

1. Notification letters shall be sent no later than 14 days prior to either initiating field activities associated with a remedial investigation or remedial action of a multi-phase remediation or initiating a single phase remediation.

2. Additional notification letters that reflect the current condition and progress of the remediation shall be sent every two years until all the required remediation is completed and the final remediation document is filed or issued.

3. The notices prepared pursuant to (j)1 and 2 above shall be sent to the following persons by certified mail or by using the certificate of mailing service:

i. Each owner of all real property, as shown on the current municipal tax duplicate, and tenants of those properties, located within 200 feet of the site boundary; and

ii. The administrator of each school and child care center located within 200 feet of the site boundary.

4. The notice shall include the following site information:

i. The name and address of the site;

ii. The tax block(s) and lot(s);

iii. The Department's Preferred ID number as provided in the most recent edition of the "Department's Known Contaminated Sites in New Jersey" report found at <http://www.nj.gov/dep/srp/kcs-nj/>, or the valid EPA site identification number. If neither number is available, the communication center incident number provided by the Department's hotline may be substituted;

iv. A statement that contamination has been identified;

v. A brief description of the type of contamination in common language, the affected environmental media, the current remediation phase, action(s) being taken at the site and the date field activities are expected to begin;

vi. Contact information for the person responsible for conducting the remediation and the name and telephone number for the licensed site remediation professional. If there is no licensed site remediation professional, include the telephone number for the Department's Office of Community Relations, which is posted on the Department's website at [www.nj.gov/dep/srp](http://www.nj.gov/dep/srp); and

vii. A statement that the person responsible for conducting the remediation will provide a copy of all environmental reports to the municipality upon the municipality's request.

5. Each time notification letters are sent, the person responsible for conducting the remediation shall submit an

electronic copy and a paper copy of one notification letter and list of recipients to the following:

i. The assigned case manager. If a case manager for the site has not been assigned, include a copy of the notification letter and list of recipients as part of the remedial investigation report or remedial action report required by this chapter;

ii. The Department's Office of Community Relations at the address provided in (i)5ii above;

iii. The municipal clerk of each municipality in which the site is located; and

iv. The designated local health official.

(k) If the person responsible for conducting the remediation proposes to bring contaminated material on to the site in an amount that is in excess of the amount that is needed to complete the remediation requirements, to raise the topographic level in the floodplain, or to construct the engineering controls approved by the Department in either a remedial action workplan pursuant to N.J.A.C. 7:26C-8, the person shall obtain the Department's prior approval, comply with the Department's Alternative Fill Protocol, and comply with all of the following:

1. Send a notification letter to each of the following persons by certified mail or by using the certificate of mailing service:

i. Each owner of real property, as shown on the current municipal tax duplicate, and the tenants of those properties, located within 200 feet of the site boundary;

ii. The mayor of each municipality where the site located;

iii. The county designated solid waste coordinator;

iv. The designated local health official; and

v. The assigned case manager. If a case manager for the site has not been assigned, to the Department's Office of Community Relations at the address provided in (i)5ii, above; and

2. Include the following in the additional notification:

i. A description of the proposed use of contaminated material at the site;

ii. The concentrations of contaminants in the material;

iii. The amount of material proposed to be brought on to the site;

iv. The controls designed to reduce or eliminate exposure to the contamination; and

v. A tentative schedule for the activity.

(l) Except as provided in (g) above and (m) and (n) below, if contamination migrates off site in any environmental medium, the person responsible for conducting the remediation shall prepare, distribute and publish a fact sheet as follows:

1. The fact sheet shall be prepared and distributed within 14 days after the determination that contamination has migrated off site;

2. The fact sheet shall be distributed by certified mail or by using the certificate of mailing service, to each owner of real property, as shown on the current municipal tax duplicate, and the tenants of those properties, located within 200 feet of the site boundary.

3. The fact sheet and any updates shall be in English. Additionally, where the person responsible for conducting the remediation determines that a language other than English is predominantly spoken by property owners and tenants in the area within 200 feet of the site boundary, the fact sheet and any updates shall also be provided in that predominant non-English language;

4. The fact sheet shall include the following information:

- i. The name and address of the site;
- ii. The tax block(s) and lot(s);

iii. The Department's Preferred ID number as provided in the most recent edition of the "Department's Known Contaminated Sites in New Jersey" report found at <http://www.nj.gov/dep/srp/kcs-nj/>, or the valid EPA site identification number. If neither number is available, the communication center incident number provided by the Department's hotline may be substituted;

iv. A description of the commercial and industrial history of the site based on information gathered during the preliminary assessment conducted pursuant to N.J.A.C. 7:26E-3.1(c);

v. A description of contamination including:

- (1) The contaminants of concern;
- (2) The affected environmental media;
- (3) Contaminant concentrations;
- (4) The remediation standard applicable to each contaminant;
- (5) The extent of contamination;
- (6) The date contamination was identified;
- (7) The source of contamination; and
- (8) A list of online resources for information about the contaminants;

vi. A description of the actions performed to minimize the impact to the public;

vii. The date that the fact sheet was prepared;

viii. Contact information for the person responsible for conducting the remediation; and

ix. The name and telephone number for the licensed site remediation professional. If there is no licensed site remediation professional, include the telephone number for the Department's Office of Community Relations, which is posted on the Department's website at [www.nj.gov/dep/srp](http://www.nj.gov/dep/srp);

5. Within 30 days of the discovery of off-site contamination, the person responsible for conducting the remediation shall:

i. Publish the fact sheet prepared pursuant to this subsection as a display advertisement in a daily or weekly newspaper of general circulation in the vicinity of the site pursuant to this section and the Department's Public Notification Guidance; and

ii. Submit a copy of the fact sheet, a list of persons to whom the fact sheet was mailed pursuant to (l)2 above, and a copy of the display advertisement to:

(1) The assigned case manager. If a case manager for the site has not been assigned, include a copy of the fact sheet, list of recipients and a copy of the display advertisement as part of the remedial investigation report or remedial action report required by this chapter;

(2) The Department's Office of Community Relations at the address provided in (i)5ii above;

(3) The municipal clerk of each municipality in which the site is located; and

(4) The designated health official; and

6. Within 30 days after the horizontal and vertical extent of contamination has been determined pursuant to N.J.A.C. 7:26E-4.1, the person responsible for conducting the remediation shall:

i. Except as provided in (l)6iii below, publish an updated fact sheet as a display advertisement in a daily or weekly newspaper of general circulation in the vicinity of the site pursuant to this section and the Department's Public Notification Guidance;

ii. Submit a copy of the updated fact sheet, a list of persons to whom the updated fact sheet was mailed pursuant to (l)2 above, and a copy of the display advertisement to:

(1) The assigned case manager. If a case manager for the site has not been assigned, include a copy of the fact sheet, list of recipients and a copy of the display advertisement as part of the remedial investigation report or remedial action report required by this chapter;

(2) The Department's Office of Community Relations at the address provided in (i)5ii, above;

(3) The municipal clerk of each municipality in which the site is located; and

(4) The designated local health official; and

iii. For ground water contamination, conduct the public notification pursuant to the requirements of N.J.A.C. 7:26E-8.3 when the Department establishes a classification exception area (CEA).

(m) If the contamination has only affected one adjoining property and the affected contaminated medium is limited to the soil, the person responsible for conducting the remediation shall notify only that adjoining property owner and tenant in writing via certified mail or by using the certificate of mailing service. The notice shall describe the nature and extent of the contamination.

(n) If contamination migrates off site and the affected media is limited to historic fill, the person responsible for conducting the remediation is except from the requirements of (l) above.

(o) Except as provided in (p) below, the person responsible for conducting the remediation who is performing the remediation with the Department's oversight in accordance with N.J.A.C. 7:26C may propose a plan for public notice and outreach as an alternative to (i) or (j) above. The alternative plan shall be submitted to the assigned case manager and Department's Office of Community Relations at the address in (i)5ii above for the Department's review.

1. If the Department determines that the application is complete and that the proposed alternative plan provides adequate public notice, the Department will provide the person responsible for conducting the remediation with a written approval of the alternative plan; or

2. If the Department determines that the application is deficient, the Department will provide written comments to the person responsible for conducting the remediation describing the deficiencies in the application, in which case the person may submit a revised application addressing the deficiencies to the Department.

(p) The person responsible for conducting the remediation may implement an alternative plan if that plan is prepared by a licensed site remediation professional, and that plan meets the intent of this section. The person responsible for conducting the remediation shall include in the applicable remedial phase report that is submitted to the Department the rationale for the alternative plan and a discussion of how the alternative plan provides adequate public notice.

(q) The person responsible for conducting the remediation shall conduct additional public outreach if the Department determines that additional outreach is needed due to site-specific circumstances, or when the Department determines

that there is substantial public interest in remediation activities concerning a contaminated site.

1. The Department may determine that there is substantial public interest when it receives:

i. A petition containing the signatures of 25 or more people who live or work within 200 feet of the site, if contamination has not migrated off site;

ii. A petition containing the signatures of 25 people that live or work within 200 feet of the extent of contamination, if contamination has migrated from the site boundary; or

iii. A written request by a municipal official, such as the mayor or the chairperson of an environmental commission, or a designated local health official.

2. When the Department determines that there is substantial public interest, the Department shall notify the person responsible for conducting the remediation and post a summary of this determination on the Department's web site at [www.state.nj.us/dep](http://www.state.nj.us/dep); and

3. The person responsible for conducting the remediation shall develop and implement additional public outreach based on the needs expressed by the community. The outreach may include the following:

i. Publicizing and hosting an information session or public meeting;

ii. Publishing a notice containing basic information about the site in the local paper of record; or

iii. Establishing a local information repository.

(r) The notifications required pursuant to this section are not intended to satisfy the public participation requirements applicable to sites subject to the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq., and the National Contingency Plan regulations, 40 CFR Part 300.

(s) The person responsible for remediating a contaminated site located within the jurisdiction of the Pinelands Commission as defined pursuant to N.J.S.A. 13:18A-1 et seq. shall:

1. Submit copies of all final reports or workplans for preliminary assessments, site investigations, remedial investigations and remedial actions to the Pinelands Commission concurrently with submission of such documents to the Department;

2. Submit, for approval, a copy of the remedial design and construction documents and a completed Pinelands application to the Pinelands Commission prior to implementing a remedial action; and

3. Not commence any construction activity at the site until the Pinelands Commission approves the remediation in writing; and

4. Send the information required pursuant to this subsection to the Pinelands Commission at the following address:

The Pinelands Commission  
P.O. Box 7  
15 Springfield Road  
New Lisbon, NJ 08064

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)1, inserted "contaminated"; added (a)2; recodified former (a)2 as (a)3; in (b), inserted first two sentences; inserted new (c); recodified former (c) and (d) as (d) and (e), and inserted new (d)3, 9 and 10; recodified former (d)3 through 7 as (d)4 through 8; in (e), deleted "and (b)" following "pursuant to (a)", inserted "assigned case manager ... assigned, to the", and amended address; and added (f) through (h).

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), rewrote the introductory paragraph.

Amended by R.2003 d.29, effective February 3, 2003.

See: 34 N.J.R. 170(a), 35 N.J.R. 710(a).

In (d)3 and (h), changed the hotline for the department.  
Administrative correction.

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

Amended by R.2008 d.262, effective September 2, 2008.

See: 39 N.J.R. 2687(a), 40 N.J.R. 5010(a).

Section was "Notification". Rewrote the section.

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Rewrote (d) through the end.

### 7:26E-1.5 Certifications, forms and submissions

(a) The person responsible for conducting the remediation shall:

1. Certify, and shall have the licensed site remediation professional certify if applicable pursuant to N.J.A.C. 7:26C-1.5, all forms and documents prepared to pursuant to this chapter; and

2. Except as otherwise noted in this chapter, submit all forms and documents to the Department at the address in N.J.A.C. 7:26C-1.6.

(b) All forms are available from the Department at [www.nj.gov/dep/srp/srra/forms](http://www.nj.gov/dep/srp/srra/forms).

Special Repeal and New Rule, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Section was "Certifications".

### 7:26E-1.6 Documenting compliance with the technical requirements

(a) All work being conducted at a site pursuant to this chapter, whether or not being done with Department oversight, shall be documented and included in reports which follow the format and contain the information required pur-

suant to the reporting sections of N.J.A.C. 7:26E-1 through 8. If a report has already been submitted to the Department pursuant to another Department regulatory program, including, but not limited to, N.J.A.C. 7:14B, 7:26B or 7:26C, then a summary of what was included in the previously submitted report may be submitted. The summary shall include a reference to the Department program to which the report was submitted and the date that it was submitted. Any reports prepared pursuant to this chapter may be combined into a single report.

(b) When the remediation is conducted with Department oversight, the person responsible for conducting the remediation shall submit workplans (if applicable) and reports in a timely manner. The workplan and/or report shall comply with the format and contain the information required pursuant to N.J.A.C. 7:26E-1 through 8.

