BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

SANGAMON VALLEY FARM SUPPLY,	)	
	)	
Petitioner,	)	
	)	
v.	)	
	)	PCB 06-43
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY and VILLAGE OF SAYBROOK, ILLINOIS,	)	
	)	
Respondents.	)	

AMENDED PETITION FOR COMMUNITY WELL SETBACK EXCEPTION

NOW COMES the Petitioner, Sangamon Valley Farm Supply ("SVFS"), by and through its attorneys, Sorling, Northrup, Hanna, Cullen and Cochran, Ltd., Charles J. Northrup, of counsel, and pursuant to Section 14.2(c) of the Illinois Environmental Protection Act ("Act") and Part 106 of the Board's Procedural Rules (35 Ill. Admin. Code § 106.300, *et seq.*), hereby files this Amended Petition requesting that the Illinois Pollution Control Board ("Board") grant SVFS an exception from the community water supply well setback requirements in Section 14.2 of the Act. In support of its Amended Petition, SVFS states the following:

I. BACKGROUND

SVFS is seeking a waiver from the setback requirements in Section 14.2 of the Act to enable SVFS to continue to remediate existing shallow groundwater contamination. The shallow groundwater located within the setback zone of one of the Village of Saybrook, Illinois community water supply wells is contaminated with hydrocarbons, most likely residues from former underground storage tanks ("USTs") used to store fuel for resale to the public. The preferred clean up method is the use of direct push technology (i.e. Geoprobe) to inject oxygen

release compound ("ORC") directly into the plume of impacted groundwater (referred to herein as "enhanced natural attenuation"). Upon completion of each injection, the open borehole is backfilled with granular bentonite and hydrated, thereby eliminating the risk of future pathways of contamination into the shallow groundwater zone. The location of the Site is shown on the attached Exhibit A.

Section 14.2 of the Act prohibits the installation of any "new potential route" within 200 feet of an existing municipal water well. Where the community water supply well is deriving water from an unconfined shallow fractured or highly permeable bedrock formation or from an unconsolidated and unconfined sand and gravel formation, the prohibition extends to 400 feet. 415 ILCS 5/14.2. The use of direct push technology to inject ORC into the plume of impacted groundwater technically falls within the definition of "new potential route". 415 ILCS 5/3.350. Section 14.2 allows for sources to petition the Illinois Pollution Control Board and the Illinois EPA for an exception from this setback requirement under appropriate circumstances. As discussed in this petition, SVFS meets all of the requirements for granting the exception from the setback requirements of Section 14.2 of the Act.

A. The Reasons for Basis of the Requested Exception

The need for the setback exception arises from broadly worded statutory definitions that technically include the current remediation activities within the definition of "new potential route." Most "injection wells" are considered pathways of contamination, either intentionally as a disposal route, or unintentionally as an easy migration pathway. Both concerns are inapplicable in this case. SVFS seeks to continue to use enhanced natural attenuation to clean up an existing contaminated groundwater source rather than allow this contaminated groundwater to remain in the shallow aquifer. The use of enhanced natural attenuation has been shown to be the most cost

effective and technically feasible alternative in this case. In addition, the shallow groundwater that is the subject of ongoing remediation efforts is the same aquifer from which the community water supply well draws its water. Thus, the risk of contamination of the community water supply by doing nothing is at least as great, if not significantly greater, than the risk of contamination by the use of enhanced natural attenuation. As a result, pursuant to Section 14.2(c), the Board should grant the requested exception as set forth in detail below.

B. Nature of the SVFS's Operations

1. SVFS's Former and Current Operations.

SVFS formerly operated a service station at the corner of Main and Lincoln Streets in Saybrook until early 1996. In April 1998, a total of five (5) underground storage tanks, including all dispensing equipment and piping, at the facility were removed. One of the tanks stored diesel fuel, the second tank stored heating oil, and the remaining tanks stored gasoline. Upon removal, an inspector from the Office of the State Fire Marshal determined a release had occurred from one of the tanks. The inspector reported the release had occurred from a tank used to store diesel fuel. However, documentation was later filed to indicate the tank stored gasoline. SVFS subsequently entered into the Leaking Underground Storage Tank ("LUST") program with the Illinois EPA under which it is currently conducting soil and groundwater remediation activities in pursuit of a No Further Remediation ("NFR") letter from Illinois EPA. During the site classification stage of the clean-up, groundwater contamination was identified at the property boundary, leading to a site classification of *HIGH PRIORITY*. As part of a Corrective Action Plan approved by the Illinois EPA, clean-up efforts have included removal of approximately 330 cubic yards of impacted soil, application of 60 pounds of ORC to the base of the excavation, installation of 7 monitoring wells beyond the 6 monitoring wells installed during the site

classification stage, and application of 8,040 pounds of ORC to the shallow groundwater through a total of 317 injection points in the vicinity of the SVFS facility.

