

# Department of Environmental Protection

Jeb Bush  
Governor

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Colleen M. Castille  
Secretary

June 10, 2004

Mr. George Lively  
Oil Spill Eater International Corporation  
13127 Chandler Drive  
Dallas, Texas 75243

Re: **Oil Spill Eater II (OSE II)**

Dear Mr. Lively:

The Bureau of Petroleum Storage Systems hereby accepts Oil Spill Eater II (OSE II) for the remediation of petroleum and other suitable contaminants in groundwater and soil, in situ and ex situ. OSE II is a multi-enzyme liquid nutrient. It is listed on the United States Environmental Protection Agency's National Oil and Hazardous Substances Pollution Contingency Plan (NCP). In the presence of water, it will cause hydrocarbons and other organic contaminants to rapidly decompose, thereby setting the stage for their biodegradation to carbon dioxide and water. Enclosure 1 is a voucher for a confidential disclosure of the proprietary ingredients submitted by Oil Spill Eater International Corporation to the Florida Department of Environmental Protection.

This acceptance applies only to the regulatory jurisdiction and the remediation needs of the Bureau of Petroleum Storage Systems, which is primarily the cleanup of subsurface petroleum contamination pursuant to Chapter 62-770, Florida Administrative Code (F.A.C.). Other government agencies and local governments may choose to recognize this acceptance if their needs and regulations are similar. This Bureau, however, is not responsible for applications beyond its jurisdiction.

For vadose remediation, where the underlying groundwater will not be affected by the leaching of OSE II, there are no special concerns beyond those that would normally be addressed in preparing a Remedial Action Plan and conducting a cleanup in accordance with Chapters 62-770 and 62-777, F.A.C. However, for injection-type, in situ groundwater remediation via direct injection of OSE II into an aquifer, there are underground injection control (UIC) regulations that must be observed. Since injection-type, in situ aquifer remediation is likely to be the most common application of this product, the bulk of the regulatory requirements discussed herein will be directed to that topic.

The Bureau recognizes OSE II as a viable product for the bioremediation of petroleum contaminated sites in Florida. There are no objections to its use provided: (a) the considerations of this letter are taken into account; (b) a variance from Rule 62-522.300(3), F.A.C., allowing a temporary zone of discharge for anionic Tergitol, non-ionic Tergitol, lauryl sulfate, and ammonia nitrogen is granted by the Department's Division of Water Resource Management; (c) Rule 62-522.300(2)(c), F.A.C., is observed with respect to dissolved solids; and (d) a site-specific Remedial Action Plan is submitted pursuant to Chapter 62-770, F.A.C., and approved by the Department for each site where the use of OSE II is proposed. Some major environmental and regulatory considerations that apply to OSE II are discussed in enclosure 2.

Mr. George Lively  
June 10, 2004  
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While the Department of Environmental Protection does not provide endorsement of specific or brand name remediation products or processes, it does recognize the need to determine their acceptability from an environmental standpoint with respect to applicable rules and regulations, and the interests of public health, safety and welfare. Vendors must then market the products and processes on their own merits regarding performance, cost, and safety in comparison to competing alternatives in the marketplace. In no way, however, shall this regulatory acceptance letter be construed as Department certification of product or process performance. Additionally, the Department emphasizes a distinction between its regulatory "acceptance" letters and an approval. Products and processes are accepted but they are not approved.

Also, it is not a requirement that a particular remediation product or process have an official acceptance letter in order for it to be proposed in a site-specific Remedial Action Plan. The plan, however, must contain sufficient information about the product or process to show that it meets all applicable and appropriate rules and regulations, especially those of the Florida Administrative Code pertaining to underground injection control.

Those who prepare Remedial Action Plans are advised to include a copy of this letter in the appendix of the plans they submit, and call attention to it in the text of their document. In this way, technical reviewers throughout the state will be informed that you have contacted the Department of Environmental Protection to inquire about the environmental acceptability of OSE II. To aid those reviewers, the Bureau of Petroleum Storage Systems provides supplemental information as enclosure 3.

