

ILLINOIS POLLUTION CONTROL BOARD

August 17, 2017

BLAKE LEASING COMPANY, LLC,	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB 16-100
	)	(Water Well Setback Exception)
ILLINOIS ENVIRONMENTAL	)	
PROTECTION AGENCY, VILLAGE OF	)	
KIRKLAND, and SOO LINE RAILROAD	)	
COMPANY,	)	
	)	
Respondent.	)	

CHARLES F. HELSTEN, HINSHAW & CULBERTSON, LLP, APPEARED ON BEHALF OF
BLAKE LEASING COMPANY, LLC;

JOANNE M. OLSON, ASSISTANT COUNSEL, APPEARED ON BEHALF OF THE
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY; and

BRADFORD S. STEWART, ZUKOWSKI, ROGERS, FLOOD & MCARDLE, APPEARED
ON BEHALF OF THE VILLAGE OF KIRKLAND.

OPINION AND ORDER OF THE BOARD (by C.K. Zalewski):

Blake Leasing Company, LLC (Blake) seeks an exception from the water well setback requirement in Section 14.2(d) of the Environmental Protection Act (Act) for its gas station in Kirkland, DeKalb County. See 415 ILCS 5/14.2(d) (2016). Blake seeks the exception to allow remediation of groundwater contamination within the setback zone for two of Kirkland's potable water supply wells.

Blake proposes air sparging as the remediation technology. Air sparging requires the installation of narrow wells to inject compressed air into the groundwater. Those wells constitute a new potential route through which contamination could reach the drinking water source for the Village of Kirkland. When a new potential route of contamination is created near a permitted community water supply well or other potable water supply well, the Act requires a minimum setback distance from the potable water well to the new potential route. 415 ILCS 5/14.2 (2016). Section 14.2(c) of the Act and Section 106.Subpart C of the Board's regulations provide an exception to the minimum setback requirement. 415 ILCS 5/14.2(c) (2016); 35 Ill. Adm. Code 106.SubpartC. The Act requires Blake to demonstrate four factors before it may be granted a water well setback exception:

- (1) Compliance with the setback requirements of Section 14.2 . . . of the Act would pose an arbitrary and unreasonable hardship;

- (2) The petitioner will utilize the best available control technology [BACT] economically achievable to minimize the likelihood of contamination of the potable water supply well;
- (3) The maximum feasible alternative setback will be utilized; and
- (4) The location of the potential route will not constitute a significant hazard to the potable water supply well. 35 Ill. Adm. Code 106.310; 415 ILCS 5/14.2(c) (2016).

Blake's petition addresses the four elements of Section 14.2(c) of the Act and Section 106.310 of the Board's regulations. 415 ILCS 5/14.2(c) (2016); 35 Ill. Adm. Code 106.310. This opinion and order describes the regulatory relief Blake seeks, the contamination at the Blake site and the air sparging remediation technology. Next, it explains how each element of Section 14.2 of the Act and 35 Ill. Adm. Code 106.310 has been satisfied by Blake's petition before granting Blake an exception to the minimum setback from the Village of Kirkland water supply wells.

BACKGROUND

Legal Background

Unless the Board grants an exception to the owner of a "new potential route," the Act prohibits locating a new potential route within the minimum "setback zone" of a community water supply well. 415 ILCS 5/14.2(a), (c), (d) (2016). A "potential route" includes "all injection wells" and a "new potential route" is one constructed after January 1, 1988. 415 ILCS 5/3.350 (2016). "Setback zone" means "a geographic area, designated pursuant to [the] Act, containing a potable water supply well . . . having a continuous boundary, and within which certain prohibitions or regulations are applicable in order to protect groundwaters." 415 ILCS 5/3.450 (2016); *see also* 415 ILCS 5/3.145, 3.365 (2016) (definitions of "community water supply" and "public water supply," respectively).

Generally, the minimum setback zone for a community water supply well is 200 feet, but it is extended to 400 feet if the community water supply well derives water from "an unconfined shallow fractured or highly permeable bedrock formation or from an unconsolidated and unconfined sand and gravel formation". 415 ILCS 5/14.2(a), (d) (2016). The Illinois Environmental Protection Agency's recommendation (Rec.) states that under Section 14.2(d) of the Act, the Village of Kirkland wells at issue have been assigned minimum setback zones of 400 feet. Rec. at 3.

