

CHAPTER 62-770 PETROLEUM CONTAMINATION SITE CLEANUP CRITERIA

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62-770.140 Referenced Guidelines.

Specific references to the guidelines listed below are made within this chapter. The guidelines are not standards as defined in Section 403.803, F.S. Use of the guidelines is not mandatory; the guidelines are included for informational purposes only.

(1) Technical Report: Development of Cleanup Target Levels (CTLs) for Chapter 62-777, F.A.C., Final Report, dated February 2005.

(2) Approach to the Assessment of Sediment Quality in Florida Coastal Water, Volumes 1-4, dated November 1994.

(3) American Society for Testing and Materials (ASTM) RBCA Fate and Transport Models: Compendium and Selection Guidance, dated 1999.

(4) Chapter 62-770, F.A.C., Petroleum Risk-Based Corrective Action (RBCA) Flow Process Flow Charts, dated December 23, 2004.

(5) Guidance for the Selection of Analytical Methods and for the Evaluation of Practical Quantitation Limits, dated October 12, 2004.

(6) Development and Evaluation of Numerical Sediment Quality Assessment Guidelines for Florida Inland Waters, dated January 2003.

(7) Institutional Controls Procedures Guidance, Division of Waste Management, Florida Department of Environmental Protection, dated November 2004.

Specific Authority 376.303, 376.3071 FS. Law Implemented 376.3071 FS. History--New 8-5-99, Amended 4-17-05.

62-770.160 Applicability.

(1) The cleanup criteria contained in this chapter, except as described in Rule 62-770.800, F.A.C., shall apply to any cleanup of a site contaminated with petroleum or petroleum products as these terms are defined in Section 376.301, F.S. If pursuant to paragraph 62-770.160(1)(a) or 62-770.160(1)(b), F.A.C., the cleanup criteria contained in this chapter do not apply to a site contaminated with petroleum products' contaminants of concern, the cleanup criteria contained in other Department rules (for example, Chapter 62-780, F.A.C.), may apply. The cleanup criteria contained in this rule shall not apply:

- (a) To petroleum or petroleum products contaminated with significant quantities of other substances;
- (b) To liquefied petroleum gas and American Society for Testing and Materials grades no. 5 and no. 6 residual oils, bunker C residual oils, intermediate fuel oils with a viscosity of 30 and higher used for marine bunkering, asphalt oils, and petrochemical feedstocks; or
- (c) To any discharge of petroleum or petroleum products of less than 25 gallons onto a pervious surface, as long as the discharge is removed and properly treated or properly disposed, or otherwise remediated, pursuant to the applicable provisions of Rule 62-770.300, F.A.C., so that no contamination from the discharge remains on-site.

(2) If a Consent Order that requires assessment and rehabilitation of a site has been entered into with the Department prior to the effective date of this chapter, compliance with terms of the Consent Order shall constitute compliance with the provisions of this chapter. Nothing in this chapter shall preclude entry of a Consent Order for the rehabilitation of a petroleum contamination site as long as the Consent Order adopts the cleanup criteria of this chapter as the Orders for Corrective Action.

(3) Final Orders related to the filing of plans, reports, or any other submittals made by a person pursuant to the provisions of this chapter shall be undertaken by the Department, and shall be subject to the provisions of Chapter 120, F.S.

(4) The Department acknowledges, pursuant to Section 376.308(5), F.S., that site rehabilitation pursuant to Chapter 376, F.S., cannot be compelled for a discharge that is eligible for State restoration funding assistance, in advance of commitment of restoration funding in accordance with a site's priority ranking or to pay for the costs of rehabilitation. Real property owners of sites where active remediation or monitoring is being performed in accordance with a Remedial Action Plan Approval Order, a Monitoring Only or Natural Attenuation Monitoring Plan Approval Order, or a Risk Assessment Approval Order may voluntarily elect to complete site rehabilitation using the appropriate provisions of the chapter that were in effect at the time the Order was issued, as long as the approved active remediation or monitoring is continued to completion pursuant to the provisions of the Order. If the option to complete the site rehabilitation utilizing the provisions of the chapter that were in effect at the time the Order was issued is selected, all reports submitted to the Department or to the FDEP local program shall include a statement to that effect.

(5) None of the criteria adopted in this chapter shall be applied retroactively to any pending reimbursement application for any program task.

(6) This chapter shall be applied in conjunction with Chapter 62-777, F.A.C., to determine the appropriate CTLs for a petroleum contamination site. Petroleum products' contaminants of concern are listed in Table A of this chapter. Chapter 62-777, F.A.C., provides default groundwater, surface water, and soil CTLs, as well as natural attenuation default concentrations for groundwater, a listing of soil properties and test methods, a listing of site-specific conditions and geochemical parameters, and default parameters and equations that may be used to establish alternative groundwater and soil CTLs for identified petroleum products' contaminants of concern listed in Table A.

(7) CTLs for petroleum products' contaminants of concern found in groundwater, surface water, or soil, as specified in Chapter 62-777, F.A.C., Tables I and II, or derived pursuant to Chapter 62-777, F.A.C., or alternative CTLs that may be established pursuant to Rule 62-770.650 or 62-770.680, F.A.C., are enforceable by the Department pursuant to this chapter and apply only in the rehabilitation of sites contaminated with petroleum or petroleum products.

(8) This chapter is established for the purposes of protecting the human health, public safety, and the environment under actual circumstances of exposure and for determining, on a site-specific basis, the rehabilitation program tasks that comprise a site rehabilitation program and the levels at which a rehabilitation program task and site rehabilitation program may be deemed complete. In establishing this chapter, a risk-based corrective action process was applied to the maximum extent feasible, to achieve protection of human health, public safety, and the environment in a cost-effective manner. This chapter provides a phased risk-based corrective action process that is iterative and that tailors site rehabilitation tasks to site-specific conditions and risks. To facilitate such a phased risk-based corrective action process, the responsible party is encouraged to have discussions with the Department or the FDEP local program to establish decision points at which risk management decisions will be made. These various decision points include the scope and methodology of the site assessment, applicable exposure factors, the remedial strategy for the site, and

risk management options based on the current and reasonable, ascertainable future land uses at the site. When requested by the responsible party, the Department or the FDEP local program shall use all reasonable efforts to provide early decisions regarding these decision points based on the current and future land uses at the site, and the site information provided by the responsible party. For petroleum products' contaminants of concern found at the site about which information regarding the actual circumstances of exposure has been provided to the responsible party by the Department, a local government, or the public, the CTLs for the affected medium or media, except where a State water quality standard is applicable, shall be adjusted to take into account the site-specific exposure conditions including multiple pathways of exposure that affect the same individual or sub-population, and site-specific CTLs shall be calculated taking into account, through apportionment, potential additive toxic effects of contaminants. Therefore, this chapter provides both default CTLs and a process for the derivation of site-specific alternative CTLs that are protective of human health, public safety, and the environment.

(9) For sites where a Site Rehabilitation Completion Order was issued for every known discharge prior to April 17, 2005, the CTLs for petroleum products' contaminants of concern shall be those that were in effect at the time of issuance of the Order(s). If a subsequent discharge of petroleum or petroleum products occurs at the site after issuance of the Order(s), site rehabilitation may be required pursuant to applicable provisions of this chapter, to reduce concentrations of petroleum products' contaminants of concern resulting from the subsequent discharge, to the CTLs specified in Chapter 62-770, F.A.C., subject to the provisions of subsection 62-770.160(4), F.A.C.

(10) Receipt of approval of any task or report pursuant to this chapter does not relieve the responsible party from the obligation to comply with other Department rules (for example, Chapters 62-701, 62-713, 62-730, 62-780, 62-782, and 62-785, F.A.C.) regarding off-site disposal, relocation, or treatment of contaminated media. Responsible parties are advised that other federal or local laws and regulations may apply to these activities.

Specific Authority 376.303, 376.3071 FS. Law Implemented 376.3071 FS. History—New 11-1-87, Formerly 17-70.004, Amended 2-21-90, Formerly 17-770.160, Amended 7-30-96, 9-23-97, 8-5-99, 4-17-05.

62-770.200 Acronyms and Definitions.

All words and phrases defined in Section 376.301, F.S., shall have the same meaning when used in this chapter unless specifically stated otherwise in this chapter. The following words and phrases used in this chapter shall, unless the context clearly indicates otherwise, have the following meanings:

(1) "Action level" means a specified concentration of a petroleum products' contaminant of concern that, if exceeded during natural attenuation monitoring or post active remediation monitoring, may require additional site assessment or active remediation. Action levels are established during the approval process for Natural Attenuation Monitoring Plans pursuant to Rule 62-770.690, F.A.C., and Post Active Remediation Monitoring Plans pursuant to Rule 62-770.750, F.A.C., and are not equivalent to CTLs.

(2) "Additive effect" means a scientific principle that the toxicity that occurs as a result of exposure is the sum of the toxicities of the individual chemicals to which an individual is exposed.

(3) "Antagonistic effect" means a scientific principle that the toxicity that occurs as a result of exposure is less than the sum of the toxicities of the individual chemicals to which an individual is exposed.

(4) "Apportioned" means the adjustment of CTLs such that for non-carcinogenic petroleum products' contaminants of concern that affect the same target organ(s), the hazard index (sum of the hazard quotients) is 1 or less, and for carcinogens, the cumulative lifetime excess cancer risk level is 1.0E-6, as applicable.

(5) "Background concentrations" means concentrations of petroleum products' contaminants of concern that are naturally occurring in the groundwater, surface water, soil, or sediment in the vicinity of the site.

(6) "Best achievable detection limit" means the practical quantitation limit. [Refer to the PQL guidelines referenced in subsection 62-770.140(5), F.A.C., for guidance.]

(7) "Cleanup target level" (CTL) means the concentration for each petroleum products' contaminant of concern identified by an applicable analytical test method, in the medium of concern, at which a site rehabilitation program is deemed complete.

(8) "Contaminant" means any physical, chemical, biological, or radiological substance present in any medium that may result in adverse effects to human health or the environment, or that creates an adverse nuisance, organoleptic, or aesthetic condition in groundwater.

(9) "Contaminated" or "contamination" means the presence of petroleum or petroleum products or their chemical constituents in

surface water, groundwater, soil, sediment, or upon the land, in concentrations that exceed the applicable CTLs specified in Chapter 62-777, F.A.C., or water quality standards in Chapter 62-302 or 62-520, F.A.C., or in concentrations that may result in contaminated sediment. This definition is solely for use within Chapter 62-770, F.A.C.

(10) “Contaminated sediment” means sediment that is contaminated with petroleum or petroleum products or their chemical constituents as determined by the concentrations of the petroleum or petroleum products’ contaminants of concern, actual circumstances of exposure, biological diversity studies, toxicity testing, or other evidence of harmful effects, as applicable. [Refer to the sediment guidelines referenced in subsection 62-770.140(2), F.A.C. for guidance on the evaluation of concentrations of petroleum products’ contaminants of concern, sediment quality conditions, and testing methods.]

(11) “Contamination” refer to the definition for “contaminated.”

(12) “CTL” means cleanup target level.

(13) “Department” means the Florida Department of Environmental Protection.

(14) “Discharge” includes, but is not limited to, any spilling, leaking, seeping, misapplying, pouring, emitting, emptying, releasing, or dumping of any petroleum or petroleum products, that occurs and that affects lands and the surface waters and ground waters of the State not regulated by Sections 376.011-.21, F.S.

(15) “Discharger” means the person who has dominion or control over the petroleum or petroleum products at the time of the discharge into the environment.

(16) “Discovery” means:

(a) Observance or detection of free product in boreholes, wells, open drainage ditches, open excavations or trenches, or on nearby surface water, or petroleum or petroleum products in excess of 0.01 foot in thickness in sewer lines, subsurface utility conduits or vaults, unless the product has been removed and it was confirmed that a release into the environment did not occur;

(b) Observance of visually stained soil or odor of petroleum products resulting from a discharge of used oil equal to, or exceeding, 25 gallons on a pervious surface [see paragraph 62-770.160(1)(c), F.A.C., for cleanup requirements applicable to discharges of less than 25 gallons];

(c) Discharges of petroleum or petroleum products equal to, or exceeding, 25 gallons on a pervious surface [see paragraph 62-770.160(1)(c), F.A.C., for cleanup requirements applicable to discharges of less than 25 gallons];

(d) Results of analytical test on a groundwater sample that exceed the CTLs referenced in Chapter 62-777, F.A.C., Table I, groundwater criteria column for the petroleum products’ contaminants of concern listed in Table A of this chapter; or

(e) Results of analytical test on a soil sample that exceed the lower of the direct exposure residential CTLs and leachability based on groundwater criteria CTLs specified in Chapter 62-777, F.A.C., Table II for the petroleum products’ contaminants of concern listed in Table A of this chapter.

(17) “Domestic purposes” means that the water is used for human consumption such as bathing, cooking, or drinking, and is provided through pipes or other constructed conveyances.

(18) “Engineering control” means use of existing features (such as buildings) or modifications to a site to reduce or eliminate the potential for migration of, or exposure to, petroleum products’ contaminants of concern. Examples of modifications include physical or hydraulic control measures, capping, point-of-use treatments, or slurry walls.

(19) “Excessively contaminated soil” for the purposes of Section 376.3071(11)(b)2., F.S., that only applies to sites scored 10 or less (unless laboratory results verify that the organic vapor analysis data are not relevant), means soil saturated with petroleum or petroleum products or soil that causes a total corrected hydrocarbon measurement of 500 parts per million (ppm) or higher for Gasoline Analytical Group or 50 ppm or higher for Kerosene Analytical Group. Readings shall be obtained at the site on an organic vapor analysis instrument with a flame ionization detector in the survey mode upon sampling the headspace in half-filled, 8-ounce or 16-ounce jars. Each soil sample shall be split into two jars, the two sub-samples shall be brought to a temperature of between 20° C. (68° F.) and 32° C. (90° F.), and the readings shall be obtained 5 to 30 minutes thereafter. One of the readings shall be obtained with the use of an activated charcoal filter unless the unfiltered reading is non-detect. The total corrected hydrocarbon measurement shall be determined by subtracting the filtered reading from the unfiltered reading. Instruments with a photo ionization detector may be used, but shall not be used in situations where humidity will interfere with the instruments’ sensitivity (including periods of rain, measuring wet or moist soil). If an instrument with a photo ionization detector is used, a filtered reading is not warranted and therefore sample splitting is not necessary. Analytical instruments shall be calibrated in accordance with the manufacturer’s instructions.

(20) “Exposure unit” means an area over which receptors are expected to have equal and random exposure.

- (21) "FDEP" means the Florida Department of Environmental Protection.
- (22) "FDEP local program" means a county or Department of Health local program established pursuant to a contract pursuant to Section 376.3073, F.S., to assist the Department in the administration of the petroleum contamination site cleanup.
- (23) "Free product" means petroleum or petroleum product in excess of 0.01 foot in thickness, measured at its thickest point, floating on surface water or groundwater.
- (24) "Gasoline Analytical Group" means aviation gasoline, gasohol, and motor gasoline or equivalent petroleum products.
- (25) "Groundwater" means water beneath the surface of the ground within a zone of saturation, whether or not flowing through known or definite channels.
- (26) "Innovative technology" means a process that has been tested and used as a treatment for contamination, but lacks an established history of full-scale use and information about its cost and how well it works sufficient to support prediction of its performance under a variety of operating conditions. An innovative technology is one that is undergoing pilot-scale treatability studies, that usually are performed in the field or the laboratory and require installation of the technology, and that provide performance, cost, and design objectives for the technology prior to full-scale use.
- (27) "Institutional control" means a restriction on use of, or access to, a site to eliminate or minimize exposure to petroleum products' contaminants of concern. Examples of institutional controls include deed restrictions, restrictive covenants, and conservation easements.
- (28) "Interim source removal" means the removal of free product, contaminated groundwater, or contaminated soil, or the removal of contaminants from soil that has been contaminated to the extent that leaching to groundwater has occurred or is occurring, prior to approval of a Remedial Action Plan pursuant to Rule 62-770.700, F.A.C.
- (29) "Kerosene Analytical Group" means diesel, Jet-A, Jet-B, JP-4, JP-5, and kerosene or equivalent petroleum products.
- (30) "Low yield" means groundwater that is contained in an aquifer that has an average hydraulic conductivity of less than one foot per day, determined by performing slug tests or an equivalent method for determining hydraulic conductivity on a minimum of three monitoring wells in each affected monitoring zone; and a maximum yield of 80 gallons per day, determined by pumping a four inch well screened across the cross-section of the plume, for a minimum of two hours.
- (31) "Monitoring well" means a well constructed with a surface seal and a sand filter pack in accordance with accepted design practices in order to provide for the collection of representative groundwater samples for laboratory analyses. Such wells may also be used to detect the presence of free product or collect water-level elevation data to aid in determining the direction of groundwater flow.
- (32) "MTBE" means Methyl tert-butyl ether.
- (33) "Natural attenuation" means a verifiable approach to site rehabilitation that allows natural processes to contain the spread of contamination and reduce the concentrations of petroleum products' contaminants of concern in contaminated groundwater and soil. Natural attenuation processes may include sorption, biodegradation, chemical reactions with subsurface materials, diffusion, dispersion, and volatilization.
- (34) "Newspaper of general circulation" means a newspaper published at least on a weekly basis and printed in the language most commonly spoken in the area within which it circulates, but does not include a newspaper intended primarily for members of a particular professional or occupational group, a newspaper whose primary function is to carry legal notices, or a newspaper that is given away primarily to distribute advertising.
- (35) "Organoleptic" means pertaining to, or perceived by, a sensory organ (i.e., color, taste, or odor).
- (36) "PAHs" means Polycyclic Aromatic Hydrocarbons.
- (37) "PCBs" means Polychlorinated Biphenyls.
- (38) "Person responsible for site rehabilitation" (PRSR) means the real property owner, the facility owner, the facility operator, the discharger, or other person or entity responsible for site rehabilitation, or the Department when the Department is conducting the site rehabilitation at facilities with discharges eligible for State-funded cleanup pursuant to Sections 376.305(6), 376.3071(9), 376.3071(13), and 376.3072, F.S.
- (39) "Petroleum contamination site" means any contiguous land, sediment, surface water, or groundwater area upon or into which a discharge of petroleum or petroleum products has occurred or for which evidence exists that such a discharge has occurred.
- (40) "Petroleum products' contaminants of concern" means the contaminants listed in Table A of this chapter and similar chemicals found in additives, provided the contaminants are present as a result of a discharge of petroleum or petroleum products.
- (41) "Piezometer" means a permanent or temporary well that may be designed and constructed without the surface sealing or

sand filter pack requirements of a monitoring well. This type of well is primarily used to detect the presence of free product or collect water-level elevation data to aid in determining the direction of groundwater flow.

(42) “Plume” means the portion of an aquifer or aquifers in which groundwater contamination by petroleum products’ contaminants of concern above applicable CTLs, and background concentrations as defined in subsection 62-770.200(5), F.A.C., has been detected.

(43) “Poor quality” means groundwater within the affected monitoring zone with background concentrations, as defined in subsection 62-770.200(5), F.A.C., that exceed any of Florida’s Primary or Secondary Drinking Water Standards referenced in Chapter 62-550, F.A.C.

(44) “Practical quantitation limit” (PQL) means the lowest level that can be reliably measured during routine laboratory operating conditions within specified limits of precision and accuracy. [Refer to the PQL guidelines referenced in subsection 62-770.140(5), F.A.C., for guidance.]

(45) “Priority pollutant” means any compound listed in 40 CFR Part 122, Appendix D, Tables II through IV.

(46) “Product recovery” means the removal of free product.

(47) “PRSR” means person responsible for site rehabilitation.

(48) “Real property owner” means the person or entity that is vested with ownership, dominion, or legal or rightful title to the real property.

(49) “Reportable quantity” means a discharge of petroleum or petroleum products equal to, or exceeding, 25 gallons on a pervious surface.

(50) “Responsible party” means the real property owner, the facility owner, the facility operator, or the discharger, or other person or entity responsible for site rehabilitation unless that entity is the Department.

(51) “Sediment” means the unconsolidated solid matrix occurring immediately beneath any surface water body. The surface water body may be present part or all of the time and may support a wetland environment or vegetation.

(52) “Site” refer to the definition for “petroleum contamination site.”

(53) “Site assessment” means the performance of any of the tasks or activities as described in Rules 62-770.300 and 62-770.600, F.A.C.

(54) “Site rehabilitation” means the assessment of site contamination and the remediation activities that reduce the levels of contaminants of concern at a site through accepted treatment methods to meet the CTLs established for that site.

(55) “Soil saturated with petroleum or petroleum products” means soil observed to contain petroleum or petroleum products that drain from the soil when it is handled or squeezed, or create streaks of petroleum or petroleum products on excavation tools or on plastic sheeting upon exposure to the soil.

(56) “Source removal” means the removal of free product, contaminated groundwater, or contaminated soil, or the removal of contaminants from soil that has been contaminated to the extent that leaching to groundwater has occurred or is occurring, after approval of a Remedial Action Plan pursuant to Rule 62-770.700, F.A.C.

(57) “Surface water” means water upon the surface of the earth, whether contained in bounds created naturally or artificially or diffused. Water from natural springs shall be classified as surface water when it exits from the spring onto the earth’s surface.

(58) “Synergistic effect” means a scientific principle that the toxicity that occurs as a result of exposure is more than the sum of the toxicities of the individual chemicals to which an individual is exposed.

(59) “Temporary point of compliance” (TPOC) is the boundary represented by one or more designated monitoring wells at which groundwater CTLs may not be exceeded while site rehabilitation is proceeding.

(60) “Total Volatile Organic Aromatics” means the sum of concentrations of Benzene, Toluene, total Xylenes, and Ethylbenzene.

(61) “TPOC” means temporary point of compliance.

(62) “TRPHs” means Total Recoverable Petroleum Hydrocarbons.

(63) “UCL” means upper confidence limit estimate of the arithmetic mean.