During the investigation process for the ongoing remediation activities, SVFS learned that a portion of the current shallow groundwater contamination had migrated to within approximately 75 feet of the existing community water supply well for the Village of Saybrook, Illinois. SVFS's environmental consultants, Ideal Environmental Engineering, Inc. ("Ideal"), prepared a Corrective Action Plan and Budget and submitted to the Illinois EPA for review. This Plan included the use of enhanced natural attenuation as the preferred clean-up method to reduce the contaminant levels. The ORC injections were proposed to occur in two phases. The initial injections would be performed upon approval of the Plan by the Illinois EPA, with a follow-up round of injections performed approximately 12 months after the initial treatment. All of the proposed injections were positioned within the 400-foot setback of the community water supply wells. The effectiveness of the treatment program would be monitored through quarterly groundwater sampling and analysis. The Plan specified the BETX constituents benzene, ethylbenzene, toluene and xylenes would be used as the indicator parameters at the site. The cleanup objectives set for this site were those for Class I Groundwater, the most stringent objectives set forth in 35 IAC 742: Tiered Approach to Corrective Action Objectives. The Illinois EPA approved the Plan and Budget by letter dated December 1, 2000, a copy of which is included as Exhibit B. The initial round of injections was performed starting in July 2001, after removal of contaminated soils from the site were completed. A sketch showing the approximate locations of the injection points relative to the SVFS facility and the community water supply wells is included as Exhibit C.

Following completion of the four quarterly groundwater sampling events for the first year of monitoring, and review of the analytical results, the follow-up injection treatment was modified to increase the quantity of ORC at each injection point and the number and overall placement of the injection points. Again, all of the injection points were located within the 400-foot setback of the community water supply wells, which are shown on the sketch provided as Exhibit D. This modification was verbally authorized by the Illinois EPA project manager, and a Corrective Action Plan Amendment and Budget were submitted upon completion of the follow-up injections. The Corrective Action Plan Amendment included a second follow-up round of injections, to be completed approximately 12 months after the first follow-up injections. By letter dated February 27, 2003, the Illinois EPA conditionally approved the Amendment, denying approval of the second follow-up round of injections without groundwater and soil sample analyses showing the need for the additional injections. A copy of this letter is included as Exhibit E.

Following completion of the four quarterly groundwater sampling events for the second year of monitoring, and review of the analytical results, a second Corrective Action Plan Amendment and Budget were prepared and submitted to the Illinois EPA for review. This Amendment included a second follow-up round of injections to treat lingering groundwater contamination in the vicinity of the facility. By letter dated December 8, 2004, the Illinois EPA informed SVFS they had failed to file an inventory of the injections (as required for Class V injection wells in accord with 35 Illinois Administrative Code (IAC) 704.148). The Illinois EPA also indicated that injection activities had taken place within the setback of the community water well, which is prohibited by Section 14.2 (a) of the Environmental Protection Act. The letter went on to state that some of the proposed injection points were also within the well setback and

were prohibited. A copy of this letter is provided as Exhibit F. The Illinois EPA denied the Corrective Action Plan Amendment by separate letter dated December 20, 2004, a copy of which is provided as Exhibit G. The required Injection Well Inventory Form was prepared and submitted to the Illinois EPA under cover dated December 23, 2004.

With the exception of the above-mentioned ongoing clean up efforts, SVFS no longer conducts any operations. Mrs. Margaret Gibbens-Stocker, the sole remaining shareholder of SVFS, intends to dissolve the corporation upon receipt of the NFR from the Illinois EPA, and the sale of the SVFS facility.

2. SVFS's Control Equipment.

Prior to treating the hydrocarbons in the shallow groundwater, approximately 330 cubic yards of impacted soils were removed from the location of the former underground storage tanks. Upon completion of the soil excavation activities, approximately 60 pounds of ORC were applied to the base of the excavation in an effort to treat residual soil contamination remaining in the hole. The excavation was backfilled and capped with an asphalt cover to limit the potential of migration of surface runoff through the excavation.