The Blake Site Is Contaminated with Petroleum from Leaking Underground Storage Tanks

Blake owns the Kirkland Quick Stop gas station (site) located at 411 W. Main Street in the Village of Kirkland. Am. Pet. at 1. Blake has requested a water well setback exception to remediate petroleum contamination from ten underground storage tanks formerly located at the site. Pet. Exh. A at 5. The petroleum contamination must be addressed before Blake can obtain closure from the Illinois Environmental Protection Agency (Illinois EPA), indicating that

groundwater has been remediated to meet Class I potable resource groundwater standards. Am. Pet. at 1; 35 Ill. Adm. Code 620.210.

While the Village of Kirkland has three water supply wells, two are affected by Blake's petition: Well #1 (#11424) is Kirkland's emergency backup well; and Well #2 (#11425) is Kirkland's main water supply. Tech. Report at 1. According to Blake, Well #1 is located 75 feet east of the site and Well #2 is 422 feet north of the site—outside the area impacted by the contamination. Am. Pet. at 2; Tech. Report at 13. Blake has determined that the groundwater flow is in a north-northwest to northwest direction. No petroleum contamination, exceeding the groundwater remediation objectives, is migrating across the site's northern boundary. Tech. Report at 12, 13, Figure 5. The entire site falls within the minimum setback zone of Well #1 and part of the site falls within the minimum setback zone of Well #2. Am. Pet. at 3-4; Tech. Report at 1.

Petition, Amended Petitions, and Other Filings

Blake has worked with two consulting firms over the course of this case. First, GeoThink LLC prepared a Corrective Action Plan (CAP) including in-situ enhanced bioremediation as the remediation technology. Am. Pet. at 2. Illinois EPA conditionally approved this CAP for the site. On April 29, 2016, Blake filed its petition for water well setback exception for Well #1 (Pet.) to allow enhanced bioremediation. *Id.* In an August 11, 2016 order, the Board found Blake's original petition lacking on all four factors of Section 14.2(c) of the Act. The Board directed Blake to file an amended petition. Blake Leasing Company, LLC v. Illinois EPA and Village of Kirkland, PCB 16-100, slip op. at 3 (Aug. 11, 2016).

On January 6, 2017, Blake filed an amended petition (Am. Pet.) with technical support from St. John-Mittelhauser environmental consulting. St. John-Mittelhauser conducted additional groundwater sampling in August, November, and December 2016 that found a relationship between residual petroleum concentrations and low dissolved oxygen (DO) concentrations in the groundwater. This finding led to St. John-Mittelhauser's recommendation of air sparging as the BACT in its January 5, 2017¹ technical report (Tech. Report). Am. Pet. at 6-7. Air sparging accelerates the natural process of microorganisms breaking down contamination in the soil and groundwater by supplying those microorganisms with DO. Am. Pet. at 7; Air Sparge Memo. at 1. The amended petition requested a setback exception only for Kirkland's Well #1. Am. Pet. at 11.

On January 26, 2017, Illinois EPA filed its recommendation that the Board grant Blake's amended petition, contingent on Blake filing a map of the air sparging system. Rec. at 9. Blake responded with an additional technical memo on February 23, 2017 (Air Sparge Memo.) which supplied additional information about the air sparging technology and the requested map.

Also on February 23, 2017, the hearing officer directed Blake to answer a set of Board questions regarding the amended petition. Blake filed responses to the Board's questions on

¹ The copy of the St. John report filed with Blake's amended petition was erroneously dated January 5, 2016. Mar. Blake Res. at 2; Tr. at 44.

March 17, 2017 (Mar. Blake Res.) and on March 23, 2017, Illinois EPA responded (Mar. IEPA). Illinois EPA's response cited low DO concentrations in areas within the minimum setback zone for Kirkland's Well #2. Mar. IEPA at 2. Illinois EPA expressed support for Blake installing air sparging wells within the setback zone for both Well #1 (already subject of the petition at the time) and Well #2, stating "[t]he Agency is concerned that remedial goals may not be met for lack of including a small portion of the Well #2 setback zone in this petition and therefore limiting the ability to install injection wells in that small area." *Id.*; 2nd Am. Pet. at 4.

