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U.S. Environmental Protection Agency  
Environmental Appeals Board  
1200 Pennsylvania Avenue N.W.  
Mail code 1103M  
Washington, D.C. 20460-0001

2013 AUG 19 PM 3:30

ENVIR. APPEALS BOARD

Date: August 13, 2013

PETITION SEEKING BOARD REVIEW OF UNDERGROUND INJECTION  
CONTROL PERMIT #MI-009-2D-0217.

I am requesting board review of the Region's actions on the above permit for the following reasons:

- 1) Terminology used in Responses 1, 4, 7, 9, 10, and 11 include the phrase "should" which suggests that no final scientific determination has been made in regard to these issues and leaves the matter open to interpretation at the discretion of the regulatory agency. This includes the question of contamination of water wells in the vicinity and the contamination of local waterways including the Jordan River and Lake Michigan and the Great Lakes aquifer. The word "should" in regulatory documents is open-ended and vague and indicates the need for more study.
- 2) Response 4 discusses "EPA's finding" about the environmental safety of injection wells but does not cite the finding. The next paragraph refers to the permeability of rock layers but does not cite the geological evidence to support the claim. It also mentions the 40 feet of Bell Shale above the Dundee limestone to indicate that those 40 feet will protect the injected waste from drinking water. I am requesting scientific and geological evidence to support this claim and to constitute proof that the claim is valid.
- 3) Responses 2 and 5 are in reference to seismic activity, stating that "there are no documented cases of seismic activity in Antrim County". However, a fault line has been identified "extending from Antrim County through Otsego.." according to research by James Wood, MTU, and William Harrison, WMU (December 2002), and the US Geological Survey recommends an "assessment of the absence or presence of faults" to reduce risk of leaks from underground wells. I am questioning the wisdom of claiming "no seismic activity" when a fault line is present. There is no proof there will never be activity and there is always a possibility of occurrence.
- 4) Response 6 is in regard to the designation of the Jordan River as a Wild and Scenic River and notes that well drilling and brine injection is permitted under the law. I don't dispute that claim. I propose that the current regulations are irresponsible and threaten our most precious resource, water. The headwaters of the Jordan River and its watershed, in which I reside and in which the proposed injection well is located, feed the Jordan, which flows into Lake Charlevoix, and is connected to Lake Michigan, the significance of which cannot be overstated. Surely the EPA has an interest in protecting the Great Lakes.

- 5) The gist of Responses 13, 15, 16, and 17 is that no laws exist to regulate surface distance of injection wells from drinking water wells and no documentation exists that indicates proof that injection wells may leak. The fact that no proof exists does not justify the lack of regulation. Conversely, isn't the burden of proof on the individual or organization that seeks to engage in risky behavior? It is ironic that after assuring us that the wells won't leak, the Response notes that the well owners are responsible for clean-up due to contamination! Why is this rule necessary, if it is so safe?

In essence, I believe the above permit should be declared invalid. Further investigation of the ramifications of deep-well injection of brine solution is imperative before the EPA allows this procedure to continue.

Sincerely,



Norma Petrie  
5169 St. Johns Road  
East Jordan, Michigan 49727  
Phone: 231-350-1110  
Email: [Petrie@freeway.net](mailto:Petrie@freeway.net).

COPY

Region's actions

## RESPONSE TO COMMENTS

Date: JUL 25 2013

REGARDING UNDERGROUND INJECTION CONTROL (UIC) PERMIT #MI-009-2D-0217 ISSUED TO CHEVRON MICHIGAN, LLC., FOR THE STRATTON #16-4 INJECTION WELL IN ANTRIM COUNTY, MICHIGAN FOR THE PURPOSE OF NONCOMMERCIAL DISPOSAL OF OILFIELD BRINE FROM PRODUCTION WELLS OWNED OR OPERATED BY CHEVRON MICHIGAN, LLC.

