



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

March 11, 2016

Via Electronic Mail

StevenOSEI@msn.com

Steven Pedigo
Oil Spill Eater International
P.O. Box 515429
Dallas, Texas 75251

Re: Oil Spill Eater II (OSE II)

Dear Mr. Pedigo:

The Florida Department of Environmental Protection's Division of Waste Management (Division) hereby provides a superseding update of its original June 10, 2004 acceptance of Oil Spill Eater II (OSE II) for the remediation of petroleum and other suitable contaminants in groundwater and soil, in-situ and ex-situ. The regulatory advice provided in this letter regarding permission for an injection Zone of Discharge (ZOD) also supersedes a December 20, 2004 variance that was granted because, in the case of OSE II, permission for a temporary injection ZOD can now be obtained more easily by way of rule 62-520.310(8)(c), Florida Administrative Code (F.A.C.). The variance has been removed from the list of injection variances published by the Division at its Petroleum Restoration Program web site.

OSE II is a multi-enzyme liquid nutrient and a mix of anionic and nonionic surfactants. 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 in OSE II, and Enclosure 2 is regulatory information.

The Florida Department of Environmental Protection does not provide endorsements of remediation products or processes, but 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 and safety. Vendors, upon receipt of an acceptance, must market their product or process on its own merits regarding performance, cost, and safety in comparison to competing alternatives in the marketplace. This acceptance letter shall not be construed as either an approval of the product or a certification of its performance.

It is not a requirement that a remediation product or process obtain an acceptance from the Division in order to be proposed in a site-specific Remedial Action Plan, but the plan must contain sufficient information to show that the product or process meets all applicable rules and regulations. For OSE II, a copy of this acceptance letter should be included in the appendix of each site-specific Remedial Action Plan that proposes its use.

The Division reserves the right to revoke its acceptance of a product or process if it has been falsely or incompletely represented. Additionally, Division 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 design details must be provided in a site-specific Remedial Action Plan submitted for review and approval. If you have any questions, please contact Rick Ruscito at (850) 877-1133, extension 3722 or by e-mail at RRuscito@ene.com.

Sincerely,



Rick Ruscito, P.E.
Ecology & Environment, Inc.
Petroleum Restoration Program Section 6



Susan K. Fields
Environmental Administrator
Petroleum Restoration Program
Susan.Fields@dep.state.fl.us

enc: (1) Proprietary Ingredients Voucher
(2) Regulatory Information

ec: John Wright – FDEP, Tallahassee – John.Wright@dep.state.fl.us

History

TTL 1315, INN117, 06/10/2004
TTL 1315, INN117a, 03/11/2016



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Steven Pedigo
Oil Spill Eater International
P.O. Box 515429
Dallas, Texas 75251

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

Dear Mr. Pedigo:

The Florida Department of Environmental Protection's Division of Waste Management (Division) hereby reaffirms the receipt of a confidential disclosure dated August 25, 2003, submitted by Oil Spill Eater International Corporation, regarding the specific proprietary ingredients and their proportions in Oil Spill Eater II (OSE II). The product is a multi-enzyme liquid nutrient and a mix of anionic and nonionic surfactants for the biodegradation of hydrocarbons and other organic contaminants.

Per a March 2, 2016 communication with Oil Spill Eater International, OSE II still contains a mix of anionic and nonionic surfactants, but one of the specific anionic surfactants in the 2004 formulation is no longer present, and one of the other specific anionic surfactants has been replaced by another anionic.

For underground injection control purposes, aquifer remediation plans proposing OSE II must indicate the volume and composition of the remediation fluid to be injected. Since the composition is proprietary, it will suffice to indicate just the total volume of the fluid to be injected, the volumetric ratio of OSE II concentrate to water in that fluid, and to provide a footnote indicating that a one-time confidential disclosure of the ingredients is already on file with the Division. Please direct any questions to Rick Ruscito by telephone at (850) 877-1133 extension 3722, or by e-mail at rruscito@ene.com.

Sincerely,

Handwritten signature of Rick Ruscito in black ink.

Rick Ruscito, P.E.
Ecology & Environment, Inc.
Petroleum Restoration Program Section 6

Handwritten signature of Susan K. Fields in blue ink.

