

# REQUIREMENTS FOR SITE REMEDIATION

N.J. STATE LIBRARY  
P.O. BOX 520  
TRENTON, NJ 08625-0520

## CHAPTER 26E

### TECHNICAL REQUIREMENTS FOR SITE REMEDIATION

#### Authority

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

#### Source and Effective Date

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

#### Chapter Expiration Date

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

#### Chapter Historical Note

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

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Analysis, was repealed and a new Subchapter 5, Remedial Action  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

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

#### Law Review and Journal Commentaries

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

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

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

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

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

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

#### CHAPTER TABLE OF CONTENTS

##### SUBCHAPTER 1. GENERAL INFORMATION

|           |  |
|-----------|--|
| 7:26E-1.1 | Scope  |
| 7:26E-1.2 | Liberal construction   |
| 7:26E-1.3 | Applicability  |
| 7:26E-1.4 | Notification   |
| 7:26E-1.5 | Certifications   |
| 7:26E-1.6 | Documenting compliance with the technical requirements       |
| 7:26E-1.7 | Criteria for going beyond the minimum technical requirements |

|            |   |
|------------|---|
| 7:26E-1.8  | Definitions   |
| 7:26E-1.9  | Health and safety plan                                |
| 7:26E-1.10 | Severability  |
| 7:26E-1.11 | Bias for action                                       |
| 7:26E-1.12 | Requirement for Department oversight of remediation   |
| 7:26E-1.13 | Minimum groundwater and surface remediation standards |

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

|           |                                |
|-----------|--------------------------------|
| 7:26E-2.1 | Quality assurance requirements |
| 7:26E-2.2 | Quality assurance project plan |

##### SUBCHAPTER 3. PRELIMINARY ASSESSMENT AND SITE INVESTIGATION

|            |   |
|------------|---|
| 7:26E-3.1  | Preliminary assessments                             |
| 7:26E-3.2  | Preliminary assessment report                       |
| 7:26E-3.3  | Site investigations                                 |
| 7:26E-3.4  | Site investigation—general sampling requirements    |
| 7:26E-3.5  | Site investigation—building interiors               |
| 7:26E-3.6  | Site investigation—soil                             |
| 7:26E-3.7  | Site investigation—ground water                     |
| 7:26E-3.8  | Site investigation—surface water and sediment       |
| 7:26E-3.9  | Site investigation—area specific requirements       |
| 7:26E-3.10 | Site investigation—background investigation in soil |
| 7:26E-3.11 | Site investigation—ecological evaluation            |
| 7:26E-3.12 | Site investigation—historic fill material           |
| 7:26E-3.13 | Site investigation report                           |

##### SUBCHAPTER 4. REMEDIAL INVESTIGATIONS

|           |  |
|-----------|--|
| 7:26E-4.1 | Remedial investigation requirements                            |
| 7:26E-4.2 | Remedial investigation workplan                                |
| 7:26E-4.3 | Remedial investigation of soil                                 |
| 7:26E-4.4 | Remedial investigation of ground water                         |
| 7:26E-4.5 | Remedial investigation of surface water, wetlands and sediment |
| 7:26E-4.6 | Remedial investigation of landfills and historic fill material |
| 7:26E-4.7 | Remedial investigation of ecological receptors                 |
| 7:26E-4.8 | Remedial investigation report                                  |

##### SUBCHAPTER 5. REMEDIAL ACTION SELECTION

|           |                                  |
|-----------|----------------------------------|
| 7:26E-5.1 | Remedial action selection        |
| 7:26E-5.2 | Remedial action selection report |

#### APPENDIX

##### SUBCHAPTER 6. REMEDIAL ACTION

|           |                                       |
|-----------|---------------------------------------|
| 7:26E-6.1 | Remedial action requirements          |
| 7:26E-6.2 | Remedial action workplan              |
| 7:26E-6.3 | Specific remedial action requirements |
| 7:26E-6.4 | Post remedial action requirements     |
| 7:26E-6.5 | Remedial action schedule              |
| 7:26E-6.6 | Remedial action progress reports      |
| 7:26E-6.7 | Remedial action report                |

##### SUBCHAPTER 7. PERMIT IDENTIFICATION AND APPLICATION SCHEDULE

|           |                       |
|-----------|-----------------------|
| 7:26E-7.1 | Permit identification |
|-----------|-----------------------|

##### SUBCHAPTER 8. ENGINEERING AND INSTITUTIONAL CONTROLS

|           |  |
|-----------|--|
| 7:26E-8.1 | General requirements   |
| 7:26E-8.2 | Deed notice requirements   |
| 7:26E-8.3 | Groundwater classification exception areas   |
| 7:26E-8.4 | Monitoring, maintenance, and biennial certification—who has obligation and when  |
| 7:26E-8.5 | Monitoring, maintenance, and biennial certification—requirements for deed notices and declarations of environmental restrictions |

- 7:26E-8.6 Monitoring, maintenance, and biennial certification—specific requirements for groundwater classification exception areas
- 7:26E-8.7 Monitoring, maintenance, and biennial certification—engineering and institutional controls

- APPENDIX A Laboratory Data Deliverables Formats
- APPENDIX B Well Search Format
- APPENDIX C Mann-Whitney U-Test
- APPENDIX D Historic Fill Database
- APPENDIX E Model Deed Notice
- APPENDIX F Groundwater Classification Exception Area Fact Sheet
- APPENDIX G Contour Map Reporting Form

SUBCHAPTER 1. GENERAL INFORMATION

7:26E-1.1 Scope

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

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

1. Complying with more stringent requirements or provisions imposed by any other Federal, State or local applicable statutes or regulations; or
2. Obtaining any and all permits required by State, Federal or local statute or regulation, except as expressly provided herein.

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

7:26E-1.2 Liberal construction

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

7:26E-1.3 Applicability

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

1. The Industrial Site Recovery Act (ISRA);
2. The New Jersey Underground Storage of Hazardous Substances Act (UST);
3. The Spill Compensation and Control Act;
4. The Solid Waste Management Act;
5. The Water Pollution Control Act;
6. The Resource Conservation and Recovery Act (RCRA);

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

8. The Brownfield and Contaminated Site Remediation Act.

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

1. Execute an oversight document with the Department pursuant to N.J.A.C. 7:26C;
2. Comply with the requirements of N.J.A.C. 7:26B; or
3. Comply with the requirements of N.J.A.C. 7:14B.

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

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

2. Any work conducted after February 3, 2003 shall be in full compliance with this chapter, except that work conducted pursuant to workplans which were submitted to the Department prior to February 3, 2003 may be conducted pursuant to N.J.A.C. 7:26E in effect as of August 2, 1999, as long as work is conducted within six months of Department approval of the workplan.

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

Amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).

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

In (a)1, substituted "Industrial Site Recovery Act (ISRA)" for "Environmental Cleanup and Responsibility Act (ECRA)"; added (a)6 through (a)8; subdivided (c), inserting the introductory paragraph; in (c)1, substituted "shall evaluate" for "may evaluate" and inserted reference to original adoption; added (c)2; and added (d).

Administrative correction.

See: 29 N.J.R. 2664(b).

In (c)2, in the second clause, changed "May 19, 1997" to "July 18, 1997".

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

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

Rewrote (a)8.

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

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

In (c)2, substituted "February 3, 2003" for "July 18, 1997" throughout, and substituted "in effect as of August 2, 1999" for "as originally adopted".

**7:26E-1.4 Notification**

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

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

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

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

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

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

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

(c) The notifications to the municipal clerk pursuant to (a) and (b) above are not intended to satisfy the public participation requirements applicable to sites being investigated or remediated pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§ 9601 et seq. and the National Contingency Plan, 40 C.F.R. Part 300.

(d) The notifications pursuant to (a) above shall be in writing and shall include the following information:

1. The name and address of the person responsible for implementing the remedial action or interim response action;

2. The name of the site;

3. The valid EPA site identification number or the Department's site identification number, provided in that publication of the Department's Known Contaminated Sites List most recent to the action. If neither number is available, the number provided by the Department's hotline may be substituted (1-877 WARNDEP or 1-877-927-6337);

4. The street address of the site;

5. The lot and block of the site;

6. A brief description of the current use and occupancy of the site;

7. The nature of the sampling activities or remedial action to be performed;

8. The anticipated start date of the sampling activities or remedial action;

9. The location of the site in a GIS-compatible format (that is, latitude and longitude or State Plane Coordinates); and

10. A copy of any declaration of environmental restriction or similar document, which identified any engineering and institutional controls associated with the remedial action.

(e) The information required to be sent to the Department pursuant to (a) above shall be submitted to the assigned case manager or, if no case manager has been assigned, to the following address:

Division of Responsible Party Site Remediation  
 P.O. Box 434  
 Trenton, NJ 08625-0434  
 Attention: Case Assignment Section

(f) 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 along with a completed Pinelands application to the Pinelands Commission prior to implementing a remedial action; and

3. Not begin any construction activity at the site until the activity has been approved pursuant to the provisions of the Pinelands Comprehensive Management Plan (N.J.A.C. 7:50) including any Memorandum of Agreement entered into between the Department and the Pinelands Commission.

(g) The information required to be sent to the Pinelands Commission pursuant to (f)1 and 2 above shall be submitted to the following address:

The Pinelands Commission  
P.O. Box 7  
New Lisbon, NJ 08064-0007

(h) The person responsible for conducting the remediation shall notify the Department pursuant to this subsection if that person determined that contamination migrated onto their site from another 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 WARNDEP 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)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.

#### 7:26E-1.5 Certifications

(a) If a document prepared pursuant to this chapter is to be submitted to the Department, it shall be signed and certified pursuant to N.J.A.C. 7:26C, 7:26B or 7:14B.

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

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

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

1. Such alternate methods may be used if the person responsible for conducting the remediation documents in the applicable remedial phase report (that is, preliminary assessment, site investigation, remedial investigation, remedial action) rationale acceptable to the Department for using the alternate method.

2. The Department will review the documentation, either as part of the Department's oversight during the remediation or at a later time when the site becomes a Department priority for site remediation.

