

ILLINOIS POLLUTION CONTROL BOARD
October 20, 2005

IN THE MATTER OF:)
)
PETITION OF THE VILLAGE OF) AS 05-2
BENSENVILLE FOR AN ADJUSTED) (Adjusted Standard – Public Water
STANDARD FROM 35 ILL. ADM. CODE) Supply)
620.410 REGARDING CHLORIDE)

OPINION AND ORDER OF THE BOARD (by A.S. Moore):

On June 3, 2005, the Village of Bensenville (Bensenville) filed a second amended petition for an adjusted standard from the Board's groundwater quality standard for chloride. Specifically, Bensenville seeks relief from the chloride Class I or potable resource groundwater quality standard (35 Ill. Adm. Code 620.410(a)) for its closed landfill site, which is located in Bensenville, DuPage County.

The landfill site is currently used as a public golf course. Chloride levels in the site's groundwater exceed the Board's standard. The Illinois Environmental Protection Agency (Agency) recommends that the Board grant Bensenville's request. For the reasons below, the Board grants the requested adjusted standard, subject to conditions.

In this opinion, the Board first sets forth the legal framework within which the Board decides whether to issue adjusted standards under Section 28.1 of the Environmental Protection Act (Act) (415 ILCS 5/28.1 (2004)). Second, the Board provides the procedural history of this case. This is followed by background on the landfill, site groundwater, drinking water supplies in the area, and potential sources of chloride. Next, the Board describes the level of justification required to qualify for an adjusted standard, the Class I groundwater quality standard for chloride, Bensenville's request, and the Agency's recommendation. The Board then discusses the issues and its legal conclusions.

The language of Bensenville's adjusted standard is in the order following this opinion. The adjusted standard now applies to the site in lieu of the Class I groundwater quality standard for chloride.

LEGAL FRAMEWORK

The Act and Board rules provide that a petitioner may request, and the Board may grant, an environmental standard that is different from the generally applicable regulation that otherwise applies to that petitioner. *See* 415 ILCS 5/28.1(a) (2004); 35 Ill. Adm. Code 104.400(a), 104.402. This form of regulatory relief is called an adjusted standard.

The procedures that govern an adjusted standard proceeding are found in Section 28.1 of the Act and Part 104, Subpart D of the Board's procedural rules. *See* 415 ILCS 5/28.1 (2004); 35 Ill. Adm. Code 104.400-104.428. The adjusted standard proceeding is adjudicatory in nature

and therefore not subject to the rulemaking provisions of the Act or the Illinois Administrative Procedure Act (5 ILCS 100 (2004)). *See* 415 ILCS 5/28.1(a) (2004); 35 Ill. Adm. Code 101.202. Once a petition for an adjusted standard is filed, the Agency must file its recommendation with the Board. *See* 415 ILCS 5/28.1(d)(3) (2004); 35 Ill. Adm. Code 104.416. The Board's procedural rules specify the required contents for the adjusted standard petition and the Agency recommendation. *See* 35 Ill. Adm. Code 104.406, 104.416.

Section 28.1(d)(1) of the Act (415 ILCS 5/28.1 (2004)) and Section 104.408(a) of the Board's procedural rules (35 Ill. Adm. Code 104.408(a) (quoting the Act)) require the adjusted standard petitioner to publish notice of the petition's filing by advertisement in a newspaper of general circulation in the area likely to be affected by the proposed adjusted standard. Under those provisions, publication must take place within 14 days after the petition is filed. The newspaper notice must indicate that any person may cause a public hearing to be held on the proposed adjusted standard by filing a hearing request with the Board within 21 days after publication. *See* 415 ILCS 5/28.1(d)(1) (2004); 35 Ill. Adm. Code 104.408(b).

The burden of proof in an adjusted standard proceeding is on petitioner. *See* 415 ILCS 5/28.1(b), (c) (2004); 35 Ill. Adm. Code 104.426. Once granted, the adjusted standard applies to petitioner instead of the rule of general applicability. *See* 415 ILCS 5/28.1(a) (2004); 35 Ill. Adm. Code 101.202, 104.400(a). In granting adjusted standards, the Board may impose conditions as may be necessary to accomplish the purposes of the Act. *See* 415 ILCS 5/28.1(a) (2004); 35 Ill. Adm. Code 104.428(a).

PROCEDURAL HISTORY

On January 3, 2005, Bensenville filed a petition for an adjusted standard from the Class I groundwater quality standards for chloride *and lead*. Bensenville asked the Board to consider the case in an expedited manner. On January 13, 2005, Bensenville filed a certificate of publication, documenting that notice of the petition was provided in the *Daily Herald* on January 7, 2005.

In a January 20, 2005 order, the Board granted Bensenville's motions for expedited review and found that Bensenville satisfied the jurisdictional requirement of providing newspaper notice of its petition. The Board also found, however, that Bensenville had not provided all of the necessary information in its petition and therefore directed Bensenville to file an amended petition to cure the shortcomings. *See In re Petition of the Village of Bensenville for an Adjusted Standard from 35 Ill. Adm. Code 620.410 Regarding Chloride and Lead*, AS 05-2 (Jan. 20, 2005).

On March 4, 2005, Bensenville filed an amended petition to address the informational deficiencies in the original petition. In a March 17, 2005 order, the Board found that the amended petition addressed the identified deficiencies. On June 3, 2005, Bensenville filed a second amended petition, withdrawing its request for relief from the lead standard.¹ Bensenville

¹ The Board cites the second amended petition as "2d Am. Pet. at _." As permitted by Board procedural rule (35 Ill. Adm. Code 104.418(d)), Bensenville's amended petition and second

explained its reasoning for no longer seeking relief from the lead standard:

At the time Bensenville filed its original petition[,] current groundwater sampling data indicated that the groundwater quality standard for lead was not being exceeded. Because of past exceedences, Bensenville included relief for lead solely to provide additional support for its request for certification of release from post closure care Yet after further review of the data, Bensenville determined that regulatory relief regarding lead is not necessary and that the request for this relief complicated its petition regarding chloride. 2d Am. Pet. at 1-2.

