Memorandum

MIAMI-DADE COUNTY

Date: March 9, 2015

To: Honorable Chairman Jean Monestime
County Commissioner - District 2

From: Carlos A. Gimenez
Mayor

Subject: Notice of Environmental Contamination in Commission District 2

On March 3, 2009, the Board of County Commissioners adopted Resolution No. R-227-09 requiring that when environmental contamination is identified by the Department of Regulatory and Economic Resources Division of Environmental Resources Management (DERM), the Commissioner in whose District the environmental contamination is located shall be notified of such.

Pursuant to R-227-09, please be advised that the attached letter was sent to the party responsible for site rehabilitation on February 20, 2015 due to documented soil contamination. Requirements have been provided to the property owner on measures to be implemented to prevent direct exposure to the contaminated soil. The owner/operator/responsible party must perform site rehabilitation action in order to bring the site into compliance with Chapter 24 of the Code of Miami-Dade County.

The summary of this case is noted below:

Subject	Environmental Contamination
Facility Name:	RRR Z Developer, LLC
DERM File #:	File-N/A/ SW-1915
Facility Address:	Northeast of the Intersection at NW 21 Ct. & MW 115 St., Miami, Florida in Miami-Dade County
Folio Number:	30-2134-004-0320 (Vacant Lot) and 30-2134-004-0860 (Lake)
Description/Nature of Violation:	Environmental contamination requiring site rehabilitation action pursuant to Division 3, Contaminated Site Cleanups, Chapter 24, Code of Miami-Dade County, Florida.

Should you have any further questions or require additional information, please contact Lee N. Hefty, Assistant Director, Division of Environmental Resources Management of the Department of Regulatory and Economic Resources at (305) 372-6754 or by email at heftyl@miamidade.gov.

Attachment: Site Rehabilitation Order for Environmental Contamination

c: Jack Osterholt, Deputy Mayor/Director, Department of Regulatory and Economic Resources (RER)
Lourdes M. Gomez, Deputy Director, Regulatory Resources, RER
Lee N. Hefty, Assistant Director, Division of Environmental Resources Management, RER

MIAMI-DADE COUNTY
Carlos A. Gimenez, Mayor

Department of Regulatory and Economic Resources
Environmental Resources Management
701 NW 1st Court, 6th Floor
Miami, Florida 33136-3912
T 305-372-6902 F 305-372-6630
miamidade.gov

February 20, 2015

Ricardo Rodriguez, Manager
RRR Z Developer, LLC
3875 NW 132nd Street
Opa Locka, Florida 33054

Certified Mail No. 7009 0080 0000 1050 7434
Return Receipt Requested

Re: Unpermitted lake fill operation located at, near or in the vicinity of NW 115th Street and 22nd Avenue, Section 34 Township 52 and Range 41, Unincorporated, Miami-Dade County, Florida (Folio 30-2134-004-0860) (DERM SW-1915).

Dear Mr. Rodriguez:

Reference is made to the Notice of Violation and Orders for Corrective Action (NOV) dated December 18, 2014 and the Final Notice Prior to Court Action (FNPTCA) dated January 28, 2015 and the orders therein issued by the Department of Regulatory & Economic Resources, Division of Environmental Resources Management in reference to the subject property (copies enclosed). To date, you have failed to comply with these orders.

Furthermore, an inspection conducted on February 4, 2015 revealed some evidence that the material used to fill the subject lake contains unacceptable debris including, but not limited to, rebar, wood, metal pieces, pipes, glass, reclaimed asphalt and tile. Sample results from soil sampling of the fill material revealed levels of arsenic and polynuclear aromatic hydrocarbons (PAHs) in excess of Miami-Dade County soil cleanup target levels specifically, Section 24-44(2) of the Code of Miami-Dade County.

Therefore, the Department has determined that you have failed to comply with the NOV and FNPTCA and that you have filled a portion of a lake with unacceptable materials and with contaminated soil in violation of Chapter 24 of the Code of Miami-Dade County.

Be advised that approval by this Department is required prior to the removal and/or the proper disposal of this solid waste material. Based on the above, and pursuant to the authority granted to me under Chapter 24 of the Code of Miami-Dade County, you are hereby ordered to:

1. Within forty-eight (48) hours of receipt of this NOTICE, secure the areas where material was utilized to fill the subject lake property as well as folio 30-2134-004-0320 by installing a temporary construction-type fencing around the land accessible areas to restrict public access to these areas.

2. Within seven (7) days of receipt of this NOTICE, commence removal of material disposed of in the lake and any additional impacted soils at the site. Prior to the transport and disposal of this material, provide proof of acceptance of said material at an appropriately permitted landfill. Removal of all fill materials shall be completed within forty-five (45) days of receipt of this NOTICE along with submittal of receipts to this Department confirming proper disposal.

February 20, 2015

3. Within sixty (60) days of receipt of this NOTICE, submit to this Department two copies of a "Source Removal Report" (SRR) (Guidance Document No. 1 attached).

4. Within sixty (60) days of receipt of this NOTICE, submit to this Department two copies of a "Site Assessment Report" (SAR), one paper and one electronic PDF on CD, which meets the objectives of Section 24-44(2) of Chapter 24 of the Code of Miami-Dade County, including the identification and extent of ground, groundwater, and surface water contamination at the subject site to include both lake and upland areas. A sampling plan shall be submitted to the Department for review and approval prior to the commencement of any assessment activity. The SAR shall include a Monitoring Only Proposal (MOP), or a No Further Action Proposal (NFAP), or a recommendation to prepare a Remedial Action Plan (RAP). The SAR shall also include soil assessment within the upland areas and shall demonstrate that no soil contamination will remain on the subject property. Otherwise, a corrective action plan addressing any remaining contaminated soil shall be submitted as a part of the SAR. Please refer to the following link to download guidance for the preparation of assessment and remediation documents: http://www.miamidade.gov/environment/pollution-remediation.asp. The SAR submittal shall be to the attention of Wilbur Mayorga, P.E., Chief, Environmental Monitoring and Restoration Division (EMRD) and shall include the appropriate SAR review fee (DERM online fee schedule located at http://www.miamidade.gov/environment/environmental-fees.asp).

