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IN RE: )  
 )  
BEELAND GROUP, LLC )  
BEELAND DISPOSAL WELL #1 )  
 )  
 )  
UIC PERMIT NUMBER: MI-009-11-0001 )

Appeal No. UIC 08-\_\_\_\_\_

**PETITION FOR REVIEW**

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## TABLE OF CONTENTS

I. Introduction .....	4
II. Factual Background .....	5
III. Threshold Procedural Requirements.....	7
IV. Standard of Review.....	8
V. Argument .....	8
A. The Permit is Not Protective of the Drinking Water and is Not Supported by the Record.....	8
1. The Conclusion That The Bell Shale is an Impermeable Confining Zone is Erroneous as No Data to Support This Conclusion Was Submitted.....	9
2. There is insufficient data on the quality of the injected fluids, existing reservoir conditions, and effect of the injectate on the surrounding material and fluids.....	11
3. Waste Characterization and Effects of the Leachate Were Not Appropriately Considered.....	15
B. The EPA's Failure to Require the Documentation and Analyze the Environmental Consequences and Potential for Adverse Effects violates the SDWA and NEPA.....	16
C. The EPA's Response to Public Comment is Erroneous.....	17
D. There are Strong Policy Considerations That Warrant a Remand of the Permit .....	18
1. Environmental Justice.....	18
2. No evidentiary hearings were held.....	19
VI. Conclusion and Relief Requested.....	20

## INDEX OF AUTHORITIES

40 C.F.R. § 124.17(a)	17
40 C.F.R. § 124.18	17
40 C.F.R. § 124.19; Fed. Reg. 33, 412 (1980)	4,8
40 C.F.R. § 124.19(a)	4,7,8
40 C.F.R. § 144.52(a)(9)	5, 18, 19
40 C.F.R. § 146.12	5
40 C.F.R. § 146.13	5
40 C.F.R. § 146.70	15
<i>In re Amerada Hess Corp.</i> , 12 E.A.D. 1 (EAB 2005)	8
<i>In re Atochem N. Am., Inc.</i> , 3 E.A.D. 498, 499 (Adm'r 1991)	17
<i>In re Beckman Prof. Servs.</i> , 8 E.A.D. 302, 311 (EAB 1999).	8
<i>In re Chemical Waste Management of Indiana, Inc.</i> , 6 E.A. D. 66 (EAB 1995)	18
<i>Envotech L.P.</i> , 6 E.A.D. 260, 278 (EAB 1996)	18
<i>In re Federated Oil &amp; Gas of Traverse City, Michigan</i> , 6 E.A.D. 722, 725 (EAB 1997)	8
<i>In re Rockgen Energy Ctr.</i> , 8 E.A.D. 536, 556 (EAB 1999)	17
<i>Western Nebraska Resources Council vs EPA</i> , 8 <sup>th</sup> Cir. Court of Appeals (1991)	17

## I. INTRODUCTION

Pursuant to 40 C.F.R. § 124.19(a), Star Township, Antrim County, and Friends of the Jordan River (“Petitioner” ) petitions for review of the conditions of UIC Permit No. MI-009-11-001 (“the Permit”), which was issued to Beeland Group, LLC (“Permittee” or “Beeland ”) on February 9, 2008, by the U.S. EPA Region 5. The permit at issue in this proceeding authorizes Beeland to dispose of 135,000 gallons per day of cement kiln dust leachate transported from Bay Harbor, Michigan and injected through an injection well to be drilled in Alba, Michigan. Pursuant to 40 CFR 124.19, Petitioner respectfully petition the EAB to review the Response to Comments and the Permit conditions. Petitioner contends that certain permit conditions and the EPA’s Response to Comments are based on clearly erroneous findings of fact and conclusions of law, were the result of an inappropriate exercise of discretion by the EPA, and that there are important policy considerations relating to the Permit that the EAB should review.

. Specifically, petitioner challenges the following permit conditions:

1. The Permit conditions are not protective of the drinking water.
2. The conclusion that the Bell Shale is an impermeable confining zone is erroneous as no data to support this conclusion was submitted.
3. There is insufficient data on the quality of the injected fluids, existing reservoir conditions, and effect of the injectate on the surrounding material and fluids.
4. Waste characterization and effects of the leachate were not appropriately considered
5. The EPA's failed to require documentation and analyze the environmental consequences and potential for adverse effects in violation of the SDWA and NEPA.
6. The public was not provided with all relevant information for purposes of full and fair public participation which is an inappropriate exercise of discretion by the EPA.
7. Policy considerations warrant review of the permit.
8. The EPA failed to include an analysis focused particularly on the low-income community whose water is threatened in violation of the environmental justice provisions under Executive Order 12898 and 40 C.F.R. § 144.52(a)(9).