### Introduction

This response to comments document is a comprehensive response that responds to all comments received by United States Environmental Protection Agency (EPA), Region 5, for this permitting action. Region 5 previously issued a final permit decision on this matter on August 20, 2012, however, the Environmental Appeals Board (EAB) issued a remand relating to this permit in *In re Chevron Michigan, LLC*, UIC Appeal No. 12-01 (EAB 2013) on March 5, 2013. The EAB remand allowed Region 5 to reissue this final permit along with a comprehensive response to all comments. The EAB stated in its remand order on pages 17-18:

This Remand Order does not reopen the public comment period. After the Region completes its action on remand, anyone dissatisfied with the Region's actions on remand must file a petition seeking Board review in order to exhaust administrative remedies pursuant to [40 C.F.R. § 124.19(I)(2)].<sup>1</sup> Any such petitions shall be limited to those issues addressed by the Region on remand or raised by or in connection with the remand procedures. No new issues may be raised that could have been raised, but were not raised, in the present appeal.

Region 5 is providing this response in accordance with Section 124.17 of Title 40 of the Code of Federal Regulations (40 C.F.R. § 124.17), which requires EPA to issue a response to comments at the time it issues a final permit decision. That response must: (1) briefly describe and respond to all significant comments raised during the public comment period; and (2) specify which provisions, if any, of the draft decision have been changed and the reasons for the change. In addition, EPA must include in the administrative record any documents cited in the response to comments, and make the response to comments available to the public.

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<sup>1</sup> EPA recently issued a rule revising part 124.19, which became effective on March 26, 2013. Anyone filing a petition for review upon the Region's completion of actions on remand after March 26, 2013, should follow the latest version of § 124.19 in preparing a petition for review. See Revisions to Procedural Rules To Clarify Practices and Procedures Applicable in Permit Appeals Pending Before the Environmental Appeals Board, 78 Fed. Reg. 5281 (Jan. 25, 2013). Additional information on this change is available on the Board's website at: [http://yosemite.epa.gov/oa/EAB\\_Web\\_Docket.nsf/General+Information/Regulations+Governing+Appeals?OpenDocument](http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/General+Information/Regulations+Governing+Appeals?OpenDocument)

## Background

The scope of the Federal Underground Injection Control (UIC) regulations is limited to the determination of the soundness of construction and operation of injection wells as they relate to the protection of all underground sources of drinking water (USDWs). A USDW is an aquifer or its portion which contains less than 10,000 mg/l of total dissolved solids.

In this case, the proposed well will be drilled to a depth of 1,535 feet below ground surface into the Dundee Limestone. The top of the injection zone is at 1,343 feet. The base of the lowermost USDW has been identified at a depth of 1,301 feet below ground surface and is separated from the top of the Dundee Limestone injection zone by approximately 42 feet of sedimentary rock strata. This rock strata consists of very low permeability rock and will prevent vertical migration of fluid. In addition, all well casing strings are adequately cemented 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 (annulus) will be tested initially after the completion of the well to ensure that the well has mechanical integrity and monitored weekly thereafter to ensure that the well maintains mechanical integrity. Any loss of annulus fluid is monitored at least quarterly. If the well should fail a mechanical integrity demonstration, then the well will be shut down until corrective actions have been taken and the well has been brought back into compliance. Any work performed on the well which requires the moving and/or removal of the tubing or packer must be followed by a mechanical integrity test before authorization to resume injection will be given. Under permit conditions, the injection pressure will be limited to ensure the safe operation of the well and monthly reports of pressure and flow rates must be submitted to our office for review. If, despite these safeguards, contamination of drinking water occurs, the operator is fully liable for providing alternate sources of drinking water. In addition, some operators may be willing to work with local residents to respond to problems.

Oilfield brines may contain various amounts of hydrocarbons, such as benzene, ethylbenzene, toluene, xylene, naphthalene, polycyclic aromatic hydrocarbons. Fluids brought to the surface in connection with conventional oil and natural gas production have been exempted from the definition of hazardous waste under the Resource Conservation and Recovery Act under Title 40 of the Code of Federal Regulations (40 CFR) § 261.4(b)(5). Such fluids are naturally occurring fluids that are separated from the oil and/or gas and then returned to the rock formations from which they originated or to a deeper rock formation via Class II injection wells. The UIC program protects USDWs from these fluids by regulating injection wells.

### **Determination**

EPA has determined that the public comments submitted did not raise significant issues which would alter EPA's basis for determining that it is appropriate to issue Chevron Michigan, LLC a permit to operate a Class II injection well. Therefore, EPA is reissuing a final permit to Chevron Michigan, LLC on the date shown at the top of this document.