In a June 16, 2005 order, the Board found that the second amended petition satisfied the adjusted standard petition content requirements of the Board's procedural rules. On June 30, 2005, the Agency filed its recommendation in response to the second amended petition. The Agency recommends that the Board grant the adjusted standard, subject to conditions. On July 14, 2005, Bensenville filed its response to the Agency's recommendation. Based on the Agency's recommendation, Bensenville waived its right to hearing.² Pet. Resp. at 3.

FACTUAL BACKGROUND

In this section, the Board describes the landfill site and surrounding area, uses of the site historically, post-closure care of the landfill, water supplies in the area, groundwater monitoring at the site, and potential sources of chloride in groundwater.

Landfill Site and Surrounding Area

Bensenville's closed landfill site is located in the Village of Bensenville in DuPage County. The site covers 53 acres, 41 of which are filled, and is situated at the northwest corner of Grand Avenue and County Line Road. 2d Am. Pet. at 2, 4; Exh. 1 at 1. Bensenville states that the site is located within a "highly developed area." 2d Am. Pet. at 29.

The landfill site is bordered by the River Forest Golf Club to the west, Grand Avenue and the Mount Emblem Cemetery to the south (City of Elmhurst), County Line Road and Interstate 294 to the east (City of Northlake), and a residential area to the north (Village of Bensenville). Properties to the east of Interstate 294 are primarily commercial and industrial. The landfill site is bisected by Addison Creek. Exh. 1 at 1; Exh. 2.

amended petition did not include unchanged exhibits from the prior filings. Accordingly, all 13 exhibits (cited here as "Exh. _ at _") are not physically attached to the second amended petition, but rather are physically attached to the original, amended, and second amended petitions collectively in the record of this proceeding. Appendices and attachments within exhibits are cited as "App. _ at _" and "Att. _ at _," respectively.

² The Board cites the Agency's recommendation as "Ag. Rec. at _" and Bensenville's response as "Pet. Resp. at _."

Site History

The site was previously owned by John Sexton Filling & Grading Contractors Corp. (Sexton). Before it was operated as a landfill, the site was used as a borrow pit for materials to construct Interstate 294, located just east of the site. 2d Am. Pet. at 4; Exh. 1 at 2. From May 1973 to July 1987, Sexton operated the site as a landfill, accepting demolition debris, concrete rubble, foundry sands, and logs, brush, and debris from landscaping. 2d Am. Pet. at 4-5; Exh. 1 at 2. Ash was also disposed of at the landfill. The ash was generated by the on-site burning of landscaping debris in a permitted air curtain destructor. 2d Am. Pet. at 5; Exh. 1 at 2.

The site was not authorized to accept hazardous or general domestic wastes. 2d Am. Pet. at 5; Exh. 1 at 2, App. 1, Att. D at 2. According to Bensenville, the landfill was not constructed with a liner, leachate collection system, or landfill gas control system. 2d Am. Pet. at 5. The landfill was closed in 1989. *Id.* at 2, 5. In January 1990, the Agency issued to Sexton a permit for post-closure care of the landfill. *Id.* at 5. As the permit required, to control leachate, Sexton constructed a landfill cap consisting of two feet of clay and six-inches of topsoil. *Id.* at 6.

With a grant from the Agency, Bensenville acquired the site in 1997. 2d Am. Pet. at 2, 5. In December of that year, the Agency transferred the site's permit from Sexton to Bensenville. *Id.* at 5. Bensenville built a public golf course on top of the landfill. *Id.* at 5-6. Additional soil and vegetation were installed by Bensenville to support the golf course. *Id.* at 6. The golf course opened in 2003 and is currently in use. *Id.* at 5-6, 29.

Post-Closure Care

In February 2001, the Agency issued a supplemental permit addressing the groundwater assessment monitoring. 2d Am. Pet. at 6. Under the post-closure activities, Bensenville continues to conduct quarterly groundwater monitoring and reporting at a cost of about \$35,000 to \$40,000 per year. *Id.* at 25. Bensenville states that once it receives certification of its post-closure care, the Village will be allowed to "complete the golf course contemplated by the IEPA grant encouraging Bensenville to develop additional open space." *Id.*

From October 2001 through September 2004, Bensenville and the Agency have corresponded regarding the completion of post-closure care for the landfill. 2d Am. Pet. at 2, 7. According to the petition, the Agency has taken the position that it cannot certify that post-closure care of the landfill is complete when chloride levels in site groundwater exceed the Board's Class I groundwater quality standard. 2d Am. Pet. at 2; Exh. 1 at 1. These elevated levels, Bensenville maintains, are "anthropogenic but not related to landfill impacts," instead resulting from off-site sources, likely road salt. 2d Am. Pet. at 2, 29. Bensenville states that it needs the adjusted standard for dissolved chloride before the Agency will release the Village from post-closure care requirements for the landfill. 2d Am. Pet. at 8; Exh. 1 at 1.

Water Supplies

Bensenville, including the golf course at the landfill site, is served by a municipal drinking water supply that obtains water from Lake Michigan. 2d Am. Pet. at 4; Exh. 1 at 2.

