

3



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
WU-16J

Dear Sir or Madam:

You are receiving this mailing because you either commented on the Beeland Group, LLC draft permits in person at one of the public hearings or in writing or because you requested a copy of the Response to Comments on this United States Environmental Protection Agency (EPA) decision. Upon closure of the public comment period, EPA reviewed the issues raised by the public, gathered information to clarify those issues and developed this response to comments document.

EPA made the following change to the final permit:

In attachment F, quarterly monitoring was changed to monthly monitoring.

The final permits are available for review at:

Bellaire Library: South Bridge Street, Bellaire, Michigan; Wednesday 10 a.m. to 5 p.m., Thursday and Friday 9 a.m. to 5 p.m., Saturday 10 a.m. to 1 p.m.

Mancelona Township Library: 202 State Street, Mancelona, Michigan; Tuesday and Thursday 9 a.m. to 12 p.m., 1 p.m. to 5 p.m., and 7 p.m. to 9 p.m., Friday 12 p.m. to 5 p.m.

Environmental Protection Agency, Region 5: 77 West Jackson Boulevard, Chicago, IL; Monday through Friday 8 a.m. to 4:30 p.m. Contact William Bates by phone at (312) 886-6110 or by e-mail at bates.william@epa.gov.

In addition, the final permit can be viewed online at:

<http://www.epa.gov/region5/water/uic/beeland.htm>

Appeal

In accordance with Title 40 of the Code of Federal Regulations (C.F.R) section (§) 124.19, any person who filed comments on the draft permits or participated in the public hearing may petition the Environmental Appeals Board to review any condition of the final permit decision. Such a petition shall include a statement of the reasons supporting review of the decision, including a demonstration that the issue(s) being raised for review were raised during the public comment period (including the public hearing) to the extent required by these regulations. The petition should, when appropriate, show that the permit condition(s) being appealed are based upon either, (1) a finding of fact or conclusion of law which is clearly erroneous, or (2) an exercise of discretion or an important policy consideration which the Environmental Appeals Board should, in its discretion, review.

If you wish to request an administrative review, you must submit such a request by regular mail to the United States Environmental Protection Agency, Clerk of the Board, Environmental Appeals Board (MC 1103B), Ariel Rios Building, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20460-0001. Requests sent by express mail or hand-delivered must be sent to the United States Environmental Protection Agency, Clerk of the Board, Environmental Appeals Board, Colorado Building 1341 G Street, NW, Suite 600, Washington, D.C. 20005.

The request must arrive at the Board's office on or before **March 12, 2008**. The request will be timely if received within this time period. For this request to be valid, it must conform to the requirements of 40 C.F.R. § 124.19. A copy of these requirements is attached to the Response to Comments. This request for review must be made prior to seeking judicial review of any permit decision.

Sincerely,

A handwritten signature in cursive script, appearing to read "Lisa Perenchio".

Lisa Perenchio, Chief
Direct Implementation Section

Response to Comments
Table of Contents

Introduction	- 2 -
Background	- 2 -
Determination	- 3 -
Comments and Response	- 3 -
Issues related to Bay Harbor	- 3 -
Other sites of concern	- 8 -
Michigan Department of Environmental Quality (MDEQ) and National Pollutant Discharge Elimination System (NPDES) permit issues	- 9 -
Environmental Justice	- 10 -
Public hearing/meeting	- 11 -
Surface location concerns	- 14 -
Transportation	- 14 -
Monitoring and legal issues	- 16 -
Geology/Watershed and other technical issues	- 26 -
General Issues	- 38 -
Appeal	- 46 -
Final Permit	- 46 -
Appendix: Environmental Justice Screening Evaluation: Alba UIC Well	- 47 -

RESPONSE TO COMMENTS

Date: FEB 07 2008

Introduction

The United States Environmental Protection Agency (EPA) is providing this response to comments on EPA's Underground Injection Control (UIC) draft permit #MI-009-1I-0001. EPA proposed to issue the permit to Beeland Group, LLC (Beeland Group) to construct and operate a Class I injection well at the Alba facility in Antrim County, Michigan for the disposal of liquid non-hazardous waste. This response to comments is in accordance with Section 124.17 of Title 40 of the Code of Federal Regulations (40 C.F.R. § 124.17), which requires the EPA to issue a response to comments when it issues a final permit decision. That response must: (1) describe and respond to all significant comments raised during the public comment period, (2) specify which provisions, if any, of the draft decision have been changed and the reason for the change, (3) include in the administrative record any document cited in the response to comments, and (4) make the response to comments available to the public.

Background

The scope of the federal UIC regulations is limited to determining whether the construction and operation of injection wells will be protective of underground sources of drinking water (USDW). Any aquifer which contains water which could supply drinking water is protected under the federal UIC regulations at 40 C.F.R. Parts 144 and 146.

Prior to receiving a permit, all injection wells must meet UIC siting requirements. The UIC siting regulations (40 C.F.R. §146.12(a)) require a Class I injection well to be located beneath the lowermost formation containing an USDW. The Beeland Group proposed Class I well complies with the siting requirement. In particular, the proposed injection well is to be drilled to approximately 2,450 feet below ground surface and the top of the proposed injection zone is at a depth of approximately 2,150 feet with an impermeable confining zone immediately above the injection zone. The base of the lowermost underground source of drinking water in this area is approximately 900 feet below ground surface. This means that there are approximately 1,250 feet of sedimentary rock between the proposed injection zone and the lowermost underground source of drinking water. Although not specified in the UIC siting requirements, EPA also requires a confining layer between the injection zone and the bottom of the lowermost formation containing an underground source of drinking water, based on the well operating requirements found at 40 C.F.R. §146.13(a)(1). The proposed injection well also complies with this requirement. In this case the confining zone, which lies directly above the injection zone, is the Bell Shale. The Bell Shale is composed of shale, a type of sedimentary rock that is highly impermeable.

In addition to being sited in an area in which the geological formations are appropriate for injection, injection wells must be constructed and operated to prevent the injection fluid from contaminating an underground source of drinking water. The proposed well will be constructed with two casing strings (steel pipe). Each pipe is inside the previous one and the outside of each pipe is cemented from its base to the surface. This will prevent any movement of fluid either outside the casing to the surface or inside between casings.

As additional protection, injection takes place through steel tubing which is set within the innermost steel casing. The space between the tubing and the casing (called the annulus) is sealed at the top by the well head and at the bottom by a device called a packer. This annulus will be filled with water containing a corrosion inhibitor to prevent rust. Because the annulus is filled with water, the pressure in the annulus can be monitored.

Before the operator is allowed to inject into the well, the ability of the annulus to hold pressure (its mechanical integrity) is tested and only if the test is passed is authorization to inject into the well granted. This test is repeated periodically to ensure that the well maintains mechanical integrity. If a well fails a mechanical integrity demonstration or the difference between the annulus pressure and the injection pressure is less than 100 pounds per square inch (psi), it must be shut down immediately until corrective actions have been taken and the well has been brought back into compliance. The well must also be shut down if the tubing or packer needs to be moved or removed. The well must pass a mechanical integrity test again before authorization to resume injection will be given.

In addition, the fluid injection pressure must be limited to ensure safe operation of the well. The maximum injection pressure for each well is determined by the depth of the well, the specific gravity of the injected fluid, and the fracture gradient. This is done to ensure that the confining zone is not fractured due to injection. The calculated maximum injection pressure (MIP) that is considered safe at this site is 681 pounds per square inch (psi), while the MIP allowed by the permit is conservatively set at 150 psi. Monthly reports of pressure and flow rates must be submitted to our office for review.

The public comment period for this permitting decision began on April 12, 2007 and ended on July 27, 2007, a total of 107 days. Under 40 C.F.R. § 124.10, the minimum public comment period is 30 days. EPA and Michigan Department of Environmental Quality held a joint public hearing on June 13, 2007, at the Alba Public School Gymnasium in Alba, Michigan. The Gaylord Herald Times published public notices on April 12, 2007 and May 13, 2007. EPA Region 5, UIC Branch mailed public notices to interested parties. About 190 people attended the hearing. The Antrim Review published an extension of the public comment period on July 3, 2007. At the close of the public comment period, EPA reviewed the issues raised by the public, gathered information to clarify those issues, and developed this response.

Determination

The public comments submitted to EPA did not alter EPA's basis for determining that it is appropriate to issue Beeland Group a permit to operate one non-hazardous waste injection well. EPA revised the draft permit's Attachment F. 2.B. to require monthly monitoring in the final permit rather than the proposed quarterly monitoring requirement.

Comments and Response

Issues related to Bay Harbor

- Comment 1-** CMS Energy, Inc (CMS) knew what was going on when they bought the premises – they should have cleaned it up themselves.

Response- CMS is in the process of cleaning up the Bay Harbor site with oversight by EPA and the MDEQ. Further information regarding the Bay Harbor site is available at <http://www.epa.gov/region5/sites/littletraverse/> and <http://www.watershedcouncil.org/bayharborupdate.html>.

Comment 2- The leachate needs to be removed from Bay Harbor.

Response- CMS is collecting and removing the leachate from the Bay Harbor site, with oversight by EPA and the MDEQ. CMS' chosen method of disposing the collected leachate at the site is to treat the water as required and then inject it into the proposed well.

Comment 3- Pollutants should be processed and cleaned up and not buried in the earth.

Response- The waste stream is not being buried in the earth. The Beeland Group is proposing to inject the waste stream into a rock formation that will readily accept fluid. Directly above this formation is another formation that acts like a barrier that prevents the fluid from moving upward. CMS collects leachate as a component of the Bay Harbor site cleanup, and neutralizes the collected leachate so that it is not corrosive (has a high pH). Before the waste stream leaves the site, it is tested for pH. If the pH at a hazardous level ($\text{pH} \geq 2.5$), the waste stream is treated to lower the pH to a non-hazardous level. In order to insure that this method of disposal is safe, EPA regulates underground injection through the UIC program. The regulations for the UIC program are found in 40 C.F.R. Parts 144 and 146 and state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well construction, well engineering, and operating and monitoring standards for deep injection wells.

Comment 4- Is the contaminated water at the Bay Harbor facility contained and no longer going into the lake? If so, does the water still need to be removed or cleaned on site?

Response- The Bay Harbor leachate collection system is currently designed to intercept the shallow flow of contaminated water from the site prior to this water reaching Lake Michigan. The leachate collection system does not address deeper contaminated water that vents to the lake, so some contaminated water is still reaching the lake. CMS has been studying options to contain or isolate the waste that cause the contaminated water. We expect the Bay Harbor site to continue producing contaminated water for many years.

Comment 5- Did Beeland Group/CMS choose the well site based on its own economic interests?

Response- The UIC regulations do not require that the Beeland Group (wholly owned subsidiary of CMS) provide this information to EPA.

- Comment 6-** This is just a case of a big corporation wanting to cut corners and put a well in this community.
- Response-** Beeland Group's proposed Alba well complies with the UIC requirements. The UIC regulations do not establish or implement local zoning requirements.
- Comment 7-** An operation and maintenance plan needs to be developed by CMS.
- Response-** The EPA permit to Beeland Group regulates the Alba well operation and maintenance. Regulations regarding the operation and maintenance of the well can be found at 40 C.F.R §§ 144.51, 144.54, and 146.13.
- Comment 8-** The commenter seeks full disclosure of Beeland Group's agreement with all of the parties set forth in (the) 7/11/94 administrative agreement and covenant not to sue.
- Response-** There are no provisions under the Safe Drinking Water Act which allow the EPA to require Beeland Group to disclose its agreement with all of the parties set forth in the 7/11/94 administrative agreement and covenant not to sue. The EPA issues a Class I injection well permit based on siting, well construction, well engineering, and operation and maintenance of the well, and the Class I well permit does not affect any other permits or agreements.
- Comment 9-** You should force the company to continue to haul the waste, this so called non-hazardous waste, to the Johannesburg Class I well that is more than qualified to accept their waste.
- Response-** EPA does not have the authority to require Beeland Group to select or use a particular location to comply with its wastewater management requirement.
- Comment 10-** You should deny the permit based on the fact that (the) Grand Traverse Wastewater Treatment plant did not accept the waste.
- Response-** The regulations at 40 C.F.R. § 144.31(e) list the factors which can be taken into account when reviewing a Class I injection well permit application. Whether the Grand Traverse Wastewater Treatment Plant accepts the waste is not a factor the EPA can consider.
- Comment 11-** Why won't people in Bay Harbor deal with it? The company should use a deep injection well in Emmet County and not ship it to another township.
- Response-** The UIC program's authority is limited to evaluating whether the Beeland Group's chosen method, through the permit application before us, complies with the UIC regulations. EPA does not have the authority to force Beeland Group to locate the deep injection well in Emmet County or any other specific place.