## **II. FACTUAL BACKGROUND**

Beeland applied in 2007 for a Class I underground injection control (UIC) permit for the disposal of "non-hazardous", non-commercial Class I industrial waste from cement kiln dust leachate emanating from Bay Harbor, Michigan ("CDK leachate" or "leachate") from the U.S. Environmental Protection Agency, Region V, UIC Branch pursuant to 40 CFR Parts 124, 144, 146 and 147 et seq. This federal permit requires that the proposed Beeland UIC be protective of underground sources of drinking water, i.e. located beneath the lowermost water bearing zone. The federal UIC permit (MI-009-11-0001) was issued by the US EPA effective March 12, 2008, and covers the proposed deep injection well location geology, well engineering/construction (§146.12 and §144.51 et seq.), well operations (§146.13) and well monitoring (§144.52 and §146.13 et seq.) only. The permit allows the injection of Bay Harbor CDK leachate into the Dundee Limestone at depths between 2,150 and 2,450 feet below ground surface. The Permit requires the monthly characterization and reporting of waste stream chemistry, but does not require on-site groundwater monitoring. *Permit, Exhibit A.*

Beeland also applied for a non-hazardous injection well permit from the Office of Geological Survey (OGS), Michigan Department of Environmental Quality (MDEQ) on January 5, 2007 pursuant to the Mineral Wells Act, Part 625 of Michigan's Natural Resources and Environmental Protection Act, P.A. 451 of 1994, as amended. The Part 625 state permit (Permit No. M-523, dated February 7, 2008) covers the proposed injection well and an associated proposed surface facility involving the on-site storage/disposal of up to 135,000 gallons per day.

The proposed well is intended to receive CDK leachate collected from a portion of one of the CDK piles at the Bay Harbor facility, and that the highly alkaline pH of the leachate will be treated, i.e. mixed, with sulfuric acid to lower or "neutralize" its pH only prior to transport, storage and injection at the injection well site. The heavy metals in the leachate will not be treated.

There was strong opposition to the transportation and injection of the leachate into the Alba community. Objections were raised that included lack of data that the Bell Shale will be a confining layer; lack of protection of the groundwater and drinking water if there is a leak or spill from the surface piping or structures; the improper characterization of the leachate as non-hazardous; failure of analysis pertaining to the effect of the leachate on the surrounding formation and the fluids; lack of information on formation pressures and improper interpretation of the cone of influence; failure of Beeland to submit required documentation or adequate data; and environmental justice (Bay Harbor resort is an affluent community with homes valued in multi-million dollar range, whereas Alba is a very poor rural community). No evidentiary hearings have been held prior to the issuance of the Permit to allow testimony by Petitioners experts.

### III. THRESHOLD PROCEDURAL REQUIREMENTS

Petitioners satisfy the threshold requirements for filing a petition for review under

Part 124, to wit:

- 1 Petitioner Star Township, whose address is Township Hall, 6775 Alba Hwy, Alba, MI 496111, is the township within which the Disposal Well will be drilled and participated in the public comment period on the permit.
- 2 Petitioner Antrim County, whose address is Antrim County Building, 203 E. Cayuga, Bellaire, MI 49615, is the county within which the Disposal Well will be drilled and participated in the public comment period on the permit.
- 3 Petitioner Friends of the Jordan River, whose address is P.O. Box 412, East Jordan, MI 49727, is a non-profit 503(C) organization whose members use and enjoy the Jordan River as well as the surrounding and associated natural resources and participated in the public comment period on the permit.
- 4 Petitioner has standing to petition for review of the permit decision because it participated in the public comment period on the permit. See 40 C.F.R. § 124.19(a).
- 5 Petitioner, through its agents and representatives, also commented in writing. (Objection of Star Township, *Exhibit B*; Resolution of Antrim County, *Exhibit C*; Objections of Friends of the Jordan river, *Exhibit D*).
- 6 Petitioner and/or its representatives commented at a public hearing held on June 12, 2007 at the Alba Public School.
- 7 The issues raised by Petitioner in its petition were raised during the public comment period and therefore were preserved for review. *MDEQ Response to Comments, Exhibit E; EPA*

*Response to Comments, Exhibit F; Comments filed by Dr. Patricia Patterson Exhibit G, Comments by Dr. McClurg, Exhibit H.*

8 Pursuant to the rules governing these proceedings, a person who comments on a draft permit may petition for review of any condition of the final permit. 40 C.F.R. § 124.19(a).

