

ILLINOIS POLLUTION CONTROL BOARD

May 3, 2012

IN THE MATTER OF:)
)
PETITION OF CABOT CORPORATION) AS 12-1
FOR AN ADJUSTED STANDARD FROM) (Adjusted Standard – Land)
35 Ill. Adm. Code Part 738, Subpart B)

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

This matter comes before the Board upon the September 16, 2011 petition to modify a condition of an existing adjusted standard, AS 07-6¹, filed by Cabot Corporation (Cabot) for its inorganic chemical manufacturing facility, located in Tuscola, Douglas County (Tuscola facility). Cabot manufactures fumed silica dioxide (SiO₂) in its Tuscola facility. Resulting process waste streams include acidic wastewater, unsold by-product hydrochloric acid (HCl), spent acetone, and leachate.

Cabot's existing adjusted standard is from the Board's restrictions on underground injection of hazardous wastes codified at 35 Ill. Adm. Code 738.Subpart B. AS 07-6 allows Cabot to dispose of hazardous wastes into two underground injection control (UIC) wells at the Tuscola facility (Wells #2 and #3) through December 31, 2027, at which time the adjusted standard terminates. Cabot now seeks to modify Condition 4.E of AS 07-6 relating to temperature and pH.

Cabot had previously received relief from federal UIC rules adopted by the United States Environmental Protection Agency (USEPA) concerning underground injection of prohibited wastes at 40 CFR 148.Subpart C. Such federal relief is called an "exemption" from federal rules, rather than an "adjusted standard" as in Illinois. One week prior to filing its petition to modify with the Board, on September 9, 2011, Cabot requested that the USEPA approve the same modification requested here to Cabot's federal Hazardous Waste Disposal Injection Restriction Exemption, which USEPA had issued on June 1, 2010 (*see* 75 Fed. Reg. 30392). By letter of March 9, 2012, USEPA approved Cabot's request to change the limits relating to temperature and pH.

On March 29, 2012, the Illinois Environmental Protection Agency (Agency) recommended that the Board grant Cabot the modification it requests. No hearing has been requested or held.

¹ Petition of the Cabot Corporation for an Adjusted Standard from 35 Ill. Adm. Code 738.Subpart B, AS 07-6 (Oct. 10, 2010 as corrected Nov. 18, 2010); *see also* Petition of the Cabot Corporation for an Adjusted Standard from 35 Ill. Adm. Code 738.Subpart B, AS 96-3 (March 7, 1996); Petition of the Cabot Corporation for an Adjusted Standard from 35 Ill. Adm. Code 738.Subpart B, AS 92-8 (Sept. 7, 1995).

Based upon the record before the Board and its review of the factors involved in the consideration of adjusted standards, the Board grants the requested modification to the adjusted standard condition, similar to the manner in which USEPA implemented the change, by replacing Table 1-1 in Condition 4.E with Table 1-1a. Pursuant to 35 Ill. Adm. Code 738.120(e), the Board is reissuing the adjusted standard order in its entirety with the requested modification. Below, the Board details the procedural history and legal framework of the case before discussing the grounds for the Board's findings.

PROCEDURAL BACKGROUND

On September 16, 2011, Cabot Corporation filed a Petition to Modify Condition of Adjusted Standard (Pet.) that was granted by the Board on November 18, 2010 in AS 07-6. In particular, Cabot seeks to change limits on two parameters in Condition 4.E: pH and temperature. The adjusted standard in AS 07-6 is the third adjusted standard the Board granted for Cabot's UIC wells. Cabot first petitioned the Board for an adjusted standard for Wells #1 and #2 in 1992 (AS 92-8); for Wells #1, #2, and #3 in 1995 (AS 96-8); and then for Wells #2 and #3 (AS 07-6). The corresponding federal "exemptions" were initially granted by USEPA in 1990/1991 for Wells #1 and #2²; in 1996 for Wells #1, #2, and #3³; and then in 2010 for Wells #2 and #3. Following the federal approvals, the Board granted Cabot's adjusted standards in 1994, 1996, and 2010. The requests for exemption, including the request for modification in the instant petition, were based on the "no-migration" provisions found under both federal and State law.

The petition was accompanied by a motion to incorporate materials filed in the record of a prior adjusted standard, and a motion to stay (Mot. Stay) this proceeding until ruling by the USEPA on a similar request. Cabot waived hearing on the petition. On October 4, 2011, Cabot timely filed the certificate of publication required by Section 28.1(d)(1) of the Environmental Protection Act (Act) (415 ILCS 5/28.1 (2010) and Section 104.408(a) of the Board's procedural rules (35 Ill. Adm. Code 104.408(a)).

Cabot's motion to incorporate, as permitted under 35 Ill. Adm. Code § 101.306(a), pertained to certain lengthy exhibits from the AS 07-6 proceeding, consisting of five binders of information:

- | | |
|-----------|--|
| Exhibit C | "2007 Petition for Renewal of Exemption from the Land Disposal Restrictions" Cabot filed with USEPA on March 8, 2007 (2007 USEPA Petition) and |
| Exhibit D | The Quality Assurance Quality Control Plan (QAPP) Cabot filed with the 2007 USEPA Petition. |

² See 55 Fed. Reg. 49340 (Nov. 27, 1990) for Well #2, and 56 Fed. Reg. 5826 (Feb.13, 1991) for Well #1.

³ See 61 Fed. Reg. 4996 (Feb. 9, 1996) for Wells #1, #2, and #3.

On November 17, 2011, the Board found that the publication notice and petition met the requirements of Section 28.1 of the Act (415 ILCS 5/28.1 (2010)) and 35 Ill. Adm. Code 104.408, and accepted the matter, reserving ruling on the petition's sufficiency. The Board granted the motion to incorporate documents, having verified that a hard copy had been retained in the Clerk's Office files. The Board also granted Cabot's unopposed motion for stay of the proceedings. As the Board did in response to Cabot's similar request in AS 07-6, the Board granted a six month stay until May 12, 2012, renewable upon motion to the hearing officer. The Board also granted the Agency an extension of time to file its Recommendation for 45 days following the ending of the stay, until June 24, 2012.