(c) The person responsible for conducting the remediation shall have a continuing obligation to ensure that the Department receives all complete, accurate and relevant information regarding remediation at the site.

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), deleted N.J.A.C. reference and substituted "ISRA" for "ECRA"; in (d), substituted "A variance petition may be submitted within" for "The Department will review a petition for a variance pursuant to" and added the last sentence; in (d)1, inserted N.J.A.C. reference; and added (d)3 and (e).

Amended by R.1999 d.241, effective August 2, 1999.

See: 30 N.J.R. 2373(a), 31 N.J.R. 2167(a).

In (b), inserted "in a timely manner" following "reports" in the first sentence.

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) and (b), amended the N.J.A.C. references.

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

In (a) and (b), substituted "N.J.A.C. 7:26E-1" for "N.J.A.C. 7:26E-2"; in (b), deleted "pursuant to the schedule contained in the oversight document which the person executed with the Department pursuant to N.J.A.C. 7:26C, or as the Department requires pursuant to ISRA or UST" following "manner"; deleted former (c) and (d); and recodified (e) as (c).

### 7:26E-1.7 Variance from the technical requirements and guidance

(a) Except as provided in (b) below, the person responsible for conducting the remediation may only vary from certain technical requirements in N.J.A.C. 7:26E-1 through 8, and site remediation guidance referenced in N.J.A.C. 7:26E-1 through 8 unless expressly exempted by the Department, provided that the person submits the following technical information in the applicable remedial phase report:

1. The regulatory citation for the requirement, or the guidance name and version number for the requirement;

2. A description of how the work performed deviated from the rule requirement or guidance; and

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

“Discharge” means any intentional or unintentional action or omission resulting in the releasing, spilling, leaking, pumping, pouring, emitting, emptying or dumping of a hazardous substance, hazardous waste or pollutant into the waters or onto the lands of the State, or into waters outside the jurisdiction of the State when damage may result to the lands, waters, or natural resources within the jurisdiction of the State.

“Discharge to ground water proposal” or “DGW proposal” means a proposal for a new discharge to ground water (DGW) designed to occur during or as part of the site remediation process.

“Effective solubility” means the theoretical aqueous solubility of an organic constituent in ground water that is in chemical equilibrium with a separate phase mixed product (product containing several organic chemicals). The effective solubility of a particular organic chemical can be estimated by multiplying its mole fraction in the product mixture by its pure phase solubility.

“Engineered system response” means a system that is designed to mitigate risk or remediate an IEC or free product and as further described in the Department’s Immediate Environmental Concern (IEC) guidance.

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

“Environmental medium” means any component such as soil, air, sediment, structures, ground water or surface water.

“Environmentally sensitive natural resources” means all areas defined at N.J.A.C. 7:1E-1.8(a), ground water, and areas and/or resources that are protected or managed pursuant to the Pinelands Protection Act, N.J.S.A. 13:18A-1 et seq. and the Pinelands Comprehensive Management Plan, N.J.A.C. 7:50.

“EPA” means the United States Environmental Protection Agency.

“Feasibility study” means a study designed to develop and evaluate options for remedial action using data gathered during the remedial investigation to develop the objectives of the remedial action, and to develop possible remedial action

alternatives, to evaluate those alternatives and create a list of feasible alternatives, and to analyze the engineering, scientific, institutional, human health, environmental, and cost of each selected alternative.

“Fill material” means non-indigenous material, used to replace soil in an area or raise the topographic elevation of the site.

“Final remediation document” means a document defined as such pursuant to N.J.A.C. 7:26C-1.3.

“Free product” means a separate phase material, present in concentrations greater than a contaminant’s residual saturation point. This definition applies to solids, liquids, and semi-solids. The presence of free product shall be determined pursuant to the methodologies described in N.J.A.C. 7:26E-2.1(a)14.

“Full laboratory data deliverables” means those deliverables identified as follows:

1. For non-EPA/Contract Laboratory Program analyses, the regulatory format data deliverables listed in the version of the Professional Laboratory Analytical Services contract issued by the New Jersey Department of Treasury, Division of Purchase and Property in effect as of the date on which the laboratory is performing the analysis; and

2. For EPA/Contract Laboratory Program analyses, the deliverables listed in the EPA Contract Laboratory Program “Statement of Work” documents in effect as of the date on which the laboratory is performing the analysis as modified by specific requirements listed in Appendix A, incorporated herein by reference.

“Ground water use area” means any area, as determined by a well search conducted pursuant to N.J.A.C. 7:26E-1.17 and an evaluation of the current and potential ground water uses of an area using a 25-year planning horizon pursuant to N.J.A.C. 7:26E-8.3(b)4ii, where any domestic, irrigation, industrial, public supply well, or well with a water allocation permit exists, is proposed, or where there is reasonable expectation a well will be installed within the 25-year planning horizon.

“Ground water” means the portion of the water beneath the land surface that is within the zone of saturation where all pore spaces of the geologic formation are filled with water.

“Hazardous waste” means any solid waste as defined in the Solid Waste Regulations, N.J.A.C. 7:26-1.4, that is further defined as a hazardous waste pursuant to the Hazardous Waste Regulations, N.J.A.C. 7:26G.

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

“Historic fill material” means non-indigenous material, deposited to raise the topographic elevation of the site, which

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

“Immediate environmental concern” means a condition at a contaminated site where any of the following types of contamination or any of the following conditions related to the discharges at the site are found at the site:

1. Contamination in a well used for potable purposes at concentrations at or above the Class II ground water remediation standards;
2. Contamination in indoor air at a level greater than any vapor intrusion indoor air screening level described in the Department’s Vapor Intrusion Guidance;
3. Contamination in an occupied or confined space producing a toxic or harmful atmosphere resulting in an unacceptable human health exposure, or producing an oxygen-deficient atmosphere, or resulting in demonstrated physical damage to essential underground services;
4. Contamination that exceeds the Department’s acute human health exposure levels in surface soil such that dermal contact, ingestion, or inhalation of the contamination could result in an acute human health exposure, as further described in the Department’s IEC Guidance; or
5. Any other condition that poses an immediate threat to the environment or to the public health and safety as further described in the Department IEC Guidance.

“Impermeable” means a layer of natural and/or man-made material of sufficient thickness, density and composition so as to have a maximum permeability for water of  $10^{-7}$  cm/sec at the maximum anticipated hydrostatic pressure.

“Indoor air screening level” means a screening level for indoor air defined in the Department’s Vapor Intrusion Guidance.

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

“Innovative remedial action technology” means a new or alternative method, procedure or process that does not have a substantial operational record. An innovative remedial action technology with a substantial operational record in one field could be considered innovative if it is proposed for a new or different environmental problem.

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

“Landfill” means a sanitary landfill as defined pursuant to N.J.S.A. 13:1E-1 et seq.

“Licensed site remediation professional” or “LSRP” means a person defined as such pursuant to the Administrative Requirements for the Remediation of Contaminated Sites rules, N.J.A.C. 7:26C-1.3.

“Light non-aqueous phase liquid” or “LNAPL” means hydrocarbons that exist as a separate and immiscible phase liquid when in contact with water and/or air, can exist as a continuous phase (mobile) and/or a discontinuous mass (immobile) and is less dense than water at ambient temperature.

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

“Method detection limit” or “MDL” means the minimum concentration of a substance that can be measured and reported with a 99 percent confidence that the analyte concentration is greater than zero and is determined from the analysis of a sample in a given matrix containing the analyte.

“Mineral oil” means an oil of mineral origin, refined from crude oil, possessing electrical insulating properties.

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

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

“Natural resources” means all land, biota, fish, shellfish, and other wildlife, air, waters and other such resources.

“No further action letter” means a written determination by the Department defined pursuant to the Administrative Requirements for the Remediation of Contaminated Sites rules, N.J.A.C. 7:26C-1.3.



“Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration” in effect as of the date on which the laboratory is performing the analysis.

“Tentatively identified compound” or “TIC” means a non-targeted compound detected in a sample using a GC/MS analytical method which has been tentatively identified using a mass spectral library search. An estimated concentration of the TIC is also determined.

“Timely manner” means in compliance with all mandatory time frames, expedited site specific time frames, and regulatory time frames set forth in these rules and in the Administrative Requirements for the Remediation of Contaminated Sites rules, N.J.A.C. 7:26C.

“Underground storage tank” means any one or combination of tanks, including appurtenant pipes, lines, fixtures, and other related equipment, used to contain an accumulation of hazardous substances, hazardous wastes or pollutants, the volume of which, including the volume of the appurtenant pipes, lines, fixtures and other related equipment, is 10 percent or more beneath the surface of the ground.

“Unknown compound” means a non-targeted compound which cannot be tentatively identified. Based on the analytical method used, the estimated concentration of the unknown compound may or may not be determined.

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

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

“UST” means the New Jersey Underground Storage of Hazardous Substances Act, N.J.S.A. 58:10A-21 et seq.

“Volatile organics” means organic compounds amenable to analysis by the purge and trap technique. For the purposes of this chapter, analysis of volatile organics means the analysis of a sample for those target compounds identified as volatiles in the version of the EPA “Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration” in effect as of the date on which the laboratory is performing the analysis.

“Waste oil” means a petroleum based or synthetic oil which, through use, storage or handling has become unsuitable for its original purpose due to the presence of impurities or loss of original properties.

“Waters” means the ocean and its estuaries to the seaward limit of the State’s jurisdiction, all springs, streams and bodies of surface or ground water, whether natural or artificial, within the boundaries of this State.

“Wetland” means any freshwater or coastal wetland.

“WPCA” means the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq.

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).

Added “Active ground water remediation”, “Background ground water contamination”, “Contamination”, “Damages”, “Effective solubility”, “Engineering controls”, “Environmentally sensitive area”, “Historic fill material”, “Immediate environmental concern”, “Injury”, “Institutional controls”, “Mineral oil”, “Natural background soil level”, “Natural ground water remediation”, “Non-permanent remedial action”, “Order of magnitude”, “Permanent remedial action”, “Region of the site”, “Remedial action costs”, “Remedial action selection”, “Remedial action selection report”, “Residual product”, “Residual saturation point”, “Restricted use standard”, “Retardation”, “Specific discharge event”, “Unrestricted use standard” and “Waste oil”; amended “Applicable remediation standard”, “Area of concern”, “Commissioner”, “Contaminated site”, “Department”, “Diligent inquiry”, “Discharge”, “Fill material”, “Free product”, “Person responsible for conducting the remediation”, “Preliminary assessment”, “Remedial action”, “Remedial investigation”, “Remediation”, “Site investigation”, “Surface water”, “Tank”, “Targeted compound”, and “Underground storage tank”; and deleted “Contaminant”, “ECRA”, “Hazardous constituent”, “Hazardous substance”, “Innovative and emerging treatment technologies”, “Permanent remedy”, and “Remedial alternative analysis”.

Amended by R.1997 d.499, effective November 17, 1997.

See: 29 N.J.R. 46(a), 29 N.J.R. 4957(a).

Added “Declaration of environmental restrictions”.

Amended by R.1999 d.241, effective August 2, 1999.

See: 30 N.J.R. 2373(a), 31 N.J.R. 2167(a).

Rewrote 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 the section.

Amended by R.2003 d.198, effective May 19, 2003.

See: 34 N.J.R. 3703(a), 35 N.J.R. 2319(a).

Rewrote “Area of concern”.

Administrative correction.

See: 37 N.J.R. 4245(a).

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Rewrote definitions “Area of concern”, “Immediate environmental concern”, “No further action letter”, “Person responsible for conducting the remediation” and “Timely manner”; added definitions “Child care center”, “Day”, “Discharge to ground water proposal”, “Engineered system response”, “Feasibility study”, “Final remediation document”, “Indoor air screening level”, “Licensed site remediation professional”, “Light non-aqueous phase liquid”, “Remediation costs”, “Sanitary landfill”, “School”, “Soil gas” and “Soil gas screening level”; substituted definition “Ground water use area” for definition “Groundwater use area”; and deleted definitions “Oversight document” and “Remedial action costs”.

Administrative correction.

See: 42 N.J.R. 778(a).

#### Case Notes

In cases involving environmental cleanup, an entity may be strictly liable under the New Jersey Spill Compensation and Control Act, N.J.S.A. 58:10-23.11 through 58:10-23.24, for damages for the loss of use of natural resources adversely affected by its discharge of hazardous substances. New Jersey Dep’t of Env’tl. Protection & Administrator v.

Exxon Mobil Corp., 393 N.J. Super. 388, 923 A.2d 345, 2007 N.J. Super. LEXIS 174 (App.Div. 2007).

### 7:26E-1.9 General remediation requirements

(a) The person responsible for conducting the remediation shall conduct remediation pursuant to the regulatory timeframes established in this chapter and shall submit all documents, forms, and other submissions as required in this chapter. That person may, based on site specific conditions or circumstances, request an extension of a regulatory timeframe pursuant to the Administrative Requirements for the Remediation of Contaminated Sites rules at N.J.A.C. 7:26C-3.1.