In the event you fail to correct the violations, within the time periods specified above, your case may be forwarded to a court of competent jurisdiction through the offices of the State or County Attorney.

Any person aggrieved by any action or decision of the Director, of the Department of Regulatory and Economic Resources (RER), Division of Environmental Resources Management (DERM), may appeal said action or decision to the Environmental Quality Control Board (EQCB) by filing a written notice of appeal along with submittal of the applicable fee, to the Code Coordination and Public Hearings Section of RER within fifteen (15) days of the date of this action or decision by DERM.

If you have any questions concerning the above, please contact me at 305-372-6514 or email brownb@miamidade.gov.

Sincerely,

Barbara Brown

Barbara Brown
Code Enforcement Officer
Regulatory Services

Enclosures – 12/18/2014 NOV
1/28/2015 FNPTCA
Guidance Document No. 1 SRR
Guidance Document No. 2 SAR

cc: Wilbur Mayorga, P.E., Johnny Vega, P.E., Mayra Flagler - DERM

MIAMI-DADE COUNTY
Carlos A. Gimenez, Mayor

Department of Regulatory and Economic Resources
Environmental Resources Management
701 NW 1st Court, 6th Floor
Miami, Florida 33136-3912
T 305-372-6902 F 305-372-6630
miamidade.gov

January 28, 2015

Ricardo Rodriguez, Manager
RRR Z Developer, LLC
3875 NW 132nd Street
Opa Locka, Florida 33054

Certified Mail No. 7009 0080 0000 1050 7373
Return Receipt Requested

Re: Unpermitted lake fill operation located at, near or in the vicinity of NW 115th Street and 22nd Avenue, Section 34 Township 52 and Range 41, Unincorporated, Miami-Dade County, Florida (Folio 30-2134-004-0860) (DERM SW-1915).

FINAL NOTICE PRIOR TO COURT ACTION

Dear Mr. Rodriguez:

Reference is made to the Department of Regulatory & Economic Resources, Division of Environmental Resources Management's (DERM) Notice of Violation and Orders for Corrective Action dated December 18, 2014 and to the order and/or orders therein (copy enclosed). A review of Department records has revealed that you have failed to comply with the above-referenced Notice and with the provisions of Chapter 24 of the Code of Miami-Dade County in that you have not requested a variance from the Environmental Quality Control Board, not submitted a Corrective Action Plan for the removal of the material placed in the subject lake without proper permits and/or have not submitted any other required documents/authorizations to DERM.

In the event you fail to correct the violation(s), within fifteen (15) days of receipt of this Notice, your case may be forwarded to a court of competent jurisdiction through the offices of the State or County Attorney.

Any person aggrieved by any action or decision of the DERM Director, may appeal said action or decision to the Environmental Quality Control Board (EQCB) by filing a written notice of appeal along with submittal of the applicable fee, to the Code Coordination and Public Hearings Section of DERM within fifteen (15) days of the date of the action or decision by DERM.

If you have any questions concerning the above, please contact me at 305-372-6514 or email brownb@miamidade.gov.

Sincerely,

Barbara Brown

Barbara Brown
Enforcement Officer
Regulatory Services

Enclosure

cc: Johnny Vega, P.E., Mayra Flagler – DERM

MIAMI-DADE COUNTY
Carlos A. Gimenez, Mayor

Department of Regulatory and Economic Resources
Environmental Resources Management
701 NW 1st Court, 6th Floor
Miami, Florida 33136-3912
T 305-372-6902 F 305-372-6630
miamidade.gov

December 18, 2014

Ricardo Rodriguez, Manager
RRR Z Developer, LLC
3875 NW 132nd Street
Opa Locka, Florida 33054

Certified Mail No. 7009 0080 0000 1050 7205
Return Receipt Requested

Re: Unpermitted lake fill operation located at, near or in the vicinity of NW 115th Street and 22nd Avenue, Section 34 Township 52 and Range 41, Unincorporated, Miami-Dade County, Florida (Folio 30-2134-004-0860) (DERM SW-1915).

NOTICE OF VIOLATION AND
ORDERS FOR CORRECTIVE ACTION

Dear Mr. Rodriguez:

On December 15, 2014 a representative from the Miami-Dade County Department of Regulatory and Economic Resources (RER), Division of Environmental Resources Management (DERM) conducted an inspection of the subject property and found evidence of lake filling activity in the southwest area of the existing lake. On December 16, 2014 a Field Notice of Violation and Order to Cease and Desist was issued by DERM for filling a lake without appropriate approvals and permits. Furthermore, he advised that at least one third of the eastern side of the lake is located within the Westside Wellfield Protection Area which may require additional environmental controls.

Be advised that the above constitutes violations of Chapter 24 of the Code of Miami-Dade County and Rule 62 of the Florida Administrative Code, specifically:

Section 24-18(A)(7), of said Ordinance, inasmuch as no person shall operate, maintain or permit, cause, allow, let or suffer the operation or maintenance of any resource recovery and management facility, without a valid operating permit issued by the Director or the Director's designee;

Section 24-29, of said Ordinance, inasmuch as it shall be unlawful for any person to violate any of the provisions of this chapter, any lawful rules and regulations promulgated under this chapter, any lawful order of the Director or the Director's designee, or any condition, limitation or restriction, which is part of an operating permit;

Based on the above, and pursuant to the authority granted to me under Chapter 24 of the Code of Miami-Dade County, you are hereby ordered to:

1. Upon receipt of this NOTICE, immediately cease and desist from any further unauthorized lake filling/landfilling activities at the subject location.