The Department reserves the right to revoke its acceptance of a product or process if it has been falsely represented. Also, Department acceptance of any product or process does not imply it has been deemed applicable for all cleanup situations, or that it is preferred over other treatment or cleanup techniques in any particular case. A site-specific evaluation of applicability and cost-effectiveness must be considered for any product or process, whether conventional or innovative, and adequate site-specific design details must be provided in a Remedial Action Plan. You may contact me at (850) 877-1133, extension 29 if there are any questions.

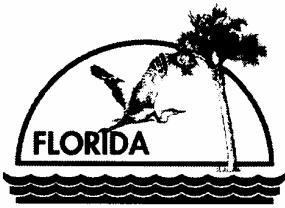
Sincerely,

Rick Ruscito, P.E.  
Ecology and Environment, Inc.  
Bureau of Petroleum Storage Systems  
Petroleum Cleanup Section 6

Rebecca S. Lockenbach  
FDEP Section Leader  
Bureau of Petroleum Storage Systems  
Petroleum Cleanup Section 6

c: T. Conrardy - FDEP MS 4530/Tallahassee

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ENCLOSURE 1

OSE II Voucher  
June 10, 2004

# Department of Environmental Protection

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Twin Towers Office Building  
2600 Blair Stone Road  
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Colleen M. Castille  
Secretary

June 10, 2004

Mr. George Lively  
Oil Spill Eater International Corporation  
13127 Chandler Drive  
Dallas, Texas 75243

Re: **Proprietary Ingredients Voucher for  
Oil Spill Eater II (OSE II)**

Dear Mr. Lively:

The Bureau of Petroleum Storage Systems hereby acknowledges receipt of a confidential disclosure dated August 25, 2003, submitted by Oil Spill Eater International Corporation, regarding the proprietary ingredients and their proportions in the remediation product known as OSE II, for petroleum cleanup in groundwater and soil pursuant to Chapter 62-770, Florida Administrative Code (F.A.C). OSE II is a multi-enzyme liquid nutrient, which, in the presence of water, will cause hydrocarbons and other organic contaminants to rapidly decompose, thereby setting the stage for their biodegradation to carbon dioxide and water. With written permission dated June 9, 2004 from Oil Spill Eater International (OSEI) Corporation, and telephone discussion with OSEI on that same day, the Bureau will discuss, by name, three (3) ingredients of OSE II, on a "need-to-know" basis", so that users of the product can comply with Florida's underground injection control regulations.

Having reviewed the confidential disclosure, the Bureau hereby vouches for the composition of the product. Without divulging any more than is absolutely necessary, we provide information -- in as general terms as possible -- to potential users of OSE II and reviewers of plans proposing it in order for them to comply with Florida's underground injection control regulations. This is done below for five (5) categories, each of which is labeled in bold-faced type. By reading the information that the Bureau has provided for each category, users and reviewers will know whether there is an obligation to comply with a regulation. Additionally, for each category, the Bureau has either indicated why a particular ingredient or parameter is a concern (or is not a concern) with respect to underground injection control regulations. If in any category there is a judgment made by the Bureau, then an explanation or a rationale is given.

**Dissolved Solids.** When one (1) volume of liquid OSE II concentrate is mixed with fifty (50) volumes of water prior to injection, the resulting dissolved solids concentration of the fluid to be injected is approximately 4,010 milligrams per liter (mg/L), which exceeds the 500 mg/L maximum allowed by the secondary drinking water standards of Chapter 62-550, F.A.C. Therefore, rule 62-522.300(2)(c), F.A.C., applies. In order to comply with this rule a Department-approved Remedial Action Plan must: (a) indicate that the dissolved solids concentration of the fluid to be injected does not meet its secondary drinking water standard; (b) specify the size and duration of a

zone of discharge associated with the dissolved solids; and (c) propose groundwater monitoring of dissolved solids.

**Chapter 62-777-listed contaminants.** Per laboratory analysis of the proprietary fluid to be injected at a ratio of one (1) volume of liquid OSE II to fifty (50) volumes of water, the concentration of ammonia nitrogen will be approximately 22 mg/L, which is in excess of its "minimum groundwater criterion" of 2.8 mg/L that is set forth in the current August 5, 1999 issue of Chapter 62-777, F.A.C. Oil Spill Eater International Corporation must therefore petition for a zone of discharge variance to temporarily exceed the 2.8 mg/L minimum groundwater criterion for ammonia nitrogen.