On March 15, 2012, Cabot filed a motion to lift the stay of proceedings (Mot. Lift), supplement the record, and request a decision. Cabot reported that, by letter of March 9, 2012, USEPA had issued its approval of Cabot's request for a change (USEPA Notice). Cabot asked leave to supplement the record with the USEPA Notice. The Agency did not object to Cabot's motion. On March 19, 2012, the hearing officer granted the motion to lift the stay and supplement the record. The hearing officer directed the Agency to file its Recommendation on or before May 3, 2012 and Cabot to file any response on or before May 17, 2012.

On March 29, 2012, the Agency filed its recommendation (Rec.) to grant the adjusted standard. On April 10, 2012, petitioner's attorney advised the hearing officer that petitioner did not intend to file a response to the Agency's recommendation.

The Board has not received any public comments in this docket, and the Agency has not received any citizen inquiry regarding this petition. Rec. at 3. As the Board received no requests for hearing, no hearings have been held. Consequently, the Board is deciding this matter solely on the information provided by the parties.

LEGAL FRAMEWORK FOR ADJUSTED STANDARD

The Environmental Protection Act (Act), 415 ILCS 5/1 *et seq.* (2010), and Board rules provide that a petitioner may request, and the Board may grant, an environmental standard that is different from the generally applicable standard that would otherwise apply to the petitioner. This is called an adjusted standard. The general procedures that govern an adjusted standard proceeding are found at Section 28.1 of the Act and Part 104.Subpart D of the Board's procedural rules. 415 ILCS 5/28.1 (2010); 35 Ill. Adm. Code 104.400 *et seq.*

Section 28.1(b) of the Act provides that, "in adopting a rule of general applicability, the Board may specify the level of justification required of a petitioner for an adjusted standard consistent with this Section." The Board's specific regulations for this adjusted standard petition are codified at 35 Ill. Adm. Code 738.Subpart B. These Board rules are "identical-in-substance", within the meaning of Section 7.2 of the Act, 415 ILCS 5/7.2 (2010), to the USEPA's UIC rules at 40 CFR 148.Subpart C. In these rules, the Board has adopted a specific level of justification.

The Board's procedural rules specify the required contents for the adjusted standard petition. *See* 35 Ill. Adm. Code 104.406, 104.416. 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)

(2010); 35 Ill. Adm. Code 104.416. The adjusted standard proceeding is adjudicatory in nature and therefore is not subject to the rulemaking provisions of the Act or the Illinois Administrative Procedure Act (5 ILCS 100/1-1 et seq. (2010)). *See* 415 ILCS 5/28.1(a) (2010); 35 Ill. Adm. Code 101.202 (defining “adjudicatory proceeding”).

Section 28.1(d)(1) of the Act (415 ILCS 5/28.1 (2010)) 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) (2010); 35 Ill. Adm. Code 104.408(b).

The burden of proof in an adjusted standard proceeding is on the petitioner. *See* 415 ILCS 5/28.1(b), (c) (2010); 35 Ill. Adm. Code 104.426. Once granted, the adjusted standard, instead of the rule of general applicability, applies to the petitioner. *See* 415 ILCS 5/28.1(a) (2010); 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) (2010); 35 Ill. Adm. Code 104.428(a).

To modify any condition of an adjusted standard granted for hazardous waste injections, the Board may reissue the adjusted standard if the petitioner complies with 35 Ill. Adm. Code 738.120(a), (b), and (c). *See* 35 Ill. Adm. Code 738.120(e).

CURRENT APPLICABLE STANDARDS

The Illinois Rules at 35 Ill. Adm. Code Part 738.Subpart B

Cabot’s petition seeks to modify a condition of an existing adjusted standard from the requirements of 35 Ill. Adm. Code Part 738.Subpart B, which prohibit the underground injection of certain hazardous wastes. Several waste streams are generated at the Tuscola facility. The hazardous waste streams injected in Cabot’s UIC wells include:

- D002 Acidic waste water from air pollution control scrubbers, stack drains, fan drains, other equipment drains, and wash downs plus unsold by-product HCl
- F003 Spent acetone from the QC laboratory
- F039 Surface water drainage, seepage, multi-source leachate from leachate collection system, groundwater and leachate purged from on-site monitoring wells

Pet at 2.

The specific regulations from which Cabot was granted an adjusted standard in AS 07-6 are 35 Ill. Adm. Code 738.110(a) and 738.116(c)(1) and (c)(2). Pet. Exh. A at 1.

SUBPART B: PROHIBITIONS ON INJECTION

Section 738.110 Waste Specific Prohibitions - Solvent Wastes

- a) The spent solvent wastes specified in 35 Ill. Adm. Code 721.131 by the following EPA Hazardous Waste numbers are prohibited from underground injection:

F001
F002
F003
F004
F005

Section 738.116 Waste Specific Prohibitions - Third Third Wastes

- c)
- 1) Effective May 8, 1992, the wastes specified in 35 Ill. Adm. Code 721.131 by the following EPA Hazardous Waste number are prohibited from underground injection:

F039 (nonwastewaters)⁴

- 2) Effective May 8, 1992, the wastes specified in 35 Ill. Adm. Code 721.122, 721.123 or 721.124 as hazardous based on a characteristic alone and designated by the following EPA Hazardous Waste numbers are prohibited from underground injection:

D002 (wastewaters and nonwastewaters)
D003 (wastewaters and nonwastewaters)
D007 (wastewaters and nonwastewaters)
D009 (nonwastewaters)

⁴ 35 Ill. Adm. Code 738.116(c)(1) contains a typographical error: “F039 (nonwastewaters)” should be “F039 (wastewaters)” per the corresponding federal regulation at 40 CFR 148.16(f). The reference to “F039 (nonwastewaters)” correctly appears in 35 Ill. Adm. Code 738.116(a)(1) per 40 CFR 148.16(c).

