

ILLINOIS POLLUTION CONTROL BOARD

November 5, 2008

IN THE MATTER OF:)
)
PETITION FOR ADJUSTED STANDARD) AS 08-3
FROM 35 ILL. ADM. CODE 620.420 FOR) (Adjusted Standard – Groundwater)
NOBEL RISLEY’S LANDFILL NO. 2)

OPINION AND ORDER OF THE BOARD (by N.J. Melas):

On September 5, 2007, Nobel Risley’s Landfill #2 (Landfill) filed a petition for an adjusted standard from the Board’s groundwater quality standards. As detailed in two amendments to its petition, the Landfill seeks relief from Section 620.420(a) of the Board’s Class II, or general resource, groundwater quality standards (GWQS) (35 Ill. Adm. Code 620.420(a)) for chloride and sulfate for its closed landfill site (Site) located in South Central Illinois, near the City of Benton, in rural Franklin County.

The GWQS regulations codified at 35 Ill. Adm. Code 602.420 limit the allowable level of inorganic chemical constituents that may be present in general resource groundwater. *See* 35 Ill. Adm. Code 602.420. Chloride and sulfate levels in the site’s groundwater exceed the Board’s standards. Here, the Landfill requests an increase in the Class II GWQS chloride limit from 200 milligrams per liter (mg/L) to 600 mg/L and an increase in the Class II GWQS sulfate limit from 400 mg/L to 2,381 mg/L, in order to allow the Illinois Environmental Protection Agency (Agency) to issue a closure certificate for the landfill facility. The Landfill asserts that all closure requirements for the Site have been met, with the exception of the chloride and sulfate concentrations that exceed applicable GWQS in several downgradient monitoring wells.

No public hearing has been requested or held, as the Landfill and the Agency had resolved all disagreements by the time the last pleading was filed.

Consistent with the Agency’s January 4, 2008 Recommendation (Rec.) and May 9, 2008 amended Recommendation (Am. Rec.), the Board finds the Landfill has justified its request for an adjusted standard. For the reasons below, the Board grants the adjusted standard as set forth in the following Board order. The adjusted standard now applies to the site in lieu of the Class II groundwater quality standards for chloride and sulfate.

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 (2006)). Second, the Board describes the current applicable standard and the Landfill’s proposed adjusted standard. Next, the Board provides the procedural history of this case. This is followed by a description of the factual background and petition contents cited by the Landfill, as well as the Landfill’s justification for its proposed adjusted standard. Next, the Board

addresses the Agency's recommendation and concludes with a discussion of the issues and the Board's legal conclusions.

LEGAL FRAMEWORK

Section 28.1 of the Act and the 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) (2006); 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 (2006); 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 (2006)). *See* 415 ILCS 5/28.1(a) (2006); 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) (2006); 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(d)(1) (2006)) 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) (2006); 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) (2006); 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) (2006); 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) (2006); 35 Ill. Adm. Code 104.428(a).

General Level of Justification Required

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, a petitioner 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) (2006); *see also* 35 Ill. Adm. Code 104.426(a).

Further, Section 28.1(a) of the Act (415 ILCS 5/28.1(a) (2006)) 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) (2006)) is a 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.”

CURRENT APPLICABLE STANDARD AND THE LANDFILL’S PROPOSED ADJUSTED STANDARD

Class II Groundwater Quality Standards for Chloride and Sulfate

The Landfill seeks relief from Section 620.420(a) of the Board’s Class II, or general resource, GWQS (35 Ill. Adm. Code 620.420(a)) for chloride and sulfate. The relevant groundwater regulations became effective on November 25, 1991, and were adopted pursuant to Section 8 of the Illinois Groundwater Protection Act (IGPA) (415 ILCS 55/8 (2006)) and Section 27 of the Act (415 ILCS 5/27 (2006)). *See Groundwater Quality Standards (35 Ill. Adm. Code 620), R89-14(B) (Nov. 7, 1991)*. Section 8 of the IGPA mandates the Board to promulgate “regulations establishing comprehensive water quality standards which are specifically for the protection of groundwater.” 415 ILCS 55/8(a) (2006).

Section 620.420(a) of the Board’s Class II groundwater standards reads as follows regarding chloride and sulfate:

a) Inorganic Chemical Constituents

- 2) Except due to natural causes or as provided in Section 620.450 or subsection (a)(3) or (d) of this Section, concentrations of the following chemical constituents must not be exceeded in Class II groundwater:

Constituent	Standard (mg/L)
* * *	* * *
Chloride	200.0
Sulfate	400.0

35 Ill. Adm. Code 620.420(a).

Section 620.220 of the Board's regulations define Class II: General Resource Groundwater as follows:

Except as provided in Section 620.250, General Resource Groundwater is:

- a) Groundwater which does not meet the provisions of Section 620.210 (class I), Section 620.230 (Class III), or Section 620.240 (Class IV).
- b) Groundwater which is found by the Board, pursuant to the petition procedures set forth in Section 620.260, to be capable of agricultural, industrial, recreational or other beneficial uses. 35 Ill. Adm. Code 620.250.