To date, a total of 8,040 pounds of ORC have been injected into the shallow groundwater through 317 injection points, inside the 400-foot setback limit of the community water supply wells. Upon completion of each injection, the open hole was backfilled with granular bentonite and hydrated, thereby eliminating the risk of future pathways of contamination into the shallow groundwater zone.

The groundwater contaminant levels in the vicinity of the site have steadily decreased during completion of remedial activities. The groundwater contaminant levels in monitoring well MW-2, located on the SVFS property, rose to their highest levels during the sampling event in

December 2001, approximately six months after completion of the soil excavation activities. This likely occurred due to migration of existing contamination in the vicinity of the former soil excavation area. The contaminant levels have been documented to have reduced by approximately 50% from December 2001 until June 2004 (from a total benzene-ethyl benzene-toluene-xylenes (BETX) concentration of 13,148 micrograms per liter (ug/L) to 6,631 ug/L). The highest documented groundwater contaminant levels associated with this site have occurred in monitoring well MW-7 (located within the minimum community water well setback), with the total BETX concentration rose to 33,380 ug/L. In the same period of time, the total BETX concentration in MW-7 has been reduced by approximately 84%, to 5,414 ug/L. A subsequent sampling event has shown a slight increase in contaminant levels both of these two wells. Currently, the groundwater contaminant levels exceed Agency standards in two of the wells associated with this facility (five of the wells originally showed contaminant levels above Agency standards). The groundwater sample results summaries for the five originally contaminated wells are provided in tabular format and graphed as Exhibits H through L. A summary of the analytical results from the most recent sampling event is provided as Exhibit N.

II. COMPLIANCE WITH THE SETBACK REQUIREMENTS WOULD IMPOSE AN ARBITRARY AND UNREASONABLE HARDSHIP (35 IAC 106.310(A))

The Board should grant an exception in this case because preventing SVFS from continuing to utilize enhanced natural attenuation to remediate the contaminated shallow aquifer would delay the clean up of the shallow aquifer and add significant and unnecessary costs. The other remediation alternatives discussed in the original Corrective Action Plan are discussed in more detail in Section IV of this Petition. However, with each of them, their respective negatives outweigh their respective benefits.

There are two primary factors that make adherence to the setback requirements arbitrary and unreasonable in this case. First, the use of enhanced natural attenuation within the setback area is intended to improve the water quality. The area is already contaminated with hydrocarbons and remedial activities have been previously approved by the Illinois EPA in this area. The remediation activities performed to date at this site have been documented to be successful in reducing hydrocarbon concentrations in the shallow groundwater.

Second, Mrs. Margaret Gibbens-Stocker, the sole remaining shareholder of SVFS, has indicated her intent to dissolve the corporation. She has continued to maintain SVFS for the sole purpose of funding the ongoing environmental remediation. The longer it takes to complete the remediation and obtain an NFR, the longer Mrs. Gibbens-Stocker is required to maintain SVFS. SVFS has and will continue to maintain adequate resources to fund the completion of remediation and obtain an NFR, but it does not want to prolong or delay this process unnecessarily.

Because the most cost efficient and expedient remediation technology is the use of enhanced natural attenuation to remediate the shallow aquifer, adherence to the prohibition on locating "injection wells" within a minimum setback of a community water supply well would be arbitrary and unreasonable under these circumstances. This is bolstered by the fact the Illinois EPA has previously approved these remedial injections within the minimum setback at this particular site.

III. ENHANCED NATURAL ATTENUATION IS THE BEST AVAILABLE CONTROL TECHNOLOGY ECONOMICALLY ACHIEVABLE (35 IAC 106.310(B))

SVFS is seeking the exception to the setback requirements to enable it to clean up existing contamination located within the setback area of a community water supply well. Thus,

the regulatory criterion mandating the best available control technology economically achievable to minimize the likelihood of contamination of the potable water supply well should be analyzed more broadly. In essence, the key inquiry in this case involves selecting the remediation technology that will be most effective in cleaning up the existing contamination and not, by itself, increase the risk of exacerbating such contamination. This inquiry must also consider the "economic achievability" of any potential technology. When these factors are considered under the circumstances of this case, enhanced natural attenuation is the best available technology economically achievable.