(64) “Used oil” means any lubricants for use in internal combustion engines that have been refined from crude oil and, as a result of use, storage, or handling, have become unsuitable for their original purpose due to the presence of impurities or loss of properties, but that may be suitable for further use as a fuel or are economically recyclable for use as a fuel. “Used oil” shall not include any used oil that has been mixed with any material that is a hazardous waste, unless the material is a hazardous waste solely due to the characteristic of ignitability as defined in 40 CFR Part 261, Subpart C.

(65) “VOHs” means Volatile Organic Halocarbons.

(66) “Waters” or “waters of the State” means waters as defined in Section 403.031, F.S.

Specific Authority 376.303, 376.3071 FS. Law Implemented 376.3071 FS. History—New 11-1-87, Formerly 17-70.003, Amended 2-21-90, Formerly 17-770.200, Amended 9-23-97, 8-5-99, 4-17-05.

62-770.220 Notices.

(1) Notice of Field Activities – When requested in writing by the Department or by the FDEP local program, the responsible party, its agent, or authorized representative shall provide written notice to the Department or to the FDEP local program at least three days prior to performing field activities such as interim source removal activities, installing monitoring or recovery well(s), performing sampling, installing remediation equipment, or installing an engineering control. Personnel from the Department or from the FDEP local program shall be allowed the opportunity to observe these field activities and to take split samples. If the Department or the FDEP local program chooses to be present when the field activities are being performed, the Department or the FDEP local program shall be responsible for confirming that the field activities are being performed in accordance with the schedule provided in the written notification.

(2) Initial Notice of Contamination Beyond Property Boundaries – At any time during site rehabilitation conducted pursuant to this chapter, if the PRSR, its authorized agent, or other representative discovers from laboratory analytical results that comply with appropriate quality assurance protocols pursuant to Chapter 62-160, F.A.C., that contamination [as defined in subsection 62-770.200(9), F.A.C.] exists in any medium beyond the boundaries of the property at which site rehabilitation was initiated pursuant to this chapter, the PRSR shall give actual notice as soon as possible, but no later than 10 days from such discovery, to the Division of Waste Management at the Department’s Tallahassee Office. The actual notice shall be provided on Form 62-770.900(3) titled “Initial Notice of Contamination Beyond Property Boundaries” effective date 12-27-07, hereby adopted and incorporated by reference. Copies of this form are available from the Department of Environmental Protection, Bureau of Petroleum Storage Systems, MS 4575, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. The form shall be mailed to the Department by “Certified Mail, Return Receipt Requested.” A copy of such notice shall be mailed simultaneously to the appropriate Department District Office, to the County Health Department, and to all known lessees and tenants of the property at which site rehabilitation was initiated. The notice shall include the following information:

(a) The location of the property at which site rehabilitation was initiated pursuant to this chapter and contact information for the responsible party, its authorized agent, or other representative;

(b) A listing of all record owners of any real property, other than the property at which site rehabilitation was initiated pursuant to this chapter, at which contamination has been discovered; the parcel identification number for any such real property; the owner’s address listed in the current county property tax office records; and the owner’s telephone number. This paragraph does not apply to notice provided to the lessees and tenants of the property at which site rehabilitation was initiated pursuant to this chapter;

(c) Separate table(s) by medium (groundwater, soil, surface water, or sediment) that list all the sampling locations; sampling date(s); names of contaminants detected above CTLs; their corresponding CTLs; the contaminant concentration(s); and whether the CTL is based on health or nuisance, organoleptic, or aesthetic concerns; and

(d) A vicinity map that shows all the sampling locations with corresponding laboratory analytical results and the date(s) on which the sample(s) was(were) collected, and that identifies the property boundaries of the property at which site rehabilitation was initiated pursuant to this chapter and the other property(ies) at which contamination has been discovered during such site rehabilitation.

(3) Subsequent Notice of Contamination Beyond Source Property Boundaries for Establishment of a Temporary Point of Compliance (TPOC) – Prior to the Department authorizing a temporary extension of the point of compliance beyond the boundary of the source property (i.e., the location from which the contamination originates) in conjunction with Natural Attenuation Monitoring pursuant to Rule 62-770.690, F.A.C., or Active Remediation pursuant to Rule 62-770.700, F.A.C., the PRSR shall provide:

(a) Actual notice in written form mailed by “Certified Mail, Return Receipt Requested” to the appropriate County Health Department and all record owners of any real property into which the point of compliance is allowed to extend (mailed to the owner’s address listed in the current county property tax office records). The notice shall include the following information:

1. The type of proposed agency action (i.e., temporary extension of the point of compliance);

2. A description of the location of the subject site and the name and address of the responsible party;
3. The location where complete copies of any relevant documents concerning the site and the proposed remedial strategy, including temporary extension of the point of compliance, are available for public inspection;

4. The name and address of a contact person at the Department or at the FDEP local program who is the project manager for the site rehabilitation, to whom comments should be directed, and from whom copies of the Department's actions regarding the site may be requested; and

5. A paragraph including the statement: "Persons receiving this notice shall have the opportunity to comment on the Department's proposed action within 30 days of receipt of the notice." For purposes of actual notice, the 30-day comment period shall commence on the delivery date stamped on the return receipt; and

(b) Copies of the notices to the Department as proof of compliance with this section.

(4) Status Update 5-Year Notice – When utilizing a TPOC beyond the boundary of the source property to facilitate natural attenuation monitoring or active remediation, an additional notice concerning the status of the site rehabilitation shall be similarly provided every five years to the classes of persons who received notice pursuant to subsection 62-770.220(3), F.A.C., unless in the intervening time, such persons have been informed that the contamination no longer affects the property into which the point of compliance was allowed to extend.

(5) When the PRSR is the Department, if the Department ceases to conduct the site rehabilitation (for example, a funding cap is reached), then the noticing requirements shall be assumed by the responsible party.

(6) Notice Requirements for Schools – If the property at which contamination has been discovered is the site of a school as defined in Section 1003.01, F.S., regardless of whether the school property is the site at which site rehabilitation was initiated, then the school board of the district in which the property is located shall provide actual notice of the contamination to teachers and parents or guardians of students attending the school during the period of site rehabilitation. Such notice must be provided within 30 days of discovery or receipt of notification from the Department, whichever is earlier, and shall conform to the requirements in paragraphs 62-770.220(2)(a), (c), and (d), F.A.C. At least annually during the period of site rehabilitation, the school board of the district in which the property is located shall continue to provide such actual notice of the contamination, updated as appropriate, to teachers and parents or guardians of students attending the school. A representative copy of all notices shall be submitted to the Department at the time the notice is provided to the teachers and parents or guardians.

Specific Authority 376.303, 376.30702, 376.3071 FS. Law Implemented 376.30702, 376.3071 FS. History—New 4-17-05, Amended 8-4-05, 12-27-07.

62-770.250 Contamination Reporting.

Upon discovery of contamination (unless the contamination is the result of a previously reported discharge for which site rehabilitation completion has not been achieved or the contamination is known to be from a non-petroleum product source) or upon a discharge of petroleum or petroleum products, notification shall be submitted using the Discharge Report Form [Form Number 62-761.900(1)].

(1) If the discharge was from a storage tank system regulated pursuant to Chapter 62-761 or 62-762, F.A.C., the discharge shall be reported by the facility owner or operator pursuant to the applicable requirements of Chapters 62-761 and 62-762, F.A.C.; or

(2) For all other discharges of petroleum or petroleum products, the discharge shall be reported within one week of discovery. However, discharges of reportable quantities onto the surface of lands or to surface waters shall be reported to the State Warning Point or Department of Environmental Protection, Bureau of Emergency Response as soon as possible but no later than 24 hours after occurrence. The discharge shall be reported by:

(a) The discharger; or

(b) The owner or operator if the discharger is unknown or if the discovery was the result of a previously unreported discharge.

Specific Authority 376.303, 376.3071 FS. Law Implemented 376.305, 376.3071 FS. History—New 2-21-90, Formerly 17-770.250, Amended 9-23-97, 8-5-99, 4-17-05.

62-770.300 Interim Source Removal.

(1) Free Product Removal and Disposal.

(a) Except for those sites described in paragraph (1)(g) of this rule, within three days of discovery of free product the responsible party shall take steps to obtain cleanup services for product recovery or initiate product recovery. Product recovery shall be performed pursuant to paragraph 62-770.300(1)(b), F.A.C. The responsible party is required to complete product recovery provided that:

1. The product recovery method shall be selected pursuant to paragraph 62-770.300(1)(b), F.A.C.;
2. The product recovery shall not spread contamination into previously uncontaminated or less contaminated areas through untreated discharges, improper treatment, improper disposal, or improper storage;
3. Flammable products shall be handled in a safe manner; and
4. All sampling and analyses shall be performed pursuant to Rule 62-770.400, F.A.C.

(b) The following passive and active methods of product recovery may be implemented without requesting approval from the Department or FDEP local program:

1. Absorbent pads;
2. Skimmer pumps that include pumps with mechanical, electrical, or hand-bailed purging operations;
3. Hand or mechanical bailing; and
4. Fluid vacuum techniques (for example, vacuum pump trucks) or total fluid displacement pumps, as long as:
 - a. The technique used shall not smear or spread free product or contaminate previously uncontaminated or less contaminated media; and
 - b. The volume of groundwater recovered shall not be greater than two times the volume of free product recovered, except that the first 1,000 gallons of the total fluid recovered per discharge are exempt from meeting the required ratio of groundwater to free product.

(c) In addition to the product recovery methods specified in paragraph 62-770.300(1)(b), F.A.C., the responsible party may evaluate, propose, and submit other product recovery methods to the Department or to the FDEP local program for approval pursuant to Rule 62-770.890, F.A.C., prior to implementation. During the submittal and approval process, implementation of one or more of the collection methods specified in paragraph 62-770.300(1)(b), F.A.C., is required. The submittal shall include the results of the evaluation performed to determine the potential for product spreading or smearing, and the potential for air emissions, and a justification as to the environmental and economical benefits of the selected recovery method. The product recovery methods proposed may include:

1. Excavation of soil saturated with petroleum or petroleum products into, or below, the water table;
2. Dewatering or groundwater extractions that may influence the depth to the water table; or
3. Air/fluid extraction.

(d) Product recovery as an Interim Source Removal shall be deemed complete when free product has been removed to the maximum extent practicable pursuant to paragraphs 62-770.300(1)(a) and 62-770.300(1)(b), F.A.C.

(e) Within 10 days after initiation of product recovery, the responsible party shall provide written notification to the Department or to the FDEP local program on Form 62-770.900(1).

(f) Unless a different reporting period is approved pursuant to the provisions of subsection 62-770.800(4), F.A.C., the responsible party shall submit to the Department or to the FDEP local program for review two copies of an annual status report documenting the recovery progress and summarizing all recovery activities.

(g) At petroleum contamination sites eligible for State funding assistance under the Inland Protection Trust Fund where the discharge occurred prior to March 29, 1995, product recovery shall commence in accordance with the ranking established pursuant to Chapter 62-771, F.A.C., and shall be performed pursuant to paragraphs 62-770.300(1)(b) and 62-770.300(1)(c), F.A.C., and pursuant to Section 376.30711, F.S.

(2) Short-term Groundwater Recovery. A short-term groundwater recovery event may be performed as an interim source removal activity. Groundwater recovery from well(s) within the plume with screened intervals that intercept the water table, with the intent of achieving cleanup progress, may be performed prior to Department or FDEP local program approval of a Remedial Action Plan submitted pursuant to Rule 62-770.700, F.A.C., provided the following criteria are met:

(a) The groundwater contamination shall be established to be less than 1/4 acre and confined to shallow aquifer well(s) with screened intervals that intercept the water table, such that the pumping of a shallow aquifer well(s) within the plume may result in

the site meeting the No Further Action criteria of Rule 62-770.680, F.A.C., or the Natural Attenuation Monitoring criteria of Rule 62-770.690, F.A.C.;

(b) Free product shall not be present;

(c) The duration of the groundwater recovery shall not exceed 30 days;

(d) The recovered groundwater shall not be treated on-site and shall be properly disposed at a permitted industrial water treatment facility, or at a publicly-owned treatment works with the approval of the sanitary sewer authority; and

(e) Sampling of representative monitoring wells to determine the effectiveness of the Short-term Groundwater Recovery event shall be performed at least 30 days after completion of the groundwater recovery.

(3) Soil Removal, Treatment, and Disposal.

(a) If contaminated soil exists at a site, excavation of contaminated soil for proper treatment or proper disposal may be performed. Consistent with the goals set forth in Section 403.061(33), F.S., the Department encourages treatment over disposal options to address contaminated soil. The treatment or disposal of contaminated soil may be performed prior to Department or FDEP local program approval of a Remedial Action Plan submitted pursuant to Rule 62-770.700, F.A.C., provided the following criteria are met:

1. Contamination shall not be spread into previously uncontaminated or less contaminated areas through untreated discharges, improper treatment, improper disposal, or improper storage;

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

3. When a soil vacuum extraction system is necessary to abate an imminent threat to human life, health, safety, or welfare within a structure or utility conduit, then the vacuum extraction system shall be designed and operated only to abate the imminent threat. The Department or the FDEP local program shall be notified, within 24 hours, of the imminent threat and the intent to use a soil vacuum extraction system. The air emissions monitoring and frequency of monitoring shall be performed pursuant to paragraphs 62-770.700(5)(a) and 62-770.700(11)(i), F.A.C.;

4. If one of the objectives of the interim source removal is to excavate all the contaminated soil, confirmatory soil samples shall be collected at the bottom of the excavation (unless the bottom is below the water table) and walls or perimeter of the excavation;

5. When excavated soil is temporarily stored or stockpiled on-site, the soil shall be placed on an impermeable surface to prevent leachate infiltration and secured in a manner that prevents human exposure to contaminated soil and prevents soil exposure to precipitation that may cause surface runoff, and any excavation shall be secured to prevent entry by the public. Excavated contaminated soil (including excessively contaminated soil) may be returned to the original excavation when petroleum storage tank systems have been removed or replaced, or if contaminated soil was encountered during construction activities, to be addressed pursuant to Rule 62-770.700, F.A.C.; and

6. Excavated contaminated soil (including excessively contaminated soil) shall not be stored or stockpiled on-site for more than 60 days, unless it is stockpiled on a right-of-way, in which case it shall be removed for proper treatment or proper disposal as soon as practical but no later than 30 days after excavation, or unless it is being land farmed pursuant to paragraph 62-770.300(3)(b), F.A.C., at which time the soil shall be returned to the original excavation, or removed and properly treated or properly disposed. Contaminated soil (including excessively contaminated soil) may be containerized in water tight drums and stored on-site for 90 days, after which time proper treatment or proper disposal of the contaminated soil shall occur, or it may be land farmed pursuant to paragraph 62-770.300(3)(b), F.A.C.

(b) Land farming of contaminated soil is allowed, provided the land farming operation is located on the same property as the source of contaminated soil unless it is land farmed at a permitted stationary facility. The following criteria shall be met for contaminated soil land farmed on the source property:

1. The land farm operation shall be at least 200 feet from any residence, school, or park;

2. An area large enough to spread the soil to a thickness of 6 to 12 inches shall be available;

3. The land farming area shall be secured in a manner that prevents entry by the public and prevents human exposure to contaminated soil;

4. The materials used to construct the land farm treatment area shall withstand the rigors of the land farming and weather;

5. The land farmed soil shall be placed over an impermeable liner or surface, and surrounded at all times by an impermeable liner supported by berms;

6. The land farmed soil shall be tilled at least biweekly;

7. The land farmed soil shall be covered when not being tilled to prevent water from entering or leaving the area;

8. A monitoring and sampling program shall be established to evaluate the effectiveness of the land farming operation and the effect on the environment, including monitoring of groundwater to confirm leaching is not occurring and of off gas emissions for air regulatory compliance. Before the land farming operation commences, the responsible party shall submit to the Department or to the FDEP local program the monitoring and sampling program, design specifications of the treatment area, and types and amounts of any proposed additives to the soil, to demonstrate that the objectives of this subparagraph will be met. Prior approval is not required for quantities less than 20 cubic yards, but the design specifications and results of the monitoring and sampling program shall be submitted in the Interim Source Removal Report;

9. Land farming of soil is limited to 180 days, at the end of which time proper disposal is required except if written approval pursuant to the provisions of subsection 62-770.800(4), F.A.C., to exceed this time frame, is obtained from the Department or from the FDEP local program; and

10. Land farmed soil that does not exceed the lower of the direct exposure residential CTLs and leachability based on groundwater criteria CTLs specified in Chapter 62-777, F.A.C., Table II may be disposed on-site or off-site. Responsible parties are advised that other federal or local laws and regulations may apply to these activities. Land farmed soil that exceeds the applicable CTLs specified in Chapter 62-777, F.A.C., Table II shall not be disposed or returned to the original excavation without obtaining approval from the Department or from the FDEP local program, pursuant to the provisions of Rule 62-770.890, F.A.C.

(c) Soil treatment, storage, or disposal techniques not authorized by applicable rules of the Department, or in paragraph 62-770.300(3)(b), F.A.C., require approval in a Remedial Action Plan submitted pursuant to Rule 62-770.700, F.A.C.

(d) At petroleum contamination sites eligible for State funding assistance under the Inland Protection Trust Fund, soil removal for treatment or disposal, if warranted and cost-effective, shall commence in accordance with the ranking established pursuant to Chapter 62-771, F.A.C., and shall be performed in accordance with the Department's preapproval program procedures pursuant to a preapproval agreement.

(4) Authorizations. Authorization or receipt of approval pursuant to Rule 62-770.300, F.A.C., does not relieve the responsible party from the obligation to comply with other Department rules (for example, Chapters 62-701 and 62-730, F.A.C.) for product recovery, product disposal, groundwater recovery, or the handling, storage, disposal, or treatment of contaminated media. Responsible parties are advised that other federal or local laws and regulations may apply to these activities.

(5) Interim Source Removal Report.

(a) Within 60 days of completion of interim source removal activities, the responsible party shall submit to the Department or to the FDEP local program for review two copies of an Interim Source Removal Report. If analytical results obtained pursuant to paragraph 62-770.300(2)(e), F.A.C., and subparagraphs 62-770.300(3)(a)4. and 62-770.600(4)(m)3., F.A.C., as applicable, after completion of the interim source removal, demonstrate that the applicable No Further Action criteria of subsection 62-770.680(1), F.A.C., are met, a Site Assessment Report pursuant to subsection 62-770.600(7), F.A.C., may be submitted in lieu of the Interim Source Removal Report.

(b) Unless otherwise specified in a preapproval agreement, the Interim Source Removal Report shall contain the following information in detail, as applicable:

1. The volume of product that was discharged, if known;
2. The volume of free product and the volume of groundwater recovered;
3. The volume of contaminated soil excavated and treated or properly disposed;
4. The disposal or recycling methods for free product and contaminated soil;
5. The disposal methods for other contaminated media and any investigation-derived waste;
6. A scaled site map (including a graphical representation of the scale used) that shows the location(s) where free product and groundwater were recovered, the area of soil removed, and the approximate locations where all samples were collected;
7. A table that summarizes free product thickness in each monitoring well or piezometer, the total depth and screened interval of each monitoring well or piezometer, and the dates the measurements were made;
8. The type of field screening instrument, analytical methods, or other methods used;
9. The dimensions of the excavation(s) and location(s), integrity, capacities, and last known contents of storage tanks, integral piping, dispensers, or appurtenances removed;
10. The dimensions of the excavation(s) and location(s) and capacities of replacement underground storage tanks;
11. A table that indicates the identification, depth, and field soil screening results of each sample collected;
12. Separate tables by medium that summarize all available soil and groundwater analytical results, detection limits achieved for

non-detected analytes, and analyses performed (listing all contaminants analyzed and their corresponding CTLs);

13. Depth to groundwater at the time of each excavation, measurement locations, and method used to obtain that information;

14. Type of petroleum or petroleum products discharged and a determination, if possible, of how the product was released;

15. A scaled site map (including a graphical representation of the scale used) that shows the locations and results of confirmatory soil samples, in relation to the area of soil removal;

16. Documentation or certification that confirms the proper treatment or proper disposal of the free product, contaminated groundwater, or contaminated soil, including disposal manifests for free product, a copy of the documentation or certification of treatment or acceptance of the contaminated soil, and results of analyses, if performed; and

17. For land farmed soil, a copy of the pre-treatment and post-treatment analytical results.

(c) Within 60 days of receipt of an Interim Source Removal Report, the Department or the FDEP local program shall:

1. Provide the responsible party with written approval of the Interim Source Removal Report submitted pursuant to the criteria of paragraph 62-770.300(5)(b), F.A.C.; or

2. Notify the responsible party in writing, stating the reason(s) why the Interim Source Removal Report does not conform with the applicable Interim Source Removal criteria of paragraph 62-770.300(5)(b), F.A.C.

(6) If the Interim Source Removal Report is incomplete in any respect, or is insufficient to satisfy the criteria of paragraph 62-770.300(5)(b), F.A.C., the Department or the FDEP local program shall inform the responsible party pursuant to subparagraph 62-770.300(5)(c)2., F.A.C., and the responsible party shall submit to the Department or to the FDEP local program for review two copies of an Interim Source Removal Report Addendum that addresses the deficiencies within 60 days after receipt of the notice.

(7) If the interim source removal is performed after submittal of the Site Assessment Report, the responsible party shall submit to the Department or to the FDEP local program for review two copies of a Site Assessment Report Addendum that updates the Site Assessment Report by summarizing the interim source removal activities and all sampling results obtained after submittal of the Site Assessment Report, and that includes a recommendation pursuant to paragraph 62-770.600(8)(b), F.A.C.

Specific Authority 376.303, 376.3071 FS. Law Implemented 376.3071, 376.30711 FS. History—New 11-1-87, Formerly 17-70.006, Amended 2-21-90, Formerly 17-770.300, Amended 9-3-96, 9-23-97, 8-5-99, 4-17-05.

62-770.400 Quality Assurance Requirements.

(1) Persons performing sampling and analyses pursuant to this chapter shall comply with the applicable requirements of Chapter 62-160, F.A.C., Quality Assurance.