The Landfill's Proposed Adjusted Standard

The relief request the Board considers today is that contained in the Landfill's February 28, 2008 second amended petition (2d Am. Pet.). The Landfill seeks to amend the requirements for general resource groundwater quality standard for chloride and sulfate to be less stringent than the applicable Class II standard. 2d Am. Pet at 1. As proposed, the adjusted standard would apply to the complete site. Specifically, the Landfill seeks to increase the allowable limits of chloride from 200 mg/L to 600 mg/L and the allowable levels of sulfates from 400 mg/L to 2,381 mg/L. *Id.* The proposed limits were derived using an analysis of the statistically valid range of chloride and sulfate levels in several downgradient monitoring wells at the site. 2d Am. Pet. at 3.

The Landfill petitions the Board to adopt the following language to establish the requested proposed adjusted standard:

The concentration of dissolved chlorides shall not exceed 600 mg/L and the concentrations of dissolved sulfates shall not exceed 2,381 mg/L in the groundwater at the Risley #2 Landfill (IEPA Site Number is 055 802 0005, IPEA permit number is 1980-21-DE/IOP) located at 9957 River Bend Road, Benton, Illinois 62812. The horizontal boundaries within which the adjusted standards apply shall be the property boundaries. The vertical boundaries are defined as all the groundwater that occurs below

the surface and above the first occurrence of shale, the latter of which is shown on Figure 8 of the “Technical Justification for an Adjusted Standard for Chlorides in Ground-Water” Report dated November 7, 2006. The Class II groundwater Standards for dissolved chlorides and dissolved sulfate as set forth at 35 Ill. Adm. Code 620.420 shall not apply to groundwater at the Risley #2 Landfill.

The legal description of the property is as follows:

Part of the South One-Half (S 1/2) of the Southwest One-Fourth (S 1/4) of the Southeast One-Fourth (SE 1/4) of Section 22, Township 6 South, Range 2 East in Franklin County, Illinois, approximately eight (8) acres.

The North One-Half (N 1/2) of the Northwest One-Fourth (NW 1/4) of the Northeast One-Fourth (NE 1/4) and the Southeast One-Fourth (SE 1/4) of the Northwest One-Fourth (NW 1/4) of the Northeast One-Fourth (NE 1/4) of Section 27, Township 6 South, Range 2 East in Franklin County, Illinois, approximately 30 acres. 2d Am. Pet. at 10-11.

PROCEDURAL HISTORY

On September 5, 2007, the Landfill filed a petition for an adjusted standard (Pet.) from the Class II groundwater quality standard for chloride. Additionally, the Landfill asked the Board to consider the case in an expedited manner, requested leave to file less than nine copies and waived hearing, as permitted by Section 104.406 of the Board’s regulations (35 Ill. Adm. Code 104.406), “provided that Illinois EPA does not have a contrary recommendation to the requested adjusted standard.” 2d Am. Pet. at 17; Pet. at 9. On September 12, 2007, the Landfill filed a certificate of publication, documenting that notice of the petition was provided in the *Benton Evening News* on September 8, 2007.

On September 27, 2007, the Agency filed a motion for extension of time to file a recommendation in regards to the Landfill’s petition for adjusted standard. In an October 4, 2007 order, the Board granted the Agency’s motion to for extension of time to file its recommendation and the Landfill’s motion to file less than nine copies of the petition, but denied the Landfill’s motion for expedited consideration, noting that the Board had not yet accepted the Landfill’s petition for hearing.

In a subsequent November 1, 2007 order, the Board found that the Landfill had met the statutory notice requirement of the Act and the Board’s procedural rules by providing newspaper notice of its petition. *See* 415 ILCS 5/28.1(d)(1) (2006); 35 Ill. Adm. Code 104.408, 104.410. However, the Board also found that the Landfill had not provided all of the necessary information in its petition and therefore directed the Landfill to file an amended petition to cure the noted deficiencies. *See Petition for Adjusted Standard from 35 Ill. Adm. Code 620.420 for Nobel Risely’s Landfill No. 2, AS 08-3* (Nov. 1, 2007).

On November 30, 2007, the Landfill timely filed an amended petition for adjusted standard (Am. Pet.) with the Board and requested, in addition to the increase of the chloride limit contained in the first petition, an increase in the Class II GWQS for sulfate from 400 mg/L to 4,500 mg/L. The amended petition was accompanied by a motion for leave to file less than nine copies and a motion to request clarification that the Landfill retain its rights to request a hearing in the event of a negative recommendation on the petition from the Agency. *See* 35 Ill. Adm. Code 104.416.

