



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

FEB 25 2016

REPLY TO THE ATTENTION OF:
WU-16J

CERTIFIED MAIL 7015 0640 0004 5965 0132
RETURN RECEIPT REQUESTED

Thomas Wassmer, Ph.D.
Assistant Professor of Biology
Siena Heights University
1247 E. Siena Heights Dr.
Adrian, Michigan 49221

**RE: Final Permit for the Savoy Energy Creque 3-20 SWD well in Lenawee County,
Michigan; U.S. Environmental Protection Agency Permit Number MI-091-2D-0004**

Dear Dr. Wassmer:

On May 28, 2015, the U.S. Environmental Protection Agency notified the public of the opportunity to comment on draft permit number MI-091 -2D-0004. The public comment period ended on June 30, 2015. EPA received a number of comments on the draft permit.

EPA has reviewed the comments. The enclosed Response to Comments (Response) on Draft Class II Permit Issued to Savoy Energy L.P. details the comments received and EPA's response to each comment. EPA has made no changes to the permit based upon these comments. The comments did not raise significant issues to modify EPA's determination that the permit application and draft permit meet federal Underground Injection Control (UIC) requirements.

This action constitutes issuance of a UIC Class II permit. Unless this permit decision is appealed to the Environmental Appeals Board (EAB) as described below, the permit will become effective on FEB 25 2016. Provided there is no appeal, construction of the injection well will be authorized to commence on the effective date and in accordance with permit conditions.

In accordance with 40 C.F.R. § 124.19(a), any person who filed comments on the draft permit may petition the EAB to review any condition of the final permit decision. Additionally, any person who failed to file comments on the draft permit may petition the EAB for administrative review of any permit conditions set forth in the final permit decision, but only to the extent that those final permit conditions reflect changes from the proposed draft permit. Any petition shall identify the contested permit condition or other specific challenge to the permit decision and clearly set forth, with legal and factual support, petitioner's contentions for why the permit decision should be reviewed, as well as a demonstration that any issue raised in the petition was raised previously during the public comment period (to the extent required), if the permit issuer has responded to an issue previously raised, and an explanation of why the permit issuer's response to comments was inadequate as required by 40 C.F.R. § 124.19(a)(4).

If you wish to request an administrative review, documents in EAB proceedings may be filed by mail (either through the U.S. Postal Service (“USPS”) or a non-USPS carrier), hand-delivery, or electronically. The EAB does not accept notices of appeal, petitions for review, or briefs submitted by facsimile. All submissions in proceedings before the EAB may be filed electronically, subject to any appropriate conditions and limitations imposed by the EAB. To view the Board's Standing Orders concerning electronic filing, click on the “Standing Orders” link on the Board's website at www.epa.gov/eab. All documents that are sent through the USPS, except by LTSPS Express Mail, must be addressed to the EAB’s mailing address, which is: Clerk of the Board, U.S. Environmental Protection Agency, Environmental Appeals Board, 1200 Pennsylvania Avenue, NW, Mail Code 1103M, Washington, D.C. 20460-0001. Documents that are hand-carried in person, delivered via courier, mailed by Express Mail, or delivered by a non-USPS carrier such as UPS or Federal Express must be delivered to: Clerk of the Board, United States Environmental Protection Agency, Environmental Appeals Board, 1201 Constitution Avenue, NW, WJC East Building, Room 3332, Washington, D.C. 20004.

A petition for review of any condition of a UIC permit decision must be filed with the EAB within 30 days after EPA serves notice of the issuance of the final permit decision.

40 C.F.R. § 124.19(a)(3). When EPA serves the notice by mail, sendee is deemed to be completed when the notice is placed in the mail, not when it is received. However, to compensate for the delay caused by mailing, the 30-day deadline for filing a petition is extended by three days if the final permit decision being appealed was served on the petitioner by mail.

40 C.F.R. § 124.20(d). Petitions are deemed filed when they are received by the Clerk of the Board at the address specified for the appropriate method of delivery. 40 C.F.R. § 124.19(a)(3) and 40 C.F.R. § 124.19(i). The request will be timely if received within the time period described above. 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 enclosed. This request for review must be made prior to seeking judicial review of any permit decision. Additional information regarding petitions for review may be found in the Environmental Appeals Board Practice Manual (August 2013) and A Citizen's Guide to EPA's Environmental Appeals Board, both of which are available at http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/General+Information/Environmental+Appeals+Board+Guidance+Documents?OpenDocument.