Federal Rules at 40 CFR 148.Subpart C

Each of the Board's Part 738 sections above is identical-in-substance to the USEPA's UIC provisions, with the correspondence as follows:

<u>Board Regulation</u>	<u>USEPA Regulation</u>
35 Ill. Adm. Code 738.110(a)	40 CFR 148.10(a) (1992)
35 Ill. Adm. Code 738.116(c)(1)	40 CFR 148.16(f) (1991)
35 Ill. Adm. Code 738.116(c)(2)	40 CFR 148.16(f) (1991)

STANDARD OF REVIEW

The Board's requirements for adjusted standards for hazardous waste injections are found at 35 Ill. Adm. Code 738.Subpart C (738.120 – 738.124). These are identical in substance to the federal regulations at 40 CFR 148.Subpart C (148.20 – 148.24).

The corresponding federal sections are as follows:

<u>Board Regulation</u>	<u>USEPA Regulation</u>
35 Ill. Adm. Code 738.120	40 CFR 148.20 (1988)
35 Ill. Adm. Code 738.121	40 CFR 148.21 (1988)
35 Ill. Adm. Code 738.122	40 CFR 148.22 (1988)
35 Ill. Adm. Code 738.123	40 CFR 148.23 (1988)
35 Ill. Adm. Code 738.124	40 CFR 148.24 (1988)

Petitions for adjusted standards to allow injection of hazardous waste require the petitioner comply with Section 738.120. Cabot's previous adjusted standard petition filings with the Board in AS 07-6 relied on Cabot's filings with USEPA for a "no-migration exemption", which USEPA and the Board granted in effect until December 31, 2027. At the time, Cabot used its exemption petition filed with USEPA to make the adjusted standard demonstration required by the Board's rules at 35 Ill. Adm. Code 738.120(a)(1)(A). Pet. at 5. Section 738.120(a)(1)(A) requires a demonstration that:

Section 738.120 Petitions to Allow Injection of a Prohibited Waste

(a)

- 1) The hydrogeological and geochemical conditions at the site(s) and the physiochemical nature of the waste stream(s) are such that reliable predictions can be made that:
 - A) Fluid movement conditions are such that the injected fluids will not migrate within 10,000 years:
 - i) Vertically upward out of the injection zone;
 - or

- ii) Laterally within the injection zone to a point of discharge or interface with an Underground Source of Drinking Water (USDW) as defined in 35 Ill. Adm. Code 730.

Cabot now seeks to modify a condition placed on the adjusted standard granted by the Board in AS 07-6 on November 18, 2010 pursuant to 35 Ill. Adm. Code 738.120(e). Specifically, the Board's requirements to modify any conditions placed on an adjusted standard for hazardous waste injections state:

Section 738.120 Petitions to Allow Injection of a Prohibited Waste

- (e) Any person that has been granted an adjusted standard pursuant to this Section may submit a petition for reissuance of the adjusted standard to include an additional restricted waste or wastes or to modify any conditions placed on that adjusted standard by the Board. The Board will reissue the adjusted standard if the petitioner complies with subsections (a), (b) and (c).

FACTUAL BACKGROUND

The Tuscola Facility

Cabot's Tuscola facility is located approximately three miles west of Tuscola on Route 36 in Douglas County. The Tuscola facility occupies approximately 92 acres of land. It has been operating since 1958, currently employing approximately 167 people. Pet. at 2. Cabot's Tuscola facility manufactures fumed metal oxides, including fumed silica (SiO₂), which serve as additives in products varying from paints and printing inks to pharmaceuticals and cosmetics. Pet. at 1. Cabot also treats fumed metal oxides to produce specific products. Pet. at 2.

Production Process

In its October 10, 2010 opinion in AS07-6, the Board quoted the summary of the production process set out in its March 7, 1996 Board Opinion in AS 96-3, based on the USEPA Notice of Intent to Reissue Exemption (1995), as follows:

The production process involves the hydrolysis/oxidation of a chlorosilane feedstock to produce SiO₂ and hydrochloric acid (HCl). [citing Cabot's August 17, 1995 Petition at 2.] The chlorosilane feedstocks include silicon tetrachloride (SiCl₄), methyl trichlorosilane (CH₃SiCl₂), and trichlorosilane (HSiCl₂). *Id.* The central reaction in the manufacturing process is combination of silicon tetrachloride with oxygen and hydrogen to produce both fumed silica and hydrogen chloride vapor. (USEPA Notice of Intent to Reissue Exemption, 60 FR

58623, 58624.) Separation results in fumed silica, product hydrochloric acid, and wastewaters contaminated with hydrochloric acid; the latter requires disposal. Cabot usually injects this waste, along with rainwater runoff and seepage into its UIC wells. (60 FR 58624.) *See* AS7-6, slip op. at 7 (Oct. 10, 2010 as corrected Nov. 18, 2010), quoting AS 96-3, slip op. at 3 (Mar. 7, 1996).

Wastes Generated and Injected

Resulting wastes from Cabot's process include acidic wastewater, unsold by-product hydrochloric acid, spent acetone, and leachate. Some of the wastes are disposed of on-site in Cabot's UIC Wells #2 and #3. Some of these waste streams are restricted waste under the Resource Conservation and Recovery Act (RCRA). Cabot injects approximately 277,000 gallons of waste per day into its UIC wells. The hazardous waste streams injected into Cabot's UIC wells include:

- D002 Acidic waste water from air pollution control scrubbers, stack drains, fan drains, other equipment drains, and wash downs plus unsold by-product HCl
- F003 Spent acetone from the QC laboratory
- F039 Surface water drainage, seepage, multi-source leachate from leachate collection system, and groundwater and leachate purged from on-site monitoring wells

Pet. at 2.