Bensenville describes the area downgradient of the site as consisting “primarily of industrial and commercial properties.” 2d Am. Pet. at 29. According to Bensenville’s environmental consultant, Environmental Information Logistics, LLC (EIL), within the lower water-bearing unit at the site, horizontal groundwater flow is from the northwest to the southeast. 2d Am. Pet. at 10; Exh. 1 at 2, App. 6.

Bensenville and nearby Elmhurst to the south have well restrictions by ordinance. Bensenville’s ordinance prohibits the installation of a private well for supplying any water supply system if the property line upon which the well would be drilled or connected is within 200 feet of a Village water main. According to the Village engineer, this ordinance “effectively eliminates private well installation in almost the entire Village.” 2d Am. Pet. at 14-15; Exh. 1 at 2-3. Elmhurst, located adjacent to and south of the site, has an ordinance generally prohibiting private use of groundwater wells. 2d Am. Pet. at 15-16, 24; Exh. 1 at 2-3. The City of Northlake, located adjacent to and east of the site, does not currently have a well-use restriction, but there are no known private well users within that community. 2d Am. Pet. at 14-15, 24; Exh. 1 at 3.

Like the Village of Bensenville, the municipal water supplies of both Elmhurst and Northlake are sourced from Lake Michigan. Based on research and reconnaissance efforts, all known water supplies within one-half mile downgradient of the site, such as for industrial, commercial, and residential users in Northlake and Mount Emblem Cemetery in Elmhurst, are obtained from deep bedrock wells or Lake Michigan. 2d Am. Pet. at 14-17, 24; Exh. 1 at 3. No known water supply wells within one-half mile downgradient of the site draw from the affected groundwater zone—the lower water-bearing unit. 2d Am. Pet. at 14-17, 24; Exh. 1 at 3. According to Bensenville, some deep wells screened in aquifers beneath the Silurian Age dolomite bedrock were identified from well logs. Whether those wells are currently in use is unknown, but those aquifers, Bensenville states, are physically and hydraulically isolated from the Silurian Age dolomite bedrock. 2d Am. Pet. at 17.

Groundwater Monitoring

Under the site is approximately 55 to over 70 feet of glacially-derived soils. Groundwater is present in upper and lower water-bearing units of the glacially-derived soils. The glacially-derived soils overlie Silurian Age dolomite bedrock. Based on regional information, the bedrock may be greater than 200 feet thick under the site. 2d Am. Pet. at 8-9. Groundwater in the upper and lower water-bearing units “generally occurs as a function of recharge derived from vertical infiltration of runoff and precipitation from the surface through glacial deposits.” 2d Am. Pet. at 9. The Silurian Age dolomite is also “recharged via surface infiltration through the overlying soils.” Exh. 1 at 6.

The upper water-bearing unit was monitored from 1974 to 1990 using three wells. Exh. 1 at 3. Since 1990, as part of the closure activities and Agency requirements, only the lower water-bearing unit has been monitored. The lower water-bearing unit is commonly referred to as “basal outwash,” a term based on its physical connection with the underlying Silurian Age dolomite bedrock: at the site, the lower water-bearing unit is in direct physical contact with the Silurian Age dolomite bedrock. Groundwater monitoring in the lower water-bearing unit

consists of a network of six monitoring wells 20 to 35 feet below ground surface. One of these wells is located hydraulically upgradient of the site, while the other five wells are located downgradient of the site. 2d Am. Pet. at 8-10; Exh. 1 at 2-3, App. 1, 6, 8. The Agency does not require Bensenville to monitor groundwater in the Silurian Age dolomite bedrock. Exh. 1 at 2.

EIL conducted a groundwater investigation on behalf of Bensenville and submitted results to the Agency on May 1, 2001. 2d Am. Pet. at 6; Exh. 1. Depths to groundwater in the lower water-bearing unit range from approximately 20 to 35 feet below ground surface. 2d Am. Pet. at 10. As noted, EIL states that horizontal groundwater flow within the lower water-bearing unit at the site is from the northwest to the southeast. 2d Am. Pet. at 10; Exh. 1 at 2, App. 6.

Results of EIL's investigation showed that chloride concentrations were higher in the downgradient monitoring wells than in the upgradient well. Analyses were done for both total and dissolved chloride. Bensenville found the difference between total and dissolved chloride was "negligible due to the soluble nature of chloride." Exh. 1 at 3-4. The 2001 results indicated that two of the downgradient monitoring wells had chloride concentrations exceeding the Class I chloride standard of 200 milligrams per liter (mg/L): monitoring well G117 measured 660 mg/L total chloride (650 mg/L dissolved chloride); and monitoring well G121 measured 590 mg/L total chloride (590 mg/L dissolved chloride). Exh. 1 at 4, App. 9, 15.

Since groundwater monitoring began in 1990, dissolved chloride levels in downgradient well G117 have ranged from approximately 110 mg/L in 1993 up to a high of 760 mg/L in 1997. Exh. 1, App. 1 at 3, App. C. In downgradient well G121, total chloride levels ranged from 300 mg/L in 1993 to a low of 200 mg/L in mid-1992, up to a high of 760 mg/L in 1995. Exh. 1, App. 2, Att. 6, Figure 3. During the past 14 years of post-closure groundwater monitoring, no organic compounds have been detected. 2d Am. Pet. at 13; Exh. 1 at 4.

Potential Sources of Chloride

According to EIL, in Midwestern states, chloride is generally the most important indicator that landfill leachate is impacting groundwater because chloride is highly soluble, does not degrade, and migrates readily. Exh. 1 at 4. A rise in chloride concentrations in monitoring wells near a landfill is often the first indication that landfill leachate is reaching the groundwater. *Id.*

At the Bensenville site, however, EIL suggests high chloride levels are likely the result of deicing salt used on roadways. Exh. 1 at 4-8. The site is bounded by two major roads and located a few hundred feet west of Interstate 294, all roads which are heavily salted with snow melt infiltrating the ground. *Id.* at 6. Groundwater investigations at the site found generally higher chloride concentrations further from the landfill waste boundary, adjacent to the roadways. 2d Am. Pet. at 13.