3. The Department will evaluate the alternate method in terms of its site-specific application, based upon the documentation provided and other appropriate information available to the Department, in terms of the extent to which the alternate method:

- i. Has previously been either used successfully or approved by the Department in writing in other similar situations; or
- ii. Reflects current technology as documented in peer-reviewed professional journals; and
- iii. Provides results which are verifiable and reproducible;
- iv. Can be expected to achieve the same results or objectives as the method which it proposes to replace;
- v. Furthers the attainment of the goals of the specific remedial phase for which it is used; and
- vi. Is consistent with the overall scheme of this chapter to ensure the remediation of contaminated sites in a manner which is protective of human health and the environment.

(d) Any person responsible for conducting the remediation may petition the Department for a variance from any of the requirements in N.J.A.C. 7:26E-2 through 6 inclusive pursuant to the procedural criteria in (d)1 and the substantive criteria in (d)2, below. The petition shall include a request for use of an alternative approach to be utilized in place of the requirement for which the variance has been requested. The variance is not effective until it has been approved by the Department. The decision as to whether or not to grant the variance rests solely with the Department. A variance petition may be submitted within an oversight document executed in accordance with N.J.A.C. 7:26C, or pursuant to the program requirements of N.J.A.C. 7:26B or N.J.A.C. 7:14B. The Department shall make reasonable efforts to provide timely responses to variance petitions.

1. Those priority pollutants listed as base neutral and acid compounds in Appendix B, Table II of N.J.A.C. 7:14A; or

2. Those target compound list compounds identified as semivolatiles in the version of the EPA Contract Laboratory Program Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration in effect as of the date on which the laboratory is performing the analysis.

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

“Soil” means the unconsolidated mineral and organic matter on the surface of the earth that has been subjected to and influenced by geologic and other environmental factors.

“Specific discharge event” means a discharge that meets the criteria in N.J.A.C. 7:26E-3.7(b).

“Spill Act” means the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11a et seq.

“Surface water” means water defined as surface water pursuant to the Surface Water Quality Regulations, N.J.A.C. 7:9B.

“SWMA” means the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq.

“Tank” means a stationary device designed to contain an accumulation of hazardous substances, hazardous wastes, or pollutants which is constructed of non-earthen materials (for example, concrete, steel, plastic) that provide structural support.

“Target analyte list” or “TAL” means the list of inorganic compounds/elements designated for analysis as contained in the version of the EPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, Multi-Concentration in effect as of the date on which the laboratory is performing the analysis. For the purpose of this chapter, a Target Analyte List scan means the analysis of a sample for Target Analyte List compounds/elements.

“Targeted compound” means a hazardous substance, hazardous waste, or pollutant for which a specific analytical method is designed to detect that potential contaminant both qualitatively and quantitatively.

“Target compound list plus 30” or “TCL + 30” means the list of organic compounds designated for analysis (TCL) as contained in the version of the EPA “Contract Laborato-

ry 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, and up to 30 non-targeted organic compounds (plus 30) as detected by gas chromatography/mass spectroscopy (GC/MS) analysis. For the purposes of this chapter, a Target Compound List + 30 scan means the analysis of a sample for Target Compound List compounds and up to 10 non-targeted volatile organic compounds and up to 20 non-targeted semi-volatile organic compounds using GC/MS analytical methods. Non-targeted compound criteria shall be pursuant to 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.

“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 that, except for immediate environmental concern cases, the person responsible for conducting the remediation completes the remedial activities at a contaminated site or area of concern either:

1. Within five years, if soil is the only contaminated media at the site and the remediation will achieve unrestricted or limited restricted use standards; or
2. In compliance with a remedial action schedule approved in writing by the Department.

“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 either those priority pollutants listed as amenable for analysis using EPA method 624 or 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.

## 7:26E-1.9 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.

### 7:26E-1.10 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.

### 7:26E-1.11 Bias for action

As a first priority during remediation, contaminants in all media should be contained and/or stabilized to prevent contaminant exposure to receptors and to prevent further movements of contaminants through any pathway.

### 7:26E-1.12 Requirement for Department oversight of remediation

(a) The person responsible for conducting the remediation shall investigate and remediate contaminated sites with Department oversight as specified in N.J.A.C. 7:26C and, in addition, in the following circumstances:

1. Sites suspected or known to be contaminated with anthropogenic radionuclide contamination of any media; and
2. Sites with immediate environmental concern conditions.

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).

### 7:26E-1.13 Minimum groundwater and surface remediation standards

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

(b) The minimum groundwater remediation standards are:

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

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

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

2. The following narrative groundwater remediation standards:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(e) The minimum surface water remediation standards are:

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

2. The following narrative surface water remediation standards:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

iv. For the analysis of aqueous and non-aqueous samples for parameters or categories of parameters not contained in (a)1i 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)1i through iii above, the procedures in N.J.A.C. 7:18 shall be followed.

2. The Department shall reject analytical data as follows:

i. For laboratories performing analyses pursuant to (a)1i 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)1ii 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)1iii 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. 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 photoionization detector (PID), flame ionization detector (FID), or other suitable instrument capable of detecting the contaminants pursuant to N.J.A.C. 7:26E-2.1(b) to select samples 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 tech-

niques 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.

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

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

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

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

(b) Ground water sampling may not be necessary during a site investigation for a particular area of concern if the person responsible for conducting the remediation documents that ground water contamination from the discharge is unlikely based 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 groundwater 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-1.6(c). Sampling methods generally acceptable to the Department include, but are not limited to, those specified in the NJDEP Field Sampling Procedures Manual or the NJDEP Alternative Ground Water Sampling Techniques Guide in effect as of the date on which the sampling is performed; and

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

i. Within six weeks after identifying groundwater contamination, conduct a well search including:

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

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

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

ii. Within two weeks after completing the well search, determine if any potable wells exist within 1,000 feet of each area of concern with groundwater contamination and:

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

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

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

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

(1) Within two weeks after submitting the analytical results to the Department, identify each potable well that exists within 1,000 feet to one-half mile of each area of concern with groundwater contamination and perform all sampling and reporting requirements as set forth at (e)3iii; and

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

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

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

(2) Collect a minimum of two rounds of synoptic static water levels a minimum of 30 calendar days

apart to provide a more accurate indication of the groundwater flow direction. The water levels may be taken to evaluate seasonal variations in flow direction;

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

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

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

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

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

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

2. A minimum of one background monitoring well shall be installed in each water bearing zone that is believed to contain background groundwater contamination. A sufficient number of additional monitoring wells shall be installed to evaluate all offsite sources potentially affecting onsite groundwater 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)3iv;

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 sam-

ples for all onsite contaminants believed to be originating from background sources;

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

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

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

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

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

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

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

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.

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

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

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

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

3. Evidence of stream impacts from historical discharges including historical ecological studies documenting differences in organism population density and diversity in areas potentially impacted by the site relative to areas not impacted by the site; or

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

(b) If there is evidence that discharges to the surface water body have occurred, pursuant to (a) above, then a surface water investigation is required. The investigation of surface water and sediment shall be conducted according to the 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 subject to the Department's review of documentation pursuant to N.J.A.C. 7:26E-1.6(c) specifying why boring through pavement was not considered practical (for example, concrete slabs with berms, synthetic liners).

3. For underground storage tanks:

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

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

(A) If sampling within two feet of the tank is not possible due to the presence of bedding gravel, or there are safety considerations (such as danger of tank puncture), which have been identified through field investigations or review of as built plans, soil samples shall be taken as close as possible to the tank. However, no samples shall be

collected from further than five feet from the tank and a ground water sample shall be collected within five feet and down-gradient of the tank.

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

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

| Total Tank Capacity (Gallons) | Approximate Tank Length (Feet) | Minimum Number of Sampling Locations |
|-------------------------------|--------------------------------|--------------------------------------|
| 56-2,000                      | to 10'                         | 4                                    |
| 2,001-10,000                  | to 30'                         | 6                                    |
| 10,001-25,000                 | to 40'                         | 8                                    |
| 25,000+                       | to 40' +                       | 10                                   |

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

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

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

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

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

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

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

4. For all above grade piping:

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

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

5. For all below grade piping:

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

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

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

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

6. For all loading and unloading areas:

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

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

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

1. For all pads:

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

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

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

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

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

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

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

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

and/or evaluation of monitoring well water quality data associated with the surface impoundment, if available.

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

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

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

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

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

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

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

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

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

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

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

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

3. For all swales and culverts:

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

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

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

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

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

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

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

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

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

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

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

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

ii. Initial characterization samples shall be biased based on field indicators such as soil discoloration, stressed vegetation, or field instrument measurements toward those areas of greatest suspected contamination. Sample frequency shall be at least one sample for every 900 square feet for areas up to 300 feet in perimeter. Sample frequency may be reduced for larger areas, subject to the Department's review of documentation pursuant to N.J.A.C. 7:26E-1.6(c) specifying why the reduced sample frequency was considered adequate.

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

3. For below grade wastewater treatment systems:

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

ii. For septic disposal fields:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(III) If soil consists of less than 15 percent silt and/or clay, collect a sample from the six inch interval encompassing the interface between the soil at the base of the pit and the next lower soil

horizon consisting of 15 percent or more silt and/or clay; or the six inch interval above the saturated zone; or the six inch interval above bedrock; or at 9.5 to 10 feet, whichever is encountered first.

(4) If the pit bottom is within two feet of the saturated zone or bedrock, a ground water sample will be obtained within two feet of the suspected downgradient side of the pit; and

(5) At a minimum, the laboratory analysis shall target the contaminants suspected to have been discharged to the seepage pit.

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

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

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

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

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

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

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

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

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

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

Amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).

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

Deleted reference to structures storing hazardous constituents throughout the section; made numbering correction at (a)1ii(1); inserted new (a)2; recodified former (a)2 and (a)2i through iii as (a)2i through vi, respectively; substantially amended (a)3 and 5 throughout; in (e)3i and (e)3ii(1), amended N.J.A.C. reference; in (e)3ii(5), changed sample depth from 0.6 inches to zero to six inches; rewrote (e)3iii(1) and (2); and added (e)3iii(3) through (5).

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

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

In (a)3, rewrote i(4) and amended the N.J.A.C. reference in ii.