**Other minimum groundwater criteria contaminants of concern that are not yet listed in Chapter 62-777, F.A.C.** In the fluid to be injected at a ratio of one (1) volume of liquid OSE II to fifty (50) volumes of water, the individual concentrations of anionic Tergitol, non-ionic Tergitol, and lauryl sulfate will each exceed their 0.5 mg/L minimum groundwater criteria concentration. The minimum groundwater criteria concentration of 0.5 mg/L for each of these surfactants was recommended to the Florida Department of Environmental Protection by the University of Florida's Center for Environmental and Human Toxicology, April 9, 2004. Oil Spill Eater International Corporation must therefore petition for an injection zone of discharge variance to temporarily exceed the 0.5 mg/L minimum groundwater criterion that has been set for each of these three surfactants. The petition is for a variance from Rule 62-522.300(3), F.A.C., and instructions and a petition format can be obtained at web page [www.dep.state.fl.us/waste/categories/pcp/pages/innovative.htm](http://www.dep.state.fl.us/waste/categories/pcp/pages/innovative.htm). The zone of discharge variance must be granted before OSE II can be injected for the purpose of in situ aquifer remediation. Additionally, the University has recommended that surfactants not be used in significant amounts when potable water wells are very close by, and that the total residual concentration for all surfactants combined not exceed 0.5 mg/L in the groundwater by the time an injection-type in situ aquifer remediation project is completed.

**FDA EAFUS-listed ingredients.** There are a number of proprietary ingredients in OSE II that are listed in the U.S. Food and Drug Administration (FDA) food additive inventory database that is often referred to as "Everything Added to Food in the United States" (EAFUS). The Bureau of Petroleum Storage Systems, without divulging the proprietary identity of these ingredients, would like to indicate that the magnitude of the concentration of no single EAFUS-listed chemical species in the fluid to be injected at the 50:1 dilution ratio is in excess of 0.1174 percent by weight. Given that these ingredients and chemical species are present in such low concentrations, and listed in EAFUS as well, the Bureau of Petroleum Storage Systems judges that they should be of minimal toxicological and environmental concern. However, should the EAFUS status of these ingredients change in the future, or should a valid toxicological or environmental issue be raised about any of them, then minimum groundwater criteria may have to be developed and imposed.

**Other ingredients.** There are a few proprietary ingredients in OSE II that are neither EAFUS-listed nor regulated by the State of Florida as a specific groundwater contaminant. The Bureau of Petroleum Storage Systems, without divulging any more information than absolutely necessary to provide a level of comfort to users and regulators, would like to indicate that the magnitude of the concentration of no single chemical species in this category of "other ingredients" in the fluid to be injected at the 50:1 dilution ratio is in excess of 0.0196 percent by weight. A couple of them are proteins, and one is an element that is essential for life. Given that these ingredients and chemical species are present in such low concentrations, the Bureau of

Petroleum Storage Systems judges that they should be of minimal toxicological and environmental concern. However, should a valid toxicological or environmental issue be raised about any of them in the future, then minimum groundwater criteria may have to be developed and imposed.

For underground injection control purposes, remediation plans proposing OSE II must provide the volume and composition of the fluid to be injected into an aquifer. Since the composition is proprietary, it will suffice to indicate the overall volume of OSE II solution to be injected (at the 50:1 dilution strength) and provide a footnote indicating that a one-time confidential disclosure regarding the proprietary composition has been submitted to the Department. Reference should be made to the original August 25, 2003 disclosure, and a copy of this voucher should be included as an appendix in the plan.

Remediation plan reviewers for petroleum-contaminated site applications involving OSE II may contact Rick Ruscito at (850) 877-1133, extension 29.