The EAB may also decide on its own initiative to review any condition of any UIC permit. The EAB must act within 30 days of the service date of notice of the Regional Administrator’s action. Within a reasonable time following the filing of the petition for review, the EAB shall issue an order either granting or denying the petition for review. To the extent review is denied, the conditions of the final permit decision become final agency action when a final permit decision is issued by the EPA pursuant to 40 C.F.R. § 124.19(1).

The final permit and Response to Comments will be available for viewing at the Lenawee County Library (4459 West US 223, Adrian, MI), the Adrian Public Library (143 E. Maumee Street, Adrian, MI), and on EPA's website at <http://www2.epa.gov/uic/underground-injection-control-epa-region-5-il-mi-mn-oh-and-wi#public-notice>. If you have any questions, please contact William Tong at (312) 886-9380 or by email to tong.william@epa.gov.

Sincerely,



Tinka G. Hyde
Director, Water Division

Enclosure

Response to Comments - Savoy Energy Creque 3-20 Class II Permit

Introduction

This response is issued in accordance with § 124.17(a), (b), and (c) of Title 40 of the Code of Federal Regulations (40 C.F.R. § 124.17(a), (b), and (c)), which requires that at the time any final United States Environmental Protection Agency (EPA) permit decision is issued, the Agency shall: (1) describe and respond to all significant comments on the draft permit decision raised during the public comment period; (2) specify which provisions, if any, of the draft decision have been changed and the reasons for the change; (3) include in the administrative record any documents cited in the response to comments; and (4) make the response to comments available to the public.

Background

On May 28, 2015, EPA asked the public to comment on a draft Class II permit number MI-091-2D-0004 for injection of noncommercial brine, issued to Savoy Energy⁷, L.P., for the Creque 3-20 SWD well. The public comment period ended June 30, 2015.

Fourteen parties submitted written comments to EPA. This response categorizes the public comments submitted on the draft Class II permit and includes EPA's response to those comments.

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). Any aquifer or portion of an aquifer which contains less than 10,000 mg/1 of total dissolved solids is a USDW under the UIC regulations.

Prior to receiving a permit, all injection wells must meet UIC siting requirements. The UIC siting regulations (40 C.F.R. § 146.22) require that all new Class II wells be sited in such a fashion that they inject into a formation which is separated from any USDW by a confining zone that is free of known open faults or fractures within the area of review. The proposed Class II well complies with this siting requirement. In particular, the proposed injection well is to be drilled to approximately 2,211 feet below ground surface and the top of the proposed injection zone is at a depth of approximately 1,926 feet with an impermeable confining zone immediately above the injection zone. The base of the lowermost USDW in this area is approximately 204 feet below ground surface. This means that there are approximately 1,722 feet of sedimentary⁷ rock between the proposed injection zone and the lowermost USDW. EPA also requires a confining layer between the injection zone and the bottom of the lowermost formation containing an USDW, based on the well operating requirements found at 40 C.F.R. § 146.22. The proposed injection well also complies with this requirement. In this case the confining zone, which lies directly above the injection zone, is the Salina C Unit. The Salina C Unit 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 USDW. The proposed well will be constructed with three casing strings (steel pipe). Each pipe is inside the previous one and the outside of each pipe is cemented. This will prevent any movement of fluid either outside the casing to the surface or inside between casings.

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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 (the annulus), which will be filled with a liquid mixture containing a corrosion inhibitor, and will allow the pressure in the space to be monitored. The ability⁷ of the annulus to hold pressure (mechanical integrity) will be tested initially⁷ after the completion of the well to ensure that the well has mechanical integrity⁷ and monitored weekly thereafter to ensure that the well maintains mechanical integrity. Any loss of annulus fluid is monitored at least quarterly. 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 the moving and/or removal of the tubing or packer is necessary. The well must pass a mechanical integrity⁷ 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, the specific gravity⁷ of the injected fluid, and the fracture gradient. This is done to ensure that the confining zone is not fractured due to injection. In this case, the maximum injection pressure was set at 555 pounds per square inch (psi). Monthly reports of pressure and flow⁷ rates must be submitted to EPA for review⁷.

General and Out of Scope Comments

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. Those regulations define the general scope of EPA's authority⁷ and review process. Federal regulations require EPA to briefly⁷ describe and respond to significant comments received on UIC permits.