### 7:26E-3.10 Site investigation—background investigation in soil

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

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

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

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

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

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

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

3. Conduct a background soil investigation as follows:

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

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

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

- (1) Parking lots, roads, or roadside areas;
- (2) Areas where potential contaminants were loaded, handled, or stored;
- (3) Waste disposal areas;
- (4) Areas near railroad tracks;
- (5) Areas of historic fill material;
- (6) Areas receiving runoff from areas (a)3iii(1) to (5) above or from adjacent sites;
- (7) Storm drains or ditches receiving runoff from the site or adjacent sites; or
- (8) Any other area of concern;

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

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

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

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

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

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

- i. Treatability, bench scale, pilot studies pursuant to N.J.A.C. 7:26E-4.1(a)4i;
- ii. Data necessary to develop discharge permit effluent limitations; and
- iii. Ecological investigations for the purposes of characterizing natural resource injuries pursuant to N.J.A.C. 7:26E-4.7;

- 9. Quality assurance project plan including proposed sampling/ analytical methods pursuant to N.J.A.C. 7:26E-2.2; and
- 10. Health and safety plan pursuant to N.J.A.C. 7:26E-1.9.

TABLE 4-1  
Suggested Format Sampling Summary Table

| Location | Medium           | Sample Depth       | Analytical Parameters                                   | Sampling Method         |
|----------|------------------|--------------------|---|-------------------------|
| Area T:  | Seepage Pit      |                    |   |                         |
| MWT-1    | Ground Water     | Water Table (20')  | Priority Pollutants                                     | Bailer                  |
| MWT-2    | Ground Water     | Water Table (20')  | Priority Pollutants                                     | Bailer                  |
| MWT-3    | Ground Water     | Water Table (20')  | Priority Pollutants                                     | Bailer                  |
| MWT-4    | Ground Water     | Confined (50')     | Priority Pollutants                                     | Bailer                  |
| Area S:  | Drum Storage Pad |                    |   |                         |
| S-1      | Soil             | 0-6"               | Priority Pollutant Metals and Cyanide                   | Trowel                  |
| S-2      | Soil             | 0-6"<br><br>18-24" | Priority Pollutant Metals and Cyanide                   | Trowel                  |
| S-3      | Soil             | 0-6"               | Priority Pollutant Volatile Organics Metals and Cyanide | Coring Device<br>Trowel |

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

**7:26E-4.3 Remedial investigation of soil**

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

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

- 1. The quality assurance and quality control requirements pursuant to N.J.A.C. 7:26E-2; and
- 2. The technical requirements for soil investigation pursuant to N.J.A.C. 7:26E-3.6.

**7:26E-4.4 Remedial investigation of groundwater**

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

- 1. A ground water sample previously collected from that area of concern contains a contaminant above the applicable ground water remediation standard;
- 2. A soil sample collected from that area of concern within two feet of the saturated zone or bedrock contains a contaminant above the applicable soil remediation standard;
- 3. A soil sample collected in the area of concern anywhere in the soil column contains a contaminant above the applicable soil remediation standard and the contaminant is not going to be actively remediated or removed;
- 4. Any contaminant in an area of concern has a water solubility greater than 100 milligrams per liter at 20 degrees Celsius to 25 degrees Celsius as listed in a peer reviewed reference; and
  - i. All of the soil between the contaminant and the saturated zone is less than 15 percent silt and/or clay; or
  - ii. Any part of the area of concern at which the soil contamination was detected is located within 2,000 feet of a public supply well, as determined from a map of

such wells which is available from the Department Bureau of Revenue—Maps and Publications (609-777-1038) or through the Department's Internet home page (<http://www.state.nj.us/dep/njgs>, then select "NJGS Geodata"). A ground water sample is not required if documentation acceptable to the Department is provided in the remedial investigation report (N.J.A.C. 7:26E-4.8) specifying why such sampling was not considered necessary.

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

1. The date and duration of the discharge is known;
2. The identity and the volume of the contaminants are known;
3. The date the remediation in response to the single discharge was completed;
4. Post remediation soil sampling data establish that the remediation meets all applicable remediation standards at the time of the remedial action workplan approval or, in cases where the remedial action workplan did not require Department approval prior to initiation of the remedial action, in the approved remedial action report; and
5. Any other data or information that is relevant to the determination of the likelihood of ground water contamination.

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

1. The quality assurance and quality control requirements pursuant to N.J.A.C. 7:26E-2; and
2. The requirements in (d) through (i) below.

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

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

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

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

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

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

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

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

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

(g) All groundwater monitoring wells and piezometers shall:

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

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

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

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

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

- i. Lithology;
- ii. Fracture frequency;
- iii. Degree of weathering;
- iv. Fracture spacing;
- v. Orientation of fractures;
- vi. Odors and discoloration in the rock core;
- vii. Percent recovery; and
- viii. Any other information appropriate for the investigation.

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

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

- i. The inner well casing must be surveyed to the nearest hundredth (0.01) foot in relation to the permanent, on-site datum and horizontally to an accuracy of one-tenth of a second latitude and longitude; and
- ii. A permanent water level measurement mark shall be etched onto the top of the inner well casing to allow for accurate, consistent and comparable water level measurements over time.

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

9. Be decommissioned upon completion of the investigation in accordance with N.J.A.C. 7:9D unless otherwise approved by the Department;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Amended by R.1997 d.124, effective May 19, 1997 (operative July 18, 1997; 7:26E-4.4(h)3v(1) operative November 19, 1997).

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

Substantially amended section.

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

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

Rewrote the section.

#### **7:26E-4.5 Remedial investigation of surface water, wetlands and sediment**

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

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

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

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

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

i. Based on site-specific conditions; and

ii. Supported by appropriate supporting documentation.

(d) The surface water investigation shall include:

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

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

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

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

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

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

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

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

7. EPA, "ECO Update," Intermittent Bulletin published by USEPA, Office of Emergency and Remedial Response;

8. Opresko, D.M., B.E. Sample and G.W. Suter, "Toxicological Benchmarks for Wildlife: 1994," Oak Ridge National Laboratory, Oak Ridge, TN; and

9. Will, M.E. and G.W. Suter II, "Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Terrestrial Plants: 1994 Revision," Oak Ridge National Laboratory, Oak Ridge, TN.

(b) A site specific ecological risk assessment report, in accordance with (a) above, shall be completed during the remedial investigation and shall be submitted as part of the remedial investigation report. The ecological risk assessment report shall:

1. Describe actual impacts and potential risks to identified environmentally sensitive natural resources;
2. Present appropriate ecologically-based, site specific remediation standards for site contaminants of ecological concern, if applicable; and
3. Recommend measures for incorporation into the remedial action workplan, pursuant to N.J.A.C. 7:26E-6.2, to mitigate actual impact or ecological risks, if applicable.

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).

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; and in (b), inserted "report" following "assessment" in the introductory paragraph, rewrote 1, and substituted "Present" for "Develop" and inserted "of ecological concern" in 2.

**7:26E-4.8 Remedial investigation report**

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

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

1. Historical information pursuant to N.J.A.C. 7:26E-4.2(b)3;
2. Physical setting pursuant to N.J.A.C. 7:26E-4.2(b)4, including, but not limited to:
  - i. The results of the groundwater flow direction confirmation conducted pursuant to N.J.A.C. 7:26E-4.4(h)3ii; and

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

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

- i. A summary of the results of any treatability, bench scale, or pilot studies conducted to support remedy selection;
- ii. A summary of the results of any data collected to develop permit limitations for any permits which may be required during potential remedial actions; and
- iii. A summary of the results of any ecological assessments conducted; and

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

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

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

2. A summary table of analytical methods and quality assurance indicators pursuant to N.J.A.C. 7:26E-2.2 (Quality Assurance Workplan);

3. Sampling Results Summary Table(s) of all analyses, including sample location, media, sample depth, and field and lab identification numbers pursuant to N.J.A.C. 7:26E-3.13(c)3 and, in addition:

- i. All summary tables shall be organized by area of concern. For each area of concern, average concentrations for each contaminant shall be presented along with individual sample results if averaging will be used for compliance with applicable remediation standards.

- (1) All contaminant concentrations exceeding the applicable remediation standard shall be identified; and

- (2) Samples with MDLs (or PQLs if available) exceeding the applicable remediation standard shall be identified and an explanation provided in the table key; and

- (3) If some contaminants are detected and quantified and some contaminants are "estimated" or non-detectable, for purposes of calculating the average, the person submitting the site investigation report shall substitute one half the reported method detection limit for all contaminants reported as non-de-

tectable, and "estimated" values shall be included in the contaminant average "as is."

(4) "Non-detectable" values for contaminants in samples which have been diluted shall not be included in the area of concern average for those contaminants. "Detectable" values for contaminants in diluted samples shall be included in the area of concern average for those contaminants.

(5) The average shall be calculated for the contaminated area only, and shall not include clean zone data (data from outside the boundaries of the contaminated area as defined by samples contaminated greater than the applicable remediation standard). For example, if data points within a 50 foot "clean" buffer zone around an area of concern were identified during pre-remedial sampling, this clean zone shall not be included in the average. Samples from different depth intervals shall not be averaged together to determine compliance with applicable remediation standards.

(6) Post excavation sample data shall not be averaged for compliance with applicable remediation standards.

ii. The data in the Sampling Results summary table shall be presented pursuant to N.J.A.C. 7:26E-3.13(c)3.

4. Stratigraphic logs, which include soil/rock physical descriptions and field instrument readings detected during drilling for each soil boring, test pit and monitoring well, if applicable:

i. For fill material and historic fill material the logs shall include a description of fill type, any layering of 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)11 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. 7:1D 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 [www.state.nj.us/dep/srp/regs/techrule/techgis2.htm](http://www.state.nj.us/dep/srp/regs/techrule/techgis2.htm)). In lieu of an ecological investigation or an ecological risk assessment for ground water, 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. Isoleth 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)11, 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.

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).

**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) A person responsible for conducting a remediation for a site shall select a remedial action that reduces or eliminates exposure to contaminants above the applicable remediation standard. In determining the appropriate remedial

action that will reduce or eliminate exposure to contaminants above the applicable remediation standard, the person responsible for conducting the remediation shall select, develop, and implement a remedial action that is based on the following factors:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ii. Examples of information that would be evaluated when assessing a ground water remedial action include, without limitation:

(1) Whether the site is located in a water supply surplus or deficit area as defined in the State's Water Supply Master Plan (New Jersey Department of Environmental Protection, "Water for the 21st Century: The Vital Resource," August 1996) or the version most recent to the submission;

(2) Whether the remedial action will be active or passive; and

(3) If a pump and treat remedial action is proposed, the volume of water to be pumped over the life of the action, the estimated duration of pumping, and where the treated water would be discharged.