- Comment 12-** There is a general distrust of Beeland Group due to lack of direct access to the company.
- Response-** Whether Beeland Group holds public meetings or allows direct access is not subject to EPA regulations.
- Comment 13-** Why is Emmet County not able to dispose of their contamination in their own County?
- Response-** Emmet County does not have the authority to require private entities such as CMS to dispose of its contamination in the county. CMS/Beeland Group has the ability to choose where it wants to propose disposing of its wastewaters, so long as the location and method of disposal comply with the law.
- Comment 14-** Bay Harbor Development should never have been built without taking care of the kiln dust; EPA and MDEQ knew about it and they failed us.
- Response-** The comment is beyond the scope of this UIC permit. CMS is in the process of developing options for cleaning up the Bay Harbor site. EPA and MDEQ are overseeing CMS's work.
- Comment 15-** The commenter requests a copy of the Health and Safety Plan that was to be developed for the Bay Harbor site in accordance with Section 126 of CERCLA.
- Response-** Due to the size of the Health and Safety Plan a copy will not be included in this document. However, a copy of the Health and Safety Plan for the Bay Harbor site can be viewed at the Little Traverse Bay Cement Kiln Dust release site (also known as the Bay Harbor site) repository at the Petoskey Library (500 East Mitchell Street, Petoskey, MI) and at the EPA Region 5 Chicago office.
- Comment 16-** Is or was CMS a member of the Chemical Manufactures Association, which exerted significant effects on the regulations for injection wells?
- Response-** EPA is unaware of CMS's participation in any organization.
- Comment 17-** Why did no one test the area where Bay Harbor decided to build until after the fact?
- Response-** This question is beyond the scope of this permitting decision. Information about the Bay Harbor site can be viewed at the Little Traverse Bay Cement Kiln Dust release site (also known as the Bay Harbor site) repository at the Petoskey Library (500 East Mitchell Street, Petoskey, MI) and at the EPA Region 5 Chicago office.
- Comment 18-** They should store the water on the golf course.

Response-

EPA does not have the authority to require private entities such as CMS to dispose of their contamination in a particular location. CMS/Beeland Group has the ability to choose where it wants to propose disposing of its wastewaters, as long as the location and method of disposal complies with the law.

Comment 19-

There is no 100% assurance that a leak will not develop or contaminate the watershed. Make CMS build a treatment plant near the contamination site and stop burying the hazardous waste wherever and whatever it is. There is no guarantee that the Class I injection well will not in any way contaminate the ground water.

Response-

Beeland Group is applying for a permit to inject non-hazardous wastewater; it is not, as suggested by the comment, seeking a permit to bury hazardous waste. EPA has established the UIC regulations to protect underground sources of drinking water. The likelihood of a leak is very small, and the risk of contaminating an underground source of drinking water is much smaller. This conclusion is based both on the protectiveness of the UIC technical specifications when they are applied to a particular well application, and the real-world experience. Information has been generated for many years from near-by wells injecting brine waters with contaminant levels similar to the proposed Beeland Group well into the same injection zone. Beyond the data from the existing near-by brine wells, the design, engineering, construction, operation and maintenance requirements applicable to the Beeland Group permit application provide a very high level of confidence that a leak will not occur. If one should occur through the injection process, the leak will be detected very quickly and the injection well will cease operating until the problem is corrected. These measures, and others required in the permit, all serve to ensure that operation of the well will not contaminate USDW.

Comment 20-

There is someone that claims with proper filtration, this contaminated water can be brought to a state to be discharged safely back into natural water system. This would be preferable.

Response-

You may want to share the wastewater treatment information that you are aware of with CMS and MDEQ. We understand and appreciate that this commenter prefers that CMS treat and discharge its waters into Lake Michigan at the Bay Harbor facility, rather than injecting the treated waters into Beeland Group's proposed well in Alba. However, the UIC program does not have the authority to select a disposal method or location for the applicant; we can only address the merits of the Beeland Group's application before us. We are aware that CMS also considers treatment and discharge to Lake Michigan at the Bay Harbor facility as an option worthy of consideration, since CMS submitted a permit application to MDEQ for a National Pollutant Discharge Elimination System (NPDES) permit to allow such a discharge.

Other sites of concern

Comment 1- This type of well has leaked in the past, in Michigan, and caused severe problems.

Response- Before the UIC program began, there were several cases of injection wells leaking. These incidences lead Congress to create the UIC program. Since the implementation of the UIC program, there have been no confirmed cases of USDW contamination due to liquid waste injection through a properly operated Class I well. There have been quite a number of studies on the safety of injection wells, both by the federal government and individual states. The most recent of these was entitled "Study of the Risks Associated with Class I Underground Injection Wells [EPA 816-R-01-007]" published by the EPA in March 2001; this report is available on the EPA website at <http://www.epa.gov/safewater/uic/classonestudy.pdf> in PDF format. The national UIC webpage lists many other reports related to this program which you can view online. Please check http://www.epa.gov/safewater/uic/qry_smallAllUIC_Files.html. EPA believes that regulated waste disposal through the wells is protective of human health and the environment. The proposed injection well will be constructed and operated to confine the injected fluids to the permitted interval and prevent the migration of any fluids into or between USDW.

Comment 2- There is a well in Romulus and everything that was done to get the approval for it was wrong. It is the same situation as here.

Response- We do not know the particular concern being raised by the comment that the approval for the Alba well site is incorrect. Our review of both the substance of the well application and the procedures applied to considering the application comply with UIC regulations. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operations, and monitoring standards for deep wells.

Comment 3- There is a facility in Ohio where a deep injection well leaked because of increased pressure, and the affected residents won a \$30 million settlement.

Response- EPA believes that the commenter is referring to the Vickery wells site, located in Vickery, Ohio, where wells were constructed and operated before the UIC regulations were effective in the early 1980s. There has been no confirmed contamination of a USDW due to liquid waste injection through a properly operated Class I UIC well. We also note that the settlement referred to by the commenter was awarded as compensation for damages to mineral rights, not for damages to a USDW. In particular, the wells at Vickery did not have a seal (packer) between the tubing and the casing (annular space). This type of construction is called a packerless completion. The type of construction used for the Vickery wells would

fail to detect a hole between the tubing and annulus, and would fail to prevent the flow of injected fluids through such a hole. In contrast, the UIC regulations provide a much higher standard for well engineering, construction, operation, maintenance, and monitoring than existed at the Vickery wells, in order to prevent the release of fluids to the environment if a leak occurred in the tubing. In addition, the UIC monitoring and testing requirements are engineered and designed to detect pressure changes between the tubing and annulus, thereby promptly detecting a leak. If a leak is detected, the UIC regulations require the operator to immediately cease operating the well until the leak is fixed and confirmed through testing. The UIC regulations applicable to this well require Beeland Group to annually conduct a standard annulus pressure test, to confirm that the system is operating properly and that there are no leaks in the annular space, either in the tubing or casing.

Comment 4- There is a potential for well leaks like at Hoskins and EDS.

Response- Although there were issues at each site, neither site had well leaks. The contamination at Hoskins was not related to the injection well and the well has been plugged. At EDS there were leaks in the piping leading to the wellhead at the injection wells. This incident prompted MDEQ to force EDS to clean-up the surface spill under Resource Conservation and Recovery Act guidelines.

Comment 5- This County has the first toxic plume seven miles from here -- use it as a test case.

Response- This incident is not related to the injection wells and the UIC program. We do not know how the commenter would like us to use this incident as a test case.

Comment 6- A contamination incident occurred in 1972 related to a well being drilled and another incident west of Kalkaska. There is no absolute guarantee from the company or EPA that this will not happen again.

Response- Incidences similar to the one you discuss is the reason the UIC program was established in 1984. Congress recognized that such problems were occurring, and created the UIC program to regulate injection wells and prevent contamination of groundwater. Operators of injection wells are held responsible for any contamination which occurs due to their injection and are liable for clean up, including ground water remediation.

Michigan Department of Environmental Quality (MDEQ) and National Pollutant Discharge Elimination System (NPDES) permit issues

Comment 1- Several comments came into the Agency regarding MDEQ and/or NPDES issues. They are as follows:

- a) Draft documents from MDEQ should be issued for comments.

- b) Was the DEQ developed to protect the developers involved in Bay Harbor?
- c) Did not fulfill the RCRA permitting guidelines of the EPA permitting process Step 1. They never posted notice on the property, there was never a(n) informal meeting before Oct. 2006.
- d) MDEQ failed to provide adequate due process to address surface waste issues as required under the Mineral Well Act.
- e) Can the MDEQ/EPA speed up the NPDES permit process?
- f) Why is the permit being handled by the EPA and MDEQ through the Geological Survey as a mineral permit?
- g) This should be reviewed and permitted with the Surface and Groundwater Division.
- h) How do we find out if CMS applied for a water treatment plant application as they stated?
- i) Where is the fair play, should not Beeland Group have to wait for the NPDES permit?
- j) Michigan law prohibits the injection of hazardous waste. Mineral Well Act is limited to saltwater brine and other oil field wastes.
- k) Why is MERA not applicable?

Response-

Beeland Group has applied to EPA for a UIC permit to inject a non-hazardous waste, and our consideration is limited to this application. To the extent that the commenters are suggesting that provisions of State law apply, those comments should be directed to the MDEQ. EPA's review of Beeland Group's UIC permit application is limited to reviewing the application, the UIC requirements, and the comments from the public, to determine whether Beeland Group's proposed Alba well complies with the UIC requirements. If you should have any questions regarding surface facilities, such as the location and impact of the proposed injection well, please contact Raymond Vugrinovich at the MDEQ for further information. He can be reached by telephone at (517) 241-1532 or by e-mail at vugrinov@michigan.gov.

Environmental Justice

Comment 1-

Several people stated concerns about environmental justice. Their concerns included: 1) the decision was not based on technical reasons and was influenced by the economic status of proponents of injection well permits; 2) the "rich people from Bay Harbor" expect to dump their "toxic" water in the "poor people's backyards"; and 3) questions whether environmental justice was being adequately considered and addressed in this permitting decision.

Response-

To answer questions related to Environmental Justice, the EPA conducted an Environmental Justice Screening Evaluation. The Environmental Justice Screening analysis indicates there are no environmental justice concerns that require further evaluation or response in the area of the proposed UIC well.

In particular, the economic status of the population surrounding the proposed UIC well is comparable to that of Antrim County and of Michigan. Further, EPA carried out extensive technical analysis in support of the draft permit, without reference to the economic status of either the permit applicant or the population surrounding the proposed UIC well.

A review of compliance, human health, and environmental indicators did not reveal any potential for disproportionately high and adverse impacts on the community surrounding the well, beyond those impacts that were considered and addressed in the course of EPA's permitting analysis. To the contrary, no EPA-regulated facilities were found within the zip code containing the facility; Antrim County infant mortality and cancer rates are below those for the State of Michigan; national air toxics data indicates no adverse noncancer health effects; and national air toxics data indicates that cancer risk in the census tracts surrounding the proposed UIC well is below Antrim County, Michigan, and national average cancer risks.

A full copy of the evaluation is included in appendix 1.

Public hearing/meeting

Comment 1- Both agencies should reconvene a hearing and appoint independent masters.

Response- The public comment period for this permitting decision began on April 12, 2007 and ended on July 27, 2007 for a total of 107 days. It also included a public hearing held on June 13, 2007. Under 40 C.F.R. § 124.10, the minimum public comment period is 30 days. EPA considers and responds to all comments received, both verbal at the hearing and written at any time during the public comment period, in evaluating Beeland Group's draft permit. We appreciate the public's strong interest in this matter, however we believe another public hearing is not necessary. Regulations on conducting public hearings are found at 40 C.F.R §124.12.

Comment 2- Was the public notice process regarding the area of review followed? If not another meeting is requested.

Response- EPA followed our regulations regarding public noticing. Pursuant to 40 C.F.R. § 144.31(e)(9), the permittee is required to provide a list of names and addresses of all landowners within a quarter mile from the proposed injection well. All landowners within a half-mile of the proposed injection well were notified; additional public notice of the meeting was mailed to persons who had previously expressed their interest in the Beeland Group permit application and through the Gaylord Herald Times newspaper notice.

Comment 3- EPA is not following it's own recommendations regarding public participation (cites RCRA's Public Participation Manual)

Response- EPA followed the regulations regarding public notice and the public hearing by public noticing the draft permit and public hearing in the Gaylord Herald Times. The decision to use the Gaylord Herald Times was based on the premise to reach the largest amount of people. Regulations regarding public notice of a UIC draft permit are found in 40 C.F.R. §124.10. These regulations state who shall receive a notice, how long the comment period will be, and what should be in the public notice. Regulations regarding public hearings are found in 40 C.F.R. §124.12.

Comment 4- The issuance of the permit violates due process, neither of the publications are the primary newspaper in the affected area.

Response- The EPA followed the regulations regarding public notice of a draft permit decision and the recommendation from a local government office to inform the largest number of people in the area. These EPA regulations can be found in 40 C.F.R. §124.10.

Comment 5- It was a token effort in public noticing in the newspaper. Why were notices of the meeting not sent home with children attending the school?

Response- The public notice followed both the regulations regarding public notice of a draft permit decision and the recommendation from a local government office to inform the largest number of people in the area. The numerous comments received during the public comment period, the adequacy of the notification process utilized by EPA and the well attended public meeting supports the conclusion that the EPA notice process was adequate.

Comment 6- The company is required to hold a public hearing before they apply for a permit, it's in the regulations, and they did not do that.

Response- The company is not required to hold a public hearing under EPA's UIC regulations. Under 40 C.F.R. §124.12, the permitting authority shall hold a public hearing whenever he or she finds, on the basis of requests, a significant degree of public interest in a draft permit. EPA held a public hearing on June 13, 2007

Comment 7- The commenter is concerned about the lack of information given to the people concerning the public notices.

Response- EPA provided the name and address of the office processing the permit; the name and address of the permittee; described the business conducted at the facility; stated the name, address, and phone number of the permit writer; gave a brief description of the comment procedures; and gave the location of the administrative record in the public notice. In addition, the public notice contained information about accessing the draft permit at two libraries and over the internet.

Comment 8- Where did EPA get the addresses for the mailed notices?