2. Within thirty (30) days of receipt of this NOTICE, submit to DERM an application to the Environmental Quality Control Board (EQCB) requesting a variance from Sections 24-43(11) and 24-43.1(6)(b) of the Code of Miami-Dade County to allow non-residential land use which is a Resource Recovery and Management Facility inside a basic wellfield protection area and considered an unusual use.

3. Within thirty (30) days of receipt of this NOTICE, submit to DERM proof of application to the Development Services Division of RER for an unusual use variance for a lake fill operation.

4. Within thirty (30) days of receipt of a Zoning determination and in accordance with Zoning approvals, submit to DERM for review a completed application to operate a Resource Recovery and Management Facility Limited to Lake Fill in accordance with EQCB approval (Lake Fill application enclosed). Said permit application shall be reviewed and approved, approved with conditions or disapproved by DERM. Upon receipt of a valid lake fill permit for the site, immediately bring the facility into compliance and maintain operational compliance with the conditions specified in said lake fill permit. Be advised that a denial of the Zoning application and/or EQCB variance would require the immediate removal of the material that was placed in the lake without proper permits. A Corrective Action Plan (CAP) shall be submitted to DERM for review and approval within thirty (30) days of the Department's decisions, which ever happens later. (CAP application form enclosed).

OR

5. In lieu of items 2, 3 and/or 4 above, within thirty (30) days of receipt of this NOTICE, submit to DERM a Corrective Action Plan (CAP) for the complete removal of all material placed in said lake without proper permits or authorization. Said plan shall include provisions for all appropriate testing necessary to establish if any negative impacts to the environment occurred as a result of said filling and to document the complete identification and removal of said fill materials. Said application shall be reviewed and approved, approved with conditions or disapproved by DERM. Upon receipt of the CAP approval or approval with conditions, implement and complete the required activities in accordance with the specifications and timeframes stipulated in said CAP.

BE ADVISED THAT FAILURE TO COMPLY WITH THE ABOVE MAY RESULT, AT A MINIMUM, IN CIVIL PENALTIES AND THE PAYMENT OF ALL DEPARTMENTAL COSTS INCURRED IN THE INVESTIGATION AND SETTLEMENT OF THIS CASE. IN ADDITION, FAILURE TO COMPLY MAY RESULT IN YOUR CASE BEING PREPARED FOR FORMAL ENFORCEMENT ACTION IN A COURT OF COMPETENT JURISDICTION PURSUANT TO THE ENFORCEMENT AND PENALTY PROVISIONS OF SECTIONS 24-29 AND 24-30, OF CHAPTER 24 OF THE CODE OF MIAMI-DADE COUNTY.

Any person aggrieved by any action or decision of the DERM Director, may appeal said action or decision to the Environmental Quality Control Board (EQCB) by filing a written notice of appeal along with submittal of the applicable fee, to the Code Coordination and Public Hearings Section of DERM within fifteen (15) days of the date of the action or decision by DERM.

If you have any questions concerning the above, please contact me at 305-372-6514 or email brownb@miamidade.gov.

December 18, 2014

Sincerely,

Barbara Brown

Barbara Brown
Code Enforcement Officer
Regulatory Services

Enclosures: Corrective Action Plan application
Lake Fill Permit application

cc: Johnny Vega, P.E., Mayra Flagler, Donna Gordon, Patti Emad – DERM

SOURCE REMOVAL GUIDANCE FOR CONTAMINATED SITES REGULATED BY SECTION 24-11.1(2), CODE OF MIAMI-DADE COUNTY

This document provides the following: 1) descriptions of source removal activities that may be performed without a remedial action plan or source removal plan, 2) the conditions under which these activities may be implemented, and 3) general guidelines for preparing the source removal report. Early response through source removal is important, particularly for new discharges, to minimize the spread of contamination in soil and groundwater.

Applicability

These guidelines are applicable to the source removal methods provided below. These methods may be implemented, in accordance with Section 24-11.1(2)(l)(3), Code of Miami-Dade County ("the Code"), without prior approval from DERM.

1. *Free Product Removal and Disposal:* Free product removal shall be initiated within seven (7) days for new discharges. For previous discharges, free product removal shall be initiated within the timeframes of the written orders issued by DERM or within the timeframes of the approved source removal plan. The following passive and active methods of product recovery may be implemented:

    a. Absorbent pads;

    b. Skimmer pumps that include pumps with mechanical, electrical, or hand-bailed purging operations;

    c. Hand or mechanical bailing; or

    d. Fluid vacuum techniques (for example, vacuum pump trucks) or total fluid displacement pumps.

2. *Short-term Groundwater Recovery:* Short-term groundwater recovery though a pumping test or by overdeveloping water table wells may be implemented as a source removal activity provided that the following conditions are met:

    a. Groundwater contamination is of a limited extent (i.e., less than ¼ acre), such that the pumping of shallow aquifer well(s) within the plume may result in the site achieving the criteria for no further action in Section 24-11.1(2)(J) of the Code, or the criteria for natural attenuation with monitoring in Section 24-11.1(2)(K)(1)of the Code;

b. Free product is not present;

c. Groundwater recovery is limited to a maximum duration of thirty (30) days; and

d. Groundwater sample results, obtained from monitoring wells prior to groundwater recovery, demonstrate that the sewer discharge standards set forth in Section 24-11(9) of the Code are met and a DERM approval letter for disposal at a publicly owned treatment works (POTW) is obtained. Recovered groundwater that meets the sewer discharge standards shall be hauled to the POTW by a DERM-licensed hauler. If the groundwater sampling results exceed the sewer discharge standards, a source removal plan shall be submitted for DERM approval.