#### **IV. STANDARD OF REVIEW**

A UIC permit decision can be reviewed if it is based on a clearly erroneous finding of fact or conclusions of law, or involves an important matter or policy or exercise of discretion that warrants review. 40 C.F.R. § 124.19; Fed. Reg. 33, 412 (1980); *In re Federated Oil & Gas of Traverse City, Michigan*, 6 E.A.D. 722, 725(EAB1997). The Petitioner must state both the objections to the permit that are being raised for review and explain why the permit decision maker's previous response to those objections is clearly erroneous or otherwise warrants review. *In re Amerada Hess Corp.*, 12 E.A.D. 1 (EAB 2005).

Where the EPA's explanation for a permit decision lacks sufficient support in the administrative record, or where the EPA provides only a cursory explanation for a decision that is not supported by a detailed explanation or clear rationale, the EAB will remand the permit decision back to the EPA. *In re Beckman Prof. Servs.*, 8 E.A.D. 302, 311 (EAB 1999).

#### **V. ARGUMENT**

##### **A. The Permit is Not Protective of the Drinking Water and is Not Supported by the Record**

The Permittee is required to provide sufficient data to demonstrate that the USDWs will be protected. The key areas of information include 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 of 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 the 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. The Permittee must submit information that would allow calculation of the injection pressure curve. This submittal must detail the casing and cementing information of all wells in the area of review. *EPA Response to Comment: Monitoring and Legal Issues, Comment 31 and EPA Technical Review Guidance cited therein, pp 23-24.*

1. The Conclusion That The Bell Shale is an Impermeable Confining Zone is Erroneous as No Data to Support This Conclusion Was Submitted.

The EPA has concluded in the issuance of the Permit and in its response to public comment that the Dundee Formation will act as a confining zone. *EPA Responses to Public Comment: Background Section, p 2; Monitoring and Legal Issues, Comment 15, p19, Comment 25, p22, Comment31 and EPA Technical Review Guidance cited therein, pp23-24; Geology/Watershed Issues, Comments 11, 19, 21, 22, 35, 36.* The EPA's responses to the above enumerated comments "assume" that the Bell Shale will be a confining layer without any evidence that this is in fact the case.

The proposed Disposal Well will be drilled to a total depth of 2,450 feet and the cement kiln dust ("CKD") leachate injected into the Lucas/Dundee Formations. (*Permit*) There is no documentation or data in the application for Permit to substantiate that the USDW will be protected by the Bell Shale. The Dundee Formation in the area of Alba, Michigan is both porous and permeable and filled with saline water which contains oil and natural gas in places. (*Affidavit of Dr. McClurg, Exhibit I*) Immediately above the Dundee is the Bell Shale Formation, the lowest member of the Traverse Group. *Id.* The Traverse Group is comprised of limestone units that are both porous and permeable. *Id.*

Above the Traverse Group and up to the surface is the Antrim Shale, a highly fractured, porous and permeable gas producing shale. *Id* The Bell Shale is the designated “cap” rock of the Injection Site. If the Bell Shale does not provide a tight “cap” on the Dundee Formation, the CKD leachate will move up and escape into the Traverse Group, which is a porous and permeable formation, and possibly also the Antrim Shale. *Id*. Not all shale formations are impermeable and the permeability of the Bell Shale in the area of the Injection Site has not been definitely determined, therefore, it cannot be considered a “cap” rock or seal. *Id*. This constitutes error by the EPA in the issuance of the Permit and in their Responses to Comments that state that the Bell Shale will be a confining zone. If the CKD leachate is not contained in the targeted Dundee Formation, it will or is likely to pollute, impair or destroy the drinking water.

