CHAPTER 26E

TECHNICAL REQUIREMENTS FOR SITE REMEDIATION

Authority

N.J.S.A. 13:1D–1 et seq., 13:1E–1 et seq., 13:1K–6 et seq., 58:10–23.11a et seq., 58:10A–1 et seq., 58:10A–21 et seq., and 58:10B–1 et seq.

Source and Effective Date

R.2003 d.29, effective December 17, 2002.
See: 34 N.J.R. 170(a), 35 N.J.R. 710(a).

Chapter Expiration Date

Chapter 26E, Technical Requirements for Site Remediation, expires on December 17, 2007.

Chapter Historical Note

Chapter 26E, Technical Requirements for Site Remediation, was adopted as R.1993 d.245, effective June 7, 1993 (operative July 1, 1993). See: 24 N.J.R. 1695(a), 25 N.J.R. 2281(b).

Pursuant to Executive Order No. 66(1978), Chapter 26E, Technical Requirements for Site Remediation, was readopted as R.1997 d.124, effective February 18, 1997. As a part of R.1997 d.124, effective May, 19, 1997 (operative July 18, 1997), Subchapter 5, Remedial Alternative Analysis, was repealed and a new Subchapter 5, Remedial Action Selection, was adopted. See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).

Chapter 26E, Technical Requirements for Site Remediation, was readopted as R.2003 d.29, effective December 17, 2002, and Subchapter 8, Engineering and Institutional Controls, was adopted as R.2003 d.29, effective February 3, 2003. See: Source and Effective Date. See, also, section annotations.

Law Review and Journal Commentaries

Corrective Action. Norman W. Spindel and Andrea Wolff, 151 N.J.L.J. 752 (1998).

Historic Pesticide Contamination Task Force Issues Report. Bruce S. Katcher, 155 N.J.L.J. 1155 (1999).

ISRA: What You Need to Know. Richard J. Conway, Jr., 160 N.J.Law. 16 (Mag.) (April 1994).

Liability Limitations: Even With New Protections, Purchasers Must Be Diligent. Todd L. Normane, 151 N.J.L.J. 748 (1998).

Natural Resource Damages: New Jersey's New Approach. Dennis Krumhotz and Marilynn R. Greenberg, 155 N.J.L.J. 705 (1999).

Who is "In Any Way Responsible" Under the Spill Act? Matthew S. Slowinski, 150 N.J.L.J. 301 (1997).

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SUBCHAPTER 1. GENERAL INFORMATION

7:26E–1.1 Scope

(a) This chapter constitutes the minimum technical requirements to investigate and remediate contamination at any site.

(b) Any remediation performed pursuant to this chapter shall not relieve any person from:

1. Complying with more stringent requirements or provisions imposed by any other Federal, State or local applicable statutes or regulations; or

2. Obtaining any and all permits required by State, Federal or local statute or regulation, except as expressly provided herein.

(c) No provision of this chapter shall be construed to limit the Department's authority to require additional remediation based upon site-specific conditions in order to protect human health and the environment.

(d) The Department's approval of any document pursuant to this chapter shall not be interpreted as an approval of any remediation costs eligible for reimbursement pursuant to N.J.S.A. 13:1E–116, N.J.S.A. 58:10B–28, or any other law.

Amended by R.2003 d.198, effective May 19, 2003.
See: 34 N.J.R. 3703(a), 35 N.J.R. 2319(a).
Added (d).

7:26E–1.2 Liberal construction

These rules, being necessary to promote the public health and welfare, shall be liberally construed in order to permit the Commissioner and the Department to effectuate the purposes of N.J.S.A. 13:1D–1 et seq., 13:1E–1 et seq., 13:1K–6 et seq., 58:10–23.11a et seq., 58:10A–1 et seq., and 58:10A–21 et seq.

7:26E–1.3 Applicability

(a) This chapter establishes the minimum technical requirements that form the basis of the Department's review of the remediation of any contaminated site in New Jersey, including, without limitation, those sites and activities subject to:

1. The Industrial Site Recovery Act (ISRA);

2. The New Jersey Underground Storage of Hazardous Substances Act (UST);

3. The Spill Compensation and Control Act;

4. The Solid Waste Management Act;

5. The Water Pollution Control Act;

6. The Resource Conservation and Recovery Act (RCRA);

7. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by Superfund Amendments and Reauthorization Act of 1986 (42 U.S.C. §§ 9601 et seq.) (CERCLA); and

8. The Brownfield and Contaminated Site Remediation Act.

(b) Any person seeking Department review of work undertaken pursuant to this chapter shall:

1. Execute an oversight document with the Department pursuant to N.J.A.C. 7:26C;

2. Comply with the requirements of N.J.A.C. 7:26B; or

3. Comply with the requirements of N.J.A.C. 7:14B.

(c) The requirements of this chapter are applicable as follows:

1. For any site at which a particular phase of remediation was commenced prior to July 1, 1993, the Department shall evaluate such work to determine whether the work is in substantial compliance with this chapter, as originally adopted effective June 7, 1993 (see 25 N.J.R. 2881(b)), and therefore acceptable to the Department.

2. Any work conducted after February 3, 2003 shall be in full compliance with this chapter, except that work conducted pursuant to workplans which were submitted to the Department prior to February 3, 2003 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.

(d) All applicable remediation standards and remedial actions that involve real property located in the Pinelands area shall be consistent with the provisions of the Pinelands Protection Act, N.J.S.A. 13:18A–1 et seq. and any rules promulgated pursuant thereto, and with section 502 of the National Parks and Recreation Act of 1978, 16 U.S.C. § 4711.

Amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).
See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).

(d) 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. Analysis of soil and sediment samples for petroleum hydrocarbons may be in accordance with the revision of NJDEP Method OQA QAM 025 10/91: "Quantitation of Semivolatile Petroleum Products in Water, Soil, Sediment and Sludge" in effect as of the date on which sampling is performed. Analysis shall be conducted by a laboratory that is certified for any gas chromatography method pursuant to N.J.A.C. 7:18. Laboratory deliverables shall be as specified in the NJDEP method listed above.

TABLE 2–1
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 Waste Oil	TPHC, PAH[8], TPHC[6], VO + 10 B/N + 15[10], PCBs, Priority Pollutant Metals or EPA Target Analyte List	B/N + 15[10], VO + 10[2] 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.

(e) 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

2. 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.

Amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).
See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).
Substantially amended the section.
Amended by R.2003 d.29, effective February 3, 2003.
See: 34 N.J.R. 170(a), 35 N.J.R. 710(a).
Rewrote (a)4.

7:26E–2.2 Quality assurance project plan

(a) If the Department requires a Quality Assurance Project Plan (QAPP) pursuant to an oversight document or the ISRA, UST, or any other regulatory program, the person responsible for conducting the remediation shall submit the Quality Assurance Project Plan in accordance with the schedule contained in the oversight document or applicable regulation, and in a format that corresponds directly to the outline of this section.

1. For each remedial phase at a site involving less than 10 areas of concern, the following shall be included in the Quality Assurance Project Plan:

i. The project's scope and complexity and how the project relates to the overall site remediation strategy;

ii. The data quality objectives specific to the site and sampling event (for example, initial site characterization, delineation of contamination, selection of a remedial action);

iii. The names, addresses and Department laboratory certification number (if applicable) of the laboratories to be used for sample analysis. This shall be updated if changes occur during the project;

iv. The name and telephone number of each of the individuals responsible for the following functions. (This shall be updated if changes occur during the project):

(1) Overall project coordination;

(2) Sampling activities, including quality assurance and quality control; and

(3) Laboratory activities, including quality assurance and quality control;

v. An "Analytical Methods/Quality Assurance Summary Table" which shall include the following informa-

tion for all environmental, performance evaluation, and quality control samples:

(1) Matrix type;

(2) Number or frequency of samples to be collected per matrix;

(3) Number of field and trip blanks per matrix;

(4) Analytical parameters to be measured per matrix;

(5) Analytical methods to be used per matrix pursuant to N.J.A.C. 7:26E–2.1;

(6) If proposed, the number and type of matrix spike and matrix spike duplicate samples to be collected;

(7) If proposed, the number and type of duplicate samples to be collected;

(8) If proposed, the number and type of split samples to be collected;

(9) If proposed, the number and type of performance evaluation samples to be analyzed;

(10) Sample preservation to be used per analytical method and sample matrix;

(11) Sample container volume and type to be used per analytical method and sample matrix; and

(12) Sample holding time to be used per analytical method and sample matrix;

vi. A detailed description of site specific sampling methods to be used pursuant to N.J.A.C. 7:26E–2.1(a) 14, sample storage in the field and sampling handling time requirements;

vii. A detailed description of all calibration and preventative maintenance procedures for all field analytical instrumentation;

viii. A detailed description of procedures used to obtain duplicate and split samples, if applicable;

ix. A detailed description of the chain of custody procedures to be utilized in the field and in the laboratory;

x. A detailed description of sample storage procedures to be utilized by the laboratory; and

xi. Laboratory data deliverable formats to be used.