(2) Unless otherwise specified in this chapter, reports that are submitted to the Department or to the FDEP local program and that contain analytical data shall include the following forms and information, as applicable:

(a) Laboratory reports that include all information specified in subsection 62-160.340(2), F.A.C., and are in the format specified in Chapter 62-160, F.A.C. (soil analytical results shall be reported on a dry-weight basis);

(b) Copies of the completed chain of custody record form(s) [Form 62-770.900(2) or an equivalent chain of custody form that includes all the items required by Form 62-770.900(2)];

(c) Copies of the completed water sampling log form(s) pursuant to Chapter 62-160, F.A.C.; and

(d) Results from screening tests or on-site analyses performed pursuant to this chapter.

Specific Authority 376.303, 376.3071, 403.0877 FS. Law Implemented 376.3071 FS. History—New 11-1-87, Formerly 17-70.007, Amended 2-21-90, Formerly 17-770.400, Amended 9-23-97, 8-5-99, 4-17-05.

62-770.490 Professional Certifications.

Applicable portions of technical documents submitted by the responsible party to the Department or to the FDEP local program shall be signed and sealed by a Professional Engineer registered pursuant to Chapter 471, F.S., or a Professional Geologist registered pursuant to Chapter 492, F.S., certifying that the applicable portions of the technical document and associated work comply with standard professional practices, this chapter and other rules of the Department, and any other applicable laws and rules governing the profession. If a laboratory report is submitted separately from any other technical document submittal, this requirement shall not apply to the laboratory report.

Specific Authority 403.0877 FS. Law Implemented 376.3071, 403.0877 FS. History—New 8-5-99, Amended 4-17-05.

62-770.600 Site Assessment.

(1) Within 30 days of discovery of contamination, the responsible party shall initiate a site assessment.

(2) To facilitate the site assessment process, the responsible party may have discussions with the Department or the FDEP local program at various decision points to establish the scope and methodology of the site assessment, applicable exposure factors and the remedial strategy for the site, and risk management options based on the current and projected land use(s) at the site.

(3) The objectives of the site assessment shall be the following, as applicable:

(a) To determine or confirm the source(s) of contamination to the extent practicable and to estimate the volume of petroleum or petroleum products that was released. That confirmation shall include a determination of the structural integrity, in accordance with the testing procedures specified in Chapter 62-761, F.A.C., of any petroleum storage tank system that exists at the property and is likely to be the source of the contamination;

(b) To evaluate the current exposure and potential risk of exposure to humans and the environment, including multiple pathways of exposure. The physical, chemical, and biological characteristics of each petroleum products' contaminant of concern and the individual site characteristics shall be considered. The individual site characteristics include:

1. The current and projected use of the affected groundwater and surface water in the vicinity of the site;
2. The current and projected land use of the area affected by the contamination;
3. The exposed human population and ecological receptors, including the presence of threatened or endangered species (flora and fauna). A general literature review and analysis based on site-specific conditions may be sufficient;
4. The location of the plume;
5. The degree and extent of contamination;
6. The rate and direction of migration of the plume;
7. The apparent or potential rate of degradation of petroleum products' contaminants of concern through natural attenuation; and
8. The potential for further migration in relation to the source property boundary;

(c) To establish the horizontal extent and thickness of free product. If the soil concentration of a petroleum products' contaminant of concern is above its soil saturation concentration (C_{sat}), free product may be present [refer to the technical report referenced in subsection 62-770.140(1), F.A.C., for development of soil CTLs based on C_{sat}];

(d) To determine whether contamination is present and the types of contaminants present, and to determine the horizontal and vertical extent of contamination in every medium found to be contaminated (for soil in the unsaturated zone, to the more stringent of the direct exposure residential soil CTLs and the applicable leachability-based soil CTLs provided in Chapter 62-777, F.A.C., Table II; and for groundwater, to the groundwater CTLs or to the surface water CTLs provided in Chapter 62-777, F.A.C., Table I, as applicable);

(e) To establish the background concentrations;

(f) To estimate the total mass and mass distribution of petroleum or petroleum products in the subsurface as product entrapped above the water table, free product, and product entrapped below the water table;

(g) To determine whether interim source removal pursuant to Rule 62-770.300, F.A.C., is warranted;

(h) To describe relevant geologic and hydrogeologic characteristics that influence migration and transport of petroleum products' contaminants of concern at the site, unless the site meets the No Further Action criteria of subsection 62-770.680(1), F.A.C.:

1. To describe the lithology and horizontal and vertical continuity of units, such as the presence of karst features, bedrock, native soil, and fill material, in the areas affected and expected to be affected by the discharge(s);

2. To identify the aquifer or aquifers and confining units affected and expected to be affected by the discharge(s) and to determine the groundwater classification, hydraulic conductivity, transmissivity, and storativity of the aquifer or aquifers;

3. To identify and characterize any perched zone, if present;

4. To determine the horizontal and vertical rate and direction of groundwater flow (at all affected depths, as appropriate), to determine the extent of water table fluctuation, to evaluate the potential effect of seasonal variations and vertical groundwater flow components on the rate and direction of groundwater flow, to determine the hydraulic interaction between groundwater and any surface water within the vicinity of the site, and to determine whether there are any tidal effects for sites located near marine surface water; and

5. To determine other mechanisms of transport of petroleum products' contaminants of concern in the immediate vicinity of the site, including rate and direction of movement of petroleum products' contaminants of concern in sewer lines, subsurface utility conduits or vaults, soil, sediment, and surface water, as applicable;

(i) To determine by means of a well survey whether any public water supply wells, as defined in Chapter 62-550, F.A.C., are present within a 1/2 mile radius of the site, whether the site is located within the regulated wellhead protection zone of a public water supply well or well field, and whether any private water supply wells (including potable, irrigation, and industrial wells) are present within a 1/4 mile radius of the site, unless the site meets the No Further Action criteria of subsection 62-770.680(1), F.A.C. If contamination beyond the boundaries of the property at which site rehabilitation was initiated pursuant to this chapter is discovered at any time, within 60 days of such discovery the responsible party shall conduct the well survey pursuant to paragraph 62-770.600(4)(o), F.A.C., and submit a report to the Department or to the FDEP local program, and to the County Health Department, that provides the results of the well survey in accordance with the requirements of subparagraphs 62-770.600(8)(a)10. and 62-770.600(8)(a)11., F.A.C., and that provides the results of any required sampling pursuant to paragraph 62-770.600(4)(p), F.A.C., based on the results of the well survey. These results shall include a listing of the sampled wells, the rationale for their selection, the contaminants analyzed, and the analytical results;

(j) To determine whether any surface water will be exposed to contamination that migrates beyond the boundaries of the property at which site rehabilitation was initiated pursuant to this chapter;

(k) If non-petroleum products' contaminants of concern are detected during the assessment, to identify the general location of the source in relation to the site and to evaluate whether the non-petroleum products' contaminants of concern may have an effect on future rehabilitation activities of the petroleum contamination;

(l) To report any off-site activities (for example, dewatering, active remediation, or flood control pumping) in the immediate vicinity of the site that may have an effect on the groundwater flow at the site, unless the site meets the No Further Action criteria of subsection 62-770.680(1), F.A.C.; and

(m) To facilitate the selection of the most cost-effective remediation strategy for the site that is protective of human health and the environment, and considers the proposed property use, identifies risks posed by the contamination based on the proposed use, and describes how those risks will be managed, unless No Further Action is deemed appropriate pursuant to the provisions of subsection 62-770.680(1), F.A.C.

(4) The site assessment shall include tasks that are necessary to achieve objectives described in subsection 62-770.600(3), F.A.C., and may include the following, as applicable:

(a) Use of geophysical equipment such as magnetometers, ground penetrating radar, or metal detectors to detect petroleum storage tank system components;

(b) Use of borehole geophysical equipment and methods to determine geologic and hydrogeologic characteristics of affected and potentially affected hydrogeologic zones, including a determination of whether pockets of petroleum or petroleum products exist in areas where karst formations are present;

(c) Sampling of undisturbed soil above and below the water table using hand augers, hollow stem augers with split spoons or Shelby tubes, direct push technology, or other available technologies, to obtain information on site stratigraphy and on product entrapped below the water table, to determine geotechnical parameters and vertical hydraulic conductivity of confining or semi-confining zones, and to assess the appropriateness of natural attenuation monitoring;

(d) Use of visual observations to determine whether soil contaminated or saturated with used oil is present. If the presence of soil contaminated or saturated with used oil is identified, at least one grab sample from the most visibly stained area shall be collected for analyses for the used oil parameters as listed in Table C. If no visual signs of contamination are identified a soil sample for laboratory analyses is not required, except that if used oil contamination had been reported, one grab sample shall be collected

for laboratory analyses from the location where used oil contamination was identified in the past, and analyzed for VOHs, PAHs, TRPHs, PCBs, arsenic, cadmium, chromium, and lead. If soil visually stained or saturated with used oil is excavated pursuant to paragraph 62-770.300(3)(a), F.A.C., at least one grab sample from the bottom of the excavation, if the water table was not reached, and at least one grab sample from the wall of the excavation at an equivalent depth of the soil visually stained or saturated with used oil that was removed, shall be collected for analyses for contaminants of concern detected in the sample collected in the most visibly stained area or in the sample(s) collected for disposal purposes, to confirm that all contaminated soil was removed;

(e) Use of field soil screening techniques that shall be demonstrated to be appropriate for the site conditions and the physical and chemical characteristics of the petroleum products' contaminants of concern, to determine the optimal locations for collection of samples for laboratory analyses. The laboratory analyses specified in Table B shall be performed to confirm the screening results.

(f) Sampling of soil from the unsaturated zone for the following criteria, as applicable:

1. Appropriate laboratory analyses to determine the degree and extent of soil contamination and, as applicable, the background concentrations. These analyses shall be performed on a minimum of three grab samples with high, medium, and low screening results for the site. These analyses shall be performed per source area and per sampling event, except that only one representative sample collected from the area most likely to be contaminated shall be sufficient if the field screening results indicate that contaminated soil is not present. The actual number of laboratory samples shall be based on the horizontal and vertical extent of contamination and the degree of correlation between field soil screening and laboratory results. If the 95% UCL approach pursuant to subparagraphs 62-770.680(1)(c)1., 62-770.680(2)(c)1., and 62-770.680(3)(c)1., F.A.C., is utilized, the soil sampling plan shall account for factors such as discrete variations in the lithology, depth to the water table, and the chemical and physical properties of the petroleum products' contaminants of concern, and the number of samples shall be sufficient to identify the area(s) of highest contaminant concentrations and to allow the calculation of an exposure unit average concentration. [Refer to the technical report referenced in subsection 62-770.140(1), F.A.C., for guidance.];

2. Measurement of appropriate soil properties such as texture, pH, moisture content, dry bulk density, organic carbon content, and infiltration rate using the test methods specified in Chapter 62-777, F.A.C., Table III for the development of alternative soil CTLs in accordance with the technical report referenced in subsection 62-770.140(1), F.A.C. Measurements shall be made on soil from within the contaminated area when feasible. Otherwise, measurements may be made on soil from an alternative location that has equivalent soil properties;

3. Fractionation laboratory analyses for TRPHs to determine if the site-specific concentrations of the TRPH fractions exceed the soil CTLs of the TRPH fractions developed using one of the sub-classification methodologies described in Appendix C of the technical report referenced in subsection 62-770.140(1), F.A.C. Fractionation and FL-PRO analyses for TRPHs shall be performed on sub-samples from at least one grab soil sample collected from each source area that exceeds the applicable default soil CTLs for TRPHs specified in Chapter 62-777, F.A.C., Table II, or alternative soil CTLs for TRPHs established pursuant to Rule 62-770.680, F.A.C., with the actual number of samples based on the horizontal and vertical extent of contamination and the site-specific stratigraphy;

4. Direct leachability testing by USEPA Test Method 1312, Synthetic Precipitation Leaching Procedure (SPLP) extraction, or USEPA Test Method 1311, Toxicity Characteristic Leaching Procedure (TCLP) extraction if the contamination is derived from used oil or similar petroleum products, followed by the appropriate analyses of the leachate. Leachability and total soil concentration analysis for the appropriate laboratory analyses shall be performed on sub-samples from at least one grab soil sample collected from each source area that exceeds the applicable leachability-based soil CTLs specified in subparagraph 62-770.680(1)(c)2., F.A.C., or established pursuant to subparagraph 62-770.680(2)(c)2. or 62-770.680(3)(c)2., F.A.C., with the actual number of samples based on the horizontal and vertical extent of contamination and the site-specific stratigraphy; or

5. Hazardous waste characterization by USEPA Test Method 1311 TCLP extraction followed by the appropriate analysis of the leachate, if the information indicates that the soil has the potential to be a hazardous waste;

(g) Sampling of soil from the saturated zone to estimate the mass and mass distribution of petroleum products' contaminants of concern below the water table;

(h) Use of piezometers or monitoring wells to determine the frequency of occurrence, horizontal extent, and thickness of free product;

(i) Use of monitoring wells, piezometers, or other sampling and measurement techniques to obtain a three-dimensional evaluation of the source of contamination, of the migration of petroleum products' contaminants of concern below the water table, of groundwater flow, and of relevant hydrologic parameters;

(j) Use of piezometers or monitoring wells to determine horizontal direction(s) of groundwater flow and horizontal and vertical hydraulic gradients, as applicable (groundwater level measurements shall be made within a 24-hour period);

(k) Survey of every top-of-casing. Unless the elevation of each top-of-casing is determined in reference to a single benchmark of an arbitrary elevation, the survey shall be completed by closing the loop for each pair of adjacent monitoring wells or piezometers or with the first top-of-casing surveyed;

(l) Use of field screening techniques (for example, use of temporary wells, piezometers, or direct push technology to obtain groundwater samples for on-site analyses using gas chromatography) to optimize monitoring well placement;

(m) Sampling of monitoring wells for the appropriate laboratory analyses, with the most recent sampling of representative monitoring wells having occurred no more than 270 days prior to Site Assessment Report submittal, to determine the degree and extent of groundwater contamination and the background concentrations, if applicable, such that:

1. Drill cuttings and drilling mud generated during monitoring well installation shall be handled and disposed of in such a manner that contamination is not spread into previously uncontaminated or less contaminated media;

2. Development water and purge water shall be handled and disposed of in such a manner that contamination is not spread into previously uncontaminated or less contaminated media; and

3. If an interim source removal was performed and No Further Action pursuant to subsection 62-770.680(1), F.A.C., will be recommended, one of the following criteria shall be met pursuant to Rule 62-770.690, F.A.C.:

a. If groundwater contamination was present prior to the interim source removal, groundwater concentrations shall meet the No Further Action criteria of subsection 62-770.680(1), F.A.C., for at least two consecutive sampling events of representative monitoring wells, performed a minimum of three months apart; or

b. If contamination was only present in the unsaturated zone prior to the interim source removal, groundwater concentrations shall meet the No Further Action criteria of subsection 62-770.680(1), F.A.C., during only one sampling event of representative monitoring wells;

(n) Sampling of surface water and sediment for the appropriate laboratory analyses to determine the degree and extent of surface water and sediment contamination and the background concentrations, if applicable;

(o) Inspection of public records (such as those at the local Department of Health office, at the appropriate Water Management District office, and at local municipalities), and performance of a field reconnaissance, as appropriate, to locate all water supply wells (including potable, irrigation, and industrial wells) pursuant to paragraph 62-770.600(3)(i), F.A.C.;

(p) If the possibility exists that the contamination may have affected public or private water supply wells, sampling of the well or wells for the appropriate laboratory analyses, with the consent of the owner(s), to determine whether any contamination is present;

(q) Performance of tests to determine aquifer characteristics, if appropriate, on different strata of the surficial aquifer or of different aquifers, if applicable, using water-table monitoring wells, intermediate depth monitoring wells, and vertical extent monitoring wells. Performance of a pumping test may be deferred until the Remedial Action Plan phase if groundwater extraction is proposed pursuant to the provisions of Rule 62-770.700, F.A.C. If a pumping test is performed within the plume, at least one sample of the groundwater withdrawn during the test shall be collected at the end of the pumping test and analyzed for the appropriate petroleum products' contaminants of concern and physical properties (for example, Hardness, Iron, Total Dissolved Solids, and Total Suspended Solids) that may affect the treatment system and disposal options;

(r) Use of available and appropriate literature in conjunction with site-specific lithologic logs to identify aquifers present beneath the site. An analysis for Total Dissolved Solids shall be used if it is chosen to demonstrate to the Department or to the FDEP local program that the background quality of the groundwater on-site would allow it to be classified as an area of G-III groundwater;

(s) Review of historical land use records and existing aerial photographs to determine past uses of the property and location(s) of previous storage tank system(s);

(t) Performance of a professional land survey of the site in order to develop an accurate base map, if the Department or the FDEP local program determines that the site map provided in a report is not accurate;

(u) Establishment of the parameters or exposure assumptions that will be used to develop the alternative CTLs pursuant to Rule 62-770.650, F.A.C., if the responsible party chooses this option; and

(v) Use of other methods approved by the Department pursuant to Rule 62-770.890, F.A.C.

(5) The analyses for petroleum products' contaminants of concern in representative surface water, groundwater, soil, and sediment samples, as applicable, shall be performed using the analytical procedures listed in Tables B, C, and D. The type of

petroleum or petroleum products causing the contamination will determine which table is appropriate. Equivalent methods may be used if approved through protocols described in Chapter 62-160, F.A.C.

(a) If petroleum product discharges are from the Gasoline or Kerosene Analytical Groups, analyses shall be performed as described in Table B, except that:

1. If the site is anticipated to meet the No Further Action criteria of Rule 62-770.680, F.A.C., and the site is contaminated by products solely from the Gasoline Analytical Group, analytical screening of the monitoring wells for Benzene, Ethylbenzene, Toluene, total Xylenes, MTBE, and PAHs (using applicable methods in Table B) may be performed; or

2. If the site is anticipated to meet the No Further Action criteria of Rule 62-770.680, F.A.C., and the site is contaminated by products from the Kerosene Analytical Group, analytical screening of the monitoring wells for Benzene, Ethylbenzene, Toluene, total Xylenes, MTBE, PAHs, and TRPHs (using applicable methods in Table B) may be performed.

(b) If petroleum product discharges are from used oil, from an identified product not listed in the Gasoline or Kerosene Analytical Groups, or from a product for which the specific identity is unknown, analyses shall be performed as described in Table C.

(c) If the contamination is derived from petroleum as defined in Section 376.301, F.S., analyses shall be performed as described in Table D.

(6) If initial testing of representative monitoring well(s), performed pursuant to subsection 62-770.600(5), F.A.C., does not indicate the presence of any petroleum products' contaminants of concern within a specific analytical procedure, or indicates that the presence of a contaminant of concern is due to a background concentration, subsequent testing at the site need not include that analytical procedure.

(7) Within 270 days of discovery of contamination, the responsible party shall submit to the Department or to the FDEP local program for review two copies of a Site Assessment Report (that may reference previously submitted documents). Applicable portions of the Site Assessment Report shall be signed and sealed by an appropriate registered professional pursuant to Rule 62-770.490, F.A.C.