The Application states that no faulting has been mapped in the area of the Disposal Well, but does not address fractures or the information contained in the *Report by Barnes and Harrison on the Fractured Reservoirs in Carbonate Rocks: The Michigan Basin*. The *EPA Responses to Public Comment: Background Section, p 2; Monitoring and Legal Issues, Comment 15, p19, Comment 25, p22, Comment31, and EPA Technical Review Guidance cited therein, pp23-24; Geology/Watershed Issues, Comment 11, 19, 21, 22, 35, 36* fail to address the fracturing that may be present and that there has been no evidence submitted that the formation in that area is not fractured or faulted. A fracture (often called a joint) is a crack in the bedrock. A fault is a fracture along which movement has occurred, one side moving against the other. Faults may show movement of inches to tens of feet. Both fractures and faults create porosity and permeability that can allow fluid movement. Consider the overlying Antrim Shale which is highly fractured making it very porous and permeable. All of the brittle bedrock units in Michigan became fractured after their deposition due to the subsidence mechanism that created the Michigan Basin. Further, as to the “brine disposal wells” having no impact, one needs to remember that “brine” is simply salt water that was brought up along with the oil and gas. As a disposal technique, the brine is often re-injected back into the reservoir mixing with the brine that still exists in the reservoir. The rocks were “salty” before and still “salty”. It follows that the

re-injection of the brine would have little effect. However, the Beeland Disposal well will be introducing an entirely new fluid (the leachate) into the system and the effect of this leachate on the formation has not been analyzed by Beeland or the EPA.

The *EPA Responses to Public Comment: Background Section, p 2; Monitoring and Legal Issues, Comment 15, p19, Comment 25, p22, Comment31, and EPA Technical Review Guidance cited therein, pp23-24; Geology/Watershed Issues, Comment 19, 21, 22, 35, 36* do not address the fact that there is no evidence that the Bell Shale Formation will confine the injected waste to the Dundee Limestone. All shales are porous and contain water in the pore spaces left over from their formation in marine seas. However, if the shale has a high concentration of silts and even sands it can be a “brittle” shale that will fracture readily. Both the Antrim and the Bell Shales have similar origins being deposited in a shallow, warm, marine sea with the sediment being washed into the basin from the Wisconsin and or Appalachian highlands. Until someone can adequately describe the character of the Bell “Shale” it cannot be considered a seal or cap rock ; According to the US Army Corps of Engineer data, the Antrim Shale has a permeability of  $10^{-6}$  to  $10^{-4}$  cm/sec and the Traverse Group has one of  $10^{-7}$  to  $10^{-5}$  cm/sec. The Antrim Shale falls in the Highly Fractured group equivalent to well sorted sand and gravel. The Traverse group falls in with the Oil Reservoir Rocks. These data indicate that the rock column above the Bell Shale is very permeable leaving only the “unknown” permeability of the Bell shale preventing the leachate from escaping. *US Army Corps of Engineers Permeability of Various Materials.*

2. There is insufficient data on the quality of the injected fluids, existing reservoir conditions, and effect of the injectate on the surrounding material and fluids.

The Permittee failed to submit sufficient data on the quality of the injected fluid and existing reservoir conditions and the conclusions in the *EPA Responses to Comment: Monitoring and Legal Issues, Comments 8, pp17-18, Comment 18, p 20, Comment31, pp23-24; Geology/Watershed Issues, Comments 5, 6, 15, 19, 21, 22, 35, 36, 39 and 41* are unsupported or erroneous as they fail to address the issues that follow. The injected CKD leachate is a different

substance than presently exists in the targeted Dundee formation, which is not addressed in the application. The application for the Permit also fails to include:

- a. A discussion of the effect of the injection on the present and potential mineral resources in the area;
- b. The identification of the hazardous wastes in the CKD leachate;
- c. The vertical and horizontal permeability of the injection zone and the method used to determine permeability;
- d. A spill prevention and spill control plan;
- e. The effective porosity of the injection zone and the method used to determine the porosity;
- f. The vertical and horizontal permeability of the injection zone and the method used to determine permeability;
- g. The horizontal and vertical variations in permeability expected within the area of influence;
- h. The occurrence and extent of natural fractures and/or solution features within the area of influence;
- i. The chemical and physical characteristics of the fluids contained in the injection zone and fluid saturations;
- j. The anticipated bottom hole temperature and pressure of the injection zone and whether these qualities have been affected by past fluid injection or withdrawal;
- k. The Formation fracture pressure, the methods used to determine fracture pressure and the expected direction of fracture propagation;
- l. The vertical distance between the top of the injection zone from the base of the lowest fresh water strata;
- m. The impact of injection;
- n. Locate, identify, and show all the required reportable items and structures on the plot plan or survey or accurately report surveyed distances;