3. *Contaminated Soil/Sediment Removal and Disposal*: Soil saturated with contaminants or free product shall be removed prior to site closure. The responsible party may excavate saturated soil, contaminated soil or contaminated sediment at any time as a source removal activity in accordance with the provisions set forth in Section 24-11.1(2)(l)(3) of the Code. The excavated soil/sediment shall be characterized and properly disposed.

Source removal methods other than those provided herein may be proposed in a source removal plan or remedial action plan and submitted to DERM for approval.

General Guidelines

1. Written notification shall be provided to DERM as follows:

   a. Within three (3) days after initiation of free product removal activities, and

   b. At least three (3) days prior to initiation of short-term groundwater recovery or contaminated soil or sediment removal.

2. Source removal activities shall not spread contamination into previously uncontaminated or less contaminated areas;

3. Flammable products shall be handled in a safe manner;

4. Recovered product, recovered groundwater, excavated soil/sediment, and any other waste generated during the source removal activities shall be characterized and shall be handled and disposed in accordance with all applicable federal, state and local regulations (e.g., 40 CFR 261, 40 CFR 761, Chapter 62-701, F.A.C., Chapter 62-730, F.A.C., Chapter 62-770, F.A.C., Chapter 62-782, F.A.C., Chapter

62-785, F.A.C., etc.). Table 1 provides total soil/sediment concentrations that require hazardous waste characterization by USEPA Test Method 1311, Toxicity Characteristic Leaching Procedure (TCLP).

5. Analytical sample results of wastewater, which may be generated by the removal of contaminated soil (especially in areas of saturated soil), shall demonstrate that the applicable standards or cleanup target levels (CTLs) are met prior to discharging the wastewater into an open excavation. Chapter 24 of the Code prohibits discharge of water into an open excavation unless analyses verify that all applicable standards or CTLs are met. If the applicable standards are not met, proper disposal is required. Alternatively, a Source Removal Plan may be submitted to DERM for approval. The wastewater generated by the soil removal operations should be collected using an impermeable surface and collection sump, analyzed and disposed of in accordance with all applicable codes and regulations.

6. A replacement plan for monitoring wells that may be destroyed by soil removal shall be submitted. Sampling of these wells shall be conducted no less than fourteen (14) days after the completion of the soil removal.

Source Removal Report

A Source Removal Report shall be submitted to DERM within sixty (60) days of completion of the source removal activities. In the event that source removal is not completed within sixty (60) days, quarterly status reports, documenting the recovery progress and summarizing all recovery activities for the specified period, shall be submitted to DERM. The Source Removal Report shall contain the following information in detail, as applicable, as well as any other pertinent information:

1. The type and estimated volume of non-aqueous phase liquids that were discharged to the environment, if known;

2. The type of field screening instrument, analytical methods or other methods used;

3. The volume of non-aqueous phase liquids and contaminated groundwater recovered;

4. The volume of contaminated soil or sediment excavated and properly disposed;

5. The dimensions of the excavation(s) and location(s), integrity, capacities, construction, and historical contents of storage tanks, integral piping, dispensers, or appurtenances removed;

6. The depth to groundwater at the time of each excavation, measurement locations and method used to obtain that information;

7. Documentation (e.g., disposal, hauling or treatment manifests, etc.) confirming the proper treatment or proper disposal of non-aqueous phase liquids, recovered groundwater, contaminated soil/sediment and any other contaminated media generated during source removal;

8. A scaled site map (including a graphical representation of the scale used) showing property boundaries, location(s) of all on-site structures (including any buildings, locations of underground storage tanks, storm drain systems, and septic tanks), locations where free product and groundwater was recovered and the area of soil removal or treatment, and the locations of all samples obtained;

9. A table summarizing free product thickness in each monitoring well or piezometer and the dates the measurements were obtained; and

10. A table(s) indicating the identification, depth, and field soil screening results or laboratory analyses of each sample collected.

Table 1 - Total Soil and TCLP Criteria for Toxicity Characterization

Contaminant	CAS Number	Total Soil Criteria (mg/kg)	TCLP Criteria (mg/l)
Arsenic	7440-38-2	100	5.0
Barium	7440-39-3	2,000	100.0
Benzene	71-43-2	10	0.5
Cadmium	7440-43-9	20	1.0
Carbon tetrachloride	56-23-5	10	0.5
Chlordane	57-74-9	0.6	0.03
Chlorobenzene	108-90-7	2,000	100.0
Chloroform	67-66-3	120	6.0
Chromium	7440-47-3	100	5.0
Cresol, o-	95-48-7	4,000	200.0
Cresol, m-	108-39-4	4,000	200.0
Cresol, p-	106-44-5	4,000	200.0
Cresol	NA	4,000	200.0
D, 2,4-	94-75-7	200	10.0
Dichlorobenzene, 1,4-	106-46-7	150	7.5
Dichloroethane, 1,2-	107-06-2	10	0.5
Dichloroethylene, 1,1-	75-35-4	14	0.7
Dinitrotoluene, 2,4-	121-14-2	2.6	0.13
Endrin	72-20-8	0.4	0.02
Heptachlor (and it's epoxide)	76-44-8	0.16	0.008
Hexachlorobenzene	118-74-1	2.6	0.13
Hexachlorobutadiene	87-68-3	10	0.5
Hexachloroethane	67-72-1	60	3.0
Lead	7439-92-1	100	5.0
Lindane	58-89-9	8	0.4
Mercury	7439-97-6	4	0.2
Methoxychlor	72-43-5	200	10.0
Methyl ethyl ketone	78-93-3	4,000	200.0
Nitrobenzene	98-95-3	40	2.0
Pentachlorophenol	87-86-5	2,000	100.0
Pyridine	110-86-1	100	5.0
Selenium	7782-49-2	20	1.0
Silver	7440-22-4	100	5.0
Tetrachloroethylene	127-18-4	14	0.7
Toxaphene	8001-35-2	10	0.5
Trichloroethylene	79-01-6	10	0.5
Trichlorophenol, 2,4,5-	95-95-4	8,000	400.0
Trichlorophenol, 2,4,6-	88-06-2	40	2.0
TP, 2,4,5- (Silvex)	93-72-1	20	1.0
Vinyl chloride	75-01-4	4	0.2

SITE ASSESSMENT GUIDANCE FOR CONTAMINATED SITES REGULATED BY SECTION 24-11.1(2), CODE OF MIAMI-DADE COUNTY

This document provides general guidelines for implementing site assessment activities and for preparing the site assessment report (SAR).