These waste streams are disposed of in Cabot's UIC Wells #2 and #3 under Cabot's adjusted standard AS 07-6 granted by the Board, federal exemption issued by USEPA, and UIC Permit issued by the Agency. Pet. at 2-3. The AS 07-6 adjusted standard allows Cabot to dispose of hazardous wastes into UIC Wells #2 and #3 through December 31, 2027. Cabot's federal Hazardous Waste Disposal Injection Restriction Exemption, which was issued by USEPA on June 1, 2010 (75 Fed. Reg. 30392), provides similar relief from federal UIC rules adopted by the USEPA concerning underground injection of prohibited wastes at 40 CFR 148.Subpart C. Pet. Exh. A. Cabot's UIC Permit No. UIC-011-CC issued by the Agency was effective October 18, 2001, and Cabot applied for a permit renewal on March 15, 2011.⁵ At the time this petition was filed, Cabot's permit renewal was still pending. Pet. at 2. As discussed in the Agency's recommendation below, the Agency issued Cabot a UIC permit on November 20, 2011, effective January 4, 2010. Rec. at 5.

⁵ The Board notes that the state "Hazardous Waste Class I Underground Injection Control" Permit No. UIC-011-CC that was issued by the Agency on September 13, 2001 and became effective on October 18, 2001, expired on September 13, 2011. *See* AS 07-6, slip op at 11 (October 7, 2010.)

Petition to Modify

Cabot now seeks to modify the limits on two parameters in Condition 4.E of AS 07-6 in the following ways: (1) to modify the pH parameter for injected waste from 7 to 9; and (2) to modify the maximum temperature parameter for injected waste from 95°F to 120°F. Pet. at 4.

On September 9, 2011, one week prior to filing its petition to modify with the Board, Cabot requested that USEPA approve the same modification to Cabot's federal exemption. This letter, titled "Modification of Exemption from Hazardous Waste Disposal Injection Restrictions," sought a modification of Condition 5 of the Tuscola facility's "no-migration exemption" from the federal hazardous waste disposal injection regulations (set forth at 40 C.F.R. Part 148). In its request to USEPA, Cabot explained:

The changes are being requested to facilitate future waste reduction efforts at the Cabot facility and to reduce operating challenges during the heat of summer. The increased pH limits will allow Cabot flexibility in attempting removal of acidic waste streams while continuing to inject the current non-acidic waste streams. In addition, certain waste streams have a higher temperature, preventing removal of cooler waste streams that help maintain the injected waste below the current permit limit. With the current 95° F temperature limit, summer operation is challenging to manage at times when the ambient temperatures exceed this operating limit. Given that the new limits will not have a negative impact on the wells or affect the modeling provided in support of the last renewal of Cabot's exemption from the land disposal restrictions, the flexibility provided by these new limits will help Cabot with long term waste reduction efforts. Pet. Exh. B at 1-2.

USEPA Notice of Approval

Cabot supplemented the record in this action with USEPA's approval letter, issued on March 9, 2012. USEPA stated specifically:

We have received your letter requesting a change of the maximum limits for temperature and pH of Cabot's injected waste stream. We have determined that these changes will not invalidate the demonstration of no migration and are therefore considered to be a nonsubstantive revision of the exemption. To satisfy Condition 5 of the exemption which states: "The concentrations of constituents of the injected waste will not exceed the amounts listed in Table 1-1 in the petition document," we will replace Table 1-1 containing the original limits with Table 1-1a containing the new pH and temperature limits in the administrative record for this exemption. Mot. Lift, Exh. E, as admitted into record in AS 12-1 (hearing officer order Mar. 15, 2012).

CABOT'S PROPOSED ADJUSTED STANDARD LANGUAGE

In its petition, Cabot proposed the following language for the adjusted standard:

Cabot Corporation is hereby granted a modification of the pH and maximum temperature parameters of Condition 4.E of the adjusted standard from the requirements of 35 Ill. Adm. Code Part 738, Subpart B, for the underground injection control Wells Nos. 2 and 3 at its Tuscola, Illinois facility. Specifically, Cabot is hereby granted a modification of the pH parameter from 7 to 9, and a modification of the temperature parameter from 95° to 120°. Pet. at 6.

CABOT'S DEMONSTRATION IN SUPPORT OF MODIFICATION

To support the requested modification of AS07-6, Cabot is relying on its September 9, 2011 letter to USEPA. In its letter to USEPA, Cabot explained:

“The requested waste constituent limit changes do not affect the modeling assumptions that were included in the March 8, 2007 *Petition for Renewal of Exemption from the Land Disposal Restrictions* document and subsequent responses to [US]EPA’s Notices of Deficiency. In addition, the fiberglass injection tubing in each well has sufficient expansion capacity and an operational temperature rating 90° F higher than the requested temperature limit. Independent evaluation of each well’s materials of construction by Sandia Technologies, LLC as part of the UIC permit renewal application submitted to [the Agency] on March 15, 2011 indicates that the requested temperature limit is appropriate for the wells at the Cabot facility.” Pet. Exh. B at 1-2.

To justify its petition in AS 07-6, Cabot recalled that it relied upon the petition Cabot filed with USEPA on March 8, 2007 (2007 USEPA Petition) and the accompanying QAPP. Pet. at 4. For this petition, Cabot moved to incorporate both documents from the AS 07-6 proceeding. Cabot stated, “The information contained in Exhibits B, C, and D satisf[ies] all requirements set forth in 35 Ill. Adm. Code Part 738, Subpart C. This petition, therefore, meets the demonstration required by 35 Ill. Adm. Code 738.120(a)(1)(A).” Pet. at 5.

Compliance Efforts and Alternatives

Section 104.406(e) of the Board’s procedural rules for adjusted standards requires a description of the efforts that would be necessary if the petitioner was to comply with the regulation of general applicability. Cabot states that information required under 104.406(e) is “inapplicable and unduly burdensome.” Cabot notes that the Board did not find this information necessary in granting AS 07-6. Pet. at 6.