### **Comment 1:**

Commenter identified that contamination of water wells has occurred in other States as the result of injection well activities and brought up an example in Texas.

### **Response to Comment 1:**

There has not been a documented case of an injection well contaminating an underground source of drinking water since EPA began regulating them. It is true, however, that fluid came to the surface in the Chico, Texas area. To clarify, regulators there determined that the Chico area injection wells were injecting into a small injection zone, which became over-pressurized, forcing fluid up other wells that were not properly constructed or plugged, or had not been identified during permit review. However, there was no documented contamination of an underground source of drinking water by the injection fluid. The injection wells were reworked to access a different injection zone with more capacity, and injection rates were restricted by State regulators.

The circumstances and geologic setting in Michigan and at this well site are different than those in Texas which caused the fluid to rise through conduits. The geology of Michigan is relatively consistent across the state, meaning that rock strata are consistent over a large area. Driller's logs or formation records from nearby wells were used to review geologic data from the area. EPA has data gathered from the hundreds of wells that have been permitted by our office, together with technical studies of the geology of Michigan, such as The Hydrogeologic Atlas of Michigan. EPA has found this well site to be geologically suited for Class II disposal wells. EPA has also determined that the wells within the area of review are properly constructed or plugged. Furthermore, as stated previously, the well will be constructed, maintained 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 USDWs. As a result, there should be no effect on nearby drinking water wells from the operations of this injection well.

### **Comment 2:**

Commenter raised concerns about the recent seismic events in Youngstown, Ohio where 12 low magnitude seismic events occurred as a result of Class II injection well activities.

**Response to Comment 2:**

The Northstar Class II injection well in Ohio was drilled at a depth of 9192 feet below surface into the Precambrian Period rocks. The evidence gathered by Ohio DNR regulators and geologists suggests that the fluid from a deeply drilled injection well intersected an unmapped fault in a near-failure state of stress causing movement along the fault. In the case of the #MI-009-2D-0217 proposed well, the injection well will be drilled to a shallower formation into the Devonian Period rocks at about 1,535 feet below surface. In addition, based on data available from several decades of experience regulating similar injection wells, there are no documented cases of seismic activities occurring in Antrim County.

**Comment 3:**

Commenter requested that at a minimum a gamma ray, compensated density-neutron, and resistivity logs be required for all new Class II disposal wells in Michigan.

**Response to Comment 3:**

In accordance with 40 CFR § 146.22(f)(2)(i) (B) and (ii)(A), only the following logs are required under our current regulations: cement bond, temperature or density log after the casing is set, and an electric porosity and gamma ray log before the casing is installed. These logs are required for all newly drilled Class II disposal wells in areas where the lithology has not been determined.

**Comment 4:**

Commenter expressed concerns regarding the depth of the injection well and contamination of commenter's drinking water well or future drinking water wells drilled on commenter's property.

**Response to Comment 4:**

Underground injection wells are designed with multiple safeguards to prevent, minimize, and internally contain leaks within the well. Injection wells are constructed with multiple steel casings cemented into place. Injection takes place through tubing located at the center of the innermost steel casing. A device called a packer seals off the bottom of the tubing, and the space between the innermost steel casing and tubing (called the annulus) is filled with a fluid containing a corrosion inhibitor. To assure that no leaking occurs in the well, the pressure within the annulus space is tested after the well is completed and then re-tested periodically. If this test fails, the well is shut down immediately, and the cause of the leak is isolated and repaired. Once shut down, a successful pressure test must be demonstrated before EPA will allow the operator to resume well injection. The 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 and between the Underground Sources of Drinking Water (USDW). As a result, there should be no connection between the injection well and nearby drinking water wells or surface

waters. An EPA permit for an injection well conveys permission to inject fluids based on EPA's finding that the construction and operation of the well is such that injection into the well is environmentally safe. Chevron Michigan, LLC is fully responsible for ensuring the groundwater is protected from contamination due to injection.