On January 4, 2007, the Agency filed its Recommendation to the Amended Petition for Adjusted Standards (Ag. Rec.). The Agency recommended granting the adjusted standard as to chloride, but denial of the adjusted standard as to sulfate. The Agency asserted that the Landfill had provided “no meaningful rationale as to the appropriateness of a 4,500 mg/L standard.” Ag. Rec. at 7.

On January 24, 2008, the Board issued an order requiring the Landfill to file notice of newspaper publication of the filing of amended petition, due to the additional adjusted standard requested for sulfate. The Board again noted that the Landfill needed to cure several identified deficiencies in an amended petition. *See Petition for Adjusted Standard from 35 Ill. Adm. Code 620.420 for Nobel Risely’s Landfill No. 2*, AS 08-3 (Jan. 24, 2008). The Landfill filed a certificate of publication with the Board documenting that notice of the amended petition was published in the *Benton Evening News* on December 7 and 8, 2007.

On February 28, 2008, the Landfill filed a second amended petition for adjusted standards requesting a revised increase in the Class II GWQS for sulfate from 400 mg/L to 2,381 mg/L, a lower limit than the previously requested 4,500 mg/L. Additionally, the Landfill restated that while it anticipated the Agency having a favorable recommendation as to its request for adjusted standard, the Landfill did not waive its right to a hearing. 2d Am. Pet. at 17.

On March 20, 2008, the Board accepted the Landfill’s second amended petition for hearing and directed the hearing officer to expeditiously schedule and hold hearing. On May 9, 2008, the Agency filed an Amended Recommendation to Second Amended Petition for Adjusted Standards (Am. Rec.), suggesting that the Board grant both adjusted standards for chloride and sulfate. Am. Rec. at 1.

Memorializing a telephonic status conversation held on the same day, a May 14, 2008 hearing officer order noted that the Landfill had withdrawn its request for hearing in light of the Agency’s amended recommendation. *See* Hearing Officer Order, AS 08-3 (May 14, 2008). The Board has received no requests for a public hearing on the petition under 35 Ill. Adm. Code 104.420 in response to either of the Landfill’s newspaper notices. Accordingly, no hearing has been held and the Board’s decision is based solely on the parties’ pleadings.

FACTUAL BACKGROUND AND PETITION CONTENTS

This section discusses the factual background of the Landfill, including a description of the landfill site, the history of the landfill operation, and the general character of the surrounding area. Additionally, provided here are the relevant chloride and sulfate levels observed in the groundwater under the Landfill, as well as their effect on the surrounding drinking water supply and affected downgradient areas.

Landfill Site and Surrounding Area

The closed Nobel Risely's Landfill #2 site is located at 9957 River Bend Road, near Benton in Franklin County. 2d. Am. Pet at 4. The site is situated on a 38-acre parcel of land with a waste footprint of approximately 8 acres and a waste thickness of 20 feet. *Id.* The Big Muddy River borders the site's north property line, with two rural residences immediately to the east and west along the frontage road of the 38-acre parcel. 2d Am. Pet. at 7. The Landfill states that the "surrounding area is rural and sparsely populated with light agriculture use." *Id.* The nearest town of Benton, Illinois, located approximately 2 miles northeast, has a population of 7,000. *Id.*

The Landfill furnished technical justification reports, included in its petitions for an adjusted standard as Exhibits 1 and 3 and prepared by groundwater consulting firm Leggette, Brashears & Graham; these reports state that no agricultural activities and no recreational activities, such as hiking or hunting, occur on the landfill grounds. Technical Justification for Adjusted Standard for Chlorides in Ground-Water (11-7-06) at 1. (Tech. Just. (11-7-06)). Additionally, no people live on the 38 acres of the Landfill proper and there are no private wells located downgradient of the landfill. 2d Am. Pet. at 7; Tech. Just (11-7-06) at 1. The reports conclude that groundwater is not a local source of drinking water; the Franklin County area relies on Rend Lake for its public water supply, the groundwater in the area of the landfill is sporadic in occurrence, and significantly mineralized. *Id.* at 1-2. Further, the report states that groundwater in the area is not capable of sustained yield because of the hydrogeologic characteristics. *Id.* at 2.

