



Florida Department of Environmental Protection

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

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

February 4, 2009

Ted Tidwell
1st Enviro-Safety Incorporated
10200 Betsy Parkway
St. James City, Florida 33956

Re: ECCO Commercial Cleaner

Dear Mr. Tidwell:

This update by the Bureau of Petroleum Storage Systems (the Bureau) replaces and supersedes its original December 1, 2003 acceptance of ECCO Commercial Cleaner, a product offered by 1st Enviro-Safety Incorporated for the remediation of petroleum contamination in groundwater and soil, in situ and ex situ. This update is for the reformulated product, a proprietary blend of cleaning agents and a nonionic glucoside surfactant that is also available in the United States and Canada under one or more of the following names: EarthCleanser, PetroSolv, Purely Green and RemdiGreen. A voucher for the confidential disclosure of the proprietary ingredients and their proportions is provided as Enclosure 1. Regulatory information regarding their use is provided in Enclosure 2, and to aid regulatory agency reviewers, supplemental information is provided in Enclosure 3.

While the Bureau of Petroleum Storage Systems does not provide endorsement of specific or brand name remediation products or processes, it does recognize the need to determine their acceptability in the context of environmental regulations, protection of public health, and safety. The Bureau emphasizes a distinction between its regulatory acceptance and an approval, as products and processes are accepted but they are not approved. An acceptance shall not be construed as a certification of performance, nor shall it be construed as a preference on the part of the Bureau. As is the case with any other remediation product or process, vendors and environmental consulting companies must market them on their own merits in regard to performance, cost, and safety in comparison to competing alternatives in the marketplace.

Remedial Action Plans that propose the use of an accepted product should include a copy of the acceptance letter in the Remedial Action Plan's appendix, and reference it in the text of the document. The Bureau also emphasizes that it is not a requirement that a particular remediation product or process have an 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 rules and regulations.

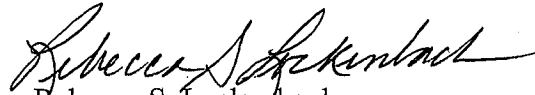
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The Bureau reserves the right to revoke its acceptance of a product or process if it has been falsely or incompletely represented. Additionally, Bureau acceptance of any product or process does not imply it has been deemed applicable for all cleanup 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 to the Department for review and approval. Please contact Rick Ruscito at (850) 877-1133, extension 3722, if there are any technical 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/Tallahassee

PROPRIETARY INGREDIENTS VOUCHER

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February 4, 2009

Ted Tidwell
1st Enviro-Safety Incorporated
10200 Betsy Parkway
St. James City, Florida 33956**Re: Voucher for Disclosure of Proprietary Ingredients
for Reformulated ECCO Commercial Cleaner**

The Bureau of Petroleum Storage Systems hereby acknowledges the January 23, 2009 confidential disclosure by 1st Enviro-Safety Incorporated, listing the proprietary ingredients and their proportions in reformulated ECCO Commercial Cleaner. Without divulging any of the proprietary information, the product is a blend of cleaning agents and a nonionic glucoside surfactant. It can be used for the remediation of petroleum contaminants in groundwater and soil, in situ and ex situ, and is also available under one or more of the following labels in the United States and Canada: EarthCleanser, PetroSolv, Purely Green and RemdiGreen.

The Bureau hereby vouches for the content of the confidential disclosure, and indicates that permission for a temporary injection zone of discharge must be granted by way of Rule 62-522.300(2)(c), Florida Administrative Code (F.A.C.), when this product is used for in situ injection-type aquifer remediation by either direct injection or re-injection. The parameters for which temporary injection zone of discharge permission must be sought are pH, ammonia nitrogen, and surfactant. These parameters are for the application strength of 1% by volume, for which the user is instructed to prepare by combining 99 volumes of water with 1 volume of the "as-shipped" cleaner concentrate prior to use.

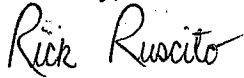
Aquifer remediation plans proposing the injection of ECCO Commercial Cleaner must indicate the volume and composition of the fluid to be injected. Since the individual ingredients and their proportions are proprietary, it will suffice to indicate just the overall volumetric concentration of ECCO Commercial Cleaner in the fluid to be injected and the total volume of that fluid, and then provide a footnote indicating that a one-time confidential disclosure dated January 23, 2009 identifying the individual ingredients and their proportions has already been submitted to the Department.