2. For any remedial phase at a site involving 10 or more areas of concern, the following shall be included in the Quality Assurance Project Plan:

i. The requirements contained in (a)1i through x above;

ii. A detailed description of field quality control audit procedures to be used, including without limitation, corrective action procedures;

iii. The procedures to be followed to ensure the complete documentation of all field sampling activities; and

iv. A detailed description of the data reporting procedures and format for all analytical data generated by the laboratory, including without limitation, the following:

(1) Laboratory data deliverable format(s);

(2) The laboratory's review and cross-check procedures for the elimination of errors during routine data transfer, in calculations, preparation of data deliverable packages and off-line storage; and

(3) If required by the Department, a description of the laboratory's capability to provide EPA Contract Laboratory Program analytical methodology data on diskette in standard EPA Contract Laboratory Program format utilizing the requirements in the versions of the applicable EPA Contract Laboratory Program Statements of Work documents in effect as of the date on which the laboratory is performing the analysis.

Amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).
See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).
In (a), substituted "ISRA" for "ECRA"; and in (a)1vi, amended N.J.A.C. reference.

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.

(c) 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 sources including, but not limited to, the following:

(1) Sanborn Fire Insurance Maps;

(2) MacRae's Industrial Directory;

(3) Title and Deed;

(4) 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 impoundments, 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.

Amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).
See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).
In (a), substituted "remediation" for "action"; inserted new (c)1i(6), (c)1ix and (c)1xiv; recodified former (c)1ix through xii as (c)1x through xiii ; and in (c)1iii and v, deleted reference to hazardous constituents.
Amended by R.1999 d.241, effective August 2, 1999.
See: 30 N.J.R. 2373(a), 31 N.J.R. 2167(a).
In (c)1ii, deleted "industrial/commercial" following "The", and deleted "or utilized as farmland" following "vegetated".

7:26E–3.2 Preliminary assessment

(a) The person responsible for conducting the remediation shall prepare a preliminary assessment report which:

1. Presents and discusses all of the information identified, evaluated or collected pursuant to N.J.A.C. 7:26E–3.1;

2. Is presented in a format that corresponds to the outline of N.J.A.C. 7:26E–3.1(c);

3. Shall also include:

i. Scaled site plans detailing lot and block numbers, property and leasehold boundaries, construction or destruction of buildings, areas where fill or cover material has been brought onsite, paved and unpaved areas, vegetated and unvegetated areas, all areas of concern and active and inactive wells; and

ii. Scaled historical site plans and facility as-built construction drawings, if available;

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. This map shall be the most recent USGS revision 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; and

iv. A summary of the data and information evaluated pursuant to N.J.A.C. 7:26E–3.1(c)1vii, viii, ix, and x shall be presented by area of concern and all phases of work for a particular area of concern shall be integrated into a single discussion of that area;

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;

See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).
Rewrote (a); added (a)1 through 4; rewrote (b); and in (b)3, added "as follows:".

7:26E–3.9 Site investigation—area specific requirements

(a) The site investigation shall also satisfy the following sample 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:

Total Tank Capacity (Gallons)	Approximate Tank Length (Feet)	Minimum Number of 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. Samples for volatile organic compounds shall be collected in accordance with the requirements at N.J.A.C. 7:26E–3.6(a)4. 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. (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. (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 impoundments, 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. Samples for volatile organic compounds shall be collected in accordance with the requirements at N.J.A.C. 7:26E–3.6(a)4; 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) Samples for volatile organic compounds shall be collected in accordance with the requirements at N.J.A.C. 7:26E–3.6(a)4.

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. Samples for volatile organic compounds shall be collected in accordance with requirements at N.J.A.C. 7:26E–3.6(a)4.

(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.

Amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).
See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).
Deleted reference to structures storing hazardous constituents throughout the section; made numbering correction at (a)1ii(1); inserted new (a)2; recodified former (a)2 and (a)2i through iii as (a)2i through vi, respectively; substantially amended (a)3 and 5 throughout; in (e)3i and (e)3ii(1), amended N.J.A.C. reference; in (e)3ii(5), changed sample depth from 0.6 inches to zero to six inches; rewrote (e)3iii(1) and (2); and added (e)3iii(3) through (5).
Amended by R.2003 d.29, effective February 3, 2003.
See: 34 N.J.R. 170(a), 35 N.J.R. 710(a).
In (a)3, rewrote i(4) and amended the N.J.A.C. reference in ii.
Administrative correction.
See: 35 N.J.R. 1928(a).

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 follows:

i. A minimum of 10 background samples shall be collected from onsite or in the region of the site. Two samples shall be collected from each of five locations with one sample collected at a depth of zero to six inches and one sample at a depth of greater than 12 inches at each location;

ii. Background samples shall be collected at locations unaffected by current and historic site operations as documented by the preliminary assessment, including aerial photographs. Wherever possible, background samples shall be collected from locations which are

topographically upgradient and upwind of contaminant sources;

iii. Background samples shall not be collected from the following areas:

(1) Parking lots, roads, or roadside areas;

(2) Areas where potential contaminants were loaded, handled, or stored;

(3) Waste disposal areas;

(4) Areas near railroad tracks;

(5) Areas of historic fill material;

(6) Areas receiving runoff from areas (a)3iii(1) to (5) above or from adjacent sites;

(7) Storm drains or ditches receiving runoff from the site or adjacent sites; or

(8) Any other area of concern;

iv. Background samples shall be collected and analyzed using the same methods as were used for area of concern samples;

v. Background samples shall be collected from soil types similar to the area of concern samples. Similar soil types shall be identified using standard classification systems pursuant to N.J.A.C. 7:26E–3.6(a)2ii;

vi. The background data set shall be examined for statistical outliers as follows:

(1) An outlier is defined as a concentration greater than 1.5 times the range of the 25th to 75th percentile, plus the concentration of the 75th percentile. For example, if the 75th percentile concentration in a data set is nine ppm and the 25th percentile is three ppm, subtract three from nine and multiply the result by 1.5. This would equal nine ppm. Add the result to the 75th percentile for a concentration of 18 ppm. Any sample point above 18 ppm would be considered an outlier. The background sample data shall be transformed to natural logarithms before performing the outlier test because it is assumed that natural background chemical concentrations are log normally distributed; and

(2) An outlier shall not be considered part of background unless the chemical concentration is confirmed with the analysis of an additional sample from the outlier location. If the difference between the original and confirmation sample results is no greater than 20 percent, the average concentration of the two samples shall be considered the highest background concentration;

vii. The highest contaminant concentration found in the background samples shall be applied as an upper limit for the contaminant concentrations found on the site. If contaminant concentrations are found at any sampling location on the site exceeding the highest concentration found in the background samples, a remedial investigation shall be conducted; and

i. Treatability, bench scale, pilot studies pursuant to N.J.A.C. 7:26E–4.1(a)4i;

ii. Data necessary to develop discharge permit effluent limitations; and

iii. Ecological investigations for the purposes of characterizing natural resource injuries pursuant to N.J.A.C. 7:26E–4.7;

9. Quality assurance project plan including proposed sampling/ analytical methods pursuant to N.J.A.C. 7:26E–2.2; and

10. Health and safety plan pursuant to N.J.A.C. 7:26E–1.9.

TABLE 4–1
Suggested Format Sampling Summary Table

Location	Medium	Sample Depth	Analytical Parameters	Sampling Method
Area T:	Seepage Pit			
MWT–1	Ground Water	Water Table (20′)	Priority Pollutants	Bailer
MWT–2	Ground Water	Water Table (20′)	Priority Pollutants	Bailer
MWT–3	Ground Water	Water Table (20′)	Priority Pollutants	Bailer
MWT–4	Ground Water	Confined (50′)	Priority Pollutants	Bailer
Area S:	Drum Storage Pad			
S–1	Soil	0-6″	Priority Pollutant Metals and Cyanide	Trowel
S–2	Soil	0-6″	Priority Pollutant Metals and Cyanide	Trowel
		18-24″	Priority Pollutant Volatile Organics	
S–3	Soil	0-6″	Priority Pollutant Metals and Cyanide	Coring Device Trowel

Repeal and New Rule, R.1997 d.124, effective May 19, 1997 (operative July 18, 1997; 7:26E–4.2(b)4 operative November 19, 1997).
See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).
Section was "Remedial investigation of building interiors".
Amended by R.2003 d.29, effective February 3, 2003.
See: 34 N.J.R. 170(a), 35 N.J.R. 710(a).
In (b), inserted "bar scale," following "north arrow," in 3ii, inserted "(including a bar scale)" following "the scale" in 4iii.