Ideal has evaluated several potential alternatives to enhanced natural attenuation. Each one of the potential alternatives is described below. The potential alternatives include: (1) installing a traditional "pump and treat" system; (2) installing a traditional "air sparging with vapor extraction" system; or (3) relocating the community water supply well to an area free of existing contamination. As shown in this Section, each of these alternatives presents technical, practical and financial obstacles that eliminate them as the preferred approach.

A. Pump & Treat

The effective removal and subsequent treatment of groundwater from the contaminated shallow aquifer is limited in this case due to the fact the shallow groundwater is approximately 30 feet below ground surface in the vicinity of the site. The depth to the shallow aquifer hinders the removal of contaminated groundwater which is required as part of remediation. Since a recovery trench would be out of the question due to the depth, a series of recovery wells, each outfitted with a submersible pump, would be required to remove the groundwater at a sufficient rate so as to limit migration of contaminants. This, coupled with the County's limitations on work that can occur within its Right-of-Way, would tremendously increase the initial capital

expenditures. Thus, pump and treat technology is not recommended based upon its technical feasibility. Moreover, the estimated cost to design and install the pump & treat system is approximately $150,000 to $200,000, with long-term operations and maintenance costs of approximately $400,000 to $500,000 over 20 years.

B. Air Sparging with Soil Vapor Extraction

The effective treatment of contaminated groundwater is limited in this case again due to the fact the shallow groundwater is approximately 30 feet below ground surface in the vicinity of the site. This method of remediation requires the introduction of compressed air into the shallow groundwater. The contaminants are volatilized and collected through a soil vapor extraction system. Due to the depth of the groundwater at this site, the installation of the soil vapor extraction system would be extremely difficult and costly. Thus, air sparging system with soil vapor extraction is not recommended based upon its technical feasibility. The estimated cost to design and install the air sparging system with soil vapor extraction is $150,000 to $200,000, with long-term operations and maintenance costs of approximately $200,000 to $300,000 over 10 years.

C. Replacement and Relocation of Municipal Well

The cost to move the municipal well is currently unknown, but estimated to be between $500,000 and $750,000. Unknown factors that need to be addressed prior to a final estimated price include the number of test borings/pump tests to determine the sustainable yield of the aquifer, distance required to connect the new well to the existing water supply network, and need to purchase the parcel on which to locate the well, as well as securing easements or condemning property to locate the pipeline. Furthermore, following replacement of the well, SVFS will still be required to either minimize remediation under TACO or complete remediation through

enhanced natural attenuation or another form of alternative technology in order to obtain closure of this incident. This alternative is cost prohibitive and uncertain.

D. Enhanced Natural Attenuation

Enhanced natural attenuation uses direct push technology to deliver the ORC directly to the areas of contamination. By delivering the ORC directly, remediation of the site is not hindered by the depth to the shallow groundwater. The estimated cost to complete the remediation of the SVFS site utilizing enhanced natural attenuation is approximately an additional $175,000 and will take approximately one year to complete.

Continued use of enhanced natural attenuation is the best alternative for remediation of the SVFS site. It has been shown to work at this site, it is safe, and it is the most cost effective. The treatment will consist of multiple injection points via direct push equipment with an injection point designed to inject in a horizontal pattern outward from the injection point. The treatment within the setback area will consist of approximately 70 pounds of ORC mixed into 50 gallons of water injected at each location. The injection points will be placed on an approximate 10-foot grid throughout the estimated groundwater contaminant zone. Further discussion of the technology is provided in Exhibit M.

E. BAT Conclusion

Based upon the information provided, enhanced natural attenuation appears to the best available technology for this site. As part of the remediation program, a monitoring program has been implemented at this site. According to Regenesis (maker of the ORC) in their product literature, the monitoring program should include (in addition to the contaminants of concern) oxidation-reduction potential, pH, dissolved oxygen, nitrate, total and dissolved iron, sulfate, methane, and chemical oxygen demand. A discussion with Regenesis personnel revealed that

sampling for sulfate and methane would indicate the presence of anaerobic activities. They went on to state that since we have over two years of analytical data at this site, sampling for sulfate and methane would not be necessary. The compounds will, however, be added to the current monitoring program, which currently includes laboratory analyses of groundwater samples for the contaminants of concern, MTBE, five-day biological oxygen demand, chemical oxygen demand, total and dissolved iron, and total and dissolved manganese, plus field measurements for dissolved oxygen, pH, oxygen-reduction potential, and temperature. To demonstrate the community water supply has not been adversely affected by the remediation program, the active community water supply well (Well #3) will also be sampled at the same time as the on-site groundwater monitoring wells. A copy of the summarized quarterly analytical data will be provided to Village water supply personnel upon receipt of the laboratory reports. If requested by the Village, Ideal will attend Village Board meetings to discuss the analytical results and water quality issues.