(b) The person responsible for conducting the remediation shall comply with the Site Remediation Program's guidance documents in effect at the time that the work is conducted. All guidance documents can be found in the Site Remediation Program's Guidance Library on the Department's web site at <http://www.nj.gov/dep/srp/srra/guidance>.

(c) The person responsible for conducting the remediation shall direct each licensed site remediation professional he or she hires to conduct the remediation pursuant to N.J.A.C. 7:26C-2.4.

(d) The person responsible for conducting the remediation shall make submissions to the Department pursuant to this chapter as follows:

1. One paper copy and three copies on CD in Adobe portable document format (PDF) of all forms, applications and documents, except as provided in (d)2 through 4 below;

2. One copy on CD of the site-specific health and safety plan pursuant to N.J.A.C. 7:26E-1.10; quality assurance project plan, pursuant to N.J.A.C. 7:26E-2.2, with the each remedial phase report as applicable;

3. Three electronic copies of all analytical data using the format outlined in the Site Remediation Program's Electronic Data Interchange guidance;

4. One paper copy of all required maps and one electronic copy of all GIS compatible electronic maps prepared using the Department's GIS guidance;

5. Three electronic copies of all full laboratory data deliverables on CD in Adobe portable document format (PDF) or in a format determined by the Department and one paper copy of all full laboratory deliverables for drinking water, indoor air, chromium and dioxin samples; and

6. Any forms, applications or documents required by this chapter that can be submitted in an electronic format shall be submitted electronically 90 days after the date that the Department informs the public in the New Jersey Register that the relevant electronic application is functional. The notice shall also include a notice of administrative change that amends this subsection accordingly.

Special New Rule, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Former N.J.A.C. 7:26E-1.9, Health and safety plan, was recodified as N.J.A.C. 7:26E-1.10.

### 7:26E-1.10 Health and safety plan

Any person conducting remediation activities shall prepare a site-specific health and safety plan which shall be adhered to by all personnel involved in the remediation. The plan shall be in accordance with the most recently adopted and applicable general industry (29 CFR 1910) and construction (29 CFR 1926) standards of the Federal Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, as well as any other Federal, State or local applicable statutes or regulations.

Special recodification from N.J.A.C. 7:26E-1.9 by R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Former N.J.A.C. 7:26E-1.10, Severability, was recodified as N.J.A.C. 7:26E-1.11.

### 7:26E-1.11 Severability

If any section, subsection, provision, clause or portion of these regulations is adjudged invalid or unconstitutional by a court of competent jurisdiction, the remainder of these regulations shall not be affected thereby.

Special recodification from N.J.A.C. 7:26E-1.10 by R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Former N.J.A.C. 7:26E-1.11, Bias for action, was recodified as N.J.A.C. 7:26E-1.12.

### 7:26E-1.12 Control of ongoing sources and implementation of interim remedial measures

(a) As a first priority, the person responsible for conducting the remediation shall:

1. Identify the need for any interim remedial measures necessary to remove, contain, or stabilize a source of contamination to prevent contaminant migration and exposure to receptors; and

2. Whenever site-specific data support the need for an interim remedial measure, include in each remedial phase report a description of each interim remedial measure implemented and each interim remedial measure that is planned.

(b) The person responsible for conducting the remediation shall follow the Department's Light Non-aqueous Phase Liquid (LNAPL) Free Product Interim Remedial Measures guidance concerning free product removal as follows:

1. Within 60 days after either March 1, 2010 or LNAPL is identified, whichever is later, initiate the recovery of free product and notify the Department on a form available from the Department; and



2. Within 270 days after either March 1, 2010 or LNAPL is identified, whichever is later, complete delineation of the free product; and complete the installation of a LNAPL recovery system, initiate operational monitoring, and submit an Free Product Interim Remedial Measures Report with a form to the Department that documents the actions taken pursuant to this subsection.

Amended by R.2008 d.262, effective September 2, 2008.

See: 39 N.J.R. 2687(a), 40 N.J.R. 5010(a).

Rewrote the section.

Special recodification from N.J.A.C. 7:26E-1.11 and amended by R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Section was "Bias for action". Rewrote the section. Former N.J.A.C. 7:26E-1.12, Requirement for Department oversight of remediation, was recodified as N.J.A.C. 7:26E-1.13.

### 7:26E-1.13 Requirement for Department oversight of remediation

(a) The person responsible for conducting the remediation shall investigate and remediate contaminated sites with the Department's prior approval, in the following circumstances:

1. Sites suspected or known to be contaminated with anthropogenic radionuclide contamination of any media;
2. Sites with immediate environmental concern conditions; and
3. Sites with a landfill, if:
  - i. The landfill or any portion thereof is slated for redevelopment that includes structures intended for human occupancy;
  - ii. When landfill remediation activities are funded, in whole or part, by the Hazardous Discharge Site Remediation Fund pursuant to the Brownfield and Contaminated Site Remediation Act at N.J.S.A. 58:10B-4 through 9, a Brownfield redevelopment agreement pursuant to the Brownfield and Contaminated Site Remediation Act at N.J.S.A. 58:10B-27 through 31, or the Municipal Landfill Closure and Remediation Reimbursement Program pursuant to the Solid Waste Management Act at N.J.S.A. 13:1E-116.1 through 116.7; or
  - iii. The person conducting the remediation wants a final remediation document.

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).

Special recodification from N.J.A.C. 7:26E-1.12 and amended by R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Rewrote the section. Former N.J.A.C. 7:26E-1.13 was reserved.

### 7:26E-1.14 Immediate environmental concern requirements

(a) The person responsible for conducting the remediation that identifies an immediate environmental concern (IEC)

condition shall follow the Department's IEC guidance and address the IEC condition pursuant to this section.

(b) The person responsible for conducting the remediation that identifies an IEC condition shall:

1. Immediately notify the case manager if one is assigned. If no case manager is assigned or if the case manager is not available, immediately call the Department's hotline at 1-877 WARNDP or 1-877-927-6337;

2. Within five days after identifying the IEC condition, mitigate the IEC impacts as applicable as follows:

- i. Provide bottled water to the residents of each property where contaminant concentrations exceed any remediation standard for Class II ground water;
- ii. Mitigate the infiltration of vapors into structures impacted by vapor intrusion;
- iii. Restrict access to soil contaminated above acute levels;

3. Within five days after identifying the IEC condition, submit the following to the Department:

- i. A completed IEC Response Action form available from the Department;
- ii. A completed IEC Information Spreadsheet available from the Department;
- iii. A map indicating the location of the site and the location of the IEC condition; and
- iv. All analytical results with full laboratory data deliverables, pursuant to N.J.A.C. 7:26E-2.1(a)17, with a Potable Water Data form available from the Department;

4. Within five days after identifying the IEC condition submit the analytical results from all indoor air sampling to the New Jersey Department of Health and Senior Services at the following address:

NJDHSS  
Indoor Environments Program Director  
135 E. State Street  
PO Box 369  
4th Floor  
Trenton, NJ 08625-0369; and

5. Within 60 days after identifying the IEC condition, implement the following IEC engineered system response actions:

- i. Provide water treatment or an alternative water supply to the residents of each property where contaminant concentrations in their potable well exceed any remediation standard for Class II ground water quality standard;
- ii. Install a vapor mitigation system at each property where contaminant concentrations exceed any applicable

vapor intrusion indoor air screening level that is available in the Department's Vapor Intrusion Guidance; and

iii. Otherwise reduce exposure to contaminants or hazardous conditions to acceptable levels as applicable.

(c) Within 120 days after identifying the IEC condition, the person responsible for conducting the remediation shall submit an IEC engineered system response action report with an updated IEC Response Action form available from the Department, that includes the following:

1. A description of all immediate response actions and engineered system response actions that have been completed, including the date that each action that was conducted pursuant to (b) above;

2. A summary of all analytical data related to the IEC and the engineered system response action;

3. All maps and figures related to the IEC and the engineered system response action;

4. A description of the contaminant source control that will be implemented as required pursuant to (d) below; and

5. A GIS compatible map of the estimated area of ground water contamination prepared pursuant to the Department's IEC Guidance.

(d) Within 270 days after identifying the IEC condition, the person responsible for conducting the remediation shall initiate control of the IEC contaminant source using the Department's IEC Guidance, complete the delineation of the IEC contaminant source, and submit an IEC contaminant source control report, with an updated IEC Response Action

form available from the Department that includes descriptions of each of the following:

1. Remedial actions being implemented to remediate the IEC contaminant source;

2. A monitoring plan for the mitigation system; and

3. A monitoring plan for the wells or structures that are located downgradient of the wells or structures that are impacted by the IEC condition.

Special New Rule, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Administrative correction.

See: 42 N.J.R. 778(a).

#### **7:26E-1.15 Receptor evaluation—general and reporting requirements**

(a) The person responsible for conducting the remediation shall conduct a receptor evaluation pursuant to the requirements of N.J.A.C. 7:26E-1.16 through 1.19.

(b) The person responsible for conducting the remediation who completes an unrestricted remedial action is not required to conduct a receptor evaluation when a final remediation document is issued or is filed with the Department within 270 days after initiating the remediation.

(c) The person responsible for conducting the remediation shall submit an initial receptor evaluation, on a Receptor Evaluation form available from the Department, by November 26, 2010, or with the submittal of a site investigation report, whichever is later.

(d) The person responsible for conducting the remediation shall submit an updated receptor evaluation report on a Receptor Evaluation form available from the Department with the following documents, as applicable:

1. A remedial investigation report submitted pursuant to N.J.A.C. 7:26E-4.8; and
2. A remedial action report submitted pursuant to N.J.A.C. 7:26E-6.7.

(e) The person responsible for conducting the remediation shall also send a copy of each receptor evaluation to the following:

1. The clerk of each municipality in which the site is located; and
2. The designated local health official.

Special New Rule, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).  
See: 41 N.J.R. 4467(a).

#### 7:26E-1.16 Receptor evaluation—land use

(a) The person responsible for conducting the remediation shall identify all current land uses at the site and of each property located within 200 feet of the site boundary.

(b) The person responsible for conducting the remediation shall provide the address of each residence, school or child care center, as well as each park, playground or other recreation area that is identified at the site and within 200 feet of the site boundary.

(c) The person responsible for conducting the remediation shall generate and submit a map that shows the location of the site and the location of each residence, school or child care center, a park, playground or other recreation area land use that is identified pursuant to (b) above.

(d) The person responsible for conducting the remediation shall identify and describe any proposed changes of land use at the site and of each property located within 200 feet of the site boundary that the municipality has approved, with a map depicting the location of the change in relation to the areas being remediated.

Special New Rule, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).  
See: 41 N.J.R. 4467(a).

#### 7:26E-1.17 Receptor evaluation—ground water

(a) The person responsible for conducting the remediation shall conduct a receptor evaluation of ground water when any contaminant is detected in ground water in excess of any Class II ground water remediation standard as follows:

1. Within 90 days after ground water contamination is detected, conduct a well search to identify each well that

may be impacted by contamination that has or may have emanated from the site as follows:

i. Locate all wells by conducting a file search of all available Department, county and local records for all monitoring and potable wells located within one-half mile of each point of ground water contamination, and all irrigation, industrial wells, and wells with water allocation permits located within one mile of each point of ground water contamination;

ii. If the person responsible for conducting the remediation finds any of the wells described in (a)i above, that person shall conduct a door-to-door survey by following the Department's well search guidance;

iii. For each well located, identify the type (potable, irrigation, noncontact cooling water) and the status of the well (active, inactive, properly abandoned pursuant to N.J.A.C. 7:9D), including, as available, total depth, casing length, open bore hole or screened interval, and obtain copies of well records and/or well logs on file with the Department's Bureau of Water Systems and Well Permitting, and any additional records available in county or municipal records;

iv. Document all sources used in conducting the well search, including the names of any agency that was unable to provide the information requested; and

v. For each point of ground water contamination, determine if the ground water contamination is located within a Tier 1 or a Tier 2 well head protection area; and

2. Within 120 days after ground water contamination is detected at the site above a Class II ground water remediation standard, the person responsible for conducting the remediation shall:

i. Notify the Department, pursuant to N.J.A.C. 7:26E-1.4(e), prior to conducting potable well sampling;

ii. Sample each potable well identified by the well search that is located within 1000 feet of any point of ground water contamination, or if ground water flow direction is known, limit sampling to wells 250 feet upgradient, 500 feet sidegradient and 1,000 feet downgradient from any point of ground water contamination; and

iii. Sample irrigation wells identified by the well search when there are concerns about exposure or when information about the characteristics of the plume is needed.