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

1. Information demonstrating that the proposed technology has been verified by:

(c) Any person conducting a remedial action pursuant to an oversight document or the ISRA or UST programs, shall develop a permit application schedule to identify the time frames for application and issuance/approval pursuant to N.J.A.C. 7:26E-6.5(b)3.

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)31iii and (c), substituted "ISRA" for "ECRA".

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.

SUBCHAPTER 8. ENGINEERING AND INSTITUTIONAL CONTROLS

7:26E-8.1 General requirements

(a) The purpose of this subchapter is to present the requirements for the use of engineering and institutional controls as part of remedial actions for contaminated sites.

(b) Any person proposing to use engineering and/or institutional controls shall:

1. Propose a deed notice, pursuant to N.J.A.C. 7:26E-8.2, whenever:

i. Soil contamination will remain above a concentration that would allow for the unrestricted use of the property; or

ii. A groundwater remedial action includes containment;

2. Demonstrate in the remedial action workplan submitted to the Department pursuant to N.J.A.C. 7:26E-6.2(a), that:

i. The selected remedial action will remain protective of the public health and safety and of the environment for as long as the contamination exists above a concentration that would allow for the unrestricted use of the property;

ii. Access to the site or area of concern, and human exposure to the contamination at the site or area of concern, can both be controlled when necessary to ensure the protectiveness of the remedial action; and

iii. The current and planned future uses of the site or area of concern will be consistent with all engineering and institutional controls; and

3. Monitor each engineering and institutional control until such time that the Department approves in writing the removal of the control.

(c) In evaluating the protectiveness of a remedial action that includes an engineering and/or institutional control, the

Department will consider site-specific conditions, including, but not limited to:

1. The concentration of contaminants;
2. The mobility and toxicity of the contaminants;
3. The presence of free and/or residual product, off-spec or discarded product or by-product from a manufacturing or industrial process, containerized wastes, or buried waste;
4. The current surrounding land uses;
5. The implementability of the control over the long term; and
6. Any other factors that are relevant to evaluating the protectiveness of the remedial action.

7:26E-8.2 Deed notice requirements

(a) The person responsible for conducting the remediation of a site that includes a soil remedial action that includes a proposed deed notice shall:

1. If that person is the owner of the site, record a deed notice for the site pursuant to (c) and (d) below; or

2. If that person is not the owner of the site, provide the Department documentation of the owner's consent to record the necessary deed notice pursuant to (b) below.

(b) The person responsible for conducting the remediation that proposes a remedial action that includes a deed notice shall provide the Department with a copy of the property owner's consent to record a deed notice as part of the remedial action workplan pursuant to N.J.A.C. 7:26E-6.2(a)16, as follows:

1. If the property owner is any local, county, State or Federal government agency, and a deed is not associated with the property, such as roads and sidewalks, the person responsible for conducting the remediation shall submit written documentation of the owner's agreement to provide notice pursuant to (c) below as follows:

i. For a municipality, the written agreement shall be in the form of a formal resolution by the municipal government;

ii. For a county, the written agreement shall be in the form of a formal resolution by the county freeholders; or

iii. For a State or Federal governmental agency, the head of the agency or their designee shall sign the written agreement; or

2. If the property owner is any other person than the person responsible for conducting the remediation, the person responsible for conducting the remediation shall provide the Department with written documentation of the owner's agreement to record a deed notice for the site.

(c) The person responsible for conducting the remediation proposing a remedial action that requires the owner of the site to record a deed notice shall comply with the following procedures for drafting a deed notice for the Department's approval as follows:

1. For a property that is owned by a local, county, State or Federal government agency (except as provided in (c)2 below), and no deed is associated with the site, the person responsible for conducting the remediation shall submit a draft notice worded pursuant to (d) below, to serve as the notice in lieu of a deed notice;
2. For a property that is owned by the U.S. Department of Defense, and no deed is associated with the site, the person responsible for conducting the remediation shall draft an amendment to the Base Master Plan or Land Use Control Assurance Plan worded pursuant to (d) below, to serve as the notice in lieu of a deed notice; or
3. For a property that is owned by any person not described in (c)1 or 2 above, the person responsible for conducting the remediation shall provide the Department with a draft deed notice pursuant to (d) below.

(d) The person responsible for conducting the remediation who elects to use a deed notice as part of a remedial action for a contaminated site shall submit a draft deed notice to the Department, as part of the remedial action work plan pursuant to N.J.A.C. 7:26E-6.2(a)16, that:

1. Is worded exactly as the model document in N.J.A.C. 7:26E Appendix E; and
2. Includes copies of all required maps that:
  - i. Are compatible with the "New Jersey Department of Environmental Protection Mapping the Present to Protect New Jersey's Future: Mapping and Digital Data Standards," in N.J.A.C. 7:1D, Appendix A. For additional guidance, see the most recent version of the Department's "Guidance for the Submission and Use of Data in GIS Compatible Formats Pursuant to Technical Requirements for Site Remediation" at <http://www.state.nj.us/dep/srp/reggs/guidance.htm#techgis2>;
  - ii. Are on 8.5 inch by 11 inch paper (using multiple sheets if necessary);
  - iii. Are scaled at one inch to 200 feet or less;
  - iv. Are clean, clear, and legible; and
  - v. Include:
    - (1) A bar scale;
    - (2) A north arrow;
    - (3) A legend;
    - (4) The applicable Master Site name and number;
    - (5) Tax Block and Lot numbers; and
    - (6) The date prepared.

(e) The person responsible for conducting the remediation who proposes to use a deed notice as part of a remedial action for a contaminated site shall submit a final draft of the deed notice to the Department as part of the remedial action report pursuant to N.J.A.C. 7:26E-6.6, unless the Department directs its submission at an earlier time.

(f) Within 45 calendar days after the receipt of the Department's written approval of the final deed notice submitted pursuant to (e) above, the person responsible for conducting the remediation shall comply with the following, as applicable:

1. If there is a deed for the property, the person shall have the owner of the property record the deed notice with the office of each county recording officer responsible for recording deeds for each county in which the site is located;
2. If the property to which the notice applies is a local, county or State roadway, the person shall provide a paper copy of the document referenced in (c)1 above, and an electronic copy in a read only format, including all of the exhibits, to the following, as applicable:
  - i. Each road department of each municipality in which the site is located;
  - ii. Each road department of each county in which the site is located;
  - iii. The New Jersey Department of Transportation; and
  - iv. Utility companies with easements on the roadway, and
3. In all other circumstances, the person shall provide a paper copy of the recorded deed notice, stamped "Filed," or notice, as applicable, and an electronic copy in a read only format, including all of the exhibits, to those individuals and groups listed in (g) below.

(g) Within 45 calendar days after receipt of the Department's written approval of the final deed notice submitted pursuant to (e) above, the person responsible for conducting the remediation shall provide, as applicable, a paper copy of the recorded deed notice or document referenced in (c)1 above, and an electronic copy in read only format, including all exhibits, to the following:

1. The Department's assigned case manager;
2. The municipal clerk, mayor and town council of each municipality in which the site is located;
3. The local, county, and regional health department in each municipality and county in which the site is located;
4. Each gas, electric, water, sewer, cable company and all other utilities that service the site or have a license or easement to cross the site;

5. The New Jersey Realtors Association;
6. The Pinelands Commission if the site is located within an area subject to the jurisdiction of the Pinelands Commission; and
7. Any other person who requests a copy.

(h) Any person who chooses to redevelop or change the use of a site in a manner inconsistent with a remedial action that includes an engineering and/or institutional control, or conduct additional remediation or other activities that may compromise the integrity of an engineering control, such that the remedy no longer meets the applicable health risk standard, or is no longer protective of public health, safety and of the environment, shall obtain the Department's prior written approval of such activities by submitting:

1. A memorandum of agreement application, pursuant to N.J.A.C. 7:26C-3, for the Department's oversight of activity, if the person is not already subject to the Department's oversight for the site;
2. A remedial action workplan pursuant to N.J.A.C. 7:26E-6.2 prior to implementation of such activities; and
3. A request to the Department, pursuant to (i) below, to remove or modify, as appropriate, the declaration of environmental restrictions or deed notice.

(i) Any person may submit a written request along with the memorandum of agreement application, at the address provided at N.J.A.C. 7:26C-1.4(e), to remove or modify a remedial action that includes an engineering and/or institutional control. The person shall submit a copy of the existing deed notice or declaration of environmental restrictions stamped "filed" and documentation supporting the removal or modification based on the following:

1. The performance of subsequent remediation;
2. A change in conditions at the site;
3. The Department's revision of soil remediation standards; or
4. A change in the maintenance or monitoring requirements in this chapter.

(j) The Department will evaluate the request submitted pursuant to (h) above and within 90 calendar days after the Department's receipt of the written request will either:

1. Approve the request with the condition that:
  - i. The property owner records with the office of each county recording officer, pursuant to (f) above, a notice executed by the Department, that the use of the site is no longer restricted or that the restriction has been changed and that the declaration of environmental restrictions or deed notice is therefore either terminated or modified. Any Department approved modified declaration of environmental restrictions or deed notice

delineating the new restrictions shall be recorded pursuant to this section;

- ii. The applicant provides written notice to each municipality in which the site is located, with a copy to the Department sent to the address provided at N.J.A.C. 7:26C-1.4, of the removal or change of the restrictive use conditions; and

- iii. The applicant provides an electronic copy in a read only format, of all information required in (c) above, for the approved modified declaration of environmental restrictions or deed notice as required pursuant to (f) and (g) above; or

2. Issue a written denial of the request.

**7:26E-8.3 Groundwater classification exception areas**

(a) A groundwater classification exception area serves as an institutional control by providing notice that there is groundwater pollution in a localized area caused by a discharge at a contaminated site. The area and depth of groundwater pollution will be determined based on actual groundwater contamination, as well as fate and transport modeling. The Department will establish a groundwater classification exception area as part of a remedial action for groundwater at a contaminated site when the groundwater does not meet the groundwater quality standards, pursuant to N.J.A.C. 7:9-6.