Response- Information about the names and addresses of the property owners was obtained from Beeland Group. Beeland Group acquired the information from the Antrim County records.

Comment 9- EPA did not notify landowners of the well for six months.

Response- A draft permit was completed and placed on public notice on April 12, 2007. In May, EPA decided that the volume of comments was sufficient to warrant a public hearing. On May 13, 2007, the public was notified of the public hearing, which was held on June 13, 2007 and the comment period was extended to June 27, 2007. It was then decided on June 25 to further extend the comment period to July 27, 2007. Consequently the notice was adequate and the public has had ample time to comment on the draft permit. According to the regulations, 40 C.F.R. § 124.10(b), EPA is required to notify the public about a draft permit decision in relation to the UIC program. The public has 30 days to respond to the public notice. If the EPA receives enough comments to warrant a public hearing, EPA will notify the public about the hearing 30 days prior. This was done.

Comment 10- My residence is less than one-mile from the proposed site and no notification was given to me, is this standard protocol on Class I wells?

Response- Beeland Group provided land ownership information for people within a half-mile radius from the well. This requirement is applicable to all types of wells, including Class I injection wells. The objective of this notice provision is to add a measure of direct notice to the land owners, along with the general public notification via newspaper, to ensure the broadest public notice and opportunity to comment that is reasonably achievable on the draft permit. Pursuant to 40 C.F.R. § 144.31(e)(9), the permittee is required to provide a list of names and addresses of all landowners within a quarter mile from the proposed injection well.

Comment 11- What are the requirements and time line for notifying landowners?

Response- 40 C.F.R. § 124.10(b) requires that a public notice be given of a draft permit and its public comment period, and that the permitting authority allow at least 30 days for public comment, to landowners within a quarter mile of the proposed injection well site. Public notices were issued on April 12, 2007, for the draft permit. Public notices were sent to landowners within a half mile of the proposed site of the injection well and other interested parties known by the EPA, Region 5, UIC Branch. The public notice also gave notice that a copy of the draft permit was available for viewing at the Bellaire Library and Mancelona Township Library, Michigan.

Comment 12- Did not see the notice in the newspaper for hearing.

Response- The notice for the hearing was published on May 13, 2007. In addition to the names of people on our current UIC mailing list, all landowners within a half mile of the proposed injection well, and all people who had

commented on the draft permit at that time were notified of the decision to hold a public hearing.

Surface location concerns

Comment 1- Antrim County is one of the Lower Michigan's most beautiful outdoor recreation areas.

Response- We note the commenter's opinion, however it does not relate to the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.

Comment 2- The decision to place this well in Antrim County was done by the people of Ingram County based on the information from CMS, DNR, and DEQ and not by the people of Antrim County.

Response- The permit applicant chose the location of the well based on business considerations which are not considered in EPA's permitting process. The permit applicant is not required to provide EPA with reasons for the siting of the well.

The MDEQ implements the state regulations concerning the siting of injection wells, pursuant to Part 625 of the Natural Resources and Environmental Protection Act, 1994. Please contact Raymond Vugrinovich of MDEQ by telephone at (517) 241-1532, or by e-mail at vugrinov@michigan.gov, to seek additional information regarding Michigan regulations governing siting of the well.

Transportation

Comment 1- Truck transport of the waste on Alba Highway could endanger community.

Response- Transportation of waste is not addressed by the UIC regulations. Clean-up of spills in the course of transportation to the site is regulated under State regulations and is the responsibility of the transporter. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.

Comment 2- Hazardous road conditions should be taken into consideration.

Response- Road conditions or type of roads are not a part of the EPA regulations. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit

application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.

Comment 3- Trucking the waste will endanger the groundwater.

Response- EPA has authority only over the injection activity itself. An EPA permit for an injection well conveys permission to inject fluids based on EPA's finding that the construction and operation details of the well are such that injection may be done in an environmentally safe manner. However surface spills and/or leakage are under the jurisdiction of the MDEQ. If you should have any questions regarding surface facilities, such as the impact surface spills and/or leakage will have on groundwater, we suggest that you contact Raymond Vugrinovich at the MDEQ. He can be reached by telephone at (517) 241-1532 or by e-mail at vugrinov@michigan.gov.

Comment 4- There will be increased wear and tear on roads.

Response- Wear and tear of roads is not addressed under the UIC regulations. Concerns regarding wear and tear on roads could be addressed by your local county road commission.

Comment 5- There are highway safety issues on C-42 – a lot of accidents, letting the trucks pass this way puts the community in danger.

Response- Transportation of waste is not addressed by the UIC regulations. Clean-up of spills in the course of transportation to the site is regulated under State regulations and is the responsibility of the transporter. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.

Comment 6- The trucks will be releasing diesel exhaust, a known carcinogen.

Response- Transportation of waste is not addressed by the UIC regulations. Issues related to the transportation of the wastewater are regulated under State regulations and is the responsibility of the transporter. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.

Comment 7- EPA should take into account personal feelings of citizens.

Response- EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells. These are the only things that the UIC program can take

into consideration. EPA's Environmental Appeals Board has agreed with this narrow view in other UIC permit cases. Two cases where the board addressed other factors in the decision making process are *In re Envotech, L.P.*, 6 E.A.D. 260 (EAB 1996) and *In re Beckman Production Services*, 5 E.A.D. 10 (EAB 1994). The Environmental Appeals Board in *Envotech* stated: "...the Region has a narrow and clearly defined responsibility in this matter. It is charged with implementing the UIC regulations promulgated by EPA in accordance with the mandate of Congress in the Safe Drinking Water Act...." In *Beckman*, the Environmental Appeals Board stated: "EPA's inquiry in issuing a UIC permit is limited solely to whether the permit applicant has demonstrated that it has complied with the federal regulatory standards for issuance of the permit."

Monitoring and legal issues

Comment 1- The applicant has not provided correlative agreement to allow for the injection/migration of injectate onto adjoining mineral owners.

Response- Property rights issues are outside of EPA's jurisdiction. Moreover, Part I (A) of the permit states: "Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local laws or regulations." EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.

Comment 2- Will the EPA require timely water quality analyses of the groundwater to indicate when contamination is occurring?

Response- The permit for the Beeland Group injection well will require the company to submit monthly monitoring reports for the waste stream. The permit also requires the company to verify the waste is not moving out of the injection zone into an underground source of drinking water every five years. This is done with a demonstration of exterior integrity using a temperature log survey of the well, which demonstrates that there is no fluid movement into or between USDW. In addition, there is continuous monitoring of the pressure differential between the annulus and the injection pressure. If the differential is less than 100 psi, Beeland Group is required to shut in the well until the system is fixed. The differential ensures that if a leak develops in the waste pipe, annulus fluid will flow into the well, and prevents waste from flowing out of the leak. The EPA does not require Beeland Group to have a groundwater monitoring well.

Comment 3- Is it illegal to move water from one watershed to another?

Response- This question is outside of this permitting action. The wastewater that will be injected is not being disposed of in a watershed. The wastewater would

be injected into a formation 2,150 feet below the surface that does not connect to any fresh water aquifers or surface water.

Comment 4- The address on the permit for the well does not exist.

Response- EPA's first public notice incorrectly provided a street address for the proposed well; this address was incorrect because the proposed well is located on a property which does not have a street address. Nonetheless, the EPA's first public notice, and all subsequent notices, complied with the EPA requirement to identify the location of the well by including a legal description of the well's location, by township, range and section.

Comment 5- When was the rule/law written to allow the injection wells to dispose of contaminates? Was it intended to be an ongoing occurrence?

Response- The first mention of the UIC Program was in the Safe Drinking Water Act of 1974. In 1979 and 1980, the EPA promulgated regulations related to the injection of fluids into the subsurface. Further regulations that relate to deep well injection were developed in 1981 and 1984. The program allowing injection of fluids was intended to be an ongoing program allowing the ongoing operation of injection wells. Operating injection wells must regularly monitor and test their wells for compliance with the UIC program and their permit.

Comment 6- Leachate should be monitored more frequently than quarterly.

Response- EPA agrees with this statement. EPA revised the Permit Attachment F. 2.B, to require monthly monitoring, rather than the proposed quarterly monitoring, for the leachate to be injected. In addition, under Part I (D)(1) of the permit, the EPA requires Beeland Group to submit monthly monitoring reports on the chemical nature of the injectate.

Comment 7- Require additional financial resources to close, plug, or abandon the injection well to ensure that the public and water resources are not at risk from a lack of funds.

Response- As a part of the permit application, Beeland Group provided a third party estimate on the cost to plug the well. The cost estimate was \$26,700. The amount that Beeland Group has set aside for plugging the well is \$40,000. EPA can require a larger amount in the future if the cost to plug the well, due to inflation or other information, exceeds the amount set aside.

Comment 8- The application fails to comply with SDWA and RCRA. It does not identify all pipelines within 600 feet and all wells within 1300 feet.

Response- UIC permit application requirements include investigating wells within a quarter mile from the proposed well site. The application requirements do not include identifying any pipelines within the area. Beeland Group's permit application identified wells within a 2-mile radius from the proposed well site. In the review of wells within the 2-mile radius there

were 109 wells identified that are related to the production of oil and gas. Out of those wells, only 4 wells were found to penetrate into the injection zone. Three of the wells were found to be actively injecting and the fourth was plugged. All four wells were found to be constructed and/or plugged properly. Since the Beeland Group well is a non-hazardous Class I injection well, RCRA regulations do not apply. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved.

Comment 9- Are well owners trusted to monitor their own wells?

Response- The UIC program has an active field inspection program which employs full-time field inspectors in the State of Michigan. Both scheduled and unscheduled inspections are used to ensure that injection wells are operated properly. If any non-compliance is noted, the UIC program takes appropriate action to ensure the well returns to compliance. Injection wells are also tracked and monitored for compliance with permit conditions through the review of monthly, quarterly and annual reports submitted by the operators. In addition, the State of Michigan has an inspection program, and refers possible non-compliance to EPA for appropriate enforcement action, as well as issuing their own enforcement actions, if appropriate.

Comment 10- How is the drinking water aquifer being monitored for contamination?

Response- Under the MDEQ permit, Beeland Group is required to have a monitoring well within the drinking water aquifer. Although EPA does not require monitoring of the USDW, the UIC requirements impose construction, operating, monitoring and testing requirements on the well and its operator in order to protect the USDW. The EPA does require Beeland Group to demonstrate exterior integrity of the well during the operating life of the well. This is typically done with a temperature log survey. A demonstration of exterior integrity shows that there is no fluid movement into or between USDWs.

Comment 11- Beeland Group appears to be under the honor system in constructing this well. How can local residents determine if Beeland Group has actually followed the specifications?

Response- MDEQ staff will be present for at least a portion of the drilling. In addition, Beeland Group is required to submit a completion report and copies of any logs run on the well. Typically, completion reports describe the rock that was encountered during the drilling process, type of casing used, and the number of sacks of cement that was used. EPA will verify that the depth of each casing string is approximately where Beeland Group proposed to place it and will check the number of sacks of cement used. Beeland Group is not allowed to start injection until we receive the completion report and the results from a standard annulus pressure test.

Comment 12- This violates CERCLA.

Response- EPA is unclear as to the basis for the commenter's claim that the well violates the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). EPA regulations for the UIC program are found in 40 C.F.R. Parts 144 and 146. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.

Comment 13- Monitoring records should be kept indefinitely.

Response- In accordance with 40 C.F.R. § 144.51(j)(2)(i), the permittee shall retain records of all monitoring information for a period of at least 3 years from the date of the sample, measurement, report, or application.

Comment 14- Does the EPA have enough money to monitor for environmental violations or to enforce permit requirements?

Response- EPA has the resources to monitor and enforce permit requirements; the MDEQ also has a program to inspect the facility and to enforce their own requirements. MDEQ will refer concerns to EPA. In addition, Beeland Group is required to submit monthly and annual reports about the operation of the well (e.g., injection pressure and physical and chemical characteristics of the injection fluid). Beeland Group will also be required to perform periodic testing of the well to ensure that the well is in proper working order and to submit reports documenting the tests. In addition, EPA has contract field inspectors who perform announced and unannounced inspections. If a violation does occur, EPA has the resources available to enforce the permit and regulatory conditions.

Comment 15- EPA document Class I Underground Injection Control Program: Study of the Risks Associated with Class I Underground Injection Wells, pg 34 states ...if a USDW lays directly over the proposed injection zone without any separation, Class I regulations would not allow the well to be constructed. Why would construction of the Beeland Group well be allowed?

Response- The Beeland Group well has both ample separation between the injection zone and the USDW, and the confining zone. At the proposed site, the injection zone is approximately 2,150 feet below ground level (bgl). Directly above the injection zone is the confining zone (Bell Shale) at 2,050 feet bgl. The lowest known USDW is at 900 feet bgl. Between the top of the confining zone and the base of the USDW there are approximately 1,150 feet of sedimentary rock. Therefore, the USDW is not directly over the proposed injection zone.

Comment 16- Will you notify adjacent land owners and provide them with copies of monitoring results?

Response- EPA will not notify land owners or provide them with copies of monitoring results. However, landowners can request copies of monitoring results through the Freedom of Information Act.

Comment 17- The permit states that noncompliance can be allowed by an emergency permit.

Response- Noncompliance can be allowed by an emergency permit. There are three conditions under which EPA can grant an emergency permit and they are listed at 40 C.F.R. § 144.34(a). The conditions are "...(1) An imminent and substantial endangerment to the health of persons will result unless a temporary emergency permit is granted; or (2) A substantial and irretrievable loss of oil or gas resources will occur unless a temporary emergency permit is granted to a Class II well,...; or (3) A substantial delay in production of oil or gas resources will occur unless a temporary emergency permit is granted to a new Class II well and the temporary authorization will not result in the movement of fluids into an underground source of drinking water."