EPA received numerous general comments and comments directed at matters outside the scope of the UIC Program's purview⁷. EPA acknowledges the submittal of these comments and clarifies that because they raise matters that are not addressed by the UIC regulations and are outside the scope of the UIC permit process, EPA does not respond to them specifically in this document.

The comments falling into the "out of scope" category⁷ focus on topics including: alleged violations of the Clean Air Act; other facilities operated by Savoy Energy⁷; traffic hazards; remediation of past pollution by Savoy⁷ Energy; oil and gas revenues; cleanup methods, costs, and time requirements regarding contaminated soil; groundwater flow⁷ data; and an unspecified wildlife protection plan. These general comments are listed below without response. Specific comments that address topics that are relevant to this permitting decision, with responses, follow⁷ in subsequent sections.

Although EPA is not responding to general statements of support and opposition to the permit individually, it did consider them in making the decision to issue the final permit.

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Out of Scope Comments

1. There were many phone calls made to Steve of Savoy Energy, in which he would not return them, regarding my serious health problems from the fumes, flares, and leaking toxic chemicals from the processing plant on M-52 in Adrian, Michigan. Violations of Clean Air Act by the state and federal offices against Savoy Energy on two sites, M-52 and Sheppard Road. Savoy Energy officers and salespersons have deceived the people in Adrian and Adrian Township, by not telling the truth about all the complications and leakage of chemicals on processing plants and wells.
2. In addition, the applicant of the disputed permit application. Savoy Energy L.P. has a track record of cutting comers and running its operations not in accordance with best practices - as recently shown in their violations of the Clean Air Act (EPA-5-15-M3-04). It is therefore doubtful that the applicant will show more respect for the Clean Water Act.
3. There is a Class A road (Occidental Highway) which was just resurfaced in 2014 for \$1.2 million, and the curve where traffic going to the proposed permit site will be entering and departing in the middle of that curve, could create an unsafe traffic condition.
4. As a long-term resident of Adrian, MI in Lenawee County, I am firmly against allowing Savoy Oil and Gas a permit for an Underground Injection Well. One only needs look around or take a walk to note the physical, environmental, and quality of life reductions since the Savoy projects were decided upon by City leaders, in absence of community/resident support. In my own words, I strongly urge you to deny the request for this permit. If additional process or information is required in order to honor my request then there must be a public meeting of Lenawee County residents prior to moving to next steps. While it will be difficult to repair the damage already done to the people and eco-systems of Lenawee County, it will be an insurmountable endeavor should additional access be provided to our air, water, land, and infrastructure. For this reason, as a concerned and active citizen I request you deny this application and begin aggressively seeking ways to hold Savoy Oil and Gas accountable not through just fines, but also actively cleaning up what they have done to date.
5. Why does Adrian reap all the benefits of the oil/gas revenues and Raisin Township take all the environmental risk?
6. What is the cleanup process for the contaminated soil and how fast is the clean up? Is there a ground water flow report to show us where the underground contaminated water will head? How does this coincide with the Wild Life Protection Plan?

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Specific comments

Comment #1

I am concerned for the local populace primarily because we don't know what is in fact in the waste water. I was informed approximately a year ago by one of the rig hands that the brine-that they pull out is in many cases toxic. I live within 5 miles of this site and I depend on well water to supply my home. I don't feel that this is a good site for waste and would like it to be investigated for safety. My main concerns are poison and radiation as well as the guarantee that it will work to contain the waste without harmful repercussions. In the case that something goes wrong, someone needs to be held liable and I would like to know who that someone is.

Many of us have wells that we get our drinking water from, so we are very concerned as to what this brine consists of and what danger there is of a breach, and the purpose of the brine injection, and what Savoy's liability⁷ is if it does get into our wells and how we would know it is there. There are lots of questions that we don't even know how⁷ to ask due to the fact we do not understand what they are going to really do and why it has to be done and is an oil leak a possibility?

This proposed injection well is very close to our residential area and we are concerned about possible contamination of our water supply if there is a problem during the injection operations. How they will respond if there is a breach resulting in contamination? Also, we would like to know what information will be publicly available relating to the injection operations on an ongoing basis.