Sincerely,

Rick Ruscito, P.E.  
Ecology and Environment, Inc.  
Bureau of Petroleum Storage Systems  
Petroleum Cleanup Section 6

Rebecca S. Lockenbach  
FDEP Section Leader  
Bureau of Petroleum Storage Systems  
Petroleum Cleanup Section 6

ENCLOSURE 2

ENVIRONMENTAL AND REGULATORY CONSIDERATIONS

For Oil Spill Eater II (OSE II) applications, the major environmental and regulatory considerations are listed below.

- a. Groundwater cleanup standards: The onus shall be on users of OSE II to ensure that all applicable groundwater contaminant standards will be met at the time of project completion, for petroleum, other contaminants that may be present, any residuals associated with the ingredients of OSE II, and any byproducts produced as a result of chemical or biochemical reactions involving those ingredients. The following chapters of the Florida Administrative Code are cited: Chapter 62-550, F.A.C., for primary and secondary water quality standards; Chapter 62-520, F.A.C. for groundwater classes and standards, and minimum criteria; Chapter 62-522, F.A.C., for groundwater permitting and monitoring requirements; Chapter 62-528, F.A.C., for underground injection control, particularly Part V, for Class V, Group 4 aquifer remediation projects; Chapter 62-770, F.A.C., for petroleum cleanup criteria; and Chapter 62-777, F.A.C., also for minimum groundwater criteria.

A noteworthy aspect of the minimum criteria set forth in Chapter 62-520, F.A.C., is that it requires groundwater to be free from substances that are harmful to plants, animals, and organisms, and free from substances that are carcinogenic, mutagenic, teratogenic or toxic to human beings. In effect, these "free from" requirements form a catchall. They close what would otherwise be a loophole in the regulations by preventing injection of a potentially harmful product in the event that any of its ingredients is not regulated as a specific primary or secondary drinking water contaminant.

- b. Injection well permit: The issuance of a site-specific Remedial Action Plan Approval Order by either the Bureau of Petroleum Storage Systems or the Bureau of Waste Cleanup, for remediation via injection of OSE II into an aquifer, constitutes the granting of a Class V injection well permit.
- c. Groundwater injection standards: For in situ aquifer remediation, the composition of an injected fluid must meet the drinking water standards set forth in Chapter 62-550, F.A.C., pursuant to underground injection control Rule 62-528.600(2)(d), F.A.C.
- d. Variance: As indicated in the proprietary ingredients voucher, OSE II must obtain a variance for a deviation from Rule 62-522.300(3), F.A.C., in order to be used as an injection-type, in situ aquifer remediation product. Such a variance will allow a temporary zone of discharge for the anionic Tergitol, non-ionic Tergitol, lauryl sulfate, and ammonia nitrogen in OSE II. Once granted, a variance will allow a temporary zone of discharge of specified dimensions around each injection point (usually expressed as a radius of influence) for a specified period of time. The measurement of the time period usually begins after the final injection. By the end of the time period, the groundwater concentration of any residual ammonia nitrogen in the zone of discharge must not exceed a 2.8 milligram per liter (mg/L) maximum, and the sum of the residual concentrations of anionic Tergitol, non-ionic Tergitol, and lauryl sulfate must not exceed 0.5 mg/L. If the groundwater's natural-occurring background concentration of any of these chemicals at a specific remediation site is already in excess of the established minimum groundwater criterion, then its residual concentration at the completion

of remediation shall be no greater than the pre-existing background concentration.

If the variance granted by the Department is not site-specific, then it may be considered as portable from one OSE II cleanup project to another in Florida, provided a Remedial Action Plan is submitted for each site. With a portable variance, OSE II and users of OSE II do not have to petition for a new variance each time OSE II is proposed for the remediation of a site, provided there is no deviation from the terms of the variance.