Impact on Environment

Section 104.406(g) of the Board’s procedural rules for adjusted standards requires a description of the impact of the petitioner's activity on the environment. Cabot relies upon all of the documents it has provided to USEPA. Cabot states that providing any other information required under 104.406(g) is “inapplicable and unduly burdensome.” Cabot notes that the Board did not find this information necessary in granting AS 07-6. Pet. at 6.

Consistency with Federal Law

Cabot stated that the Illinois UIC Program is identical-in-substance to the federal UIC Program. Quoting the Board's opinion in AS 92-8, Cabot noted that the Illinois UIC program is "intended to be no more (or less) stringent than the corresponding federal program." Pet. at 5, quoting AS 92-8, slip op. at 7 (Feb. 17, 1994). Cabot continued:

Accordingly, if U.S. EPA grants Cabot a modification of the pH and temperature parameters of its 'no-migration exemption' under federal law, the Board should do the same. Pet. at 5.

In its request for modification to USEPA, Cabot indicated that USEPA approval is necessary for the Agency to proceed with approval of Cabot's UIC permit renewal application with the requested permit limit changes. Pet. Exh. B at 2. As previously stated, USEPA granted its approval by letter of March 9, 2012.

AGENCY RECOMMENDATION TO GRANT

On March 29, 2012, after Cabot filed a copy of USEPA's approval of Cabot's requested modification, the Agency filed a recommendation that the adjusted standard be granted. Although the Agency did voice some concerns, some of these were resolved by USEPA's approval of Cabot's request for modification of the federal exemption, subject to conditions. The Agency recommended that any relief granted here contain conditions similar to those in the USEPA approval.

Violation Notice and Compliance Commitment Agreement

The Agency stated that Cabot has received violation notices for exceeding the pH parameters in its UIC permit. Rec. at 6. The Agency provided a copy of Violation Notice L-2012-01013 dated February 2, 2012, for alleged violations of Section 12(g) of the Act and Conditions 1.B.3.c and 1.H.1 of Cabot's UIC permit UIC-011-CC. The Agency's Violation Notice stated, "This apparent violation is cited because Cabot injected wastewater on December 15, 2011 whose pH was greater than the permitted limit." Rec. Exh. A, CCA at 1.

As a resolution, the Agency suggested that Cabot implement procedures to prevent exceedences of the pH limit and continue efforts with USEPA to modify the petition for the no-migration exemption. The Agency also indicated Cabot had the option of entering into a Compliance Commitment Agreement (CCA) with the Agency pursuant to Section 31(a) of the Act. Rec. Exh. A. Cabot responded by proposing CCA terms in a letter to the Agency dated March 1, 2012.

The Agency provided Cabot a fully executed copy of the CCA in a letter dated March 22, 2012, indicating the CCA became effective on March 21, 2012. In its recommendation, the Agency stated that the violation was resolved by executing the CCA. Rec. at 6. The CCA sets forth:

Respondent [Cabot] agrees to undertake, complete and continue to maintain the following actions, which the Illinois EPA has determined are necessary to attain compliance with the allegations contained in VN L-2012-01013:

Cabot Corporation has agreed to update the necessary operating procedures and train affected personnel on the revised operating procedures.

The updating and training were accomplished on February 15, 2012 and March 1, 2012, respectively. Therefore, Cabot Corporation has returned to compliance for the apparent violations of Section 12(g) of the Illinois Environmental Protection Act and Conditions 1.B.3.c and 1.H.1 of Cabot's permit UIC-011-CC. Rec. Exh. A, quoting CCA at 2.

State UIC Permit Renewal

Cabot's UIC Permit No. UIC-011-CC issued by the Agency was effective October 18, 2001, and expired by its terms on September 10, 2011. *See* AS 07-6, slip op at 11 (Oct. 7, 2010). Cabot applied for a permit renewal on March 15, 2011. Pet. at 2. The Agency reported that Cabot included the requested modifications for pH and temperature in the UIC permit renewal application. Rec. at 5. However, in the Violation Notice the Agency stated, "The Illinois EPA cannot raise the pH limit in your permit beyond what is allowed in the No-Migration Petition." Rec. Exh. A.

The Agency issued Cabot a renewal UIC permit on November 20, 2011 that was effective January 4, 2010 (sic). The Agency said that the recently-issued permit is consistent with the current adjusted standard in AS 07-6, and does not include the requested modifications in this AS 12-1 petition. Rec. at 5. In so stating, the Agency reasoned that the modified limits were not consistent with the limits considered under USEPA's 2010 approval of the no-migration exemption or by the Board in AS 07-6. Rec. at 5.

The Recommendation attached two pages of information Cabot submitted with its permit renewal application filed on March 15, 2011 regarding the requested modification to increase pH and temperature. Rec. at 6, and Exh. C. With respect to pH, Cabot's permit renewal described the efforts to minimize waste by recycling acid wastewater back into Cabot's process. Cabot explained that as a result of reusing acidic waste streams for acid production, the pH of the wastewater tends to be higher, ranging between 8 and 9. With respect to temperature, Cabot's permit renewal explained that its waste minimization efforts would also be expected to result in warmer waste stream temperatures from the increased influence of non-hazardous waters. Cabot added that the integrity of the well would not be at risk, stating, "The evaluation of each well's materials of construction and operational forces has shown the requested temperature of 120° F is appropriate for the wells at the Cabot facility. Rec. Exh. C at 2.

Agency Concerns Expressed

In its review of Cabot's September 9, 2011 letter to USEPA, the Agency noted Cabot's assertion that the requested modifications do not affect the modeling assumptions included in its 2007 USEPA Petition. The Agency stated that the letter contained no explanation to support this presumption. Rec. at 6. The Agency also noted Cabot's assertion that the operational capacity of tubing in the wells was sufficient to handle the proposed higher temperature. The Agency stated it will consider Cabot's assertions regarding modeling assumptions and operational capacity when Cabot files an application for a UIC permit modification. Rec. at 6.