The Illinois State Water Survey (ISWS) conducted a study of the Silurian Age dolomite aquifer in DuPage County in 1981 (ISWS Circular 149, 1981). The study identified areas with major roads as those "most likely to be affected by deicing salt application resulting in high chloride concentrations in groundwater." Exh. 1 at 5, App. 11, 12. Chloride concentrations in

the Silurian Age dolomite aquifer near the site, according to Bensenville, were similar to those in the site's lower water-bearing unit. 2d Am. Pet. at 12; Exh. 3. Concentrations in nearby Elmhurst ranged from 0 to 450 mg/L, with a median value of 22 mg/L. Exh. 1 at 5. Chloride levels at the Bensenville site were reported within and slightly above this range. *Id.* at 5-6.

Bensenville states that the ISWS attributed the high chloride concentrations in the Silurian Age dolomite bedrock to salt being heavily applied along major roads, including Interstate 294. 2d Am. Pet. at 12. The Illinois State Toll Highway Authority applied an average 56,665 tons of salt annually during the last eight years to its 274 miles of toll roads, or the equivalent of 207 tons of salt per mile of road per year. 2d Am. Pet. at 12; Exh. 1 at 6. EIL states that the "combined salt load eventually finds its way to topographic low areas during periods of snow melt." Exh. 1 at 6. Interstate 294 runs north-south, adjacent to the east side of the landfill, and is salted by State authorities. Grand Avenue and County Line Road, which border the site to the south and east, respectively, are salted by both Bensenville and DuPage County road crews. 2d Am. Pet. at 12; Exh. 1 at 6.

Chloride concentrations in site groundwater are highest in the southeast corner of the landfill. Both Grand Avenue and County Line Road decrease in elevation to the east and south, respectively, to a point where they intersect at the southeast corner of the landfill site. Exh. 1 at 6. To further implicate road salt in the high chloride levels found in site groundwater, sodium to chloride molar ratios were compared for road salt and typical landfill leachate. Exh. 1 at 6. Road salt has an expected sodium to chloride molar ratio of approximately one, and landfill leachate has a ratio typically less than one. *Id.* at 6-7. The sodium to chloride molar ratio from the Bensenville landfill's leachate was 0.33, while the two most impacted downgradient groundwater monitoring wells, G117 and R121, exhibited ratios of 1.27 and 0.75, respectively. Exh. 1 at 7, App. 13. The sodium to chloride molar ratios for the groundwater samples are therefore closer to one than the ratio for leachate sample. EIL's report suggests that the ratios indicate road salt is responsible for the elevated chloride levels in the site groundwater, not the landfill. *Id.* at 7.

Temporary piezometers installed between existing landfill monitoring wells and the adjacent roadways generally exhibited higher chloride concentrations than the corresponding monitoring wells. Exh. 1 at 7. EIL concluded that "[t]hese results are not consistent with a landfill-only source of chloride." *Id.* Soil electrical conductivity was also profiled because chloride can result in increased electrical conductivity. *Id.* at 7-8. Peaks in electrical conductivity were observed near the ground surface in samples closest to the major roads, exceeding in magnitude the smaller peaks observed in the lower water-bearing unit. Exh. 1 at 8, App. 14. EIL concluded that these results suggest "a surface source of ions that are infiltrating the ground," and given the proximity to the roads, chloride from road salt is the likely source. Exh. 1 at 8.

DISCUSSION

Overview

Bensenville seeks an adjusted standard (415 ILCS 5/28.1 (2004)) from the Class I potable

resource groundwater quality standard for chloride (35 Ill. Adm. Code 620.410(a)). Chloride levels in the groundwater at the landfill exceed the standard. Bensenville's municipal water supply is sourced from Lake Michigan.

According to Bensenville's environmental consultant, EIL, there is "significant evidence to suggest that an off-Site source is responsible for the elevated chloride concentrations currently observed in Site groundwater," namely road salt. Exh. 1 at 8. Bensenville asks the Board to relax the chloride groundwater quality standard from the current Class I level of 200 mg/L total chloride to 728.963 mg/L dissolved chloride. 2d Am. Pet. at 27.

Bensenville represents that it requires an adjusted standard to be able to receive certification from the Agency that post-closure care monitoring at the landfill is complete. According to Bensenville, the Agency's certification is also needed so that the Village can finish work on the site's public golf course.

Level of Justification Required

The Class I groundwater quality standards (35 Ill. Adm. Code 620.410), which are the regulations of general applicability at issue here, do not specify a level of justification required to qualify for an adjusted standard. Accordingly, under Section 28.1(c) of the Act, Belleville must demonstrate that:

1. Factors relating to that petitioner are substantially and significantly different from the factors relied upon by the Board in adopting the general regulation applicable to that petitioner;
2. The existence of those factors justifies an adjusted standard;
3. The requested standard will not result in environmental or health effects substantially and significantly more adverse than the effects considered by the Board in adopting the rule of general applicability; and
4. The adjusted standard is consistent with any applicable federal law. 415 ILCS 5/28.1(c) (2004); *see also* 35 Ill. Adm. Code 104.426(a).