In response to Illinois EPA's statement regarding remediation within the setback for Well #2, Blake filed a supplemental technical memo on April 21, 2017 which included air sparging wells within the minimum setback zone for Well #2. On May 2, 2017, Blake filed a motion to file another amended petition (2nd Am. Pet.) requesting that the exception apply to *both* Well #1 and Well #2. 2nd Am. Pet. at 4. The Board grants the motion. On May 12, 2017, Blake filed an additional technical memo (May Tech. Memo) adjusting the maximum feasible alternative setbacks for both Well #1 and Well #2 and revising previously submitted figures to depict the updated air sparging system. The hearing in this case (Tr.) was held in Chicago on May 23, 2017. Blake filed its post-hearing brief (Brief) on June 29, 2017.

Blake Provided Notice of Its Exception Request to Well Owners

Section 14.2(c) of the Act provides, "[a] petition shall be accompanied by proof that the owner of each potable water supply well for which setback requirements would be affected by the requested exception has been notified and been provided with a copy of the petition." 415 ILCS 5/14.2(c) (2016); *see also* 35 Ill. Adm. Code 106.302(b). Blake's petition and two amended petitions were accompanied by proof of service on the Village of Kirkland, the owner of Well #2.

Soo Line Railroad Company (d/b/a Canadian Pacific Railway and Canadian Pacific) (Soo Line) owns Well #1. On May 18, 2017 Blake filed documentation that it sent on that date, by overnight mail, a notice letter and a copy of its first amended petition (Notice Letter) to CT Corporation System (CT Corporation), as the registered agent for Soo Line. In that notice, Blake stated that Well #1 "is leased by the Village of Kirkland from Canadian Pacific Railway and has been designated as a backup/emergency community water supply well by the Village." Notice Letter at 1. The letter also alerted Soo Line of the May 23, 2017 hearing, specified the hearing time and location and attached the hearing officer's notice of hearing. *Id.*

In its post-hearing brief, Blake stated that Soo Line and CT Corporation have had actual knowledge of Blake's petition for many months. Brief at 1-2. This statement is supported by affidavit. Brief Exh. A. Soo Line neither appeared at the hearing nor made any filings with the Board. Under these circumstances, the Board finds that Blake adequately notified Soo Line under Section 14.2(c). As its procedural rules require, the Board names Soo Line as a respondent in this case. 35 Ill. Adm. Code 106.300(b).

DISCUSSION

Blake's proposed air sparging wells would inject compressed air through a narrow well into the groundwater and therefore are a "new potential route" under the Act. 415 ILCS 5/3.350 (2016). It is uncontested that the 400-foot setback requirement of Section 14.2(d) of the Act applies to both Well #1 and Well #2. Without the Board granting an exception under Section 14.2(c) of the Act, the Act would bar Blake from installing the air sparging wells where the air sparging will remediate the groundwater most effectively. The Board now turns to the four factors of Section 14.2(c).

Blake Faces an Arbitrary and Unreasonable Hardship

Achieving the applicable groundwater remediation objectives at the site without creating a new potential route of contamination within the setback for Well #1 and Well #2 presents an arbitrary and unreasonable hardship for Blake. Blake states that "the lack of the requested setback for the use of air sparging would prevent [Blake] from having the ability to remediate the [site] of the low levels of contamination present." Am. Pet. at 10, 11. The Illinois EPA agrees. Rec. at 7. If Blake is prevented from remediating the petroleum contamination at the site, that contamination will remain at the site indefinitely and Blake would be prevented from achieving closure of the petroleum release. Am. Pet. at 1, 10. Therefore, the Board finds that without an exception, Blake faces an arbitrary and unreasonable hardship in properly remediating the site.

Air Sparging is the Best Available Control Technology for the Kirkland Site

Air sparging supplements the naturally-occurring dissolved oxygen in the groundwater at the site, facilitating aerobic biodegradation. Air sparging works "by injecting compressed air into the shallow groundwater below the site to increase the DO content of that groundwater and increase the natural biological degradation of the petroleum products impacting the groundwater." Air Sparge Memo at 1. As the compressed air mixes with and increases the DO level of the groundwater, the natural flow of that groundwater carries the DO down gradient from the sparging well. Air Sparge Memo at 1. St. John-Mittelhauser states:

Analytical results of the groundwater samples collected at the [Blake] site in August and November 2016 indicated aerobic biodegradation of the contaminants of concern [is] being hindered by the depletion of DO within the area of petroleum impacts. Air Sparge Memo at 1.