The Agency also stated that Cabot failed to address a description of compliance efforts and alternatives as well as the impact on the environment as required by 35 Ill. Adm. Code 104.406(e) and (g). Without such information, the Agency stated it was unable to provide an analysis of these criteria for the Board's consideration. Rec. at 11-12.

The Agency went on to say that it recommended grant of the requested modification based on USEPA's letter of March 9, 2012 approving Cabot's requested modification, stating "Illinois EPA does not, generally, disagree with U.S. EPA's conclusion." Rec. at 13. The Agency continued that since the Board's regulations are intended to be identical-in-substance to the federal regulations, the Board's approval would be consistent with the federal determination. Rec. at 13.

The Agency noted that, as of the date of the Recommendation, the Agency had not received any citizen inquiries regarding Cabot's petition. Rec. at 3. Additionally, the Agency stated that it is not requesting a hearing in this matter. Rec. at 13.

Agency Proposed Language for Adjusted Standard

The Agency suggested the following revisions to Cabot's proposed adjusted standard language (language to be deleted is stricken, while that to be added is underscored):

Cabot Corporation is hereby granted a modification of the pH and maximum temperature parameters ~~of~~within Condition 4.E, ~~Table 1-1, of as adopted by the Board in AS -7-06 (Order, AS 07-06 (November 18, 2010))~~the adjusted standard from the requirements of 35 Ill. Adm. Code Part 738, Subpart B, for the underground injection control Wells Nos. 2 and 3 at its Tuscola, Illinois facility. Specifically, Cabot Corporation is hereby granted a modification of the pH parameter from 7 to 9, and a modification of the temperature parameter from 95° F to 120° F. The Board adopts Table 1.1a proposed within this Petition to replace Table 1.1 of Subsection 4.E of AS 07-06 (Order, AS 07-06 (November 18, 2010)). Rec. at 11.

BOARD DISCUSSION

Cabot's petition is a request to modify the adjusted standard that was granted by the Board on November 18, 2010 in AS 07-6. In particular, Cabot seeks to change limits on two parameters in Condition 4.E: pH and temperature. The adjusted standard in AS 07-6 was the third adjusted standard the Board granted for Cabot's UIC wells. For all of the reasons set forth below, the Board finds that Cabot has justified reissuance of its adjusted standard with the modified condition reflecting changes in pH and temperature in Table 1-1a. As discussed below, although both Cabot and the Agency (Rec. at 11) have suggested language for the adjusted standard, the Board is reissuing the adjusted standard order in its entirety with the modified condition pursuant to 35 Ill. Adm. Code 738.120(e).

USEPA's Approval for the Modification of the Federal Exemption

The Board observes that, although USEPA's letter issued March 9, 2012 approving Cabot's request for modification is brief, USEPA did provide a comprehensive review of Cabot's previous federal petition leading to the earlier exemption granted on June 1, 2010. The record in AS 07-6 includes USEPA's draft decision, fact sheet, and public notice that were issued on December 28, 2009, which contained USEPA's detailed reasons for granting the underlying exemption. The Board summarized USEPA's review in AS 07-6, noting:

USEPA stated Cabot's demonstration was based on a geological model showing the nearest point of discharge into a USDW is more than 40 miles from the Tuscola facility. *Id.* at 5, 8. USEPA explains that Cabot's UIC wells successfully passed mechanical integrity tests "to confirm that all injected fluids are entering the approved Injection Interval and not channeling up the well bore out of the injection zone", as required by 40 CFR 148.20(a)(2)(iv). *Id.* at 2-3.

Pertaining to the geology, USEPA stated, "[US]EPA's evaluation of the structural and stratigraphic geology of the local and regional area determined that the Cabot Corporation facility is located at a geologically suitable site." *Id.* at 3. USEPA affirmed that all other wells in the area of review within a 2-mile radius, as set out in 40 CFR 146.63, "were properly plugged and abandoned and pose no risk of vertical movement of fluid out of the Injection Zone" as required by 40 CFR 148.20(a)(2)(ii). *Id.* at 4-5. Accordingly, USEPA determined no corrective action plan is required under 40 CFR 148.20(a)(2)(ii). *Id.* at 5.

USEPA concluded:

Therefore, Cabot Corporation has demonstrated that, to a reasonable degree of certainty, hazardous constituents will not migrate vertically out of the Injection Zone or laterally to a point of discharge in a 10,000 year period." *See* AS 07-6, slip op at 10 (October 7, 2010).

Consistency with Federal Law

The Board finds that Cabot properly sought both federal and state relief, and further finds that the Board may grant Cabot the relief it seeks consistent with federal law.

The Board's requirements for adjusted standards for hazardous waste injections are found at 35 Ill. Adm. Code 738.Subpart C (738.120 – 738.124). These are "identical in substance" to the federal regulations at 40 CFR.Subpart C (148.20 – 148.24). As the Board noted in its first opinion granting Cabot an adjusted standard in AS 92-8, the Agency has never sought primacy with respect to the provisions of the UIC land disposal prohibitions. Thus, although USEPA has authority to grant exemptions from the federal UIC rules, the authority to grant adjusted standards under the State UIC law lies with the Board. Therefore, Cabot must seek relief from both USEPA and the Board separately. *See* AS 92-8, slip op. at pp. 4-5 (February 17, 1994.)

As it has done previously, Cabot has petitioned for relief from both the Board and USEPA. USEPA has provided both a technical review and approval at the federal level for the current petition. As cited above, USEPA issued a letter on March 9, 2012 stating, "We have determined that these changes will not invalidate the demonstration of no migration and are therefore considered to be a nonsubstantive revision of the exemption." USEPA stated it would replace Table 1-1 with Table 1-1a containing the new pH and temperature limits in its administrative record for this exemption. Mot. Lift, Exh. E.