- e. Utilization of wells: If a remediation site happens to have an abundance of monitoring wells, then the Department has no objection to the use of some wells for the application of OSE II. However, no "designated" monitoring well, dedicated to the tracking of remediation progress (by sampling) shall be used to apply OSE II. This will avoid premature conclusions that the entire site meets cleanup goals. By making sure that designated tracking wells are not also used for treatment, there will be more assurance that the treatment process has permeated the entire site and that it did not remain localized to the area immediately surrounding each injection well.
- f. Additives: If, in the future, either Oil Spill Eater International Corporation or a user of OSE II decides to augment it with nutrients and/or chemicals, the injection of such nutrients and chemicals into an aquifer must also be in accordance with the underground injection control requirements of Chapter 62-528, F.A.C., which require that substances injected meet the drinking water standards set forth Chapter 62-550, F.A.C., and the minimum groundwater criteria of Chapter 62-520, F.A.C. Additionally, minimum groundwater criteria for specific chemicals are listed in Chapter 62-777, F.A.C.
- g. Groundwater monitoring:
  - 1. Active remediation petroleum monitoring: During the period of active remediation, groundwater shall be monitored in accordance with the requirements set forth in Section 62-770.700, F.A.C. Two noteworthy rules within that section are 62-770.700(3)(i), F.A.C., for frequency of sampling, and 62-770.700(5)(f), F.A.C., which requires a sampling schedule for bioremediation.
  - 2. Post remediation petroleum monitoring: At least one (1) year of quarterly post remediation groundwater monitoring shall be conducted at a minimum of two (2) wells, one located in the area of maximum petroleum contamination, the other downgradient of the area of maximum petroleum contamination, pursuant to Section 62-770.750, F.A.C.
  - 3. Underground injection control monitoring: A variance from Rule 62-522.300(3), F.A.C., when granted, allowing a temporary zone of discharge, will include groundwater monitoring requirements for underground injection control purposes, for anionic Tergitol, non-ionic Tergitol, lauryl sulfate, and the ammonia nitrogen in OSE II. Such monitoring will occur before and after the injection of OSE II.
- h. Underground injection control inventory: Remedial Action Plans prescribing injection-type, in situ aquifer remediation shall include information pursuant to Rule 62-528.630(2)(c)1 through 6, F.A.C., for the inventory purposes of underground injection control. Per Rule

62-528.630(2)(c), F.A.C., aquifer remediation projects involving injection wells may be authorized under the provisions of a Remedial Action Plan, provided the construction, operation, and monitoring requirements of Chapter 62-528, F.A.C., are met. A memorandum outlining the inventory information about injection-type aquifer remediation plans to be transmitted by Department reviewers to the Underground Injection Control Section is provided as enclosure 4. Only reviewers within the Department, including its district offices, may approve in situ injection-type remediation plans in which the approval constitutes a Class V injection permit; local programs are not authorized to grant such approvals. See enclosure 3.

i. Operation:

1. Avoidance of migration: For injection-type, in situ aquifer remediation projects, injection of OSE II shall be performed in such a way, and at such a rate and volume, that no undesirable migration of either the product's ingredients or the petroleum contaminants in the aquifer results, pursuant to Rule 62-528.630(3), F.A.C.
2. Underground injection control operating permit: Although an operating permit is not required for aquifer remediation wells pursuant to Rule 62-528.640(1)(b), and 62-528.640(1)(c), F.A.C., since no movement of the petroleum contamination plume is expected to accompany the OSE II treatment process, the Department requests that the information items listed in Rule 62-528.640(1)(b), F.A.C., be considered and included in Remedial Action Plan proposals as a matter of good and thorough design practice. Briefly summarized, they are: quality of water in the aquifer; quality of the injected fluid; existing and potential uses of the affected aquifer; and well construction details. Additionally, each Remedial Action Plan should clearly indicate the total volume of OSE II that will be injected.
3. Operating parameter measurements: Rule 62-770.700(9)(h), F.A.C., sets forth frequency requirements for the measurement of bioremediation operating parameters such as dissolved oxygen levels, rates of nutrient addition, temperature, etc. It also includes an option for reduction in the frequency or discontinuation of some measurements in situations when appropriate.

j. Abandonment of wells: Upon issuance of a petroleum Site Rehabilitation Completion Order, or a declaration of "No Further Action", injection wells shall be abandoned pursuant to Section 62-528.645, F.A.C. The Underground Injection Control Section of the Department shall be notified so that the injection wells can be removed from the inventory-tracking list.