Blake identified the contaminants at the site as the type that would be remediated with an adequate DO concentration in the groundwater. Am. Pet. at 4. Blake conducted additional groundwater testing at the site before filing its amended petition in order to insure air sparging is appropriate for all contaminants present. Am. Pet. at 4. For example, groundwater testing done in August 2016 "showed no detectable concentrations of either dissolved or total lead . . . indicating that lead detections previously reported at the site were the result of elevated turbidity levels" in the groundwater samples. *Id.*

Compared with other technologies, Blake found that air sparging is “[s]pecifically well-suited to the petroleum-based contaminants and the coarse-grained” soils that house the contaminants. Am. Pet. at 8. Blake considered at least 11 other treatment technologies as discussed in the amended petition. Am. Pet. at 8-10. Many of those technologies involve using chemicals (*e.g.*, in situ chemical oxidation, nutrient addition for enhanced in situ aerobic bioremediation, and surfactant enhanced aquifer remediation) or extracting groundwater (*e.g.*, pump and treat and two-phase extraction). *Id.* at 9-10. Air sparging, however, “[d]oes not require the injection of surfactants, bacteria, oxygen releasing compounds, or other non-naturally occurring constituents within the setback of the municipal wells.” Am. Pet. at 8; Mar. Blake Res. at 6.

Blake proposed enhanced bioremediation as the BACT in its initial petition. Illinois EPA questioned this technology due to pH incompatibility along with the weak results of prior trials at the site. Blake explained why air sparging is better than enhanced bioremediation at the site in its March 17, 2017 response to the Board’s question regarding the technology switch. Mar. Blake Res. at 4-6. Blake explained that low DO levels at the site may have been ignored by the prior environmental consultant. If supplied with proper levels of DO, “indigenous microorganisms have a distinct advantage over injected microorganisms [enhanced bioremediation] because they are well adapted to the physical and chemical conditions in the subsurface where they inherently reside.” *Id.*

Blake concluded:

Air sparging is a proven remediation technology to increase the dissolved oxygen in the groundwater at sites with relatively consistent, coarse-grained sediments, an aquifer thickness greater than 5 feet, and where the water table is greater than 5 feet below the ground surface. All of these characteristics are present at the site.” Mar. Blake Res. at 5-6; *see also* Am. Pet. at 7.

In its recommendation, Illinois EPA agreed with Blake that air sparging is the BACT. Rec. at 7. Blake initially proposed a total of 12 to 15 air sparge wells for the site before expanding the exception to cover Well #2. Am. Pet. at 10; Air Sparge Memo at 1. Including Well #2, the total number of air sparging wells increased to 26. May Blake Resp. Fig. 1.

Blake has demonstrated that air sparging is effective at remediating the petroleum contaminants at the site and the safest way to do so within the setback zones of the Village of Kirkland’s water supply wells. The Board therefore finds that air sparging is the BACT for the site.

Blake Will Use the Maximum Feasible Alternative Setback

Blake states in its March 17, 2017 response to Board questions that “[t]he maximum feasible alternative setback between the air sparging wells and . . . Well #1 is approximately 80 feet.” Mar. Blake Res. at 4. At the time of that filing, Blake was not seeking an exception for Well #2. *Id.* After re-evaluating the need for remediation near Well #2, and filing its amended

petition, Blake provided an adjusted maximum feasible alternative setback of 30 ft. for Well #1 and 370 ft. for Well #2. May Tech. Memo.

The record supports placing air sparging wells as depicted in Blake's May Tech. Memo—at least 30 ft. from Well #1 and 370 ft. from Well #2. In addition, the air sparging technology, along with the hydrology of the site, ensure protection of the drinking water for the Village of Kirkland, as discussed below. Therefore, the Board finds that Blake's proposed setbacks are the maximum feasible alternative setbacks.