(b) The person responsible for conducting the remediation shall submit the following information to the Department as part of the remedial action workplan pursuant to N.J.A.C. 7:26E-6.2:

1. For each groundwater sampling point, a list of all contaminants and their concentrations, that do not meet the groundwater quality standards, from the most recent 24 months of groundwater sampling;

2. A description of the fate and transport of the contaminant plume, using the most mobile and persistent contaminants present that exceed the groundwater quality standards, including:

- i. The horizontal and vertical distances that the contaminated groundwater plume is expected to travel before contaminant concentrations decrease to or below the applicable groundwater quality standards;

- ii. A proposed expiration date for the classification exception area; and

- iii. All other information required by Appendix F, incorporated herein by reference;

3. The following maps consistent with the requirements of N.J.A.C. 7:26E-8.2(d)2;

- i. A USGS Quadrangle map (paper copy only), indicating the location of the site;

ii. A map, in paper and electronic formats, indicating the predicted extent of the groundwater contaminant plume; and

iii. A map (paper copy only) showing all properties, according to tax block and lot with a reference to the year of the referenced tax map, under which the contaminant plume is located and is expected to migrate;

4. Information regarding current and projected use of the groundwater in the aquifer(s) in which the groundwater classification exception area is located, as follows:

i. The current groundwater use based on the most recent well search conducted pursuant to this chapter; and

ii. The future groundwater use for a 25-year planning horizon based on the following, without limitation:

(1) The New Jersey Water Supply Master Plan;

(2) Department of Environmental Protection, Bureau of Water Allocation;

(3) Municipal master plans;

(4) Zoning plans;

(5) Local water purveyor plans and planning data pertaining to the existence of water lines and proposed future installation of water lines;

(6) Local planning officials;

(7) County and local boards of health; and

(8) Local and/or county ordinances restricting installation of potable wells; and

5. Copies of the certified letters, return receipt requested, notifying the following persons of the need to establish the groundwater classification exception area:

i. The municipal and county clerks for each municipality and county in which the groundwater classification exception area will be located;

ii. The local, county and regional health department for each municipality and county in which the groundwater classification exception area will be located;

iii. The designated County Environmental Health Act agency for each county in which the groundwater classification exception area will be located;

iv. The county planning board for each county in which the groundwater classification exception area will be located;

v. The Pinelands Commission if the groundwater classification exception area will be located within the jurisdiction of that Commission;

vi. New Jersey Department of Environmental Protection, Water Supply Administration:

(1) Bureau of Safe Drinking Water; and

(2) Bureau of Water Allocation; and

vii. If the groundwater classification exception area is located in a groundwater use area, each owner of any real property within the groundwater classification exception area.

(c) The Department will establish a groundwater classification exception area based upon the projected area of the contaminant plume in the groundwater, pursuant to (b) above.

(d) The Department may revise or reestablish a groundwater classification exception area at any time to more accurately reflect groundwater conditions using any relevant data, including any data submitted along with the certification required by N.J.A.C. 7:26E-8.6.

(e) The Department will remove a groundwater classification exception area based upon groundwater data, collected pursuant to N.J.A.C. 7:26E-8.6(a)7, that indicate that the contaminant concentrations in the groundwater meet all of the applicable groundwater quality standards.

#### **7:26E-8.4 Monitoring, maintenance, and biennial certification—who has obligation and when**

(a) The persons responsible for monitoring the protectiveness of a remedial action that includes an engineering and/or institutional control and for submitting the biennial certifications pursuant to this subchapter include, without limitation, each of the following:

1. Any person with a legal obligation to conduct the remediation, including, without limitation, each of the following:

i. A person in any way responsible, pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11a et seq., for the hazardous substance that was the subject of the remedial action that includes the engineering and/or institutional control;

ii. The owner of the site of the discharge at the time of the remedial action that includes the engineering and/or institutional control;

iii. An owner or operator that triggered the Industrial Site Recovery Act, N.J.S.A. 13:1K-6 et seq., for the industrial establishment that was the subject of the remedial action that includes the engineering and/or institutional control;

iv. An owner or operator of an underground storage tank that was the subject of the remedial action that includes the engineering and/or institutional control;

v. A holder of a security interest in the site, who actively participated in the management of the site or underground storage tank facility, that was the subject of the remedial action that includes the engineering and/or institutional control; or

vi. A holder of a security interest in the site, who negligently caused a new discharge at the site after the date of foreclosure on a security interest in the site or the underground storage tank facility, that was the subject of the remedial action that includes the engineering and/or institutional control; and

2. Once the engineering or institutional control is in place, each owner, lessee and operator of any property that is subject to an engineering or institutional control; this obligation may be limited to the period of that person's ownership, tenancy, or operation depending on that person's continuing liability of the remediation pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11gd.

(b) The obligations in this subchapter for the monitoring, maintenance and certifying the protectiveness of remedial actions that include engineering and/or institutional controls apply to all of the persons described in (a) above, for sites with an engineering or institutional control that continues in effect after February 3, 2003, regardless of the date the control was established.

(c) The persons responsible for monitoring the protectiveness of a remedial action that includes an engineering and/or institutional control shall submit to the Department a certification, pursuant to this section and consistent with N.J.A.C. 7:26C-1.2(a)1, according to the following schedule:

1. For a deed notice and any engineering controls that are described in the deed notice, every two years on the anniversary of the date stamped on the deed notice that indicates when the deed notice was recorded;
2. For a groundwater classification exception area, every two years on the anniversary of the date that the Department established the groundwater classification exception area; and
3. For all other engineering and institutional controls, every two years on the anniversary of when the engineering or institutional control was in place for the site.

(d) The persons responsible for submitting biennial certifications for sites with multiple engineering and/or institutional controls for the remediation of contaminated soil at a site shall:

1. Submit one biennial certification for all remedial actions and all engineering and institutional controls for the site; and
2. Submit to the Department the first biennial certification when the first biennial certification is due to the Department pursuant to (c) above, and biennially thereafter on that same date.

(e) Submissions required pursuant to this subchapter shall be made to the Department as follows:

1. For deed notices and related engineering controls, as follows:

i. If the Department continues to oversee any aspect of the remediation at the site, submit information to the following address:

Department of Environmental Protection  
 Division of Responsible Party Site Remediation  
 (Insert name of Bureau overseeing the remediation)  
 PO Box 028  
 401 E. State Street  
 Trenton, NJ 08625-0028

ii. If the Department has issued no further action letters for all areas of concern at the site, submit information to the following address:

Department of Environmental Protection  
 Division of Responsible Party Site Remediation  
 Bureau of Case Management  
 Deed Notice Inspection Program  
 PO Box 028  
 401 E. State Street  
 Trenton, NJ 08625-0028

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

Department of Environmental Protection  
 Division of Responsible Party Site Remediation  
 (Insert name of appropriate Bureau)  
 PO Box 028  
 401 E. State Street  
 Trenton, NJ 08625-0028

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

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

1. Determine whether any actual or pending zoning or land-use change is consistent with the use restrictions in the deed notice or declaration of environmental restrictions or could undermine the protectiveness of the remedial action that includes a deed notice or declaration of environmental restrictions in a manner such that could prevent:

i. The remedial action which includes the engineering and/or institutional controls from meeting the applicable health risk standard (see N.J.S.A. 58:10B-12g(3)(b)); and

- ii. The remedial action, which includes the engineering and/or institutional controls, from continuing to be protective of public health, safety, and of the environment (see N.J.S.A. 58:10B-12g).
2. Conduct periodic inspections of the site to identify whether:
    - i. Any excavation or other disturbance activities have taken place within the restricted areas; and
    - ii. Any disturbances of the soil at the site have resulted in unacceptable exposure to the soil contamination;
  3. Compare New Jersey laws, remediation standards, and other regulations applicable at the time the engineering or institutional control was established with any relevant subsequently promulgated or modified laws, regulations or remediation standards to determine whether:
    - i. Any changes in applicable laws, regulations, or remediation standards have occurred; and
    - ii. Each engineering and/or institutional control comply with the requirements of the new laws and regulations; and
  4. Develop a detailed log of how the persons responsible for monitoring the protectiveness of the remedial action have maintained and evaluated the engineering control in compliance with this section. The log shall be completed for the time since the first certification due date pursuant to N.J.A.C. 7:26E-8.4(e), or the last certification and monitoring report was submitted to the Department, whichever is more recent.
- (b) The persons responsible for monitoring the protectiveness of a remedial action shall prepare a monitoring report that includes the following information:
1. The name, address and telephone number of the person responsible for maintaining the engineering and institutional controls;
  2. Site identifiers (as applicable):
    - i. The Master Site Name;
    - ii. The Master Site Number;
    - iii. The ISRA ID Number;
    - iv. The Case Number or Incident Report Number;
    - v. The UST Registration Number;
    - vi. The date of each no further action letter for the site;
    - vii. The name of the Department's case manager for the site at the time of each no further action letter;
    - viii. The street address;
    - ix. The tax block and lot number; and
  - x. The name of each municipality and county in which the site is located;
3. A description of:
    - i. The physical characteristics of the site; and
    - ii. The current site operations;
  4. A description of each remedial action for the site that included the deed notice or declaration of environmental restrictions;
  5. The results of the comparison of applicable laws and regulations pursuant to (a)5 above;
  6. The maintenance and evaluation log for each engineering control pursuant to (a)6 above;
  7. The dates and results of inspections and maintenance, including all test and sampling results, of each engineering and/or control;
  8. A description of any changes in applicable laws, regulations or remediation standards and a proposal for all changes in the remedial action to comply with those changes;
  9. A description of any additional action taken to ensure the protectiveness of the remedial action; and
  10. A conclusion as to whether each remedial action that includes an engineering and/or institutional control remains protective of the public health and safety and the environment.
- (c) The persons responsible for monitoring the protectiveness of a remedial action shall:
1. Certify to the Department that:
    - i. The deed notice or declaration of environmental restrictions, including all engineering controls, is being properly maintained; and
    - ii. The remedial action that includes the deed notice or declaration of environmental restrictions continues to be protective of the public health and safety and the environment;
  2. Include with the certification a written monitoring report pursuant to (b) above, along with an electronic copy of the monitoring report and certification, in a read only format acceptable to the Department; and
  3. Submit the certification and the report required by (c)2 above, according to the schedule in N.J.A.C. 7:26E-8.4(c), to:
    - i. The municipal and county clerks for each municipality and county in which any property included in the deed notice or declaration of environmental restrictions is located;

ii. The local, county and regional health department for each municipality and county in which any property included in the deed notice or declaration of environmental restrictions is located;

iii. Each owner of the property which is included in the deed notice or declaration of environmental restrictions; and

iv. The Department, at the appropriate address as indicated in N.J.A.C. 7:26E-8.4(e)7, along with the name and address of each person that was sent a copy of the certification pursuant to (c)3i through iii above.