Response to Comment #1

The proposed permit only allows the injection of produced brine, which is ancient seawater that is found along with petroleum in deep underground porous rock formations. No fluid other than brine is allowed to be injected into the proposed well. One thousand seven hundred twenty two feet of sedimentary rock, including the highly impermeable Salina C Unit, lie between the injection zone and the base of the USDW. An oil leak is not a possibility regarding this well, because the well will be used for brine injection, not oil production. Underground injection wells are designed with multiple safeguards to prevent leaks from the well. Injection wells are constructed with multiple steel casings (pipe) 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. Savoy Energy is responsible for maintaining the well so that it works properly, and would be responsible for any contamination caused by any leaks.

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Monthly monitoring reports must be submitted by Savoy Energy to EPA Region 5. EPA will review these reports to confirm that the well is operating safely. Copies of these reports may be requested in writing from EPA via the Freedom of Information Act.

Comment #2

I suggest that the EPA withhold the requested permit for a Class II injection well due to the risk of aquifer contamination (Bloetscher and Gao 2014; Maliva et al. 2007), especially in fractured geological strata and increased tectonic activity caused by multiple injection wells (Frohlich 2012). The major risk factors are failures of well casings, especially cement fatigue failures (Yuan et al. 2013). Such failures become more likely because current regulations require that operators maintain and monitor wells just for 2 years after plugging the wells. This is one of the reasons why the U.S. Government Accountability Office (GAO) stated that the "EPA Program to Protect Underground Sources from Injection of Fluids Associated with Oil and Gas Production Needs Improvement" (U.S. Government Accountability Office 2014).

Response to Comment #2

As part of the permit application review process, EPA conducted a review of induced seismicity risk. Based upon the historical record of earthquake data compiled by the U.S. Geological Survey (USGS), the state of Michigan has a low risk of earthquake occurrence, Lenawee County' has a very low earthquake risk, with a total of zero earthquakes since 1931. The USGS database shows that there is a 0.59% chance of a major earthquake within 50 kilometers of Lenawee County within the next 50 years. A recent earthquake in the state of Michigan occurred on May 2, 2015, in southwestern Michigan, near Kalamazoo, more than 120 miles from Adrian, registering a magnitude of 4.2 on the Richter scale. In Lenawee County, news articles reported some mild ground shaking, but no structural damage. Based upon the above data and use of the EPA Injection-Induced Seismicity Decision Model flow chart, no concerns related to induced seismicity have been identified.

The proposed injection well will be constructed and operated in such a manner so as to confine the injected fluids to the permitted depth and prevent the migration of any fluids into and between USDWs. The pressure at which the fluid is injected is limited to ensure safe operation of the well. The maximum injection pressure for each well is determined based on 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. In this case, the maximum injection pressure was set at 555 psi. Monthly reports of pressure and flow rates must be submitted to EPA for review.

Before a permit is issued by EPA, the owner/operator of a Class II injection well must demonstrate that the funds necessary' to plug and abandon the well are available. This ensures that the well will be plugged in accordance with State and Federal requirements. Wells which are to be abandoned require EPA technical review and approval of the well closure plans submitted by Savoy Energy' prior to granting permission to remove casing, install cement plugs, and other well closure work.

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Comment #3:

Besides the obvious concern of usable water, it is adjacent to an historic cemetery plot as well as other families. The site Savoy Energy L.P. selected for the injection well is a short distance from a historic grave site off of East Valley Road and Breckel Highway; the Chandler Cemetery that borders the Creque property⁷ on the west edge. Dating back to the 18Q0's this site has a historic record of the Under Ground Railroad Days of pre-Civil war and after.

I write to express concern regarding the proposed Savoy Energy, L.P. injection well at SW 1/4, T6S, R4E, Section 20, Lenawee County⁷, Michigan. The location is near an historic site that deserves serious respect. I write as a citizen, a pastor and educator, and as someone with an interest in the history⁷ of the antislavery movement. Lenawee County is known for its involvement in the Underground Railroad and for its legacy of pre-Civil War antislavery residents. One of the best revered figures in this movement was Elizabeth Margaret Chandler, a nationally-recognized poet who published in major eastern journals. Chandler's work highlighted human equality, dignity, and the evils of slavery. She was also an advocate for the rights of women. Her grave is located very near the site of the proposed injection well.