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Federal Regulations restrict the depth of the injection well to a depth deeper than the lowermost known USDW. This is to insure that the injected fluid does not migrate into the USDW. The Bell Shale is located above the proposed injection formation (i.e., Dundee Limestone). There is approximately 40 feet of Bell Shale separating the injection zone from the lowermost identified USDW. The Bell Shale is a high density rock formation that will confine the injected fluid to the permitted injection zone. Information provided by Chevron indicates that the drinking water wells in the area of the proposed injection well are drilled to an average depth of between 40 feet and 200 feet. The proposed top of the injection zone for this well is located at 1,343 feet below the ground surface. There will be approximately 1,000 feet of low permeability rock layers between the proposed injected fluid and the drinking water aquifer used by residents in the area around the well. These rock layers prevent upward movement of fluid to the lowermost identified USDW and the local drinking water wells.

\* reference  
\* reference - geological

**Comment 5:**

Commenter asked how EPA determines that the confining layers are free of known open faults or fractures.

**Response to Comment 5:**

Driller's logs and formation records from nearby wells and the Hydrogeologic Atlas of Michigan were used to review geologic data from both the confining zone and injection zone. The geology of Michigan is relatively consistent. Data gathered from the wells that have been permitted by our office, together with technical studies of the geology of Michigan demonstrate that the Bell Shale is impermeable and serves as an effective confining zone over most of the State of Michigan. In addition, there is no documentation regarding open faults in Antrim County. Although fractures are much smaller than faults and therefore more difficult to detect, the presence of fractures in a confining zone does not automatically disqualify it as an adequate confining zone. If a fracture was present, 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. In addition, the draft permit for this well does not allow the fracturing of any rock formation. EPA has established the maximum permitted injection pressure for this well using the fracture gradient equation. This equation uses a conservative estimate for the fracture gradient and establishes a maximum injection pressure well below the pressure needed to fracture the rock

\* fault

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formation in the confining and injection zones. The draft permit requires Chevron to monitor the injection pressure on a weekly basis and report to EPA on a monthly basis. Injection pressures above the permitted maximum injection pressure would be a violation of the conditions of the permit. Additional operating conditions contained in the draft permit prohibit the fracturing of the confining zone. Violation of any permit condition would subject Chevron Michigan, LLC to an enforcement action by EPA.

**Comment 6:**

Commenter expressed concerns regarding contamination of the Jordan River from the proposed brine injection, and Commenter identified the Jordan River as designated Wild and Scenic.

**Response to Comment 6:**

As part of EPA's standard procedure for reviewing permit applications, we verify that the well is not within one-quarter mile of a Federally-designated Wild and Scenic River. The Jordan River is located over 2 miles from the proposed injection well and will not be affected by the injection of brine at this well location. In addition, the Jordan River is not Federally protected, the State of Michigan has designated it as a Natural River. State law requires that Michigan Natural Rivers be protected to a distance of 400 feet from each bank. In addition to a permit from the EPA, operators in Michigan must also receive a permit from the Michigan Department of Environmental Quality (MDEQ). The MDEQ field checks all well locations before issuing permits. Before receiving an MDEQ permit, the well location must conform to MDEQ requirements.

**Comment 7:**

Commenter expressed concerns regarding the contamination of the drinking water aquifer do to the injection of fluids from the proposed well.

**Response to Comment 7:**

Underground injection wells are designed with multiple safeguards to prevent, minimize, and internally contain leaks within the well. Injection wells are constructed with multiple steel casings cemented into place. Injection takes place through tubing located at the center of the innermost steel casing. A device called a packer seals off the bottom of the tubing, and the space between the innermost steel casing and tubing (called the annulus) is filled with a fluid containing a corrosion inhibitor. To assure that no leaking occurs in the well, the pressure within the annulus space is tested after the well is completed and then re-tested periodically. If this test fails, the well is shut down immediately, and the cause of the leak is isolated and repaired. Once shut down, a successful pressure test must be demonstrated before EPA will allow the operator to



resume well injection. Although small leaks can happen due to a loss of seal between the packer and the well casing, this does not mean that any fluid leaks out into the drinking water aquifer because the fluid will go into the injection zone. The 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 and between the Underground Sources of Drinking Water (USDW). As a result, there should be no connection between the injection well and nearby drinking water wells. An EPA permit for an injection well conveys permission to inject fluids based on EPA's finding that the construction and operation of the well is such that injection into the well is environmentally safe. Chevron Michigan, LLC is fully responsible for ensuring the groundwater is protected from contamination due to injection. The EPA, under the Safe Drinking Water Act, and the Michigan Department of Environmental Quality, under Act 307, can require owners/operators to clean-up any contamination due to injection, and/or supply alternative drinking water sources.