Site History and Post-Closure Care

According to the Landfill's petition, the site was constructed by removing naturally occurring unconsolidated earth materials of glacial derivation, present above a thick shale formation, while still leaving the shale formation in place. 2d Am. Pet. at 4; Tech. Just. (11-7-06) at 4. The excavation was then filled with non-hazardous municipal solid waste. *Id.* Once closed, cover material consisting of unconsolidated earth material, was placed over the landfill area. *Id.*

The landfill began operations in February of 1981 and received non-hazardous municipal solid waste until 1988. 2d Am. Pet. at 6; Tech Just. (11-7-06) at 3-4. No hazardous or domestic waste was accepted at the site. 2d Am. Pet. at 6. Site closure was initiated and the landfill area was closed between May 11, 1999 and July 19, 1999. *Id.*

On July 13, 2000, the Agency issued a supplemental permit addressing the specific closure requirements for Landfill #2, including those pertaining to groundwater monitoring. 2d Am. Pet. at 6. The Landfill asserts that no leachate or gas emissions were observed by its consultant, EMCON/Shaw Environmental, Inc., at the site during a 4-year quarterly inspection period. 2d Am. Pet. at 7. Additionally, while there is currently no pollution control equipment at the landfill, there is an engineered cap that is in place. *Id.*

The Agency has advised the Landfill that the Agency cannot certify that post-closure care of the Landfill is complete when chloride and sulfate levels in site groundwater exceed the Board's Class II groundwater quality standards. The Landfill asserts that evidence makes clear that reducing the chlorides and sulfates that showed up in two monitoring wells from this old landfill is technically infeasible and economically unreasonable. 2d Am. Pet. at 8. Correspondence between the Landfill's consultant and the Agency show that all closure requirements have been met with the exception of the chloride and sulfate concentrations in groundwater. *Id.* at 12; Technical Justification for Adjusted Standard for Sulfates in Ground-Water (11-6-07) at 4.

Groundwater Monitoring for Chloride and Sulfate Levels

As noted earlier, the Landfill derived its proposed limits using an analysis of the statistically valid range of chloride and sulfate levels in several downgradient monitoring wells at the site. 2d Am. Pet. at 3.

In its original and subsequent petitions, the Landfill reported that the average chloride concentration in six monitoring wells around the landfill is 26 mg/L, a level that is much lower than the allowable standard. Pet. at 5. Despite this, there have been measurements of chloride in the leachate of the landfill as high as 680 mg/L. *Id.* The Landfill asserts that, while such measurements may be interpreted to be outliers, they were taken in accordance with statistical reporting protocol. *Id.* The Landfill proposed an adjusted standard of 600 mg/L, instead of a lower level that reflects the statistically valid range of chloride levels observed at several of the downgradient monitoring wells. *Id.*

Using the same groundwater monitoring methods for sulfate levels, the Landfill proposed, in the first amended petition, a sulfate limitation of 4,500 mg/L for groundwater at the Landfill instead of the Class II sulfate groundwater standard of 400 mg/L. In support, the Landfill stated that although sulfate concentrations have never exceeded 3,000 mg/L in the downgradient monitoring well G104, the proposed higher limit is necessary to account for the potential spatial and temporal variation. Am Pet. at 11. According to the amended petition, the highest sulfate concentration measured in well G104 was 3,290 mg/L on January 14, 2000. Am. Pet. Exh. 2, App. B, Table B-1.

In its original Recommendation on January 4, 2008, the Agency questioned the Landfills' proposed sulfate level. The Agency found the level to be excessively high, based on the existence of monitoring data showing a decreasing trend in sulfate concentration in the downgradient wells, supported with a sulfate level of 2,090 mg/L

measured on September 2, 2004, when the operator terminated the quarterly groundwater monitoring. Ag. Rec. at 6, Exh. 5. The Agency verified the decreasing trend in sulfate concentration in well G104 by using Mann-Kendall/Sen Slope at 95% confidence. Ag. Rec. at 6, Exh. 5. A recent sample taken from the same well on May 9, 2007, has a sulfate concentration of 941 mg/L. *Id.* The Agency's recommendation noted that while a statistical analysis of the sulfate monitoring data identified the May 2007 sulfate concentration as an outlier, the data point is considered a valid observation since the Landfill has not demonstrated that data point is due to a sampling or laboratory error. Ag. Rec. at 6.

When filing its second amended petition on February 28, 2008, the Landfill proposed a revised sulfate standard of 2,381 mg/L to reflect the statistically valid range of sulfate levels observed in the downgradient monitoring wells. 2d Am. Pet. at 3. The second amended petition states that the maximum sulfate concentration of 3,290 mg/L in well G104 was observed in January 2000. 2d Am. Pet. at 11. While sulfate concentrations in well G104 have never exceeded 3,000 mg/L since that time, the range of sulfate concentrations in well G104 has been highly variable, with a minimum concentration of 1,430 mg/L and an average of 2,161 mg/L over the 9-year period. *Id.* The Landfill asserts that, given the potential for spatial and temporal variation of sulfate data, and bearing in mind there are no exposure routes for groundwater and no health concerns exist, the previously requested adjusted standard of 4,500 mg/L would never have resulted in a violation regulatory standards. 2d Am. Pet. at 11-12. Yet, based on the above stated concerns, the Landfill asserts that it chose the lower of the two numbers for its amended request. 2d Am. Pet. at 12.