- o. Fails to include a map showing the locations, depths, and operators of all wells within 2 miles of the proposed well. It instead lists some 109 wells in tables and includes as Figure 6 a printout that covers a much larger area and has scale so small that the wells cannot easily be located and their depths and operators are not given, as required;
- p. Does not include a map showing the vertical extent of the subsurface aquifer;
- q. Does not include the specific conductance of representative sample of the injection fluid
- r. Does not include a federal spill prevention contamination counter measure plan (SPCC pursuant to 40 CFR part 112).

The analysis used in the Application to determine critical pressure is a one dimensional hydrostatic model that does not consider dynamic effects from pressure gradients at the drinking water aquifer boundary and assumes single values for parameters whose values are unknown rather than assuming probable ranges for those values.

The depth to the base of the USDW is represented in the Application to conservatively be at 900 feet, when permit # 41955 for a well about .4 miles away, shows the depth of the glacial drift or USDW to be 907 feet. The critical pressure model used in the Application uses assumptions for specific gravity pressures that are unknown which could result in Beeland exceeding the actual critical pressure and the likelihood of contamination of the drinking water aquifer.

The Application either fails to include parameters or fails to include justification, explanation, or references for the parameter values that are assumed for the formulas used to reach the conclusion that the Disposal Well will have no "cone-of-influence". The formula used in the Application to conclude "there is no cone-of-influence" is in fact a transient solution to a partial differential equation for radial flow from a well into a reservoir. Within the framework of other simplifying assumptions, it is valid only until boundaries affect the

data. It is used for falloff testing and cannot be applied correctly to model the effects of 20 years of fluid injection. *EPA document, "The Nuts and Bolts of Falloff Testing," 2003.*

The spreading model used in the Application with the assumption of 10% effective porosity over 100 ft. thick reservoir is not substantiated and is likely high, underestimating spreading impact. The model also incorrectly assumes the Disposal Well is an isolated source that spreads by diffusion and incompressible mass conservation, ignoring pressure effects from other sources and sinks, directional variations, chemical interactions, and fingering

The USGS undated map, attached as Figure 14 to the Application, used to show horizontal extent spans four states, and its scale is such that details around the Disposal Well are not clear. It does appear to show, however, that over Michigan and near the Disposal Well, there are areas where glacial deposits are thin or missing, which areas might be better than the Injection Site for a contaminant injection well.

The "use summary" in the Application states: "In Michigan, the Glacial Till and/or unconsolidated material is a source of fresh water for domestic, industrial, and agricultural purposes (Olcott, 1992). Based on available data, this unit is anticipated to be the lowermost USDW. This will be confirmed during installation of the proposed well". There is no explanation of how Beeland intends to confirm during installation of the Disposal Well that the Glacial Till is the lowermost USDW.

The "Environmental Impact Assessment" reports the well will not be drilled into or through bedded salt deposits without any evidence supporting that conclusion. However, information from nearby wells indicates a not insignificant chance Beeland will drill through salt. A well (permit 41955) in adjacent Section 23 drilled for purpose of salt-water injection into the Dundee Limestone drilled through scattered beds of anhydrite at depth of 2385 to 2411 feet. Important information from Shell Oil's nearby well (27750) in Section 26 is omitted from the Application describing the 2300 to 2780 foot depth, where the Dundee began at 2172 and continued at least to 2300. Well #42680 hit scattered anhydrite beds within the Dundee (2061 to 2141 feet) and hit salt at depth 2472 feet.

3. Waste Characterization and Effects of the Leachate Were Not Appropriately Considered

The EPA has the obligation to make its own determination of waste characterization to assure that the requirements of the UIC program are met. 40 C.F.R. § 146.70. Petitioner has demonstrated that other hazardous constituents will be present in the leachate despite the reduction of the pH. The *EPA Response to Comments: Geology/Watershed, Comments 5, 6, 18, 19, and 39* are erroneous as there has been no analysis submitted on the effect of the other constituents in the leachate and there is a basis to characterize this waste stream as hazardous.