In this case, the only part that could apply is (1) since parts (2) and (3) are for Class II wells (rather than the Class I well application under consideration). EPA could authorize an emergency permit as a temporary solution that would only be used until the emergency is abated.

In the history of the UIC program in Region 5, there have been only a few cases where an emergency permit has been issued. All of these were related to oil and gas production.

Comment 18- The composition of the waste should have been known to the parties in adherence with CERCLA section 126 subsection 9.

Response- The EPA is unclear why the commenter has cited this section of CERCLA. CERCLA Section 126 establishes that the treatment of the governing body of an Indian Tribe be substantially the same treatment as a State with respect to various provisions of CERCLA and requires that the Secretary of Labor promulgate standards for the health and safety protection of employees engaged in hazardous waste operations.

For the purposes of a UIC permit the composition of the waste stream is known. Representative sample analyses were submitted to EPA when the permit application was submitted. The waste to be received by the well has been evaluated and determined to be non-hazardous.

Comment 19- What sort of penalty will Beeland Group have if found in violation?

Response- There is a range of sanctions that may apply should Beeland Group violate the UIC regulations or permit requirements, depending on the nature of the violation. Violations of the operating standards or monitoring parameters require Beeland Group to cease operating the well until the violations are corrected. In addition, violations of the Safe Drinking Water Act and UIC

regulations are subject to administrative orders which may include penalties of up to \$157,500, civil penalties of up to \$32,500 per day of violation, and criminal penalties of up to 3 years imprisonment and fines for willful violations in accordance with Title 18 of the United States Code.

Comment 20- Permit does not say how contaminates in the USDW will be corrected or how potentially affected people will be contacted or protected.

Response- Beeland Group will be responsible for ensuring the groundwater is protected from contamination due to injection from its well. EPA, under the Safe Drinking Water Act, and the MDEQ, under Part 201, can require owners/operators to clean-up any contamination due to injection, and/or supply alternative water supplies to affected parties. Specific procedures would depend on the type and extent of the contamination.

Comment 21- Remote monitoring of the well is an unacceptable level of risk.

Response- Remote monitoring is a safe and sound way to monitor the Beeland Group well. Several preventative steps are included in the remote monitoring of this well. A few of these steps are as follows: 1) if automatic shut-down occurs, a trained operator will be on site within an hour, 2) if there is a power failure beyond the capabilities of the back-up supply, the well will be shut down, 3) if there is a loss of dial tone for more than 15 minutes, the well will be shut down, 4) all restarts of the injection well will require a trained operator on site and, 5) there will be a weekly inspection of the remote monitoring system to insure the system is operating properly.

Comment 22- What epidemiology studies have been done in Antrim County?

Response- In relation to this permit action, EPA has not conducted any epidemiological studies because this falls outside of the UIC program. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.

Comment 23- Monitoring requirements say nothing about checking the abandoned well for back up.

Response- As part of UIC permit requirements, an applicant for a UIC permit is required to provide information on all active wells as well as plugged and abandoned wells, which penetrated the injection zone within a two mile radius of the proposed injection well. The proposed site for the Beeland Group injection well has been chosen so that no improperly plugged wells or other possible open conduits for fluid flow are located within 2 miles of the proposed injection well.

Comment 24- Beeland Group is allowed 24 hrs to report noncompliance with the permit.

Response- This requirement was derived from 40 C.F.R. §144.51(l)(6), which states that any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances.

Comment 25- What are the chances that leakage (will) is now tak(e)ing place and (will) migrat(e)ing into the drinking water aquifer and not being detected?

Response- The likelihood that undetected contamination of the lowest source of drinking water is occurring or will occur is remote. Theoretically, contaminants could migrate to the USDW either by a pathway connected directly to the injection zone or by a leak from the injection well near the USDW. Geologic records demonstrate that there are confining layers between these two strata which would prevent significant migration of contaminants from the injection zone to the USDW. After years of other nearby wells injecting brine into the same injection zone proposed by Beeland Group, there is no indication of a pathway between the injection zone and the USDW. In addition, the UIC permit requirements were established to ensure that no significant contaminants migrate from the well to the USDW. Beeland Group is required by the permit to regularly monitor the chemical nature of the injectate, injection pressure and flow rate and report the monitoring results monthly. In addition, EPA requires the company to perform an annual pressure test on the annular space. This test determines whether a leak is present in the tubing or casing. If a leak is found, EPA requires the company to close (shut-in) the well until the problem is fixed. In addition to this test, the EPA requires the company to conduct a temperature log survey of the well every five years. The purpose of this test is to determine if the fluid is staying in the injection zone or moving up into a source of drinking water.

Comment 26- The permit does not specify any requirement to monitor the wells of the residents living around the injection well.

Response- This is correct. The Beeland Group is not required to monitor the surrounding wells. EPA evaluated an area of review of two-miles for this well. In this evaluation, EPA looked at plugged and operating wells that penetrated the Dundee Limestone. EPA's review of these wells determined that the wells that penetrated the Dundee Limestone within the area of review were either constructed properly or plugged properly. In addition to this, the Agency evaluated the area within which pressure in the injection zone could cause fluid to move up from the injection zone into an USDW. The Agency's evaluation concluded that this area extended less than a foot away from the well. Beeland Group is also required to conduct periodic testing of the well. Part of this testing is to demonstrate that fluid is not moving into or between USDWs. Therefore, the EPA believes that there are sufficient safeguards to prevent the contamination of an USDW.

- Comment 27-** If the well loses mechanical integrity, Beeland Group has 30 days to repair and retest. This is unacceptable for the protection of the USDW.
- Response-** If the Beeland Group well loses mechanical integrity, operations at the well are stopped. This prevents any additional fluid from being introduced to the well. Thirty days is an amount of time that is acceptable because the company will need to identify what the problem is and then determine how to fix it.
- Comment 28-** Beeland Group needs only to report monthly its noncompliance with the permit.
- Response-** Beeland Group is required to report any noncompliance with the permit within 24 hours of the noncompliance. The company is also required to submit in writing a description of the noncompliance and the cause within five days of the event. These parameters of the Beeland Group's permit can be found in Part 1(E)(12)(d) of the permit. In addition to this, the company is required to report any noncompliance in its monthly report.
- Comment 29-** Every 12 months Beeland Group is required to submit a certified statement that no other waste stream has been injected. Honor system?
- Response-** Beeland Group is required to submit a certified statement that no other waste stream has been injected. In addition to this annual statement, Beeland Group is required to submit monthly reports discussing physical and chemical characteristics of the wastestream. EPA has contract field inspectors and the State also inspects such wells.
- Comment 30-** The permit is for non-hazardous waste but it allows for treated and untreated groundwater.
- Response-** The Beeland Group is allowed to inject treated and untreated water. Bay Harbor is required to treat its wastestream to ensure that the pH is at a non-hazardous level prior to shipping it to the Beeland Group well.
- Comment 31-** What environmental impact studies have been done for Antrim County? Does this activity fall under the jurisdiction of NEPA or MEPA?
- Response-** A Federal court decision (1991 case, 8th Circuit Court of Appeals, *Western Nebraska Resources Council vs. EPA*), deemed the SDWA permitting process functionally equivalent to the NEPA process. This is because the SDWA permit process requires an analysis of the environmental consequences of the proposed permit action and a public disclosure and comment process. The Michigan Environmental Policy Act (MEPA), a state law that is similar to NEPA, is implemented by the MDEQ. The MDEQ's decision whether to prepare an EIS is governed by MEPA and cannot be required by EPA. EPA's permitting analysis evaluates the potential for adverse environmental and human health effects or impacts from this proposed UIC well. This analysis is discussed in the technical overview of the UIC program, at

http://www.epa.gov/safewater/uic/pdfs/uic_techovrview.pdf>. As discussed in that document at page 17, to obtain a permit for a new Class I well, an applicant must provide sufficient data to demonstrate that USDWs will be protected. The key areas of information are: 1) geological considerations used in the well siting and design, especially information on all USDWs penetrated by the injection well; 2) the structural integrity of the well; 3) the specific operational considerations used in well design; 4) information on the status of wells in the area of review that penetrate the injection zone; and 5) the proposed monitoring of the facility. The monitoring program must consider quantity and quality of injected fluids and existing reservoir conditions. Operators must submit data on all existing and abandoned wells that penetrate the injection zone within the area of review of all newly drilled or converted injection wells.

Additionally, the applicant must submit information that would allow calculation of the injection pressure curve. This submittal must detail the casing and cementing information for all wells in the area of review. The permitting authority uses this information to determine if wells in the area of review require corrective action prior to commencement of injection. The applicant must also provide an appropriate demonstration of financial responsibility for operation and closure of the facility.

MDEQ also permits underground injection wells within the State of Michigan. In general, MDEQ administrative rules require the permittee to develop a secondary containment area, to conduct a hydrological study of the area, and to construct a monitoring well down gradient from the facility that would be monitored on a regular basis. Interested persons should consult with MDEQ for the specifically applicable requirements.

The technical review of the application indicated that all EPA requirements necessary to prevent adverse impacts are met for this proposed UIC well. In addition, Region 5 uses a two-mile radius for the area of review for Class I non-hazardous wells. Within the area of review there are approximately 109 wells. Out of the 109 wells there are only 4 wells that penetrate the injection zone. Three of these wells are disposing of fluid related to oil and gas production. These wells have been constructed appropriately and would not likely be a conduit for fluid movement. The final well has been plugged and abandoned to EPA's satisfaction. The zone of endangering influence defines the area where the injection reservoir pressure under the influence of injection activity could cause fluid to move into a USDW. The zone of endangering influence in this case was calculated at 1.4×10^{-5} feet – for practical purposes, zero.

Comment 32-

The letter of credit doesn't cover the damage to the aquifer.

Response-

Before a permit is issued by EPA, the owner/operator of an injection well must demonstrate that the funds necessary to plug and abandon the well are available and secured. The only purpose of the letter of credit is to ensure that the well will be plugged in accordance with State and federal requirements.

Comment 33- What level of testing would be provided to guarantee that the wastewater contamination was not affecting our food and water supply?

Response- EPA requires regular monitoring, testing and reporting regarding the injection well to confirm that the well is not a source of contamination to the water supply. In particular, EPA requires the company to perform an annual pressure test on the annular space. This test determines whether a leak is present in the tubing or casing. If a leak is found, EPA requires the company to close (shut-in) the well until the problem is fixed. In addition to this test, EPA requires the company to conduct a temperature log survey of the well every five years. The purpose of this test is to determine if the fluid is staying in the injection zone or moving up into a source of drinking water.

Comment 34- There does not appear to be any more testing after the well has been abandoned. According to the EPA's requirements, for Class 1 wells the company also has to present reasonable proof that the well will not leak for 10,000 years.

Response- The requirement referred to by the commenter is only for Class I hazardous injection wells. Since Beeland Group is seeking a permit for a Class I non-hazardous well, this requirement does not apply.

Comment 35- Will the EPA require the permittee to post a bond or require the permittee to maintain insurance to insure that adjacent landowners are reimbursed if damage is done to drinking water and land values from a spill?

Response- Beeland Group is legally liable under State and federal law for any contamination on or from the site. EPA has no authority to require any additional bonding over what is required in the regulations.

Comment 36- Require adequate initial testing and additional regular monitoring and reporting, more frequently than just on a quarterly basis, to ensure that fluids meet the acceptable criteria for injection.

Response- EPA has determined that the testing and monitoring requirements in the permit are adequate to ensure fluids are acceptable for injection. The UIC permit requires that Beeland Group submit monthly reports on the chemical and physical characteristics of the injected fluid. EPA has no basis to require further testing or monitoring.

Comment 37- Why is the area of review only 2 miles?

Response- Under 40 C.F.R. §144.31, the minimum required distance for an area of review is a quarter of a mile. Region 5 decided that an additional distance would be appropriate, would not be an undue burden, and would provide an additional measure of protection when evaluating an application for a Class I non-hazardous injection well. Therefore, Region 5 created a policy that requests companies seeking a permit for a Class I non-

hazardous well to use a two-mile area of review. The two mile radius is larger than the anticipated area within the injection zone that will be affected by the injection process.

Comment 38- Deny the permit based on no representative sample of what will be injected; chemistry varies.

Response- Analyses of the proposed waste stream were given to EPA as a part of the permit application. During the review of the permit application, EPA determined that the provided analyses were sufficient for describing the proposed waste stream.

Comment 39- Beeland Group's duty to mitigate is vague and does not protect the population.

Response- Beeland Group is legally liable for any contamination on or from the site.

Comment 40- Full title opinion showing their rights to both the surface and proposed injection strata must be a condition of granting this permit.

Comment 41- No authorization has been obtained to the mineral rights of the land.

Response to comments 40 and 41- Property issues are outside of the purview of the UIC program. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.

Geology/Watershed and other technical issues

Comment 1- It should be the company's burden to demonstrate that the well is a good idea.

Response- The applicant is not required to show that the proposed injection well is a good idea under the UIC regulations. The regulations require the applicant to demonstrate that the proposed injection well will be constructed and operated in such a manner so as to confine the injected fluids to the permitted interval and prevent the migration of any fluids into or between USDWs.

Comment 2- Why is a waste disposal well needed for non-hazardous waste?