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**Comment 8:**

Commenter expressed concerns regarding contamination of Commenter's property which is designated as a Michigan Historical Site.

**Response to Comment 8:**

As described above, the injection well will be constructed and operated in such a manner so as to confine the injected fluids to the permitted interval. In addition, part of the permit application process investigates the effects, if any, on any cultural or historical properties in the well project area. Chevron Michigan, LLC contacted the Michigan State Historic Preservation Office (SHPO) and submitted information for the proposed injection well project. In a February 15, 2012 letter from SHPO to USEPA, the State of Michigan concluded that "no historic properties are affected" from the proposed injection well project.

**Comment 9:**

Commenter identified Deer Creek, Deer Lake, the Jordan River, Lake Charlevoix, and Lake Michigan and concerns of contamination of these surface waters from the proposed injection well project.

**Response to Comment 9:**

As stated above, the injection well will be constructed and operated in such a manner so as to confine the injected fluids to the permitted interval. This will prevent the migration of any fluids into and between USDWs, as well as, local streams and rivers. As a result, there should be no connection between the injection well and nearby drinking water wells and local streams and rivers. An EPA permit for an injection well conveys permission to inject fluids based on EPA's

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finding that the construction and operation of the well are such that injection will be environmentally safe. In addition, surface spill prevention and remediation are regulated by the Michigan Department of Environmental Quality (MDEQ). The MDEQ also issues permits for underground injection wells within the State of Michigan. The Michigan administrative rules contain requirements regarding well site maintenance and clean-up.

**Comment 10:**

Commenter expressed concerns regarding the contamination of the drinking water aquifer due to the injection of fluids from the proposed well.

**Response to Comment 10:**

Underground injection wells are designed with multiple safeguards to prevent, minimize, and internally contain leaks within the well. Injection wells are constructed with multiple steel casings cemented into place. Injection takes place through tubing located at the center of the innermost steel casing. A device called a packer seals off the bottom of the tubing, and the space between the innermost steel casing and tubing (called the annulus) is filled with a fluid containing a corrosion inhibitor. To assure that no leaking occurs in the well, the pressure within the annulus space is tested after the well is completed and then re-tested periodically. If this test fails, the well is shut down immediately, and the cause of the leak is isolated and repaired. Once shut down, a successful pressure test must be demonstrated before EPA will allow the operator to resume well injection. Although small leaks can happen due to a loss of seal between the packer and the well casing, this does not mean that any fluid leaks out into the drinking water aquifer because the fluid will go into the injection zone. The 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 and between the Underground Sources of Drinking Water (USDW). As a result, there should be no connection between the injection well and nearby drinking water wells. An EPA permit for an injection well conveys permission to inject fluids based on EPA's finding that the construction and operation of the well is such that injection into the well is environmentally safe. Chevron Michigan, LLC is fully responsible for ensuring the groundwater is protected from contamination due to injection. The EPA, under the Safe Drinking Water Act, and the Michigan Department of Environmental Quality, under Act 307, can require owners/operators to clean-up any contamination due to injection, and/or supply alternative drinking water sources.

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**Comment 11:**

Commenter identified the Jordan River, Lake Charlevoix, and Lake Michigan and concerns of contamination of these surface waters from the proposed injection well project.

**Response to Comment 11:**

As stated above, the injection well will be constructed and operated in such a manner so as to confine the injected fluids to the permitted interval. This will prevent the migration of any fluids into and between USDWs, as well as, local streams and rivers. As a result, there should be no connection between the injection well and nearby drinking water wells and local streams and rivers. An EPA permit for an injection well conveys permission to inject fluids based on EPA's finding that the construction and operation of the well are such that injection will be environmentally safe. In addition, surface spill prevention and remediation are regulated by the Michigan Department of Environmental Quality (MDEQ). The MDEQ also issues permits for underground injection wells within the State of Michigan. The Michigan administrative rules contain requirements regarding well site maintenance and clean-up.

**Comment 12:**

Commenter expressed concerns regarding the contamination of the surrounding drinking water wells and surface waters.