Further, Section 28.1(a) of the Act (415 ILCS 5/28.1(a) (2004)) provides that the Board may grant an adjusted standard "for persons who can justify such an adjustment consistent with subsection (a) of Section 27 of this Act." Section 27(a) (415 ILCS 5/27(a) (2004)) is a rulemaking provision that requires the Board to "take into account," among other things, "the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution."

Class I Groundwater Quality Standard for Chloride

Bensenville seeks relief from Section 620.410(a) of the Board's Class I or potable resource groundwater quality standard (35 Ill. Adm. Code 620.410(a)) for chloride. The

regulation became effective on November 25, 1991, and was adopted by the Board under the Act and the Illinois Groundwater Protection Act (415 ILCS 55 (2004)).

Section 620.410(a) reads as follows regarding chloride:

a) Inorganic Chemical Constituents

Except due to natural causes or as provided in Section 620.450, concentrations of the following chemical constituents must not be exceeded in Class I groundwater:

Constituent	Units	Standard
***	***	***
Chloride	mg/L	200.0

35 Ill. Adm. Code 620.410(a).

The Board's regulation at 35 Ill. Adm. Code 620.110 adopt the Act's definition of "potable":

"Potable" means generally fit for human consumption in accordance with accepted water supply principles and practices. [415 ILCS 5/3.65]

Bensenville's Proposed Adjusted Standard

Bensenville seeks to make the landfill site's groundwater quality standard for chloride less stringent than the applicable Class I standard. 2d Am. Pet. at 28. As proposed, the adjusted standard would apply to "groundwater within the lower water bearing unit down to the top of the Silurian dolomite bedrock beneath the former Village of Bensenville Landfill Site." *Id.* The proposed value of 728.963 mg/L dissolved chloride was "calculated by permit-approved methods at the 99% confidence interval using all ten current quarterly monitoring data points from monitoring well R121, beginning in the second quarter 2002 and ending with the third quarter 2004." Exh. 1 at 8, App. 15.

Bensenville proposes that the Board adopt the following language for the adjusted standard:

The dissolved chloride standard in 35 Ill. Adm. Code 620.410 shall be adjusted from the existing standard of 200,000 ug/L [micrograms per liter] to 728,963 ug/L.³ This adjusted standard shall apply to groundwater within the lower water-

³ Bensenville uses micrograms per liter (ug/L) to numerically represent the chloride values in its proposed adjusted standard. The chloride Class I groundwater quality standard at 35 Ill. Adm. Code 620.410(a) is set in milligrams per liter (mg/L). The ug/L value is simply the mg/L value multiplied by 1,000. Additionally, Bensenville's proposed language indicates that the Board's Class I groundwater quality standard is for "dissolved" chloride, when it is actually for "total" chloride.

bearing unit down to the top of the Silurian dolomite bedrock beneath the former Village of Bensenville Landfill site located at:

Address: Northwest corner of Grand Avenue and County Line Road, Bensenville, Illinois.

Legal Description:

Parcel 1 (Pin Number 03255200004): [legal description omitted here].

Parcel 2 (Pin Number 0325200003): [legal description omitted here].

Parcel 3 (Pin Number 0325200002): [legal description omitted here]. 2d Am. Pet. at 27-28; *see also* Exh. 12 (site map showing boundaries)

To help ensure that groundwater at the site will not be used for potable purposes, Bensenville has indicated it will also record an “Environmental Land Use Control” (ELUC) if requested by the Board.⁴ 2d Am. Pet. at 25.

Agency Recommendation

The Agency states that it cannot exclude the landfill as a source of chloride. The Agency concurs, however, that road salt “appears to be a contributing source, if not the sole source, of chloride contamination.” Ag. Rec. at 2, 4. The Agency maintains that that unless road salting ceased, it would be “unlikely that any clean-up efforts would significantly alter chloride concentrations downgradient of the landfill.” *Id.* at 4.

In addition, the Agency notes that the major aquifer in the area, Silurian dolomite, exhibits chloride levels comparable to those found in the Bensenville site’s monitoring wells. Ag. Rec. at 4. Failing to clean up chloride in the site’s lower water bearing unit would have little impact on the groundwater quality of the deeper major aquifer, according to the Agency. *Id.*

The Agency therefore recommends that the Board grant Bensenville’s requested adjusted standard. Ag. Rec. at 4. The Agency further recommends that Bensenville “record an ELUC to preclude use as earlier suggested by the [Board].” *Id.* at 5.

Efforts to Achieve Compliance

Bensenville initially concedes that it is “technically feasible to eliminate or reduce chloride concentrations in Site groundwater.” 2d Am. Pet. at 25. Bensenville maintains,

⁴ An “ELUC” is defined in part as “an instrument that . . . is placed in the chain of title to real property that limits or places requirements upon the use of the property for the purpose of protecting human health or the environment, is binding upon the property owner, heirs, successors, assigns, and lessees, and runs in perpetuity” 35 Ill. Adm. Code 742.200.

however, that it is not “economically reasonable” to do so “because the cost is extremely high and there is no evidence to suggest that Site groundwater is used for human consumption or any known industrial purposes within one half-mile downgradient from the Site.” *Id.*

Bensenville evaluated means of remediating the site’s groundwater to meet the Board’s chloride standard. 2d Am. Pet. at 17. According to Bensenville, while it is “not clear that any action would achieve compliance with the Board regulation,” one “basic” approach would be to construct a slurry “cut-off” wall around the lower water-bearing unit, hydraulically isolate Addison Creek where it intersects the site, pump the lower water-bearing unit with extraction wells, and pre-treat the impacted groundwater in an on-site reverse osmosis treatment unit before discharging to the Metropolitan Water Reclamation District of Greater Chicago. *Id.* at 17-22.