Applicability

These guidelines are applicable to site assessments that are conducted in accordance with Section 24-11.1(2)(l)(4), Code of Miami-Dade County ("the Code").

Site Assessment Report

One copy of the SAR, which may include information from previously submitted documents, shall be submitted by the responsible party in accordance with Section 24-11.1(2)(F), of the Code. In accordance with Section 24-11.1(2)(L) of the Code, the SAR shall be signed and sealed by a qualified Professional Engineer or Professional Geologist registered under Chapters 471 and 492, Florida Statutes (F.S.), respectively, certifying that the applicable portions of the SAR and associated work comply with standard professional practices and any other laws and rules governing the profession. Additionally, the company or business submitting the SAR must be registered as an engineering or geology business under Chapters 471 and 492, F.S., respectively.

The SAR shall include the following sections, as applicable, as well as any other information that is pertinent to the assessment:

1. *Facility and Discharge Information and Initial Abatement:* This section shall provide a site description, history of past and present operations (including those that involve the storage, treatment, use, disposal, processing or manufacturing of materials that may be potential contaminant sources), description of all products used or manufactured and all by-products and wastes (including water constituents) generated during the life of the facility, a summary of known spills or releases of materials, including permitted releases, that may be potential contaminant sources, a description of initial abatement or source removal activities, and a list of current permits.

   Compiling the information above may involve the inspection of public records such as those at the local building department and DERM and the review of information such as historical land use records, Sanborne maps, and aerial photographs.

2. *Background Site Assessment Information:* This section shall provide a risk and receptor evaluation (e.g., potable and irrigation wells, surface water bodies, etc.), previous assessment information, and any previous remediation information.

Compiling the information above may involve inspection of public records (e.g., files located at DERM, the local Department of Health, the Water Management District, local municipalities, etc.) and performance of a field reconnaissance, as appropriate, to locate all water supply wells (e.g., potable, irrigation, industrial, etc.) and injection or drainage wells as defined in Chapter 62-528, Florida Administrative Code (F.A.C.). It may also involve review of information such as historical land use records, Sanborne maps and aerial photographs.

3. *Site Assessment Activities:* This section shall describe the assessment methodologies used and shall include a description of the site-specific lithology, based on the lithologic logs prepared during monitoring well (MW) installation and on standard penetration test borings (including composition, thickness and continuity of various lithologic units). Site assessment activities shall be conducted and reported in accordance with Chapter 62-160, F.A.C. and the Standard Operating Procedures for Field Activities, DEP-SOP-001/01 (January 1, 2002, as amended from time to time), incorporated by reference in Chapter 62-160.800, F.A.C. The sampling guidelines for site assessment are as follows:

   a. Soil Sampling Guidelines

      i. Required Soil Sampling

         (1) Unsaturated soil sampling followed by the appropriate laboratory analyses (reported on a dry weight basis) to determine the nature, degree and extent of contaminated soil.

         Soil sampling for horizontal delineation shall be initiated in the source area(s) and shall extend outward in a grid pattern at approximately 20-foot (20-ft.) intervals. However, sampling at less than twenty-foot (20-ft.) intervals may be necessary if soil concentrations are changing rapidly over distance or if the property boundary is reached. Sampling at greater than twenty-foot (20-ft.) intervals may be appropriate at larger facilities.

         Soil sampling for vertical delineation shall be initiated in the source area(s) and shall extend vertically at two-foot (2-ft.) intervals from the land surface, just below the grass sod layer, to approximately one foot (1 ft.) above the water table. However, the site-specific factors may warrant modification to the sampling procedure. For example, the vertical sampling interval shall be adjusted, as necessary, to account for discrete variations in the lithology that may influence the

assessment outcome. Also, depending on factors such as the point of discharge (e.g., ground surface, below the groundwater table, etc.) and chemical/physical properties of the COCs (e.g., solubility, volatility, etc.), it may not be necessary to analyze all of the intervals to achieve vertical delineation. However, it is recommended to collect samples for all of the intervals and archive those, which are not analyzed initially, in the event they are needed. Be advised, however, that care must be taken not to exceed the holding times, as specified in Chapter 62-160.400, F.A.C.

If a surficial discharge is known or suspected, the vertical sampling intervals shall be as follows:

- Interval 1: from land surface, just below the grass/sod layer, to a depth of six (6) inches.
- Interval 2: from six (6) inches to two (2) feet.
- Interval 3: from two (2) feet to a depth of approximately one (1) foot above the water table, in two-foot (2-ft.) intervals (as described above, it may not be necessary to analyze all of the samples from this interval to achieve vertical delineation).

If contaminated soil was excavated as a source removal activity (see Source Removal Guidance No. 1), then confirmatory soil sampling (i.e., boundary conditions) shall be implemented. The number of confirmatory soil samples shall be representative of the size of the excavation, the type of contaminant(s), and the locations identified as contaminated prior to the soil removal activities.