**No Significant Hazard to the Village of Kirkland Water Supply
Will Result from Air Sparging**

Blake cited the benign nature of air sparging as one reason why it was chosen as the remediation technology over other technologies. Am. Pet. at 8; Tech. Report at 14; Mar. Blake Res. 4-6. In addition, St. John-Mittelhauser's geologic survey of the site found that the "shallow glacial drift aquifer is hydraulically isolated from the bedrock aquifer by glacial till material." Am. Pet. at 11. This aquitard prevents the petroleum contaminants in the shallow glacial drift from migrating vertically to the deeper, bedrock aquifer from which the Village of Kirkland extracts drinking water. *Id.*; Tech. Report at 12, 13. St. John-Mittelhauser also stated that it does not anticipate any change to the character of the groundwater supply for Kirkland as a result of air sparging. Mar. Blake Res. at 10. Compressed air does not present a hazard to the Village of Kirkland Water Supply. Combined with the protective nature of the site's hydrology, the Board finds that the location of the air sparging wells will not constitute a significant hazard to the Village of Kirkland's water supply wells.

Conclusion

The Board finds that Blake has met its burden of proof under Section 14.2(c) of the Act for an exception from the water-well setback requirement of Section 14(d) of the Act. The Board grants Blake an exception from the minimum water-well setback requirements for Village of Kirkland Well #1 and Well #2, subject to conditions. The exception will allow Blake to clean up petroleum contaminants at the site by placing air sparging wells within the 400-foot minimum setback zones of these two water supply wells.

This opinion constitutes the Board's findings of fact and conclusions of law.

ORDER

Under Section 14.2(c) of the Act, the Board grants Blake Leasing Company, LLC, (Blake) an exception from the setback requirements for the Village of Kirkland's community water supply Well #1 and Well #2. This water-well setback exception from Section 14.2(d) of the Act is solely for remediating petroleum contamination at the Blake site located at 411 W. Main Street, Kirkland, DeKalb County, and is subject to the following conditions:

- 1) Blake must maintain the maximum alternative setback of 30 ft. for the Village of Kirkland's emergency backup well, Well #1 (#11424), and 370 ft. for the Village of Kirkland's primary well, Well #2 (#11425);
- 2) Blake must demonstrate successful remediation and compliance with the Class I potable resource groundwater remediation objectives (35 Ill. Adm. Code 620.210) with four consecutive quarters of groundwater sampling before abandoning the air sparging wells;
- 3) Blake must properly abandon and seal the air sparging wells, under Section 920.120 of the Illinois Water Well Construction Code (77 Ill. Adm. Code 920.120), upon Blake's receipt of a No Further Remediation (NFR) letter from the Illinois Environmental Protection Agency regarding Leaking Underground Storage Tank/Illinois Emergency Management Agency Incident Number 891717; and
- 4) This water well setback exception terminates automatically on the date the Illinois Environmental Protection Agency issues the NFR letter referenced in Condition 3, above.

IT IS SO ORDERED.

If Blake accepts this exception subject to the above conditions, Blake must, within 45 days after the date of this opinion and order, file with the Board and serve on the Agency a certificate of acceptance and agreement to be bound by all the terms and conditions of the granted exception. Blake must forward the certificate to:

Joanne M. Olson
Division of Legal Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
PO Box 19276
Springfield IL 62794-9276

The certificate must be signed by a Blake officer authorized to bind Blake to all of the terms and conditions of the final Board order in this matter. The form of the certificate follows:

CERTIFICATE OF ACCEPTANCE

I (We), _____,
 having read the opinion and order of the Illinois Pollution Control
 Board in docket PCB 16-100, dated August 17, 2017, understand
 and accept the opinion and order, realizing that this acceptance
 renders all terms and conditions of the water well setback
 exception set forth in that order binding and enforceable.

Petitioner: Blake Leasing

By: _____
 Authorized Agent for Blake Leasing

Title: _____

Date: _____

Section 41(a) of the Environmental Protection Act provides that final Board orders may be appealed directly to the Illinois Appellate Court within 35 days after the Board serves the order. 415 ILCS 5/41(a) (2016); *see also* 35 Ill. Adm. Code 101.300(d)(2), 101.906, 102.706. Illinois Supreme Court Rule 335 establishes filing requirements that apply when the Illinois Appellate Court, by statute, directly reviews administrative orders. 172 Ill. 2d R. 335. The Board's procedural rules provide that motions for the Board to reconsider or modify its final orders may be filed with the Board within 35 days after the order is received. 35 Ill. Adm. Code 101.520; *see also* 35 Ill. Adm. Code 101.902, 102.700, 102.702.

I, Don A. Brown, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on August 17, 2017 by a vote of 5-0.



Don A. Brown, Clerk
 Illinois Pollution Control Board