Bensenville estimates the cost of this remediation would be “on the order of \$14,144,000.” 2d Am. Pet. at 18; Exh. 6. Bensenville breaks this figure down as follows: over \$13 million in construction and an additional \$40,000 per year in operation and maintenance “assuming a 25-year groundwater extraction, treatment, and disposal period.” 2d Am. Pet. at 18, 21; Exh. 6. The Agency agrees that the cost of a cleanup would be “expensive.” Ag. Rec. at 3.

Bensenville argues that this “pump and treat” remediation program is “economically unreasonable and not justified from any perspective.” 2d Am Pet at 22. First, Bensenville states that users within one-half mile downgradient of the site obtain their drinking water supplies from sources other than the lower water-bearing unit, so “[t]here are no groundwater receptors or potential human health impacts.” *Id.* Second, Bensenville emphasizes that even if it implemented this remediation alternative, “the source of chloride is ongoing and not subject to control by Bensenville.” *Id.* Specifically, Bensenville explains, the State and county highway departments apply salt to the surrounding roads “as a means of ensuring driver safety during snow and ice events and these separate government entities are expected to continue this application in the future.” *Id.* Bensenville concludes therefore that “there is no action it can take which could result in compliance.” *Id.*

Bensenville further asserts that “there are no known significant health risks associated with the ingestion of groundwater with the current level of chloride concentrations found in Site groundwater.” 2d Am. Pet. at 23. Bensenville cites several studies, including one by the Federal Highway Administration, for the proposition that the principal problem with human consumption of groundwater high in chloride from road salt is the adverse effect on taste. *Id.*

As an alternative to remediation, Bensenville states that it, DuPage and Cook Counties, and the Illinois Department of Transportation could “in theory” stop salting adjacent roads, but that could significantly compromise road safety, increasing accidents and associated injuries and fatalities. 2d Am. Pet. at 22-23.

Substantially Different Factors

Bensenville argues that its “situation is substantially and significantly different from those the Board considered in adopting the Ground Water Quality standards.” 2d Am. Pet. at 26. Elevated chloride levels, according to Bensenville, are not related to landfill impacts, but rather

are resulting from off-site sources, particularly road salting. *Id.* at 2, 22, 29. Bensenville maintains that the 1981 ISWS Circular identified regional chloride impacts in the Silurian Age dolomite bedrock that are “consistent with the impacts in the lower water bearing unit with which it is connected at the Site.” *Id.* at 13. Further, Bensenville asserts that the “generally higher chloride concentrations further from the landfill waste boundary, adjacent to the roadways” are “not consistent with a possible leachate release.” *Id.*

Bensenville maintains that the site’s “groundwater issues . . . cannot be resolved by any reasonable action that Bensenville can take.” 2d Am. Pet. at 26. Bensenville further states that the lower water-bearing unit is not used for potable purposes at the site or within one-half mile downgradient of the site. Bensenville asserts that because the groundwater is:

not used for human consumption, it must be concluded that the safety benefits to motorists of using road salt (ice-free roads) far out weigh any potentially beneficial impact of reducing chloride concentrations in Site groundwater by eliminating the application of road salt to heavily traveled Grand Avenue, County Line Road, and Interstate 294 adjacent to the Site. *Id.*

Bensenville adds that it is seeking the adjusted standard “to complete the project of turning a private landfill into a public open space resource pursuant to IEPA funding.” 2d Am. Pet. at 26. According to Bensenville, the adjusted standard will therefore “advance economic and social development.” *Id.* at 25. Further, Bensenville notes that it would be relieved from the “significant financial burden” of quarterly assessment monitoring and reporting, which costs approximately \$35,000 to \$40,000 per year. *Id.* That amount, Bensenville continues, “could be allocated to beneficial community development, beautification, or recreation projects.” *Id.*

The Agency refuses to concede that the landfill is not one of the sources of chloride. Nevertheless, the Agency does agree that road salt may be contributing to chloride contamination and that, absent cessation of road salting, remediating the lower water-bearing unit at the landfill would likely be fruitless. Ag. Rec. at 4.

ELI, Bensenville’s consultant, acknowledges that “there is no way . . . to eliminate the possibility that some of the chloride is coming from the landfill.” Exh. 1 at 8. ELI concludes though that it “has established, as best [it] can, that the landfill is neither the most likely source of, nor a major contributor to, the elevated chloride concentrations in the lower water-bearing unit groundwater.” *Id.*

Bensenville notes that its conclusion, that the landfill has not contributed to chloride exceedences, has been “the subject of extensive discussion with the IEPA.” 2d Am. Pet. at 13, n. 3. Bensenville maintains, however, that “the Board can grant this relief without resolving this debate” because the “identified control measures would be economically unreasonable and there is no environmental impact associated with the relief.” *Id.*

Impact on the Environment and Health

Bensenville argues that the chloride exceedences have no impact on the environment or

public health. 2d Am. Pet. at 3, 26. Bensenville is served by a municipal drinking water supply that obtains water from Lake Michigan. Bensenville has an ordinance that effectively eliminates private well installation in almost the entire Village. Based on reconnaissance efforts within one-half mile downgradient of the site, all other known water supplies are obtained from deep bedrock wells or Lake Michigan. Exh. 1 at 3.

In short, Bensenville concludes that the adjusted standard will not affect human health because “groundwater from the lower water bearing unit is not utilized for human consumption within on half-mile dowgradient of the Site.” 2d Am. Pet. at 25. Bensenville further states that it would be willing to record an ELUC “to ensure that groundwater at the Site will not be used for potable purposes.” *Id.*

As noted, the Agency states that without ending the practice of salting roads, remediating chloride in the landfill’s lower water-bearing unit would be unlikely to have any significant impact on downgradient chloride concentrations. Further, according to the Agency, failing to clean up chloride in the lower water-bearing unit at the site “would not likely result in a significant change in the overall groundwater quality of the Silurian dolomite.” Ag. Rec. at 4.