Local Area Water Supply

The Franklin County area surrounding the Landfill obtains public water supply from Rend Lake, which is located upstream of the Landfill. The receiving body of any groundwater from the Site area is the Big Muddy River. 2d Am. Pet. at 7. There are no public water supply intakes on the Big Muddy River below Rend Lake. *Id.* Additionally, there are no private wells between the Landfill and the Big Muddy River or downgradient of the Landfill. *Id.*

The Landfill's technical reports characterize the natural groundwater in the area of the landfill as sporadic in occurrence and significantly mineralized. 2d Am. Pet at 7. Further, the reports note that the groundwater in the area is not capable of supporting sustained yield of water given the limited horizontal area of the aquifer, limited saturated thickness, and very low hydraulic conductivity. *Id.* These factors preclude the use of groundwater for drinking water or for other purposes. Am. Pet. at 3. Accordingly, the Landfill claims, "there is virtually no practical scenario in which the groundwater down gradient of Landfill #2 would be used for industrial, domestic, or agricultural use." 2d Am. Pet. at 8.

The technical reports state that the average flow of the Big Muddy River is 605 cubic feet per second. 2d Am. Pet. at 7. Using a mass balance approach, the Landfill

calculated the change in chloride concentration in the Big Muddy River as a result of groundwater discharge to be 8.642×10^{-5} mg/L or 3.32×10^{-4} percent. 2d Am. Pet. at 7. The calculation is based on a conservative assumption that chloride concentration of the impacted groundwater entering the river would not be diluted. Tech. Just. (7-10-2007) at Table L-1. According to the technical reports prepared for the Landfill, “[t]he reason for the extremely low impact to chloride concentration in the Big Muddy River is because the flow is over 1.7 million times greater than the groundwater flow emanating from the Landfill.” 2d Am. Pet. at 12. Using the same approach, the Landfill calculated the change in sulfate concentration in the Big Muddy River as a result of groundwater discharge to be 5.82×10^{-4} mg/L or 4.62×10^{-6} percent. 2d Am. Pet. at 12. The calculation is based on a conservative assumption that the highest recorded sulfate concentration in G104 of 3,290 mg/L would enter the river without any dilution. Am. Pet., Exh. 2 at 12.

In support of the Landfill’s evidence regarding human health effects, the Landfill attaches exhibits that note that the United States Environmental Protection Agency (USEPA) has only adopted a non-enforceable secondary drinking water standard for chloride of 250 mg/L that is intended for managing aesthetic considerations such as taste, odor and color. 2d Am. Pet. at 13. In these exhibits, the Landfill notes that according to the World Health Organization’s (WHO) guidelines for drinking water, chloride toxicity has not been observed in humans except in the special case of impaired sodium chloride metabolism. Excessive intake of drinking water with sodium chloride concentrations above 2,500 mg/L causes hypertension. Tech. Just. (11-7-06) at 14. Additionally, the Landfill asserts that WHO guidelines state there is no known level of sulfate in drinking water that is likely to cause adverse effects to human health. Am. Pet. at 14 citing App. C.

Possible Use of Institutional or Environmental Land Use Controls

The Landfill asserts that, because the groundwater is no longer classified as “potable”, or a Class I groundwater, it would be highly unlikely that it would be used as a potential source of drinking water. 2d Am. Pet. at 14. Therefore, the Landfill concludes that an institutional or environmental land use control prohibiting the use of groundwater for potable purposes is not warranted. *Id.* Further, the Landfill asserts that the existing conditions make it impractical for a water well to be installed in either unconsolidated or consolidated material. *Id.* The shallow setting of the water bearing units does not allow for adequate casing depth, as required by drilled water well regulations codified at 77 Ill. Adm. Code 920.60. *Id.* Finally, the Landfill notes that the City of Benton has enacted an ordinance prohibiting the installation of drilling wells to use groundwater as a potable water supply. 2d Am. Pet. at 15 (citing Ordinance 05-16 enacted June 27, 2005).

ADJUSTED STANDARD JUSTIFICATION

This section includes a discussion of the relevant factors asserted by the Landfill in order to meet the level of justification necessary for the Board to grant the proposed adjusted standard.

Compliance Efforts and Alternatives

The Landfill maintains that supporting evidence clearly shows that “reducing the chlorides that showed up in the two monitoring wells and sulfates that showed up in the six monitoring wells from this old landfill is technically infeasible and economically unreasonable.” 2d Am. Pet. at 8. To support its position, the Landfill considers three alternate treatment options that exist for the Landfill to comply with the regulatory standards.