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:

1. The quality assurance and quality control requirements pursuant to N.J.A.C. 7:26E–2; and

2. The technical requirements for soil investigation pursuant to N.J.A.C. 7:26E–3.6.

7:26E–4.4 Remedial investigation of groundwater

(a) A remedial investigation of groundwater 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

public supply 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 groundwater 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 following criteria:

1. The date and duration of the discharge is known;

2. The identity and the volume of the contaminants are known;

3. The date the remediation in response to the single discharge was completed;

4. Post remediation soil sampling data establish that the remediation meets all applicable remediation standards at the time of the remedial action workplan approval or, in cases where the remedial action workplan did not require Department approval prior to initiation of the remedial action, in the approved remedial action report; and

5. Any other data or information that is relevant to the determination of the likelihood of ground water contamination.

(c) The remedial investigation of ground water shall be conducted for the purposes of a remedial investigation pursuant to N.J.A.C. 7:26E–4.1 according to:

1. The quality assurance and quality control requirements pursuant to N.J.A.C. 7:26E–2; and

2. The requirements in (d) through (i) below.

(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 groundwater 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 to 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 strategraphy. 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 groundwater 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;

2. If the contaminant concentrations found in any ground water samples exceed the applicable remediation standard, 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 standard; and

3. If groundwater contamination above the applicable remediation standards has been confirmed, the person responsible for conducting the remediation shall perform the requirements in (h)3i through ix below. If the person responsible for conducting the remediation claims that groundwater contamination is from an offsite source, then a background groundwater investigation shall be performed pursuant to N.J.A.C. 7:26E–3.7(f).

i. Delineate the vertical and horizontal extent of ground water contamination and the sources of ground water contamination, including, but not limited to, the extent of free and/or residual product as determined pursuant to N.J.A.C. 7:26E–2.1(a)11;

ii. Confirm the direction of groundwater flow in each affected aquifer or water bearing zone, using all monitoring wells located within each specific aquifer or water bearing zone pursuant to N.J.A.C. 7:26E–3.7(e)3iv; and

iii. Conduct aquifer tests, which may include pumping tests, packer tests, and slug tests or other appropriate analysis to adequately characterize the impacted aquifer at the site. At a minimum, this shall include the site water table gradient, hydraulic conductivity (K), and an estimate of the rate of ground water and contaminant flow in the aquifer. If pumping the aquifer is determined to be a feasible option for remediation, then additional aquifer characteristics such as

transmissivity (T) and storativity (S) must be determined through the use of a pumping test;

iv. If a model to further define characteristics of the ground water flow system is used, documentation acceptable to the Department shall be provided in the remedial investigation report (N.J.A.C. 7:26E–4.8) indicating that the model was appropriate. Specific details on the type of model, input parameters used and referenced, boundaries and limitations of the model shall be submitted to the Department upon request along with a justification as to why the model was selected;

v. Perform an updated well search pursuant to N.J.A.C. 7:26E–3.7(e)3i, based on the results of:

(1) The delineation performed in (h)3i above; and

(2) The confirmed groundwater flow direction determined in (h)3ii above;

vi. Sample any existing potable and supply wells identified pursuant to the well search which are suspected to be contaminated by the site in question;

vii. Evaluate any surface water body that may be impacted by the contaminated ground water pursuant to N.J.A.C. 7:26E–3.8 and 4.5 (Surface Water Investigations);

viii. Evaluate any subsurface utilities, basements or other structures to determine whether vapor hazards as a result of the ground water contamination may exist for receptors associated with the utility or structure. Measurement of oxygen levels, lower explosive limits (LEL) and the presence of organic vapors should be included in this evaluation; and

ix. Evaluate the current and potential ground water uses using a 25–year planning horizon utilizing municipal and water purveyor planning data.

(i) If geologic conditions are suitable, soil gas studies shall be conducted to locate sources of ground water contamination when ground water contamination by volatile organic compounds is identified but no apparent source is identified. If geologic conditions are not suitable for soil gas studies, other suitable field investigation techniques shall be used for source identification.

Amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997; 7:26E–4.4(h)3v(1) operative November 19, 1997).
See: 28 N.J.R. 1098(a) 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).
Substantially amended section.
Amended by R.2003 d.29, effective February 3, 2003.
See: 34 N.J.R. 170(a), 35 N.J.R. 710(a).
Rewrote the section.
Administrative correction.
See: 35 N.J.R. 1928(a).

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

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.

Amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).
See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).
In (a), substituted "ISRA" for "ECRA", inserted reference to electing to obtain Department pre-approval, and inserted ", if applicable," following "schedule contained in that document"; in (a)1, 2, and 6, amended N.J.A.C. references; in (a)1, inserted reference to copy of findings/recommendation section; in (a)2, inserted "for post remediation samples'; in (a)14, substituted "; however," for "and"; and added (a)16, (a)17, (b) and (c).
Amended by R.1997 d.499, effective November 17, 1997.
See: 29 N.J.R. 46(a), 29 N.J.R. 4957(a).
Added (a)18.
Amended by R.1999 d.241, effective August 2, 1999.
See: 30 N.J.R. 2373(a), 31 N.J.R. 2167(a).
In (a), deleted N.J.A.C. reference in 14, substituted "deed notice" for "declaration of environmental restrictions or other similar document" following "A draft", substituted "deed notice" for "declaration of environmental restrictions" following "where the" and substituted "residential soil" for "unrestricted use" following "applicable" in 16, and rewrote 17iii.
Administrative change.
See: 32 N.J.R. 1796(a).
Amended by R.2003 d.29, effective February 3, 2003.
See: 34 N.J.R. 170(a), 35 N.J.R. 710(a).
In (a), rewrote 15 through 18.

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) The following requirements shall be followed for the closure of an underground storage tank:

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.

(c) Requirements for active ground water remediation (Reserved)

(d) When submitting a remedial action workplan for natural groundwater 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. Groundwater 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 ground water 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.

Amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).
See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).
In (b), substituted "closure" for "removal", added (b)6i(3)(A) and (B); rewrote (b)6i(4); inserted new (b)6i(5); recodified former (b)6i(5) as (b)6i(6); rewrote (b)ii; and added (b)6iii through v, (c), (d) and (e).
Amended by R.2003 d.29, effective February 3, 2003.
See: 34 N.J.R. 170(a), 35 N.J.R. 710(a).
Rewrote the section.

7:26E–6.4 Post-remedial action requirements

(a) 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 for 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.

6. 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

3. 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 and shall satisfy the following 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:

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; and

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 February 3, 2003, 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 groundwater classification exception area, every two years on the anniversary of the date that the Department established the groundwater 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)
PO Box 028
401 E. State Street
Trenton, NJ 08625–0028

ii. 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
PO Box 413
401 E. State Street
Trenton, NJ 08625–0413

2. For groundwater classification exception areas, submit information to the Bureau that established the groundwater classification exception area as follows:

Department of Environmental Protection
Division of Remediation Management and Response
(Insert name of appropriate Bureau)
PO Box 028
401 E. State Street
Trenton, NJ 08625–0028

Administrative correction.
See: 35 N.J.R. 1928(a).

7:26E–8.5 Monitoring, maintenance, and biennial certification—requirements for deed notices and declarations of environmental restrictions

(a) The persons responsible for monitoring the protectiveness of a remedial action that includes a deed notice or declaration of environmental restrictions shall:

1. Determinate 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. 58:10B–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. Program Interest Name;

ii. Program Interest Number (Preferred ID);

iii. The ISRA ID Number;

iv. The Case Number or Incident Report Number;

v. The UST Registration Number;

vi. The date of each no further action letter for the site;

vii. The name of the Department's case manager for the site at the time of each no further action letter;

viii. The street address;

ix. The tax block and lot number; and

x. The name of each municipality and county in which the site is located;

3. A description of:

i. The 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; and

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 (c)3i through iii above.