Consistency with Federal Law

Bensenville asserts that the adjusted standard can be granted consistently with federal law. 2d Am. Pet. at 26. According to Bensenville, the “closure of this Site is not controlled by any federal law and no federal law sets standards for groundwater which is not used as a potable water supply.” *Id.* at 27. The Agency does not dispute Bensenville’s position.

Board Analysis

Bensenville seeks to change the groundwater quality standard for chloride as it applies to its closed landfill. To achieve this relief, Bensenville requests an adjusted standard from Section 620.410(a) of the Board’s Class I standards. Bensenville states that it requests the adjusted standard so the Agency will “release Bensenville from further post-closure care monitoring at the Site” (2d Am. Pet. at 29) and so Bensenville can finish work on the site’s public golf course.

The Agency recommends that the Board grant Bensenville the requested relief, subject to a condition that Bensenville record an ELUC prohibiting site groundwater use for potable purposes. If granted, the adjusted chloride standard would apply to groundwater within the lower water-bearing unit down to the top of the Silurian dolomite bedrock beneath the closed landfill.

Based on this record, the Board finds that Bensenville’s request for relief from the chloride Class I groundwater quality standard satisfies Section 28.1(c) of the Act. Specifically, Bensenville has demonstrated that: (1) factors relating to it are substantially and significantly different from the factors relied upon by the Board in adopting the general regulation; (2) the existence of these factors justifies an adjusted standard; (3) the requested standard will not cause substantially or significantly more adverse environmental or health effects than the effects considered by the Board in adopting the rule of general applicability; and (4) the adjusted

standard is consistent with any applicable federal laws. *See* 415 ILCS 5/28.1(c) (2004).

When adopting the Class I groundwater quality standards in 1991, the Board stressed the availability of groundwater for the supply of drinking water:

[T]he Board believes that among the most necessary facets of the State's groundwater protection program is the need to protect all drinkable water at a drinkable level. * * * In general, the [Class I] standards . . . are equal to the USEPA's Maximum Concentration Levels ("MCLs") applicable "at-the-tap" pursuant to the Safe Drinking Water Act ("SDWA"). The MCL levels are specified as water quality standards under the principle that groundwaters that are naturally potable should be available for drinking water supply without treatment. Groundwater Quality Standards (35 Ill. Adm. Code 620), R89-14(B) (Nov. 7, 1991).

Bensenville and adjacent, downgradient communities are served by municipal drinking water supplies that obtain water from Lake Michigan. Those communities do not depend on groundwater obtained from the lower water-bearing unit of the glacial materials. Bensenville's local ordinance effectively eliminates private well installation in almost the entire Village. Reconnaissance within one-half mile downgradient of the site revealed that the only water supplies are provided from either deep bedrock wells or Lake Michigan. Some deep wells may be screened beneath the Silurian Age dolomite bedrock, but those aquifers are physically and hydraulically isolated from the Silurian Age dolomite bedrock. No known water supply wells within one-half mile downgradient of the site draw from the affected groundwater zone.

The Agency agrees that the off-site application of road salt may be a contributing source, if not the sole source, of chloride contamination in the groundwater under the landfill. Bensenville does not control all of the salting of nearby roads, and suspending road salting during winter months would raise obvious safety concerns for drivers.

The alternative that Bensenville investigated for attempting to comply with the Class I chloride standard was to "pump and treat" the groundwater. That approach would involve building a cut-off wall around the lower water-bearing unit and would cost an estimated \$13 million in construction and \$40,000 annually to operate and maintain. Pump and treat technology for groundwater contamination is widely recognized, and the parties agree that such a remediation is technically feasible. The Agency concedes, however, that as long as the salting of adjacent roads continues, any cleanup of the site's lower water-bearing unit would not likely have any significant effect on chloride concentrations downgradient of the landfill. Moreover, foregoing such a remediation would be unlikely to significantly impact the overall groundwater quality of the Silurian dolomite, the major aquifer in the area.

Under these circumstances, the Board finds that Bensenville has demonstrated that it is not economically reasonable for Bensenville to comply with the regulation of general applicability at the closed landfill site. *See In re Petition of Hayden Wrecking Corp. for an Adjusted Standard from 35 Ill. Adm. Code 620.410(a)*, AS 04-3 (Jan. 6, 2005) (on-site groundwater cleanup found unreasonable in light of on-going, off-site source of contamination).

In the Board's January 20, 2005 order, the Board noted that it was possible that Bensenville's private well restriction ordinance could be rescinded or amended at some time in the future. Ownership and use of the site could also change. The Board therefore directed Bensenville to address whether an ELUC or other institutional control should be recorded in the chain of title to help ensure that groundwater beneath the landfill is not put to potable use. In response, Bensenville has stated its willingness to record an ELUC prohibiting use of groundwater at the former landfill as a potable supply, and the Agency has recommended that the Board require an ELUC as a condition of the adjusted standard. Accordingly, as a condition of the adjusted standard, the Board will require Bensenville to record in the property records an ELUC that prohibits using the site's groundwater for potable purposes. *See Hayden Wrecking, AS 04-3* (petitioner receiving groundwater quality adjusted standard recorded ELUC prohibiting use of site groundwater as a source of potable water).

