

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In re: Redox Tech LLC
Petition for Variance

OGC Case No.: 07-0202

FINAL ORDER GRANTING PETITION FOR
VARIANCE FROM RULE 62-522.300(3), F.A.C.

On February 5, 2007, Redox Tech LLC, filed a petition for variance from requirements in rule 62-522.300(3), of the Florida Administrative Code. The petition was for a variance from rule 62-522.300(3), which prohibits a zone of discharge for discharges through wells, in order to use its in-situ remedial product. This process involves the use of wells or borings which is considered installation of one or more temporary Class V underground injection control wells at the site of contamination. A notice of receipt of the petition was published on the Department's Internet site on March 23, 2007.

1. Petitioner is located at 200 Quade Drive, Cary, North Carolina 27513.

2. Redox Tech LLC, manufactures a bioremediation product called ABC+ (Anaerobic BioChem Plus) that is used for the remediation of ground water contaminated with chlorinated ethenes, several chlorinated alkanes (including tetrachloroethane, 1,1,1-trichloroethane, 1,2-dichloroethane, carbon tetrachloride, and chloroform), and potentially

chlorinated phenols, pesticides, biphenyls, and other related contaminants.

3. Under rule 62-520.420 of the Florida Administrative Code, the standards for Class G-II ground waters include the primary and secondary drinking water standards of rules 62-550.310 and 62-550.320, and the minimum criteria of rule 62-520.410 (as reflected in chapter 62-777 as ground water target cleanup levels). However, on August 27, 2001, Rules 62-522.300(2) and 62-528.605(3), F.A.C., were amended to allow injection of products for ground water cleanup that do not meet the primary or secondary drinking water standards. Specific limitations were included in the rules. The use of ABC+ now only requires a variance for ethanol and total recoverable petroleum hydrocarbons (TRPH), as described below. Sodium, chloride, total dissolved solids, iron, and pH will be addressed in the Remedial Action Plan.

4. ABC+ uses an amendment (electron donor or food source) to increase microbial activity in a contaminated aquifer to enhance the in-situ reductive dechlorination of chlorinated hydrocarbons. This product is to be injected through wells or borings into the soil and ground water. The injected fluid is to consist of dipotassium or dicalcium phosphate buffers, zero valent iron, guar gum, fermentable lactate, glycerin, and/or soybean oil, mixed with water.

5. The soybean oil is a non-toxic food grade substance and therefore should pose no threat to human health. The soybean oil (Oil) or ground water in contact with the Oil may result in a perceived exceedance of total recoverable petroleum hydrocarbons (TRPH). As a result, the TRPH concentrations may temporarily exceed the ground water cleanup target level of 5 mg/L.

6. When ABC+ is mixed with excess water or ground water the ethyl lactate will produce ethanol. This will result in a local, temporary exceedance of the ethanol health based ground water clean up target level of 400 mg/L. The ethanol is degraded by serving as an alternative food source or an additional source of hydrogen.

7. TRPH and ethanol are only expected to exceed their ground water cleanup target levels within an area extending out in a radius of 50 feet from the immediate point of injection for a period of 365 days. The presence of TRPH and ethanol above their ground water cleanup target level has no anticipated adverse impacts to human health because such an exceedance will occur only in ground water at a site already contaminated by chlorinated hydrocarbons and other suitable contaminants, and the ground water is not presently used for domestic purposes. No other constituents of the injected product or resulting remediation will exceed any other primary or secondary drinking water standard not covered by the rule amendments discussed in paragraph 3 above. TRPH and ethanol will return to meeting their

ground water cleanup target level or naturally occurring background values, whichever is less stringent, within, at most, 365 days from injection.

8. The injection of this product through temporary wells or borings is considered a type of underground injection control well, Class V, Group 4, "injection wells associated with an aquifer remediation project," as described in rule 62-528.300(1)(e)4 of the Florida Administrative Code. Under rule 62-528.630(2)(c), "Class V wells associated with aquifer remediation projects shall be authorized under the provisions of a remedial action plan . . . provided the construction, operation, and monitoring of this Chapter are met."