(b) If the person responsible for conducting the remediation determines that a contaminant concentration is detected in any potable well sample in excess of any Class II ground water remediation standard pursuant to N.J.A.C. 7:26D-2.2(a)1, the person shall:

1. Notify the Department of the IEC condition and conduct all actions pursuant to N.J.A.C. 7:26E-1.14; and

2. Within 14 days after completing the first round of potable well sampling, the person responsible for conducting the remediation shall:

- i. Continue to delineate ground water contamination, including the extent of free product, pursuant to N.J.A.C. 7:26E-4.4; and
- ii. Continue to identify potential wells and conduct additional sampling pursuant to the Department's IEC Guidance.

(c) If no contaminant concentration is detected in any potable well sample in excess of any Class II ground water remediation standard, within 14 days after receipt of the analytical results from the laboratory, the person responsible for conducting the remediation shall:

1. Submit all analytical results to the Department with full laboratory data deliverables pursuant to N.J.A.C. 7:26E-2.1(a)17 with the Full Laboratory Data Deliverables form available from the Department; and

2. If a licensed site remediation professional is overseeing the remediation, conduct the following:

- i. Notify each person whose potable well was sampled of the analytical results; and
- ii. Provide the Department with a copy of each notification letter.

(d) The person responsible for conducting the remediation shall provide a detailed report of all potable well sampling activities in the applicable remedial phase report that that person submits to the Department.

Special New Rule, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).  
See: 41 N.J.R. 4467(a).

#### **7:26E-1.18 Receptor evaluation—vapor intrusion**

(a) The person responsible for conducting the remediation shall conduct a vapor intrusion investigation pursuant to this section and Department's Vapor Intrusion Guidance (VIG) when any of the following conditions exist in shallow ground water:

- 1. A ground water plume containing petroleum hydrocarbon contamination at a concentration greater than any vapor intrusion ground water screening level, is identified within 30 feet of a building;
- 2. A ground water plume containing volatile contamination that is not petroleum based at a concentration greater than any vapor intrusion ground water screening level is identified within 100 feet of a building;
- 3. Free product is identified in ground water within 100 feet of a building; or

4. When any of the following conditions are identified:

- i. Soil gas or indoor air contamination is detected at concentrations that exceed the applicable vapor intrusion soil gas or indoor air screening levels;
- ii. A landfill is located on or adjacent to the site;
- iii. A wet basement or sump in a building contains free product and/or ground water containing any contaminant listed in Table 1 of the VIG;
- iv. Methanogenic (methane generating) conditions are present that may cause an explosion; or
- v. Any other information that indicates that human health may be impacted via the vapor intrusion pathway.

(b) Within 60 days after determining the need to conduct a vapor intrusion investigation pursuant to (a) above, the person responsible for conducting the remediation shall:

- 1. Identify all structures and subsurface utilities located within 200 feet of the currently known extent of the shallow ground water that contains contamination at a concentration greater than any vapor intrusion ground water screening level, or within 200 feet of any condition listed in (a)3 or 4 above;
- 2. Determine the specific use for each structure identified, including the presence of residences, schools or child care centers, whether each structure has a basement, crawl space, or is constructed on a slab, and the approximate square footage of each building footprint;
- 3. Determine the specific use, depth of the invert, diameter, and construction specifications of all subsurface utilities identified;
- 4. Determine the flow direction of the shallow ground water pursuant to N.J.A.C. 7:26E-3.7(e)3; and
- 5. Determine whether free product pursuant to N.J.A.C. 7:26E-2.1(a)14 is present at each ground water sampling location.

(c) Within 150 days after determining the need to conduct a vapor intrusion investigation pursuant to (a) above, the person responsible for conducting the remediation shall:

- 1. Notify the Department prior to conducting indoor air or sub-slab sampling pursuant to N.J.A.C. 7:26E-1.4(e); and
- 2. Implement the Vapor Intrusion Guidance, including, but not limited to:
  - i. If indoor air samples are to be collected, remove sources of potential background volatile organic chemicals from inside the structure, if possible;
  - ii. Determine the number and locations of indoor air and/or sub-slab samples;

iii. Collect indoor air and sub-slab samples at structures that may be impacted by vapor intrusion;

iv. Collect other vapor intrusion related samples such as soil gas samples, background samples and ground water samples as necessary to fully evaluate the vapor intrusion pathway;

v. Analyze indoor air samples and sub-slab soil gas samples and any other samples collected using certified analytical methods; and

vi. Evaluate the results of indoor air sampling as follows:

(1) If the results are greater than the Department's vapor intrusion indoor air screening level, the person shall determine whether contaminants are likely to be associated with a discharge at the site or may be attributed to background sources;

(2) If the results are greater than the vapor intrusion indoor air screening level the person shall immediately notify the Department of an immediate environmental concern condition and conduct all actions required pursuant to N.J.A.C. 7:26E-1.14;

(3) If the results are greater than the Department's Health Department Notification Levels for indoor air the person shall immediately notify:

(A) The Department of an immediate environmental concern condition and conduct all actions required pursuant to N.J.A.C. 7:26E-1.14; and

(B) The New Jersey Department of Health and Senior Services at 609-631-6749;

(4) If the person identifies potentially explosive conditions in a structure or subsurface utility, the person shall immediately notify:

(A) 911 and report explosive conditions to the local emergency response agency;

(B) The Department of the emergency condition at 1-877-WARNDEP or 1-877-972-6337; and

(C) The New Jersey Department of Health and Senior Services at 609-631-6749;

(d) If no contaminant concentration is detected in any indoor air sample in excess of any Department indoor air screening level, within 14 days after receipt of the analytical results from the laboratory, the person responsible for conducting the remediation shall:

1. Submit all analytical results to the Department with full laboratory data deliverables pursuant to N.J.A.C. 7:26E-2.1(a)17 with the Full Laboratory Data Deliverables form available from the Department;

2. Submit all analytical results to the New Jersey Department of Health and Senior Services at the following address:

NJDHSS  
Consumer, Environmental & Occupational Health Service  
PO Box 360  
Trenton, NJ 08648; and

3. If a licensed site remediation professional is overseeing the remediation, conduct the following:

i. Notify each person whose indoor air was sampled of the analytical results; and

ii. Provide the Department with a copy of each notification letter.

(e) If the person responsible for conducting the remediation identifies vapor intrusion IEC conditions pursuant to (c) above, within 14 days after completing the first round of sampling, the person shall continue to:

1. Delineate ground water contamination, including the extent of free product, pursuant to N.J.A.C. 7:26E-4.4; and

2. Identify structures and conduct additional indoor air and/or sub-slab sampling pursuant to the Department's IEC Guidance and the VIG.

(f) If the person responsible for conducting the remediation determines that no IEC condition exists, but the vapor intrusion pathway is still of concern, the person shall complete a vapor intrusion investigation as part of the site investigation or remedial investigation, as applicable.

(g) The person responsible for conducting the remediation shall provide a detailed report of all vapor intrusion sampling activities in the applicable remedial phase report that is submitted to the Department.

(h) If the person responsible for conducting the remediation determines that the vapor intrusion pathway is not a concern at or adjacent to the site, the person shall provide a technical rationale supporting that conclusion.

Special New Rule, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).  
See: 41 N.J.R. 4467(a).

### 7:26E-1.19 Receptor evaluation—ecological

As part of the receptor evaluation the person responsible for conducting the remediation shall conduct a baseline ecological evaluation pursuant to N.J.A.C. 7:26E-3.11, in order to determine whether a remedial investigation of ecological receptors is required pursuant to N.J.A.C. 7:26E-4.7.

Special New Rule, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).  
See: 41 N.J.R. 4467(a).



## SUBCHAPTER 2. QUALITY ASSURANCE FOR SAMPLING AND LABORATORY ANALYSIS

### 7:26E-2.1 Quality assurance requirements

(a) The person responsible for conducting the remediation shall ensure that the following quality assurance procedures are followed for all sampling and laboratory analysis activities.

1. Laboratories performing analyses shall conform to the following:

i. For the analysis of any aqueous samples for a parameter or category of parameters for which laboratory certification exists pursuant to N.J.A.C. 7:18, the laboratory shall be certified for that specific parameter or category of parameters pursuant to N.J.A.C. 7:18;

ii. For the analysis of non-aqueous samples using specific analytical methods contained in the EPA Publication SW-846, "Test Methods for Evaluating Solid Waste", third edition, update IIB, January 1995, as amended and supplemented, for a parameter or category of parameters for which certification exists pursuant to N.J.A.C. 7:18, the laboratory shall be certified for that specific parameter or category of parameters pursuant to N.J.A.C. 7:18 or, at a minimum, have obtained temporary approval to analyze regulatory samples pursuant to N.J.A.C. 7:18-2.5(c);

iii. For the analysis of samples using USEPA Contract Laboratory Program (CLP) analytical methods for a parameter or category of parameters for which certification exists pursuant to N.J.A.C. 7:18, the laboratory shall be certified for that specific parameter or category of parameters pursuant to N.J.A.C. 7:18 or, at a minimum, have obtained temporary approval to analyze regulatory samples pursuant to N.J.A.C. 7:18-2.5(c);

iv. For the analysis of aqueous and non-aqueous samples for parameters or categories of parameters not contained in (a)li through iii above, the person responsible for conducting the remediation is also responsible for ensuring that the selected laboratory is capable of performing the analysis. At such time as N.J.A.C. 7:18 incorporates procedures for parameters or categories of parameters not contained in (a)li through iii above, the procedures in N.J.A.C. 7:18 shall be followed;

v. For the analysis of soil gas or indoor air samples collected to investigate the vapor intrusion pathway for a parameter or category of parameters for which certification exists pursuant to N.J.A.C. 7:18, the laboratory shall be certified for that specific parameter or category of parameters pursuant to N.J.A.C. 7:18 or, at a minimum, have obtained temporary approval to analyze regulatory samples pursuant to N.J.A.C. 7:18-2.5(c);

vi. For the analysis of samples for petroleum hydrocarbons (PHC) follow the Department's Protocol for Addressing Extractable Petroleum Hydrocarbons; and

vii. For any field analytical method, the laboratory or individual conducting the analysis shall be certified for the parameter or category of parameters for field analytical methods for which the Department provides certification. If the Department does not provide certification for a field analytical method, the laboratory or person shall obtain a site-specific certification for the field analytical method from by the Department's Office of Quality Assurance;

2. The person responsible for conducting the remediation shall reject analytical data as follows:

i. For laboratories performing analyses pursuant to (a)li above, decertification or suspension of a laboratory pursuant to N.J.A.C. 7:18 for any given parameter or category of parameters shall result in the rejection of all analytical data for that given parameter or category of parameters generated after the date of decertification or suspension.

ii. For laboratories performing analyses pursuant to (a)lii above, decertification or suspension of a laboratory pursuant to N.J.A.C. 7:18 for any given parameter or category of parameters shall result in the rejection of all analytical data for that given parameter or category of parameters generated after the date of decertification or suspension.

iii. For laboratories performing analyses pursuant to (a)liii above, decertification or suspension of a laboratory pursuant to N.J.A.C. 7:18 for any given parameter or category of parameters shall result in the rejection of all analytical data for that given parameter or category of parameters generated after the date of decertification or suspension.

3. Except as provided in (a)5 below, analytical methods used shall have been published or approved by organizations with recognized expertise in the development of standardized analytical methods. These organizations include, without limitation:

- i. The EPA;
- ii. The American Society for Testing and Materials (ASTM);
- iii. The American Public Health Association (APHA);
- iv. The National Institute for Occupational Safety and Health (NIOSH);
- v. The Association of Official Analytical Chemists (AOAC);
- vi. The U.S. Army Toxic and Hazardous Materials Agency (USATHAMA);

- vii. The American Water Works Association (AWWA);
- viii. The Department;
- ix. The United States Department of Defense;
- x. The United States Department of Energy; and
- xi. The United States Department of Interior.

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

- i. Samples that contain high levels of carbonates which would result in rapid or vigorous reaction when the sample is added to the vial containing sodium bisulfate may be shipped in vials without preservative;
- ii. Oily waste samples when the solubility of the waste is unknown may be shipped in vials without preservative; or
- iii. Samples collected using a field core sampling/storage device (that is, En Core %2F or equivalent. En Core %2F is a product of En Novative Technologies Inc. of Green Bay, Wisconsin.) and the samples are shipped to and analyzed by the laboratory within 48 hours of sampling or the samples are shipped to the laboratory and transferred to vials containing the appropriate preservation solution within 48 hours of sampling need not be preserved in the field.

5. If an analytical method as described in (a)3 above does not exist for a specific contaminant or parameter within a specific matrix, or if an analytical method as described in (a)3 above for a given contaminant or parameter is demonstrated to be inappropriate for the matrix analyzed, then the person responsible for conducting the remediation shall:

- i. Select an appropriate method from another source;
- ii. Document the rationale for selecting the method pursuant to N.J.A.C. 7:26E-1.7; and
- iii. Develop a standard operating procedure for the method, including a quality control section.