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ECCO Commercial Cleaner
Ingredients Voucher

This voucher is issued for the purposes of the Bureau of Petroleum Storage Systems, for the remediation of petroleum-contaminated sites pursuant to Chapter 62-770, F.A.C. Other bureaus, agencies and local governments may choose to recognize this voucher if their needs are similar. The Bureau of Petroleum Storage Systems, however, is not responsible for applications beyond its jurisdiction. Please direct any questions regarding this voucher to Rick Ruscito at (850) 877-1133, extension 3722.

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

REGULATORY INFORMATION

1. Regulations: Users of ECCO Commercial Cleaner shall ensure that all applicable groundwater contaminant standards are met at the time of project completion, for the contaminants of concern, any residuals associated with the ingredients of the cleaner, and any byproducts of concern produced as a result of chemical or biochemical reactions involving those ingredients. The following chapters of the Florida Administrative Code (F.A.C.) 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; 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., for cleanup target levels.
2. Temporary injection zone of discharge: Based on the information provided by 1st Enviro-Safety Incorporated, ECCO Commercial Cleaner will need permission for a temporary injection zone of discharge. Three situations are discussed below. The first two are in regard to direct injection, re-injection and re-infiltration of cleaner; the third is in regard to the re-injection and re-infiltration of partially treated petroleum contaminants of concern.
 - a. Direct injection of cleaner: The Bureau of Petroleum Storage Systems has determined, based on information provided by 1st Enviro-Safety Incorporated, that permission for a temporary injection zone of discharge is needed for direct injection of cleaner when the user, prior to injection, combines one (1) volume of the "as-shipped" concentrate with 99 volumes of clean water. Permission for a temporary injection zone of discharge must be sought by way of Rule 62-522.300(2)(c), F.A.C., for pH, ammonia nitrogen, and surfactant.
 - b. Re-injection and re-infiltration of cleaner: Permission for a temporary injection zone of discharge must be obtained by way of Rule 62-522.300(2)(c), F.A.C., when the re-injected or re-infiltrated fluid contains ECCO Commercial Cleaner. The parameters associated with the temporary injection zone of discharge are the same as above for a direct injection: pH, ammonia nitrogen, and surfactant.
 - c. Re-injection and re-infiltration of petroleum contaminants of concern: If the groundwater petroleum contaminants of concern at a site are fully treated to the cleanup target levels of Chapter 62-777, F.A.C., by an aboveground remediation system prior to re-injection or re-infiltration, then it is not necessary to obtain permission for a temporary injection zone of discharge for the petroleum contaminants. If, however, the aboveground remediation system only partially treats these contaminants, and the effluent does not meet the cleanup target levels of Chapter 62-777, F.A.C., prior to re-injection or re-infiltration, then it will be necessary to also obtain permission for a temporary injection zone of discharge by way of Rule 62-522.300(2)(c), F.A.C., to re-inject or re-infiltrate the partially-treated petroleum contaminants of concern. This would be in addition to the permission that must be sought for the pH, ammonia nitrogen, and surfactant that will also be present in the re-injection or re-infiltration fluid due to the ingredients of the ECCO Commercial Cleaner itself.

3. Class V injection-type aquifer remediation wells: Per Rule 62-528.630(2)(c) in the December 27, 2005 revision of Chapter 62-528, F.A.C., Class V injection-type aquifer remediation wells are exempt from the permitting requirements of Rule 62-528.635, F.A.C., provided they are authorized under the provisions of a Remedial Action Plan or other enforceable mechanism, and provided that 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. In other words, the issuance of an enforceable, site-specific Remedial Action Plan Approval Order by the Department for injection-type aquifer remediation using ECCO Commercial Cleaner constitutes the granting of a Class V injection well construction/clearance permit.
4. Utilization of wells: If a remediation site happens to have an abundance of monitoring wells, then there is no objection to the use of some wells for the injection of ECCO Commercial Cleaner. However, no "designated" monitoring well, dedicated to the tracking of remediation progress (by sampling) shall be used as a treatment point. This will avoid a premature conclusion that the entire site meets cleanup goals. By avoiding the use of designated wells as treatment points, there will be more assurance that cleaner permeated and treated the entire site, and that it did not remain localized just to the immediate area surrounding each treatment point.
5. Avoidance of migration: Per Rule 62-528.630(3), F.A.C., in situ, injection-type aquifer remediation projects shall be conducted in such a way that there is no undesirable migration of either the remediation agents used or the contaminants of concern.
6. Abandonment of wells: Upon issuance of a Site Rehabilitation Completion Order, 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 Class V aquifer remediation wells can be removed from the inventory-tracking list.
7. Open-pit application: The introduction of ECCO Commercial Cleaner to an open excavation pit in which the groundwater has been exposed, or to a dry open pit from which cleaner can percolate into the underlying groundwater is not an injection. For such non-injection applications, notification of the Underground Injection Control Section is not required. This, however, should not be interpreted as carte blanche to indiscriminately introduce remediation agents to the subsurface without first giving consideration to the toxicological impacts of their ingredients on the groundwater.