(8) The Site Assessment Report shall:

(a) Summarize all tasks that were implemented pursuant to subsections 62-770.600(3) and 62-770.600(4), F.A.C., and summarize the results obtained. All maps shall be in black and white, except the topographic map required by subparagraph 62-770.600(8)(a)2., F.A.C. (if a color map is submitted, a duplicate black and white map is required), and all site maps shall indicate the North direction, be drawn to scale, and include a graphical representation of the scale used. The following shall be included, when applicable:

1. A detailed summary of site history and operations, including the type and length of time petroleum or specific petroleum products were stored/distributed;

2. A copy of the portion of the most recent USGS topographic map(s), including quadrangle name and scale with contour interval(s) labeled, that clearly identifies the site in relation to at least one mile radius of the surrounding area;

3. A vicinity map that shows pertinent features, such as local drainage features, land cover, property boundaries, supply wells and, particularly, any potential off-site sources of petroleum or petroleum products contamination (such as former or current gas stations), and non-petroleum product sources (such as former or current dry cleaners) if non-petroleum products' contaminants of concern were identified during the assessment. The FDEP facility identification numbers shall be provided if available. If the subject site meets the No Further Action criteria of subsection 62-770.680(1), F.A.C., a vicinity map is not required;

4. One or more scaled site maps that show all pertinent surface and subsurface features such as former and current tank farms, integral piping, dispensers, monitoring wells, buildings, land cover, streets, right-of-ways, locations and elevations (if significantly different) of property boundaries and surrounding properties, utilities, sewers, floor drains, and subsurface stormwater drainage structures present in the immediate vicinity of the contamination;

5. When available, a copy of the most recent and all previously failed tank and integral piping tightness tests performed on the storage tank system(s) known or suspected to be the source of the contamination and all available records on storage tank or integral piping repairs performed on such system(s);

6. Details of any preliminary assessment or interim source removal activities performed in relation to the petroleum or petroleum products contamination at the site, such as product recovery, groundwater recovery, and contaminated soil removal (summarized in graphical and tabular form);

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

paragraph 62-770.600(4)(k), F.A.C.;

8. Tables that list the top-of-casing elevations, screened intervals, depths to groundwater, water-level elevations obtained at least twice, at least one month apart, and the dates the data were obtained;

9. Scaled site maps that illustrate the water-level elevations calculated at each monitoring well, piezometer, and staff gauge where surface water is a concern, and depicting the estimated elevation contours and an 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. If the site is affected by seasonal groundwater variations, separate figures shall be submitted depicting the seasonal changes in the groundwater flow direction;

10. A table that summarizes the use and well construction details, if available, and locational information (i.e., the nearest street address, if available, or latitude and longitude coordinates, if the street address is not available), of all the water supply wells identified during the well survey performed pursuant to paragraph 62-770.600(3)(i), F.A.C.;

11. A map that is keyed to the table described in subparagraph 10., and shows the approximate location(s) of the water supply well(s) identified during the well survey performed pursuant to paragraph 62-770.600(3)(i), F.A.C., in relation to the subject site;

12. The results from slug tests on a minimum of three monitoring wells or from a pumping test, performed in each affected aquifer zone monitored to determine aquifer properties, and including a description of methods used, assumptions made, field data, and calculations, unless the site meets the No Further Action criteria of subsection 62-770.680(1), F.A.C.;

13. The result of a calculation of horizontal groundwater flow velocity (v) for the site, using the formula $v = KI/n$, where K is the average horizontal hydraulic conductivity, I is the average horizontal hydraulic gradient, and n is the estimated effective soil porosity, unless the site meets the No Further Action criteria of subsection 62-770.680(1), F.A.C.;

14. A description of any geophysical methods used for the project;

15. A description of the site-specific stratigraphy, based on the lithologic logs prepared during soil assessment and monitoring well installation and during drilling of standard penetration test borings (including composition, thickness, and continuity of various lithologic units);

16. At least one cross-section that illustrates the site-specific stratigraphy and approximate concentrations of applicable petroleum products' contaminants of concern;

17. Details of any other assessment methodology used at the site, including any field screening techniques and measures of biological activity (for example, dissolved oxygen or nutrient levels);

18. A table that summarizes the field soil screening results obtained at each sampling location and depth, and a listing of the date(s) the work was performed;

19. One or more scaled site maps that show all soil sampling locations for field screening or laboratory analyses, in relation to the former and current petroleum or petroleum products tank systems (tanks, integral piping, and dispensers) and any excavated areas, and that illustrate the horizontal and vertical extent of unsaturated zone soil contamination when soil contamination is detected;

20. Piezometer, monitoring well, and recovery well construction details and construction diagrams, including methods and materials, field sampling data sheets, lithologic logs, methods and volumes of groundwater removed during well development;

21. A table that is updated any time additional piezometers, monitoring wells, or recovery wells are installed and that summarizes the well construction details (including the top-of-casing elevation, total depth, screen length, and depth of the top of the screen below land surface) of all monitoring wells (including compliance wells), piezometers, and recovery wells;

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

23. An estimate of the total mass and mass distribution of petroleum or petroleum products in the subsurface as product entrapped above the water table, free product, and product entrapped below the water table, and a scaled site map that shows the estimated horizontal extent of free product;

24. All applicable information required by subsection 62-770.400(2), F.A.C.;

25. Separate tables by medium (soil, sediment, groundwater, and surface water) that list all contaminants detected, their corresponding CTLs and the basis or reason for any alternative CTLs, detection limits achieved for non-detected analytes, and analyses performed, and that summarize all available analytical results;

26. One or more scaled site maps that show any areas excavated and all groundwater and surface water sampling locations, and

that illustrate the degree and extent of groundwater and surface water contamination using sufficient isoconcentration lines to help identify source area(s) as well as the extent of the plume(s) (separate maps for Benzene, for Total Volatile Organic Aromatics, and for all other significant/widespread petroleum products' contaminants of concern); and

27. A description of the treatment or disposal methods of any investigation-derived waste generated during the assessment phase and any documentation that confirms the proper treatment or proper disposal of the waste, as applicable.

(b) Summarize conclusions regarding site assessment objectives outlined in subsection 62-770.600(3), F.A.C., and include one of the following:

1. A No Further Action Proposal without institutional controls or without institutional and engineering controls shall be included if the site meets the applicable No Further Action criteria of subsection 62-770.680(1), F.A.C., or a No Further Action Proposal with institutional controls or both institutional and engineering controls may be included if the site meets the applicable No Further Action criteria of subsection 62-770.680(2) or 62-770.680(3), F.A.C.;

2. A Natural Attenuation Monitoring Plan may be included if the site meets the Natural Attenuation Monitoring criteria of Rule 62-770.690, F.A.C.;

3. A Risk Assessment work plan or a recommendation to prepare a Risk Assessment shall be included if the responsible party chooses to justify alternative CTLs using risk assessment studies demonstrating that human health, public safety, and the environment are protected to at least the same degree provided by the CTLs referenced in this chapter. The work plan shall include documentation adequate to support the request to do one or more of the task elements of subsection 62-770.650(1), F.A.C., and shall specify the parameters or exposure assumptions that will be used to develop the alternative CTLs pursuant to Rule 62-770.650, F.A.C.; or

4. A recommendation to prepare a Remedial Action Plan pursuant to Rule 62-770.700, F.A.C., shall be included unless a recommendation pursuant to subparagraph 62-770.600(8)(b)1., 62-770.600(8)(b)2., or 62-770.600(8)(b)3., F.A.C., is included.

(9) Within 60 days of receipt of a Site Assessment Report or of additional information pursuant to subsection 62-770.800(3), F.A.C., the Department or the FDEP local program shall:

(a) Provide the responsible party with written approval of the Site Assessment Report and:

1. If the No Further Action Proposal is approved, with a Site Rehabilitation Completion Order as referenced in subsection 62-770.680(7), F.A.C.;

2. If the Natural Attenuation Monitoring Plan is approved, with a Natural Attenuation Monitoring Plan Approval as referenced in paragraph 62-770.690(5)(a), F.A.C.;

3. If the Risk Assessment work plan or the recommendation to prepare a Risk Assessment is approved, with a written notification that the Risk Assessment shall be prepared pursuant to Rule 62-770.650, F.A.C.; or

4. If the recommendation to prepare a Remedial Action Plan is approved, with a written notification that the Remedial Action Plan shall be prepared pursuant to Rule 62-770.700, F.A.C.; or

(b) Notify the responsible party in writing, stating:

1. The reason(s) why the Site Assessment Report does not contain information adequate to support the conclusions regarding the applicable site assessment objectives outlined in subsection 62-770.600(3), F.A.C.; or

2. The reason(s) why the proposal, plan, or recommendation submitted pursuant to paragraph 62-770.600(8)(b), F.A.C., is not supported by the applicable criteria.

(10) Site assessment activities shall not be deemed complete until such time as a Site Assessment Report is approved.

(11) If the Site Assessment Report is incomplete in any respect, or is insufficient to satisfy the objectives of subsection 62-770.600(3), F.A.C., the Department or the FDEP local program shall inform the responsible party pursuant to paragraph 62-770.600(9)(b), F.A.C., and the responsible party shall submit to the Department or to the FDEP local program for review two copies of a Site Assessment Report Addendum that addresses the deficiencies within 60 days after receipt of the notice.

Specific Authority 376.303, 376.3071, 403.0877 FS. Law Implemented 376.3071, 403.0877 FS. History--New 11-1-87, Amended 2-4-88, Formerly 17-70.008, Amended 2-21-90, Formerly 17-770.600, Amended 9-3-96, 9-23-97, 8-5-99, 4-17-05.

62-770.610 Fate and Transport Model and Statistical Method Requirements.

(1) Fate and Transport Models.

(a) Any fate and transport model used to support an evaluation pursuant to the provisions of Rules 62-770.650, 62-770.680, and

62-770.690, F.A.C., shall be a fate and transport model with the ability to adequately simulate movement and degradation of petroleum products' contaminants of concern in the aquifer over time and distance, taking into account attenuation mechanisms including biological, physical, and chemical processes. The fate and transport model shall be appropriate for the site conditions and shall be selected from the ASTM document referenced in subsection 62-770.140(3), F.A.C., or from the list of approved fate and transport models maintained by the Department, a copy of which is available upon request.

(b) Fate and transport models not listed in the ASTM document referenced in subsection 62-770.140(3), F.A.C., or on the list of approved fate and transport models maintained by the Department, may be submitted to the Department for approval and for inclusion on the list of approved fate and transport models maintained by the Department. To be considered for approval by the Department, documentation that adequately demonstrates that the above criteria have been met shall be submitted to the Bureau of Petroleum Storage Systems, 2600 Blair Stone Road, MS 4575, Tallahassee, Florida 32399-2400. Any such request for Department approval shall set forth at a minimum the following information:

1. The fate and transport model type;
2. The name and address of the developer;
3. The fate and transport model description;
4. A list of input parameters;
5. The applicable boundary conditions and limitations on the appropriate use of the fate and transport model;
6. A description of the methods available for fate and transport model calibration and examples of calibration of the model with measured site data;
7. Documentation of code testing that has been done (for example, hand calculations to demonstrate that the model formulas were programmed correctly);
8. At least one independent reference knowledgeable of the theory, or experienced in the use, of fate and transport models, who must be a Professional Engineer registered pursuant to Chapter 471, F.S., or a Professional Geologist registered pursuant to Chapter 492, F.S.; and
9. Any approvals or denials of the fate and transport model received from other states or from a federal agency.

(2) Statistical Methods.

(a) Any statistical method used to support an evaluation pursuant to the provisions of subparagraph 62-770.680(1)(c)1., 62-770.680(2)(c)1., or 62-770.680(3)(c)1., F.A.C., shall be a statistical method appropriately based on statistical properties of the site-specific data set such as the number of samples, distribution of the data set, and the percent of non-detect sample results. The statistical method shall be appropriate for the site conditions and shall be selected from the list of approved statistical methods maintained by the Department, a copy of which is available upon request.

(b) Statistical methods not on the list of approved statistical methods maintained by the Department may be submitted to the Department for approval and for inclusion on the list of approved statistical methods maintained by the Department. To be considered for approval by the Department, documentation that adequately demonstrates that the above criteria have been met shall be submitted to the Bureau of Petroleum Storage Systems, 2600 Blair Stone Road, MS 4575, Tallahassee, Florida 32399-2400. Any such request for Department approval shall set forth at a minimum the following information:

1. The statistical method type;
2. The name and address of the developer;
3. The statistical method description;
4. A list of input parameters;
5. The limitations on the appropriate use of the statistical method;
6. A list of assumptions underlying the construction of the statistical method and the methodology used to validate the assumptions;
7. Documentation of code testing that has been done (for example, hand calculations to demonstrate that the statistical method formulas were programmed correctly);
8. At least one independent reference knowledgeable of the theory of the proposed statistical method, and trained in the theory, or experienced in the use, of statistical methods, who must have an advanced degree in statistics or mathematics; or documentation that the proposed statistical methods are readily available, in wide use, and have been published in professional journals or reviewed in a statistical textbook; and
9. Any approvals or denials of the statistical method received from other states or from a federal agency.

(3) Within 60 days of receipt of a request for approval of a fate and transport model, or within 180 days of a request for approval of a new statistical method, the Department shall issue an Order:

(a) Providing the requester with approval of the fate and transport model or statistical method; or

(b) Notifying the requester of the reason(s) why the request does not adequately demonstrate that the requirements of subsection 62-770.610(1) or 62-770.610(2), F.A.C., as applicable, have been met.

(4) If the Fate and Transport Model or Statistical Method submittal is incomplete in any respect, or is insufficient to satisfy the objectives of subsection 62-770.610(1) or 62-770.610(2), F.A.C., as applicable, the Department shall inform the requester pursuant to paragraph 62-770.610(3)(b), F.A.C., and the requester shall submit to the Department a revised request that addresses the deficiencies within 60 days after receipt of the notice. If the deficiencies are not timely corrected, or cannot be corrected, the fate and transport model or statistical method submitted for approval by the Department shall not be used.

(5) The Department's Order shall be agency action, reviewable pursuant to Sections 120.569 and 120.57, F.S.

Specific Authority 376.303, 376.3071 FS. Law Implemented 376.3071 FS. History--New 8-5-99, Amended 4-17-05.

62-770.650 Risk Assessment.

(1) During the risk assessment process, the responsible party is encouraged to have discussions with the Department at various decision points to establish applicable exposure factors, relevant receptors, and risk management options based on the current and projected land use(s) at the site. If a risk assessment is performed, the following risk assessment task elements shall be performed, as appropriate:

(a) An exposure assessment that identifies pathways and routes by which human and environmental receptors may be exposed to petroleum products' contaminants of concern and determines levels of these contaminants to which human and environmental receptors may be exposed. The exposure assessment shall:

1. Identify actual and potential exposure pathways and routes;

2. Identify actual and potential human and environmental receptors for each exposure pathway, and sensitive sub-populations;

3. Determine expected concentrations of petroleum products' contaminants of concern to which actual and potential human and environmental receptors may be exposed, with the most recent sampling of representative monitoring wells having occurred no more than 270 days prior to Risk Assessment Report submittal;

4. Determine exposure factors (exposure duration and frequency) based on site-specific characteristics, including consideration of current and plausible projected land uses. Institutional and engineering controls may be proposed in order to ensure that exposure factors do not change; and

5. Estimate the doses of petroleum products' contaminants of concern received by relevant receptors.

(b) A toxicity assessment that determines human health and environmental criteria for petroleum products' contaminants of concern found at the site. The criteria, taking into consideration acute and chronic health effects associated with short-term and long-term exposure, shall be applicable to exposure pathways and routes identified in the exposure assessment, including, as appropriate:

1. Potable water exposure from ingestion, dermal contact, and inhalation of vapors and mists;

2. Non-potable water exposure from dermal contact, inhalation of vapors and mists, ingestion of food crops irrigated with such water, lawn watering, and other related exposures, and exposures to pets and livestock from ingestion;

3. Soil exposure from ingestion, dermal contact, inhalation, and ingestion by humans or animals of food crops grown in contaminated soil; and

4. Non-potable surface water exposure from ingestion, dermal contact, and inhalation of vapors and mists. Adverse effects on freshwater or marine biota (including any bio-accumulative effects in the food chain) and on humans (for example, through incidental ingestion and dermal contact while using the resource for recreational purposes or fish consumption) shall be considered.

(c) A risk characterization that utilizes the results of the exposure assessment and the toxicity assessment to characterize cumulative risks to the affected population(s) and the environment from petroleum products' contaminants of concern found at the site. Based on the concentrations of petroleum products' contaminants of concern found at the site, the characterization shall include:

1. Risks to human health and safety from exposure to the contamination;

2. Risks from the contamination to non-human species and ecosystems; and

3. Derivation of apportioned alternative CTLs, as applicable [refer to Appendix C of the technical report referenced in subsection 62-770.140(1), F.A.C., for guidance on the derivation of alternative CTLs for TRPHs based on a sub-classification

methodology; and to Chapter 62-777, F.A.C., Table III for methods to be used in determining soil properties for the derivation of alternative CTLs based on site-specific soil characteristics]. In developing alternative CTLs, when scientific data are available the potential for additive, synergistic, or antagonistic interactions among petroleum products' contaminants of concern and the potential for exposure to petroleum products' contaminants of concern via multiple pathways shall be considered based on target organ(s) affected, mechanism(s) of toxicity, and empirical observations from clinical and laboratory studies. The default assumptions shall be that non-carcinogenic chemicals affecting the same target organ(s)/system(s) have additive effects and that carcinogenic risk, regardless of target organ, is additive. However, non-default target organ(s)/system(s) or effects may be justified through a detailed toxicological analysis of the contaminants present at a specific site.

(d) A justification for alternative CTLs (apportioned if applicable) for groundwater or soil. The justification for the alternative CTLs shall be based upon the site-specific characteristics affecting the site. In establishing the alternative CTLs for groundwater or soil, the following factors shall be used, as applicable: calculations using a lifetime excess cancer risk level of 1.0E-6 and a hazard index of 1 or less, and (for groundwater only) nuisance, organoleptic, and aesthetic considerations. However, the Department shall not require site rehabilitation to achieve a CTL for an individual contaminant that is more stringent than the site-specific background concentration for that contaminant or the best achievable detection limit for that contaminant. The justification shall be based on:

1. The site-specific characteristics that affect the site, including:
 - a. The present and projected uses of the affected aquifer(s) and adjacent surface water, with particular consideration of the probability that the contamination is substantially affecting, or will migrate to and substantially affect, a known public or private source of potable water;
 - b. The technical feasibility of achieving the soil or water quality criteria based on a review of reasonably available technology and costs; and
 - c. Site soil characteristics; and
2. The results of the exposure assessment, toxicity assessment, and risk characterization pursuant to paragraphs 62-770.650(1)(a)-(c), F.A.C.

(2) Fate and transport models for petroleum products' contaminants of concern may be employed, pursuant to Rule 62-770.610, F.A.C., to document that human health and environmental risks from the establishment of alternative CTLs are acceptable. If a fate and transport model for petroleum products' contaminants of concern is utilized, the model shall be validated during subsequent monitoring to justify a No Further Action Proposal, or during natural attenuation monitoring or active remediation monitoring, and adjusted as appropriate using empirical data as the data are obtained.

(3) Within 90 days after written Departmental approval of the recommendation to prepare a risk assessment, the responsible party shall submit to the Department for review three copies of the Risk Assessment Report.

(4) The Risk Assessment Report shall contain a description of the task elements undertaken, summarize the conclusions obtained, include the tables required pursuant to subparagraph 62-770.600(8)(a)25., F.A.C., updated as applicable, include a scaled site map for each contaminated medium, that illustrates the degree and extent of contamination (and, for groundwater, the flow direction), and include one of the following:

(a) A No Further Action Proposal without institutional controls or without institutional and engineering controls shall be included if the site meets the applicable No Further Action criteria of subsection 62-770.680(1), F.A.C., or a No Further Action Proposal with institutional controls or both institutional and engineering controls may be included if the site meets the applicable No Further Action criteria of subsection 62-770.680(2) or 62-770.680(3), F.A.C.;

(b) A Natural Attenuation Monitoring Plan may be included if the site meets the Natural Attenuation Monitoring criteria of Rule 62-770.690, F.A.C.; or

(c) A recommendation to prepare a Remedial Action Plan pursuant to Rule 62-770.700, F.A.C., shall be included unless a recommendation pursuant to paragraph 62-770.650(4)(a) or 62-770.650(4)(b), F.A.C., is included.

(5) Within 60 days of receipt of a Risk Assessment Report or of additional information pursuant to subsection 62-770.800(3), F.A.C., the Department shall:

- (a) Provide the responsible party with written approval of the Risk Assessment Report and:
 1. If the No Further Action Proposal is approved, with a Site Rehabilitation Completion Order as referenced in subsection 62-770.680(7), F.A.C.;
 2. If the Natural Attenuation Monitoring Plan is approved, with a Natural Attenuation Monitoring Plan Approval as referenced in paragraph 62-770.690(5)(a), F.A.C.; or

3. If the recommendation to prepare a Remedial Action Plan is approved, with a written notification that the Remedial Action Plan shall be prepared pursuant to Rule 62-770.700, F.A.C.; or

(b) Notify the responsible party in writing, stating:

1. The reason(s) why the Risk Assessment Report does not contain information adequate to support the proposed alternative CTLs; or

2. The reason(s) why the proposal, plan, or recommendation submitted pursuant to subsection 62-770.650(4), F.A.C., is not supported by the applicable criteria.

(6) If the Risk Assessment Report is incomplete in any respect, or is insufficient to satisfy the objectives of subsection 62-770.650(4), F.A.C., the Department shall inform the responsible party pursuant to paragraph 62-770.650(5)(b), F.A.C., and the responsible party shall submit to the Department for review three copies of a Risk Assessment Report Addendum that addresses the deficiencies within 60 days after receipt of the notice.

Specific Authority 376.303, 376.3071, 403.061 FS. Law Implemented 376.3071, 403.021, 403.061, 403.062 FS. History—New 9-23-97, Amended 8-5-99, 4-17-05.

62-770.680 No Further Action.