The Landfill’s first suggested option is to install thirty flow recovery wells that would dewater the landfill and treat the pumped groundwater. The Landfill predicts this option would cost \$615,000 with an annual operation and maintenance (O & M) cost of \$81,000 per year. *Id.*; Pet., Exhibit 1, App. N. The second suggestion involves the installation of a 900-foot long cut-off groundwater trenching system that would extend into the underlying shale layer with ten stumps for groundwater extraction and treatment of pumped groundwater on-site. The Landfill predicts this option would require capital costs of \$583,000, with annual O & M costs of \$78,000. 2d Am. Pet. at 8. Finally, the third option identified by the Landfill is to excavate the waste and relocate the existing landfill to an off-site permitted landfill, at an estimated cost of \$17.5 million. *Id.*

The Landfill concludes that, while developing treatment options were considered with all seriousness, the owner of the Landfill is “not in a financial position to pay any of these costs.” 2d Am. Pet. at 9-10.

Substantially Different Factors

The Landfill asserts that the landfill at issue in this case has been closed for years and cannot obtain certification of closure without the proposed adjusted standard. 2d Am. Pet. at 9. Additionally, the Landfill suggests that the average chloride concentration in monitoring wells, the geological and hydraulic data, and the modeling, indicates that there is “virtually no impact on the Big Muddy River as the receiving water.” *Id.* As to the sulfate concentration, the Landfill asserts that there is “even less of an impact on the Big Muddy River.” 2d Am. Pet. at 8. The proposed adjusted standard allows the completion of the closure of the landfill and relieves the petitioner of the significant burden of remediating the groundwater as noted above.

Adjusted Standard Justified

The Landfill's sole purpose for requesting an adjusted standard is to obtain a Certificate of Closure from the Agency. 2d. Am. Pet. at 12. The Landfill asserts that the most compelling reason for granting the adjusted standard is that there is no adverse impact on the environment or human health from this long since closed landfill. *Id.* Additionally, the options for remediation to reduce the two constituents of negligible impact to the quality of groundwater in the area are cost-prohibitive. *Id.* The Landfill also recognizes that the Agency has not required remediation at the Site. *Id.*

Impact on the Environment and Human Health

The Landfill asserts that its proposed adjusted standard would not result in an adverse impact on the environment or human health because the groundwater does not presently serve as a source for drinking water. Pet. at 3-4. Furthermore, pursuant to the technical justification included by the Landfill in the petition, the receiving water, the Big Muddy River, will have no impact from the landfill's chlorides or sulfates. 2d Am. Pet. at 12. Additionally, the Landfill asserts that the adjusted standards will not interfere with present or potential uses for the affected groundwater. 2d Am. Pet. at 11-12. Any future use of the groundwater for industrial, domestic, or agricultural purpose is precluded because the groundwater in the area of the landfill is sporadic in occurrence and highly mineralized. *Id.*

Consistency with Federal Law

The Landfill argues that any adjusted standard would be consistent with federal law, because the Board, acting for the State of Illinois, has the primary authority and responsibility to establish water quality standards for the groundwater at Risley Landfill #2 in accordance with the Federal Clean Water Act. 33 U.S.C. §1251; 40 C.F.R. §131.4(a); 2d Am. Pet. at 15. Additionally, chloride and sulfate standards are based on the National Secondary Drinking Water Standards, which are non-enforceable federal guidelines for constituents that may cause cosmetic or aesthetic effects in drinking water. 2d Am. Pet at 15-16. Finally, the adjusted standard provision fully satisfies the Clean Water Act's mandates pertaining to public participation and public notice. Pet. at 16.

Statement Requesting or Waiving a Hearing on Petition

While the Landfill initially requested a waiver of hearing in the original petition, a clarifying motion was filed on November 30, 2007, stating the Landfill's wish to retain its rights to request a hearing in the event of a negative recommendation on the petition from the Agency. Later, as noted in a May 14, 2008 hearing officer memorializing a telephonic status conversation, the Landfill withdrew its request for hearing in light of the Agency's amended recommendation. Therefore, the Landfill has waived hearing on the petition, and the Board received no requests for a public hearing on the petition under 35 Ill. Adm. Code 104.420 in response to either of the Landfill's newspaper notices. Accordingly, no hearing has been held and the Board's decision is based solely on the parties' pleadings.

AGENCY RECOMMENDATION

In summary, the Agency now supports the Landfill's proposed adjusted ground-water standards for sulfate and chloride.

In response to the Landfill's original and first amended petition for an adjusted standard, the Agency filed an initial Recommendation on January 4, 2007, recommending that the Board grant the adjusted standard for chloride but deny the adjusted standard for sulfate.

The Agency's original recommendation disagreed with several facts presented by the Landfill in its amended petition, specifically in regards to certain details about the location, size, and layout of the landfill site. Additionally, the Agency noted that while it had never made any specific remediation request to the landfill regarding the sulfate or chloride concentrations, there had been several compliance issues that had been associated with the Landfill. Rec. at 3. Further, the Agency maintained that while it had suggested that sulfate and chloride concentrations would cause an issue for the site's certification of closure, the Landfill's addition of the adjusted standard request for sulfate was not at the suggestion of the Agency. *Id.*

Despite the Agency's other issues with the Landfill's petition, when examining the factors necessary for the proposed adjusted standard for chloride, the Agency did not take issue with the Landfill's statements concerning environmental impact, justification for the adjusted standard, or consistency with federal law. Rec. at 3-5. The Agency noted that while it did not agree with the Landfill's original request for a sulfate limit of 2,500 mg/L for chloride, it did not disagree with the amended request for a revised standard of 600 mg/L. Rec. at 4.