9. The rule (62-522.300(3)) from which this petition seeks a variance prohibits the Department from granting a zone of discharge for a discharge through an injection well to Class G-II ground water. Strict adherence to this rule would preclude the Department from granting approval for the use of ABC+ for remediation of contaminated ground water and soils.

10. The applicable rules state in pertinent part:

62-522.300(1) . . . [N]o installation shall directly or indirectly discharge into any ground water any contaminant that causes a violation in the ground water quality standards and criteria for the receiving ground water as established in Chapter 62-520, F.A.C., except within a zone of discharge established by permit or rule pursuant to this chapter.

62-522.300(3) Other discharges through wells or sinkholes that allow direct contact with Class G-I, F-I, or Class G-II ground water shall not be allowed a zone of discharge.

11. Redox Tech LLC, has stated in its petition that to apply the zone of discharge prohibition to the use of ABC+ would create a substantial hardship or would violate the principles of fairness because the use of this product is to remediate contaminated ground water as quickly and inexpensively as possible, without causing further harm to the environment or public health. The petition also states that remediation using ABC+ allows for a quicker and more effective clean up of contaminated ground water at a substantial cost savings over traditional remediation methods. Remediation would improve the water quality, and to prohibit any exceedance of the specified ground water cleanup target levels, in such a small area of already contaminated ground water and for short duration would cause a substantial hardship. This small and temporary exceedance is not the usual occurrence, nor are most discharges involved in the remediation of contaminated ground water. By allowing the use of ABC+, the clean up of the contaminated ground water and soils will be accelerated and returned to a usable condition. In addition, the use of this product has been tentatively approved by the Department's Division of Waste Management as being a sound environmental solution of the contamination, so long as Redox Tech LLC, is able to obtain a variance. Lastly, other similar in-situ processes have been granted variances, and to not allow this process to be used would violate the principles of fairness.

12. Zones of discharge for the use of ABC+ are necessary because of the temporary exceedance of the TRPH and ethanol standard in the ground water immediately surrounding the injection. Because this ground water is already contaminated and does not meet all applicable standards, allowing a zone of discharge as part of an approved remediation strategy for sites contaminated with chlorinated hydrocarbons meets the purpose of the underlying statute, which is to improve the quality of the waters of the state for beneficial uses. Such contaminated ground water is not presently used for drinking purposes, thus posing no threat to human health.

13. The Department received no comments concerning the petition for variance.

14. For the foregoing reasons, Redox Tech LLC, has demonstrated that it is entitled to a variance from the prohibition of zones of discharge in rule 62-522.300(3) for the use of ABC+, with the conditions below.

a. Use of this product must be through a Department-approved remedial action plan, or other Department-enforceable document, for an aquifer remediation project and such approval shall not be solely by a delegated local program.

b. The discharge to the ground water must be through a Class V, Group 4 underground injection control well which meets all of the applicable construction, operating, and monitoring

requirements of chapter 62-528 of the Florida Administrative Code.

c. The extent of the zone of discharge for TRPH and ethanol shall be a 50-foot radius from the point of injection and the duration of the zone of discharge shall be 365 days. This will allow ample time for the temporarily exceeded parameters to return to the applicable levels set forth in chapter 62-777 of the Florida Administrative Code, or their naturally occurring background levels at a site, whichever is less stringent.

d. The injection of ABC+ shall be at such a rate and volume that no undesirable migration occurs of the product, its by-products, or the contaminants already present in the aquifer.

e. The Department-approved remedial action plan shall address appropriate ground water monitoring requirements associated with the use of ABC+ for remediation based on site-specific hydrogeology and conditions. These shall include the sampling of ground water at monitoring wells located outside the contamination plume, before use of ABC+, to determine the naturally occurring background levels of TRPH and ethanol, which are the parameters pertinent to this variance, and sodium, chloride, pH, iron, and total dissolved solids (TDS). Sodium, chloride, pH, iron, and TDS are included in this monitoring because the use of this product may also cause a temporary exceedance of their respective primary or secondary drinking water standard. TRPH, ethanol, sodium, chloride, pH, iron, and

TDS should also be included in the monitoring of the ground water downgradient from the injection points for at least 365 days after active remediation. (Sodium, chloride, pH, iron, and TDS are included herein solely because of the rules amendments discussed in paragraph 3 above, which require any parameter that will not meet its standard to be included in the remedial action plan for monitoring and zone of discharge purposes.)