(1) Risk Management Options Level I – A No Further Action without institutional controls or without institutional and engineering controls shall apply if the following conditions are met:

(a) Free product is not present and no fire or explosive hazard exists as a result of a release of petroleum or petroleum products;

(b) For the purposes of Section 376.3071(11)(b)2., F.S., that only applies to sites scored 10 or less, excessively contaminated soil does not exist;

(c) Contaminated soil is not present in the unsaturated zone, as demonstrated by the analyses of soil samples collected from representative sampling locations (unless the Department or the FDEP local program has concurred that soil sampling is unnecessary based on the site-specific conditions), that show that one or more of the criteria for direct exposure and one or more of the criteria for leachability are met, as applicable:

1. Criteria for direct exposure are as follows:

a. Soil concentrations of petroleum products' contaminants of concern, or average soil concentrations of petroleum products' contaminants of concern calculated based on the 95% UCL approach pursuant to sub-subparagraph 62-770.680(1)(c)1.d., F.A.C., do not exceed the less stringent of:

(I) The residential soil CTLs specified in Chapter 62-777, F.A.C., Table II, except that if the 95% UCL approach is utilized for any petroleum products' contaminant of concern, then the soil concentrations of petroleum products' contaminants of concern shall not exceed the apportioned soil CTLs calculated pursuant to sub-sub-subparagraph 62-770.680(1)(c)1.d.(V), F.A.C.;

(II) The background concentrations; or

(III) The best achievable detection limits;

b. Soil concentrations of petroleum products' contaminants of concern, or average soil concentrations of petroleum products' contaminants of concern calculated based on the 95% UCL approach pursuant to sub-subparagraph 62-770.680(1)(c)1.d., F.A.C., do not exceed the alternative residential soil CTLs established using site-specific soil properties pursuant to subparagraph 62-770.600(4)(f)2., F.A.C., and the equations and default residential exposure assumptions specified in Chapter 62-777, F.A.C., Figures 4, 5, 6, and 7 and Table VI, except that if the 95% UCL approach is utilized for any petroleum products' contaminant of concern, then the soil concentrations of petroleum products' contaminants of concern shall not exceed the apportioned soil CTLs calculated pursuant to sub-sub-subparagraph 62-770.680(1)(c)1.d.(V), F.A.C.;

c. Soil concentrations of the site-specific fractions of TRPHs established pursuant to subparagraph 62-770.600(4)(f)3., F.A.C., or average soil concentrations of the site-specific fractions of TRPHs calculated based on the 95% UCL approach pursuant to sub-subparagraph 62-770.680(1)(c)1.d., F.A.C., utilizing the soil concentrations of the site-specific fractions of TRPHs established pursuant to subparagraph 62-770.600(4)(f)3., F.A.C., do not exceed the residential soil CTLs for the TRPH fractions provided in Appendix C of the technical report referenced in subsection 62-770.140(1), F.A.C., except that if the 95% UCL approach is utilized for any petroleum products' contaminant of concern, then the soil concentrations of petroleum products' contaminants of concern shall not exceed the apportioned soil CTLs calculated pursuant to sub-sub-subparagraph 62-770.680(1)(c)1.d.(V), F.A.C.; and

d. If the 95% UCL approach is utilized to calculate average soil concentrations of petroleum products' contaminants of concern

pursuant to sub-subparagraph 62-770.680(1)(c)1.a., 62-770.680(1)(c)1.b., or 62-770.680(1)(c)1.c., F.A.C. [refer to the technical report referenced in subsection 62-770.140(1), F.A.C., for guidance], the following criteria shall be met:

(I) The Florida-UCL tool or other approved statistical method pursuant to subsection 62-770.610(2), F.A.C., shall be used to perform the 95% UCL calculations;

(II) The maximum soil concentrations of petroleum products' contaminants of concern shall not exceed any CTL based on acute toxicity, and shall not exceed three times the applicable direct exposure soil CTLs based on chronic toxicity pursuant to sub-subparagraphs 62-770.680(1)(c)1.a., 62-770.680(1)(c)1.b., and 62-770.680(1)(c)1.c., F.A.C.;

(III) The exposure unit shall be located within the source property boundaries and shall not exceed 1/4 acre;

(IV) A minimum of 10 representative soil samples is required when the Florida-UCL tool is utilized; and

(V) If more than one petroleum products' contaminant of concern is present in the soil in the unsaturated zone at the site, the soil CTLs for all petroleum products' contaminants of concern detected in soil samples at the site shall be apportioned, as applicable [refer to Appendix D of the technical report referenced in subsection 62-770.140(1), F.A.C., for guidance on apportioning soil CTLs]; and

2. Criteria for leachability are as follows:

a. Soil concentrations of petroleum products' contaminants of concern do not exceed the less stringent of:

(I) The groundwater and, if applicable, surface water leachability-based soil CTLs specified in Chapter 62-777, F.A.C., Table II;

(II) The background concentrations; or

(III) The best achievable detection limits;

b. Soil concentrations of petroleum products' contaminants of concern do not exceed the alternative leachability-based soil CTLs established using the equation and default assumptions specified in Chapter 62-777, F.A.C., Figure 8, the alternative groundwater CTLs based on site-specific background concentrations [reference sub-subparagraph 62-770.680(1)(d)1.b., F.A.C.], and, if applicable, the alternative surface water CTLs based on site-specific background concentrations [reference subparagraph 62-770.680(1)(e)2., F.A.C.];

c. Direct leachability testing results pursuant to subparagraph 62-770.600(4)(f)4., F.A.C., demonstrate that leachate concentrations do not exceed the appropriate groundwater CTLs pursuant to paragraph 62-770.680(1)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C.;

d. Soil concentrations of petroleum products' contaminants of concern do not exceed the alternative leachability-based soil CTLs established using site-specific soil properties pursuant to subparagraph 62-770.600(4)(f)2., F.A.C., the equation and appropriate default assumptions specified in Chapter 62-777, F.A.C., Figure 8, the appropriate groundwater CTLs pursuant to paragraph 62-770.680(1)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C.;

e. Soil concentrations of the site-specific fractions of TRPHs established pursuant to subparagraph 62-770.600(4)(f)3., F.A.C., do not exceed the leachability-based soil CTLs for the TRPH fractions provided in Appendix C of the technical report referenced in subsection 62-770.140(1), F.A.C.; and

f. For soil that is and has been exposed to the elements (i.e., open ground, not covered by impermeable or semi-permeable cover) and subject to infiltration throughout the entire unsaturated zone for a minimum of two years, it has been subsequently demonstrated to the Department by a minimum of one year of groundwater monitoring data that petroleum products' contaminants of concern will not leach into the groundwater at concentrations that exceed the appropriate groundwater CTLs pursuant to paragraph 62-770.680(1)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C. This demonstration shall consider site-specific characteristics such as the thickness of the unsaturated zone, depth and mass of soil contaminants, soil lithology, actual precipitation, concentration gradients, and the chemical and physical characteristics of the petroleum products' contaminants of concern.

(d) Contaminated groundwater is not present, as demonstrated by the analyses of groundwater samples collected from representative sampling locations (unless the Department or the FDEP local program has concurred that groundwater sampling is unnecessary based on the site-specific conditions), that show that criteria 1. and 2. are met:

1. Groundwater concentrations of petroleum products' contaminants of concern do not exceed the less stringent of:

a. The groundwater CTLs specified in Chapter 62-777, F.A.C., Table I groundwater criteria column;

b. The background concentrations; or

c. The best achievable detection limits; and

2. Groundwater concentrations of petroleum products' contaminants of concern do not exceed the surface water CTLs specified in Chapter 62-777, F.A.C., Table I freshwater surface water criteria column or marine surface water criteria column, as applicable, if the site's groundwater contamination is affecting or may potentially affect a surface water body based on monitoring well data, groundwater flow rate and direction, or fate and transport modeling;

(e) Contaminated surface water is not present, as demonstrated by the analyses of surface water samples collected from representative sampling locations (unless the Department or the FDEP local program has concurred that surface water sampling is unnecessary based on the site-specific conditions), that show that concentrations of petroleum products' contaminants of concern do not exceed the less stringent of:

1. The applicable surface water CTLs specified in Chapter 62-777, F.A.C., Table I freshwater surface water criteria column or marine surface water criteria column;

2. The background concentrations; or

3. The best achievable detection limits; and

(f) Contaminated sediment is not present, as demonstrated by the analyses of sediment samples collected from representative sampling locations (unless the Department or the FDEP local program has concurred that sediment sampling is unnecessary based on the site-specific conditions), or the concentrations of petroleum products' contaminants of concern in sediment do not exceed the background concentrations.

(2) Risk Management Options Level II – A No Further Action with institutional controls and, if appropriate, engineering controls shall apply if the controls are protective of human health, public safety, and the environment and are agreed to by the current real property owner(s) of the source property subject to the institutional or engineering controls. Fate and transport models, as defined in Rule 62-770.610, F.A.C., supported by a minimum of one year of monitoring data, may be utilized to justify the No Further Action Proposal. It shall be demonstrated to the Department or to the FDEP local program that the following conditions are met for those petroleum products' contaminants of concern that do not meet Risk Management Options Level I criteria of subsection 62-770.680(1), F.A.C.:

(a) Free product is not present and no fire or explosive hazard exists as a result of a release of petroleum or petroleum products, or free product removal is not technologically feasible;

(b) For the purposes of Section 376.3071(11)(b)2., F.S., that only applies to sites scored 10 or less, excessively contaminated soil does not exist;

(c) Alternative soil CTLs have been established by the real property owner(s) and one or more of the criteria for direct exposure and one or more of the criteria for leachability are met for soil in the unsaturated zone, as applicable:

1. Criteria for direct exposure are as follows:

a. Soil concentrations of petroleum products' contaminants of concern, or average soil concentrations of petroleum products' contaminants of concern calculated based on the 95% UCL approach pursuant to sub-subparagraph 62-770.680(2)(c)1.e., F.A.C., do not exceed the commercial/industrial soil CTLs specified in Chapter 62-777, F.A.C., Table II, except that if the 95% UCL approach is utilized for any petroleum products' contaminant of concern, then the soil concentrations of petroleum products' contaminants of concern shall not exceed the apportioned soil CTLs calculated pursuant to sub-sub-subparagraph 62-770.680(2)(c)1.e.(V), F.A.C.;

b. An engineering control that prevents human exposure (for example, permanent cover material or a minimum of two feet of soil) is implemented, in which case the concentrations of petroleum products' contaminants of concern in the soil below the permanent cover or two or more feet below land surface may exceed the direct exposure soil CTLs. Prior to Department or FDEP local program approval of a No Further Action with engineering controls, the responsible party shall provide certification by a registered Professional Engineer that to the best of his or her knowledge the engineering control is consistent with commonly accepted engineering practices, is appropriately designed and constructed for its intended purpose, and has been implemented;

c. Soil concentrations of petroleum products' contaminants of concern, or average soil concentrations of petroleum products' contaminants of concern calculated based on the 95% UCL approach pursuant to sub-subparagraph 62-770.680(2)(c)1.e., F.A.C., do not exceed the alternative commercial/industrial soil CTLs established using site-specific soil properties pursuant to subparagraph 62-770.600(4)(f)2., F.A.C., and the equations and default commercial/industrial exposure assumptions specified in Chapter 62-777, F.A.C., Figures 4, 5, 6, and 7 and Table VI, except that if the 95% UCL approach is utilized for any petroleum products' contaminant of concern, then the soil concentrations of petroleum products' contaminants of concern shall not exceed the apportioned soil CTLs calculated pursuant to sub-sub-subparagraph 62-770.680(2)(c)1.e.(V), F.A.C.;

d. Soil concentrations of the site-specific fractions of TRPHs established pursuant to subparagraph 62-770.600(4)(f)3., F.A.C.,

or average soil concentrations of the site-specific fractions of TRPHs calculated based on the 95% UCL approach pursuant to sub-subparagraph 62-770.680(2)(c)1.e., F.A.C., utilizing the soil concentrations of the site-specific fractions of TRPHs established pursuant to subparagraph 62-770.600(4)(f)3., F.A.C., do not exceed the commercial/industrial soil CTLs for the TRPH fractions provided in Appendix C of the technical report referenced in subsection 62-770.140(1), F.A.C., except that if the 95% UCL approach is utilized for any petroleum products' contaminant of concern, then the soil concentrations of petroleum products' contaminants of concern shall not exceed the apportioned soil CTLs calculated pursuant to sub-sub-subparagraph 62-770.680(2)(c)1.e.(V), F.A.C.; and

e. If the 95% UCL approach is utilized to calculate average soil concentrations of petroleum products' contaminants of concern pursuant to sub-subparagraph 62-770.680(2)(c)1.a., 62-770.680(2)(c)1.c., or 62-770.680(2)(c)1.d., F.A.C., [refer to the technical report referenced in subsection 62-770.140(1), F.A.C., for guidance], the following criteria shall be met:

(I) The Florida-UCL tool or other approved statistical method pursuant to subsection 62-770.610(2), F.A.C., shall be used to perform the 95% UCL calculations;

(II) The maximum soil concentrations of petroleum products' contaminants of concern shall not exceed three times the applicable soil CTLs pursuant to sub-subparagraphs 62-770.680(2)(c)1.a., 62-770.680(2)(c)1.c., and 62-770.680(2)(c)1.d., F.A.C.;

(III) The exposure unit shall be located within the source property boundaries and shall reflect normal activity patterns for the existing commercial/industrial land use with supporting institutional controls. The institutional controls shall require recalculation of the 95% UCL if the property is subdivided or land use changes such that the exposure unit utilized in the original calculation is no longer appropriate;

(IV) A minimum of 10 representative soil samples is required when the Florida-UCL tool is utilized; and

(V) If more than one petroleum products' contaminant of concern is present in the soil in the unsaturated zone at the site, the soil CTLs for all petroleum products' contaminants of concern detected in soil samples at the site shall be apportioned, as applicable [refer to Appendix D of the technical report referenced in subsection 62-770.140(1), F.A.C., for guidance on apportioning soil CTLs]; and

2. Criteria for leachability are as follows:

a. Soil concentrations of petroleum products' contaminants of concern do not exceed the alternative leachability-based soil CTLs established using the equation and default assumptions specified in Chapter 62-777, F.A.C., Figure 8, the alternative groundwater CTLs derived pursuant to paragraph 62-770.680(2)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C.;

b. Direct leachability testing results pursuant to subparagraph 62-770.600(4)(f)4., F.A.C., demonstrate that leachate concentrations do not exceed the alternative groundwater CTLs established pursuant to paragraph 62-770.680(2)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C.;

c. An engineering control that prevents infiltration (for example, permanent impermeable cover material) is implemented, in which case the concentrations of petroleum products' contaminants of concern in the soil below the impermeable cover may exceed the leachability-based soil CTLs. Prior to Department or FDEP local program approval of a No Further Action with engineering controls, the responsible party shall provide certification by a registered Professional Engineer that to the best of his or her knowledge the engineering control is consistent with commonly accepted engineering practices, is appropriately designed and constructed for its intended purpose, and has been implemented. It shall be demonstrated to the Department or to the FDEP local program by a minimum of one year of groundwater monitoring data that petroleum products' contaminants of concern will not leach into the groundwater at concentrations that exceed the appropriate groundwater CTLs pursuant to paragraph 62-770.680(1)(d), F.A.C., or, if the groundwater is already contaminated, at concentrations that exceed the alternative groundwater CTLs established pursuant to paragraph 62-770.680(2)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C.;

d. Soil concentrations of petroleum products' contaminants of concern do not exceed the alternative leachability-based soil CTLs established using site-specific soil properties pursuant to subparagraph 62-770.600(4)(f)2., F.A.C., the equation and appropriate default assumptions specified in Chapter 62-777, F.A.C., Figure 8, the alternative groundwater CTLs established pursuant to paragraph 62-770.680(2)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C.;

e. Soil concentrations of the site-specific fractions of TRPHs established pursuant to subparagraph 62-770.600(4)(f)3., F.A.C., do not exceed the alternative leachability-based soil CTLs for the TRPH fractions established using the equation and assumptions

specified in Chapter 62-777, F.A.C., Figure 8, the chemical/physical parameters provided in Appendix C of the technical report referenced in subsection 62-770.140(1), F.A.C., the alternative groundwater CTL for TRPHs established pursuant to paragraph 62-770.680(2)(d), F.A.C., and, if applicable, the appropriate surface water CTL for TRPHs pursuant to paragraph 62-770.680(1)(e), F.A.C.; and

f. It has been demonstrated to the Department or to the FDEP local program by a minimum of one year of groundwater monitoring data and, if applicable, fate and transport modeling results that, based upon the site-specific conditions, petroleum products' contaminants of concern will not leach into the groundwater at concentrations that exceed the appropriate groundwater CTLs pursuant to paragraph 62-770.680(1)(d), F.A.C., or, if the groundwater is already contaminated, at concentrations that exceed the alternative groundwater CTLs established pursuant to paragraph 62-770.680(2)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C.; and

(d) Alternative groundwater CTLs have been established by the real property owner(s) depending on the current and projected use of groundwater in the vicinity of the site and one or more of the following criteria are met, as applicable:

1. For contamination of groundwater of low yield or poor quality, the CTLs specified in Chapter 62-777, F.A.C., Table I groundwater of low yield/poor quality criteria column shall apply to groundwater within the property boundaries, provided that it has been demonstrated to the Department or to the FDEP local program by a minimum of one year of groundwater monitoring data that groundwater concentrations of petroleum products' contaminants of concern at the property boundaries do not, and will not, exceed the appropriate groundwater CTLs pursuant to subparagraph 62-770.680(1)(d)1., F.A.C., and that the plume has not affected, and will not affect, a freshwater or marine surface water body pursuant to subparagraph 62-770.680(1)(d)2., F.A.C.;

2. An engineering control that prevents migration of the plume (for example, a permanent containment such as a barrier wall) is implemented, and it has been demonstrated to the Department or to the FDEP local program by a minimum of one year of groundwater monitoring data that groundwater concentrations of petroleum products' contaminants of concern at the property boundaries do not, and will not, exceed the appropriate groundwater CTLs pursuant to subparagraph 62-770.680(1)(d)1., F.A.C., and that the plume has not affected, and will not affect, a freshwater or marine surface water body pursuant to subparagraph 62-770.680(1)(d)2., F.A.C. Periodic monitoring of the engineering control by the responsible party shall be required to verify the effectiveness of the engineering control in preventing migration of the plume. The responsible party shall report to the Department any failures of the engineering control to prevent migration of the plume within 30 days of discovery of a failure. Prior to Department or FDEP local program approval of a No Further Action with engineering controls, the responsible party shall provide certification by a registered Professional Engineer that to the best of his or her knowledge the engineering control is consistent with commonly accepted engineering practices, is appropriately designed and constructed for its intended purpose, and has been implemented;

3. For groundwater contamination that is affecting or may potentially affect only a marine surface water body with no other properties or freshwater surface water bodies located between the source property boundary and the marine surface water body, the CTLs specified in Chapter 62-777, F.A.C., Table I marine surface water criteria column shall apply to groundwater; and

4. For groundwater contamination that is contained within the property boundaries and limited to the immediate vicinity of the source area, and the area of groundwater contamination is less than 1/4 acre, where it has been demonstrated to the Department or to the FDEP local program by a minimum of one year of groundwater monitoring data and, if applicable, fate and transport modeling results, that the groundwater contamination is not migrating away from such localized source area (the plume is stable or shrinking) and has not affected, and will not affect, a freshwater or marine surface water body pursuant to subparagraph 62-770.680(1)(d)2., F.A.C., alternative groundwater CTLs shall be established using the monitoring data and, if applicable, modeling results.

(3) Risk Management Options Level III – A No Further Action with institutional controls and, if appropriate, engineering controls shall apply if the controls are protective of human health, public safety, and the environment and are agreed to by the current real property owner(s) of all properties subject to the institutional or engineering controls. Fate and transport models, as defined in Rule 62-770.610, F.A.C., supported by a minimum of one year of monitoring data, may be utilized to justify the No Further Action Proposal. It shall be demonstrated to the Department or to the FDEP local program that the following conditions are met for those petroleum products' contaminants of concern that do not meet Risk Management Options Level I or Level II criteria of subsection 62-770.680(1) or 62-770.680(2), F.A.C.:

(a) Free product is not present and no fire or explosive hazard exists as a result of a release of petroleum or petroleum products, or free product removal is not technologically feasible;

(b) For the purposes of Section 376.3071(11)(b)2., F.S., that only applies to sites scored 10 or less, excessively contaminated

soil does not exist;

(c) Alternative soil CTLs have been established by the real property owner(s) and the following criteria are met for soil in the unsaturated zone:

1. Soil concentrations of petroleum products' contaminants of concern, or average soil concentrations of petroleum products' contaminants of concern calculated based on the 95% UCL approach pursuant to this subparagraph, do not exceed the alternative direct exposure soil CTLs established pursuant to paragraph 62-770.650(1)(d), F.A.C. If more than one petroleum products' contaminant of concern is present in the soil in the unsaturated zone at the site, the soil CTLs for all petroleum products' contaminants of concern detected in soil samples at the site shall be apportioned, as applicable [refer to Appendix D of the technical report referenced in subsection 62-770.140(1), F.A.C., for guidance on apportioning soil CTLs]. If the 95% UCL approach is utilized to calculate average soil concentrations of petroleum products' contaminants of concern pursuant to this subparagraph [refer to the technical report referenced in subsection 62-770.140(1), F.A.C., for guidance], the following criteria shall be met:

a. The Florida-UCL tool or other approved statistical method pursuant to subsection 62-770.610(2), F.A.C., shall be used to perform the 95% UCL calculations;

b. The maximum soil concentrations of petroleum products' contaminants of concern shall not exceed three times the applicable soil CTLs [apportioned pursuant to subparagraph 62-770.680(3)(c)1., F.A.C., if applicable]; higher maximum soil concentrations of petroleum products' contaminants of concern may be utilized provided the maximum concentrations address the potential risk based on exposure to petroleum products' contaminants of concern which may cause acute toxicity, and the potential for direct contact within the exposure unit that is not equal and random; and

c. The exposure unit shall reflect normal activity patterns for the existing land use, with supporting institutional controls if the exposure unit exceeds 1/4 acre. The institutional controls shall require recalculation of the 95% UCL if the property is subdivided or land use changes such that the exposure unit utilized in the original calculation is no longer appropriate; and

2. One or more of the following criteria for leachability are met, as applicable:

a. Soil concentrations of petroleum products' contaminants of concern do not exceed the alternative leachability-based soil CTLs established using the alternative groundwater CTLs derived pursuant to paragraph 62-770.680(3)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C.;

b. Direct leachability testing results pursuant to subparagraph 62-770.600(4)(f)4., F.A.C., demonstrate that leachate concentrations do not exceed the alternative groundwater CTLs established pursuant to paragraph 62-770.680(3)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C.;

c. An engineering control that prevents infiltration (for example, permanent impermeable cover material) is implemented, in which case the concentrations of petroleum products' contaminants of concern in the soil below the impermeable cover may exceed the leachability-based soil CTLs. Prior to Department or FDEP local program approval of a No Further Action with engineering controls, the responsible party shall provide certification by a registered Professional Engineer that to the best of his or her knowledge the engineering control is consistent with commonly accepted engineering practices, is appropriately designed and constructed for its intended purpose, and has been implemented. It shall be demonstrated to the Department or to the FDEP local program by a minimum of one year of groundwater monitoring data that petroleum products' contaminants of concern will not leach into the groundwater at concentrations that exceed the appropriate groundwater CTLs pursuant to paragraph 62-770.680(1)(d), F.A.C., or, if the groundwater is already contaminated, at concentrations that exceed the alternative groundwater CTLs established pursuant to paragraph 62-770.680(3)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C.;

d. Soil concentrations of petroleum products' contaminants of concern do not exceed the alternative leachability-based soil CTLs established using site-specific soil properties pursuant to subparagraph 62-770.600(4)(f)2., F.A.C., the equation and appropriate default assumptions specified in Chapter 62-777, F.A.C., Figure 8, the alternative groundwater CTLs established pursuant to paragraph 62-770.680(3)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C.;

e. Soil concentrations of the site-specific fractions of TRPHs established pursuant to subparagraph 62-770.600(4)(f)3., F.A.C., do not exceed the alternative leachability-based soil CTLs for the TRPH fractions established using the equation and default assumptions specified in Chapter 62-777, F.A.C., Figure 8, the chemical/physical parameters provided in Appendix C of the technical report referenced in subsection 62-770.140(1), F.A.C., the alternative groundwater CTL for TRPHs established pursuant to paragraph 62-770.680(3)(d), F.A.C., and, if applicable, the appropriate surface water CTL for TRPHs pursuant to paragraph

62-770.680(1)(e), F.A.C.; and

f. It has been demonstrated to the Department or to the FDEP local program by a minimum of one year of groundwater monitoring data and, if applicable, fate and transport modeling results that, based upon the site-specific conditions, petroleum products' contaminants of concern will not leach into the groundwater at concentrations that exceed the alternative groundwater CTLs established pursuant to paragraph 62-770.680(3)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C.; and

(d) Alternative groundwater CTLs have been established by the real property owner(s) depending on the current and projected use of groundwater in the vicinity of the site, and the following criteria are met:

1. Groundwater concentrations of petroleum products' contaminants of concern do not exceed the alternative groundwater CTLs established pursuant to paragraph 62-770.650(1)(d), F.A.C. (apportioned, if applicable; refer to Appendix E of the technical report referenced in subsection 62-770.140(1), F.A.C., for guidance on apportioning groundwater CTLs), and the plume has not affected, and will not affect, a freshwater or marine surface water body pursuant to subparagraph 62-770.680(1)(d)2., F.A.C.; and

2. It has been demonstrated to the Department or to the FDEP local program by a minimum of one year of groundwater monitoring data and, if applicable, fate and transport modeling results, that the plume is stable or shrinking, and groundwater concentrations of petroleum products' contaminants of concern at the institutional control boundary do not, and will not, exceed the appropriate groundwater CTLs pursuant to paragraph 62-770.680(1)(d), F.A.C., and, if applicable, the appropriate surface water CTLs pursuant to paragraph 62-770.680(1)(e), F.A.C.