Response- Beeland Group has applied to the EPA for a permit to operate a non-hazardous injection well to inject non-hazardous wastewaters from Bay Harbor. EPA regulations do not require the applicant to explain why it is proposing to dispose of the wastewater through the injection well, and we are not aware of the reason for its choice. We are aware that CMS has

been using other alternatives in the past and is, concurrent with this application, exploring additional options.

Comment 3- If the contaminated water is so harmless, then there would be no reason to have so much caution put into the construction of such a site.

Response- The UIC regulations help ensure that any injection well is constructed and operated in a manner that will protect underground sources of drinking water. Although the fluid is classified as non-hazardous, it would not meet drinking water standards.

Comment 4- What watersheds are you proposing to permit this activity in?

Response- The injection activity will take place in the Great Lakes watershed.

Comment 5- Injection of such corrosive leachate could result in malfunction and cause contamination.

Response- The injection fluid is not corrosive. Before shipment, the fluid must meet a pH level that is non-hazardous. If the leachate has a pH that is at a hazardous level, it will be treated to reduce the pH prior to shipment.

Comment 6- The leachate is neutralized using sulfuric acid, but what about alkalis and metals that are left in the water?

Response- The leachate is only treated for pH adjustment, if needed, prior to shipment. The other constituents, including alkalis and metals, within the waterwater are appropriate for disposal in an injection well.

Comment 7- Which agency will implement treatment of wastewater to drinking water standards?

Response- Neither EPA nor MDEQ will treat wastewater to drinking water standards before injection. Beeland Group is authorized to inject treated and untreated ground water and surface water that is related to the remediation project in Bay Harbor, as long as the waste stream has a pH that is at a non-hazardous level.

Comment 8- Due to the infiltration rate of the Kalkaska sand there is a high potential for the contamination of ground water which would thereby potential(ly) contaminate the rivers and lakes in the area. The contamination could also threaten national fish hatcheries.

Response- This appears to be a concern regarding a surface spill. Surface spill prevention and remediation are regulated by MDEQ, which requires that the surface facilities be constructed with secondary containment. Additionally, the permittee will either install a down-gradient monitor well or provide tertiary containment at the surface facility.

Comment 9-

If the well fails there could be a potential for endangerment of drinking water.

Response-

The potential for a significant well failure is remote due to the geology, siting, well engineering, construction, operating and monitoring requirements. In this case, the well will be drilled to a total depth of 2,450 feet below ground surface into the Dundee Limestone. The top of the Dundee Limestone injection zone is at approximately 2,150 feet below ground surface. The base of the lowermost USDW has been identified at a depth of 900 feet below ground surface and is separated from the top of the Dundee injection zone by approximately 1,250 feet of sedimentary rock strata. All casing strings will be adequately cemented to preclude the movement of fluids into and between each USDW due to injection operations.

As additional protection, injection will take place through tubing which is set within the steel casing. A packer will be set at the bottom of the tubing to seal off the space between the casing and tubing. This space will be filled with a liquid mixture containing a corrosion inhibitor. This will allow the pressure in the space to be monitored. The pressure in the space between the tubing and casing will be monitored and tested initially after the completion of the well to ensure that the well has mechanical integrity. It is tested periodically thereafter to ensure that the well maintains mechanical integrity. If a well should fail a mechanical integrity demonstration, it will be shut down immediately. Any work performed on the well which requires moving or removing the tubing or packer must be followed by a mechanical integrity test before authorization to resume injection will be given. The injection pressure will be limited by the permit to ensure the safe operation of the well and monthly reports of pressure and flow rates must be submitted to our office for review. The injection pressure limitation will ensure that the injection operation does not fracture the formation and allow fluids to possibly move into any drinking water source.

Therefore, the well will be constructed and operated in such a manner so as to confine the injected fluids to the permitted interval and prevent the migration of any fluids into and between each USDW. As a result, there should be no connection between the operations of this injection well and the nearby drinking water wells.

Comment 10-

Have you determined the direction of groundwater and the direction of surface water flow at the site?

Response-

The direction of ground water and surface water flows has not been determined. Determining the direction of ground water and surface water flows is not required for their protection. Ensuring that the well has been constructed properly and is operated correctly will help protect surface water and ground water.

Comment 11- If the ground is porous enough to take the contaminated waste in an injection well, is it porous enough for migration?

Response- Regarding fluid movement from the injection zone, the injection zone is separated from the lowermost USDW by approximately 100 feet of shale (the Bell Shale formation). Shale is very impermeable and will prevent the movement of fluid so long as it is unfractured. Permits usually contain a maximum injection pressure limitation which is calculated to prevent fractures from forming due to injection. In this case, the Beeland Group requested a maximum injection pressure that is lower than the calculated value. In addition, after the well ceases to be used, the Plugging and Abandonment Plan calls for the entire well to be filled with cement, eliminating the possibility of fluid movement after the well is closed.

Comment 12- There is an underground river from Lake Michigan to the Lansing area.

Response- There is no underground river from Lake Michigan to Lansing. Ground water moves through tiny holes in rock layers; it does not flow like a river, except in caves.

Comment 13- What is safe to do now may not be considered safe in the future. Will this affect my grandchildren 20 years from now?

Response- During the operational life of the well, it will be operated in a safe manner. This is mandated by the regulations set forth in 40 C.F.R. Parts 144 and 146. After the operational life of the well, it will be plugged and abandoned properly. This includes filling the well with cement from top to bottom.

Comment 14- Can the proposed well withstand any earthquakes, say from the New Madrid's fault? Three earthquakes occurred in the 1800s.

Response- As a part of the application package, the permit applicant included information on seismic activity within the area around the proposed injection well. The Beeland Group's report indicated that the City of Alba is in an area designated as a relatively minor seismic risk area. This conclusion was based on information from the United States Geological Survey (USGS). EPA reviewed information from the USGS and National Earthquake Information Center (NEIC) regarding earthquakes in the area of the proposed injection well. Both groups show that Michigan is a low hazard area for seismic activity. Michigan lies in a stable continental area where there is little risk of new faulting. Earthquakes in continental areas are usually deeper than the sedimentary strata penetrated by the well. Moreover, injection wells in areas of high seismic activity such as Alaska, California and southern Illinois and Indiana have withstood earthquakes. EPA additionally notes that the well will be continuously monitored throughout the operational life under the UIC permit. Among other things, annual mechanical integrity tests are required to demonstrate the mechanical integrity of the casing, tubing, and packer, and demonstrate

there is no significant fluid movement into a USDW through vertical channels adjacent to the injection well bore.

Comment 15- What about the increased pressure as the hazardous materials are pumped underground?

Response- The permit limits the injection pressure to ensure safe operation of the well, and we clarify that the waste proposed to be injected is non-hazardous. In particular, a waste is hazardous if it is listed in 40 C.F.R. § 261.31-261.3, or if it exhibits any one of the following characteristics and is not specifically excluded from regulation as a hazardous waste in 40 C.F.R. § 261.4:

Ignitability: a flash point of less than 140 °F

Corrosivity: a pH of less than 2.0 or greater than 12.5, or corrodes steel at a rate greater than 6.35mm per year at 55 °C

Reactivity: unstable, reacts violently with water, is sufficiently cyanide or sulfide bearing to produce toxic gas, or is capable of detonation

Toxicity: the Toxicity Characteristic Leaching Procedure (TCLP) extract contains any of the regulated contaminants at or above the regulatory level.

Before the operator is allowed to inject into the well, the ability of the annulus to hold pressure (its mechanical integrity) is tested and only if the test is passed is authorization to inject granted. This test is repeated periodically to ensure that the well maintains mechanical integrity. If a well fails a mechanical integrity demonstration, it must be shut down immediately until corrective actions have been taken and the well has been brought back into compliance. The well must also be shut down if any work which requires moving or removing the tubing or packer is necessary. The well must pass a mechanical integrity test again before authorization to resume injection will be given.

In addition, the pressure at which the fluid is injected must be limited to ensure safe operation of the well. The maximum injection pressure for each well is determined based on the depth of the well and the specific gravity of the injected fluid. In this case, the maximum injection pressure was calculated to be 681 pounds per square inch. However, Beeland Group requested a maximum injection pressure of 150 pounds per square inch. Monthly reports of pressure and flow rates must be submitted to our office for review. Pressure in the injection zone will dissipate because of lateral extent of the injection zone formation. Over time the increased pressure will disperse throughout the formation as a whole and thereby only increase the pressure within the total formation by an immeasurable amount.

Comment 16- The commenter is concerned that the waste will mix with lowest USDW.

Response- In this case, all casing strings of the proposed injection well will be adequately cemented to preclude the movement of fluids into and between

USDWs due to injection operations. As a result, there should be no connection between the operations of this injection well and the lowest USDW.

Comment 17- Are the effects of existing wells being monitored effectively?

Response- All plugged wells within the area of review which penetrated the injection zone were plugged properly, so there is no need to monitor these wells. All active wells within the area of review which penetrated the injection zone were properly constructed and are required to submit monitoring reports to EPA and to MDEQ and are subject to periodic inspections by both agencies.

Comment 18- Has it been determined whether this activity will be bringing new water into this watershed, which may be restricted by State law?

Response- This activity is not introducing new water into the watershed. A watershed is an area of land that is separated by a divide. This divide focuses surface water to move in a certain direction. A watershed's connection with aquifers is limited to the aquifers that have connections with surface bodies of water like rivers. In this case, the formation receiving the injected fluid does not have any communication with the surficial aquifer or the watershed. To the extent that the commenter is requesting an opinion of State law, we are deferring the question to MDEQ.

Comment 19- The waste is improperly characterized as non-hazardous.

Response- We are not aware of any basis to characterize this wastestream as anything other than non-hazardous.

Comment 20- Minimum monitoring of injection fluid does not include Pb.

Response- That is correct; the monitoring plan for the injection fluid does not include lead. As part of the permit application Beeland Group was required to submit an analysis of the fluid that will be injected. Beeland Group submitted four analyses that were taken over three months that included lead as an analyte. The highest value that was obtained from the analyses was 5.5 parts per billion, which is less than the maximum contamination levels set in the drinking water standards, 15 parts per billion. Therefore it is not necessary for the company to continue to monitor for lead in the proposed waste stream.

Comment 21- The proposed well increases the risk of injection fluid entering the aquifer via failure in any of those other wells. Additional injection into the same strata will increase fluid pressure, chance of fracturing, and chance of upward migration through new fractures. What numerical modeling of fluid flow and fracture migration has been done to gain insight into this system?

Response- Pressure in the reservoir will be monitored. Beeland Group is required to conduct annual reservoir pressure tests. These tests will indicate whether the pressure is rising in the reservoir. EPA has also calculated the zone of endangering influence, which defines the area where the injection reservoir pressure under the influence of injection activity could cause fluid to move into a USDW. The zone of endangering influence in this case was calculated at 1.4×10^{-5} feet – for practical purposes, zero. EPA has not conducted any numerical modeling of the fluid flow and fracture migration.

Comment 22- Have geophysical surveys thoroughly ascertained the absence of permeable fracture in the Bell shale above the injection layer?

Response- The presence of fractures in a confining zone does not automatically disqualify it as an adequate confining zone. A fracture must be long enough vertically to allow fluid to move through the formation. The proposed confining zone for this site is the Bell Shale, which is approximately 100 feet thick, and the injection zone (Dundee Limestone) is approximately 2,150 feet below the surface. For a fracture to allow injection fluid movement, it would have to extend 1,250 feet from the injection zone to the base of the lowermost underground source of drinking water, and injection would have to take place at a sufficient pressure to keep the fracture open. The likelihood of such a pressure being generated, much less maintained, is extremely remote, and is not considered to be a factor at this site. The injection pressure for this site will be monitored and limited to 150 psig to assure no possibility of fracturing.

Comment 23- Prohibit injection of un-neutralized contaminated surface and groundwater from the Bay Harbor properties and East Park. Un-neutralized fluids may possess characteristics of hazardous waste that could result in malfunctions threatening ground and surface water.

Response- The wastewaters will be neutralized as necessary to ensure that the injectate will have a pH that is non-hazardous.

Comment 24- Relocating the waste will increase the health risk to the area.

Response- The UIC regulations do not require an analysis of health risk. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells. However, the UIC regulations do require the protection of USDW. If a spill does occur, the permittee is ultimately responsible and liable for any contamination on or from the surface.

Comment 25- How will the EPA prevent hazardous fluids from being injected into the non-hazardous Beeland Group well?

Response- The Michigan Department of Transportation requires a hauler of waste to have a manifest. The manifests from the trucks that will be shipping the liquid waste will be submitted to EPA for review. In addition, the company is required to submit monthly monitoring reports to the EPA. These monthly reports will include pH measurements and the measurement of other analytes to determine if the waste is hazardous. The reports will have to be certified by the company manager as accurate.

Comment 26- Wes was told that the injectate is drinkable water.

Response- The injectate will have a concentration of total dissolved solids (TDS) in the 5,000 parts per million (ppm) range. Drinkable water has a TDS concentration of 500 ppm or less. The injectate also does not meet drinking water standards for antimony and arsenic.

Comment 27- CMS's cost for cleanup does not matter compared to possible contamination of the groundwater.

Response- EPA's UIC regulations do not allow for the consideration of cleanup cost. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.

Comment 28- In Antrim and Charlevoix Counties, there are at least two bedrock formations that are used for drinking water, the Antrim Shale and Traverse Limestone. Beeland Group should be required to demonstrate that these formations are not sources of drinking water in this area.