This order will become final unless a timely petition for an administrative proceeding is filed pursuant to the provisions of sections 120.569 and 120.57 of the Florida Statutes. Any person whose substantial interests are affected by the Department's action may file such a petition. The petition must contain the information set forth below and must be filed (received) in the Department's Office of General Counsel, 3900 Commonwealth Boulevard, MS 35, Tallahassee, Florida 32399-3000. Petitions filed by Redox Tech LLC, or any of the parties listed below must be filed within 21 days of receipt of this order. Petitions filed by any other person must be filed within 21 days of publication of the public notice or within 21 days of receipt of this order, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication. A petitioner must mail a copy of the petition to Redox Tech LLC, 200 Quade Drive, Cary, North Carolina 27513 at the time of filing. The failure of

any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 of the Florida Statutes, or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will only be at the discretion of the presiding officer upon the filing of a motion in compliance with rule 28-106.205 of the Florida Administrative Code.

A petition that disputed the material facts on which the Department's action is based must contain the following information:

(a) The name, address, and telephone number of each petitioner; the Department case identification number and the county in which the subject matter or activity is located;

(b) A statement of how and when each petitioner received notice of the Department action;

(c) A statement of how each petitioner's substantial interests are affected by the Department action;

(d) A statement of the material facts disputed by the petitioner, if any;

(e) A statement of facts that the petitioner contends warrant reversal or modification of the Department action;

(f) A statement of which rules or statutes the petitioner contends require reversal or modification of the Department action; and

(g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wants the Department to take.

A petition that does not dispute the material facts on which the Department's action is based shall state that no such facts are in dispute and otherwise contain the same information as set forth above, as required by rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department final action may be different from the position taken by it in this order. Persons whose substantial interests will be affected by any such final decision of the Department on the petitions have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

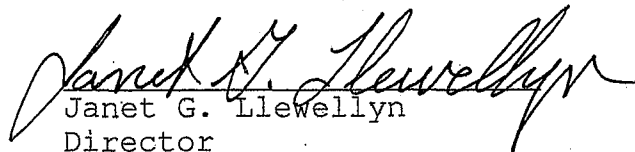
Mediation under section 120.573 of the Florida Statutes is not available for this proceeding.

This action is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above.

A party to this order has the right to seek judicial review of it under section 120.68 of the Florida Statutes, by filing a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, and by filing a copy of the

notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

DONE AND ORDERED this 27th day of April 2007 in Tallahassee, Florida.



Janet G. Llewellyn
Director
Division of Water Resource
Management
Department of Environmental
Protection

2600 Blair Stone Road
Mail Station 3500
Tallahassee, Florida 32399-2400
Telephone (850) 245-8335

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to s. 120.52, Florida Statutes, with the designated Agency Clerk, receipt of which is hereby acknowledged. All copies were mailed before the close of business on the date below to the persons listed.

Shirley Shields
Clerk

05-01-07
Date

Copies furnished to:
Richard Drew, MS 3535
Jeff Lockwood, MS4535
Sri Tammisetti, MS 4535
Cathy McCarty, MS 3530
Cynthia Christen, MS 35
Donnie McClaugherty, MS 3530
Suzanne Printy, JAPC

Rick Ruscito, MS 4590
Robert Cowdery, MS 4520
George Heuler, MS 3530
Richard Deuerling, MS 3530
Lea Crandall, MS 35
Bryan Baker, MS 4560

NOTICE OF RIGHTS OF SUBSTANTIALLY AFFECTED PERSONS

This determination is final and effective on the date filed with the Clerk of the Department unless a timely and sufficient petition for an administrative hearing is filed under sections 120.569 and 120.57 of the Florida Statutes as provided below. If a sufficient petition for an administrative hearing is timely filed, this determination automatically becomes only proposed agency action subject to the result of the administrative review process. Therefore, on the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. The procedures for petitioning for a hearing are set forth in Rules 28-106.201-.202 and 62-110.106, Florida Administrative Code, and are summarized below.