Response to Comment #3

In response to public comments regarding the proximity of the historic Chandler Cemetery⁷ to the proposed well site, EPA reached out to consult with the Michigan State Historical Preservation Office (SHPO), in accordance with the National Historic Preservation Act (NHPA) Section 106 to further investigate the potential impact of the well site on the cemetery. Because the Chandler Cemetery had not yet been researched by the SHPO for listing on the National Register of Historic Places, geologist Kristine Shimko of the Michigan Department of Environmental Quality (MDEQ) coordinated a review of the well site with the SHPO. Ms. Shimko visited the well site and recorded numerous photographic images to document that the underground pipes from the existing production wells immediately adjacent to the Chandler Cemetery⁷ have caused no adverse effect on the cemetery and shared this data with EPA. Based upon this information, EPA concurred with MDEQ's conclusion that similar pipes to be installed for the proposed Creque 3-20 injection well covered by this permit should cause no adverse effect on the Chandler Cemetery⁷. As the agency undertaking a federal project, EPA fulfilled its NHPA responsibility⁷ to notify⁷ the SHPO by sending written notification of its findings of "no effects." The SHPO did not object nor respond to EPA's findings after 30 days of receiving notification.

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Comment #4

My reasons for this are mainly concerning safety issues. There are so many concerns for the welfare of the people. Not only the long term problems associated with the millions of gallons of brine water that are associated with all the wells in the immediate area, they are going to be pumping some, maybe more than some toxic chemicals into the ground.

Who knows what will happen 25 or 30 years from now if this water will still stay down that deep the ground (1900 plus ft.)? Also, who knows what will happen if the concrete around the well pipe fails from deterioration, or cracks from earth tremors (earthquakes)?

Then too, I understand that after twenty years +two is all the monitoring that is required for an injection well.

Response to Comment #4

The proposed permit only allows the injection of produced brine, which is ancient seawater that is found along with petroleum in deep underground porous rock formations. No fluids other than brine are allowed to be injected into the proposed well.

Prior to receiving a permit, all injection wells must meet UIC siting requirements. The UIC siting regulations (40 C.F.R. § 146.22) require that all new Class II wells be sited in such a fashion that they inject into a formation which is separated from any USDW by a confining zone that is free of known open faults or fractures within the area of review. The proposed Class II well complies with this siting requirement. In particular, the proposed injection well is to be drilled to approximately 2,211 feet below ground surface and the top of the proposed injection zone is at a depth of approximately 1,926 feet with an impermeable confining zone immediately above the injection zone. The base of the lowermost USDW in this area is approximately 204 feet below ground surface. This means that there are approximately 1,722 feet of sedimentary rock between the proposed injection zone and the lowermost USDW. EPA also requires a confining layer between the injection zone and the bottom of the lowermost formation containing an USDW, based on the well operating requirements found at 40 C.F.R. § 146.22. The proposed injection well also complies with this requirement. In this case the confining zone, which lies directly above the injection zone, is the Salina C Unit. The Salina C Unit is composed of shale, a type of sedimentary rock that is highly impermeable.

Underground injection wells are designed with multiple safeguards to prevent leaks from the well. Injection wells are constructed with multiple steel casings (pipe) 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. Any future deterioration of cement in the well may be detected by periodic pressure testing of the well. If this test fails, the well is shut down immediately, and the

Response to Comments - Savoy Energy¹ Creque 3-20 Class II Permit

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.

Responding to your concern about earthquakes on injection wells, please refer to our Response to Comment #2, first paragraph, on Page 5.

UIC regulations require monthly monitoring for the operating-life of the well, not a fixed time period of "twenty' plus two years." At the conclusion of the operating life of the well, Savoy must plug and abandon the well as specified in the permit. The plugging and abandonment will ensure that fluids do not migrate up through the well bore.

Comment #5

We live near the Southwest corner of the intersection of Valley Road and Wilmoth Highway in Raisin Township. This proposed injection well is very close to our residential area and we are concerned about possible contamination of our water supply if there is a problem during the injection operations.

If there is a mishap and the brine is leaked in the top 80 feet or so of sand, knowing that many residents here have wells that are within that 80 feet range, how it will affect well water, farm land, etc.? If there is a mishap deeper than where the sand is, under the clay and shale (cap) how will this affect the River Raisin ecosystem? Why do they remove the brine from somewhere around 4,000 feet but deposit it around 2,300 feet and not the 4,000 feet below the surface?

Response to Comment #5

The proposed injection well will be constructed and operated in such a manner so as to confine the injected fluids to the permitted depth and prevent the migration of any fluids into and between USDWs. As a result, there should be no connection between the operations of this injection well, the water table, and nearby rivers.