Regarding the other provisions of the adjusted standard, the Board adopts language similar, but not identical, to that proposed by Bensenville. These Board changes, however, are minor. For example, the Board clarifies that the Class I groundwater quality standard is for "total" chloride, rather than "dissolved" chloride as Bensenville had mistakenly suggested with its proposed wording. Also, for the numeric representations of the Class I and adjusted chloride standards, the Board uses the unit of measurement employed in Section 620.410(a), that is, milligrams per liter (mg/L), instead of micrograms per liter (ug/L), as proposed by Bensenville.

CONCLUSION

Based on the record before it, the Board finds that Bensenville has provided sufficient justification for each of the factors under Section 28.1(c) of the Act. The Board therefore grants Bensenville an adjusted standard from the Class I groundwater quality standard of 200 mg/L total chloride (35 Ill. Adm. Code 620.410(a)). As provided in the order below, the adjusted standard of 728.963 mg/L dissolved chloride applies to the lower water-bearing unit down to the top of the Silurian dolomite bedrock beneath Bensenville's closed landfill.

In granting this request for relief, the Board is not allowing Bensenville to aggravate existing chloride contamination in the site's groundwater. Rather, the Board is allowing Bensenville to avoid a remediation that would be economically unreasonable under the circumstances. Bensenville remains subject to all other requirements of Section 620.410 and to all other applicable statutes and regulations.

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

ORDER

1. Under Section 28.1 of the Environmental Protection Act (415 ILCS 5/28.1 (2004)), the Board grants the Village of Bensenville (Bensenville) an adjusted standard from the chloride Class I groundwater quality standard of 35 Ill. Adm. Code 620.410(a). The existing standard of 200 milligrams per liter (mg/L) total chloride in 35 Ill. Adm. Code 620.410(a) is replaced with the adjusted standard of

728.963 mg/L dissolved chloride. The adjusted standard of 728.963 mg/L dissolved chloride must not be exceeded in groundwater within the lower water-bearing unit down to the top of the Silurian dolomite bedrock beneath the former Village of Bensenville Landfill site located at:

Address: Northwest corner of Grand Avenue and County Line Road, Bensenville, DuPage County, Illinois.

Legal Description:

Parcel 1 (Pin Number 03255200004): That part of the northeast quarter of Section 25, Township 40 North, Range 11 East, of the third principal meridian described by commencing in the north line of said section at a point 1019.04 feet east of the northwest corner of said northeast quarter; thence southeasterly along the easterly line of property described in document 388417, 1573.55 feet to the centerline of Grand Avenue, thence easterly on the centerline of Grand Avenue 700.0 feet for a place beginning; thence northerly 1602.1 feet to a point in the section line which is 1865.04 feet of the northwest corner of said northeast quarter; thence east along the north line of said northeast quarter 768.8 feet to the northeast corner thereof; thence south along the east line of said northeast quarter 1641.55 feet to the centerline of Grand Avenue; thence westerly along the centerline of Grand Avenue 692.28 feet to the place of beginning (except therefrom the rights of the public all existing roads and streets), in DuPage County, Illinois.

Parcel 2 (Pin Number 0325200003): That part of the northeast quarter of Section 25, Township 40 North, Range 11 East, of the third principal meridian described by beginning in the north line of said section at a point 1019.04 feet east of the northwest corner of said northeast quarter; thence southeasterly along the easterly line of property described in document 388417, 1573.55 feet to the centerline of Grand Avenue; thence easterly on the centerline of Grand Avenue, 700 feet; thence northerly 1602.1 feet to a point in the section line which is 846.0 feet east from the place of beginning; thence west 846.0 feet to the place of beginning, except there from that part thereof described as follows: the west 200 feet (as measured along the centerline of Grand Avenue) north of the south 400 feet (as measured on the easterly line of property described in document 388417) lying northerly of the northerly line of Grand Avenue (said northerly line of Grand Avenue being 40 feet northerly of and parallel with the centerline of Grand Avenue; in DuPage County, Illinois.

Parcel 3 (Pin Number 0325200002): The west 200 feet (as measured along the center-line of Grand Avenue) of the south 400 feet (as measured on the easterly line of property described in document 388417) lying northerly of the northerly line of Grand Avenue (said northerly line of Grand Avenue being 40 feet northerly of and parallel with the centerline of Grand Avenue) of that part of the northeast quarter of section 25, Township 40 North, Range 11, east of the third

principal meridian, described by beginning in the north line of said section at a point 1019.04 feet east of the northwest corner of said northeast quarter; thence southeasterly along the easterly line of property described in document 388417, 1573.55 feet to the centerline of Grand Avenue; thence easterly on the centerline of Grand Avenue, 700 feet, thence northerly 1602.1 feet to a point in the section line which is 846.0 feet east from the place of beginning; thence west 846.0 feet to the place of beginning, in DuPage County, Illinois.

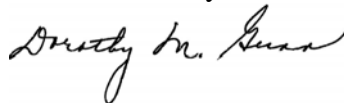
2. This adjusted standard is subject to the following conditions:
- a. Bensenville must promptly record and maintain in perpetuity in the property records an "Environmental Land Use Control" (ELUC) in accordance with 35 Ill. Adm. Code 742.1010. The ELUC must prohibit the use of groundwater at the former Village of Bensenville Landfill site for potable purposes.
 - b. Upon recording the ELUC, a copy of the ELUC demonstrating that it has been recorded must be submitted by Bensenville to:

Melanie A. Jarvis
 Assistant Counsel
 Division of Legal Counsel
 Illinois Environmental Protection Agency
 1021 North Grand Avenue East
 P.O. Box 19276
 Springfield, Illinois 62794-9276

IT IS SO ORDERED.

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) (2004); *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, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on October 20, 2005, by a vote of 5-0.



Dorothy M. Gunn, Clerk
 Illinois Pollution Control Board