Soil delineation shall be deemed complete upon achieving at least one of the following for each contaminant of concern (COC):

- The soil cleanup target levels (CTLs) set forth in Sections 24-11.1(2)(E)(2) and 24-11.1(2)(J)(1)(a) of the Code (i.e., no further action without conditions),
- Natural background concentrations (see Natural Background Guidance No. 7C), or
- The best achievable practical quantitation limits (PQLs).

In the event that delineation cannot be achieved because the placement of soil borings is not practical due to physical constraints (e.g., buildings, power lines, utilities, roads, etc.), delineation to the CTLs may be estimated from available data by demonstrating a concentration gradient using appropriate contouring techniques (e.g., linear interpolation, Kriging technique, etc.). However, if the available data indicate that there is a potential exposure to an off-site receptor(s), then off-site sampling, with the property owner's consent as appropriate, shall be conducted and, if necessary, notification (see Off-Site Notification Guidance No. 7E) and actions to protect the receptor(s) shall be initiated upon DERM approval.

(2) Undisturbed soil sampling above and below the water table to obtain information on site-specific lithology and non-aqueous phase liquids (NAPLs) entrapped below the water table, if evidence of the potential presence of NAPLs exists. Sampling shall be performed using hand augering, drilling or direct push technology.

(3) Hazardous waste characterization by USEPA Test Method 1311, Toxicity Characteristic Leaching Procedure (TCLP) extraction, followed by the appropriate analysis of the leachate, when soil concentrations exceed the total soil criteria listed in Table 1 (see attached table). TCLP results shall be compared to the TCLP criteria listed in Table 1. Soil that is determined to be a RCRA hazardous waste shall be properly disposed in accordance with 40 CFR 261.

ii. Optional Soil Sampling

(1) TRPH speciation laboratory analyses may be performed to determine the concentrations of specific TRPH fractions for the development of alternative soil CTLs for TRPH as set forth in Section 24-11.1(2)(E)(3)(d) of the Code. The sub-classification methodology described in the DERM Technical Report: Development of Cleanup Target Levels (CTLs) For Chapter 24, Code of Miami-Dade County, Florida dated October 20, 2000 (Technical Report) shall be utilized. TRPH speciation analyses shall be performed on a minimum of three grab samples from each source area that exceed the applicable default soil CTLs for TRPH specified in Section 24-11.1(2)(E) of the Code or alternative CTLs established pursuant to Section 24-11.1(2)(E)(3) of the Code. The actual number of samples shall be based on the horizontal and vertical extent of contamination and the site-specific lithology.

(2) Direct leachability testing may be performed using USEPA Test Method 1312, Synthetic Precipitation Leaching Procedure (SPLP) extraction or, if the contamination is derived from used oil or similar petroleum products, USEPA Test Method 1311 (TCLP) extraction, followed by the appropriate analysis of the leachate. Leachability testing shall be performed on a minimum of three grab samples from each source area that exceed the applicable leachability-based soil CTLs specified in Section 24-11.1(2)(E) of the Code. The actual number of samples shall be based on the horizontal and vertical extent of contamination and the site-specific lithology. Leachate results shall be compared to the applicable groundwater or surface water CTLs specified in Section 24-11.1(2)(E) of the Code or alternative CTLs established pursuant to Section 24-11.1(2)(E)(3) of the Code.

(3) Measurements of the following may be performed to calculate alternative soil CTLs based on site-specific soil properties: pH, average soil moisture content, dry soil bulk density, and organic carbon content. Be advised that all five of the soil properties shall be measured, using the test methods specified in the Technical Report, to justify alternative soil CTLs. In addition, measurements shall be obtained from soil within the contaminated area when feasible. Otherwise, measurements may be obtained using soil from an alternative location that has equivalent soil properties. The number of samples shall be based on the horizontal and vertical extent of contamination and variations in the lithology of the soil.

(4) Sampling of undisturbed soil above and below the water table using hand augering, drilling or direct push technology may be performed to determine geotechnical parameters, and to assess the appropriateness of natural attenuation with monitoring (see Natural Attenuation Guidance No. 5).

b. Groundwater Sampling Guidelines

Sampling of MWs for the appropriate laboratory analyses is required, as applicable, to determine the nature, degree and extent of groundwater contamination.

The lateral placement of shallow MWs (water table wells) for the delineation of the uppermost portion of the aquifer shall be initiated in the source area(s). MWs shall extend outward in either a grid or staggered pattern at intervals that

are appropriate for the site (i.e., 15-foot intervals for small sites to greater than 15-foot intervals for large sites). The following should be considered, as applicable, when selecting locations for shallow MWs: the degree and extent of soil contamination, source area location(s), location(s) of nearby receptor(s), site-specific characteristics of the impacted aquifer (e.g., lithology, groundwater flow direction, gradient, conditions caused by drainage structures, preferential pathways, etc.), physical/chemical properties of the COCs (e.g., mobility, solubility, rate of degradation, degradation/transformation products, etc.), and direct push/hydropunch results.

Intermediate/deep MWs for delineation of the intermediate/deep portions of the aquifer should be installed near to and slightly down gradient from the water table well(s) showing the highest degree of contamination. In evaluating the need to install intermediate/deep MWs, the following factors should be considered: site history, groundwater plume history, COC concentrations, physical/chemical properties of the COCs (e.g., density, mobility, solubility, rate of degradation, degradation/transformation products, etc.) and aquifer characteristics (e.g., vertical conductivity, lithology, etc.).

Groundwater delineation shall be deemed complete upon achieving at least one of the following for each COC:

- The groundwater and, if applicable, surface water CTLs set forth in Sections 24-11.1(2)(E)(1) and 24-11.1(2)(J)(1)(b) of the Code (i.e., no further action without conditions),

- Natural background concentrations (see Natural Background Guidance No. 7C), or

- The best achievable PQLs.