The advice offered by the Bureau of Petroleum Storage Systems for the addition of remediation reagents to an open pit is to monitor the groundwater as if the application had in fact been an injection and subject to Underground Injection Control regulations. In the case of ECCO Commercial Cleaner, the groundwater should be monitored for pH, ammonia nitrogen, and surfactant. For relatively small pits, after backfilling, the installation of at least one monitoring well in the center area, for monitoring of the foregoing parameters on a quarterly basis should suffice. Continue the monitoring until each parameter meets its respective groundwater standard or its natural-occurring background level at the site, whichever is less stringent.

SUPPLEMENTAL INFORMATION

1. Underground Injection Control notification: Remediation plans proposing in situ, injection-type aquifer remediation shall include information pursuant to Rules 62-528.630(2)(c)1 through 6, F.A.C., for the inventory purposes of underground injection control. The regulatory reviewer, upon issuance of an enforceable Approval Order for an injection plan, must notify the Underground Injection Control Section about the injection by using the notification memorandum provided in Enclosure 4, regardless of whether or not the fluid to be injected requires permission for a temporary injection zone of discharge.
2. Obtaining permission for a temporary injection zone of discharge: If a fluid to be directly injected or re-injected into the subsurface is such that the concentration of any of its constituent chemical species does not meet its respective primary or secondary drinking water standard, or its respective minimum groundwater criterion, then permission must be obtained for a temporary injection zone of discharge. In most cases, including that of ECCO Commercial Cleaner, such permission can be obtained by way of Rule 62-522.300(c), F.A.C.

In order to obtain permission by way of Rule 62-522.300(c), F.A.C., a site-specific Remedial Action Plan submitted to the Department for review and approval must: (a) identify the chemical species and parameters in the fluid that will need permission for a temporary injection zone of discharge; (b) specify the amount of time that is requested for the temporary injection zone of discharge; (c) specify the size of the zone; and (d) provide for groundwater monitoring of the chemical species for which temporary injection zone of discharge permission is sought. The issuance of an enforceable approval order by the Department for a site-specific Remedial Action Plan that adequately addresses items (a), (b), (c) and (d) above will constitute the granting of permission for the temporary injection zone of discharge.

For item (c) above, in most cases, the size of the injection zone for an individual injection point is likely to be equal to its injection radius of influence. And when a cluster of closely spaced injection points is used, the size of the injection zone for the entire cluster can usually be illustrated as a composite of all the individual points with their overlapping radii of influence.

For item (d) above, in most cases, monitoring of groundwater on a quarterly basis should suffice. Upon expiration of the time permitted for a temporary injection zone of discharge, either by Rule 62-522.300(2)(c), F.A.C., or by variance, each chemical species and parameter for which the temporary zone was established must meet its respective groundwater water standard, or be no worse than its natural-occurring background level at the cleanup site, whichever is less stringent. The groundwater standards for the injection zone parameters associated with ECCO Commercial Cleaner are as follows: pH, range 6.5 to 8.5; ammonia nitrogen, 2.8 milligrams per liter (mg/L), maximum; and surfactants (i.e. foaming agents), 0.5 mg/L, maximum.

Additional information about temporary injection zones of discharge can be found in Bureau of Petroleum Systems' guidance document "BPSS-10, In Situ Chemical Additives", currently located at web page www.dep.state.fl.us/waste/categories/pcp/pages/active.htm.

