Report, stating that no potential contaminants were discharged in the area.