In the event that delineation cannot be achieved because the placement of MWs is not practical due to physical constraints (e.g., buildings, power lines, utilities, roads, etc.), delineation to the CTLs may be estimated from available data by demonstrating a concentration gradient using appropriate contouring techniques (e.g., linear interpolation, Kriging technique, etc.). However, if the available data indicate that there is a potential exposure to an off-site receptor(s), then off-site sampling, which may include sampling of private wells with the consent of the owners, shall be conducted and, if necessary, notification (see Off-Site Notification Guidance No. 7E) and actions to protect the receptor(s) shall be initiated upon DERM approval.

c. Surface/Sediment Sampling Guidelines

If surface waters are, or are reasonably expected to be, affected by either a direct discharge or by migration of contaminated groundwater (as demonstrated using groundwater MW data, groundwater flow rate and direction, or fate and transport modeling data), sampling and appropriate laboratory analyses of surface water and sediment (reported on a dry weight basis) is required to determine the nature, degree and extent of contamination.

Surface water and sediment samples shall be collected nearest to, and downstream of, the point of entry of the COCs.

d. Contaminated Waste Disposal Guidelines

Drill cuttings, drilling mud, development water and purge water generated during MW installation, and any other contaminated waste generated during the assessment activities, shall be handled and disposed of in such a manner that contamination is not spread into previously uncontaminated or less contaminated media or areas. This guidance document does not relieve the responsible party from the obligation to comply with other applicable regulations for handling and disposing of contaminated media (e.g., 40 CFR 261, 40 CFR 761, Chapter 62-701, F.A.C., Chapter 62-730, F.A.C., Chapter 62-770, F.A.C., Chapter 62-782, F.A.C., Chapter 62-785, F.A.C., etc.).

4. *Impacted Media:* This section shall provide the results of the soil, groundwater, surface water, sediment, and free product investigations and shall compare the results to the applicable criteria (e.g., CTLs, etc.) set forth in Section 24-11.1(2) of the Code. Site concentrations shall be compared to the applicable criteria on a point-by-point basis. However, if the direct exposure soil CTLs are exceeded, then calculation of the 95% upper confidence limit of the arithmetic mean (95% UCL) may be considered for comparison to the direct exposure soil CTLs (see 95% UCL Guidance No. 7B).

   Be advised that in the event that contamination originating from the site extends beyond the property boundaries, off-site notification (see Off-Site Notification Guidance No. 7E) shall be provided in accordance with Section 24-11.1(2)(l)(2) of the Code.

5. *Figures:* All maps shall be drawn to scale, indicate the North direction, and include a graphical representation of the scale used.

   a. The following maps shall be included in all SARs:

i. Site map(s) showing all pertinent surface and subsurface features such as utilities, current and past above and underground structures, current and past storage areas, local drainage features, natural or man-made structures that may influence mounding or plume migration, existing land cover, contaminant discharge location(s), sources of contamination, and source removal areas.

ii. A well location map showing the location(s) of all on-site supply wells (e.g., potable, irrigation, industrial, etc.).

iii. Site map(s) showing all historical soil sampling locations for field screening or laboratory analyses and illustrating the horizontal and vertical extent of vadose zone soil contamination.

iv. Site map(s) showing all historical sediment sampling locations and illustrating the degree and extent of contamination.

v. A site map showing the estimated horizontal extent of free product, if present.

vi. Site map(s) showing all historical groundwater and surface water sampling locations and contours, and illustrating the degree and extent of groundwater and surface water contamination (including monitoring well locations and corresponding analytical data).

vii. At least two cross-sections per medium illustrating the site-specific lithology and approximate COC concentrations.

viii. Site map(s) illustrating the water-level elevations (calculated from a minimum of two measurements obtained at least one month apart) for each MW, piezometer, and staff gauge where surface water is a concern, and depicting the estimated elevation contours and interpretation of groundwater flow direction. If different strata of the same aquifer, or if different aquifers are affected, separate figures shall be submitted for each date on which measurements were recorded, depicting flow in each stratum or aquifer. If the site's groundwater is tidally-influenced, separate figures shall be submitted depicting flow at high and low tide.

b. The following additional maps shall be included, unless the site qualifies for site closure in accordance with Section 24-11.1(2)(J) of the Code (i.e., no further action or no further action with conditions):

i. A copy of the portion of the most recent USGS topographic map, including quadrangle name, which clearly identifies the site in relation to the surrounding area.

ii. A vicinity map showing pertinent features, such as land uses and property boundaries.

iii. A well location map showing the approximate location(s) of all municipal/public wells and private supply well(s) (e.g., potable, irrigation, industrial, etc.) identified within ½ mile and ¼ mile, respectively, of the subject site.

6. *Tables:* The following shall be included in the SAR, as applicable:

a. A table summarizing all MW (including storage tank compliance wells or other compliance wells required by permit), piezometer, and recovery well construction details (including the top-of-casing elevation referenced to National Geodetic Vertical Datum (NGVD) of 1929 or North American Vertical Datum of 1988 (NAVD88), depth of the top of the screen below land surface, total depth and screen length, and ground surface elevation referenced to NGVD of 1929 or NAVD88). The table shall be updated each time additional MWs, piezometers, or recovery wells are installed.

b. Construction diagrams, including methods, materials, and lithologic logs.

c. Groundwater sampling log, including development/purging data, field sampling data, and volumes of groundwater removed during well development/purging (see FDEP SOPs for Field Activities, DEP-SOP-001/01 (January 1, 2002, as amended from time to time), FS 2200 Groundwater Sampling for a groundwater sampling log template).

d. Tables listing the top-of-casing elevations surveyed to the NGVD of 1929 or to the NAVD88, depths to groundwater, water-level elevations obtained at least twice, at least one month apart, and the dates the data were collected.

e. A table summarizing the capacity, use and well construction details, if available, of all the water supply wells identified during the well survey.