6. The person responsible for conducting remediation shall ensure that aqueous samples are analyzed to determine potability as follows:

i. For organic contaminant, use the version of USEPA 500 series methods in effect on the date of analysis (USEPA Publication "Methods for the Determination of Organic Compounds in Drinking Water, Supplement III, August 1995"), incorporated herein by reference, as amended and supplemented); and

ii. For inorganic contaminant, use the version of USEPA 200 series methods in effect on the date of analysis (USEPA Publication "Methods for the Determination of Metals in Environmental Samples, Supplement I, May 1994"), incorporated herein by reference, as amended and supplemented). As an alternative, lead may be analyzed by the version of ASTM Method D3559-90D in effect on the date of analysis (American Society for Testing Publication "Annual Book of ASTM Standards, 1994"), incorporated herein by reference, as amended and supplemented, or by the version of Method 3113B in effect on the date of analysis (American Public Health Publication "Standard Methods for the Examination of Water and Wastewater, 18th Edition"), incorporated herein by reference, as amended and supplemented.

7. The person responsible for conducting remediation shall ensure that hexavalent chromium analysis of aqueous and nonaqueous samples is conducted as follows:

- i. Measure the pH and Eh of each sample, not just the quality control sample, with the pH and Eh data included and plotted in the full data deliverables using the graph in USEPA SW-846 Method 3060A incorporated herein by reference, as amended and supplemented; and
- ii. Use a site sample for the quality control analyses so the reduction/oxidation effects of the site matrix can be properly evaluated using USEPA SW-846 Method 3060A.

8. For all samples to be used for determining compliance pursuant to the Department's Compliance Guidance, the analytical method(s) shall have analytical sensitivity sufficient to accurately measure concentrations at or below the applicable remediation standard or criteria.

9. If analytical methods are not available for a contaminant, analysis of indicator parameters may be acceptable with technical rationale in the applicable remedial phase report that is submitted to the Department (for example, pH may be used as an indicator parameter for acid or base discharges).

10. Laboratories shall follow all quality assurance/quality control procedures specified in the analytical methods.

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

12. Sample matrix cleanup methods shall be performed if:

i. Petroleum contaminated soils, sediments, or other solids are analyzed for semivolatile organics, and the method detection limits are elevated above the applicable remediation standard because of matrix interference;

ii. Gas chromatographic peaks are not adequately separated due to matrix interference. A peak shall be considered inadequately separated when a rise in baseline or extraneous peaks interferes with:

(1) The instrumental ability to correctly identify compounds present (including internal standards and surrogates); and/or

(2) The integration of peak area and subsequent quantification;

iii. So specified by the analytical method; or

iv. Matrix interferences prevent accurate quantification and/or identification of target compounds.

13. Acceptable matrix cleanup methods include, without limitation, those methods contained in the EPA Publication SW846 or the EPA "Contract Laboratory Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration" in effect as of the date of sample analysis.

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

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

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

i. Contaminant identity is known;

ii. The contaminant chromatographic peak is adequately resolved from any other peak. A peak is considered adequately resolved when:

(1) Adjacent or coeluting chromatographic peaks do not result in retention time shifts causing misidentification;

(2) Coeluting chromatographic peaks do not interfere with quantification of the contaminant's chromatographic peak; and

(3) Matrix interferences as described in (a)9ii above are not present; and

iii. At least 10 percent of the sample analyses are confirmed using the appropriate chromatograph/mass spectrometer detection system.

16. Laboratory data deliverables, as listed in Appendix A, shall be as follows unless otherwise specifically required pursuant to a NJPDES permit:

i. Full laboratory data deliverables shall be submitted for all potable water and polychlorinated dibenzop-dioxins and polychlorinated dibenzofurans sample results, and for all hexavalent chromium soil sample results;

ii. Reduced laboratory data deliverables shall be submitted for all other analyses; and

iii. Analytical results without all quality control and raw data as required in full and reduced laboratory data deliverables, may be provided for all delineation samples which necessitate additional delineation sampling, and for all long-term ground water monitoring samples where the site has Department oversight, provided the following information is submitted:

(1) A cover page, including facility name and address, laboratory name and address, laboratory certification number, if applicable, date of analytical report preparation and signature of laboratory director;

(2) A listing of all field sample identification numbers and corresponding laboratory sample identification numbers;

(3) A listing of all analytical methods used;

(4) The method detection limit and practical quantitation level for each analyte for each sample analysis;

(5) All sample results including date of analysis;

(6) All method blank results; and

(7) All chain of custody documentation.

iv. Upon written request, the Department may require that a "reduced" data deliverables package shall be upgraded to a "full" data deliverables package for any sample analysis pursuant to N.J.A.C. 7:26E-1.7.

17. All sample collection, storage, and shipping requirements, such as sampling methods, sample preservation requirements, sample handling times, decontamination pro-

cedure for field equipment, and frequency for field blanks, field duplicates and trip blanks shall conform to the requirements specified in the Department's Field Sampling Procedures Manual. The person responsible for conducting the remediation shall document the rationale for any deviations from the methods in the Department's "Field Sampling Procedures Manual" in the applicable remedial phase report submitted to the Department.

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

(b) Field screening methods are limited as follows:

1. Field screening methods for all sampling matrices (soil, water, air, interior surfaces) can only be used under the following conditions:

i. For contaminant delineation if contaminant identity is known or if there is reasonable certainty that a specific contaminant may be present (for example, benzene, toluene, ethyl benzene, xylene in the case of sampling for a gasoline release); or

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

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

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

i. The NJDEP "Field Sampling Procedures Manual";

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

iii. "Field Measurements," EPA/530/UST-90-003; or

iv. The "Field Screening Methods Catalog," EPA/540/2-8 8/005.

4. Other field screening methods may be used if use of the selected method enables the person to meet the sampling goals set forth in this subchapter, and the person provides the technical rationale for using the selected sampling method in the applicable remedial phase report submitted to the Department.

(c) The following requirements apply for selection of analytical parameters for all environmental media:

1. Samples shall be analyzed for:

i. The contaminants that may be present as determined during the preliminary assessment and from any other information obtained during the remediation; or

ii. The Target Compound List plus TICs/Target Analyte List (TCL + TICs/TAL), hexavalent chromium, petroleum hydrocarbons (PHC), and pH when contaminants are unknown or not well documented;

2. Based on sampling conducted pursuant to (c)1 above, the person responsible for conducting the remediation may, during future sampling events, sample for fewer contaminants than for which the person initially sampled. The person responsible for conducting the remediation shall provide the technical rationale for the reduced list in the applicable remedial phase report submitted to the Department;

3. In addition to (c)1 and 2 above, analyze samples for parameters as needed to develop:

i. A site-specific standard or criterion for:

(1) The soil impact to ground water pathway;

(2) The vapor intrusion pathway;

(3) The ecological pathway; and

ii. An alternative remediation standard for the soil inhalation pathway; and

4. For concrete and other building material that will be recycled, conduct sampling pursuant to Department's Guidance for Characterization of Concrete and Clean Material Certification.

(d) The person responsible for conducting the remediation shall analyze samples for petroleum hydrocarbons contamination (PHC) pursuant to the Department's Protocol for Addressing EPH Contamination Guidance and as follows:

1. For all petroleum storage and discharge areas, analyze all samples pursuant to the requirements in Table 2-1 and the Department's guidance Replacement of TPH Method 418.1 for the Site Remediation Program;

2. For contaminants, where Table 2-1 indicates that additional analytical parameters are required, conduct the additional analyses on sample(s) with the highest PHC concentration(s), with a minimum of one sample; and

3. For all matrices where sheen or odor indicate the potential presence of PHC from an unknown source, analyze all samples as unknown PHC pursuant to the requirements in Table 2-1.

TABLE 2-1  
ANALYTICAL REQUIREMENTS FOR  
PETROLEUM STORAGE AND DISCHARGE AREAS

<u>Petroleum Product</u>	<u>Soil/Sediment</u>	<u>Water</u>
Leaded Gasoline, Aviation Gasoline	VO+TICs <sup>1</sup> , Lead	VO+TICs <sup>1</sup> , Lead

Petroleum Product	Soil/Sediment	Water
Unleaded Gasoline	VO+TICs <sup>1</sup> , Tertiary butyl alcohol	VO+TICs <sup>1</sup> , Tertiary butyl alcohol
Light Petroleum Distillates (Naphtha, Stoddard Solvent, Paint Thinner, etc.)	VO+TICs <sup>1</sup>	VO+TICs <sup>1</sup>
Kerosene, Jet Fuel	VO+TICs <sup>1</sup> , Naphthalene, 2-Methyl Naphthalene	VO+TICs <sup>1</sup> , SVO+TICs <sup>2</sup>
Fuel Oil No. 2, Diesel Fuel	PHC <sup>3</sup> . Analyze 25 percent of samples for 2-Methyl Naphthalene and Naphthalene when PHC are detected over 1,000 mg/kg. <sup>7</sup>	VO+TICs <sup>1</sup> , SVO+TICs <sup>2</sup>
Fuel Oil Nos. 4 & 6, Hydraulic Oils, Cutting Oil, Lubricating Oil	PHC <sup>3</sup> . Analyze 25 percent of samples for PAH <sup>4</sup> when PHC are detected over 100 mg/kg. <sup>7</sup>	VO+TICs <sup>1</sup> , SVO+TICs <sup>2</sup>
Crude Oil	PHC <sup>3</sup> , VO+TICs <sup>1</sup> , SVO+TICs <sup>2</sup> , TAL Metals <sup>5</sup>	VO+TICs <sup>1</sup> , SVO+TICs <sup>2</sup> , TAL Metals <sup>5</sup>
Waste Oil, Unknown Petroleum Hydrocarbons	PHC <sup>3</sup> . Analyze 25 percent of samples for VO+TICs <sup>1</sup> , SVO+TICs <sup>2</sup> , PCBs, EPA TAL Metals <sup>5</sup> when PHC are detected. <sup>7</sup>	VO+TICs <sup>1</sup> , SVO+TICs <sup>2</sup> , TAL Metals <sup>5</sup>
Waste Vehicular Crankcase Oil	PHC <sup>3</sup> . Analyze 25 percent of the samples for VO+TICs, SVO+TICs <sup>2</sup> , PCBs, Lead when PHC are detected. <sup>7</sup>	VO+TICs <sup>1</sup> , SVO+TICs <sup>2</sup> , Lead
Mineral Oil, Dielectric Fluid, Transformer Oil	PHC <sup>3</sup> and PCBs.	PHC <sup>3</sup> and PCBs
Manufactured Gas	PHC <sup>3</sup> , VO+TICs <sup>1</sup> , PAH <sup>4</sup> , TAL	PHC <sup>3</sup> , VO+TICs <sup>1</sup> , PAH <sup>4</sup> , TAL
Plant (MGP) Sites	Metals <sup>5</sup> , Cyanide, Phenolics <sup>6</sup>	Metals <sup>5</sup> , Ammonia (Total), Cyanide, Phenolics <sup>6</sup>

(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.

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Rewrote the section.

Administrative correction.

See: 42 N.J.R. 778(a).

## 7:26E-2.2 Quality assurance project plan

(a) The person responsible for conducting the remediation shall prepare a Quality Assurance Project Plan 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;

### Footnotes

1. EPA Target Compound List volatile organic compounds excluding 1,2-Dibromo-3-chloropropane, 1,2-Dibromoethane (Ethylene dibromide), and 1,4-Dioxane with a library search of TICs.

2. EPA Target Compound List semivolatile organic compounds excluding phenol and substituted phenols with a library search of TICs.

3. Petroleum Hydrocarbons.

4. EPA Target Compound List Polynuclear Aromatic Hydrocarbons.

5. EPA Target Analyte List (TAL) Metals.

6. EPA Target Compound List phenol; 2-methylphenol; 4-methylphenol; and 2,4-dimethylphenol.

7. Conduct the additional analyses on sample(s) with the highest PHC concentration(s), with a minimum of one sample.



2. The building interior sampling requirements in N.J.A.C. 7:26E-3.5, if applicable;
3. The soil sampling requirements in N.J.A.C. 7:26E-3.6;
4. The ground water sampling requirements in N.J.A.C. 7:26E-3.7, if applicable;
5. The surface water and sediment sampling requirements in N.J.A.C. 7:26E-3.8, if applicable;
6. The area specific sampling requirements in N.J.A.C. 7:26E-3.9;
7. The background soil sampling requirements in N.J.A.C. 7:26E-3.10, if applicable;
8. The ecological evaluation requirements in N.J.A.C. 7:26E-3.11; and
9. The landfill and historic fill requirements in N.J.A.C. 7:26E-3.12, if applicable.

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

(d) The person responsible for conducting the remediation shall conduct a comparison of all site data with the Department's applicable remediation standards, pursuant to the Department's Compliance Guidance, to determine if contaminated areas of concern are present.