Be advised that, under Florida law, your neighbors and other parties who may be substantially affected by this determination have a right to request an administrative hearing. Because the administrative hearing process is designed to re-determine final agency action, the filing of a petition for an administrative hearing may result in a final determination different from this determination. Generally speaking, the 21-day period for filing a petition begins to run on the date of publication of the notice (if published) or the date a person receives actual notice, whichever occurs first (see below).

The Department will not publish notice of this determination. Publication of notice by you is optional and is

not required for you to proceed. However, in the event that an administrative hearing is held and the Department's determination is reversed, proceeding with the proposed activity before the time period for requesting an administrative hearing has expired would mean that the activity was conducted without the required permit or authorization. In cases where notice is not published, there may be instances in which a substantial amount of time could pass before an affected person receives notice of the agency action.

If you wish to limit the time within which all substantially affected persons may request an administrative hearing, you may elect to publish, at your own expense, the notice specified below in the legal advertisement section of a newspaper of general circulation in the county where the activity is to take place. A single publication will suffice.

If you wish to limit the time within which any specific person(s) may request an administrative hearing, you may provide direct notice to such person(s), by certified mail and enclosing a copy of this determination.

For the purposes of publication, a newspaper of general circulation means a newspaper meeting the requirements of sections 50.011 and 50.031 of the Florida Statutes. In the event you do publish this notice, within seven days of publication, you must provide to the following address proof of publication issued by the newspaper as provided in section 50.051 of the Florida

Statutes. If you provide direct written notice to any person as noted above, you must provide to the following address a copy of the direct written notice: Florida Department of Environmental Protection, UIC Program, MS 3530, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; Attn: Cathy McCarty.

NOTICE
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

The Department of Environmental Protection gives notice that variance from the zone of discharge prohibition for injection through wells has been granted to Redox Tech LLC, for the use of the ABC+ product for aquifer remediation.

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received by the clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000.

Mediation is not available.

If a timely and sufficient petition for an administrative hearing is filed, other persons whose substantial interests will be affected by the outcome of the administrative process have the right to petition to intervene in the proceeding. Intervention will be permitted only at the discretion of the presiding officer upon the filing of a motion in compliance with rule 28-106.205 of the Florida Administrative Code.

In accordance with rules 28-106.111(2) and 62-110.106(3)(a)(4), petitions for an administrative hearing must be filed within 21 days of publication of the notice or receipt of written notice, whichever occurs first. Under rule 62-110.106(4) of the Florida Administrative Code, a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000 before the applicable deadline. A timely request for extension of time will toll the running of the time period for filing a petition until the request is acted upon. Upon motion by the requesting party showing that the failure to file a request for an extension of time before the deadline was the result of excusable neglect, the Department may also grant the requested extension of time.

The petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition for an administrative hearing within the appropriate time period shall constitute a waiver of that right.

A petition that disputes the material facts on which the Department's action is based must contain the following information:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;

(c) A statement of when and how the petitioner received notice of the agency decision;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action;

(f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action; and

(g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts on which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301.

Under sections 120.569(2)(c) and (d) of the Florida Statutes, a petition for administrative hearing shall be dismissed by the agency if the petition does not substantially comply with the above requirements or is untimely filed. Complete copies of all documents relating to this determination are available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, at Florida Department of Environmental Protection, UIC Program, Room 212F, 2600 Blair Stone Road, Tallahassee, Florida. Please call Cathy McCarty to set up appointment, 850/245-8654.