ENCLOSURE 3

SUPPLEMENTAL INFORMATION

The information below, compiled from several sources, may be helpful to reviewers of Remedial Action Plans prescribing bioremediation.

- a. Department of Environmental Protection reviewers of injection-type, in situ aquifer remediation plans, regardless of whether in Tallahassee or district offices, must fill in the blanks on the enclosure 4 memorandum, whose subject is "Proposed Injection Well(s) for In situ Aquifer Remediation at a Petroleum Remedial Action Site". The completed form must be submitted to the Underground Injection Control Section at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

Only reviewers within the Department and its district offices may approve injection-type, in situ remediation plans in which the approval constitutes the issuance of a Class V injection permit; local programs are not authorized to grant such approvals. Reason: Although an arrangement between the Environmental Protection Agency and the Department delegates underground injection control authority to the Department, it does not allow the Department to delegate that authority any further. This includes delegation to the Department's contracted remediation review agencies such as those operated by the counties and other local governments.

- b. Pilot study: For bioremediation, per rule 62-770.700(2), F.A.C., a pilot study proposal shall be submitted for review, and a pilot test shall be performed prior to designing a treatment system. If conditions or the situation at a site do not warrant a pilot study, then a proposal explaining the rationale for the decision not to perform a pilot study shall be submitted for review. For state funded projects, reviewers are encouraged to use judgment in balancing cost and the need for technical information to be obtained from a pilot study.
- c. Dosage and application rate: The Bureau of Petroleum Storage Systems recommends that users consult Oil Spill Eater International Corporation when determining a site-specific dosage and application rate for OSE II.
- d. Oxygen: Since OSE II causes petroleum hydrocarbon contaminants to begin to decompose, in order to set the stage for further biodegradation by indigenous microorganisms already at a cleanup site, the Bureau of Petroleum Storage Systems reminds users and technical reviewers to make sure that sufficient oxygen is available at each site where OSE II will be used. If sufficient oxygen is not available, then it will have to be added in order to create conditions conducive for microorganisms to thrive. For aquifer remediation, the concentration of dissolved oxygen in the groundwater can be increased by either installing air spargers, direct injection of oxygen from a gas cylinder, or chemically by way of a peroxide. Users should contact the manufacturer to determine which method would be most appropriate for a given set of site-specific conditions. The Bureau wants to emphasize that one of the most important factors in the success of aerobic biodegradation is the availability of oxygen.
- e. Degradation products: Carbon dioxide and water are the ultimate products of aerobic and most anaerobic biodegradations of petroleum hydrocarbons. The intermediate products may include simple acids, alcohols, and fatty

acids. Aerobic processes use oxygen as an electron acceptor to produce the carbon dioxide and water.

- f. Parameters: The following parameters may be useful in determining the potential for bioremediation at a site, or whether bioremediation is already occurring. They were selected from a list that appears in the publication "In situ Treatment Technology" by E. Nyer et al., Lewis Publishers, 1996. The parameters are dissolved oxygen; redox potential; pH; temperature; specific conductance; volatile organic compounds; nitrate; nitrite; ammonia nitrogen; manganese (total and dissolved); iron (total, dissolved, and ferrous); sulfate; sulfide; and total organic carbon. Gaseous parameters include carbon dioxide, oxygen, nitrogen, and methane. Other parameters that may be helpful are chemical oxygen demand, biochemical oxygen demand, and total organic carbon. Those who prepare bioremediation plans, and their reviewers, should determine which parameters, if any, should be measured on a site-specific basis.

**Florida Department of  
Environmental Protection**

**Memorandum**

TO: Richard Deuerling, Mail Station 3530  
Division of Water Facilities  
Underground Injection Control Section  
Florida Department of Environmental Protection  
2600 Blair Stone Road, Tallahassee, FL 32399-2400

FROM: \_\_\_\_\_ (Note 1.)  
\_\_\_\_\_  
\_\_\_\_\_

DATE: \_\_\_\_\_

SUBJ: **Proposed Injection Well(s) for In situ Aquifer  
Remediation at a Petroleum Remedial Action Site**

Pursuant to Rule 62-528.630(2)(c), F.A.C, inventory information is hereby provided regarding the proposed construction of temporary injection well(s) for the purpose of in situ aquifer remediation at a petroleum-contaminated site.