The proposed well will be constructed with three casing strings (steel pipe). Each pipe is inside the previous one and the outside of each pipe is cemented. This will prevent any movement of fluid either outside the casing to the surface or inside between casings. 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 (the annulus), which will be filled with a liquid mixture containing a corrosion inhibitor, and will allow the pressure in the space to be monitored. (See Page 1 -2, paragraphs 5-7 of the "Background" section, for further details regarding well construction.)

Drinking water sources are particularly protected at sites where there is a large separation between the top of the injection zone and the lowest potable water bearing aquifer. The proposed injection well is to be drilled to approximately 2,211 feet below ground surface and the top of the proposed injection zone is at a depth of approximately 1,926 feet with an impermeable confining zone

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immediately above the injection zone. The base of the lowermost USDW in this area is approximately 204 feet below ground surface. This means that there are approximately 1,722 feet of sedimentary¹ rock between the proposed injection zone and the lowermost USDW.

Returning the waste brine to a confined rock formation below the lowermost USDW through a properly constructed and operated injection well is an environmentally sound procedure. UIC regulations do not require that the brine be disposed of back into the original rock formation.

Comment #6

Our concern is the "Karst geology" in nearby Lenawee County along with the formation proposed for injection. Close proximity to the Raisin River would also be of concern.

Response to Comment #6

Karst topography is defined as a landscape formed from the dissolution of soluble rocks including limestone, dolomite and gypsum. It is characterized by sinkholes, caves, and underground drainage systems; these features are produced by chemical weathering of the rocks. Karst topography is mostly limited to counties in northern Michigan and the Upper Peninsula; most of southern Michigan lacks karst topography except for Wayne County, Monroe County', and the far eastern part of Lenawee County, but karst is not found in the area of the proposed well site.

The rock formation proposed for the injection zone (between 1,926 and 2,211 feet below the ground) is the Niagaran Formation, composed of a permeable sedimentary rock called dolomite. Above the Niagaran Formation is the Salina C Unit shale, an impermeable rock which acts as an overlying confining layer. Below the Niagaran Formation is the Clinton Formation, which is a relatively impermeable rock, which serves as an underlying confining layer. The confining layers act as natural barriers to prevent fluid from migrating vertically out of the injection zone.

The proposed injection well will be constructed and operated in such a manner so as to confine the injected fluids to the permitted depth and prevent the migration of any fluids into and between USDWs. As a result, there should be no connection between the operations of this injection well and the water table or nearby rivers. Drinking water sources are particularly protected at sites where there is a large separation between the top of the injection zone and the lowest potable water bearing aquifer.

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Comment #7

I live in Adrian, MI and my parents live less than a mile away from the proposed site. There are enough dangers to our drinking water and I think the public should have the opportunity to learn more about this.

Response to Comment #7

The steps EPA took to tell people about the draft permit exceeded those required by the applicable regulation, which is 40 C.F.R. § 124.10. EPA: 1) published the draft permit and fact sheet on the EPA web site; 2) solicited comments on the draft permit via notices mailed to residents living within a quarter mile of the proposed well location, as well as people on the list of those who have, asked to receive notice of all UIC draft permits; and 3) notified and provided the draft permit and fact sheet to the Lenawee County Library, Adrian Library, Lenawee County⁷ Board of Commissioners, Raisin Township Clerk, MDEQ, Michigan Department of Natural Resources, Michigan SHPO, and the U.S. Fish & Wildlife Service. EPA provided 30 days during which people could ask questions about or comment on the permit application and draft permit.

Comment #8

With the safety record that Savoy has with the federal EPA, especially with the violations for air pollution, I am not sure they can be trusted to operate a safe injection well site.

Response to Comment #8

The conditions of the UIC permit require Savoy Energy⁷ to submit monthly monitoring reports, and maintain and periodically test the mechanical integrity of the injection well. EPA has legal authority and a set of practices to evaluate whether people who have UIC permits are in compliance with such permits. Any person who operates a well in violation of permit conditions is subject to civil penalties and other consequences under the SDWA⁷ and may be subject to such actions under the Resource Conservation and Recovery Act. Any person who willfully violates a permit condition is subject to criminal prosecution.

Determination

After consideration of all public comments, EPA has determined that none of the comments submitted have raised issues which would alter EPA's basis for determining that it is appropriate to issue Savoy Energy a permit to construct and operate the Creque 3-20 SWD injection well. Therefore, EPA has determined that the permit decision will be to issue a final permit to Savoy Energy. There are no changes in the final permit from the draft permit.