IV. THE MAXIMUM FEASIBLE ALTERNATIVE SETBACK WILL BE UTILIZED (35 IAC 106.310(C))

The data collected to date demonstrates that the contaminated shallow groundwater exists in a plume located underneath the SVFS site. The closest edge of the current contaminant plume to the community water supply well is currently approximately 115 feet east of the Well #3. Direct push technology allows SVFS to maintain hydraulic control of the contaminated shallow groundwater while delivering ORC directly to the contaminated shallow groundwater. Since SVFS is able to treat only the impacted shallow groundwater, SVFS is making every effort to minimize the number of required injections within the setback of the municipal well. Under the proposed layout, approximately 95 remedial and 75 barrier injection points appear to be within the setback of the municipal wells. SVFS will work closely with the Illinois EPA in finalizing

the precise locations of each ORC injection well. A copy of the proposed injection point layout is provided as Exhibit O.

V. ENHANCED NATURAL ATTENUATION WILL NOT HARM THE COMMUNITY WATER SUPPLY (35 IAC 106.310(D))

The use of enhanced natural attenuation in this case is the appropriate remediation technology because it will work without harming the community water supply. According to Regenesis, the material is environmentally safe. The material contains magnesium peroxide and magnesium oxide, both of which, into contact with water, convert to magnesium hydroxide. The ORC also has a small amount of food grade potassium phosphates. Regenesis reports that the magnesium oxide, magnesium peroxide, and magnesium hydroxide are safe to ingest in small quantities. Both magnesium peroxide and magnesium hydroxide are used as anti-acids. The Technical Bulletin describing the ORC as environmentally safe is provided as Exhibit M.

VI. PROOF OF NOTICE TO AFFECTED POTABLE WELL SUPPLY OWNERS

SVFS has caused written notice and a copy of this Petition to be sent to the following affected potable well supply owners: Village of Saybrook, 234 West Lincoln Street, Saybrook, Illinois, Mr. Ronald E. Stauffer, Mayor. The above notified person was selected based upon a survey conducted by Ideal to identify all potable water supply well owners within the setback area of the proposed ORC injection wells pursuant to 35 IAC 106.302(b), 35 IAC 101 and Section 14.2(c) of the Act.

VII. REQUEST FOR EXPEDITED HEARING

Mrs. Gibbens-Stocker intends to dissolve the corporation and sell the SVFS property upon receipt of an NFR letter. Obtaining the requested waiver from the setback requirements is a key step in furthering the ongoing remediation process toward completion. SVFS requests a hearing on this petition as soon as the Board can reasonably schedule it.

WHEREFORE, for the foregoing reasons, Sangamon Valley Farm Supply respectfully requests the Board to grant an exception from the setback requirements contained in Section 14.2 of the Act.

SANGAMON VALLEY FARM SUPPLY
Respondent.

By: _____
One of Its Attorneys

Sorling, Northrup, Hanna,
Cullen and Cochran, Ltd.
Charles J. Northrup, of Counsel
Suite 800 Illinois Building
607 East Adams Street
PO Box 5131
Springfield, IL 62705
Telephone: (217) 544-1144
Facsimile: (217) 522-3173

PROOF OF SERVICE

The undersigned hereby certifies that an original and nine (9) copies of the foregoing document were served by regular U.S. Mail to:

Ms. Dorothy Gunn, Clerk
Pollution Control Board
100 West Randolph Street, Suite 11-500
Chicago, IL 60601

and one copy to:

Ms. Carol Webb
Hearing Office
Illinois Pollution Control Board
1021 North Grand Ave. East
Post Office Box 19276
Springfield, IL 62794-9274

Mr. Ronald E. Stauffer, Mayor
Village of Saybrook
234 West Lincoln Street
Post Office Box 357
Saybrook, IL 61770-0357

Illinois Environmental Protection Agency
Attn: Joey Logan-Wilkey
Division of Legal Counsel
1021 North Grand Avenue East
Post Office Box 19276
Springfield, IL 62794-9276

and by depositing same in the United States mail in Springfield, Illinois, on the 29th day of March, 2006, with postage fully prepaid.