Site name: \_\_\_\_\_  
Site address: \_\_\_\_\_  
City/County: \_\_\_\_\_  
Latitude/Longitude: \_\_\_\_\_  
FDEP Facility Number: \_\_\_\_\_

Site owner's name: \_\_\_\_\_  
Site owner's address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Well contractor's name: \_\_\_\_\_ (Note 2.)  
Well contractor's address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Brief description of the in situ injection-type aquifer remediation project:  
\_\_\_\_\_  
\_\_\_\_\_

Summary of major design considerations and features of the project:

Areal extent of contamination (square feet): \_\_\_\_\_  
Number of injection wells: \_\_\_\_\_  
Composition of injected fluid (Note 3)  
(ingredient, wt. %): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Injection volume per well (gallons): \_\_\_\_\_  
Single or multiple injection events: \_\_\_\_\_  
Injection volume total (all wells, all  
events): \_\_\_\_\_

A site map showing the areal extent of the groundwater contamination plume, and the location and spacing of injection wells and associated monitoring wells is attached.

The following is a summary description of the affected aquifer:

Name of aquifer: \_\_\_\_\_  
Depth to groundwater (feet): \_\_\_\_\_  
Aquifer thickness (feet): \_\_\_\_\_

The injection well(s) features are summarized below, and/or a schematic of the injection well(s) is attached.

Direct-push or Conventional (*circle the appropriate well type*)  
Diameter of well(s) (i.e., riser pipe & screen)(inches): \_\_\_\_\_  
Total depth of well(s) (feet): \_\_\_\_\_  
Screened interval: \_\_\_\_\_ to \_\_\_\_\_ feet below surface  
Grouted interval: \_\_\_\_\_ to \_\_\_\_\_ feet below surface  
Casing diameter, if applicable (inches): \_\_\_\_\_  
Cased depth, if applic.: \_\_\_\_\_ to \_\_\_\_\_ feet below surface  
Casing material, if applic.: \_\_\_\_\_

The in situ injection-type aquifer remediation plan for this petroleum contaminated site is intended to meet the groundwater petroleum cleanup criteria set forth in Chapter 62-770, F.A.C. Additionally, all other groundwater standards will be met at the time of project completion for any residuals associated with the ingredients of the injected remediation products, and any by-products or intermediates produced as a result of the chemical or biochemical transformation of those ingredients or the contaminating petroleum during their use. Applicable primary and secondary drinking water standards are set forth in Chapter 62-550, F.A.C., and additional groundwater quality criteria are set forth in Chapter 62-520, F.A.C.

The remediation plan estimates that site remediation will take \_\_\_\_\_ months. We will notify you if there are any modifications to the remediation strategy, which will affect the injection well design or the chemical composition and volume of the injected remediation product(s).

The proposed remediation plan was approved on \_\_\_\_\_ by an enforceable approval order. A copy is attached. The remediation system installation is expected to commence within 60 days. Please call me at \_\_\_\_\_ if you require additional information.

- 
- Note 1. Local programs are not authorized to approve underground injections into aquifers. Reason: Per agreement with EPA, the FDEP cannot delegate this authority. Local programs, after reviewing a Remedial Action Plan or an injection proposal document, should follow the instructions in a March 16, 2000 memorandum to arrange for Department headquarters' execution of an approval order, and then complete this form. This form is primarily for use by state and local program technical reviewers, but petroleum remediation contractors may fill in all blanks except those labeled "FROM", "DATE", and "approval date", and "telephone number" blanks in the last paragraph. Those blanks should be completed only by a state or local program reviewer.
- Note 2. If an injection well installation contractor has not yet been selected, then indicate the name and address of the project's general remediation contractor/consultant.
- Note 3. Complete chemical analysis of injected fluid is required by Chapter 62-528, Florida Administrative Code. Proprietary formulations shall make confidential disclosure. Injected fluids must meet drinking water standards of Chapter 62-550, F.A.C., unless an exemption or variance has been granted.