3. Analysis of groundwater samples for surfactant: Chapter 62-550, F.A.C., refers to surfactants as foaming agents, albeit not all surfactants cause foam. The laboratory method cited in that chapter for their measurement is Standard Method SM 5540. Since the surfactant in ECCO Commercial Cleaner is of the nonionic type, it is suggested that Standard Method SM 5540D for nonionic surfactant quantification be used.
4. Frequency and application amount: 1st Enviro-Safety Incorporated, in its submittal of information to the Bureau of Petroleum Storage Systems, indicated that the user, prior to injection, prepares a dose of ECCO Commercial Cleaner by mixing 1 volume of "as-shipped" cleaner concentrate with 99 volumes of water. The frequency and amount at which this dose is applied either per cubic yard of contaminated soil or aquifer, or per ton of contaminated soil, or per pound of contaminant was not specified. The Bureau therefore suggests that prospective users contact 1st Enviro-Safety Incorporated for advice in regard to the frequency and amount of application for the site-specific conditions of the project at hand.

Florida Department of
Memorandum Environmental Protection

TO: Cathy McCarty, P.G.
Bureau of Water Facilities Regulation
Underground Injection Control Section – MS 3530

FROM: _____

DATE: _____

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

Pursuant to paragraph 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.

Facility name: _____

Facility address: _____

City/County: _____

Latitude/Longitude: _____

FDEP Facility Number: _____

Facility owner's name: _____

Facility owner's address: _____

Well contractor's name: _____

Well contractor's address: _____

Date: _____

Facility name: _____

FDEP facility no.: _____

AFFECTED AQUIFER

Name of aquifer: _____

Depth to groundwater (feet): _____

Aquifer thickness (feet): _____

Areal extent of contamination (square feet): _____

INJECTION WELLS

A site map showing the location and spacing of injection wells, the areal extent of the groundwater contamination plume, and associated monitoring wells is attached. The injection well(s) features are summarized below, and/or a schematic of the injection well(s) is attached.

Direct-push or HSA/Mud rotary (*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 land surface

Grouted interval: _____ to _____ feet below land surface

Casing diameter, if applicable (inches): _____

Cased depth, if applicable: _____ to _____ feet below land surface

Casing material, if applicable: _____

PROJECT DESCRIPTION

The in situ, injection-type aquifer remediation product/process remediates petroleum by:

(check those that apply)

☐ bioremediation,☐ chemical oxidation, or☐ other (describe) _____

Brief description of the project: _____

Summary of major design considerations and features of the project:

Number of injection wells: _____

Injection volume per well (gallons): _____

Single or multiple injection events: _____

Injection volume total (all wells, all events): _____

FLUID TO BE INJECTED

Composition of injected fluid (ingredient, wt. %): _____

TEMPORARY INJECTION ZONE OF DISCHARGE (ZOD)

(check those that apply)

- ☐ No ZOD needed. The fluid to be injected meets the primary and secondary drinking water standards set forth in Chapter 62-550, F.A.C., and the minimum groundwater quality criteria set forth in Chapters 62-520 and 62-777, F.A.C.
- ☐ ZOD permission by paragraph 62-522.300(2)(c), F.A.C., for reagent chemical species and/or parameter(s) in the fluid to be injected (or re-injected) that exceed secondary groundwater standards. ZOD permission by this paragraph also applies to chemical species in the fluid to be injected that exceed primary groundwater standards or minimum groundwater criteria, provided those species are prime constituents of the reagents used to remediate site contaminants. The list of chemical species and parameters for which the approved remediation plan identifies zone size, duration and groundwater monitoring are as follows:

- ☐ ZOD permission by paragraph 62-522.300(2)(c), F.A.C., for the following petroleum products' contaminants of concern that exceed their groundwater standards in the fluid to be re-injected as part of a closed-loop re-injection system for which the approved remediation plan identifies zone size, duration and groundwater monitoring:

- ☐ ZOD permission by variance because the fluid to be injected contains the following impurities that are not prime constituents of the reagents used to remediate the site's contaminants, and the concentrations of those impurities in the fluid to be injected are in excess of their primary groundwater standards:

- ☐ A variance needs to be granted before the remediation can be conducted.

- ☐ A variance has already been granted for the impurities listed above:

Date variance granted: _____

Zone size (square feet): _____

Duration (months): _____

- ☐ If ZOD permission by paragraph 62-522.300(2)(c), F.A.C., or by variance is checked above, then a figure that delineates the ZOD is attached, or

- ☐ The ZOD is described as follows: _____

CLEANUP CRITERIA AND ENFORCEABLE APPROVAL ORDER

The in situ injection-type aquifer remediation plan for this petroleum contaminated site is intended to meet the groundwater petroleum cleanup criteria referenced 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 product 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 Chapters 62-520 and 62-777, 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.