(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 or 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.

Administrative correction.
See: 35 N.J.R. 1928(a).

7:26E–8.6 Monitoring, maintenance, and biennial certification—specific requirements for groundwater classification exception areas

(a) The persons responsible for monitoring the protectiveness of a remedial action that includes a groundwater classification exception area shall:

1. Compare the laws, Ground Water Quality Standards, and other regulations applicable at the time the Department established the groundwater 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; and

ii. Each groundwater 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 groundwater classification exception area is located since the Department established the groundwater 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 groundwater use in the water use planning area since the Department established the groundwater classification exception area or the last completed biennial review, whichever is more recent. Changes shall be identified 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 groundwater classification exception area; and

ii. Identifying all wells, other than groundwater monitoring wells, installed within one mile up-gradient, side-gradient and down-gradient of the groundwater classification exception area since the Department established the groundwater classification exception area or the last completed biennial review, whichever is more recent, using the well search format at Appendix B;

4. Inspect all groundwater monitoring wells associated with the groundwater 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 groundwater 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 groundwater classification exception area that could result in a contaminated discharge to surface water. If any such disturbances are identified, sample the groundwater/surface water downgradient and proximate to the land use disturbance to determine whether the groundwater meets the more stringent of either:

i. The New Jersey Surface Water Quality Standards, 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 groundwater use identified pursuant to (a)2 and 3 above have influenced or may influence the protectiveness of the remedial action that includes the groundwater classification exception area; and

ii. There is a need to reevaluate the fate and transport of the groundwater contamination plume and to revise the groundwater classification exception area to ensure that the remedial action remains protective of the public health and safety and the environment; and

7. Assess groundwater quality as follows:

i. Within 120 calendar days after the projected expiration of the groundwater classification exception area, collect at least two rounds of groundwater samples such that the time between sampling events shall account for seasonal fluctuations in the groundwater table and the number of groundwater samples collected are representative of the entire horizontal and vertical extent of the groundwater classification exception area;

ii. Evaluate the results of the groundwater sampling conducted pursuant to (a)7i above, to determine whether the contaminant concentrations in the groundwater have either:

(1) Decreased to or below the applicable groundwater quality standards throughout the entire classification exception area; or

(2) Not decreased to or below the applicable groundwater quality standards throughout the entire classification exception area; and

iii. At any other time prior to the projected expiration of the groundwater classification exception area, groundwater sampling is optional to determine whether the groundwater meets the applicable groundwater quality standards. The number of samples collected and the time between sampling events shall be consistent with (a)7i above. If groundwater samples indicate that contaminant concentrations have decreased to or below the applicable groundwater quality standards throughout the groundwater classification exception area, then any person may request that the Department remove the groundwater classification exception area.

(b) The persons responsible for evaluating the protectiveness of a remedial action that includes a groundwater 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. Program Interest Name and number (Preferred ID);

ii. The ISRA ID Number;

iii. The Case Number or Incident Report Number;

iv. The UST Registration Number;

v. The date of each no further action letter for the site;

vi. The street address;

vii. The tax block and lot number and the year of the tax map from which this information is obtained; and

viii. The name of each municipality and county in which the site is located;

E. Spike Sample Results Summary—A summary of the spike sample analysis shall be submitted. The following information shall be reported: ID number of the sample chosen for spiking, sample matrix, the concentration of each spiked target analyte, the results of the unspiked sample analysis, the results of the spiked sample analysis, the percent recovery for each spiked analyte and the QC limit for percent recovery for each spiked analyte.

F. Duplicate Sample Results Summary—A summary of the duplicate sample analysis shall be submitted. The following information shall be reported: ID number of the original sample and the duplicate samples, sample matrix, results of the original sample analysis, results of the duplicate sample analysis, the relative percent difference of each target analyte for the original duplicate sample analyses and the QC limit for relative percent difference for each target analyte.

G. Laboratory Control Sample Results Summary—When specified by the analytical method, the results of the laboratory control (quality control) sample shall be submitted. The following information shall be reported: control sample matrix, list of all target analytes, the true concentration for each analyte in the control sample, the reported concentration for each target analyte in the control sample, the percent recovery for each target analyte and the QC limit for percent recovery for each target analyte.

H. Serial Dilution Summary—If required by the analytical method, a summary of the serial dilution results shall be submitted. The following information shall be reported: ID number of the original sample and the serial dilution samples, sample matrix, results of the original sample analysis, results of the serial dilution sample analysis, the percent difference of each target analyte compared to the original analytes' results and the QC limit for percent difference for each target analyte.

5. **General Chemistry Requirements**

A. Analytical Results Summary—An analytical results form shall be submitted for each sample. Each form shall contain the following information: sample identification number (laboratory and/or field ID), sample matrix, date sample received, date sample analyzed, sample moisture content, dilution factor (if any), list of target analytes and detected analyte concentrations and method detection limits.

B. Blank Results Summary—A blank results form shall be submitted for all method blank samples associated with all field and QC samples. Each form shall contain the following information: list of all target analytes, matrix of the method blank, concentration units of the method blank, reported concentration of all target analytes found in all method blanks.

C. Spike Sample Results Summary—A summary of the spike sample analysis shall be submitted. The following information shall be reported: ID number of the sample chosen for spiking, sample matrix, the concentration of each spiked target analyte, the results of the unspiked sample analysis, the results of the spiked sample analysis, the percent recovery for each spiked analyte and the QC limit for percent recovery for each spiked analyte.

D. Duplicate Sample Results Summary—A summary of the duplicate sample analysis shall be submitted. The following information shall be reported: ID number of the original sample and the duplicate samples, sample matrix, results of the original sample analysis, results of the duplicate sample analysis, the relative percent difference of each target analyte for the original duplicate sample analyses and the QC limit for relative percent difference for each target analyte.

6. **Petroleum Hydrocarbon Requirements**

A. Analytical Results Summary—An analytical results form shall be submitted for each sample. Each form shall contain the information contained in Section 2A above. In addition, the identification of the GC instrument employed and the volume of extract injected shall be included.

B. Method Blank Summary—An analytical results form shall be submitted for all method blanks as well as a listing of all field and QC samples associated with each method blank. Each form shall contain the information in Section 6A above.

C. Standards Summary—A summary form containing GC standards information for all associated samples shall be submitted for all analyses. This summary shall contain the following information: instrument ID number, GC column used, date and time of standard(s) analysis, volume injected, listing of all associated field, QC and method blank samples, identity of each analyte in the hydrocarbon standard and/or the identity of petroleum product standard(s), retention times of each analyte in the hydrocarbon standard (when applicable), retention times of the surrogates and internal standard (when applicable), retention times of pristane and phytane (when applicable), retention time windows for each surrogate (when applicable), response factors/relative response factors used for quantitative determinations, response factors/relative response factors of surrogates, and percent relative standard deviations/percent differences of the surrogates.

D. Surrogate Compound Recovery Results Summary—If required by the analytical method, a summary form shall be submitted which contains the following information for all field samples, method blanks, and QC samples: sample identification number, sample matrix, surrogate compound names, concentration of surrogate compounds used, surrogate compound recoveries and QC limits for each surrogate compound.

E. Matrix Spike Results Summary—If required by the analytical method, a summary form shall be submitted which contains the following information: ID number of the sample chosen for spiking, sample matrix, the concentration of each spiked analyte/petroleum product, the results of the unspiked sample analysis, the results of the spiked sample analysis, the percent recovery for each spiked analyte/petroleum product and the QC limit for percent recovery for each spiked analyte/petroleum product.

F. Quality Control Check Standard—If required by the analytical method, a summary form shall be submitted which contains the following information: ID number of the sample, concentration of each spiked analyte/petroleum product, the results of the spiked sample analysis, the percent recovery for each spiked analyte/petroleum product, and the QC limit for percent recovery for each spiked analyte/petroleum product.

G. Duplicate Sample Results Summary—A summary of the duplicate sample results shall be submitted which contains the following: ID numbers of the original sample and the duplicate sample, sample matrix, results of the original sample analysis, results of the duplicate sample analysis, the relative percent difference calculated from the original and duplicate sample results and the QC limit for the relative percent difference (when applicable).

H. Quantitation Reports—Instrument quantitation reports shall be submitted for all field samples, QC samples, method blanks and standards.