(4) Unless the No Further Action Proposal is included in a Site Assessment Report pursuant to subparagraph 62-770.600(8)(b)1., F.A.C., or a Risk Assessment Report pursuant to paragraph 62-770.650(4)(a), F.A.C., or a Site Rehabilitation Completion Report pursuant to subsection 62-770.690(10) or 62-770.750(7), F.A.C., when the criteria for No Further Action have been met the responsible party shall submit to the Department or to the FDEP local program for review two copies of the No Further Action Proposal. The No Further Action Proposal shall include the tables required pursuant to subparagraph 62-770.600(8)(a)25., F.A.C., updated as applicable. Prior to approval of a No Further Action Proposal with an institutional control or an engineering control accompanied by an institutional control, documentation of the agreement with the real property owner(s) of all properties subject to the institutional or engineering controls shall be submitted to the Department or to the FDEP local program. Applicable portions of the No Further Action Proposal shall be signed and sealed by an appropriate registered professional pursuant to Rule 62-770.490, F.A.C.

(5) Within 60 days of receipt of a No Further Action Proposal or of additional information pursuant to subsection 62-770.800(3), F.A.C., the Department or the FDEP local program shall:

(a) Provide the responsible party with a Site Rehabilitation Completion Order that approves the No Further Action Proposal; or

(b) Notify the responsible party in writing, stating the reason(s) why the No Further Action Proposal does not contain information adequate to support the conclusion that the applicable No Further Action criteria of Rule 62-770.680, F.A.C., have been met. Site rehabilitation activities shall not be deemed complete until such time as a No Further Action Proposal is approved.

(6) If the No Further Action Proposal is incomplete in any respect, or is insufficient to satisfy the objectives of subsection 62-770.680(1), 62-770.680(2), or 62-770.680(3), F.A.C., the Department or the FDEP local program shall inform the responsible party pursuant to paragraph 62-770.680(5)(b), F.A.C., and the responsible party shall submit to the Department or to the FDEP local program for review two copies of a revised No Further Action Proposal that addresses the deficiencies within 30 days after receipt of the notice. If the deficiencies are not timely corrected, or cannot be corrected, the responsible party shall submit to the Department or to the FDEP local program for review, as appropriate, two copies of a Natural Attenuation Monitoring Plan pursuant to Rule 62-770.690, F.A.C., or two copies of a Remedial Action Plan pursuant to Rule 62-770.700, F.A.C., within 60 days after receipt of the notice.

(7) When a No Further Action Proposal is approved pursuant to subparagraph 62-770.600(9)(a)1. or 62-770.650(5)(a)1., F.A.C., or paragraph 62-770.680(5)(a), 62-770.690(11)(a), or 62-770.750(8)(a), F.A.C., the Site Rehabilitation Completion Order shall contain, at a minimum, the following information:

(a) The FDEP facility identification number, that identifies the property where the source(s) of the contaminated site is(are) or was(were) located;

(b) The street address of the property where the source(s) of the contaminated site is(are) or was(were) located;

(c) The date(s) of the discharge(s) that resulted in the contaminated site;

(d) A reference to an attached map that depicts the contaminated site for which the Site Rehabilitation Completion Order is

being issued;

(e) The most recent tables generated by the responsible party pursuant to subparagraph 62-770.600(8)(a)25. or subsection 62-770.650(4), 62-770.680(4), 62-770.690(10), or 62-770.750(7), F.A.C.;

(f) The stipulation that in the event concentrations of petroleum products' contaminants of concern increase above the levels approved in the Site Rehabilitation Completion Order, or if a subsequent discharge of petroleum or petroleum products occurs at the site, the Department may require site rehabilitation to reduce concentrations of petroleum products' contaminants of concern to the levels approved in the No Further Action Proposal or otherwise allowed by Chapter 62-770, F.A.C.;

(g) If applicable, a reference to all engineering and institutional controls that were implemented at the contaminated site. For engineering controls, a brief description of the physical control and any maintenance or monitoring requirements shall be included; for institutional controls, a copy of the restrictive covenant including a reference to the book and page numbers where recorded shall be attached; and

(h) If applicable, a statement that the Site Rehabilitation Completion Order is conditioned upon such engineering and institutional controls being effective, properly maintained, and remaining in place. If applicable, the following statement shall be included: "If the real property owner proposes to remove the institutional controls or engineering controls, the real property owner shall obtain prior written approval from the Department or from the FDEP local program. The removal of the controls shall be accompanied by the immediate resumption of site rehabilitation, or implementation of other approved controls, unless it is demonstrated to the Department or to the FDEP local program that the criteria of subsection 62-770.680(1), F.A.C., are met."

(8) Prior to the Department's approval of a No Further Action Proposal with institutional controls or with institutional and engineering controls, the responsible party shall provide constructive notice of the Department's intent for such approval to the local government(s) with jurisdiction over the property(ies) subject to the institutional control, to real property owner(s) of any property subject to the institutional control, and to residents on any property subject to the institutional control. The responsible party shall provide the Department with proof of such notice that meets the requirements of subsections 62-110.106(5), 62-110.106(8), and 62-110.106(9), F.A.C., except that the notice shall be prepared and published by the responsible party within 30 days after the Department's conditional approval of the No Further Action Proposal with institutional controls. The notice shall provide the local government(s) with jurisdiction over the property(ies) subject to the institutional control, real property owners of any property subject to the institutional control, and residents of any property subject to the institutional control, the opportunity to comment to the Department within 30 days after receipt of the notice of the Department's intent of approval. Where subsection 62-110.106(8), F.A.C., requires a description of the agency action proposed, the notice shall contain "to issue a Site Rehabilitation Completion Order with institutional controls for a contaminated site." Additionally, the notice of rights language shall be replaced with "Local governments, real property owner(s) of any property subject to the institutional control, and residents of any property subject to the institutional control have 30 days from publication of this notice to provide comments to the Department." The notice also shall provide the appropriate mailing address to which comments should be sent.

(9) The Site Rehabilitation Completion Order shall constitute final agency action regarding cleanup activities at the site.

Specific Authority 376.303, 376.3071, 403.061, 403.0877 FS. Law Implemented 376.3071, 403.0877 FS. History—New 9-23-97, Amended 8-5-99, 4-17-05.

62-770.690 Natural Attenuation Monitoring.

(1) Monitoring of natural attenuation is an allowable strategy for site rehabilitation depending on the individual site characteristics, provided human health, public safety, and the environment are protected. The individual site characteristics may include the current and projected use of the affected groundwater and surface water in the vicinity of the site, the current and projected land use of the area affected by the contamination, the exposed population, the location of the plume, the degree and extent of contamination, the rate of migration of the plume, the apparent or potential rate of degradation of petroleum products' contaminants of concern through natural attenuation, and the potential for further migration in relation to the site's property boundary. Fate and transport models as defined in Rule 62-770.610, F.A.C., may be utilized to support the appropriateness of natural attenuation monitoring. Monitoring of natural attenuation is appropriate provided the following criteria are met:

(a) Free product is not present and no fire or explosive hazard exists as a result of a release of petroleum or petroleum products;

(b) Contaminated soil is not present in the unsaturated zone, except that applicable leachability-based soil CTLs may be exceeded if it is demonstrated to the Department or to the FDEP local program that the soil does not constitute a continuing source

of contamination to the groundwater at concentrations that pose a threat to human health, public safety, and the environment, and it is demonstrated that the rate of natural attenuation of contaminants of concern in the groundwater exceeds the rate at which contaminants of concern are leaching from the soil, and that the presence of contaminated soil will not result in increased cleanup cost. The determination shall be based upon individual site characteristics and demonstrated by USEPA Test Method 1312 (SPLP), or USEPA Test Method 1311 (TCLP) if the contamination is derived from used oil or similar petroleum products, followed by the appropriate analyses of the leachate, and based upon groundwater modeling, site stratigraphy, or site assessment results;

(c) Petroleum products' contaminants of concern present in the groundwater above background concentrations or applicable CTLs are not migrating beyond the temporary point of compliance or migrating vertically, that may contaminate other aquifers or surface water resources or result in increased cleanup cost;

(d) The physical, chemical, and biological characteristics of each petroleum products' contaminant of concern are conducive to natural attenuation;

(e) If more than one sampling event has been performed, the available data show an overall decrease in the mass of contamination; and

(f) One of the following is met:

1. The site is anticipated to meet the applicable No Further Action criteria of Rule 62-770.680, F.A.C., as a result of natural attenuation in five years or less, the background concentrations or the applicable CTLs are not exceeded at the temporary point of compliance as established pursuant to subsection 62-770.690(2) or 62-770.690(3), F.A.C., and the concentrations of petroleum products' contaminants of concern do not exceed the criteria specified in Chapter 62-777, F.A.C., Table V; or

2. If the criteria of subparagraph 62-770.690(1)(f)1., F.A.C., are not met, the cost-effectiveness of natural attenuation monitoring may be demonstrated by the following:

a. A technical evaluation of groundwater and soil characteristics, chemistry, and biological activity that verifies that the petroleum products' contaminants of concern have the capacity to degrade under the site-specific conditions. A listing of the site-specific conditions and geochemical parameters, as applicable, is provided in Chapter 62-777, F.A.C., Table IV;

b. A scientific evaluation (historical data or modeling results, as appropriate; the model used shall be demonstrated to be appropriate for the site conditions) of the plume migration in relation to the temporary point of compliance as established pursuant to subsection 62-770.690(2) or 62-770.690(3), F.A.C., an estimation of expected annual reductions of concentrations of petroleum products' contaminants of concern in monitoring wells, and an estimation of the time required to meet the applicable No Further Action criteria of Rule 62-770.680, F.A.C. Available technical information (including historical water quality data) shall be used for model calibration; and

c. A life-cycle cost analysis of remedial alternatives.

(2) Provided human health, public safety, and the environment are protected, the point of compliance may be temporarily moved from the source of the contamination.

(a) The location of the temporary point of compliance shall be based on the individual site characteristics listed in subsection 62-770.690(1), F.A.C.

(b) The point of compliance may be temporarily moved to the property boundary, or to the edge of the plume when the plume is within the property boundary, while cleanup, including cleanup through natural attenuation processes in conjunction with appropriate monitoring, is proceeding.

(c) The temporary point of compliance may extend beyond the property boundary when accompanied by monitoring, if such extension is needed to facilitate monitoring of natural attenuation or to address the current conditions of the plume, provided human health, public safety, and the environment are protected. If the point of compliance is proposed to be temporarily extended beyond the property boundary, it cannot be extended further than the lateral extent of the plume as defined at the time of the approved site assessment. Prior to the Department authorizing a temporary extension of the point of compliance beyond the property boundary, the responsible party shall provide notice and an opportunity to comment pursuant to subsection 62-770.220(3), F.A.C.

(d) Additional notice concerning the status of the natural attenuation processes shall be similarly provided every five years to persons receiving notice pursuant to paragraph 62-770.690(2)(c), F.A.C.

(3) Where surface water is or may be exposed to groundwater contaminated with petroleum products' contaminants of concern (based on monitoring well data, groundwater flow rate and direction, or fate and transport modeling), the point of measuring compliance with the surface water standards shall be in the groundwater from the landward side immediately adjacent to the surface water body.

(4) If the criteria of subsection 62-770.690(1), F.A.C., are met, a Natural Attenuation Monitoring Plan, prepared pursuant to subsection 62-770.690(8), F.A.C., may be submitted. Unless the Natural Attenuation Monitoring Plan is included in a Site Assessment Report pursuant to subparagraph 62-770.600(8)(b)2., F.A.C., or in a Risk Assessment Report pursuant to paragraph 62-770.650(4)(b), F.A.C., the responsible party shall submit to the Department or to the FDEP local program for review two copies of the Natural Attenuation Monitoring Plan. Applicable portions of the Natural Attenuation Monitoring Plan shall be signed and sealed by an appropriate registered professional pursuant to Rule 62-770.490, F.A.C.

(5) Within 60 days of receipt of a Natural Attenuation Monitoring Plan or of additional information pursuant to subsection 62-770.800(3), F.A.C., the Department or the FDEP local program shall:

(a) Provide the responsible party with written approval of the Natural Attenuation Monitoring Plan; or

(b) Notify the responsible party in writing, stating the reason(s) why the Natural Attenuation Monitoring Plan does not contain information adequate to support the conclusion that the applicable Natural Attenuation Monitoring criteria of Rule 62-770.690, F.A.C., have been met.

(6) If the Natural Attenuation Monitoring Plan is incomplete in any respect, or is insufficient to satisfy the criteria of subsection 62-770.690(1), F.A.C., the Department or the FDEP local program shall inform the responsible party pursuant to paragraph 62-770.690(5)(b), F.A.C., and the responsible party shall submit to the Department or to the FDEP local program for review two copies of a revised Natural Attenuation Monitoring Plan that addresses the deficiencies within 30 days after receipt of the notice. If the deficiencies are not timely corrected, or cannot be corrected, the responsible party shall, as appropriate, continue the implementation of the approved Remedial Action Plan or submit to the Department or to the FDEP local program for review two copies of a Remedial Action Plan pursuant to Rule 62-770.700, F.A.C., within 60 days after receipt of the notice.

(7) The objective of the monitoring program shall be to meet the applicable No Further Action criteria of Rule 62-770.680, F.A.C.

(8) The monitoring program shall be performed as specified in the Natural Attenuation Monitoring Plan approval, as follows:

(a) A minimum of two monitoring wells is required:

1. At least one well shall be located at the downgradient edge of the plume; and

2. At least one well shall be located in the area(s) of highest groundwater contamination or directly adjacent to it if the area of highest groundwater contamination is inaccessible (for example, under a structure);

(b) The designated monitoring wells shall be sampled for analyses of applicable petroleum products' contaminants of concern no more frequently than quarterly, as specified in the Natural Attenuation Monitoring Plan approval;

(c) Water-level measurements in all designated wells and piezometers shall be made within 24 hours of initiating each sampling event;

(d) Within 60 days of sample collection, the responsible party shall submit to the Department or to the FDEP local program for review two copies of a Natural Attenuation Monitoring Report. The report shall include the analytical results (laboratory report), chain of custody record form [Form 62-770.900(2) or an equivalent chain of custody form that includes all the items required by Form 62-770.900(2)], the tables required pursuant to subparagraph 62-770.600(8)(a)25., F.A.C., updated as applicable, site maps that illustrate the analytical results, and the water-level elevation information (summary table and flow map).

(e) If analyses of groundwater samples indicate that concentrations of applicable petroleum products' contaminants of concern exceed any action levels specified in the Natural Attenuation Monitoring Plan approval, the well or wells shall be resampled no later than 30 days after the initial positive result is known. If the results of the resampling confirm that the applicable action levels are exceeded, then the monitoring report referenced in paragraph 62-770.690(8)(d), F.A.C., shall be signed and sealed by an appropriate registered professional pursuant to Rule 62-770.490, F.A.C., and shall include a proposal to:

1. Perform a supplemental site assessment and submit a supplemental Site Assessment Report pursuant to Rule 62-770.600, F.A.C.;

2. Continue the implementation of the approved Natural Attenuation Monitoring Plan; or

3. Prepare and submit a Remedial Action Plan pursuant to Rule 62-770.700, F.A.C.;

(f) On an annual basis, the analytical data shall be evaluated in reference to the expected reductions in concentrations of petroleum products' contaminants of concern in monitoring wells pursuant to subparagraph 62-770.690(1)(f)1., F.A.C., or subparagraph 62-770.690(1)(f)2.b., F.A.C., as applicable, to verify progress of site rehabilitation by natural attenuation. If the annual rate of expected cleanup progress is not achieved, then the monitoring report referenced in paragraph 62-770.690(8)(d), F.A.C., shall include a proposal to:

1. Perform a supplemental site assessment and submit a supplemental Site Assessment Report pursuant to Rule 62-770.600, F.A.C.;

2. Continue the implementation of the approved Natural Attenuation Monitoring Plan; or

3. Prepare and submit a Remedial Action Plan pursuant to Rule 62-770.700, F.A.C.; and

(g) If natural attenuation monitoring follows site assessment, a minimum of two sampling events is required and site rehabilitation shall be considered complete when the No Further Action criteria of subsection 62-770.680(1), 62-770.680(2), or 62-770.680(3), F.A.C., have been met for two consecutive sampling events. If natural attenuation monitoring follows active remediation, a minimum of four sampling events is required and site rehabilitation shall be considered complete when the No Further Action criteria of subsection 62-770.680(1), 62-770.680(2), or 62-770.680(3), F.A.C., have been met for at least the last two sampling events. If soil contamination was present at the beginning of the monitoring program, prior to submitting the Site Rehabilitation Completion Report soil samples shall be collected at appropriate locations and depths and analyzed for the applicable petroleum products' contaminants of concern to demonstrate to the Department or to the FDEP local program that applicable soil CTLs are met.

(9) If during implementation of the Natural Attenuation Monitoring Plan the responsible party submits to the Department or to the FDEP local program a Remedial Action Plan pursuant to subsection 62-770.700(6), F.A.C., to enhance natural attenuation processes, and the Remedial Action Plan is approved, natural attenuation monitoring shall be suspended during the implementation of the enhancement and the responsible party shall perform active remediation monitoring pursuant to the approved Remedial Action Plan.

(10) When natural attenuation monitoring is considered complete pursuant to paragraph 62-770.690(8)(g), F.A.C., the responsible party shall submit to the Department or to the FDEP local program for review two copies of a Site Rehabilitation Completion Report with a No Further Action Proposal. Applicable portions of the Site Rehabilitation Completion Report shall be signed and sealed by an appropriate registered professional pursuant to Rule 62-770.490, F.A.C. The Site Rehabilitation Completion Report shall include the documentation required in paragraph 62-770.690(8)(d), F.A.C., to support the opinion that site cleanup objectives have been achieved.

(11) Within 60 days of receipt of the Site Rehabilitation Completion Report or of additional information pursuant to subsection 62-770.800(3), F.A.C., the Department or the FDEP local program shall:

(a) Provide the responsible party with a Site Rehabilitation Completion Order as referenced in subsection 62-770.680(7), F.A.C., that approves the Site Rehabilitation Completion Report with the No Further Action Proposal; or

(b) Notify the responsible party in writing, stating the reason(s) why the Site Rehabilitation Completion Report does not contain information adequate to support the opinion that cleanup objectives have been achieved. Site rehabilitation activities shall not be deemed complete until such time as a Site Rehabilitation Completion Report with a No Further Action Proposal is approved.

(12) If the Site Rehabilitation Completion Report is incomplete in any respect, or is insufficient to satisfy the objectives of subsection 62-770.690(10), F.A.C., the Department or the FDEP local program shall inform the responsible party pursuant to paragraph 62-770.690(11)(b), F.A.C., and the responsible party shall submit to the Department or to the FDEP local program for review two copies of a revised Site Rehabilitation Completion Report that addresses the deficiencies within 30 days after receipt of the notice. If the deficiencies are not timely corrected, or cannot be corrected, the responsible party shall resume the implementation of the approved Natural Attenuation Monitoring Plan within 30 days after receipt of the notice.

(13) The Site Rehabilitation Completion Order shall constitute final agency action regarding cleanup activities at the site.

Specific Authority 376.303, 376.3071, 403.061, 403.0877 FS. Law Implemented 376.3071, 403.0877 FS. History—New 9-23-97, Amended 8-5-99, 4-17-05.

62-770.700 Active Remediation.

(1) Within 90 days of approval of a Site Assessment Report (unless a No Further Action Proposal, a Natural Attenuation Monitoring Plan, or a recommendation to prepare a risk assessment was approved), the responsible party shall submit to the Department or to the FDEP local program for review two copies of a Remedial Action Plan. Applicable portions of the Remedial Action Plan shall be signed and sealed by an appropriate registered professional pursuant to Rule 62-770.490, F.A.C. The objective of the active remediation shall be to meet the applicable No Further Action criteria of Rule 62-770.680, F.A.C., or the Natural Attenuation Monitoring criteria of Rule 62-770.690, F.A.C. The Remedial Action Plan shall provide a design that addresses cleanup

of all soil, sediment, groundwater, or surface water found to be contaminated. If one or more of the contaminated media is not addressed, a recommendation and justification for that decision shall be included. Additionally, if the Remedial Action Plan addresses contamination that has migrated into any medium beyond the boundary of the source property (i.e., the location from which the contamination is emanating), then the point of compliance may be temporarily extended beyond the property boundary with appropriate monitoring, if such extension is needed to address the current conditions of the plume, provided human health, public safety, and the environment are protected. If the point of compliance is proposed to be temporarily extended beyond the property boundary, the responsible party shall identify to the Department the real property owner(s) of any property(ies) into which the point of compliance is allowed to temporarily extend and any county or municipality having jurisdiction over the area. Prior to the Department authorizing a temporary extension of the point of compliance beyond the property boundary, the responsible party shall provide notice and an opportunity to comment pursuant to subsection 62-770.220(3), F.A.C.