(e) The person responsible for conducting the remediation shall complete the site investigation and submit a site investigation report with a Preliminary Assessment/Site Investigation form available from the Department by the later of the following:

1. By November 26, 2010; or
2. Two hundred seventy days after the initiation of remediation, pursuant to N.J.A.C. 7:26C-2.2(b).

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), inserted "unrestricted use", substituted "remediation is required" for "action is required" and deleted "prior to a Department determination that no further action is necessary" following "remediation is necessary"; added (b)7 through (b)9; and in (c), amended N.J.A.C. reference.

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), inserted "or, as necessary, have emanated or are emanating from the site" preceding "any of the applicable".

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

In (a), deleted "unrestricted use" following "applicable"; in (b)9, inserted "landfill and"; rewrote (d); and added (e).

#### 7:26E-3.4 Site investigation—general sampling requirements

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

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

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

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

4. If access to sampling locations required pursuant to N.J.A.C. 7:26E-3.5 through 3.12 is impractical due to physical obstructions or safety hazards, and no practical sampling alternatives are available, the person responsible for conducting the remediation shall provide the rationale for alternative sampling location in the site investigation report.

(b) All sampling methods and laboratory analyses shall be conducted pursuant to N.J.A.C. 7:26E-2.1.

(c) Composite sampling shall not be conducted, except as necessary for waste classification pursuant to N.J.A.C. 7:26G-5.

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), inserted "unrestricted use" and added (a)4.

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

In the introductory paragraph of (a), deleted "whether relating to current or former uses of the site" following "concern"; and rewrote (a)4.

Administrative correction.

See: 42 N.J.R. 778(a).

#### 7:26E-3.5 Site investigation—building interiors

The person responsible for conducting the remediation shall conduct a site investigation of building interiors when contaminants inside the building have the potential to migrate to the environment outside the building or when contaminants outside the building have the potential to migrate into the building. The person responsible for conducting the remediation shall conduct the site investigation of the vapor intrusion pathway required pursuant to this chapter and the Department's Vapor Intrusion Guidance.

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 section.

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).  
 See: 41 N.J.R. 4467(a).  
 Rewrote the section.

### 7:26E-3.6 Site investigation—soil

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

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

- i. There have been any reports of buried drums, tanks or waste;
- ii. Ground water contamination is detected and no source has been identified; or
- iii. Aerial photographic history of the site indicates the presence of drums, tanks or waste in or adjacent to regraded and/or filled areas.

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

i. Logs shall be prepared for all soil samples to document subsurface conditions including, without limitation, soil types and description of non-soil materials, field instrument measurements, depth to ground water, if ground water is encountered and document, if present, soil mottling, presence of odor, vapors, soil discoloration, and free and/or residual product, as determined pursuant to N.J.A.C. 7:26E-2.1(a)14;

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

iii. All borings shall be performed in accordance with the Subsurface and Percolating Waters Act, N.J.S.A. 58:4A-4.1 et seq. In addition, a monitoring well permit shall be obtained from the Department prior to drilling any soil boring greater than 25 feet below grade. For soil borings to a depth of less than 25 feet below grade, the Department recommends soil not be returned to the boring hole. If contaminated materials are returned to the boring hole, then the person responsible for conducting the remediation shall address the presence of this contamination as part of the remedial action workplan; and

iv. Soil sample locations may be photo-documented.

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

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

i. A bulk sampling device that will collect an intact core (for example, splitspoon) shall be used to minimize contaminant loss during sampling; and

ii. Each core shall be screened with a properly calibrated direct reading instrument equipped with a photo-ionization detector (PID), flame ionization detector (FID), or other suitable instrument capable of detecting the contaminants pursuant to N.J.A.C. 7:26E-2.1(b) to select samples of volatile organics analysis using the following criteria:

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

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

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

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

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

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

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

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

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

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

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

is recommended, where appropriate, to assist in the evaluation of potentially contaminated or contaminated soil, where extensive sampling would otherwise be required, such as for lengthy sections of below-grade piping. Guidance for the use of soil gas techniques may be found in the NJDEP "Field Sampling Procedures Manual."

(c) The site investigation of soil shall be conducted:

1. For the purposes of a site investigation pursuant to N.J.A.C. 7:26E-3.3(a); and

2. According to the quality assurance and quality control requirements pursuant to N.J.A.C. 7:26E-2.1.

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)2, substituted "Soil samples shall be collected for chemical analysis" for "Soil borings shall be extended to a depth appropriate for collection of soil samples,"; in (a)2i, substituted "soil samples" for "borings", inserted "and/or residual", and added N.J.A.C. reference; substantially amended (a)2iii; rewrote (a)4; and in (b), added the second sentence.

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: 42 N.J.R. 778(a).

### 7:26E-3.7 Site investigation—groundwater

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

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

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

(b) Ground water sampling may not be necessary during a site investigation for a particular area of concern if the person responsible for conducting the remediation documents that ground water contamination from the discharge is unlikely based 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 in effect at the time of the remediation, regardless of when the Department is informed of the remediation; and

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

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

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

2. Ground water samples may be taken pursuant to any generally acceptable sampling method pursuant to N.J.A.C. 7:26E-1.7. Sampling methods generally acceptable to the Department include, but are not limited to, those specified in the NJDEP Field Sampling Procedures Manual or the NJDEP Alternative Ground Water Sampling Techniques Guide in effect as of the date on which the sampling is performed; and

3. The groundwater sampling points shall be located in:

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

ii. The expected downgradient flow direction of the area of concern and within 10 feet of the area of concern; groundwater 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. Groundwater flow direction may also be predicted based on data from adjacent sites if groundwater flow direction at the adjacent site has been determined pursuant to N.J.A.C. 7:26E-3.7(e)3iv.

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

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

2. At least one ground water sample for sites with leaking underground storage tanks and tank fields containing up to three tanks with a maximum capacity of 10,000 gallons per tank. If a leaking tank is excavated, the

ground water sampling point shall be located within the excavation, if possible;

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

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

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

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

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

3. If the contaminant concentrations found in any ground water sample exceeds the applicable ground water remediation standard, the person shall determine the direction of ground water flow as follows:

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

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

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

iv. Collect water level measurements and determine ground water flow direction, taking into account activities in the area which may affect flow direction, such as pumping wells or seasonally used pumping wells and injection wells.

(f) A prospective purchaser shall commence a potable water investigation no later than 30 calendar days after acquiring the property, in accordance with the requirements and schedule at N.J.A.C. 7:26E-1.17.

(g) To support a claim that all or part of ground water contamination detected in onsite ground water samples is caused by background ground water contamination, a background ground water investigation shall be conducted as follows:

1. Ground water flow direction shall be determined pursuant to N.J.A.C. 7:26E-3.7(e)3;

2. A minimum of one background monitoring well shall be installed in each water bearing zone that is believed to contain background ground water contamination. A sufficient number of additional monitoring wells shall be installed to evaluate all offsite sources potentially affecting onsite ground water quality. All monitoring wells shall be installed in accordance with N.J.S.A. 58:4A-4.1 et seq. and N.J.A.C. 7:9D. Each background monitoring well shall be located:

i. Beyond the influence of all onsite areas of concern;

ii. At the upgradient property boundary of the site, as determined by N.J.A.C. 7:26E-3.7(e)3;

iii. Such that the offsite ground water impacting this well will migrate along a predicted ground water flow path that will intercept the area of concern; and

iv. Outside the zone of influence of any nearby pumping wells that would prevent upgradient ground water from flowing onto the site;

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

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

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

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

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

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

ii. Additional remediation may be required when contamination is present in the area of concern monitoring well but not in the background monitoring well or contamination is present in both the area of concern

monitoring well and the background monitoring well. In these cases, the Department shall consider the contribution of the background contamination in the determination of the applicable ground water remediation standards for the site. Factors for determining the contribution of the offsite contamination to onsite contamination shall include, but not be limited to, contaminant attenuation rates, contaminant degradation rates, and ground water flow velocity; and

5. The person responsible for conducting the remediation shall notify the Department pursuant to N.J.A.C. 7:26E-1.4(c) if that person determines, pursuant to (g)4 above, that ground water contamination exists upgradient of the site. The person responsible for conducting the remediation shall notify their assigned case manager, or if they are not assigned a case manager, the Department hotline at (1-877 WARNDP or 1-877-927-6337).

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), added "any soil contaminant . . . reference; and"; deleted (a)1; recodified former (a)2 as (a)1; added new (a)2; in (b)4, substituted "in effect . . . informed of the remediation" for "at the time of remedial action workplan approval"; in (c)2, deleted "; any method-specific requirements pursuant to N.J.A.C. 7:26E-4.4(g) shall be conducted, if groundwater monitor wells or piezometers are used" and added the last sentence; in (c)3i, increased types of excavations which previously included only underground storage tanks which were source of contamination; in (c)3ii, added last sentence; and added (f).

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).

Amended by R.2008 d.262, effective September 2, 2008.

See: 39 N.J.R. 2687(a), 40 N.J.R. 5010(a).

In (g)5, updated the N.J.A.C. reference and substituted "(c)4" for "(g)4".

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Rewrote (e)3; and in (f), substituted "at N.J.A.C. 7:26E-1.17" for "in (e)3, above".

Administrative correction.

See: 42 N.J.R. 778(a).

### 7:26E-3.8 Site investigation—surface water and sediment

(a) If a surface water body is on or adjacent to the site, the person responsible for conducting the remediation shall determine if there is any evidence that discharges to the surface water body have occurred or are occurring. Such evidence shall include, without limitation:

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

2. Stressed vegetation, sheens, seeps, discolored soil or sediment along the shoreline or on the surface water body;

3. Evidence of stream impacts from historical discharges including historical ecological studies document-

ing differences in organism population density and diversity in areas potentially impacted by the site relative to areas not impacted by the site; or

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

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

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

2. Surface water samples are required to evaluate standing water bodies, or, for flowing water, upgradient, downgradient, and discharge point water samples are required when there is reason to believe surface water may have been impacted by contamination emanating from the site. Sampling shall be designed to account for seasonal or short-term flow and water quality fluctuations due to dry versus wet weather flow, system hydraulics (obtaining flow-proportioned samples where applicable) and potential contaminant characteristics (for example, density, solubility); and

3. Sediments in surface water bodies shall be analyzed when there is reason to believe sediments may have been impacted by contamination emanating from the site as follows:

i. Sediment sampling for streams and similar water bodies shall be completed in accordance with N.J.A.C. 7:26E-3.9(d)3 (Swales/Culverts).

ii. Sediment sampling for ponded bodies of water shall be completed in accordance with N.J.A.C. 7:26E-3.9(c) (Surface Impoundments).

iii. In addition to other required analyses, surface water sediments shall also be analyzed for total organic carbon, pH, and particle size. These data are required to develop appropriate remediation standards.

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 (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 sampling requirements for bulk storage tanks and appurtenances, including, without limitation, all in-use and out of service storage tanks with a storage capacity greater than 55 gallons, and associated piping and fill points.

1. For above ground tanks over unpaved soil:

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

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

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

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

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

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

sampling equipment, the sample may be located within two feet of the tank.

2. For above ground tanks over paved surfaces:

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

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

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

iv. Instead of sampling soil beneath pavement, samples around the pad may be taken pursuant to (b)1 below or N.J.A.C. 7:26E-1.7.

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;

<u>Location</u>	<u>Medium</u>	<u>Sample Depth</u>	<u>Analytical Parameters</u>	<u>Sampling Method</u>
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.

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Rewrote (a); in (b)9, deleted "and" from the end; in (b)10, substituted "; and" for a period at the end; and added (b)11.

Administrative correction.

See: 42 N.J.R. 778(a).

### 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 ground water

(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 "Geo-data"). 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-1.7.

(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-8; 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-8;

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

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

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

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

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

1. Be constructed pursuant to N.J.A.C. 7:9D. 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 stratigraphy. Drilling logs shall include all data required pursuant to N.J.A.C. 7:26E-3.6, Soil investigations. Other methods may be used if documentation acceptable to the Department is provided indicating that the methods were appropriate;

5. Have a sufficient number of rock cores collected during the drilling of bedrock monitoring wells, piezometers and other borings, if appropriate, to obtain a general understanding of the fracture patterns beneath the site. The corings shall be conducted using the ASTM D2113 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. The person responsible for conducting the remediation shall, within 14 days after discovering the damage, properly repair or decommission the damaged monitoring well or piezometer in accordance with N.J.A.C. 7:9D.

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

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

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 ground water 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 ground water contamination is from an offsite source, then a background ground water investigation shall be performed pursuant to N.J.A.C. 7:26E-3.7(g).

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)14;

ii. Confirm the direction of ground water 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)3; 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-1.17, 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).

Amended by R.2005 d.222, effective July 5, 2005.

See: 37 N.J.R. 405(a), 37 N.J.R. 2499(a).

In (h), updated the N.J.A.C. reference in 3.