I. Chromatograms—Chromatograms for all field samples, QC samples, method blanks and standards shall be submitted. All surrogate, internal standard (when applicable), pristane and phytane peaks on the chromatogram shall be identified along with the retention time for each peak.

[1] A negative proof is a mass spectrum offered as evidence to support an analyst's decision to negate the presence of a contaminant which has been qualitatively identified and reported by the instrument's data system.

[2] Method blanks for nonaqueous samples shall consist of performing the entire analytical procedure without any actual sample being present. The appropriate amount of sodium sulfate as specified in the current Statements of Work for Organics would be substituted as the "sample" for the semivolatile and pesticide/aroclor fractions.

Amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).
See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).
Rewrote IV6.

APPENDIX B

Well Search Format

Preparer

Name of Site

Program Interest Number (Preferred ID)

Street Address

Township

County

USGS Quadrangle

Latitude

Longitude

Instructions:

1. All sources of well records/information shall be clearly documented.

2. List all wells and State well permit numbers, including active, inactive and decommissioned, within ½ mile of the site boundary. Include all wells, active, inactive and decommissioned at the site.

3. Locate all listed wells on a site locus map.

4. Sources that shall be used:

a. Well records search of the Bureau of Water Allocation. There is no cost if this search is performed by the individual. Appointments shall be made to examine well records by contacting the Bureau of Water Allocation at (609) 292–2957. Upon written request, the Bureau will provide the well search for a fee.

b. Contact local or county Health Department or equivalent.

5. Complete chart on back.

	Well Owner	Address	Total Depth	Length of Casing	Static Water Elev.	Use Code	Source of Information
1.							
2.							
3.							
4.							
5.							
6.							

USE CODES
A =
B = Boring
C =
D = Domestic
E = Recovery/Decontamination Pollution Control/Leachate with Pump Capacity
F = Fire
G = Irrigation
H = Heat Pump/Geothermal
I = Industrial

J = Injection/Waste Discharge
K =
L = Livestock
M = Monitoring
N = Public Non-community
O = Oil/Gas Exploration
P = Public Supply
Q = Recharge
S = Sealed
T = Test
U = Non-public
V = Gas Vent
W = Dewatering
X = Cancelled
Y = Cathodic Protection
Z = Piezometer

NEW REPLACEMENT WELL CODES
1 = Domestic
2 = Public Community
3 = Public Non–Community
4 = Industrial
5 = Irrigation
6 = Monitoring
7 = Piezometer
8 = Heat Pump/Geothermal
9 = Recovery
0 = Gas Vent

Amended by R.2003 d.29, effective February 3, 2003.
See: 34 N.J.R. 170(a), 35 N.J.R. 710(a).
In 2, substituted "decommissioned" for "abandoned"; deleted 5 and recodified former 6 as 5.
Administrative correction.
See: 35 N.J.R. 1928(a).

APPENDIX C

Mann–Whitney U–Test*

The random variable to be analyzed shall be the concentrations of the individual contaminants of concern in each individual monitoring well. The statistic to be evaluated is the Mann–Whitney "U". The test shall be a Mann–Whitney U–test with the size of the test equal to 0.1. The hypotheses (H) to be tested are:

H_0: $\hat{\theta}_1$ $\hat{\theta}_2$ (null hypothesis)

H_1: $\hat{\theta}_1 > \hat{\theta}_2$ (alternate hypothesis)

where $\hat{\theta}_2$ represents the stochastic size of the population of each individual contaminant during the most recent 12 month period of sampling and $\hat{\theta}_1$ represents the stochastic size of the population of each individual contaminant during the previous 12 month period. The test is applied to each contaminant in each individual monitoring well. In other words, if benzene and trichloroethene are the contaminants of concern, and there are four monitoring wells involved in the sampling program, then a total of eight Mann-Whitney tests are to be performed (benzene in each of the four monitoring wells and trichloroethene in each of the four monitoring wells).

The U statistic shall be evaluated as follows:

1. The test is applied to eight consecutive quarters of analytical data for each individual contaminant in each individual monitoring well.

2. For each quarter of data, annotate the concentration of the specific contaminant in the specific monitoring well with either a "b" for the most recent four quarters or an "a" for the four quarters from the previous 12 month period.

3. Vertically arrange the eight contaminant concentrations, with notations, in order of increasing value: the lowest value on the top, and the greatest value on the bottom.

4. For each individual "a" concentration, count the number of "b" concentrations that occur below that "a" concentration in the column.

5. Add the four values (zero or some positive number) obtained for Step 4 to calculate the "U" value.

6. All values of non–detectable (ND) or values detected below the limits of quantitation are to be ranked as "zero." It is required that appropriate detection levels/quantitation limits be achieved.

7. If two or more concentrations are identical, then two vertical columns are necessary. In the first column, rank tying "b" concentrations first, and in the second column rank tying "a" concentrations first. Calculate an interim "U" for each column ("Ua" and "Ub"). The average of these interim values is the actual "U". This is shown in Example 2, below.

The hypotheses shall be tested as follows:

1. If "U" is three or less, the null hypothesis is rejected, and it is concluded, with at least 90 percent confidence, that the concentration for the individual contaminant has decreased with time at the specific monitoring well.

2. If "U" is greater than three, the null hypothesis is accepted, and it cannot be concluded, with 90 percent or greater confidence, that the concentration for the individual contaminant has decreased with time at the specific monitoring well.

* Adapted from Mann, H. B. and Whitney, D.R., 1947, On a test of whether one of two random variables is stochastically larger than the other., Ann. Math. Statist., 18, pp. 52–54.

EXAMPLE 1: All data points are numerically unique

1. Individual contaminant: TCE
   Individual monitoring well: MW-1
2. Monitoring quarters:

			$\hat{\theta}_1$					$\hat{\theta}_2$		
Sampling Round:	1	2	3	4		5	6	7	8
Sampling Result: (ppb) (concentration)	506a	1021a	612a	265a		543b	261b	77b	379b

3. 77b
   261b
   265a
   379b
   506a
   543b
   612a
   1021a
4. 265a=2, 506a=1, 612a=0, 1021a=0
5. 2+1+0+0=3, U=3

Conclusion: "U" is three, therefore the null hypothesis is rejected, and it is concluded, with 90 percent or greater confidence, that the first sampling set ($\hat{\theta}_1$) is greater than the second sampling set ($\hat{\theta}_2$), and therefore that the concentration for the specific contaminant in the specific monitoring well has decreased over the period of the ground water monitoring program.

EXAMPLE 2: two or more numerically identical data points

1. Individual contaminant: TCE
   Individual monitoring well: MW-1
2. Monitoring quarters:

			$\hat{\theta}_1$					$\hat{\theta}_2$		
Sampling Round:	1	2	3	4		5	6	7	8
Sampling Result: (ppb) (concentration)	28a	Nda	61a	Nda		63b	Ndb	77b	79b

3. a] Ndb
   Nda
   Nda
   28a
   61a
   63b
   77b
   79b

   b] Nda
   Nda
   Ndb
   28a
   61a
   63b
   77b
   79b
4. a] Nda=3, Nda=3, 28a=3, 61a=3

   b] Nda=4, Nda=4, 28a=3, 61a=3
5. a] 3+3+3+3=12 Ua=12 ==> U=13.0
   b] 4+4+3+3=14 Ub=14

Conclusion: "U" is 13, therefore we accept the null hypothesis, and we cannot conclude, with 90 percent or greater confidence, that the first sampling set ($\hat{\theta}_1$) is greater than the second sampling set ($\hat{\theta}_2$), and we cannot conclude that the concentration for that specific contaminant has decreased with time.

New Rule, R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).
See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).

APPENDIX D

Historic Fill Database
Summary Table

	Minimum (ppm)[1]	Maximum (ppm)[1]	Avg (ppm)[1]	Number of Samples	Mumber > URU CDCSCC[2]	% > URU CDCSCC[2]	Number > RU CDCSCC[2]	% > RU CDCSCC[2]
B(a)A[3]	0.03	160.0	1.37	441	126	29	33	7
B(a)P[3]	0.02	120.0	1.89	431	146	34	146	34
B(b)F[3]	0.02	110.0	1.91	426	118	28	39	9
B(k)F[3]	0.02	93.0	1.79	412	101	25	26	6
I(1)P[3]	0.02	67.0	1.41	397	70	18	18	5
D(a)A[3]	0.01	25.0	1.24	286	78	27	78	27
Arsenic	0.05	1098	13.2	369	35	9	35	9
Be[3]	0.01	79.7	1.23	213	21	10	21	10
Cadmium	0.02	510	11.1	236	147	62	5	2
Lead	0.28	10700	574	538	259	48	119	22
Zinc	2.45	10900	575	197	80	4	8	4

1. ppm=parts per million
2. URU=Unrestricted Use, RU=Restricted Use, CDCSCC=Current Direct Contact Soil Cleanup Criteria
3. B(a)A=Benzo(a)anthracene, B(a)P=Benzo(a)pyrene, B(b)F=Benzo(b)fluorene, B(k)F=benxo(k)fluoranthene, I(1)P=Indeno(1,2,3-cd)pyrene, D(a)A=Dibenzo(a,h)anthracene, Be=Beryllium

New Rule, R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).
See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).