The Agency stated that it "does not believe the proposed adjusted standard should be granted by the Board in its present form as the Petitioner has not provided sufficient justification to warrant issuance of the adjusted standard." Rec. at 5. Specifically, the Agency noted that a review of actual sulfate concentrations observed and predicted future concentrations in the Landfill's groundwater monitoring wells produced levels of sulfate that were significantly lower than the proposed adjusted standard of 4,500 mg/L. Rec. at 6. The Agency asserted that the Landfill had provided "no meaningful rationale" as to the appropriateness of a 4,500 mg/L standard for sulfate, specifically because the "technical data points to a significant downward trend in sulfate concentrations." Ag. Rec. at 7.

On May 9, 2008, the Agency filed an Amended Recommendation (Am. Rec.) in response to the Landfill's Second Amended Petition for Adjusted Standards and recommended that the Board grant the adjusted standard for both chloride and sulfate. Am. Rec. at 1. Because the Agency had already recommended the Board adopt the adjusted standard in regards to chloride, the amended recommendation only addressed the sulfate request. As the Landfill had proposed a lower sulfate level of 2,381 mg/L in its

second amended petition, the Agency did not take issue with the Landfill's statements concerning environmental impact or consistency with federal law. Am. Rec. at 2-4. However, the Agency questioned the Landfill's justification, specifically as to what data and methodology were used to determine the value of the sulfate standard. Am. Rec. at 3-4. Yet, after discussions with the Landfill and its consultants, as well as a careful recreation of the calculations, the Agency confirmed the appropriateness of the sulfate level proposed. *Id.* The Agency therefore agreed that the suggested sulfate standard of 2,381 mg/L is reasonable and justified, and recommended that the Board grant the Landfill's request for an adjusted standard. Am. Rec. at 5.

In both its recommendations, the Agency suggested that the Landfill has not completely met its burden of proof as to portions of Section 28.1(c) of the Act (415 ILCS 5/28.1(c) (2006)). Specifically, the Agency suggested that the "Petitioner does not clearly show how the circumstances of the Landfill are substantially or significantly different from any other owners or operators in the State of Illinois who must also contend with the general regulations prior to obtaining a certificate of closure." Rec. at 7. However, despite this omission, the Agency's Amended Recommendation advises the Board to grant the Landfill's adjusted standard requests for sulfate and chloride. Am. Rec. at 1.

BOARD ANALYSIS

In summary, for all of the reasons outlined below, the Board finds that the Landfill has justified grant of the adjusted standard from the groundwater quality standards it requests. More specifically, based on the record and the Agency's recommendations, the Board finds that the Landfill's request for relief from the chloride and sulfate Class II groundwater quality standards satisfy Section 28.1(c) of the Act. Specifically, the Landfill 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) (2006).

The Board will first turn to analysis of the last three factors, as their analysis informs that of the first factor.

Looking then at the qualitative and quantitative impact of the Landfill's activity on the environment, the Board finds adequate proof that 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. When adopting the groundwater quality standards in 1991, the Board stressed the availability of groundwater for the supply of drinking, stating 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), slip op. at 18 (Nov.

7, 1991). The Board additionally stressed that Class II general resource groundwater standards were set in hopes for the best possible use of the groundwater, depending upon the attributes of the water and needs of the surrounding area:

Because groundwaters are placed in Class II because they are quality-limited, quantity limited, or both . . . it is necessary that the standards that apply to these waters reflect the range of possible attributes. Among the factors considered in determining the Class II numbers are the capabilities of treatment technologies to bring Class II waters to qualities suitable for potable use (R3 at 75). Thus, many Class II standards are based on MCLs [maximum contaminant levels] as modified to reflect treatment capabilities. For some parameters, the Class II standards are based on support of a use other than potability (e.g., livestock watering, irrigation, industrial use) where the different use requires a more stringent standard (R3 at 114-18). Groundwater Quality Standards (35 Ill. Adm. Code 620) R89-14(B), slip op. at 19-20 (Nov. 7, 1991).

The Board agrees with the Landfill's assertions that the groundwater under and downgradient from the Site does not presently serve as a source of drinking water. As stated earlier, there are no private water wells downgradient of the landfill and Franklin County obtains its public water supply from Rend Lake. Additionally, the Landfill demonstrates that future use of the groundwater for industrial, domestic, or agricultural use is precluded because the groundwater in the area of the landfill is sporadic in occurrence and highly mineralized. Further, the Landfill and the Agency agree that existing conditions make it impractical for water wells to be installed in either the unconsolidated or consolidated material of the existing Landfill. Additionally, given the asserted geological and hydrological characteristics of the area, the Board finds that any construction of drilled wells to use groundwater as a potable water supply would logically be prohibited.