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

In the introductory paragraph of (g), substituted "ground water" for "groundwater"; in (g)1, deleted the second sentence; and rewrote (g)11.

Administrative correction.

See: 42 N.J.R. 778(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. If the person responsible for conducting the remediation determines that this migration pathway is not considered significant, that person shall provide a technical rationale supporting that conclusion in the remedial investigation report; 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 ground water is discharging, including a water quality analysis program with sampling stations upstream and downstream of the contaminated site, any existing point source discharges at that site, and any proposed discharge locations as follows:

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

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

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

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

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

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

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

- ii. All methods shall be consistent with generally accepted professional methods, such as those described in the NJDEP "Field Procedures Manual For Water Data Acquisition," or the EPA handbook "Instream Sampling for Waste Load Allocation Applications;" any deviations from these two documents shall be documented pursuant to N.J.A.C. 7:26E-1.7.

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 (c)1 and (d)2ii, amended N.J.A.C. reference.

Amended by R.2003 d.29, effective February 3, 2003.

See: 34 N.J.R. 170(a), 35 N.J.R. 710(a).

Rewrote (d).

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Rewrote (c)1.

Administrative correction.

See: 42 N.J.R. 778(a).

#### **7:26E-4.6 Remedial investigation of landfills and historic fill material**

(a) The person responsible for conducting the remediation shall conduct a remedial investigation of a landfill as follows:



the fill material, texture and size of materials, an assessment of fill homogeneity, field indicators of contamination including, without limitation, odors, staining or other discoloration, and field measurements of organic vapors using a calibrated PID/FID or other suitable instrument. The presence of any process waste including metal processing waste such as slag, tailings or free and/or residual product determined pursuant to N.J.A.C. 7:26E-2.1(a)14 shall be noted;

5. Stratigraphic cross sections of the site using information from monitoring wells, test pits and borings;

6. All soil boring, piezometer, and monitoring well records, including the State permit numbers and as-built specifications, if applicable;

7. For each monitoring well sampled, the information required pursuant to N.J.A.C. 7:26E-3.13(c)7 shall be reported for each ground water sampling event.

8. If applicable, ground water elevation, for each monitoring well, to the nearest hundredth (0.01) foot relative to a permanent, on-site datum taken prior to evacuation, from the top of well casing with locking cap removed;

9. A summary of the review of inventory control records to identify product loss and any actions taken to investigate potential discharge areas;

10. Results of any treatability, bench scale, or pilot studies or other data collected to support remedy selection;

11. Any data collected to develop permit limitations;

12. The results of any ecological assessments and evaluations conducted, including, without limitation, characterization of natural resource injuries, in accordance with N.J.A.C. 7:26E-4.7(b). This information shall be submitted in a format compatible with the Department's Geographic Information System (see N.J.A.C. 7:1 Appendix A. For additional guidance, see the version of the Department's "Guidance for the submission and use of Data in GIS Compatible Formats" most recent to the time of submission. This guidance document may be found at <http://www.state.nj.us/dep/srp/regs/techgis/techgis05.htm>.) In lieu of an ecological investigation or an ecological risk assessment for groundwater, the person responsible for conducting the remediation shall include the following information in the remedial investigation report:

- i. The area of contaminated ground water plume;
- ii. The degradability of the individual ground water contaminants; and
- iii. The period during which the ground water is estimated to exceed the applicable ground water quality standards;

13. For landfills, a summary of any records pertaining to the nature of waste disposed at the landfill. Copies of the

records shall be submitted as a separate attachment to the report;

14. For historic fill material, the following documentation shall be submitted:

i. A statement that, based on diligent inquiry of the history of the parcel of land, including use of the Department's Geographic Information System, the fill material is non-indigenous material, was used to replace soil in an area or raise the topographic elevation of the site, was contaminated prior to emplacement, and was in no way connected with the operations at the location of emplacement; and

ii. A statement that, based on the results of the remedial investigation, the historic fill material does not include any material which is substantially chromate chemical production waste or any other chemical production waste or waste from processing of metal or mineral ores, residues, slag or tailings; and

15. Any other data and information obtained pursuant to N.J.A.C. 7:26E-4.1 through 4.7.

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

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

2. Sample location map(s), including:

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

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

iii. Field identification numbers for all samples;

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

v. Top of bedrock contour map if bedrock was encountered in a sufficient number of borings to prepare a map;

vi. Isopleth maps for ground water contaminant concentrations for each round of sampling; isopleth maps for soil sample results may also be provided;

vii. Maps depicting the horizontal and vertical extent of any free and/or residual product zones in ground

water or soil, as determined pursuant to N.J.A.C. 7:26E-2.1(a)14, for each round of sampling;

viii. If data for more than 25 samples are presented for an area of concern, soil, ground water and sediment contaminant isopleth maps and cross section diagram(s) showing concentrations of potential contaminants shall be submitted, including:

(1) Horizontal and vertical distribution of contaminants in the soil and sediment, with sample point location numbers and contaminant concentrations; and

(2) Horizontal and vertical distribution of contaminants in the ground water, with sample point location numbers and contaminant concentrations; and

ix. All monitoring well, piezometer, or other ground water sampling point locations including depth of the open borehole interval and/or screened interval;

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

4. The same alpha or numeric labels, if assigned in the remedial investigation workplan, shall be used in the remedial investigation report; and

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

(e) If the person responsible for conducting the remediation conducted a vapor intrusion evaluation during the remedial investigation, the person shall include the results of that evaluation as a part of the remedial investigation report required pursuant to N.J.A.C. 7:26E-3.13(e).

(f) The person responsible for conducting the remediation shall submit an updated receptor evaluation pursuant to N.J.A.C. 7:26E-1.15 on a Receptor Evaluation form provided by the Department.

(g) The remedial investigation report shall also contain the results of all other remedial investigations conducted pursuant to this subchapter.

Recodified from 7:26E-4.9 and amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997; 7:26E-4.8(c)14i operative November 19, 1997).

See: 28 N.J.R. 1098(a), 28 N.J.R. 2298(a), 29 N.J.R. 2278(b).

N.J.A.C. references amended throughout section; substantially amended (c)3i; added (c)3i(6); substantially amended (c)3ii; added (c)4i; rewrote (c)7; in (c)12, inserted reference to evaluations and added second sentence; inserted new (c)14; recodified former (c)14 as (c)15; inserted new (d)2vii; recodified former (d)vii and viii as (d)viii and ix; and deleted Tables 4-2 through 4-3a, providing database information. Former section "Remedial investigation workplan" was repealed.

Amended by R.1999 d.241, effective August 2, 1999.

See: 30 N.J.R. 2373(a), 31 N.J.R. 2167(a).

Rewrote (c)12.

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).

Rewrote (b) and (d).

Administrative correction.

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

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

In (a), deleted "approved" preceding the second occurrence of "remedial", and "if applicable" following "N.J.A.C. 7:26E-4.2", and inserted "accompanied by a Remedial Investigation Report form and be"; added new (b)1; recodified former (b)1 through (b)4 as (b)2 through (b)5; rewrote (b)3 and (b)5; in (b)4iii, deleted "and" from the end; and added (b)6, (e), (f) and (g).

Administrative correction.

See: 42 N.J.R. 778(a).

## 7:26E-4.9 (Reserved)

Recodified to 7:26E-4.8 and amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).

## SUBCHAPTER 5. REMEDIAL ACTION SELECTION

### 7:26E-5.1 Remedial action selection

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

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

1. Identifying all media of concern;
2. Selecting applicable remediation standards based on the current and future land use for the site;
3. For each media of concern, selecting between active treatment versus containment and exposure controls; and
4. For contaminated soil, selecting among an unrestricted use, limited restricted use or restricted use remedial action.

(c) The person responsible for conducting the remediation shall select a remedial action that reduces contamination to below all applicable remediation standards or eliminates exposure to contamination above the applicable remediation standards based on the current and future land use for the site and all of the following:

1. The health risk and environmental standards established pursuant to N.J.S.A. 58:10B-12;
  - i. The indoor air standards adopted by the Department of Health and Senior Services pursuant to N.J.S.A. 52:27D-130.4; and
  - ii. Any other applicable standards adopted pursuant to law;
2. All applicable New Jersey regulations, including, without limitation:
  - i. This chapter; and

(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.

(f) The person responsible for conducting the remediation that is implementing an active ground water remediation shall include a monitoring plan in the remedial action workplan with a schedule designed to demonstrate that:

1. There is a decreasing trend of contaminant concentrations in the ground water and that the ground water remediation standards will be attained in the treatment zone using the Mann-Whitney U test using Appendix C or the Department's Remedial Action Outcome guidance shall be used make this determination;

2. The plume is not migrating horizontally or vertically into an uncontaminated aquifer zone below and adjacent to the contaminant plume;

3. The plume is contained and not reaching the sentinel wells. Contaminant levels in sentinel wells shall remain below the applicable standard. The sentinel wells shall be located no closer than three years contaminant travel time to the nearest potential downgradient receptor and no further than five years contaminant travel time from the delineated downgradient extent of the contaminant plume; and

4. The ground water remedial action is performing as designed.

(g) The person responsible for conducting the remediation that is implementing an active ground water remediation shall include a ground water monitoring plan, with a schedule, designed to evaluate the ground water remedial action in order to:

1. Optimize the system's performance as the remediation progresses; and

2. Optimize the ground water quality monitoring program as remediation progresses.

(h) The person responsible for conducting the remediation subject to (e) and (g) above shall apply for a ground water remedial action permit by submitting the following to the Department with the monitoring plan pursuant to (e) and (g) above:

1. A completed Ground Water Remedial Action Permit form;

2. A completed CEA/Well Restriction Area (WRA) Permit Fact Sheet form; and

3. A ground water remedial action permit application fee pursuant to N.J.A.C. 7:26C-4.4.

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.

Amended by R.2005 d.222, effective July 5, 2005.

See: 37 N.J.R. 405(a), 37 N.J.R. 2499(a).

Rewrote (c).

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

In (b)6iii, substituted "N.J.A.C. 7:26E-1.7" for "N.J.A.C. 7:26E-1.6(d)"; rewrote (c); in the introductory paragraph of (d), substituted "ground water" for "groundwater"; in the introductory paragraph of (d)1, substituted "Ground water" for "Groundwater" and "N.J.A.C. 7:26D" for "N.J.A.C. 7:26E-1.13"; in (d)2, substituted "N.J.A.C. 7:26E-2.1(a)14" for "N.J.A.C. 7:26E-2.1(a)11"; in (d)7, deleted ". This determination shall be made on a case-by-case basis" following "receptors"; and added (f) through (h).

**7:26E-6.4 Additional remedial action requirements**

(a) The person responsible for conducting the remediation shall document the effectiveness of the remedial action as follows:

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 ground water classification exception area as part of the remedial action, sampling shall be conducted pursuant to N.J.A.C. 7:26E-8.6(b)7i.

(b) The person responsible for conducting the remediation shall restore all areas of concern to the extent practicable, to pre-remediation conditions with respect to topography, hydrology and vegetation as follows:

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, the person responsible for conducting the remediation shall prepare a soil reuse plan pursuant to the Department's Guidance Document for the Remediation of Contaminated Soils that complies with 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:

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

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

iii. For quantities of soil greater than 1,000 cubic yards, a lower sampling frequency may be acceptable;

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

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

- i. The activity was performed in accordance with the Subsurface and Percolating Waters Act, N.J.S.A. 58:4A-4.1;
- ii. Neither free nor residual product is present, as determined pursuant to N.J.A.C. 7:26E-2.1(a)14;
- iii. The contamination present shall be addressed as part of the remediation of the area of concern; and
- iv. The replacement of the soil shall not pose any additional threat to public health, safety or the environment.

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

(f) The person responsible for conducting the remediation shall implement, when contaminant levels in the source monitoring wells are at or below the applicable standards for two consecutive high seasonal water table monitoring events, a post remedial action implementation monitoring plan to determine whether the achieved ground water remediation standards are sustainable and not subject to concentration rebound after remediation standards are met.

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)1 and (a)2iv, amended N.J.A.C. references; in (a)2vi, substituted N.J.A.C. reference for specific sampling guidelines; deleted (a)4, relating to sampling frequencies for building interiors; recodified former (a)5 as (a)4; inserted new (a)5; added (a)6; in (b), inserted N.J.A.C. reference; in (b)1, substituted "environmentally sensitive areas" for "critical habitat areas as defined in N.J.A.C. 7:26D-5"; and added (d).

Amended by R.1997 d.499, effective November 17, 1997.

See: 29 N.J.R. 46(a), 29 N.J.R. 4957(a).

Added (e) and (f).

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)5, substituted references to residential soil remediation standards for references to unrestricted use remediation standards throughout, and substituted "deed notice" for "Declaration of Environmental Restriction or other similar document approved by the Department" at the end; in (b)1, substituted a reference to environmentally sensitive natural resources for a reference to environmentally sensitive areas; rewrote (e); in (f), substituted "deed notice" for "declaration of environmental restrictions" following "record a"; and added (g) and (h).