Response- Beeland Group will be required to determine whether the Traverse Limestone is an USDW, during the drilling of the well. If it is determined that the Traverse Limestone is a USDW, Beeland Group will be required to place the surface casing further down, 50 feet into the Bell Shale.

~~**Comment 29-**~~ The pH of untreated leachate would result in hazardous classification, why isn't it?

Response- In order for the leachate to be considered hazardous, the pH needs to be 12.5 or greater. The pH of the wastewater that will be injected is considered non-hazardous because the leachate from the Bay Harbor cleanup is treated to reduce the pH before the fluid leaves the site.

Comment 30- The use of this zone for injection of this "hazardous" waste might impact the rights of others to drill wells into this zone.

Response- The waste proposed for the Beeland Group well is non-hazardous. A waste is hazardous if it is listed in 40 C.F.R. § 261.31-261.3, or if it exhibits any one of the following characteristics and is not specifically excluded from regulation as a hazardous waste in 40 C.F.R. § 261.4:

Ignitability: a flash point of less than 140 °F

Corrosivity: a pH of less than 2.0 or greater than 12.5, or corrodes steel at a rate greater than 6.35mm per year at 55 °C

Reactivity: unstable, reacts violently with water, is sufficiently cyanide or sulfide bearing to produce toxic gas, or is capable of detonation

Toxicity: the TCLP extract contains any of the regulated contaminants at or above the regulatory level.

Property rights issues are outside of the purview of the UIC program. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.

Comment 31- EPA website states that there are 366 Class I non-hazardous injection wells. Does Antrim County now contain more than 1/3 of the Class I injection wells?

Response- If this well is drilled, it will be the first Class I injection well in Antrim County. However, Antrim County does have close to 200 Class II injection wells and a large portion of these wells use the Dundee formation as an injection zone.

Comment 32- In-situ stress tests rely on Beeland Group's honor as there are no requirements that they be observed.

Response- Beeland Group will have a third party conduct most of the tests. A company representative as well as a MDEQ and/or EPA representative will usually witness the test. The only likely exception is the standard annulus pressure test.

Comment 33- What about wells outside 2-mile radius that are into the Niagaran formation, can they leach back up?

Response- Most wells that are in the Niagaran formation are oil producing wells. The proposed injection well will be disposing of fluids into the Dundee Limestone. Since there is no hydrological communication between these formations, there should be no impact on any well that is properly constructed.

Comment 34- EPA/MDEQ did not give a professional opinion about the site Beeland Group has chosen.

Response- The EPA and MDEQ gave professional opinions about the site that was chosen by issuing draft permits.

Comment 35- Injection pressure is going to be 150 psi but the Antrim Shale is at 50 psi so one is going against the other.

Response-

The Antrim Shale is shallower than the Dundee Limestone, so there should be less pressure in the Antrim Shale. This is because hydrostatic pressure increases with depth. There are approximately 800 feet of strata separating the Antrim Shale and the Dundee Limestone. This stratum is comprised of the Bell Shale (confining zone) and the Traverse Limestone. There is no communication between the Dundee Limestone and the Antrim Shale.

The regulations stipulate that a maximum injection pressure must be calculated that would not fracture the injection zone. A typical equation used to calculate maximum injection pressure is

$$[(fg - (0.433 \times (sg + 0.05))) \times depth] - 14.7$$

where fg is the fracture gradient (0.8 psi/ft), sg is the specific gravity of the liquid waste (1.05), depth is equal to 2150 ft, 0.433 is density of water in psi, and 14.7 is a conversion factor from absolute pressure to gauge pressure.

In this instance, the calculated pressure is 681 psi, which is over 500 psi greater than the psi that Beeland Group requested (150 psi).

Also, the well will be constructed with material that will ensure that the fluid is being disposed of in the proper zone. The fluid will be injected through steel tubing that is surrounded by an annular space that is filled with fluid. That annular space is surrounded by 0.724 inch thick steel casing, which is surrounded by a cement sheath.

Comment 36-

1,250 feet separation (from base of USDW) is not all solid rock, but some limestone.

Response-

Limestone is solid rock that is made up of the mineral calcite. Prior to receiving a permit, all Class I injection wells must meet UIC siting requirements. These requirements include the presence of an impermeable confining zone directly above the injection zone. In this case, the Bell Shale that is immediately above the injection zone is mainly shale with a thickness of 100 feet. Shales have very low permeability and prevent vertical migration of fluid. The impermeable confining zone will serve to prevent injection fluid from moving upward out of the injection zone. The permeable zones act as "bleed-off" zones so that if any injection fluid does move above the confining zone, it will be diverted sideways into the permeable zones and not move vertically upward.

Comment 37-

The thickness of the Dundee varies from 50 to 300 feet and in some areas in western and central Michigan the Dundee Limestone is locally missing.

Response-

Drillers' logs and formation records from nearby wells are used to determine the geological data from both the confining zone and injection zone. The geology of Michigan is relatively consistent. Because of this, there should be no significant change in the geology between the proposed

injection well and the nearby disposal wells. Data gathered from hundreds of wells that have been permitted by our office, together with technical studies of the geology of Michigan (i.e., The Hydrogeologic Atlas of Michigan), demonstrate that the Dundee Limestone injection zone exists at that location and over most of the State of Michigan.

Comment 38-

Potential exists to degrade the formation to a degree that it becomes unusable for nearby brine injection.

Response-

This injection operation will only affect a relatively small portion of the Dundee Limestone. Beeland Group has stated that it would likely be injecting only a maximum of 135,000 gallons per day and the operations would likely last for 20 years. This means that the total volume of fluid that would be injected is around 10 billion gallons. A simple volume calculation that includes porosity is

$$r = \sqrt{\frac{V}{(\phi \times \pi \times h)}}$$

where r is the radius in feet, V is the volume in cubic feet (133,680,556 cubic feet), ϕ is the porosity of the formation (0.11), and h is the thickness of the formation (200 ft). Using this calculation we estimate that the injectate will migrate sideways 1,390 feet away from the well into the Dundee Limestone.

In relation to the formation becoming unusable for nearby brine injectors, this is a property rights issue. Property rights issues are not included in the regulations regarding the EPA UIC program.

Comment 39-

The variability and unspecific characteristics of the injectate has the potential to react with the formation and entrained fluids.

Response-

As a part of the permit application, Beeland Group submitted four analyses of the injectate that were taken over a three month period. While there is some variability in the concentrations of some of the analytes, none of constituents are at concentrations that EPA would deem hazardous. An understanding of the fate and interactions of the fluid and the surrounding material is only required for hazardous waste disposal. Since the waste stream is non-hazardous, this is not required for this well. However, this fluid is currently being injected into a commercial non-hazardous disposal well (Davis 1-19) that uses the Dundee Limestone as a part of the injection zone. The Davis 1-19 has not seen any adverse reactions from disposal of Bay Harbor waste. The Agency does not anticipate any adverse reactions between the injection zone and the injectate.

Comment 40-

In places the Antrim Shale is missing.

Response-

EPA, Region 5 has issued close to 200 Class II injection well permits in Antrim County. All these injection wells are disposing of brine produced from Antrim gas production wells. Based on our observations of the

geological data from the injection wells, the Antrim Shale exists in most Antrim County. However the Antrim Shale is not being used as a confining zone at this well. At this proposed site the confining zone is the Bell Shale. The Bell Shale is approximately 800 feet deeper than the Antrim Shale.

Comment 41- Zone of endangering influence was not done adequately.

Response- Calculation of a zone of endangering influence is not required for this well. For a Class I non-hazardous well, a zone of endangering influence is only calculated if there are improperly plugged wells in the area of review. As part of our permit requirements, an applicant for a UIC permit is required to provide information on all active wells as well as plugged and abandoned wells, which penetrated the injection zone within a two mile radius of the proposed injection well. The proposed site for the Beeland Group injection well has been chosen so that no improperly plugged wells or other possible open conduits for fluid flow are located within 2 miles of the proposed injection well.

In the case of the Beeland Group well, EPA conducted a zone of endangering influence evaluation using New Cone, a computer program. Based upon conservative values for thickness (200 ft), porosity (0.11), permeability (1,000 md), and injection rate (200 psi) that were acquired from other wells in the area, it was determined that pressure effects would radiate out from the well to a distance of 1.4×10^5 feet.

Comment 42- Is this proper containment since cement deteriorates over time?

Response- The cement used in the construction and plugging of these wells is essentially pure Portland cement, which increases in strength over its first 20 years. After this period the cement starts to lose strength, however the life time of Portland cement is very long.

Prior to authorization to inject, Beeland Group will be conducting a test that will demonstrate the integrity of the cement behind the casing. During the operational life of the well, Beeland Group will conduct periodic tests to demonstrate the external integrity of the well.

Comment 43- There are 109 wells in the area of review. Some of these wells were never plugged properly.

Response- Review of all plugging records indicates all plugged wells within the area of review that penetrate the injection zone were adequately plugged. An applicant for an UIC permit is required to provide information on all active, plugged and abandoned wells that penetrate the injection zone within a quarter mile area of review of the proposed injection well to assess the potential of upward fluid movement in the area of the well. In this case, a 2-mile area of review was used.

Comment 44- What are the volumes of injectate?

Response- The company is proposing to inject a maximum of 135,000 gallons/day.

Comment 45- Will there be onsite storage if more waste is transported to the well site than can be injected within the pressure constraints? Has Beeland Group applied for additional permits related to this injection well?

Response- The EPA UIC program does not regulate any aspect of the surface facility that does not directly pertain to the injection well. MDEQ is responsible for regulating the surface facility, which includes any onsite storage of the waste. Beeland Group did apply, to the MDEQ, for a permit related to the surface facility.

Comment 46- What are the technical qualifications of the people who made the plans and approved the plans?

Response- The application for the injection well was submitted by professional engineering consultant. The review of this application was done by an Environmental Scientist who works in the UIC program at EPA.

Comment 47- Does the well casing have a cement interior?

Response- All casing strings will be adequately cemented on the outside to preclude the movement of fluids into and between USDWs due to injection operations. As additional protection, injection will take place through tubing which is set within the steel casing. A packer will be set at the bottom of the tubing to seal off the space between the casing and tubing, which will be filled with a liquid mixture containing a corrosion inhibitor, and will allow the pressure in the space to be monitored. The pressure in the space between the tubing and casing is tested initially after the completion of the well and is tested periodically, and the pressure is monitored continuously thereafter to ensure that the well has mechanical integrity.

Comment 48- There are five drinking water wells within ¼ mile from the proposed site.

Response- The proposed injection well will be constructed and operated in such a manner so as to confine the injected fluids to the permitted interval and prevent the movement of any fluids into and between USDWs. As a result, there should be no connection between the operations of this injection well and the nearby drinking water wells.

General Issues

Comment 1- Companies should no longer be allowed to close and have others deal with the contamination.

Response- This question falls outside of the purview of the UIC program. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and

standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.

Comment 2- You said that there are 2,000 wells in Antrim County that have had no problems, this needs to be withdrawn and corrected.

Response- What the permit writer said was that there are around 200 Class II injection wells in Antrim County.

Comment 3- Injection is already taking place. There are black and red tanker trucks who are transporting the contaminated groundwater to Antrim County.

Response- Since the proposed injection well is not yet drilled, no injection is currently taking place.

Comment 4- Did EPA and MDEQ consider the potential for nuisance suits brought on by 24-hour truck traffic and depreciated land values as well as contaminated groundwater?

Response- The potential for nuisance suits and depreciation of land value are not considered in the review of a UIC permit application. The main purpose of the UIC program is to protect underground sources of drinking water. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved.

Comment 5- Bad decisions have compromised the strength of environmental laws.

Response- The EPA is unsure of what the commenter is referring to without any specific examples.

Comment 6- Make them dispose of this water in a way that will not threaten people.

Response- Beeland Group will be disposing of the water in a way that will not threaten people. Its chosen method of dealing with the leachate is deep well injection. In order to insure that the method of disposal is safe, EPA regulates underground injection through the UIC program. Since the implementation of the UIC program, there have been no confirmed cases of USDW contamination due to liquid waste injection through a properly operated Class I well.

Comment 7- Discourages EPA from issuing a permit for injection well construction.

Response- As long as the applicant meets all of the requirements in 40 C.F.R. Parts 144 and 146, the EPA is required to issue an injection well permit.

Comment 8- The EPA (are) servants of the rich and not protectors of the land. The only thing the EPA cares about is money.

Response- One of EPA's main missions is the protection of human health and the environment. EPA implements the Safe Drinking Water Act (SDWA) enacted by Congress and the regulations promulgated pursuant to the SDWA. The SDWA and the regulations are the only thing that the Agency can take into consideration when determining the soundness of an injection well permit application.

Comment 9- Did EPA give developers permission to build homes on the old cement plant site?

Response- The EPA did not give permission to build homes on the old cement plant site. EPA does not regulate construction of houses.

Comment 10- EPA and MDEQ ask people to comment on the technical issues the people don't understand.

Response- EPA evaluates each permit application based upon information given to the Agency from the applicant and from other sources. The public comment period and public hearing gave the public a chance to add to the evaluation.

Comment 11- These groups were working hard to slip this well into our area quietly so that when we figure out what is happening -- it will be too late.

Response- EPA sent public notices to the landowners within a half-mile of the well on April 12, 2007. In addition, notices were placed in the Gaylord Herald Times. EPA does not require the company to provide public notice to the community. However, in this case CMS participated in a town meeting at Alba Town Hall on May 2, 2007 and the June 13, 2007 public meeting at the Alba Public School Gymnasium.