Response to Comments - Savoy Energy Creque 3-20 Class II Permit

Appeal

In accordance with 40 C.F.R. § 124.19(a), any person who filed comments on the draft permit may petition the Environmental Appeals Board (EAB) to review any condition of the final permit decision. Additionally, any person who failed to file comments on the draft permit may petition the EAB for administrative review of any permit conditions set forth in the final permit decision, but only to the extent that those final permit conditions reflect changes from the proposed draft permit. Any petition shall identify the contested permit condition or other specific challenge to the permit decision and clearly set forth, with legal and factual support, petitioner's contentions for why the permit decision should be reviewed, as well as a demonstration that any issue raised in the petition was raised previously during the public comment period (to the extent required), if the permit issuer has responded to an issue previously raised, and an explanation of why the permit issuer's response to comments was inadequate as required by 40 C.F.R. § 124.19(a)(4). If you wish to request an administrative review, documents in EAB proceedings may be filed by mail (either through the U.S. Postal Service ("USPS") or a non-USPS carrier), hand-deliver}', or electronically. The EAB does not accept notices of appeal, petitions for review, or briefs submitted by facsimile. All submissions in proceedings before the EAB may be filed electronically, subject to any appropriate conditions and limitations imposed by the EAB. To view the Board's Standing Orders concerning electronic filing, click on the "Standing Orders" link on the Board's website at www.epa.gov/eab. All documents that are sent through the USPS, except by USPS Express Mail, must be addressed to the EAB's mailing address, which is: Clerk of the Board, U.S. Environmental Protection Agency, Environmental Appeals Board, 1200 Pennsylvania Avenue, NW, Mail Code 1103M, Washington, D.C. 20460-0001. Documents that are hand-carried in person, delivered via courier, mailed by Express Mail, or delivered by a non-USPS carrier such as UPS or Federal Express must be delivered to: Clerk of the Board, U.S. Environmental Protection Agency, Environmental Appeals Board, 1201 Constitution Avenue, NW, WJC East Building, Room 3332, Washington, D.C. 20004.

A petition for review of any condition of a UIC permit decision must be filed with the EAB within 30 days after EPA serves notice of the issuance of the final permit decision.

40 C.F.R. § 124.19(a)(3). When EPA serves the notice by mail, service is deemed to be completed when the notice is placed in the mail, not when it is received. However, to compensate for the delay caused by mailing, the 30-day deadline for filing a petition is extended by three days if the final permit decision being appealed was served on the petitioner by mail.

40 C.F.R. § 124.20(d). Petitions are deemed filed when they are received by the Clerk of the Board at the address specified for the appropriate method of deliver}'. 40 C.F.R. § 124.19(a)(3) and 40 C.F.R. § 124.19(1). The request will be timely if received within the time period described above. 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 enclosed. This request for review must be made prior to seeking judicial review of any permit decision. Additional information regarding petitions for review may be found in the Environmental Appeals Board Practice Manual (August 2013) and A Citizen's Guide to EPA's Environmental Appeals Board, both of which are available at:

[http://www.epa.gov/oa/EAB Web Docket.nsf/General+Information/Environmental+Appeals+Board+Guidance+Documents?OpenDocument-](http://www.epa.gov/oa/EAB%20Web%20Docket.nsf/General+Information/Environmental+Appeals+Board+Guidance+Documents?OpenDocument)


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The EAB may also decide on its own initiative to review any condition of any UIC permit. The EAB must act within 30 days of the sendee date of notice of the Regional Administrator's action. Within a reasonable time following the filing of the petition for review, the EAB shall issue an order either granting or denying the petition for review. To the extent review is denied, the conditions of the final permit decision become final agency action when a final permit decision is issued by the EPA pursuant to 40 C.F.R. § 124.19(1).

Final Permit

The final permit and Response to Comments document are available for viewing at the Lenawee County Library, 4459 West US 223, Adrian, MI; and at the Adrian Public Library, 143 E. Maumee Street, Adrian, MI.

Please contact William Tong of my staff at (312) 886-9380, or via email at tong.william@epa.gov if you have any questions about the Savoy Energy Creque 3-20 SWD injection well permit.



Tinka G. Hyde
Director, Water Division
U.S. Environmental Protection Agency
Region 5

Date February 25, 2016