(d) If the person(s) having the obligation for complying with this section pursuant to N.J.A.C. 7:26E-8.4(a)2 changes:

1. The person who is relinquishing the obligation shall notify the Department of the name, address and telephone number of the person assuming the responsibility and the effective date of the change;

2. The person who is assuming the obligation to comply with (c) above shall submit a letter signed and certified pursuant to N.J.A.C. 7:26E-1.5, stating that he or she is assuming the obligation for compliance with (a) through (c) above; and

3. The letters required by (d)1 and 2 above shall be submitted to the Department within 30 days of the effective date of the change.

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

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

1. Compare the laws, Ground Water Quality Standards, and other regulations applicable at the time the Department established the groundwater classification exception area, with any relevant subsequently promulgated or modified laws or regulations to determine whether:

i. Any subsequently promulgated or modified laws or regulations apply to the site; and

ii. Each groundwater classification exception area complies with the requirements of the new laws and regulations;

2. Determine whether there are any planned changes within the 25-year water use planning horizon for the aquifer(s) in which the groundwater classification exception area is located since the Department established the groundwater classification exception area or the last completed biennial review, whichever is more recent. This determination shall be made by reviewing all plans, records and other relevant information from the following sources, without limitation:

- i. The New Jersey Water Supply Master Plan;
- ii. Department of Environmental Protection, Bureau of Water Allocation;
- iii. Municipal master plans;
- iv. Zoning plans;
- v. Local water purveyor plans and planning data pertaining to the existence of water lines and proposed future installation of water lines;
- vi. Local planning officials;
- vii. Local and county ordinances restricting installation of potable wells; and
- viii. County and local boards of health;

3. Identify whether there have been any actual changes in the groundwater use in the water use planning area since the Department established the groundwater classification exception area or the last completed biennial review, whichever is more recent. Changes shall be identified by:

i. Completing a Department computer generated well search (contact the Bureau of Water Allocation) for all wells within one mile up-gradient, side-gradient and down-gradient of the groundwater classification exception area; and

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

4. Inspect all groundwater monitoring wells associated with the groundwater classification exception area and maintain a log for each monitoring well as follows:

i. Inspect the physical integrity of each well including, determining:

- (1) The identification, integrity, and location of the well;
- (2) The presence of a functioning pad lock; and
- (3) The presence of any additional security measures such as a fence or patrolling of the site;

ii. Report to the Department, pursuant to N.J.A.C. 7:26E-4.4(g)11, any damaged monitoring wells and either repair or decommission damaged monitoring wells pursuant to N.J.A.C. 7:9D or replace the monitoring wells, as necessary; and

iii. For monitoring wells used to establish the groundwater classification exception area that have been decommissioned pursuant to N.J.A.C. 7:9D, a copy of the well closure report shall be included with the first report, pursuant to (b)7 below, submitted after each well is decommissioned;

5. Identify any land use disturbance, such as the installation of a detention basin, that may intercept the water table within the area of the groundwater classification exception area that could result in a contaminated discharge to surface water. If any such disturbances are identified, sample the groundwater/surface water down-gradient and proximate to the land use disturbance to determine whether the groundwater meets the more stringent of either:

- i. The New Jersey Surface Water Quality Standards, N.J.A.C. 7:9B; or
- ii. The Federal Surface Water Quality Criteria, 40 CFR Part 131;

6. Determine whether:

- i. Any of the actual or proposed changes in the groundwater use identified pursuant to (a)2 and 3 above have influenced or may influence the protectiveness of the remedial action that includes the groundwater classification exception area; and
- ii. There is a need to reevaluate the fate and transport of the groundwater contamination plume and to revise the groundwater classification exception area to ensure that the remedial action remains protective of the public health and safety and the environment; and

7. Assess groundwater quality as follows:

- i. Within 120 calendar days after the projected expiration of the groundwater classification exception area, collect at least two rounds of groundwater samples such that the time between sampling events shall account for seasonal fluctuations in the groundwater table and the number of groundwater samples collected are representative of the entire horizontal and vertical extent of the groundwater classification exception area;
- ii. Evaluate the results of the groundwater sampling conducted pursuant to (a)7i above, to determine whether the contaminant concentrations in the groundwater have either:

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

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

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

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

1. The name, address and telephone number of the person responsible for preparing the report;
2. Site identifiers, as applicable:
  - i. Master Site Name and Number;
  - ii. The ISRA ID Number;
  - iii. The Case Number or Incident Report Number;
  - iv. The UST Registration Number;
  - v. The date of each no further action letter for the site;
  - vi. The street address;
  - vii. The tax block and lot number and the year of the tax map from which this information is obtained; and
  - viii. The name of each municipality and county in which the site is located;
3. A description of:
  - i. The physical characteristics of the site;
  - ii. The current site operations; and
  - iii. Each remedial action that includes a groundwater classification exception area;
4. The results, in table format, of the comparison of applicable laws and regulations pursuant to (a)1 above;
5. The results of the evaluation of the changes in groundwater use conducted pursuant to (a)2 and 3 above;
6. The maintenance and evaluation log for each monitoring well pursuant to (a)4 above, including:
  - i. A copy of any report submitted to the Department, pursuant to N.J.A.C. 7:26E-4.4(g)11, concerning damaged monitoring wells; and
  - ii. A copy of the well closure report for each monitoring well used to establish the groundwater classification exception area that has been decommissioned pursuant to N.J.S.A. 58:4A-1 et seq., and N.J.A.C. 7:9D since the Department established the groundwater classification exception area or the last completed biennial review, whichever is more recent;
7. For each land use disturbance identified pursuant to (a)5 above:
  - i. A description of the disturbance;
  - ii. The results of all groundwater sampling required pursuant to (a)5, above; and

iii. A discussion of whether the groundwater meets the more stringent of either:

- (1) The New Jersey Surface Water Quality Standards, N.J.A.C. 7:9B; or
- (2) The Federal Surface Water Quality Criteria, 40 CFR Part 131;

8. A discussion of whether:

i. Any of the actual or proposed changes in the groundwater use have influenced or may influence the protectiveness of the remedial action that includes the groundwater classification exception area; and

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

9. When groundwater sampling is required pursuant to (a)7 above, present and evaluate the contaminant concentrations in the groundwater to determine whether the concentrations have either:

- i. Decreased to or below the applicable groundwater quality standards throughout the entire classification exception area; or
- ii. Not decreased to or below the applicable groundwater quality standards throughout the entire classification exception area;

10. A description and map of a proposed revised groundwater classification exception area, in both paper and electronic format consistent with the requirements of N.J.A.C. 7:26E-8.2(d)2, if groundwater monitoring pursuant to this subchapter indicates that a revision to the groundwater classification exception area is necessary;

11. The dates and results of inspections and maintenance, including all test and sampling results, of each groundwater classification exception area;

12. A description of any additional action taken to ensure the protectiveness of the remedial action that includes the groundwater classification exception area; and

13. For the first biennial certification required after the projected expiration of the groundwater classification exception area, if the contaminant concentrations in the groundwater have not decreased to or below the applicable groundwater quality standards throughout the classification exception area, the person responsible for evaluating the protectiveness shall submit:

- i. A narrative, detailing why groundwater contamination is still present; and
- ii. A re-evaluation of the groundwater quality standards pursuant to N.J.A.C. 7:26E-8.3(b), based on the

current configuration of the groundwater contaminant plume.

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

- 1. Certify in a format acceptable to the Department that, based upon the monitoring report required pursuant to (b) above, the groundwater classification exception area continues to provide notice of the groundwater contamination and the remedial action continues to be protective of the public health and safety and the environment;
- 2. Submit a report pursuant to (b) above, in both paper copy and in electronic format acceptable to the Department; and
- 3. Submit the certification and the report required by (c)1 and 2 above, according to the schedule in N.J.A.C. 7:26E-8.4, to:
  - i. Each external agency that the Department copied when it established the groundwater classification exception area;
  - ii. Each property owner that the Department copied when it established the groundwater classification exception area; and
  - iii. The Department, at the address in N.J.A.C. 7:26E-8.4, along with the name and address of each person that was sent a copy of the certification pursuant to (c)3i and ii above.

**7:26E-8.7 Monitoring, maintenance, and biennial certification—engineering and institutional controls**

(a) The persons responsible for monitoring the protectiveness of a remedial action that includes any other engineering or institutional control not included in N.J.A.C. 7:26E-8.5 or 8.6 shall:

- 1. Monitor each institutional control by:
  - i. Conducting periodic inspections of the site to ensure that:
    - (1) The use of the site is consistent with any restrictions in the institutional control; and
    - (2) The institutional control and the remedial action of which it is a part continue to be protective of the public health and safety and of the environment; and
  - ii. Evaluating any actual or pending zoning or land-use changes that could undermine the protectiveness of any remedial action for the site;
- 2. Monitor each engineering control by:

- i. Periodically reviewing the documented operation and maintenance records for each engineering control according to the requirements included in the deed notice;
  - ii. Conducting periodical inspections of each engineering control to determine:
    - (1) The integrity, operability, and effectiveness of the engineering control; and
    - (2) Whether the engineering control and the remedial action, of which it is a part, continue to be protective of the public health and safety and of the environment;
  3. Compare the laws, remediation standards and other regulations applicable at the time the engineering or institutional control was established with any subsequently promulgated or modified laws, regulations or remediation standards to determine whether or not:
    - i. Any subsequently promulgated or modified laws or regulations apply to the site; and
    - ii. Each engineering and/or institutional control in place for the site meet those new laws and regulations; and
  4. Develop a detailed log of how the persons responsible for monitoring the protectiveness of the remedial action that includes an engineering control have maintained and evaluated the engineering controls in compliance with this section, since the first certification due date pursuant to N.J.A.C. 7:26E-8.4(d), or the date the persons responsible submitted the last certification and monitoring report to the Department, whichever is more recent.
- (b) For each engineering and institutional control, the persons responsible for monitoring the protectiveness of a remedial action that includes any other engineering or institutional control not included in N.J.A.C. 7:26E-8.5 or 8.6 shall prepare a monitoring report that includes the following information:
1. The name, address and telephone number of each person responsible for maintaining the engineering and/or institutional control;
  2. Site identifiers (as applicable):
    - i. The Master Site Name.
    - ii. The Master Site Number.
    - iii. The ISRA ID Number;
    - iv. The Case Number or Incident Report Number;
    - v. The UST Registration Number;
    - vi. The date of each no further action letter for the site that included an engineering and/or institutional control;
  - vii. The name of the Department's case manager for the site at the time of each no further action letter;
  - viii. The street address;
  - ix. The tax block and lot number; and
  - x. The name of each municipality and county in which the site is located;
3. A description of:
    - i. The physical characteristics of the site; and
    - ii. The current site operations;
  4. A description of each remedial action for the site that included an engineering or institutional control:
  5. The results of the comparison of applicable laws and regulations pursuant to (a)3 above;
  6. The maintenance and evaluation log for each engineering control pursuant to (a)4 above;
  7. The dates and results of all inspections and maintenance, including all test and sampling results, of each engineering and/or institutional control;
  8. A description of any additional action taken to ensure the protectiveness of the remedial action that includes the engineering and/or institutional control; and
  9. A conclusion as to whether each remedial action that includes an engineering and/or institutional control remains protective of the public health and safety and of the environment.
- (c) The persons responsible for monitoring the protectiveness of a remedial action that includes any other engineering or institutional control not included in N.J.A.C. 7:26E-8.5 or 8.6 shall:
1. Certify to the Department that:
    - i. Each engineering and institutional control is being properly maintained; and
    - ii. The remedial action that includes the engineering and institutional controls continues to be protective of the public health and safety and of the environment;
  2. Include with the certification a written monitoring report pursuant to (b) above, along with an electronic copy of the monitoring report and certification, in a read only format acceptable to the Department; and
  3. Submit the certification to the Department pursuant to the schedule and address in N.J.A.C. 7:26E-8.4(e)1.

## APPENDIX A

### Laboratory Data Deliverables Formats

#### I. Full Laboratory Data Deliverables—USEPA/CLP Methods

Full laboratory data deliverables for USEPA/CLP analyses may be requested when the following Statements of Work are employed:

“USEPA Contract Laboratory Program Statement of Work for:

- A) Organics Analysis, Multi-Media, Multi-Concentration”
- B) Inorganics Analysis, Multi-Media, Multi-Concentration”
- C) Organics Analysis, Multi-Media, High-Concentration”
- D) Inorganics Analysis, Multi-Media, High-Concentration”
- E) Low Concentration Water for Organic Analysis”
- F) Low Concentration Water for Volatile Organic Analysis”
- G) Low Concentration Water for Inorganic Analytes”
- H) Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans”

The Full laboratory data deliverables required for USEPA/CLP analyses are listed in the versions of the above noted Statements of Work in effect as of the date of sample analysis by the laboratory. Additionally, mass spectral negative proofs<sup>1</sup> are required where applicable, “clean” soil method blanks<sup>2</sup> for nonaqueous samples are not permitted, and laboratory internal chain of custody documentation is required.

**II. Full Laboratory Data Deliverables—Non-USEPA/CLP Methods**

These deliverables shall be the “Regulatory Format” data deliverables listed in the version of the Professional Laboratory Analytical Services contract issued by the N.J. Department of Treasury, Division of Purchase and Property in effect as of the date of sample analysis by the laboratory.

**III. Reduced Laboratory Data Deliverables—USEPA/CLP Methods**

Reduced laboratory data deliverables for USEPA/CLP analyses may be required when the “USEPA Contract Laboratory Program Statement of Work for Organic Analyses, Multi-Media, Multi-Concentration”; the “USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, Multi-Media, Multi-Concentration”; “USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, High Concentration”; and/or the “USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis, Multi-Media, High Concentration are employed. Data generated via the other above noted State-

ments of Work may NOT be delivered in the reduced format.

**A. Organics**

All laboratory data deliverables required for USEPA CLP analyses for organics via the appropriate Statement of Work are the same as those listed above in the **Full Laboratory Data Deliverables—USEPA/CLP** requirements and must be submitted with the following exceptions:

- 1. Chromatograms of standards (calibrations) are not required.
- 2. Chromatograms and spectra for matrix spikes and matrix spike duplicates are not required.

**B. Inorganics**

The Reduced laboratory data deliverables required for USEPA/CLP analyses for inorganics are all the Inorganics Data Reporting Forms as specified in the version of the above noted Statement of Work for Inorganics in effect as of the date of sample analysis by the laboratory.

**IV. Reduced Laboratory Data Deliverables—Non-USEPA/CLP Methods**

This attachment presents reduced laboratory data deliverables requirements for Non-USEPA/CLP Methods. The deliverable package is divided into six (6) sections:

- 1. General Requirements
- 2. GC/MS Requirements
- 3. GC Requirements
- 4. Metals Requirements
- 5. General Chemistry Requirements
- 6. Petroleum Hydrocarbons Requirements

**1. General Requirements**

A. The data deliverable package shall be bound and paginated with margins, bindings and of reproduction quality such that all pages are legible.

**B. Title/Cover Page**

The format for QA/QC documentation shall be simplified as much as possible for ease of review and reference. The report shall begin with a cover page that includes the laboratory certification number, if applicable, facility name, address and date of report preparation.

The report shall include a summary table that cross-references the field identification number to the laboratory identification number for each sample. This table is needed to locate laboratory information for specific field samples. Sample numbers used in the field are

always different than those used in the laboratory and therefore shall be reconciled before submitting the results to Department.

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

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

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

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

## 5. General Chemistry Requirements

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

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

C. Spike Sample Results Summary—A summary of the spike sample analysis shall be submitted. The following

information shall be reported: ID number of the sample chosen for spiking, sample matrix, the concentration of each spiked target analyte, the results of the unspiked sample analysis, the results of the spiked sample analysis, the percent recovery for each spiked analyte and the QC limit for percent recovery for each spiked analyte.

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

## 6. Petroleum Hydrocarbon Requirements

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

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

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

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

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

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

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

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

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

<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

### Well Search Format

Preparer

Name of Site

Case Number

Street Address

Township

County

USGS Quadrangle

Latitude

Longitude

Instructions:

1. All sources of well records/information shall be clearly documented.
2. List all wells and State well permit numbers, including active, inactive and decommissioned, within  $\frac{1}{2}$  mile of the site boundary. Include all wells, active, inactive and decommissioned at the site.
3. Locate all listed wells on a site locus map.
4. Sources that shall be used:
  - a. Well records search of the Bureau of Water Allocation. There is no cost if this search is performed by the individual. Appointments shall be made to examine well records by contacting the Bureau of Water Allocation at (609) 292-2957. Upon written request, the Bureau will provide the well search for a fee.
  - b. Contact local or county Health Department or equivalent.
5. Complete chart on back.

| Well Owner | Address | Total Depth               | Length of Casing                              | Static Water Elev. | Use Code | Source of Information |
|------------|---------|---------------------------|---|--------------------|----------|-----------------------|
| 1.         |         |                           |   |                    |          |                       |
| 2.         |         |                           |   |                    |          |                       |
| 3.         |         |                           |   |                    |          |                       |
| 4.         |         |                           |   |                    |          |                       |
| 5.         |         |                           |   |                    |          |                       |
| 6.         |         |                           |   |                    |          |                       |
| USE CODES  |         |                           |   |                    |          |                       |
| A          | =       |                           |   |                    |          |                       |
| B          | =       | Boring                    |   |                    |          |                       |
| C          | =       |                           |   |                    |          |                       |
| D          | =       | Domestic                  |   |                    |          |                       |
| E          | =       | Recovery/Decontamination  | Pollution Control/Leachate with Pump Capacity |                    |          |                       |
| F          | =       | Fire                      |   |                    |          |                       |
| G          | =       | Irrigation                |   |                    |          |                       |
| H          | =       | Heat Pump/Geothermal      |   |                    |          |                       |
| I          | =       | Industrial                |   |                    |          |                       |
| J          | =       | Injection/Waste Discharge |   |                    |          |                       |
| K          | =       |                           |   |                    |          |                       |
| L          | =       | Livestock                 |   |                    |          |                       |
| M          | =       | Monitoring                |   |                    |          |                       |

- N = Public Non-community
- O = Oil/Gas Exploration
- P = Public Supply
- Q = Recharge
- S = Sealed
- T = Test
- U = Non-public
- V = Gas Vent
- W = Dewatering
- X = Cancelled
- Y = Cathodic Protection
- Z = Piezometer

NEW REPLACEMENT WELL CODES

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

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

In 2, substituted "decommissioned" for "abandoned"; deleted 5 and recodified former 6 as 5.

APPENDIX C

Mann-Whitney U-Test\*

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

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

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

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

The U statistic shall be evaluated as follows:

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

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

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

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

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

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

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

The hypotheses shall be tested as follows:

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

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

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

EXAMPLE 1: All data points are numerically unique

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

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

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

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

EXAMPLE 2: two or more numerically identical data points

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

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

3. a) Ndb            b) Nda  
      Nda            Nda  
      Nda            Ndb  
      28a            28a  
      61a            61a  
      63b            63b  
      77b            77b  
      79b            79b
4. a) Nda=3, Nda=3, 28a=3, 61a=3  
      b) Nda=4, Nda=4, 28a=3, 61a=3
5. a) 3+3+3+3=12    Ua=12 ==> U=13.0  
      b) 4+4+3+3=14    Ub=14

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

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

APPENDIX D

Historic Fill Database  
Summary Table

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

1. ppm=parts per million

2. URU=Unrestricted Use, RU=Restricted Use, CDCSCC=Current Direct Contact Soil Cleanup Criteria

3. B(a)A=Benzo(a)anthracene, B(a)P=Benzo(a)pyrene, B(b)F=Benzo(b)fluorene, B(k)F=benzo(k)fluoranthene, I(1)P=Indeno(1,2,3-cd)pyrene, D(a)A=Dibenzo(a,h)anthracene, Be=Beryllium

New Rule, R.1997 d.124, effective May 19, 1997 (operative July 18, 1997).

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

APPENDIX E

MODEL DEED NOTICE

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

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

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

Prepared by: \_\_\_\_\_  
[Signature]

\_\_\_\_\_  
[Print name below signature]

Recorded by: \_\_\_\_\_  
[Signature, Officer of County Recording Office]

\_\_\_\_\_  
[Print name below signature]

DEED NOTICE

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

1. THE PROPERTY. [Insert the full legal name and address of each current property owner] [Insert as appropriate: "is," or "are"] the owner in fee simple of certain real property designated as Block(s) \_\_\_\_\_ Lot(s) \_\_\_\_\_, on the tax map of the [Insert, as appropriate: City/Borough/Township/Town] of [Insert the name of municipality], [Insert the name of county] County; the New Jersey Department of Environmental Protection Known Contaminated

Site List Number for the contaminated site which includes this property is [Insert the KCSL #]; and the property is more particularly described in Exhibit A, which is attached hereto and made a part hereof (the "Property").