The EPA, in its Response to Comments, by-passes the issue by merely stating that the leachate is non-hazardous so the interactions of the fluid and the surrounding material is not required. *EPA Response to Comment 39, p36*. An understanding of how the leachate will interact with the surrounding material is paramount to insuring that the leachate will be contained and not impact drinking water.

Beeland is required under the Permit to treat the CKD leachate to reduce the pH to a non-hazardous level. "Treatment" under RCRA includes any activity or processing designed to change the physical or chemical composition of hazardous waste so as to render it nonhazardous or less hazardous, safer to transport or dispose of. Because the waste has to be treated to lower the pH, it is hazardous by characteristic.

The Permit only requires the treatment of the CKD leachate to reduce the pH; it does not require the removal of chlorinated organics, or any of the metals, such as arsenic, nickel, lead, silver, mercury, and copper. The neutralization of the pH process produces a saturated brine consisting of calcium sulfate (gypsum), other inorganic compounds, carbonaceous organic compounds and trace heavy metals that will result in 477 tons of uncharacterized organic carbon being injected into the targeted Formation. (*Affidavit of Dr. Timm, Exhibit J*)

The ultimate quantities of heavy metals, inorganic chemicals and uncharacterized organic carbon to be injected at the Injection Site could be as much as ten times the amounts calculated in the preceding paragraph. The amount of organic carbon that will be injected is exceedingly high for a leachate stream that has been legally considered to be a solution of inorganic compounds. *Id.*

Potential carbonaceous species that may be lurking in this leachate could range from the innocuous (eg. Humic and Fulvic acid) to the extremely toxic (eg. Poly Chlorinated Biphenyls from transformer oil disposal). *Id.* The leachate is saturated with calcium sulfate and other inorganic compounds known to be likely to plug and scale process equipment and transport tanks. This presents very significant engineering challenges as equipment associated with handling this leachate will have to be disassembled frequently for cleaning and unplugging with the associated danger of leaks, breaks and spills. *Id.* The CKD leachate contains toxic heavy metals and hazardous substances, including but not limited to arsenic, nickel, lead, silver, copper, and mercury. *Id.*

The conditions in the Permit designed to control corrosivity are also inadequate. The untreated CKD leachate has a pH of 12.5, making it caustic and hazardous. There will be surface facilities at the Injection Site, including pipelines and tanks that will be corroded by the CKD leachate. (*January 28, 2008 DEQ Response to Public Comment*; *Affidavit of Dr. Timm*) The CKD leachate has high concentrations of total organic carbon which will act as a food/energy source and may lead to rapid population growth of indigenous and/or injected bacteria and high concentrations of suspended solids within injected liquid waste are known to cause injection zone formation fouling within deep injection wells.

**B. The EPA's Failure to Require the Documentation and Analyze the Environmental Consequences and Potential for Adverse Effects violates the SDWA and NEPA.**



The SDWA permitting process is the functional equivalent to the NEPA process and requires an analysis of the environmental consequences of the proposed permit action, including the potential for adverse environmental and human health effects or impacts from the proposed UIC well. *Western Nebraska Resources Council vs EPA*, 8<sup>th</sup> Cir. Court of Appeals (1991). As set forth in the preceding section, there is no documentation to support the lack of permeability of the Bell Shale and the effects of the leachate on the surrounding materials, etc.

Further, the EPA failed to analyze the environmental consequences of the effect of the leachate on the surrounding formation and fluids, the adequacy of the Bell Shale Formation to act as a confining zone in that location, and other analysis relating to formation pressures and cone of influence. The public was not provided with all relevant information for purposes of full and fair public participation which is an inappropriate exercise of discretion by the EPA.

### **C. The EPA's Response to Public Comment is Erroneous**

At the time that any final permit decision is issued under 40 CFR § 124, a response to comments shall be issued. 40 CFR § 124.17(a). Moreover, the Regional Administrator must base the final permit decision on the administrative record, which must be "complete" on the date he or she issues the final permit. 40 CFR § 124.18. These requirements ensure that the decision maker gives serious consideration to comments before or at the time of making his or her final permit decision. *In re Rockgen Energy Ctr.*, 8 E.A.D. 536, 556 (EAB 1999) (remanding part of a prevention of significant deterioration permit because record did not make clear whether the state had meaningfully complied with 40 C.F.R. § 124.18, which requires that the decision maker base the permit decision on the administrative record, including the comments received during the public comment period); *In re Atochem N. Am., Inc.*, 3 E.A.D. 498, 499 (Adm'r 1991). *Atochem* emphasized that the decision maker must consider comments with a truly open

mind, rather than with a view to defending a decision he or she already has made. 3 E.A.D. at 499.