Consistent with USEPA's determination, the Board finds that the modification does not invalidate the demonstration Cabot made in AS 07-6 as required by 35 Ill. Adm. Code 738.120. Pursuant to 35 Ill. Adm. Code 738.120(e), the Board finds that Cabot has complied with subsections 738.120(a), (b) and (c).

Consideration of the Agency's Concerns

The Agency stated that, based on USEPA's March 9, 2012 letter approving Cabot's requested modification, "Illinois EPA does not, generally, disagree with U.S. EPA's conclusion." Rec. at 13.

However, the Agency voiced concern regarding Cabot's omission of information to address compliance efforts, alternatives, and impact on the environment as required by the Board's procedural rules for adjusted standards at 35 Ill. Adm. Code 104.406(e) and (g). Without such information, the Agency noted that it was unable to provide an analysis of these criteria for the Board's consideration. Rec. at 11-12. The Agency also stated that Cabot's September 9, 2011 letter to USEPA provided no explanation to support Cabot's assertion that the requested modifications do not affect the modeling assumptions that were included in its 2007 USEPA Petition. Additionally, the Agency noted Cabot's assertion that the operational capacity of tubing in the wells was sufficient to handle the proposed higher temperature. The Agency stated it will consider Cabot's assertions regarding modeling assumptions and operational capacity when Cabot files an application for a UIC permit modification. Rec. at 6.

The Board notes that although USEPA's letter issued March 9, 2012 approving Cabot's request for modification is brief, Cabot's petition for the underlying federal exemption (incorporated into the petition as Exhibits C and D) and USEPA's subsequent technical review (provided in the AS 07-6 docket) provide detailed information on the petition and the federal approval. With regard to Cabot's assertion that the "changes do not affect the modeling assumptions" and USEPA's finding that "these changes will not invalidate the demonstration," the Board points out that the supporting information can be found in Cabot's 2007 USEPA Petition and QAPP. Pet. Exh. C and D. In particular, the QAPP contains a February 20, 2007 letter from USEPA to Cabot stating,

The QAPP addresses data acquisition and analysis of the preparation of your non-migration demonstration...We believe that the QAPP adequately addresses all aspects of your demonstration. This letter is our notification of approval of the QAPP described above." Pet. Exh. D, USEPA February 20, 2007 letter.

Further, a review of Cabot's 2007 USEPA Petition, particularly Section 3 – "Flow & Containment Modeling", supports Cabot's assertions and USEPA's findings that the requested modification for pH and temperature do not affect the modeling assumptions or invalidate the demonstration. Pet. Exh. C.

Beyond the modeling assumptions, the record reflects that Cabot also provided supporting documentation on the operational capacity of each well's materials of construction. The independent evaluation by Sandia Technologies, LLC concluded that the requested temperature limit is appropriate for Cabot's UIC wells. Pet. Exh. B.

In granting AS 92-8, AS 96-3 and AS 07-6, the Board stated that it "placed weight both on the quality of USEPA's technical review and the need to keep Illinois' identical-in-substance environmental programs in conformity with the corresponding federal programs." AS 96-3, slip op. at 6 (Mar. 7, 1996). As to USEPA's technical review, the Board again observes, as it did in AS 92-8, AS 96-3 and AS 07-6, that any exemption for UIC wells requires a substantial demonstration on the part of an applicant. *Id.* USEPA's technical review for this petition is summarized above. The Board finds that the technical review of the environmental impact of Cabot's waste injection program persuades the Board that Cabot has justified reissuance of the adjusted standard with the requested modification.

The Board reiterates "that because the Illinois UIC-program is identical-in-substance with the federal UIC program, it is intended to be no more (or less) stringent than the federal program." *Id.* at 7, citing AS 92-8. As in AS 92-8 and AS 96-3, the Board again finds "that withholding the exemption that Cabot here seeks would cause a more stringent State law to apply to Cabot, in contradistinction to the stringency principle." *See* AS 92-8, slip op. at 6 (Feb. 17, 1994); AS 96-3, slip op. at 6 (Mar. 7, 1996); and AS 07-6, slip op at 11-12 (Oct. 7, 2010).

In summary, the Board finds that Cabot has made all the demonstrations required pursuant to the identical-in-substance regulations at 35 Ill. Adm. Code 738.Subpart C. Accordingly, modification of the existing standard has been justified.

Adjusted Standard Language

The Agency recommended amendment to the language of the existing adjusted standard, including replacement of the existing Table 1-1 with Table 1-1a as contained in the USEPA's March 9, 2012 letter. Cabot has not objected to the Agency's recommended amendment.

For the convenience of the parties and the public, the Board is reissuing the adjusted standard order in its entirety with the modified condition pursuant to 35 Ill. Adm. Code 738.120(e). This section provides that for modifications to any conditions on an adjusted standard, "[t]he Board will reissue the adjusted standard if the petitioner complies with subsections (a), (b) and (c)." *See* 35 Ill. Adm. Code 738.120(e). To be consistent with the format of conditions in the previous adjusted standards and to provide transparency, the Board will include conditions that mirror the federal conditions as well as a table listing the constituents and maximum concentrations. Consistent with the manner in which USEPA implemented the change, by replacing Table 1-1 in Condition 4.E with Table 1-1a in its administrative record, the Board will replace Table 1-1 with Table 1-1a in the adjusted standard language.

As in AS 07-6, the Board reiterates that conditions of the requested relief merely adapt the language of the federal exemption to the Illinois regulations and do not create conditions more stringent than the federal requirements. The Board does note, however, that the conditions 4(K) and (L), allowing for automatic reopening and termination of the adjusted standard, would not normally occur under Illinois law, except as provided in identical in substance rules.

CONCLUSION

The Board finds that Cabot has demonstrated that granting modification of the requested adjusted standard is warranted under Section 28.1(b) of the Act and the Board's rules at 35 Ill. Adm. Code 738.Subpart C and 104.Subpart D. The Board grants the requested modification to the adjusted standard, consistent with the manner in which USEPA implemented the change, by replacing Table 1-1 in Condition 4.E with Table 1-1a. Pursuant to 35 Ill. Adm. Code 738.120(e), the Board is reissuing the adjusted standard order in its entirety, including the requested modification.