2. DEPARTMENT'S ASSIGNED BUREAU. The [insert name of Bureau] was the New Jersey Department of Environmental Protection program that was responsible for the oversight of the remediation of the Property. The matter was Case No. [insert identification number].

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

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

5A. RESTRICTED AREAS. Due to the presence of these contaminants, the Owner has agreed, as part of the remedial action for the site, to restrict the use of certain parts of the Property (the "Restricted Areas"); a narrative description of these restrictions, along with the associated

monitoring and maintenance activities and the biennial certification requirements are provided in Exhibit C, which is attached hereto and made a part hereof. The Owner has also agreed to maintain a list of these restrictions on site for inspection by governmental enforcement officials.

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

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

#### 6A. ALTERATIONS, IMPROVEMENTS, AND DISTURBANCES.

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

\_\_\_Department of Environmental Protection  
 \_\_\_Division of Responsible Party Site Remediation  
 \_\_\_Bureau of Case Management  
 \_\_\_Deed Notice Inspection Program  
 \_\_\_PO Box 028  
 \_\_\_401 E. State Street  
 \_\_\_Trenton, NJ 08625-0028

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

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

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

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

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

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

\_\_\_Department of Environmental Protection  
 \_\_\_Division of Responsible Party Site Remediation  
 \_\_\_Bureau of Case Management  
 \_\_\_Deed Notice Inspection Program  
 \_\_\_PO Box 028  
 \_\_\_401 E. State Street  
 \_\_\_Trenton, NJ 08625-0028

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

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

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

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

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

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

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

- \_\_\_Department of Environmental Protection
- \_\_\_Division of Responsible Party Site Remediation
- \_\_\_Bureau of Case Management
- \_\_\_Deed Notice Inspection Program
- \_\_\_PO Box 028
- \_\_\_401 E. State Street
- \_\_\_Trenton, NJ 08625-0028]

7A. MONITORING AND MAINTENANCE OF DEED NOTICE, AND PROTECTIVENESS CERTIFICATION. The persons in any way responsible, pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11a et seq., for the hazardous substances that remain at the Property, the persons responsible for conducting the remediation, the Owner, and the subsequent owners, lessees, and operators, shall monitor and maintain this Deed Notice, and certify to the Department on a biennial basis that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment. The subsequent owners, lessees and operators have this obligation only during their ownership, tenancy, or operation. The specific obligations to monitor and maintain the deed notice shall include all of the following:

- i. Monitoring and maintaining this Deed Notice according to the requirements in Exhibit C, to ensure that the remedial action that includes the Deed Notice continues to be protective of the public health and safety and of the environment;
- ii. Conducting any additional remedial investigations and implement any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the site prior to the date that the certification is due to the Department

pursuant to iii, below, in order to ensure that the remedial action that includes this Deed Notice remains protective of the public health and safety and of the environment.

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

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

7B. MONITORING AND MAINTENANCE OF ENGINEERING CONTROLS, AND PROTECTIVENESS CERTIFICATION. The persons in any way responsible, pursuant to the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11a et seq., for the hazardous substances that remain at the Property, the person responsible for conducting the remediation, and, the Owner, and the subsequent owners, lessees, and operators, shall maintain all engineering controls at the Property and certify to the Department on a biennial basis that the remedial action of which each engineering control is a part remains protective of the public health and safety and of the environment. The subsequent owners, lessees and operators have this obligation only during their ownership, tenancy, or operation. The specific obligations to monitor and maintain the engineering controls shall include the following:

- i. Monitoring and maintaining each engineering control according to the requirements in Exhibit C, to ensure that the remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment;
- ii. Conducting any additional remedial investigations and implement any additional remedial actions, that are necessary to correct, mitigate, or abate each problem related to the protectiveness of the remedial action for the site prior to the date that the certification is due to the Department pursuant to iii, below, in order to ensure that the remedial action that includes the engineering control remains protective of the public health and safety and of the environment.

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

8. ACCESS. The Owner and the subsequent owners, lessees and operators agree to allow the Department, its agents and representatives access to the Property to inspect and evaluate the continued protectiveness of the remedial

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

#### 9. NOTICES.

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

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

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

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

- \_\_\_Department of Environmental Protection
- \_\_\_Division of Responsible Party Site Remediation
- \_\_\_Bureau of Case Management
- \_\_\_Deed Notice Inspection Program
- \_\_\_PO Box 028
- \_\_\_401 E. State Street
- \_\_\_Trenton, NJ 08625-0028

#### 10. ENFORCEMENT OF VIOLATIONS.

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

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

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

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

#### 13. MODIFICATION AND TERMINATION.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(B) Sample elevation based upon mean sea level;

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

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

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

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

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

(A) General Description of this Deed Notice:

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

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

(3) The objective of the restrictions;

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

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

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

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

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

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

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

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

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

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

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

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

(A) General Description of the engineering control:

- (1) Description of the engineering control;
- (2) The objective of the engineering control; and
- (3) How the engineering control is intended to function.

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

- (1) Periodic inspections of each engineering control are performed in order to determine its integrity, operability, and effectiveness;
- (2) Each engineering control continues as designed and intended to protect the public health and safety and the environment;
- (3) Each alteration, excavation or disturbance of any engineering control is timely and appropriately addressed to maintain the integrity of the engineering control;
- (4) This engineering control is being inspected and maintained and its integrity remains so that the remedial action continues to be protective of the public health and safety and of the environment;
- (5) A record of the self-inspection dates, name of the inspector, results of the inspection and condition(s) of this engineering control. Sampling, for example, may be necessary if it is not possible to visually evaluate the integrity/performance of this engineering control; and
- (6) Any new standards, regulations, or laws apply to the site that might necessitate additional sampling in order to evaluate the protectiveness of the remedial action which includes this Deed Notice, and conduct the necessary sampling; and

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

- (1) A monitoring report that describes the specific activities, pursuant to (A) and (B), above, conducted in support of the biennial certification of the protectiveness of the remedial action that includes this Deed Notice;
- (2) The engineering controls continues to operate as designed; and
- (3) The remedial action that includes the engineering control continues to be protective of the public health and safety and of the environment.

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

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

[If Owner is an individual]  
WITNESS:

|                             |                              |
|-----------------------------|------------------------------|
| _____                       | _____                        |
| [Signature]                 | [Print name below signature] |
| [If Owner is a corporation] |                              |
| ATTEST:                     | [Name of corporation]        |
| _____                       | By _____                     |

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

[Signature] \_\_\_\_\_ [Print name] \_\_\_\_\_  
[If Owner is an individual]  
STATE OF [State where document is executed]

SS.:  
COUNTY OF [County where document is executed]

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

- (a) Is named in and personally signed this document; and
- (b) Signed, sealed and delivered this document as his or her act and deed.

\_\_\_\_\_, Notary Public  
[Print name and title]  
[If Owner is a corporation]  
STATE OF [State where document is executed]

SS.:  
COUNTY OF [County where document is executed]

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

- (a) This person is the [secretary/assistant secretary] of [Owner], the corporation named in this document;
- (b) This person is the attesting witness to the signing of this document by the proper corporate officer who is the [president/vice president] of the corporation;
- (c) This document was signed and delivered by the corporation as its voluntary act and was duly authorized;
- (d) This person knows the proper seal of the corporation which was affixed to this document; and
- (e) This person signed this proof to attest to the truth of these facts.

[Signature]

[Print name and title of attesting witness]
Signed and sworn before me on \_\_\_\_\_,
20 \_\_\_\_

\_\_\_\_\_, Notary Public
[Print name and title]

[If Owner is a partnership]
STATE OF [State where document is executed]

SS.:

COUNTY OF [County where document is executed]

I certify that on \_\_, 20\_\_, [Name of person executing
document on behalf of Owner] personally came before me,
and this person acknowledged under oath, to my satisfac-
tion, 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.

\_\_\_\_\_, General Partner
[Signature]
[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).

APPENDIX F

GROUNDWATER CLASSIFICATION EXCEPTION
AREA FACT SHEET

A. SITE INFORMATION

- 1. Program's Site Identification Number: \_\_\_\_\_
2. Known Contaminated Site List Number: \_\_\_\_\_
3. Known Contaminated Site List Name: \_\_\_\_\_
4. Street address: \_\_\_\_\_
5. City: \_\_\_\_\_
6. County: \_\_\_\_\_
7. Block and Lots of the Known Contaminated Site List site
(duplicate if the site is located in more than one municipi-
ality):
a. Name of the municipality in which the site is located:
\_\_\_\_\_
b. Block and Lots: \_\_\_\_\_
c. Year of tax map: \_\_\_\_\_
8. United States Geological Survey Quadrangle map, indicat-
ing the location of the site, presented as Exhibit A.
9. Known Contaminated Site List Site Contact:
a. Name of contact person: \_\_\_\_\_
b. Company name: \_\_\_\_\_
c. Mailing address: \_\_\_\_\_

d. Phone number: (\_\_\_\_) \_\_\_\_\_

B. PROPOSED CLASSIFICATION EXCEPTION
AREA INFORMATION

- 1. Narrative description of proposed classification exception
area:
2. Location of proposed classification exception area (dupli-
cate if the site is located in more than one municipality):
a. Name of the municipality in which the site is located:
\_\_\_\_\_

b. Block and Lots: \_\_\_\_\_
c. Year of tax map: \_\_\_\_\_

3. Affected aquifer(s):
Table with columns: Aquifer Name, Vertical Depth, Groundwater Classification

4. Contaminant concentrations:
Table with columns: Contaminant, Concentration1, GWQS2, SWQS3

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

Table with columns: Northing, Easting, (New Jersey State Plane Coordinates), Latitude, Longitude

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

1Maximum concentration detected at the time Classification Exception Area
information submitted to the Department.
2New Jersey Ground Water Quality Standards, N.J.A.C. 7:9-6.
3New Jersey Surface Water Quality Standards, N.J.A.C. 7:9B.

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

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, installa-
tion 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).