Comment 12- Can input from the public really make a difference in whether the permit is issued? Have public comments/inputs ever stopped a permit from being received?

Response- Input from the public does make a difference. There have been several instances where EPA has requested more information from the applicant due to public comments. One example of this was the Class I hazardous injection wells permits for Environmental Disposal Systems. Based on public comments about the injection zone's infinite-like nature, the UIC branch discovered a pinch-out in the injection zone about 30 miles from the proposed site. The UIC branch requested that the applicant reevaluate the model that was used for the land ban decision. The applicant's response showed that the land ban decision was still appropriate. Public comments have not stopped a UIC permit from being issued in Region 5, however a few applicants have withdrawn their applications after the public comment period.

Comment 13- Who else will use the well if it is approved?

Response- The only company that will be authorized to use the well is Beeland Group.

Comment 14- What is happening to wells in Johannesburg and Petoskey that you are shutting down?

Response- The well in Johannesburg is not shutting down. This is a commercial non-hazardous well that is owned by Northeastern Exploration, Inc. CMS has decided that it would rather own a well than send the waste stream to Northeastern Exploration, Inc. There are no injection wells in Petoskey.

Comment 15- What is happening at Bay Harbor to eventually stop the leachate (how long will that well be needed)?

Response- There are no current plans to stop the leachate. However, at East Park a clay cap has been emplaced to help reduce the infiltration of the water to the cement kiln dust piles. There is also a plan to install up gradient pumping wells to help divert groundwater thereby reducing contaminated leachate. Currently there are no systems installed to reduce or eliminate leachate formation at the other areas of the Bay Harbor site.

Beeland Group stated in its permit application that it believes that it would need the well for 20 years. Class I non-hazardous permits expire after 10 years. At that time, the company must reapply for a new permit or plug the well.

Comment 16- No one cares what happens to this community.

Response- EPA does care. Congress created the UIC program to regulate injection wells and prevent contamination of groundwater. The UIC program also helps ensure that operators of injection wells are held responsible for any contamination which occurs due to their injection and are liable for clean up, including ground water remediation.

Comment 17- Provide a copy of applicable appeal procedures for any decision of either EPA or MDEQ to grant this permit. After a permit is issued, can the public stop the process?

Response- Anyone who provided comments to EPA, either verbally at the public hearing or in writing, concerning this permit action can appeal the EPA permit. Procedures for filing an appeal of EPA's permit approval for a Class I non-hazardous injection well can be found at the end of this document. Procedures to appeal an MDEQ decision should be obtained from the MDEQ.

Comment 18- Use kiln dust mixed with tar as an aggregate.

Response- This is outside of EPA's purview in relation to the permitting action. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and

standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.

Comment 19- What are the methods to be employed to prevent and fully contain spills of the injectate?

Response- Surface spills are outside of the purview of the UIC program. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. Issues related to the containment of fluid at the surface should be discussed with the MDEQ.

Comment 20- MDEQ and EPA are trying to hide a problem so it looks as if they fixed it.

Response- EPA is unclear to what this commenter is referring.

Comment 21- Property value within 5 miles of the well will decrease to nothing.

Response- Real estate values are not addressed by the UIC regulations.

Comment 22- Underground flowlines leak detection – by visual observation – how is this possible?

Response- Flowline construction and monitoring is not addressed by the UIC regulations. For more information about requirements for flowlines, we suggest that you contact MDEQ.

Comment 23- The State has not been pre-empted by the Federal Government from protection (of) the resources of the State of Michigan.

Response- This comment is not relevant to this permit decision, which is governed by 40 C.F.R. Parts 144 and 146. The State of Michigan does not have primacy for the federal UIC program. The State would need to apply for primacy. This process allows the State to obtain a program that is no less stringent than the federal UIC program.

Comment 24- The permit provides no protection from potential sabotage or terrorist use.

Response- EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. Issues concerning the Department of Homeland Security are not addressed by the UIC regulations. However, the UIC permits for the Beeland Group well require continuous monitoring of the injection well, an alarm system and automatic shut-down mechanisms under 40 C.F.R Part 146, in the event of sabotage or other malfunctions.

Comment 25- How are you going to fix a leak?

Response- Beeland Group is required to shut down the well immediately in the event of a known or suspected leak. Beeland Group will be required to inform EPA within 24 hours of the known or suspected leak. Once the leak is fixed, Beeland Group will be required to test the well to verify that it is no longer leaking. Results from the testing will be evaluated prior to giving Beeland Group authorization to inject again.

Comment 26- Why are you moving rainwater from kiln dust?

Response- EPA is not removing anything from the Bay Harbor site. CMS is conducting all of the remediation work at the site. CMS is only removing rainwater that is collected in the collection trenches. This water is being removed because it is mixing with the contaminated groundwater that is being collected.

Comment 27- Water could be processed cheaper then trucking it to Antrim County.

Response- EPA's UIC regulations do not allow us to choose the method that CMS uses to treat or dispose of the wastewater. The only things that EPA can consider in relation to the disposal well can be found in 40 C.F.R. Parts 144 and 146 which state the requirements and standards that a permit applicant must meet to have a UIC permit application approved.

Comment 28- Beeland Group must have ownership of the waste that it plans to dispose.

Response- Ownership issues are outside of the purview of the UIC program. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved.

Comment 29- The permit application should be reviewed with a fine tooth comb.

Response- EPA thoroughly reviewed the permit application.

Comment 30- Will the EPA or MDEQ ultimately have to clean up this injection well site if the leachate does not stay where you are proposing the injection?

Response- The permittee is ultimately responsible and liable for any contamination on or from the site.

Comment 31- EPA and MDEQ have already made the decision.

Response- Every permit application for a Class I injection well is reviewed thoroughly for completeness and technical soundness. The construction and proposed operation of any well must meet all standards necessary for the protection of all USDW. Once all the requirements are met, EPA places a draft permit on public notice for 30 days to obtain public comment. If we receive many comments on the draft permit decision, we hold a hearing, and publish a notice of the hearing at least 30 days before

the hearing. We consider all comments received and then issue a final permit decision.

Comment 32- Mr. Bates did not answer my question previously.

Response- Mr. Bates sent a letter to the commenter and informed him that those comments would be incorporated into this document and a response would be given here, so all of the public can read the response.

Comment 33- Mineral owners within 2-mile radius may have their mineral rights impacted.

Response- Issuance of a Class I injection well permit by EPA is based on consideration of the siting, construction and proposed operation of the well. Under federal UIC regulations, a permittee is not required to demonstrate ownership or legal access to all properties, only that the operation will not allow contaminants into an USDW. However, issuance of a permit neither confers the right to trespass nor conveys property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations.

Comment 34- Can anyone prove that a 3rd site is needed?

Response- How CMS chooses to dispose of the wastewater is not EPA's decision. Regulations only allow the UIC program to evaluate the proposed method of disposal and to determine whether it is appropriate. Regulations for requirements for injection wells are in 40 C.F.R. Parts 144 and 146. These are the only items that EPA can take into consideration.

Comment 35- Why are injection wells permitted in Michigan and not other states?

Response- More than half of the states in the United States have issued permits for injection wells and Michigan is one those states.

Comment 36- This well has number 1 in the name – does this mean that number 2, 3, etc are coming?

Response- Beeland Group has not stated whether it is considering any additional wells for this site in the future.

Comment 37- Can Beeland Group prevent production wells from being drilled in the area because Beeland Group injected contaminants into Dundee?

Response- Most production wells in Antrim County are either producing gas from the Antrim Shale or oil from the Niagaran Formation. The proposed injection well will dispose of fluids into the Dundee Limestone. Since there is no hydrological communication between these formations, there should be no impact on production well activities.

- Comment 38-** One commenter wrote that he demands accountability.
- Response-** Ultimately the Beeland Group is responsible and liable for any contamination on or from the site.
- Comment 39-** Request for US Attorney General and Michigan Attorney General to convene both a federal and State Grand Jury investigation into how the government allowed for this development without proper treatment of waste prior to the development being commenced.
- Response-** This comment is outside the purview of this permitting action. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved.
- Comment 40-** The golf course should have never been built.
- Response-** This comment is beyond the scope of this permitting action. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.
- Comment 41-** Cites the Precautionary principle "When an activity raises threats of harm to humans or the environment, precautionary measures should be taken even if some cause and effect relationships have not been established scientifically." EPA should apply this to Alba.
- Response-** Deep injection wells have a well established history since the start of the UIC program. Since the implementation of the UIC program, there have been no confirmed cases of USDW contamination due to liquid waste injection through a properly operated Class 1 well. There have been quite a number of studies on the safety of injection wells, both by the federal government and individual states.
- Comment 42-** Was there criminal culpability between CMS, Governor Engler and MDEQ?
- Response-** This comment is beyond the scope of this permitting action. EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have a UIC permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells.
- Comment 43-** One commenter cites the EPA Class I Underground Injection Control Program: Study of the Risks Associated with Class I Underground Injection Wells Section IV: Oversight of Class I wells. This section states that the intended injection zone must have no economic value. The

commenter suggests that since this is a residential and farming community and the site is within both, it seems improbable that this site can or should be considered.

Response-

In the referenced document, the term economic value relates to being able to use the intended injection zone underground for drinking or agricultural purposes, or that the intended zone contains economically valuable quantities of oil or gas. Since the injection zone has a total dissolved solids of greater than 10,000 mg/L, it would not be suitable for drinking or agricultural purposes. In addition, there is no information suggesting that the intended zone has economically valuable quantities of oil or gas. Therefore the intended injection zone is not of any economical value.

Appeal

In accordance with 40 C.F.R. § 124.19, any person who filed comments on the draft permit or participated in the public hearing may petition the Environmental Appeals Board to review any condition of the final permit decision. Such a petition shall include a statement of the reasons supporting review of the decision, including a demonstration that the issue(s) being raised for review were raised during the public comment period (including the public hearing) to the extent required by these regulations. The petition should, when appropriate, show that the permit condition(s) being appealed are based upon either, (1) a finding of fact or conclusion of law which is clearly erroneous, or (2) an exercise of discretion or an important policy consideration which the Environmental Appeals Board should, in its discretion, review.

If you wish to request an administrative review, you must submit such a request by regular mail to the United States Environmental Protection Agency, Clerk of the Board, Environmental Appeals Board (MC 1103B), Ariel Rios Building, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20460-0001. Requests sent by express mail or hand-delivered must be sent to the United States Environmental Protection Agency, Clerk of the Board, Environmental Appeals Board, Colorado Building, 1341 G Street, NW, Suite 600, Washington, D.C. 20005.

The request must arrive at the Board's office on or before **March 12, 2008**. The request will be timely if received within this time period. For this request to be valid, it must conform to the requirements of 40 C.F.R. § 124.19. A copy of these requirements is attached (Attachment A). This request for review must be made prior to seeking judicial review of any permit decision.

Final Permit

The final permit is available for viewing at:

Bellaire Library: South Bridge Street, Bellaire, Michigan; Wednesday 10 a.m. to 5 p.m., Thursday and Friday 9 a.m. to 5 p.m., Saturday 10 a.m. to 1 p.m.

Mancelona Township Library: 202 State Street, Mancelona, Michigan; Tuesday and Thursday 9 a.m. to 12 p.m., 1 p.m. to 5 p.m., and 7 p.m. to 9 p.m., Friday 12 p.m. to 5 p.m.

Environmental Protection Agency, Region 5: 77 West Jackson Boulevard, Chicago, IL; Monday through Friday 8 a.m. to 4:30 p.m. Contact William Bates by phone at (312) 886-6110 or by e-mail at bates.william@epa.gov.

Appendix

Environmental Justice Screening Evaluation: Alba UIC Well

September 27, 2007

Background: permit application.

The Beeland Group LLC has applied to EPA and MDEQ for permits to build a newly drilled Class I non-hazardous injection well located in Michigan, Antrim County, T30N, R5W, Section 14, SE Quarter Section, to dispose of treated, contaminated groundwater from the cleanup of the Little Traverse Bay CKD Release Site in Bay Harbor, Michigan. EPA and MDEQ held a public meeting and hearing on the proposed permits on June 13 at the Alba Public School Gymnasium; with the public comment period ending June 27, 2007. EPA extended this deadline to July 27, 2007.

If approved, the permit would only allow the disposal of non-hazardous, liquid waste. The company proposed to send the wastewater deep underground, more than 1,000 feet below the closest source of drinking water. The well would be located a quarter mile west of the intersection of Alba Highway/County Road 42 and Patterson Road.

Background: environmental justice assessment.

EPA's Toolkit for Assessing Potential Allegations of Environmental Injustice ("Toolkit") serves as a reference guide to help Agency personnel assess potential allegations of environmental injustice. As stated in the desk reference for this Toolkit:

Because of the infinitely variable nature of environmental justice problems and stakeholders, as well as the resources available to address any particular situation, neither this document nor the complete Toolkit are intended to mandate an assessment or actions to be taken in each situation. Rather, they are intended to promote a common understanding and provide a flexible framework for assessing and addressing such situations.

This framework involves four phases:

Phase 1 - Problem Formulation

Phase 2 - Data Collection

Phase 3 - Assessment of the Potential for "Adverse" Environmental and Human Health Effects or Impacts

Phase 4 - Assessment of Potential for "Disproportionately High and Adverse" Effects or Impacts

Environmental justice assessment of the proposed UIC well.

This assessment follows the Toolkit framework, combining Phases 3 and 4 for the sake of clarity.