APPENDIX E

MODEL DEED NOTICE

The model document in this appendix contains blanks and matter in brackets [ ]. These blanks shall be replaced with the appropriate information prior to submission to the Department for approval. The model document in this appendix is not subject to the variance provisions of N.J.A.C. 7:26E–1.6.

Matter bracketed [ ] is not intended for deletion, but rather is intended to be descriptive of the variable information that may be contained in the final document.

IN ACCORDANCE WITH N.J.S.A. 58:10B–13, THIS DOCUMENT IS TO BE RECORDED IN THE SAME MANNER AS ARE DEEDS AND OTHER INTERESTS IN REAL PROPERTY.

Prepared by: _____
[Signature]

_____
[Print name below signature]
Recorded by: _____
[Signature, Officer of County Recording Office]

_____
[Print name below signature]

DEED NOTICE

This Deed Notice is made as of the _____ day of _____, _____, by [*insert the full legal name and address of each current property owner*](together with his/her/its/their successors and assigns, collectively "Owner").

1. THE PROPERTY. [*Insert the full legal name and address of each current property owner*] [*Insert as appropriate: "is," or "are"*] the owner in fee simple of certain real property designated as Block(s) _____ Lot(s) _____, on the tax map of the [*Insert, as appropriate: City/Borough/Township/Town*] of [*Insert the name of municipality*], [*Insert the name of county*] County; the New Jersey Department of Environmental Protection Program Interest Number (Preferred ID) for the contaminated site which includes this property is [*Insert the Program Interest Number (Preferred ID)*]; and the property is more particularly described in Exhibit A, which is attached hereto and made a part hereof (the "Property").

2. DEPARTMENT'S ASSIGNED BUREAU. The [*Insert name of Bureau*] was the New Jersey Department of Environmental Protection program that was responsible for the oversight of the remediation of the Property. The matter was Case No. [*Insert Program Interest Number (Preferred ID)*].

3. SOIL CONTAMINATION. [*Insert the full legal name of the person that was responsible for conducting the remediation*] has remediated contaminated soil at the Property, and the New Jersey Department of Environmental Protection approved a remedial action on [*Insert date of Department's approval*], such that soil contamination remains in certain areas of the Property which contains contaminants in concentrations that do not allow for the unrestricted use of the Property; this soil contamination is described, including the type, concentration and specific location of such contaminants, in Exhibit B, which is attached hereto and made a part hereof. As a result, there is a statutory requirement for this Deed Notice [*include if appropriate:* and engineering controls] in accordance with N.J.S.A. 58:10B–13.

4. CONSIDERATION. In accordance with the New Jersey Department of Environmental Protection's approval of the remedial action work plan for the remediation of the site which included the Property, and in consideration of the terms and conditions of that approval, and other good and valuable consideration, Owner has agreed to subject the Property to certain statutory and regulatory requirements which impose restrictions upon the use of the Property, to restrict certain uses of the Property, and to provide notice to subsequent owners, lessees and operators of the restrictions and the monitoring, maintenance, and biennial certification requirements outlined in this Deed Notice and required by law, as set forth herein.

5A. RESTRICTED AREAS. Due to the presence of these contaminants, the Owner has agreed, as part of the remedial action for the Property, to restrict the use of

certain parts of the Property (the "Restricted Areas"); a narrative description of these restrictions, along with the associated monitoring and maintenance activities and the biennial certification requirements are provided in Exhibit C, which is attached hereto and made a part hereof. The Owner has also agreed to maintain a list of these restrictions on site for inspection by governmental enforcement officials.

[*Insert the following paragraph when engineering controls are also implemented at the site:*]

5B. ENGINEERING CONTROLS. Due to the presence and concentration of these contaminants, the Owner has also agreed, as part of the remedial action for the Property, to the placement of certain engineering controls on the Property; a narrative description of these engineering controls, along with the associated monitoring and maintenance activities and the biennial certification requirements are provided in Exhibit C.]

6A. ALTERATIONS, IMPROVEMENTS, AND DISTURBANCES.

i. Except as provided in Paragraph 6B, below, no person shall make, or allow to be made, any alteration, improvement, or disturbance in, to, or about the Property which disturbs any engineering control at the Property without first obtaining the express written consent of the Department of Environmental Protection. Nothing herein shall constitute a waiver of the obligation of any person to comply with all applicable laws and regulations including, without limitation, the applicable rules of the Occupational Safety and Health Administration. To request the consent of the Department of Environmental Protection, contact:

____Department of Environmental Protection

____Division of Remediation Management and Response

____Bureau of Operation, Maintenance and Monitoring

____Deed Notice Inspection Program

____PO Box 413

____401 E. State Street

____Trenton, NJ 08625–0413

ii. Notwithstanding subparagraph 6Ai, above, the Department of Environmental Protection's express written consent is not required for any alteration, improvement, or disturbance provided that the owner, lessee or operator:

(A) Notifies the Department of Environmental Protection of the activity by calling the DEP Hotline, at 1–877 WARN–DEP or 1–877–927–6337, within 24 hours after the beginning of each alteration, improvement, or disturbance;

(B) Restores any disturbance of an engineering control to pre-disturbance conditions within 60 calendar days after the initiation of the alteration, improvement or disturbance;

(C) Ensures that all applicable worker health and safety laws and regulations are followed during the alteration, improvement, or disturbance, and during the restoration;

(D) Ensures that exposure to contamination in excess of the applicable remediation standards does not occur;

(E) Submits a written report, describing the alteration, improvement, or disturbance, to the Department of Environmental Protection within 60 calendar days after the end of each alteration, improvement, or disturbance. The owner, lessee or operator shall include in the report the nature of the alteration, improvement, or disturbance, the dates and duration of the alteration, improvement, or disturbance, the name of key individuals and their affiliations conducting the alteration, improvement, or disturbance, a description of the notice the Owner gave to those persons prior to the disturbance, the amounts of soil generated for disposal, if any, the final disposition and any precautions taken to prevent exposure. The owner, lessee, or operator shall submit the report to:

____Department of Environmental Protection

____Division of Responsible Party Site Remediation

____Bureau of Case Management

____Deed Notice Inspection Program

____PO Box 028

____401 E. State Street

____Trenton, NJ 08625–0028

[*Insert the following paragraph when engineering controls are also implemented at the site:*

6B. EMERGENCIES. In the event of an emergency which presents, or may present, an unacceptable risk to the public health and safety, or to the environment, any person may temporarily breach any engineering control provided that that person complies with each of the following:

i. Immediately notifies the Department of Environmental Protection of the emergency, by calling the DEP Hotline at 1–877 WARN DEP or 1–877–927–6337;

ii. Limits both the actual disturbance and the time needed for the disturbance to the minimum reasonably necessary to adequately respond to the emergency;

iii. Implements all measures necessary to limit actual or potential, present or future risk of exposure to humans or the environment to the contamination;

iv. Notifies the Department of Environmental Protection when the emergency has ended by calling the DEP Hotline at 1–877 WARN DEP or 1–877–927–6337;

v. Restores the engineering control to the pre-emergency conditions as soon as possible, and provides a written report to the Department of Environmental Protection of such emergency and restoration efforts within 60 calendar days after completion of the restoration of the engineering control. The report must include all information pertinent to the emergency, potential discharges of contaminants, and restoration measures that were implemented, which, at a minimum, should specify: (a) the nature and likely cause of the emergency, (b) the potential discharges of or exposures to contaminants, if any, that may have occurred, (c) the measures that have been taken to mitigate the effects of the emergency on human health and the environment, (d) the measures completed or implemented to restore the engineering control, and (e) the changes to the engineering control or site operation and maintenance plan to prevent reoccurrence of such conditions in the future. The owner, lessee, or operator shall submit the report to:

____Department of Environmental Protection

____Division of Remediation Management and Response

____Bureau of Operation, Maintenance and Monitoring

____Deed Notice Inspection Program

____PO Box 413

____401 E. State Street

____Trenton, NJ 08625–0413

7A. MONITORING AND MAINTENANCE OF DEED NOTICE, AND PROTECTIVENESS CERTIFICATION. The persons 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 substances that remain at the Property, the persons responsible for conducting the remediation, the Owner, and the subsequent owners, lessees, and operators, shall monitor and maintain this Deed Notice, and certify to the Department on a biennial basis that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment. The subsequent owners, lessees and operators have this obligation only during their ownership, tenancy, or operation. The specific obligations to monitor and maintain the deed notice shall include all of the following:

i. Monitoring and maintaining this Deed Notice according to the requirements in Exhibit C, to ensure that the remedial action that includes the Deed Notice continues to be protective of the public health and safety and of the environment;

ii. Conducting any additional remedial investigations and implement any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the site prior to the date that the certification is due to the Department pursuant to iii, below, in order to ensure that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment.

iii. Certify to the Department of Environmental Protection as to the continued protectiveness of the remedial action that includes this Deed Notice, on a form provided by the Department and consistent with N.J.A.C. 7:26C–1.2(a)1, every two years on the anniversary of the date the Department issued the no further action letter for the first soil remedial action that included a Deed Notice.

[*Insert the following paragraph if the soil remedial action included any engineering controls at the site:*

7B. MONITORING AND MAINTENANCE OF ENGINEERING CONTROLS AND PROTECTIVENESS CERTIFICATION. The persons 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 substances that remain at the Property, the person responsible for conducting the remediation, and, the Owner, and the subsequent owners, lessees, and operators, shall maintain all engineering controls at the Property and certify to the Department on a biennial basis that the remedial action of which each engineering control is a part remains protective of the public health and safety and of the environment. The subsequent owners, lessees and operators have this obligation only during their ownership, tenancy, or operation. The specific obligations to monitor and maintain the engineering controls shall include the following:

i. Monitoring and maintaining each engineering control according to the requirements in Exhibit C, to ensure that the remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment;

ii. Conducting any additional remedial investigations and implement any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the Property prior to the date that the certification is due to the Department pursuant to iii, below, in order to ensure that the remedial action that includes the engineering control remains protective of the public health and safety and of the environment.

iii. Certify to the Department of Environmental Protection as to the continued protectiveness of the remedial action that includes the engineering control, on a form provided by the Department and consistent with N.J.A.C. 7:26C–1.2(a)1, every two years on the anniversary of the

date the Department issued that no further action letter for the first soil remedial action that included a Deed Notice.]

8. ACCESS. The Owner and the subsequent owners, lessees and operators agree to allow the Department, its agents and representatives access to the Property to inspect and evaluate the continued protectiveness of the remedial action that includes this Deed Notice and to conduct additional remediation to ensure the protection of the public health and safety and of the environment if persons responsible for monitoring the protectiveness of the remedial action, as described in paragraph 7, above, fail to conduct such remediation pursuant to this Deed Notice as required by law. The Owner, and the subsequent owners and lessees, shall also cause all leases, subleases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring that all holders thereof provide such access to the Department.

9. NOTICES.

i. The Owner and the subsequent owners and lessees, shall cause all leases, grants, and other written transfers of an interest in the Restricted Areas to contain a provision expressly requiring all holders thereof to take the Property subject to the restrictions contained herein and to comply with all, and not to violate any of the conditions of this Deed Notice. Nothing contained in this paragraph shall be construed as limiting any obligation of any person to provide any notice required by any law, regulation, or order of any governmental authority.

ii. Owner and all subsequent owners and lessees shall notify any person intending to conduct invasive work or excavate within the Restricted Areas at the Property, including, without limitation, tenants, employees of tenants, and contractors of the nature and location of contamination in the Restricted Areas and, of the precautions necessary to minimize potential human exposure to contaminants.

iii. The Owner and the subsequent owners shall provide written notice to the Department of Environmental Protection at least 30 calendar days before the effective date of any conveyance, grant, gift, or other transfer, in whole or in part, of the owner's interest in the Restricted Area.

iv. The Owner and the subsequent owners shall provide written notice to the Department within 30 calendar days following the owner's petition for or filing of any document initiating a rezoning of the Property. The Owner and the subsequent owners shall submit the written notice to:

____Department of Environmental Protection

____Division of Remediation Management and Response

____Bureau of Operation, Maintenance and Monitoring

____Deed Notice Inspection Program

____PO Box 413

____401 E. State Street

____Trenton, NJ 08625–0413

10. ENFORCEMENT OF VIOLATIONS.

i. This Deed Notice itself is not intended to create any interest in real estate in favor of the Department of Environmental Protection, nor to create a lien against the Property, but merely is intended to provide notice of certain conditions and restrictions on the Property and to reflect the regulatory and statutory obligations imposed as a conditional remedial action for this site.

ii. The restrictions provided herein may be enforceable solely by the Department against any person who violates this Deed Notice. To enforce violations of this Deed Notice, the Department may initiate one or more enforcement actions pursuant to N.J.S.A. 58:10–23.11u and require additional remediation and assess damages pursuant to N.J.S.A. 58:10–23.11g.

11. SEVERABILITY. If any court of competent jurisdiction determines that any provision of this Deed Notice requires modification, such provision shall be deemed to have been modified automatically to conform to such requirements. If a court of competent jurisdiction determines that any provision of this Deed Notice is invalid or unenforceable and the provision is of such a nature that it cannot be modified, the provision shall be deemed deleted from this instrument as though the provision had never been included herein. In either case, the remaining provisions of this Deed Notice shall remain in full force and effect.

12. SUCCESSORS AND ASSIGNS. This Deed Notice shall be binding upon Owner and upon Owner's successors and assigns, and subsequent owners, lessees and operators while each is an owner, lessee, or operator of the Property.

13. MODIFICATION AND TERMINATION.

i. Any person may request in writing, at any time, that the Department modify this Deed Notice where performance of subsequent remedial actions, a change of conditions at the Property, or the adoption of revised remediation standards suggest that modification of the Deed Notice would be appropriate.

ii. Any person may request in writing, at any time, that the Department terminate this Deed Notice because the conditions which triggered the need for this Deed Notice are no longer applicable.

iii. This Deed Notice may be revised or terminated only upon filing of an instrument, executed by the Department, in the office of the [*Inserts as appropriate the County Clerk/Register of Deeds and Mortgages*] of [*Insert the name of the County*] County, New Jersey, expressly modifying or terminating this Deed Notice.

14A. EXHIBIT A. Exhibit A includes the following maps of the Property and the vicinity:

i. Exhibit A–1: Vicinity Map—A map that identifies by name the roads, and other important geographical features in the vicinity of the Property (for example, Hagstrom County Maps);

ii. Exhibit A–2: Metes and Bounds Description—A metes and bounds description of the Property, including reference to tax lot and block numbers for the Property;

iii. Exhibit A–3: Property Map—A scaled map of the Property, scaled at one inch to 200 feet or less, and if more than one map is submitted, the maps shall be presented as overlays, keyed to a base map; and the property map shall include diagrams of major surface topographical features such as buildings, roads, and parking lots.

14B. EXHIBIT B. Exhibit B includes the following descriptions of the Restricted Areas:

i. Exhibit B–1: Restricted Area Map—A separate map for each restricted area that includes:

(A) As-built diagrams of each engineering control, including caps, fences, slurry walls, groundwater monitoring wells, and groundwater pumping system;

(B) As-built diagrams of any buildings, roads, parking lots and other structures that function as engineering controls; and

(C) Designation of all soil and sediment sample locations within the restricted areas that exceed any soil or sediment standard that are keyed into one of the tables described in the following paragraph.

ii. Exhibit B–2: Restricted Area Data Table—A separate table for each restricted area that includes:

(A) Sample location designation from Restricted Area map (Exhibit B–1);

(B) Sample elevation based upon mean sea level;

(C) Name and chemical abstract service registry number of each contaminant with a concentration that exceeds the unrestricted use standard;

(D) The restricted and unrestricted use standards for each contaminant in the table; and

(E) The remaining concentration of each contaminant at each sample location at each elevation (or if historic fill, include data from the Department's default concentrations at N.J.A.C. 7:26E–4.6, Table 4–2).