Susan K. Fields
Environmental Administrator
Petroleum Restoration Program
Susan.Fields@dep.state.fl.us

ENCLOSURE 2

REGULATORY INFORMATION

- a. Regulations: Chapters of the Florida Administrative Code (F.A.C.) that may be applicable, either in part or in their entirety, include but are not necessarily limited to Chapter 62-520, Ground Water Classes, Standards, and Exemptions; Chapter 62-528, Underground Injection Control (UIC), particularly Part V, for Class V, Group 4 aquifer remediation projects; Chapter 62-550, Drinking Water Standards; Chapter 62-777, Contaminant Cleanup Target Levels; Chapter 62-780, Contaminated Site Cleanup Criteria; Chapter 62-782, Dry Cleaning Solvent Cleanup Criteria; and Chapter 62-785, Brownfields Cleanup Criteria.

Users of OSE II shall comply with all applicable regulations. This includes meeting applicable groundwater cleanup target levels for the contaminants of concern, the residual concentrations of reagent ingredients, and any by-products of concern produced by chemical and biological reactions induced by those ingredients during the timeframe of the cleanup project. For the ingredients of concern that are present in excess of their groundwater standards, the timeframe is that which is permitted for a temporary injection zone of discharge (ZOD) as described below.

- b. UIC and ZOD permits: Per rule 62-528.630(2)(c), F.A.C., Class V injection-type aquifer remediation wells are exempt from the permitting requirements of rule 62-528.635, F.A.C., when authorized by a Department-approved Remedial Action Plan or other enforceable mechanism, provided the requirements of the rules governing the remediation project, as well as the construction, operation, and monitoring requirements of Chapter 62-528, F.A.C., are met. Per rule 62-528.630(2)(c), F.A.C., the issuance of an enforceable, site-specific Remedial Action Plan Approval Order by the Department for injection-type aquifer remediation [by OSE II for example] constitutes the granting of a Class V injection well construction/clearance permit. And per rule 62-520.310(8)(c), F.A.C., if a temporary ZOD is necessary, and permissible by way of that rule, then the issuance of the site-specific Remedial Action Plan Approval Order also constitutes the granting of permission for the temporary ZOD.
- c. Underground Injection Control (UIC) Notification: Remedial Action Plans proposing injection-type aquifer remediation shall include the information required by rules 62-528.630(2)(c)1 through 6, F.A.C., for the purposes of the UIC program. Reviewers of those plans, upon issuance of a Department-enforceable Remedial Action Plan Approval Order must transmit this information to the UIC program in Tallahassee by submitting a completed copy of the "UIC Notification". The notification is in the form of a memorandum currently located on the Internet at www.dep.state.fl.us/waste/categories/pcp/pages/innovative.htm.
- d. General information about temporary ZODs: For groundwater remediation, the composition of a fluid to be injected for the purpose of aquifer remediation must meet the primary and secondary drinking water standards set forth in Chapter 62-550, F.A.C., pursuant to UIC rule 62-528.600(2)(d), F.A.C. It must also meet the general minimum groundwater criteria set forth in Section 62-520.400, F.A.C., and the specific groundwater criteria for the chemicals listed in Table I of Chapter 62-777, F.A.C. Aquifer remediation products that do not meet these requirements must seek permission for a temporary injection ZOD by one of two mechanisms: (1) by way of rule 62-520.310(8)(c), F.A.C.; or (2) if permission cannot be

obtained by rule, then it will be necessary to seek a permission for a ZOD by way of variance from Department rules in accordance with Section 120.542, Florida Statutes.

Rule 62-520.310(8)(c), F.A.C., allows for a temporary ZOD for closed-loop re-injection systems, for the prime constituents of the reagents used to remediate site contaminants, and for groundwater secondary standards. In order to obtain permission for a temporary ZOD by rule, a site-specific Remedial Action Plan must indicate: (a) the chemical ingredients of concern in the fluid to be injected that will be present in excess of groundwater standards; (b) the size of the ZOD that is needed; (c) the amount of time that the ZOD will be needed; and (d) a groundwater monitoring plan for the injected chemical ingredients of concern. The size of the temporary ZOD will usually be the injection well radius of influence when the treatment system is a single injection point. For a multiple point system, the ZOD can usually be expressed and illustrated as the total area covered by all the injection points, located side-by-side with overlapping radii of influence.