(2) Performance of a pilot study for bioremediation, biosparging, bioventing, or any innovative technology shall be necessary prior to designing a treatment system that will incorporate any of these technologies. A pilot study for soil vapor extraction or in situ sparging is recommended if the suitability of the site conditions for soil vapor extraction and in situ sparging is marginal or if the performance of a pilot study will result in a more efficient design that would outweigh the additional cost of the pilot study. Prior to performing a pilot study, the responsible party shall submit to the Department or to the FDEP local program for review two copies of a proposal to evaluate the applicability of the pilot study, to determine the need for any applicable Department permits or authorizations (for example, underground injection control, National Pollutant Discharge Elimination System, or air emissions), and to ensure that human health and the environment are adequately protected. If the size of the plume and knowledge of the site's stratigraphy do not warrant performance of a pilot study for soil vapor extraction or in situ sparging, the responsible party shall submit to the Department or to the FDEP local program for review a proposal explaining the rationale for the decision to not perform a pilot study. The date for preparation and submission of the Remedial Action Plan shall be extended until the Department or the FDEP local program has notified the responsible party to proceed with the pilot study or to prepare the Remedial Action Plan without performing the pilot study.

(3) The Remedial Action Plan shall:

(a) Include all applicable information required by subsection 62-770.400(2), F.A.C.;

(b) Summarize the Site Assessment Report conclusions and any additional data obtained subsequent to Site Assessment Report approval;

(c) If groundwater contamination is present, include results from a round of groundwater sampling and analyses from a number of monitoring wells adequate to determine the highest concentrations of petroleum products' contaminants of concern, to verify the horizontal and vertical extent of the plume, and to provide design data for the Remedial Action Plan. The sampling and analyses shall be performed after approval of the Site Assessment Report, unless the most recent groundwater analytical results submitted in the approved Site Assessment Report are from a round of groundwater sampling and analyses performed less than 270 days prior to submittal of the Remedial Action Plan. If the results from the confirmatory round of sampling contradict earlier results, then the applicable site assessment tasks specified in Rule 62-770.600, F.A.C., shall be performed to evaluate the current site conditions;

(d) Include an estimate of the total mass and mass distribution of petroleum or petroleum products in the subsurface as product entrapped above the water table, free product, and product entrapped below the water table, based on the most recent soil and groundwater analytical and field screening results. These estimates shall be revised if additional data become available that contradict or enhance the data used during the remedial design process;

(e) Explain the rationale for the active remediation method(s) selected, that shall include at a minimum:

1. Results from any pilot studies or bench tests; and

2. Results of an evaluation of remedial alternatives (including source removal), and a discussion of why other remedial alternatives considered were rejected, based on the following criteria:

a. Long-term and short-term human health and environmental effects;

b. Implementability, that may include ease of construction, site access, and necessity for permits;

c. Operation and maintenance requirements;

d. Reliability;

e. Feasibility;

f. Estimated time required to achieve cleanup; and

g. Cost-effectiveness of installation, and operation and maintenance, when compared to other site remediation alternatives;

- (f) Include the design and construction details for the equipment to be used during active remediation;
- (g) Summarize the operational details of the equipment to be used during active remediation, including, if applicable:
 - 1. The disposition of any effluent;
 - 2. The expected concentrations of petroleum products' contaminants of concern in the effluent;
 - 3. The method of air emissions treatment and the expected quantities in pounds per day of any petroleum products' contaminants of concern discharged into air as a result of all the on-site active remediation systems. A separate air permit will not be required if the mass of total petroleum hydrocarbons in the air emissions from all the on-site remediation equipment system(s) does not exceed 13.7 pounds per day. For on-site remediation equipment system(s) located at a facility that is a Title V source pursuant to Chapter 62-213, F.A.C., a separate permit pursuant to that chapter may be required;
 - 4. The rates of application and concentrations of any in situ chemical or biological enhancement technologies implemented; and
 - 5. The schedule for maintenance and monitoring of the remediation system;
- (h) If groundwater contamination is present:
 - 1. For remedial systems that include groundwater recovery, include a list of petroleum products' contaminants of concern to be monitored in the recovery well(s) and in the effluent from the treatment system (based on the type of treatment employed and disposition of the effluent), the designation of recovery well(s) to be sampled, and a proposal for their sampling frequency. Contaminants of concern that do not exceed the background concentrations or the applicable CTLs in samples from the recovery wells for two consecutive sampling events with a sampling frequency not less than quarterly may be excluded from subsequent monitoring events;
 - 2. Include a list of petroleum products' contaminants of concern to be monitored, the designation of a representative number of monitoring wells and, if applicable, surface water bodies to be sampled, and a proposal for their sampling frequency adequate to monitor the cleanup progress during active remediation, and the description of the methodology proposed to evaluate the effectiveness and efficiency of the remediation system. The designated wells shall include at least one well located at the downgradient edge of the plume and one well in the area(s) of highest groundwater contamination or directly adjacent to it if the area of highest groundwater contamination is inaccessible (for example, under a structure). For cleanups expected to last greater than two years, wells shall be sampled quarterly for the first year and semiannually thereafter. For cleanups expected to last less than two years, wells shall be sampled quarterly or at an alternative frequency as proposed in the approved Remedial Action Plan;
 - 3. Include a list of petroleum products' contaminants of concern to be monitored and the designation of a representative number of currently and previously contaminated monitoring wells that shall be sampled once a year during active remediation in order to redefine the plume and fully evaluate the effectiveness and efficiency of the remediation system; and
 - 4. Include the designation of a representative number of monitoring wells, piezometers and, if applicable, staff gauge locations to collect water-level data each time groundwater samples are collected; and
- (i) Provide the details of any proposed treatment or disposition of contaminated soil or sediment. If contaminated soil exists at the site and active remediation does not include treatment or removal of such soil, the basis for the decision to forego treatment or removal shall be provided and the Remedial Action Plan shall include a proposal to implement an institutional control, or both an institutional and an engineering control, pursuant to subsection 62-770.680(2) or 62-770.680(3), F.A.C., unless only leachability-based soil CTLs are exceeded and the site is expected to meet the criteria for Natural Attenuation Monitoring after active remediation has been implemented.
- (4) The remedial action plan summary form [Form 62-770.900(4)], shall be completed and submitted as part of the Remedial Action Plan. The information provided in the remedial action plan summary form shall be updated to be consistent with the final approved Remedial Action Plan and any subsequent modifications to the approved Remedial Action Plan, and the updated summary form shall be submitted to the Department or to the FDEP local program.
- (5) Other requirements to be included in the Remedial Action Plan, if applicable, include the following:
 - (a) Vacuum extraction systems shall be equipped with a means of air emissions treatment for at least the first 30 days of system operation. Air emissions treatment may be discontinued after the first 30 days of system operation if the mass of total petroleum hydrocarbons in the emissions from all the on-site remediation equipment system(s) does not exceed 13.7 pounds per day;
 - (b) Bioventing systems shall be equipped with a means of air emissions treatment unless the Remedial Action Plan design is based on respiration rates and optimum air flow that result in soil remediation primarily by bioremediation with minimal volatilization of hydrocarbons. This objective shall be confirmed by a pilot study or by emissions sampling during startup;
 - (c) In situ air sparging systems shall be designed and operated in conjunction with air emissions treatment system(s) unless the

Remedial Action Plan design is based on sparging rates and optimum air flow with minimal volatilization of hydrocarbons. This objective shall be confirmed by emissions sampling during startup. If a vacuum extraction system is used, the vacuum extraction system shall operate at an air flow rate at least 50% greater than the sparging air flow rate, and the vacuum extraction system shall be provided with air emissions control as described in paragraph 62-770.700(5)(a), F.A.C.;

(d) Biosparging systems shall be equipped with a means of air emissions control unless the Remedial Action Plan design is based on the optimum air sparging rates that promote biological activity with minimal volatilization of hydrocarbons. This objective shall be confirmed by a pilot study or by emissions sampling during startup;

(e) Multi-phase extraction systems shall be equipped with a means of air emissions treatment for at least the first 30 days of system operation. Air emissions treatment may be discontinued after the first 30 days of system operation if the mass of total petroleum hydrocarbons in the emissions from all the on-site remediation equipment system(s) does not exceed 13.7 pounds per day;

(f) A sampling schedule shall be specified for monitoring vacuum extraction systems, in situ sparging, bioremediation, or other in situ means of remediation of soil and groundwater; and

(g) An identification shall be made of methods proposed to assess remediation effectiveness in terms of mass removal relative to the amount of mass estimated pursuant to paragraph 62-770.700(3)(d), F.A.C.

(6) The most cost-effective and appropriate strategy for some sites may be active remediation followed by the monitoring of natural attenuation. The active remediation may consist solely of soil remediation, short-term or intermittent groundwater remediation, other remedial enhancements, or combinations of these. The discontinuation of active remediation may be appropriate at any time depending on the site-specific characteristics and conditions. The Remedial Action Plan shall include a discussion of when the active remediation will be discontinued. If the responsible party chooses to utilize the provisions of this paragraph, natural attenuation monitoring shall be performed pursuant to subsection 62-770.690(8), F.A.C., when the Natural Attenuation Monitoring criteria of Rule 62-770.690, F.A.C., have been met.

(7) The Remedial Action Plan may propose the use of new and innovative technologies or approaches that meet the criteria of Rule 62-770.700, F.A.C., and that are cost-effective in meeting the No Further Action criteria of Rule 62-770.680, F.A.C., or the Natural Attenuation Monitoring criteria of Rule 62-770.690, F.A.C. The Remedial Action Plan shall include a demonstration that the proposed technology or approach meets the criteria of subsections 62-770.700(1)-(3), 62-770.700(5), and 62-770.700(6), F.A.C. These technologies or approaches may include low-cost enhancements to natural attenuation. Natural attenuation monitoring shall be suspended during the implementation of the enhancement, pursuant to subsection 62-770.690(9), F.A.C.

(8) Within 60 days of receipt of a Remedial Action Plan or of additional information pursuant to subsection 62-770.800(3), F.A.C., the Department or the FDEP local program shall:

(a) Provide the responsible party with a Remedial Action Plan Approval Order that approves the Remedial Action Plan; or

(b) Notify the responsible party in writing, stating:

1. The reason(s) why the Remedial Action Plan does not contain information adequate to support the conclusion that the active remediation will be cost-effective and will comply with all applicable requirements of Rule 62-770.700, F.A.C.; or

2. The reason(s) why the proposal, plan, or recommendation included in the Remedial Action Plan is not supported by the applicable criteria.

(9) If the Remedial Action Plan is incomplete in any respect, or is insufficient to satisfy the objectives of subsection 62-770.700(3), F.A.C., the Department or the FDEP local program shall inform the responsible party pursuant to paragraph 62-770.700(8)(b), F.A.C., and the responsible party shall submit to the Department or to the FDEP local program for review two copies of a Remedial Action Plan Addendum that addresses the deficiencies within 60 days after receipt of the notice.

(10) Active remediation activities shall not be implemented until the Remedial Action Plan is approved. Prior to implementation of the Remedial Action Plan, the responsible party shall obtain all applicable Department permits or authorizations required for site rehabilitation activities (for example, separate permits for underground injection control, National Pollutant Discharge Elimination System, or air emissions), if not included in the Remedial Action Plan approval. Responsible parties are advised that other federal or local laws and regulations may apply to these activities.

(11) Within 120 days of approval of the Remedial Action Plan, unless a modification is obtained pursuant to the provisions of subsection 62-770.800(4), F.A.C., the operation of the active remediation system(s) shall be initiated unless, after the exercise of reasonable diligence, applicable permits required pursuant to subsection 62-770.700(10), F.A.C., have not been obtained. The following shall be obtained or determined during active remediation at the specified frequencies and turnaround times, as applicable, unless otherwise provided in the approved Remedial Action Plan:

(a) Water-level data collected from all designated wells, piezometers, and staff gauge locations each time monitoring wells and recovery wells are sampled (water-level measurements shall be made within a 24-hour period). If water-level data or operational parameters remain unchanged, the responsible party may propose, pursuant to paragraph 62-770.700(15)(b), F.A.C., that the requirement be modified or discontinued;

(b) Total volume of free product recovered and the thickness and horizontal extent of free product during the reporting period until product recovery is completed;

(c) Total volume of groundwater recovered from each recovery well during each month of the operating period for the first year, and quarterly thereafter or at an alternative frequency as proposed in the approved Remedial Action Plan;

(d) Concentrations of applicable petroleum products' contaminants of concern based on analyses performed on the effluent from the groundwater treatment system, daily for the first three days with a 24 hour turnaround on analytical results of the samples collected the first two days, weekly for the next three weeks, monthly for the next two months, and quarterly thereafter or at an alternative frequency as proposed in the approved Remedial Action Plan;

(e) Concentrations of applicable petroleum products' contaminants of concern based on analyses performed on the untreated groundwater from the selected individual recovery well(s), as proposed in the approved Remedial Action Plan, daily for the first three days, monthly for the next two months, and quarterly thereafter or at an alternative frequency as proposed in the approved Remedial Action Plan. Sampling of groundwater from individual multi-phase extraction wells to evaluate the performance of the recovery and treatment system shall be performed as necessary, as approved in the Remedial Action Plan;

(f) Analytical data from all monitoring wells sampled during the remediation year to monitor rehabilitation progress during active remediation, including all applicable information required by subsection 62-770.400(2), F.A.C.;

(g) Operational parameters for in situ sparging system(s), including measurements of groundwater mounding, dissolved oxygen, or other means (biological, chemical, or physical indicators) that will verify radius of influence at representative monitoring locations, weekly for the first month, monthly for the next two months, and quarterly thereafter. If a demonstration is provided to the Department or to the FDEP local program that operational parameters remain unchanged, the responsible party may propose, pursuant to paragraph 62-770.700(15)(b), F.A.C., that the monitoring be modified or discontinued;

(h) Operational parameters for bioremediation system(s), including measurements of dissolved oxygen at representative monitoring locations, rates of biological, chemical, or nutrient enhancement additions, and any other indicators of biological activity as proposed in the approved Remedial Action Plan, weekly for the first month, monthly for the next two months, and quarterly thereafter or at an alternative frequency as proposed in the approved Remedial Action Plan. If a demonstration is provided to the Department or to the FDEP local program that operational parameters remain unchanged, the responsible may propose, pursuant to paragraph 62-770.700(15)(b), F.A.C., that the monitoring be modified or discontinued;

(i) Concentrations of recovered vapors from a vacuum extraction system, and post-treatment air emissions if air emissions treatment is provided, weekly for the first month, monthly for the next two months, and quarterly thereafter (if applicable air quality standards are not exceeded for two consecutive monthly or quarterly sampling events the responsible party may submit to the Department or to the FDEP local program a proposal for a different sampling frequency; for activated carbon off-gas treatment, additional sampling events may be performed based on the estimated time of breakthrough), as follows:

1. Concentrations of recovered vapors from individual wells shall be determined using an organic vapor analyzer with a flame ionization detector, or other applicable field detection device, in order to optimize the air flow rate and hydrocarbon recovery;

2. The influent and effluent samples shall be analyzed for volatile organic aromatic hydrocarbons using a gas chromatograph equipped with a photo ionization detector for the analysis of gas, or adsorption tube samples. The protocols shall follow the analytical protocols specified in 40 CFR Part 60, Appendix A, Method 18, Section 7;

3. The samples shall be collected using protocols outlined in 40 CFR Part 60, Appendix A, Method 18, Section 7.1, Section 7.4, or Method 0030/5040 of the Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846, 3rd Edition;

4. All tedlar™ bag samples shall be analyzed within 72 hours of collection;

5. All mylar™ bag samples shall be analyzed within 24 hours of collection; and

6. All adsorption tube samples shall be analyzed within 72 hours of collection;

(j) Percentage of system operation time and the treatment efficiency for all operating treatment systems, including the dates when the site was visited and whether the system was operating upon arrival at the site and upon departure from the site; and

(k) Results of analyses of soil samples taken to verify that the applicable No Further Action criteria of Rule 62-770.680, F.A.C., or the applicable Natural Attenuation Monitoring criteria of Rule 62-770.690, F.A.C., have been met, based on one of the following:

1. When both field screening and laboratory results using the most sensitive method for the constituent(s) being analyzed for vacuum extraction systems indicate no detectable concentrations of contaminants of concern in the recovered vapors;

2. When the screening for bioventing parameters indicates that the bioventing is complete; or

3. If alternative soil CTLs were established pursuant to Rule 62-770.650, F.A.C., when system performance or monitoring using the applicable analytical methods for the appropriate constituents indicate that the alternative soil CTLs have been achieved.

(12) Within 120 days of initiating operation of the active remediation system(s), the responsible party shall submit to the Department or to the FDEP local program two copies of engineering drawings ("as-built" drawings). The engineering drawings shall include all construction and equipment design specifications of the installed active remediation system(s) and any operational parameters different from those in the approved Remedial Action Plan. A summary of the system(s) startup activities shall be attached to the engineering drawings.

(13) During implementation of the Remedial Action Plan, the responsible party shall submit to the Department or to the FDEP local program for review two copies of status reports of remedial action, annually unless a greater frequency is specified in the approved Remedial Action Plan. The status reports shall be submitted within 60 days after the anniversary date of initiating operation of the active remediation system(s) and shall contain the following, as applicable:

(a) A summary of the data requested in paragraphs 62-770.700(11)(a)-(k), F.A.C.;

(b) All applicable information required by subsection 62-770.400(2), F.A.C.;

(c) A summary of the estimated mass of petroleum hydrocarbons recovered in all phases, including free product, dissolved, and vapor phases, by all the on-site remediation equipment, and a comparison to the original estimate of mass of petroleum products' contaminants of concern on-site;

(d) One or more scaled site maps that show groundwater flow direction(s) and the current degree and extent of the contamination;

(e) Conclusions as to the effectiveness of the active remediation for the specified period covered in the status report;

(f) Recommendations to continue or discontinue the operation of the treatment system(s) or to modify the site rehabilitation; and

(g) Form 62-770.900(5), summarizing the information from the annual remedial action tasks.

(14) If effluent concentrations or air emissions exceed those in the approved Remedial Action Plan, or plume migration occurs during remediation system startup or during operation of the treatment system(s), the responsible party shall take corrective actions and shall notify the Department or the FDEP local program within seven days. If the condition may represent an imminent threat to human health, public safety, or the environment, the Department or the FDEP local program shall be notified within 24 hours. Details of all such incidents shall be included in the annual status report described in subsection 62-770.700(13), F.A.C.

(15) During implementation of the Remedial Action Plan, the responsible party may propose and justify:

(a) Supplemental assessment to determine alternative CTLs pursuant to Rule 62-770.650, F.A.C.;

(b) Modifications to existing treatment or recovery system(s), or modifications or discontinuation of monitoring of operational parameters, as outlined in the remedial action status report prepared pursuant to subsection 62-770.700(13), F.A.C.;

(c) Innovative technologies pursuant to subsection 62-770.700(7), F.A.C., or other alternative technologies or approaches; or

(d) Discontinuation of active remediation and commencement of Natural Attenuation Monitoring. The proposal shall include a Natural Attenuation Monitoring Plan pursuant to subsection 62-770.690(4), F.A.C.

(16) Within 60 days of receipt of a proposal pursuant to subsection 62-770.700(15), F.A.C., the Department or the FDEP local program shall:

(a) Provide the responsible party with written approval of the proposal; or

(b) Notify the responsible party in writing, stating the reason(s) why the proposal does not contain information adequate to comply with applicable requirements of subsection 62-770.700(15), F.A.C.

(17) If the proposal is incomplete in any respect, or is insufficient to satisfy the applicable requirements of subsection 62-770.700(15), F.A.C., the Department or the FDEP local program shall inform the responsible party pursuant to paragraph 62-770.700(16)(b), F.A.C., and the responsible party shall submit to the Department or to the FDEP local program for review two copies of a revised Natural Attenuation Monitoring proposal or other proposal identified in paragraphs 62-770.700(15)(a)-(c), F.A.C., that addresses the deficiencies, within 60 days after receipt of the notice. If the deficiencies are not timely corrected, or cannot be corrected, the responsible party shall continue the implementation of the approved Remedial Action Plan.

(18) Active remediation shall be deemed complete when the No Further Action criteria of subsection 62-770.680(1), 62-770.680(2), or 62-770.680(3), F.A.C., have been met, or may be deemed complete when the Natural Attenuation Monitoring criteria

of Rule 62-770.690, F.A.C., have been met.

(19) For sites conducting active groundwater remediation, if the site does not meet the No Further Action criteria of subsection 62-770.680(1), F.A.C., or the Natural Attenuation Monitoring criteria of Rule 62-770.690, F.A.C., the responsible party may submit to the Department or to the FDEP local program for review two copies of a proposal to discontinue active groundwater remediation, provided the following demonstration and analyses are met:

(a) Contaminated soil has been properly removed and disposed, or treated in situ, so that the applicable soil CTLs are met or addressed by the enactment and implementation of institutional controls or both institutional and engineering controls.

(b) After a minimum of one year of groundwater treatment, concentrations of petroleum products' contaminants of concern in designated monitoring wells and recovery wells have leveled off. This demonstration shall be based on subsequent monthly sampling results obtained for a minimum of 180 days, unless an alternative frequency has been approved in the Remedial Action Plan or pursuant to subsection 62-770.700(15), F.A.C. "Leveling off" shall mean that the graph of Total Volatile Organic Aromatics versus time generally fits a curve defined by the equation $C = C_f + C_o e^{-kt}$, that the lower limb of the curve is substantially linear, and that the slope of the final portion of the curve approaches zero. If the petroleum contamination does not contain a representative amount of Total Volatile Organic Aromatics, then an alternative petroleum products' contaminant of concern shall be designated for application to the curve. Applicable statistical methods shall be applied to demonstrate this conclusion.