For the reasons set forth in Section B of this Brief, and as demonstrated by the attached Exhibits, the following EPA Responses to Comments are clearly erroneous:

*Background Section, p 2;*

*Issues Related to Bay Harbor, Comment 1, p7*

*Monitoring and Legal Issues, Comments 8, pp17-18, Comment 15, p19, Comment 18, p20, 25, p22, Comment 31, pp23-24;*

*Geology/Watershed Issues, Comments 5, 6, 11, 15, 19, 21, 22, 35, 36, 39, and 41.*

**D. There are Strong Policy Considerations That Warrant a Remand of the Permit**

1. Environmental Justice

There are strong policy considerations that warrant the Board to remand this permit decision. The Permit and the EPA's Response to Comments *Environmental Justice, Comment 1* are inconsistent with Executive Order 12898. The Injection Site is in a poor rural community. This Board has addressed environmental justice issues and the effect on low-income populations in *In re Chemical Waste Management of Indiana, Inc.*, 6 E.A. D. 66 (EAB 1995) and in *Envotech L.P.*, 6 E.A.D. 260, 278 (EAB 1996). When the Region has a basis to believe that operation of the facility may have a disproportionate impact on a low-income segment of the affected community, the Regions should, as a matter of policy, exercise its discretion to assure early and ongoing opportunities for public involvement in the permitting process. *Envotech, supra at 281.* There is nothing in the UIC regulatory "omnibus authority" in 40 C.F.R. § 144.52(a)(9) that prevents a Region from performing a disparate impacts analysis when there is an allegation that the drinking water of low-income communities may be particularly threatened by a proposed

underground injection well. *Id.* When a superficially plausible claim that a proposed underground injection well will disproportionately impact the drinking water of a low-income community where the well is located, the Region should, as a matter of policy, exercise its discretion under 40 C.F.R. § 144.52(a)(9) to include an analysis focused particularly on the low-income community whose water is alleged to be threatened. *Id.*

In this case, the low-income demographics were not particularly focused upon in the EPA's analysis. Due to the undisputed fact that this leachate is being trucked from an extremely affluent subdivision to a poor rural community for disposal, there is a strong policy consideration warranting review.

2 No evidentiary hearings were held.

Although informal public hearings were held, no evidentiary hearings were held. Clearly, there are numerous issues that warrant evidentiary hearings and testimony by experts. Those issues include the impermeability of the Bell Shale in the area of the proposed well, the proper characterization of the leachate, the effects of the leachate and its constituents on the surrounding material and fluids in the injection zone, formation pressures and cone of influence. The permit was based on assumptions and unsupported theories. There is no harm holding evidentiary hearings to insure that the assumptions are sound and the theories can find support. There is no dispute that the leachate contains toxic heavy metals, such as mercury, that will contaminate the drinking water if the leachate escapes the Dundee Formation. Sound science and the mandates of the SWDA and the UIC compel further study and investigation on these issues before a permit should have been issued.

## VI. CONCLUSION AND RELIEF REQUESTED

The Permit and Comments of the EPA are premised upon the impermeability of the Bell Shale in the area of the proposed well without substantiation. Further, the leachate is being characterized as non-hazardous despite the fact that it contains hazardous levels of heavy metals and inorganics. Due to this improper characterization, there have been no studies on how the leachate will interact with the surrounding materials or fluids or the formation itself. Also, there has been inadequate documentation of the formation pressure and cone of influence. The permit was based on assumptions and unsupported theories, which creates a recipe for disaster and is not protective of the drinking water. No evidentiary hearing were held to develop these issues.

Wherefore, in order to effectuate the requirements of the governing regulations, the Petitioner requests that the Board vacate the permit decision and remand this case to the Region for the purpose of requiring the Region to do the following: conduct an evidentiary hearing on the issues raised in this Petition, including the adequacy of the Bell Shale to act as a confining zone in the area of the proposed well, the proper characterization of the leachate, and the effects of the leachate on the surrounding material and fluids in the injection zone; reopen the public comment period; and reconsider a final permit decision.

Submitted by,



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Dated: March 9, 2008