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

ORDER

1. The Board grants Cabot Corporation an adjusted standard from the requirements of 35 Ill. Adm. Code 738.110(a) and 738.116(c)(1) and (c)(2) for the underground injection control Wells # 2 and #3 at its Tuscola facility. This adjusted standard from the prohibitions of 35 Ill. Adm. Code 738.110(a) and 738.116(c)(1) and (c)(2) allows the underground injection disposal of wastes denoted by the waste codes D002, F003, and F039.
2. This adjusted standard terminates on December 31, 2027, the end of the 21-year modeled injection period. Cabot Corporation may petition the Board for reissuance of the adjusted standard beyond that date, provided a new and

complete petition and no-migration demonstration is filed with the Board by July 1, 2027;

3. The Board grants this adjusted standard consistent with the United States Environmental Protection Agency (USEPA) federal exemption approval published at 75 Fed. Reg. 30392-30393 (June 1, 2010), and with USEPA's March 9, 2012 letter approving Cabot's September 9, 2011 modification request.
4. The Board grants this adjusted standard subject to the following conditions. Non-compliance with any of these conditions is grounds for termination of the adjusted standard:
 - A. All regulatory requirements in 35 Ill. Adm. Code 738.123 and 738.124 are incorporated by reference;
 - B. The adjusted standard applies to two existing injection wells, Well #2 and Well #3 located at the Cabot Corporation facility at 700 E. U.S. Highway 36, in the City of Tuscola in Douglas County, Illinois;
 - C. Injection is limited to that part of Upper Franconia, Potosi, Eminence and Oneota formations at depths between 4,442 and 5,400 feet;
 - D. Only wastes denoted by the waste codes D002, F003 and F039 may be injected;
 - E. The concentrations of constituents of the injected waste may not exceed the amounts listed in Table 1-1a below;

Table 1-1a
Waste Parameter Limits

Parameters	EPA Code Hazardous Waste	Maximum Permit Limit	Minimum
Hydrochloric Acid	D002	5.5%	
pH	D002	9	
Temperature	--	120°F	32°F
Specific Gravity	--	1.034	
Acetone	F003	47,000 mg/l	
Tetrachloroethylene	F039	1.66 mg/l	
Trichloroethylene	F039	1.66 mg/l	
1,1 Dichloroethylene	F039	2.33 mg/l	
1,2 Dichloroethylene	F039	0.33 mg/l	
Phenol	F039	12,000mg/l	
Methylene Chloride	F039	59 mg/l	
1,1 Dichloroethane	F039	0.33 mg/l	
1,2 Dichloroethane	F039	1.66 mg/l	
Trans 1,2 Dichloroethene	F039	16.5 mg/l	

Cis 1,2 Dichloroethene	F039	11.5 mg/l	
1,1,1 Trichloroethane	F039	33 mg/l	
1,1,2 Trichloroethane	F039	1.66 mg/l	
Vinyl Chloride	F039	0.66 mg/l	
Chloroethane	F039	3.33 mg/l	
Chloroform	F039	0.33 mg/l	
Ethylbenzene	F039	116.5 mg/l	
Xylene (Total)	F039	333.5 mg/l	
Toluene	F039	33 mg/l	
1,1,1,2 Tetrachloroethane	F039	0.33 mg/l	
1,1,2,2 Tetrachloroethane	F039	0.33 mg/l	
Cyanide (Total)	F039	33 mg/l	
Barium	F039	333 mg/l	
Cadmium	F039	1.66 mg/l	
Chromium	F039	16.5 mg/l	

- F. The volume of wastes injected in any month through the wells may not exceed 17,280,000 gallons;
- G. Beginning January 7, 2011, or such other date agreed upon by the Illinois Environmental Protection Agency (Agency) and Cabot, Cabot Corporation shall quarterly submit to the Agency a report containing a fluid analysis of the injected waste which shall indicate the chemical and physical properties upon which the no-migration petition was based, including the physical and chemical properties listed in Conditions 5 and 6 of this exemption approval;
- H. Beginning January 7, 2011, or such other date agreed upon by the Agency and Cabot, Cabot Corporation shall annually submit to the Agency a report containing the results of a bottom hole pressure survey (fall-off test) performed on Well #2 and Well #3 (alternating years). The survey shall be performed after shutting in the well for a period of time sufficient to allow the pressure in the injection interval to reach equilibrium, in accordance with 35 Ill. Adm. Code 730.168(e)(1). The annual report shall include a comparison of reservoir parameters determined from the fall-off test with parameters used in the approved no-migration petition;
- I. Cabot Corporation shall fully comply with all requirements set forth in Underground Injection Control Permit UIC-011-CC issued by the Agency. Cabot must expeditiously apply to the Agency to modify its current UIC Permit No. UIC-011-CC to reflect USEPA's approval cited in 75 Fed. Reg. 30392-30393 (June 1, 2010), and with USEPA's March 9, 2012 letter approving Cabot's September 9, 2011 modification request and this adjusted standard;

- J. Reports or other communications required by this adjusted standard must be addressed the Agency at the address below:

Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

- K. As provided in 35 Ill. Adm. Code 738.123(b), whenever the Board determines that the basis for approval of a petition may no longer be valid, the Board will require a new demonstration in accordance with 35 Ill. Adm. Code 738.120.
- L. In any action under subsection 35 Ill. Adm. Code 738.124(a)(1), if the Board finds a violation of the Act or Board regulations, the Board may terminate any adjusted standard granted under Section 738.120 as provided by Section 738.124.

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) (2010); 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 T. Therriault, Assistant Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on May 3, 2012, by a vote of 5-0.



John T. Therriault, Assistant Clerk
Illinois Pollution Control Board