Phase 1: Problem Formulation

The context of this assessment is the draft permit identified above. Some comments that were received during the public hearing and public notice period on this draft permit raised concerns about environmental justice, including:

- Comment 21-** Concern that the decision was not based on technical reasons and was influenced by the economic status of proponents of injection well permit;
- Comment 22-** Concern that the “rich people from Bay Harbor” expect to dump their toxic water in the “poor people’s backyards”; and
- Comment 23-** Question whether environmental justice was being adequately considered and addressed in this permitting decision.

The scope of this assessment is to identify whether the area surrounding the proposed UIC well presents potential environmental justice concerns that should be the subject of further analysis and assessment.

Phase 2 - Data Collection

This assessment uses readily-available data reflecting the range of Environmental Justice Indicators included in the Toolkit: Environmental Indicators; Health Indicators; Social Indicators; and Economic Indicators.

This assessment also relies on the data and analyses on which EPA based its decision to propose this UIC permit.

Phases 3 and 4 - Assessment of the Potential for “Adverse” Environmental and Human Health Effects or Impacts; Assessment of “Disproportionality” in the case of potential “Adverse” effects or impacts.

EPA’s permitting analysis evaluates the potential for adverse environmental and human health effects or impacts from this proposed UIC well. This analysis is discussed in the technical overview of the UIC program, at http://www.epa.gov/safewater/uic/pdfs/uic_techovrview.pdf. As discussed in that document at page 17, to obtain a permit for a new Class I well, an applicant

must provide sufficient data to demonstrate that USDWs will be protected. The key areas of information are: 1) geological considerations used in the well siting and design, especially information on all USDWs penetrated by the injection well; 2) the structural integrity of the well; 3) the specific operational considerations used in well design; 4) information on the status of wells in the area of review that penetrate the injection zone; and 5) the proposed monitoring of the facility. The monitoring program must consider quantity and quality of injected fluids and existing reservoir conditions. Operators must submit data on all existing and abandoned wells that penetrate the injection zone within the area of review of all newly drilled or converted injection wells. Information that

would allow calculation of the injection pressure curve must be submitted. This submittal must detail the casing and cementing information for all wells in the area of review. The Director uses this information to determine if wells in the area of review require corrective action prior to commencement of injection. The applicant must also provide an appropriate demonstration of financial responsibility for operation and closure of the facility.

Michigan Department of Environmental Quality (MDEQ) also permits underground injection wells within the State of Michigan. Although not directly a part of the permit, MDEQ administrative rules require the permittee to develop a secondary containment area, to conduct a hydrological study of the area, and to construct a monitoring well down gradient from the facility that would be monitored on a regular basis.

This technical analysis indicated that all requirements necessary to prevent adverse impacts are met for this proposed UIC well.

Region 5 uses a two-mile radius for area of review for Class I non-hazardous wells. Within the area of review there are approximately 109 wells. Out of the 109 wells there are only four wells that penetrate the injection zone. Three of these wells are disposing of fluid related to oil and gas production. These well have been constructed appropriately and would not likely pose as a conduits for fluid migration. The final well has been plugged and abandoned to the EPA's satisfaction. The zone of endangering influence defines the area where the injection reservoir pressure under the influence of injection activity could cause fluid to move into a USDW. The zone of endangering influence in this case was calculated at 2.99×10^{-9} feet – for practical purposes, zero.

In addition to the permitting analysis, this EJ assessment considers the following available indicators to screen for other adverse effects or impacts that could be in the area surrounding this proposed facility; and to identify whether there may be greater population vulnerability:

> Sociodemographic indicators

Sociodemographic data was collected with EPA's Environmental Justice Geographic Assessment Tool, for radii around the study area of .5 miles, 1 mile, and 2 miles. This data was compared to county and state data.

The data indicates that, for any of these radii, the percent of minority and percent of people below the poverty level are at or below state-level percentages; and are comparable to county-level percentages. The data does not indicate any language or education barriers that might significantly hinder this community's ability to participate in the decision-making process. It also does not indicate a higher concentration of vulnerable members of the population (children and elderly) than in the comparison populations.

> Compliance indicators:

A review of EPA facility data for zip code 49611 did not indicate any regulated facilities in the Enforcement and Compliance History Online (ECHO) database, at:
< <http://www.epa-echo.gov/echo/index.html> >.

> Human health indicators:

County-level infant death rates are available for Michigan at <
<http://www.mdch.state.mi.us/pha/osr/InDxMain/Tab3.asp>>. The rate in Antrim County is 4.8, ± 3.8 per 1,000. This is well under the state average of 7.9 ± 0.2 per 1,000.

Cancer rates are available at
<http://www.mdch.state.mi.us/pha/osr/Index.asp?Id=4&MainFile=MAINMORT.HTM&BookMark=>.

For Michigan, 3-year average 2004-2006, age-adjusted rate: 190.3 ± 1.5 per 100,000
For Antrim County, 3-year average 2004-2006, age-adjusted rate: 185.5 ± 26.6 per 100,000.

For Michigan, 5-year average 2002-2006, age-adjusted rate: 192.0 ± 1.2 per 100,000
For Antrim County, 5-year average 2002-2006, age-adjusted rate: 181.6 ± 20.7 per 100,000.

In each case, cancer rates in Antrim County are lower than those in the State of Michigan as a whole. This indicates the absence of disproportionate impacts in Antrim County.

> Environmental Indicators:

Criteria air pollutants

Antrim County is in attainment with health-based standards for all the criteria pollutants (ozone, PM-2.5, coarse PM, carbon monoxide, lead, nitrogen oxide, and sulfur dioxide).
See < <http://www.deq.state.mi.us/documents/deq-aqd-air-aqe-attainment-by-county-map.htm>>.

Air Toxics: National Air Toxics Assessment ("NATA") (1999)

This indicator provides a readily-available, nationally consistent indication of environmental risks from air toxics. The data for this assessment is available from <
<http://epa.gov/ttn/atw/nata1999/>>. The data examined was for the census tracts that contain and surround the proposed UIC well.

The hazard index ("HI") (respiratory) is:

Census Tract ID	2000 Population	Major Source HI	Area Source HI	On-Road HI	Non-Road HI	Background HI	Total HI
26009960200	3224	0.0348665	0.0945	0.3379644	0.1188245	0.1684894	0.7544768
26009960700	4580	0.0652256	0.1165166	0.3151449	0.1265414	0.1692898	0.7927311

The hazard index (neurological) is:

Census Tract ID	2000 Population	Major Source HI	Area Source HI	On-Road HI	Non-Road HI	Background HI	Total HI
26009960200	3224	0.0577403	0.0123543	0.0015833	0.0013969	0.0222609	0.0953291
26009960700	4580	0.0006664	0.0058523	0.0013239	0.0014687	0.022342	0.0316551

As stated in the NATA glossary: "aggregate exposures below a HI of 1.0 will likely not result in adverse non-cancer health effects over a lifetime of exposure. However, an HI greater than 1.0

does not necessarily suggest a likelihood of adverse effects.”

(<http://epa.gov/ttn/atw/nata/gloss1.html>). Therefore, this data does not indicate any adverse non-cancer health effects.

The cancer risk (per million) for these census tracts is:

Census Tract ID	2000 Population	Major SOURCE CANCER RISK	Area Source Cancer Risk	On-Road Cancer Risk	Non-Road Cancer Risk	Background Cancer Risk	Total Cancer Risk
26009960200	3224	0.6352574	1.8717549	0.9401078	0.319747	8.5019086	12.268251 (1.23E-05)
26009960700	4580	0.0260292	2.1815792	0.7873265	0.3386762	8.488487	11.821174 (1.18E-05)

Unlike the non-cancer “hazard index” measure, cancer risk does not have an adversity threshold, although there are different benchmarks for acceptable risk used in different regulatory contexts. Therefore, the “disproportionality” step of this analysis takes the conservative approach of comparing the census tract cancer risks to multiple comparison areas, to determine whether there could be “disproportionately high and adverse” cancer risks compared to any benchmark. The risk calculated under NATA is at the low end of the range of cancer risks, both nationally and for census tracts in Michigan and Antrim County; and is below the average for each of these comparison areas:

Estimated Risk (*1000000 = risk in a million) for all carcinogens

Percentile Distribution of Risk Across Census Tracts

	5th	10th	25th	Median	Average	75th	90th	95th
Nationwide	1.06E-05	1.32E-05	2.29E-05	3.66E-05	4.15E-05	5.16E-05	7.47E-05	9.34E-05
Michigan Total	1.14E-05	1.46E-05	2.52E-05	4.09E-05	4.07E-05	5.55E-05	6.55E-05	7.53E-05
Antrim County	4.13E-06	8.26E-06	1.22E-05	1.29E-05	1.31E-05	1.38E-05	1.43E-05	1.43E-05

Therefore, whatever the appropriate benchmark for cancer risk in this case, there is no indication of disproportionate distribution of that risk to the study area.

Conclusion

This screening analysis was carried out to ensure that environmental justice concerns are appropriately considered and addressed in the Alba UIC well permitting decision. Based on the data discussed above, this analysis does not indicate the presence of environmental justice concerns that require further evaluation or response in the area of the proposed UIC well.

In particular, the economic status of the population surrounding the proposed UIC well is comparable to that of Antrim County and of Michigan. Further, EPA carried out extensive technical analysis in support of the draft permit, without reference to the economic status of either the permit applicant or the population surrounding the proposed UIC well.

A review of compliance, human health, and environmental indicators did not reveal any potential disproportionately high and adverse impacts on the community surrounding the well, beyond those impacts that were considered and addressed in the course of EPA’s permitting analysis. To the contrary, no EPA-regulated facilities were found within the zip code containing the facility; Antrim County infant mortality and cancer rates are below those for the State of Michigan; national air toxics data indicates no adverse non-cancer health effects; and national air toxics

§124.19 Appeal of RCRA, UIC, and PSD permits.

(a) Within 30 days after a RCRA, UIC, or PSD final permit decision (or a decision under §270.29 to deny a permit for the active life of a RCRA hazardous waste management facility or unit) has been issued under §124.15, any person who filed comments on that draft permit or participated in the public hearing may petition the Environmental Appeals Board to review any condition of the permit decision. Any person who failed to file comments or failed to participate in the public hearing on the draft permit may petition for administrative review only to the extent of the changes from the draft to the final permit decision. The 30-day period within which a person may request review under this section begins with the service of notice of the Regional Administrator's action unless a later date is specified in that notice. The petition shall include a statement of the reasons supporting that review, including a demonstration that any issues being raised were raised during the public comment period (including any public hearing) to the extent required by these regulations and when appropriate, a showing that the condition in question is based on:

(1) A finding of fact or conclusion of law which is clearly erroneous, or

(2) An exercise of discretion or an important policy consideration which the Environmental Appeals Board should, in its discretion, review.

(b) The Environmental Appeals Board may also decide on its initiative to review any condition of any RCRA, UIC, or PSD permit issued under this part. The Environmental Appeals Board must act under this paragraph within 30 days of the service date of notice of the Regional Administrator's action.

(c) Within a reasonable time following the filing of the petition for review, the Environmental Appeals Board shall issue an order granting or denying the petition for review. To the extent review is denied, the conditions of the final permit decision become final agency action. Public notice of any grant of review by the Environmental Appeals Board under paragraph (a) or (b) of this section shall be given as provided in §124.10. Public notice shall set forth a briefing schedule for the appeal and shall state that any interested person may file an amicus brief. Notice of denial of review shall be sent only to the person(s) requesting review.

(d) The Environmental Appeals Board may defer consideration of an appeal of a RCRA or UIC permit under this section until the completion of formal proceedings under subpart E or F relating to an NPDES permit issued to the same facility or activity upon concluding that:

(1) The NPDES permit is likely to raise issues relevant to a decision of the RCRA or UIC appeals;

(2) The NPDES permit is likely to be appealed; and

(3) Either: (i) The interests of both the facility or activity and the public are not likely to be materially adversely affected by the deferral; or

(ii) Any adverse effect is outweighed by the benefits likely to result from a consolidated decision on appeal.

(e) A petition to the Environmental Appeals Board under paragraph (a) of this section is, under 5 U.S.C. 704, a prerequisite to the seeking of judicial review of the final agency action.

(f) (1) For purposes of judicial review under the appropriate Act, final agency action occurs when a final RCRA, UIC, or PSD permit is issued or denied by EPA and agency review procedures are exhausted. A final permit decision shall be issued by the Regional Administrator:

(i) When the Environmental Appeals Board issues notice to the parties that review has been denied;

(ii) When the Environmental Appeals Board issues a decision on the merits of the appeal and the decision does not include a remand of the proceedings; or

(iii) Upon the completion of remand proceedings if the proceedings are remanded, unless the Environmental Appeals Board's remand order specifically provides that appeal of the remand decision will be required to exhaust administrative remedies.

(2) Notice of any final agency action regarding a PSD permit shall promptly be published in the Federal Register.

(g) Motions to reconsider a final order shall be filed within ten (10) days after service of the final order. Every such motion must set forth the matters claimed to have been erroneously decided and the nature of the alleged errors. Motions for reconsideration under this provision shall be directed to, and decided by, the Environmental Appeals Board. Motions for reconsideration directed to the administrator, rather than to the Environmental Appeals Board, will not be considered, except in cases that the Environmental Appeals Board has referred to the Administrator pursuant to §124.2 and in which the Administrator has issued the final order. A motion for reconsideration shall not stay the effective date of the final order unless specifically so ordered by the Environmental Appeals Board.