Based on the information in this record, the Board's grant of the Landfill's requested relief will not result in adverse impact on the environment or public health. The higher levels of chloride and sulfate have been evidenced to have a negligible impact on the receiving water, the Big Muddy River. Further, there appears to be no practical scenario in which the groundwater downgradient of the landfill would be used for industrial, domestic, or agricultural uses. The Landfill has provided hydrogeological data based on field measurements and calculations to support its assertions regarding the environmental and health effects. The Agency has taken no issue with the research methods and results used by the Landfill's consultants to obtain the supporting documentation.

Based on this record, the Board finds that grant of the requested relief is consistent with federal law.

Finally, the Board turns to the first factor. The Board appreciates the Agency's concern that petitioners for adjusted standards be required to demonstrate how factors relating to their situation are "substantially and significantly different from the factors

relied upon by the Board in adopting the general regulation,” within the meaning of Section 28.1 of the Act. 415 ILCS 5/28.1 (2006). As discussed in detail above, in establishing the rules, the Board was aware that the best possible uses of Class II groundwater would vary greatly from one site to another, based upon the wide range of attributes of the site, the water itself, and the needs of the surrounding area. The Board had also anticipated that the costs of groundwater treatment could be high. But the Board had not anticipated that high treatment costs would be coupled with the unlikelihood demonstrated here of the use of the treated water for drinking water.

The Landfill demonstrated that the costs of treating the groundwater would range from \$583,000 in initial capital costs, with \$78,000 in annual O & M costs, to \$615,000 in initial capital costs, with \$81,000 in annual O & M costs. The groundwater is currently not used for drinking water, and the likelihood of such use in the future is small, given that the groundwater source is sporadic and highly mineralized. The contaminants at issue, chloride and sulfate, pose no risk to health or the environment in the monitored concentrations. Given the confluence of all of these uniquely site-specific factors, the Board finds that the Landfill has adequately demonstrated the existence of factors “substantially and significantly different from the factors relied upon by the Board in adopting the general regulation” within the meaning of Section 28.1 of the Act. 415 ILCS 5/28.1 (2006).

Based on the record, the Board finds that the Landfill has provided sufficient justification for each of the factors under Section 28.1(c) of the Act. The Board therefore grants the Landfill relief from Section 620.420(a) of the Board’s Class II, or general resource, groundwater quality standards (35 Ill. Adm. Code 620.420(a)) for chloride and sulfate. As provided in the order below, the adjusted standard will raise the chloride limit from 200 mg/L to 600 mg/L and the sulfate limit from 400 mg/L to 2,381 mg/L, and will apply to the Landfill site, in order to allow the Agency to issue a closure certificate for the landfill facility.

In granting this request for relief, the Board emphasizes that the Landfill may not aggravate existing chloride and sulfate contamination in the site’s groundwater. Rather, the Board is allowing the Landfill to avoid a remediation that would be economically unreasonable under the circumstances. The Landfill remains subject to all other requirements of Section 620.420 and to all other applicable statutes and regulations, including any post-closure care requirements triggered by the Agency’s issuance of a closure certificate to the Landfill.

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 (2006)), the Board grants Noble Risley #2 Landfill (Landfill) an adjusted standard from the Class II Groundwater Quality Standards for chloride and

sulfate, listed at 35 Ill. Adm. Code 620.420, for its 30-acre facility located at:

Address: 9957 River Bend Road, Benton, Illinois.

Legal Description:

Part of the South One-Half (S 1/2) of the Southwest One-Fourth (S 1/4) of the Southeast One-Fourth (SE 1/4) of Section 22, Township 6 South, Range 2 East in Franklin County, Illinois, approximately eight (8) acres.

The North One-Half (N 1/2) of the Northwest One-Fourth (NW 1/4) of the Northeast One-Fourth (NE 1/4) and the Southeast One-Fourth (SE 1/4) of the Northwest One-Fourth (NW 1/4) of the Northeast One-Fourth (NE 1/4) of Section 27, Township 6 South, Range 2 East in Franklin County, Illinois, approximately 30 acres. 2d Am. Pet. at 10-11.

2. In lieu of the standards in 35 Ill. Adm. Code 620.420, the Landfill must comply with a chloride limit of 600 milligrams per liter (mg/L) and a sulfate limit of 2,381 mg/L.
3. The Landfill must comply with all other requirements of 35 Ill. Adm. Code 620.420.

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) (2006); *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, John Therriault, Assistant Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on November 5, 2008, by a vote of 4-0.



John Therriault, Assistant Clerk
Illinois Pollution Control Board