14C. EXHIBIT C. Exhibit C includes narrative descriptions of the institutional controls [*Insert as appropriate:* and engineering controls] as follows:

i. Exhibit C–1: Deed Notice as Institutional Control: Exhibit C–1 includes a narrative description of the restriction and obligations of this Deed Notice that are in addition to those described above, as follows:

(A) General Description of this Deed Notice:

(1) Description and estimated size of the Restricted Areas as described above;

(2) Description of the restrictions on the Property by operation of this Deed Notice; and

(3) The objective of the restrictions;

(B) Description of the monitoring necessary to determine whether:

(1) Any disturbances of the soil in the Restricted Areas did not result in the unacceptable exposure to the soil contamination;

(2) There have been any land use changes subsequent to the filing of this Deed Notice or the most recent biennial certification, whichever is more recent;

(3) The current land use on the Property is consistent with the restrictions in this Deed Notice;

(4) Any newly promulgated or modified requirements of applicable regulations or laws apply to the site; and

(5) Any new standards, regulations, or laws apply to the site that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;

(2) Land use at the Property is consistent with the restrictions in this Deed Notice; and

(3) The remedial action that includes this Deed Notice continues to be protective of the public health and safety and of the environment.

[*Insert the following if engineering controls are part of the remedial action for the site:*]

ii. Exhibit C–2: [*Insert the name of the first engineering control*]: Exhibit C–2 includes a narrative description of [*Insert the name of the first engineering control*] as follows:

(A) General Description of the engineering control:

(1) Description of the engineering control;

(2) The objective of the engineering control; and

(3) How the engineering control is intended to function.

(B) Description of the operation and maintenance necessary to ensure that:

(1) Periodic inspections of each engineering control are performed in order to determine its integrity, operability, and effectiveness;

(2) Each engineering control continues as designed and intended to protect the public health and safety and the environment;

(3) Each alteration, excavation or disturbance of any engineering control is timely and appropriately addressed to maintain the integrity of the engineering control;

(4) This engineering control is being inspected and maintained and its integrity remains so that the remedial action continues to be protective of the public health and safety and of the environment;

(5) A record of the self-inspection dates, name of the inspector, results of the inspection and condition(s) of this engineering control. Sampling, for example, may be necessary if it is not possible to visually evaluate the integrity/performance of this engineering control; and

(6) Any new standards, regulations, or laws apply to the site that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

(C) Description of the following items that will be included in the biennial certification:

(1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;

(2) The engineering controls continues to operate as designed; and

(3) The remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment.

[*Repeat the contents of Exhibit C–2, renumbering accordingly, for each separate engineering control that is part of the remedial action for the site.*]

15. SIGNATURES. IN WITNESS WHEREOF, Owner has executed this Deed Notice as of the date first written above.

[If Owner is an individual]
WITNESS:

_____ _____
[Signature] [Print name below signature]

[If Owner is a corporation]
ATTEST: [Name of corporation]
_____ By _____
_____ _____
[Print name and title] [Signature]

[If Owner is a general or limited partnership]
WITNESS: [Name of partnership]
_____ By _____
_____ _____, General Partner
[Signature] [Print name]

[If Owner is an individual]
STATE OF [State where document is executed]
SS.:
COUNTY OF [County where document is executed]

I certify that on ___, 20__, [Name of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that this person [or if more than one person, each person]

(a) Is named in and personally signed this document; and

(b) Signed, sealed and delivered this document as his or her act and deed.

_____
_____, Notary Public
[Print name and title]

[If Owner is a corporation]
STATE OF [State where document is executed]
SS.:
COUNTY OF [County where document is executed]

I certify that on ___, 20__, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that:

(a) This person is the [secretary/assistant secretary] of [Owner], the corporation named in this document;

(b) This person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;

(c) This document was signed and delivered by the corporation as its voluntary act and was duly authorized;

(d) This person knows the proper seal of the corporation which was affixed to this document; and

(e) This person signed this proof to attest to the truth of these facts.

_____
[Signature]
_____
[Print name and title of attesting witness]
Signed and sworn before me on _____, 20____
_____
_____, Notary Public
[Print name and title]

[If Owner is a partnership]
STATE OF [State where document is executed]
SS.:
COUNTY OF [County where document is executed]

I certify that on ___, 20__, [Name of person executing document on behalf of Owner] personally came before me, and this person acknowledged under oath, to my satisfaction, that this person:

(a) Is a general partner of [Owner], the partnership named in this document;

(b) Signed, sealed and delivered this document as his or her act and deed in his capacity as a general partner of [owner]; and

(c) This document was signed and delivered by such partnership as its voluntary act, duly authorized.

_____
[Signature]
_____, General Partner
[Print name]
_____, Notary Public
[Print name and title]

Repeal and New Rule, R.2003 d.29, effective February 3, 2003.
See: 34 N.J.R. 170(a), 35 N.J.R. 710(a).
Administrative correction.
See: 35 N.J.R. 1928(a), 36 N.J.R. 3277(a).
Petition for Rulemaking.
See: 36 N.J.R. 2947(a), 2947(b), 3305(a), 3440(a).

APPENDIX F

GROUNDWATER CLASSIFICATION EXCEPTION AREA FACT SHEET

A. SITE INFORMATION

1. Program's Site Identification Number: _____
2. Program Interest Number (Preferred ID): _____
3. Program Interest Name: _____
4. Street address: _____
5. City: _____
6. County: _____
7. Block and Lots of the site (duplicate if the site is located in more than one municipality):
   a. Name of the municipality in which the site is located: _____
   b. Block and Lots: _____
   c. Year of tax map: _____
8. United States Geological Survey Quadrangle map, indicating the location of the site, presented as Exhibit A.
9. Site Contact:
   a. Name of contact person: _____
   b. Company name: _____
   c. Mailing address: _____
   d. Phone number: (___) ___-____

B. PROPOSED CLASSIFICATION EXCEPTION AREA INFORMATION

1. Narrative description of proposed classification exception area:
2. Location of proposed classification exception area (duplicate if the site is located in more than one municipality):
   a. Name of the municipality in which the site is located: _____
   b. Block and Lots: _____
   c. Year of tax map: _____
3. Affected aquifer(s):

Aquifer Name	Vertical Depth	Groundwater Classification

4. Contaminant concentrations:

Contaminant	Concentration[1]	GWQS[2]	SWQS[3]

5. Proposed classification exception area boundaries:
   Horizontal: Scaled map indicating projected areal extent of proposed classification exception area, as well as location of site, presented as Exhibit B.
   Vertical: As stated in B.3., above.
   Locational coordinates of boundary of proposed classification exception area as New Jersey State Plane Coordinates. A minimum of four coordinates shall be submitted, in a format compatible with Department's geographic information system:

Northing	Easting	(New Jersey State Plane Coordinates)

Latitude	Longitude

6. Estimated size of the proposed groundwater classification exception area: _____
7. Projected duration and expiration date of the proposed classification exception area:
   a. Duration (in years and or days): _____
   b. Expiration date (as calendar date): _____

[1]Maximum concentration detected at the time Classification Exception Area information submitted to the Department.

[2]New Jersey Ground Water Quality Standards, N.J.A.C. 7:9–6.

[3]New Jersey Surface Water Quality Standards, N.J.A.C. 7:9B.

New Rule, R.2003 d.29, effective February 3, 2003.
See: 34 N.J.R. 170(a), 35 N.J.R. 710(a).
Administrative correction.

See: 35 N.J.R. 1928(a).

APPENDIX G

CONTOUR MAP REPORTING FORM

This reporting form shall accompany each groundwater contour map submittal. Use additional sheets as necessary.

1. Did any surveyed well casing elevations change from the previous sampling event? Yes___ No___. If yes, attach new "Well Certification—Form B—Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

2. Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes___ No___. If yes, identify these wells.

3. Are there any monitor wells present at the site but omitted from the contour map? Yes___ No___. Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

4. Are there any monitor wells containing separate phase product during this measuring event? Yes___ No___. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes___ No___. If yes, show the formula used to correct the water table elevation.

5. Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes___ No___. If yes, discuss the reasons for the change.

6. Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes___ No___. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.

7. Are all the wells used in the contour map screened in the same water-bearing zone? Yes___ No___. If no, justify inclusion of those wells.

8. Were the groundwater contours computer generated___, computer aided___, or hand-drawn___? If computer aided or generated, identify the interpolation method(s) used.

New Rule, R.2003 d.29, effective February 3, 2003.
See: 34 N.J.R. 170(a), 35 N.J.R. 710(a).