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.

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Section was "Post-remedial action requirements". Rewrote the introductory paragraphs of (a), (b) and (d); in (d)1iii, deleted ", subject to prior Departmental approval pursuant to N.J.A.C. 7:26E-1.6(d);" from the end; in (d)3ii, substituted "N.J.A.C. 7:26E-2.1(a)14" for "N.J.A.C. 7:26E-2.1(a)11"; in (e), substituted "residential" for "unrestricted"; and added (f).

Administrative correction.  
See: 42 N.J.R. 778(a).

### 7:26E-6.5 Remedial action schedule

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

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

1. Monthly time frames, for the initiation and completion of each remedial action task;
2. Time frames for contractor bidding/review/acceptance process;
3. A critical path schedule for all Federal, State, and local permit applications and final permit approvals;
4. A listing of all anticipated report submittals to the Department;
5. A timeframe for submitting a request for a waste classification to the Department for disposal or treatment of waste generated during implementation of the remedial action;
6. A timeframe for site restoration pursuant to N.J.A.C. 7:26E-6.4(b); and
7. A schedule for the submission of a ground water remedial action permit application, pursuant to N.J.A.C. 7:26E-6.3(h).

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

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).  
Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).  
See: 41 N.J.R. 4467(a).  
Rewrote (b).

### 7:26E-6.6 Remedial action progress reports

(a) The person responsible for conducting the remediation who does not have a remedial action permit, shall submit remedial action progress reports to the Department pursuant to this section and according to the remedial action schedule pursuant to N.J.A.C. 7:26E-6.5.

(b) The person responsible for conducting the remediation shall include the following in each remedial action progress report, as appropriate:

1. A description of each remedial action:
  - i. Scheduled to be initiated or completed during the reporting period;

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

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

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

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

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

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

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

7. The cost of each remedial action, including:

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

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

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

9. For ground water remedial actions:

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

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

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

iv. A summary regarding groundwater contamination stating that either:

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



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

10. For natural remediation groundwater remedial actions:

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

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

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

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

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

iii. The name of the disposal facility used;

iv. The transporters' dates of disposal; and

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

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

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).

Section was "Remedial action report".

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

In (a), inserted "who does not have a remedial action permit,"; in (b)7i, substituted "remediation" for "remedial action"; and in the introductory paragraph of (b)9, substituted "ground water" for "active groundwater".

### 7:26E-6.7 Remedial action report

(a) The person responsible for conducting the remediation shall prepare a remedial action report and submit with a Remedial Action Report form, in a format that corresponds directly to the outline of this section, when the remedial action is completed, except as noted in (e) below.

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

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

i. General history of the site;

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

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

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

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

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

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

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

7. A copy of a deed notice, stamped "Filed" if applicable pursuant to N.J.A.C. 7:26E-8.2(d), along with a Remedial Action Permit form on a remedial action permit application fee pursuant to N.J.A.C. 7:26C-4.4; and

8. Information pursuant to (c) through (g) below, as applicable.

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

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

i. Completion of the remedial action is documented; and

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

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

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

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

(e) The person responsible for conducting the remediation shall, upon satisfying the requirements of N.J.A.C. 7:26E-6.3(e)3, include the following in the natural remediation groundwater remedial action section of the report:

1. A summary table of the groundwater monitoring results collected pursuant to N.J.A.C. 7:26E-6.3(e)1;

2. A discussion of the results of the Mann-Whitney U-Test applied pursuant to N.J.A.C. 7:26E-6.3(e)3;

3. A conclusion that either:

i. The groundwater quality is now in compliance with the applicable remediation standards and, therefore, the groundwater classification exception area is no longer necessary; or

ii. The groundwater contamination is expected to decrease over time and to be in compliance with the applicable remediation standards consistent with the model used to estimate the eventual extent of the plume, and, therefore, that the groundwater classification exception area is still necessary; and

4. If the groundwater classification exception area is still necessary, a plan for the monitoring, maintenance, and certification of the protectiveness of each classification exception area pursuant to N.J.A.C. 7:26E-8.

(f) The person responsible for conducting the remediation shall submit an updated receptor evaluation pursuant to N.J.A.C. 7:26E-1.15(d) on a Receptor Evaluation form provided by the Department.

(g) A completed case inventory document prepared pursuant to the Department's Guidance for the Preparation of the Case Inventory Document. The case inventory document shall be provided at the front of the report.

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).

Section was "Removal or modification of the declaration of environmental restrictions and deed notices".

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

In (a), inserted "and submit with a Remedial Action Report form," and a comma following "section"; in (b)6, substituted "remediation" for "remedial action" and deleted "and" from the end; added new (b)7; recodified former (b)7 as (b)8; in (b)8, substituted "(g)" for "(e)"; and added (f) and (g).

## SUBCHAPTER 7. PERMIT IDENTIFICATION, PERMIT APPLICATION SCHEDULE AND DISCHARGE TO GROUND WATER PROPOSALS

### 7:26E-7.1 Permit identification

(a) Any person conducting a remedial action shall identify all relevant Federal, State and local permits or permit modifications or certifications needed to implement the selected remedial action including, but not limited to:

1. Soil Erosion and Sediment Control Plan Certification for Land Disturbance Control (N.J.A.C. 2:90);

2. Permit to Construct/Install/Alter Air Quality Control Apparatus/Equipment (N.J.A.C. 7:27-8);

3. Certificate to Operate Air Quality Control Apparatus/Equipment (N.J.A.C. 7:27-8);

4. Coastal Area Facility Review Act (CAFRA) Permit (N.J.S.A. 13:19-1 et seq.);

5. Waterfront Development/Upland Waterfront Permit (N.J.S.A. 12:5-3);

6. Wetlands Permit (N.J.S.A. 13:9A-1 et seq.);

7. Freshwater Wetlands/Open Water Fill Permit (N.J.S.A. 13:98-1 et seq.);

8. Flood Hazard Area Control Act Permits (N.J.S.A. 58:16A-50 et seq.; N.J.A.C. 7:13);

9. State Water Quality Certificate (N.J.S.A. 58:10A-1 to 13; 33 U.S.C. 1251, § 401);

10. Dewatering Permit and/or Water Diversion Permit (N.J.S.A. 23:5-29);

11. U.S. Army Corps of Engineers Dredge and Fill Permit;

12. Delaware River Basin Commission Docket Approval (N.J.S.A. 32:20-1 et seq.);

13. Hackensack Meadowlands Development Commission—Zoning Certificate (N.J.S.A. 13:17-1 et seq.);

14. New Jersey Pinelands—Letter of Approval (N.J.S.A. 13:18A-1 et seq.);

15. Discharge Prevention and Discharge Cleanup and Removal Plans (Pertaining to Storage and Transfer of Petroleum and other Hazardous Substances) (N.J.S.A. 58:10-23.11 et seq.; N.J.A.C. 7:1E);

16. Registration of Underground Storage Tank; UST Installation Permit and Closure Approval (N.J.S.A. 58:10A-21 et seq.);

17. Water Quality Management Plan Consistency Determination (N.J.S.A. 58:11A-1 et seq.; N.J.A.C. 7:15);

18. New Jersey Pollutant Discharge Elimination System (NJPDES) (N.J.S.A. 58:10A-1 et seq.; N.J.A.C. 7:14A);

i. NJPDES—Discharge to Surface Water (DSW)—Industrial (N.J.S.A. 58:10A-1 et seq.; N.J.A.C. 7:14A);

ii. NJPDES—Significant Indirect User (SIU) (N.J.S.A. 58:10A-1 et seq.; N.J.A.C. 7:14A); and

iii. NJPDES—Discharge to Ground Water (DGW) (N.J.S.A. 58:10A-1 et seq.; N.J.A.C. 7:14A and N.J.A.C. 7:26E-7.2);

19. Treatment Works Approval (TWA) (N.J.S.A. 58:12A-1 et seq.; N.J.A.C. 7:14A-22 and 23);

20. Employer License (Asbestos) (N.J.A.C. 8:60-4), (N.J.A.C. 12:120-4);

21. Asbestos Worker or Asbestos Supervisor Permit Certification of Training Agencies (Asbestos) Asbestos

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 concen-

tration 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.

<sup>1</sup> 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.

<sup>2</sup> 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

(RESERVED)

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).

Special Repeal, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Appendix was "Well Search Format".

## 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:

$H_0: \theta_1, \theta_2$  (null hypothesis)

$H_1: \theta_1 > \theta_2$  (alternate hypothesis)

where  $\theta_2$  represents the stochastic size of the population of each individual contaminant during the most recent 12 month period of sampling and  $\theta_1$  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.

(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).

Amended by R.2005 d.222, effective July 5, 2005.

See: 37 N.J.R. 405(a), 37 N.J.R. 2499(a).

In 7A and 7B, rewrote iii.

Administrative correction.

See: 42 N.J.R. 778(a).

## APPENDIX F

(RESERVED)

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).

Administrative correction.

See: 37 N.J.R. 4245(a).

Special Repeal, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Appendix was "Groundwater Classification Exception Area Fact Sheet".

## 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).

## APPENDIX H

## MODEL PUBLIC NOTICE FOR A DGW PROPOSAL

The model public notice in this appendix contains blanks and matter in brackets [ ]. These blanks shall be replaced with the appropriate information prior to publication in appropriate local newspapers. As provided at N.J.A.C. 7:26E-7.2(c), the wording of this model public notice shall not be otherwise changed or modified.

## Public Notice

This notice is being given to inform the public that as part of the remediation of [Site Name] at [street address], Block: \_\_\_\_\_ Lots: \_\_\_\_\_, in [Municipality], [\_\_\_\_\_] County, a proposal has been submitted to the New Jersey Department of Environmental Protection (Department) to discharge to ground water in accordance with a permit issued pursuant to the provisions of the New Jersey Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., its implementing regulations the New Jersey Pollutant Discharge Elimination System, N.J.A.C. 7:14A; the Ground Water Quality Standards, N.J.A.C. 7:9C; and the Technical Requirements for Site Remediation, N.J.A.C. 7:26E. The Department's Site Remediation Program is reviewing the proposal to discharge to ground water for the purpose of remediating a contaminated site with the program interest # [\_\_\_\_\_].

Brief description of the proposed discharge: [Include a description of the site including the remedial action, type of discharge (e.g., treated ground water or in situ bioremediation), discharge unit (e.g., injection well, overland flow, lagoon, etc.) and treatment proposed and the name and description of the formation receiving the discharger]. A copy of this public notice have been sent to the Municipal Clerk and designated local health official for [Municipality, County or region].

A copy of the DGW proposal is available from the person responsible for conducting the remediation [include the name and address of the person conducting the remediation], or as part of the administrative record which is on file at the offices of the Department, Site Remediation Program, located at 401 East State Street, Trenton, Mercer County, New Jersey [or add alternate location]. The file may be reviewed under the New Jersey Open Public Records Act ("OPRA"), N.J.S.A. 47:1A-1 et seq. Information regarding the OPRA procedures is available at <http://www.state.nj.us/dep/opra/oprainfo.html>.

Interested persons may submit written comments regarding the DGW proposal to the Department at the address listed below and to the owner or operator of the facility at [name and address of person/contact submitting DGW proposal]. All comments shall be submitted within 30 calendar days of the date of this public notice. All persons who believe that the DGW proposal is inappropriate, must raise all reasonably ascertainable issues and submit in writing to the Department all reasonably available arguments and factual grounds supporting their position, including all supporting material, by the close of the public comment period. All comments submitted by interested persons that relate to the DGW proposal will be considered by the Department, provided that the Department receives the comments by the close of the public comment period. After the close of the public comment period, the Department will render a decision regarding the proposed discharge. The Department will respond to all significant and timely comments with its decision regarding the DGW proposal. Each person who has submitted written comments will receive notice of the Department's decision.

Any interested person may request in writing that the Department hold a non-adversarial public hearing on the DGW proposal. This request shall state the nature of the issues to be raised in the proposed hearing and shall be submitted within 30 calendar days of the date of this public notice to the address cited below. A public hearing will be conducted whenever the Department determines that there is a significant degree of public interest in the discharge to ground water decision. If a public hearing is held, the public comment period in this notice shall automatically be extended to the close of the public hearing.

Comments and written requests for a non-adversarial public hearing shall be sent to:

ATTN: DGW proposal  
Site Remediation Program  
NJ Department of Environmental Protection  
[Name of Department contact]  
[Address of Department contact]

New Rule, R.2005 d.222, effective July 5, 2005.

See: 37 N.J.R. 405(a), 37 N.J.R. 2499(a).

Special amendment, R.2009 d.361, effective November 4, 2009 (to expire May 4, 2011).

See: 41 N.J.R. 4467(a).

Appendix was "Model Public Notice". Rewrote the appendix.