- e. Specific ZOD information for submitters of OSE II remediation plans: Submitters of site-specific Remedial Action Plans shall indicate the total volume and overall concentration of the OSE II remediation fluid to be injected, and seek permission for a temporary ZOD by way of rule 62-520.310(8)(c), F.A.C., as described in paragraph *d* above for **ammonia** (a minimum groundwater criteria contaminant) and **surfactants** (a secondary drinking water contaminant). In the case of OSE II, it may be more convenient for submitters of Remedial Action Plans to indicate the overall concentration volumetrically; for example: a 1:50 volumetric ratio of OSE II to water (or 2% by volume) which is a typical injection concentration for OSE II. Other ratios may be injected, higher or lower, depending on site-specific conditions, but the Division advises the use of no more than necessary to do the job, in order to more easily meet the groundwater standards for ammonia and surfactant by the end of the time period permitted for the temporary ZOD.
- f. Specific UIC Notification information about OSEI II to reviewers : Department reviewers, when submitting the UIC Notification memorandum for a site-specific OSEI II Remedial Action Plan (paragraph *c* above) should place a checkmark in the box shown as “ ZOD permission by rule 62-520.310(8)(c), F.A.C., for reagent chemical species and/or parameter(s) in the fluid to be injected ...”.
- g. Specific ZOD monitoring advice for users of OSE II: For ammonia and surfactants, quarterly monitoring of groundwater should suffice in most cases. The current groundwater standard for ammonia is 2.8 milligrams per liter (mg/L), and the current standard for total surfactant is 0.5 mg/L (foaming agents per Chapter 62-550, F.A.C., though not all surfactants cause foam). Upon expiration of the time period granted for the ZOD, the ammonia and surfactants must meet their respective groundwater standards, or their pre-injection, natural-occurring background values at the specific cleanup site, whichever is less stringent. Use Standard Methods SM 5540C to determine the concentration of anionic surfactants, and SM 5540D for nonionic surfactants. Use at least two (2) wells for the ZOD monitoring of the OSE II: one located in the center of the treatment area, the other at, near, or just beyond the downgradient edge of the treatment area. These must be dedicated monitoring wells and they must not have been used for the injection of OSE II.

- h. Chloride by-product sampling: Chlorides are not an ingredient of OSE II, and therefore do not have to be monitored in the groundwater as an injection ZOD parameter for UIC purposes. But for the cleanup of sites where chlorinated hydrocarbons (e.g., dry cleaning solvent) is the contaminant of concern, it would be worthwhile to monitor chloride by-product concentration as an indicator of cleanup progress, and for the purpose of determining whether its 250 mg/L groundwater standard is met by the time a cleanup is completed.
- i. Utilization of wells: If a remediation site happens to have an abundance of monitoring wells, then the Division of Waste Management has no objection to the use of some wells for the injection of OSE II if the wells are suitable for that purpose. However, no "designated" monitoring well, dedicated to the tracking of remediation progress (by sampling) shall be used to apply OSE II. This will avoid a premature conclusion that the entire site meets cleanup goals. By making sure that designated tracking wells are not 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.
- j. 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 OSE II or the contaminants of concern in the aquifer results, pursuant to rule 62-528.630(3), F.A.C.
- k. Abandonment of wells: Upon issuance of a 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.
- l. Open-pit application: There is no objection to the introduction of OSE II to an open excavation pit in which the groundwater has been exposed. Open-pit application is not injection, and it is not necessary to notify the Underground Injection Control Section, but this should not be construed as carte blanche to introduce to the pit any substance at any concentration with no regard to potential toxicological effects. The Division of Waste Management therefore recommends that the groundwater in the area of the pit be monitored for the same parameters that would have been monitored (if any) had the application actually been an injection.
- m. Additives: If an additive is used with OSE II in the future, then a site-specific Remedial Action Plan must include a complete description of the additive's chemical composition and physical properties, the concentration of the additive in the fluid to be injected, the volume of the fluid to be injected, and seek permission for a temporary ZOD as described in paragraph d above if the fluid does not meet primary, secondary, and minimum groundwater standards.