1. In the preceding equation, symbols are defined as follows:

a. C: Concentration of the applicable petroleum products' contaminant of concern at time t;

b. C_f : Coefficient representing final concentration that the curve approaches asymptotically;

c. C_o : Coefficient representing concentration difference between the final concentration and the concentration at time zero;

d. e: 2.718, the base of natural logarithms;

e. k: Coefficient representing the exponential factor that indicates how fast the concentration approaches C_f ;

f. t: Time in days from some fixed starting point.

2. The one year minimum treatment period may be shortened if, based on the criteria of Section 376.3071, F.S., it is demonstrated to the Department or to the FDEP local program that a shorter time period is appropriate.

(c) An analysis or demonstration has been made of:

1. The technical feasibility of enhancements to the existing remediation system;

2. The technical feasibility of other proven groundwater or soil treatment techniques to further reduce the concentrations of applicable petroleum products' contaminants of concern at the site;

3. The costs and time frames involved to further reduce the concentrations of applicable petroleum products' contaminants of concern employing the alternative method(s) proposed;

4. The effects on the designated or potential use of the water resource if petroleum products' contaminants of concern remain at existing concentrations;

5. The effect on, and any protection that may be required of, surface water resources;

6. The effect on human health, public safety, and the environment if petroleum products' contaminants of concern remain at existing concentrations;

7. The extent and potential for further migration of contaminated groundwater above background concentrations or applicable CTLs; and

8. Institutional controls or both institutional and engineering controls that may be necessary to ensure protection of the public and the environment from future use of contaminated groundwater.

(d) Post active remediation monitoring shall validate the assumptions justifying the leveling off determination. If the justification for site rehabilitation is not validated during post active remediation monitoring, then the additional assessment or remediation described in Rule 62-770.700, F.A.C., may be required.

(20) If a demonstration pursuant to subsection 62-770.700(19), F.A.C., was completed, the responsible party shall compile the results of the demonstration and analyses described in paragraphs 62-770.700(19)(a)-(c), F.A.C., in a report and shall submit two copies of the report to the Department or to the FDEP local program for review. The Department or the FDEP local program shall determine, using the criteria specified in paragraph 62-770.700(19)(c), F.A.C., whether modifications to the Remedial Action Plan are required pursuant to subsection 62-770.700(15), F.A.C., to effect further treatment; however, if alternative methods are not required, active remediation shall be deemed complete.

(21) When the No Further Action criteria of subsection 62-770.680(1), F.A.C., or the leveling off criteria of subsection 62-

770.700(19), F.A.C., have been met, the responsible party shall submit to the Department or to the FDEP local program for review two copies of a Post Active Remediation Monitoring Plan prepared pursuant to the Post Active Remediation Monitoring criteria described in Rule 62-770.750, F.A.C. (unless the Department or the FDEP local program has concurred that groundwater sampling is unnecessary based on the site-specific conditions). If the Department or the FDEP local program agrees that groundwater sampling is unnecessary and the site meets the No Further Action criteria of subsection 62-770.680(1), F.A.C., a Site Rehabilitation Completion Order shall be issued as referenced in subsection 62-770.680(7), F.A.C.

Specific Authority 376.303, 376.3071, 403.0877 FS. Law Implemented 376.3071, 403.0877 FS. History—New 11-1-87, Amended 2-4-88, Formerly 17-70.010, Amended 2-21-90, Formerly 17-770.700, Amended 9-3-96, 9-23-97, 8-5-99, 4-17-05.

62-770.750 Post Active Remediation Monitoring.

(1) Groundwater monitoring shall be performed following the completion of active groundwater remediation or soil remediation as described in Rule 62-770.700, F.A.C., unless the Department or the FDEP local program has concurred that groundwater sampling is unnecessary based on the site-specific conditions. When active groundwater remediation has met the No Further Action criteria of subsection 62-770.680(1), F.A.C., or the leveling off criteria of subsection 62-770.700(19), F.A.C., the responsible party shall submit to the Department or to the FDEP local program for review two copies of a Post Active Remediation Monitoring Plan prepared pursuant to subsection 62-770.750(5), F.A.C., and including analytical results demonstrating this conclusion.

(2) Applicable portions of the Post Active Remediation Monitoring Plan shall be signed and sealed by an appropriate registered professional pursuant to Rule 62-770.490, F.A.C.

(3) Within 60 days of receipt of a Post Active Remediation Monitoring Plan or of additional information pursuant to subsection 62-770.800(3), F.A.C., the Department or the FDEP local program shall:

(a) Provide the responsible party with written approval of the Post Active Remediation Monitoring Plan; or

(b) Notify the responsible party in writing, stating the reason(s) why the Post Active Remediation Monitoring Plan does not contain information adequate to support the conclusion that the applicable Post Active Remediation Monitoring criteria of Rule 62-770.750, F.A.C., have been met.

(4) If the Post Active Remediation Monitoring Plan is incomplete in any respect, or is insufficient to satisfy the objectives of subsection 62-770.750(1), F.A.C., the Department or the FDEP local program shall inform the responsible party pursuant to paragraph 62-770.750(3)(b), F.A.C., and the responsible party shall submit to the Department or to the FDEP local program for review two copies of a revised Post Active Remediation Monitoring Plan that addresses the deficiencies within 30 days after receipt of the notice. If the deficiencies are not timely corrected, or cannot be corrected, the responsible party shall resume the implementation of the approved Remedial Action Plan within 30 days after receipt of the notice.

(5) The monitoring program shall be performed as specified in the Post Active Remediation Monitoring Plan approval, as follows:

(a) A minimum of two monitoring wells is required:

1. At least one well shall be located at the downgradient edge of the plume; and

2. At least one well shall be located in the area(s) of highest groundwater contamination or directly adjacent to it if the area of highest groundwater contamination is inaccessible (for example, under a structure);

(b) The designated monitoring wells shall be sampled quarterly for analyses of applicable petroleum products' contaminants of concern that were present prior to the initiation of active remediation;

(c) Water-level measurements in all designated wells and piezometers shall be made within 24 hours of initiating each sampling event;

(d) Within 60 days of sample collection, the responsible party shall submit to the Department or to the FDEP local program for review two copies of a Post Active Remediation Monitoring Report. The report shall include the analytical results (laboratory report), chain of custody record form [Form 62-770.900(2) or an equivalent chain of custody form that includes all the items required by Form 62-770.900(2)], the tables required pursuant to subparagraph 62-770.600(8)(a)25., F.A.C., updated as applicable, site maps that illustrate the analytical results, and the water-level elevation information (summary table and flow map);

(e) If analyses of groundwater samples indicate that concentrations of applicable petroleum products' contaminants of concern exceed any action levels specified in the Post Active Remediation Monitoring Plan approval, the well or wells shall be resampled no later than 30 days after the initial positive result is known. If the results of the resampling confirm that the applicable action levels

are exceeded, then the monitoring report referenced in paragraph 62-770.750(5)(d), F.A.C., shall be signed and sealed by an appropriate registered professional pursuant to Rule 62-770.490, F.A.C., and shall include a proposal to:

1. Perform a supplemental site assessment and submit a supplemental Site Assessment Report pursuant to Rule 62-770.600, F.A.C.;

2. Continue the implementation of the approved Post Active Remediation Monitoring Plan; or

3. Implement additional active remediation pursuant to Rule 62-770.700, F.A.C.; and

(f) A minimum of four groundwater sampling events is required and site rehabilitation shall be considered complete when the No Further Action criteria of subsection 62-770.680(1), 62-770.680(2), or 62-770.680(3), F.A.C., have been met for at least the last two quarterly or semiannual sampling events. However, if contamination was only present in the unsaturated zone during the site assessment and active remediation tasks, site rehabilitation shall be considered complete when the No Further Action criteria of subsection 62-770.680(1), 62-770.680(2), or 62-770.680(3), F.A.C., are met during only one sampling event.

(6) The remediation equipment shall be maintained in an inactive but operational status during the duration of post active remediation monitoring to avoid the possibility of having to re-install it if concentrations of petroleum products' contaminants of concern rebound.

(7) When post active remediation monitoring is considered complete pursuant to paragraph 62-770.750(5)(f), F.A.C., the responsible party shall submit to the Department or to the FDEP local program for review two copies of a Site Rehabilitation Completion Report with a No Further Action Proposal. Applicable portions of the Site Rehabilitation Completion Report shall be signed and sealed by an appropriate registered professional pursuant to Rule 62-770.490, F.A.C. The Site Rehabilitation Completion Report shall include the documentation required in paragraph 62-770.750(5)(d), F.A.C., to support the opinion that site cleanup objectives have been achieved.

(8) Within 60 days of receipt of a Site Rehabilitation Completion Report or of additional information pursuant to subsection 62-770.800(3), F.A.C., the Department or the FDEP local program shall:

(a) Provide the responsible party with a Site Rehabilitation Completion Order as referenced in subsection 62-770.680(7), F.A.C., that approves the Site Rehabilitation Completion Report with the No Further Action Proposal; or

(b) Notify the responsible party in writing, stating the reason(s) why the Site Rehabilitation Completion Report does not contain information adequate to support the opinion that the cleanup objectives have been achieved. Site rehabilitation activities shall not be deemed complete until such time as a Site Rehabilitation Completion Report with a No Further Action Proposal is approved.

(9) If the Site Rehabilitation Completion Report is incomplete in any respect, or is insufficient to satisfy the objectives of subsection 62-770.750(7), F.A.C., the Department or the FDEP local program shall inform the responsible party pursuant to paragraph 62-770.750(8)(b), F.A.C., and the responsible party shall submit to the Department or to the FDEP local program for review two copies of a revised Site Rehabilitation Completion Report that addresses the deficiencies within 30 days after receipt of the notice. If the deficiencies are not timely corrected, or cannot be corrected, the responsible party shall resume the implementation of the approved Post Active Remediation Monitoring Plan within 30 days after receipt of the notice.

(10) The Site Rehabilitation Completion Order shall constitute final agency action regarding cleanup activities at the site.

Specific Authority 376.303, 376.3071, 403.061, 403.0877 FS. Law Implemented 376.3071, 403.0877 FS. History—New 9-23-97, Amended 8-5-99, 4-17-05.

62-770.800 Time Schedules.

(1) For site rehabilitation being performed at petroleum contamination sites eligible for State funded assistance under the Inland Protection Trust Fund, the time frames specified in this chapter do not apply.

(2) If the responsible party has entered into a Consent Order with the Department for site rehabilitation, the time frames and any alternative CTLs set forth in the Consent Order shall take precedence over the time frames and CTLs set forth in this chapter.

(3) Within 60 days of receipt of a written notification from the Department or from the FDEP local program that a plan or report does not contain adequate information or that the information provided is not supported by the applicable criteria, the responsible party shall submit the requested information to the Department or to the FDEP local program.

(4) A modification of the time frame may be obtained by the responsible party for any action set forth in this chapter for good cause shown by requesting in writing that the Department or the FDEP local program make such a modification. The request shall specify which time frame(s) is to be modified and the amount of additional time required, and shall provide documentation

supporting the good cause for the request. The request shall be received by the Department or by the FDEP local program at least 20 days prior to the time the action is to be initiated. If emergency situations at a site do not allow for the full 20 days notice, the request shall detail such emergency situation. Within 20 days of receipt of a request for modification, the Department or the FDEP local program shall notify the responsible party in writing if additional information regarding the request is needed. Within 20 days of receipt of the request or of the additional information, the Department or the FDEP local program shall notify the responsible party in writing as to whether modification of the time frame(s) will be allowed. For purposes of this subsection, good cause shall mean unanticipated events outside the control of the responsible party. Applicable deadlines pursuant to this chapter shall be tolled while a request for modification of a time frame is pending.

(5) The failure of the responsible party to submit requested information or meet any time frame herein shall be a violation of Chapters 376 and 403, F.S., and shall be enforceable by the Department pursuant to Sections 376.303 and 403.121, F.S.

(6) In no circumstances shall the Department's or the FDEP local program's failure to meet any time frame herein be construed as approval of any plan or action by the Department or by the FDEP local program.

Specific Authority 376.303, 376.3071 FS. Law Implemented 376.3071, 376.30711 FS. History--New 11-1-87, Formerly 17-70.013, Amended 2-21-90, Formerly 17-770.800, Amended 9-23-97, 8-5-99, 4-17-05.

62-770.890 Alternative Procedures and Requirements.

(1) Any person subject to the provisions of this chapter may request in writing a determination by the Secretary or the Secretary's designee that any requirement of this chapter shall not apply to actions to be undertaken at a site, and shall request approval of alternative procedures or requirements.

(2) The request shall set forth at a minimum the following information:

- (a) The specific site for which an exception is sought;
- (b) The specific provision(s) of Chapter 62-770, F.A.C., from which an exception is sought;
- (c) The basis for the exception;
- (d) The alternative procedure or requirement for which approval is sought;
- (e) Documentation that demonstrates that the alternative procedure or requirement provides an equivalent or greater degree of protection for the lands, surface waters, or groundwaters of the State as the established requirement; and
- (f) Documentation that demonstrates that the alternative procedure or requirement is at least as effective as the established procedure or requirement.

(3) Within 60 days of receipt of a request for approval of an alternative procedure, the Department shall issue an Order:

- (a) Approving the request; or
- (b) Notifying the responsible party, stating the reason(s) why the request does not make an adequate demonstration that the requirements of subsection 62-770.890(2), F.A.C., have been met.

(4) The Department's Order shall be agency action, reviewable pursuant to Sections 120.569 and 120.57, F.S.

(5) The provisions of this rule do not preclude the use of any other applicable relief provisions.

Specific Authority 376.303, 376.3071 FS. Law Implemented 376.3071 FS. History--New 11-1-87, Formerly 17-70.016, Amended 2-21-90, Formerly 17-770.890, Amended 9-23-97, 8-5-99, 4-17-05.

62-770.900 Forms.

The forms used by the Department or by the FDEP local program in the Petroleum Contamination Cleanup Program are adopted and incorporated by reference in this rule. Each form is listed by rule number, which is also the form number, and with the subject, title, and effective date. Copies of forms may be obtained by writing to the Department of Environmental Protection, Bureau of Petroleum Storage Systems, MS 4575, 2600 Blair Stone Road, Tallahassee, FL 32399-2400.

(1) Form 62-770.900(1), Free Product Removal Notification Form for Petroleum or Petroleum Products (effective April 17, 2005).

(2) Form 62-770.900(2), Chain of Custody Record (effective April 17, 2005).

(3) Form 62-770.900(3), Initial Notice of Contamination Beyond Property Boundaries (effective December 27, 2007).

(4) Form 62-770.900(4), Remedial Action Plan Summary (effective September 23, 1997).

(5) Form 62-770.900(5), Active Remediation Annual Status Report Summary (effective September 23, 1997).

Specific Authority 376.303, 376.30702, 376.3071 FS. Law Implemented 376.30702, 376.3071 FS. History—New 2-21-90, Formerly 17-770.900, Amended 9-23-97, 8-5-99, 4-17-05, 12-27-07.

TABLE A

Petroleum Products' Contaminants of Concern

Acenaphthene
 Acenaphthylene
 Anthracene
 Arsenic
 Benzene
 Benzo(a)anthracene
 Benzo(a)pyrene
 Benzo(b)fluoranthene
 Benzo(g,h,i)perylene
 Benzo(k)fluoranthene
 Cadmium
 Chloride
 Chromium
 Chrysene
 Dibenz(a,h)anthracene
 Dibromoethane, 1,2- (EDB)
 Dichloroethane, 1,2-
 Ethylbenzene
 Fluoranthene
 Fluorene
 Indeno(1,2,3-cd)pyrene
 Lead
 Methyl tert-butyl ether (MTBE)
 Methylnaphthalene, 1-
 Methylnaphthalene, 2-
 Naphthalene
 Phenanthrene
 Pyrene
 Sulfate
 Toluene
 Total Dissolved Solids (TDS)
 TRPHs
 Xylenes, total

TABLE B

For Gasoline and Kerosene Analytical Groups Contaminants of Concern	Groundwater and Surface Water	Soil and Sediment
Benzene, Ethylbenzene, Toluene, total Xylenes, and MTBE	602, 624, 8021, or 8260	8021 or 8260
1methylnaphthalene, 2methylnaphthalene, and the 16 method-listed PAHs included in Table A	610, 625, 8100, 8270, or 8310	8100, 8270, or 8310
1,2-dichloroethane and other listed Priority Pollutant	601, 624, 8021, or 8260	NOT REQUIRED
Volatile Organic Halocarbons 1,2-dibromoethane (EDB)	601 with electron capture detector substituted for electrolytic conductivity detector and 2-column confirmation, or 504 or 8011	NOT REQUIRED
Total Lead	200.7, 200.8, 200.9, 239.2, 6010, 6020, or 7421	NOT REQUIRED
TRPHs	FL-PRO	FL-PRO

NOTE 1: All methods listed (except for FL-PRO) are USEPA methods and the detection limits shall meet the specified cleanup target levels.

NOTE 2: Appropriate sample preparation and cleanup methods (e.g., extraction, digestion) shall be performed prior to analysis.

NOTE 3: Equivalent methods may be used if approved through protocols described in Chapter 62-160, F.A.C.

TABLE C

For used oil, for identified products not listed in the Gasoline or Kerosene Analytical Groups, and for products for which the specific identity is unknown

Contaminants of Concern	Groundwater and Surface Water	Soil and Sediment
Total Arsenic	200.7, 200.8, 200.9, 206.2, 206.3, 6010, 6020, 7060, or 7061	6010, 6020, 7060, or 7061
Total Cadmium	[for groundwater, and Class II and Class III (marine) surface water] 200.7, 200.8, 200.9, 213.1, 213.2, 6010, 6020, 7130, or 7131 [for Class I and Class III (fresh) surface water] 213.2 or 7131	6010, 6020, 7130, or 7131
Total Chromium	200.7, 200.8, 200.9, 218.2, 6010, 6020, or 7191	6010, 6020, 7190, or 7191
Total Lead	200.7, 200.8, 200.9, 239.2, 6010, 6020, or 7421	6010, 6020, or 7421
Priority Pollutant Volatile Organics	624 or 8260	8260
Priority Pollutant Extractable Organics	625 or 8270	8270
Non-priority Pollutant Organics (with GC/MS peaks greater than 10 ug/L)	624 or 8260, and 625 or 8270 601, 624, 8021, or 8260	NOT REQUIRED 8021 or 8260
Priority Pollutant Volatile Organic Halocarbons 1methyl-naphthalene, 2methyl-naphthalene, and the 16 method-listed PAHs included in Table A	610, 625, 8100, 8270, or 8310	8100, 8270, or 8310
Polychlorinated Biphenyls	8082 or 8270	8082 or 8270
TRPHs	FL-PRO	FL-PRO

Toxicity Characteristic Leaching Procedure (TCLP) and the subsequent analyses for metals shall be performed on soil samples to determine if the soil is a hazardous waste and to evaluate leaching potential when the total concentration of any contaminant of concern in the samples meets the following conditions (the applicable analytical method shall be used following sample preparation by USEPA Method 1311 and any appropriate digestion procedure):

If:	Exceeds:	Use:	Test Criteria:
Total Arsenic	100 mg/kg	6010, 6020, 7060, or 7061	5.0 mg/L
Total Cadmium	20 mg/kg	6010, 6020, 7130, or 7131	1.0 mg/L
Total Chromium	100 mg/kg	6010, 6020, or 7191	5.0 mg/L
Total Lead	100 mg/kg	7421	5.0 mg/L

NOTE 1: All methods listed (except for FL-PRO) are USEPA methods and the detection limits shall meet the specified cleanup target levels.

NOTE 2: Appropriate sample preparation and cleanup methods (e.g., extraction, digestion) shall be performed prior to analysis.

NOTE 3: Equivalent methods may be used if approved through protocols described in Chapter 62-160, F.A.C.

TABLE D

For petroleum as defined in Section 376.301, F.S.

Contaminants of Concern	Groundwater and Surface Water	Soil and Sediment
Benzene, Ethylbenzene, Toluene, total Xylenes, and MTBE	602, 624, 8021, or 8260	8021 or 8260
1methylnaphthalene, 2methylnaphthalene, and the 16 method-listed PAHs included in Table A	610, 625, 8100, 8270, or 8310	8100, 8270, or 8310
1,2-dichloroethane and other listed	601, 624, 8021, or 8260	8021 or 8260
Priority Pollutant Volatile Organic Halocarbons		
1,2-dibromoethane (EDB)	601 with electron capture detector substituted for electrolytic conductivity detector and 2column confirmation, or 504 or 8011	NOT REQUIRED
Total Arsenic	200.7, 200.8, 200.9, 206.2, 206.3, 6010, 6020, 7060, or 7061	6010, 6020, 7060, or 7061
Total Cadmium	[for groundwater, and Class II and Class III (marine) surface water] 200.7, 200.8, 200.9, 213.1, 213.2, 6010, 6020, 7130, or 7131 [for Class I and Class III (fresh) surface water] 213.2 or 7131	6010, 6020, 7130, or 7131
Total Chromium	200.7, 200.8, 200.9, 218.2, 6010, 6020, or 7191	6010, 6020, 7190, or 7191
Total Lead	200.7, 200.8, 200.9, 239.2, 6010, 6020, or 7421	6010, 6020, or 7421
TRPHs	FL-PRO	FL-PRO
Chloride	300.0, 325.1, 325.2, 325.3, 9056, 9250, 9251, or 9253	NOT REQUIRED
Sulfate	375.1, 375.3, 375.4, 9035, 9038, or 9056	NOT REQUIRED
Total Dissolved Solids (TDS)	160.1	NOT APPLICABLE

NOTE 1: All methods listed (except for FL-PRO) are USEPA methods and the detection limits shall meet the specified cleanup target levels.

NOTE 2: Appropriate sample preparation and cleanup methods (e.g., extraction, digestion) shall be performed prior to analysis.

NOTE 3: Equivalent methods may be used if approved through protocols described in Chapter 62-160, F.A.C.