**Response to Comment 12:**

Underground injection wells are designed with multiple safeguards to prevent, minimize, and internally contain leaks within the well. Injection wells are constructed with multiple steel casings cemented into place. Injection takes place through tubing located at the center of the innermost steel casing. A device called a packer seals off the bottom of the tubing, and the space between the innermost steel casing and tubing (called the annulus) is filled with a fluid containing a corrosion inhibitor. To assure that no leaking occurs in the well, the pressure within the annulus space is tested after the well is completed and then re-tested periodically. If this test fails, the well is shut down immediately, and the cause of the leak is isolated and repaired. Once shut down, a successful pressure test must be demonstrated before EPA will allow the operator to resume well injection. Although small leaks can happen due to a loss of seal between the packer and the well casing, this does not mean that any fluid leaks out into the drinking water aquifer because the fluid will go into the injection zone. The 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 and between the Underground Sources of Drinking Water (USDW). As a result, there should be no connection between the injection well and nearby drinking water wells or surface waters. An EPA permit for an injection well conveys permission to inject fluids based on EPA's finding that the construction and operation of the well is such that injection into the well is environmentally safe. In addition, surface spill prevention and remediation are regulated by the Michigan Department of Environmental Quality (MDEQ). The MDEQ also issues permits for underground injection wells within the State of Michigan. The Michigan administrative rules contain requirements regarding well site maintenance and

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clean-up. Chevron Michigan, LLC is fully responsible for ensuring the groundwater is protected from contamination due to injection. The EPA, under the Safe Drinking Water Act, and the Michigan Department of Environmental Quality, under Act 307, can require owners/operators to clean-up any contamination due to injection, and/or supply alternative drinking water sources.

**Comment 13:**

Commenter asked if there was a permitted distance between drinking water wells and injection wells.

**Response to Comment 13:**

The Federal Regulations for underground injection wells do not restrict the surface distance between an injection well and a drinking water well. Federal Regulations restrict the depth of the injection well to a depth deeper than the lowermost known USDW. This is to insure that the injected fluid does not migrate into the USDW. The drinking water wells in the area of the proposed injection well are drilled to an average depth of between 40 feet to 200 feet. The proposed top of the injection zone for the proposed well is located at 1,343 feet below the ground surface. There will be approximately 1,000 feet of low permeability rock layers between the proposed injected fluid and the drinking water aquifer used in the area around the well. These rock layers prevent movement of the injected fluid into the local drinking water wells.

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**Comment 14:**

Commenter asked if brine disposal through injection wells is linked to seismic activity.

**Response to Comment 14:**

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Any seismic activity from disposal well injection would be caused by fracturing any of the rock formations surrounding the well. The draft permit for this well does not allow the fracturing of any rock formation. EPA has established the maximum permitted injection pressure for this well using the fracture gradient equation. This equation uses a conservative estimate for the fracture gradient and establishes a maximum injection pressure well below the pressure needed to fracture the rock formation in the confining and injection zones. The draft permit requires Chevron to monitor the injection pressure on a weekly basis and report to EPA on a monthly basis. Injection pressures above the permitted maximum injection pressure would be a violation of the conditions of the permit. Additional operating conditions contained in the draft permit prohibit the fracturing of the confining zone. Violation of any permit condition would subject Chevron Michigan, LLC to an enforcement action by EPA.

**Comment 15:**

Commenter asked if there is a history of fluid and/or radiation leakage from wells constructed in the manner proposed by Chevron Michigan, LLC.

**Response to Comment 15:**

The Safe Drinking Water Act was authorized in 1974 and gave EPA the authority to regulate underground injection for the protection of underground sources of drinking water through the regulation of construction and operation of injection wells. EPA regulations for the Underground Injection Control Program were promulgated in 1980 and insure the use of past and future industry standards for the construction and operation of injection wells that are protective of underground sources of drinking water. There have been no documented failures resulting in contamination of underground sources of drinking water since implementation of the UIC regulations.

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**Comment 16:**

Commenter asked to identify all the chemicals present in the brine.