f. Table(s) summarizing the field screening and laboratory analytical results obtained at each soil sampling location and depth, sampling/analysis date(s), detection limits (i.e., method detection limits, MDLs, and PQLs), and method

numbers for extraction/analyses performed (listing all contaminants detected and their corresponding CTLs).

g. Table(s) summarizing the laboratory analytical results obtained at each sediment sampling location, sampling/analyses date(s), detection limits (i.e., method detection limits, MDLs, and PQLs), and method numbers for extraction/analyses performed (listing all contaminants detected and their corresponding CTLs).

h. A current table that summarizes free product thickness measured, volumes recovered, and date(s) measurements were recorded, if applicable.

i. Table(s) summarizing the groundwater and surface water analytical results (with the most recent sampling of representative MWs having occurred within 270 days of the SAR submittal), sampling/analysis date(s), detection limits (i.e., MDLs and PQLs), and method numbers for extraction/analyses performed (listing all contaminants detected and their corresponding CTLs).

7. *Calculations*: The following calculations shall be included in the SAR, as applicable:

a. Data and calculations used to determine the top-of-casing elevations and the accuracy of the survey performed.

b. Pumping test results (to determine aquifer properties in all impacted strata of the aquifer), including a description of methods used, assumptions made, field data and calculations, unless 1) groundwater extraction is proposed, in which case the pumping test may be deferred until the Remedial Action Plan phase (see Active Remediation Guidance No. 4), or 2) the site meets the No Further Action criteria in Section 24-11.1(2)(J) of the Code.

c. The results of the calculation of horizontal groundwater flow velocity (v) for all impacted strata of the aquifer (using the formula $v=KI/n$, where K = average hydraulic conductivity, I = average hydraulic gradient, and n = estimated effective soil porosity), unless 1) a monitoring only plan for natural attenuation is proposed, in which case the calculation of groundwater velocity may be deferred until the monitoring only plan phase (see Natural Attenuation Guidance No. 5), or 2) the site meets the No Further Action criteria in Section 24-11.1(2)(J) of the Code.

8. *Laboratory Data Sheets and Quality Assurance*: The SAR shall include all information required by Section 24-11.1(2)(M) of the Code, such as the original laboratory reports from a certified laboratory that include all information required in

Chapter 62-160, F.A.C., copies of the completed chain of custody records, copies of the completed water sampling log forms, and results from screening tests or on-site analyses.

9. *Other:* Any other information that is deemed relevant to the site assessment.

10. *Recommendations:* This section shall summarize the site assessment results and shall include one of the following:

    a. A no further action proposal (*i.e.,* closure without institutional or engineering controls) if the site meets the applicable criteria in Section 24-11.1(2)(J)(1) of the Code,

    b. A no further action with conditions proposal (*i.e.,* closure with institutional and, if applicable, engineering controls) if the site meets the applicable criteria in Section 24-11.1(2)(J)(2) of the Code,

    c. A recommendation to implement a monitoring only plan for natural attenuation in accordance with Section 24-11.1(2)(K)(1) of the Code (see Natural Attenuation Guidance No. 5),

    d. A recommendation to prepare a risk assessment in accordance with Section 24-11.1(2)(K)(2) of the Code (see Risk Assessment Guidance No. 6), or

    e. A recommendation to prepare a remedial action plan in accordance with Section 24-11.1(2)(K)(3) of the Code (see Active Remediation Guidance No. 4).

Table 1 - Total Soil and TCLP Criteria for Toxicity Characterization

Contaminant	CAS Number	Total Soil Criteria (mg/kg)	TCLP Criteria (mg/L)
Arsenic	7440-38-2	100	5.0
Barium	7440-39-3	2,000	100.0
Benzene	71-43-2	10	0.5
Cadmium	7440-43-9	20	1.0
Carbon tetrachloride	56-23-5	10	0.5
Chlordane	57-74-9	0.6	0.03
Chlorobenzene	108-90-7	2,000	100.0
Chloroform	67-66-3	120	6.0
Chromium	7440-47-3	100	5.0
Cresol, o-	95-48-7	4,000	200.0
Cresol, m-	108-39-4	4,000	200.0
Cresol, p-	106-44-5	4,000	200.0
Cresol	NA	4,000	200.0
D, 2,4-	94-75-7	200	10.0
Dichlorobenzene, 1,4-	106-46-7	150	7.5
Dichloroethane, 1,2-	107-06-2	10	0.5
Dichloroethylene, 1,1-	75-35-4	14	0.7
Dinitrotoluene, 2,4-	121-14-2	2.6	0.13
Endrin	72-20-8	0.4	0.02
Heptachlor (and its epoxide)	76-44-8	0.16	0.008
Hexachlorobenzene	118-74-1	2.6	0.13
Hexachlorobutadiene	87-68-3	10	0.5
Hexachloroethane	67-72-1	60	3.0
Lead	7439-92-1	100	5.0
Lindane	58-89-9	8	0.4
Mercury	7439-97-6	4	0.2
Methoxychlor	72-43-5	200	10.0
Methyl ethyl ketone	78-93-3	4,000	200.0
Nitrobenzene	98-95-3	40	2.0
Pentachlorophenol	87-86-5	2,000	100.0
Pyridine	110-86-1	100	5.0
Selenium	7782-49-2	20	1.0
Silver	7440-22-4	100	5.0
Tetrachloroethylene	127-18-4	14	0.7
Toxaphene	8001-35-2	10	0.5
Trichloroethylene	79-01-6	10	0.5
Trichlorophenol, 2,4,5-	95-95-4	8,000	400.0
Trichlorophenol, 2,4,6-	88-06-2	40	2.0
TP, 2,4,5- (Silvex)	93-72-1	20	1.0
Vinyl chloride	75-01-4	4	0.2