**Response to Comment 16:**

The Federal Regulations for Class 2 underground injection wells do not require analysis for all chemicals that may or may not be present in the brine proposed for injection. The permit application and subsequent draft permit allows for the injection of noncommercial brine from production wells owned and operated by Chevron Michigan, LLC. The brine produced by the Chevron production wells originates within oil and gas producing rock formations and has a chemical make-up very similar to the ground water existing at the depth of the proposed injection well. The chemicals contained in the brine that are critical to the injection operation are listed in Special Condition A, "Operating, Monitoring and Reporting Requirements" of the draft permit. The brine produced by the Chevron production wells has a relatively consistent chemical make-up. Also, Chevron is not authorized to inject fluids from any other sources. In order to confirm the chemical make-up of the injected fluid, conditions of the draft permit allow EPA to require injection fluid sampling and analysis at any time. Once injected, the fluid will be confined to the permitted injection zone. Injection of fluid not consistent with the terms of the permit would constitute a violation of the conditions of the permit. Violations of any permit condition would be subject to an enforcement action by EPA.

**Comment 17:**

Commenter expressed concerns regarding increased noise and vehicle traffic in the area of the proposed injection well.

**Response to Comment 17:**

EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have an underground injection control (UIC) permit application approved. These regulations deal primarily with the geologic siting, well engineering, operating, and monitoring standards for deep injection wells. Vehicle transportation and noise issues are not addressed by the UIC regulations and are outside the scope of the UIC permit process.

**Comment 18:**

Commenter requested that EPA order Chevron to monitor the water quality of Commenter's drinking water well and plant foliage at Commenter's property line to act as a barrier between the well site and Commenter's property.

**Response to Comment 18:**

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. There is no requirement for the permit applicant to test or monitor drinking water wells in the vicinity of the proposed injection well. EPA cannot compel the permit applicant to conduct testing or monitoring of local drinking water wells as part of the permit approval process for this proposed injection well. In addition, there are no requirements in the EPA regulations for the permit applicant to plant foliage as a barrier between the injection well and neighboring properties.

**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 EPA's Environmental Appeals Board for review 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.

The Environmental Appeals Board issued a remand relating to this permit in *In re Chevron Michigan, LLC*, UIC Appeal No. 12-01 (EAB 2013) on March 5, 2013, and provided that EPA

should reissue this final permit along with a comprehensive response to all comments. A copy of the EAB Remand Order is attached. The EAB stated in its remand order on pages 17-18:

This Remand Order does not reopen the public comment period. After the Region completes its action on remand, anyone dissatisfied with the Region's actions on remand must file a petition seeking Board review in order to exhaust administrative remedies pursuant to [40 C.F.R. § 124.19(I)(2)].<sup>2</sup> Any such petitions shall be limited to those issues addressed by the Region on remand or raised by or in connection with the remand procedures. No new issues may be raised that could have been raised, but were not raised, in the present appeal.

If you wish to request an administrative review, you must submit such a request by regular mail to the Clerk of the Board, U.S. Environmental Protection Agency, Environmental Appeals Board, 1200 Pennsylvania Avenue, Mail Code 1103M, N.W., Washington, D.C. 20460-0001. Requests sent by express mail or hand-delivered must be sent to the Clerk of the Board, U.S. Environmental Protection Agency, Environmental Appeals Board, 1201 Constitution Avenue, NW, U.S. EPA East Building, Room 3334, Washington, D.C. 20004.

The request must arrive at the Board's office on or before AUG 27 2013. 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. This request for review must be made prior to seeking judicial review of any permit decision.

Signed and dated:

July 25, 2013

Tinka G. Hyde

Tinka G. Hyde  
Director, Water Division

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<sup>2</sup> EPA recently issued a rule revising part 124.19, which became effective on March 26, 2013. Anyone filing a petition for review upon the Region's completion of actions on remand after March 26, 2013, should follow the latest version of § 124.19 in preparing a petition for review. See Revisions to Procedural Rules To Clarify Practices and Procedures Applicable in Permit Appeals Pending Before the Environmental Appeals Board, 78 Fed. Reg. 5281 (Jan. 25, 2013). Additional information on this change is available on the Board's website at: [http://yosemite.epa.gov/oa/EAB\\_Web\\_Docket.nsf/General+Information/Regulations+Governing+Appeals?OpenDocument](http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/General+Information/Regulations+Governing+Appeals?OpenDocument)