Appeal of EPA permit decision on MI-035-2R-0034, Holcomb 1-22 Well

Granted to:

Muskegon Development Company

1425 South Mission Rd.,

Mount Pleasant, MI 48858Muskegon Development Company

Submitted by:

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August 3, 2018

Environmental Appeals Board (EAB)

I. Introduction

I am writing to appeal the EPA decision to grant a permit for MI-035-2R-0034, Holcomb 1-22 Well, which was granted to Muskegon Development Company on July 3, 2018. I received email notification of the decision on July 12 (D. Miller, personal communication, July 12, 2018). The EPA posted a "Public Notice: Response to Comments and Final Modifications to Permits MI-035-2R-0034" on July 19 (US EPA, 2018).

I would like to appeal the decision to grant the permit.

It is my contention that the decision of the EPA to grant permit MI-035-2R-0034 did not fully consider *Environmental Justice* for this community. It is also my contention that the EPA did not fully consider possible risks to *Underground Sources of* D*rinking Water*.

These issues (social justice and ground water safety / contamination) were both raised extensively during the public meeting and during the written comment period, and I submitted comments regarding both of these issues (Addison, Submitted Comments, 2017).

This appeal shall begin first with a review of the Environmental Justice background of the community, followed by background on Economic Situation. It will then address the background regarding Drinking Water. After these issues have been introduced, individual comments will then be introduced, followed by their response, followed by criticism of the response.

II. VIOLATION OF SECTION 124.7 (a), (b), and (c)

However, before I begin the appeal, I would like to draw attention to a violation of government regulation pertaining to the official EPA response to this permit.

According to Section 124.17 (a), (b), and (c) of Title 40 of the Code of Federal Regulations (40 C.F.R. § 124.17 (a), (b), (c)), all "in scope" comments are supposed to be addressed individually; however, in the response to the comments submitted for MI-035-2R-0034, no responses were issued for Comments # 25, #26, and #27 (RTC - RESPONSE TO COMMENTS MI-035-2R-0034.pdf).

Thus, the failure of the EPA to issue responses to Comments #25, #26, and #27 is a violation of Section 124.17 (a), (b), and (c) of Title 40 of the Code of Federal Regulations (40 C.F.R. § 124.17 (a), (b), (c)), "which require that at the time any final United States Environmental Protection Agency (EPA) permit decision is issued, the agency shall: (1): briefly describe and respond to all significant comments on the draft permit decision raised during the public comment period."

Indeed, this regulation is cited in the Introduction to the Permit Response / Decision file that was posted on "Public Notice: Response to Comments and Final Modifications to Permits MI-035-2R-0034." (EPA.gov). This file can be accessed at:

https://www.epa.gov/sites/production/files/2018-07/documents/rtc_-_response_to_comments_mi-035-2r-0034.pdf

It is unfortunate that the responses to these comments were overlooked. I merely ask that the EPA abide by the agreed-upon rules, which are clearly stated in the introduction to the decision, which is posted on the website under "Related Documents" as: Response to Comments for UIC Major Modification of permit MI-035-2R-0034.pdf

This is a technical matter, and since the established format of comment-response should be honored, I request the permit be denied, at least until adequate response can be made to these Comments, as well as to the other Comments which I will challenge that were submitted during the comment period for MI-035-2R-0034.

If you will not deny the permit on these grounds, at least "send it back" and require a response to these comments. They are listed as "in scope."

III. Environmental Justice Concerns

Based on the EPA criteria cited above, I believe that the EPA EJ screening was in error.

To begin with, the EPA EJ review did not consider that of the 30,653 people estimated to live in Clare County Michigan according to the latest census data, 2,697 of them are veterans. This information can be found under "Population Characteristics" of the government census website under Clare County (United States Census Bureau, 2017). Our veterans have already sacrificed a great deal for our country. Many of them have post traumatic stress disorder, injuries, or other battle scars. It is unfair to ask them to risk their water so that a private company can profit from their risk and sacrifice, keeping the profits, but outsourcing the risk.

It is also important to consider that only 11.4% of the population of Clare County has a "Bachelor's degree or higher." This information can be found under "Education" section of the census data. Indeed, only 84.1% of the population age 25 and over has a "high school degree or higher." This means that nearly 16% of the adult population (25 and over) of Clare County did not complete high school (United States Census Bureau, 2017). Moreover, the vast majority of residents do not have a college degree.

Another important consideration is that 17.6% of the under-65 population of Clare County is considered disabled by the US Census Health data ("With a disability, under age 65 years, percent, 2012-2016"). Even worse, 8.8% of the residents of Clare County are considered "Persons without health insurance, under age 65 years, percent" (United States Census Bureau, 2017).

Approximately 5% of the population of Clare County are members of a minority group. According to government census data - "Race and Hispanic Origin" - there are Native Americans, African Americans, Asian Americans, Hispanic Americans, and immigrants living in this area (United States Census Bureau, 2017).

The "Total retail sales per capita, 2012" of Clare County was a meager $8,497. According to the same government census data, the national average of "Total retail sales per capital, 2012" was $13,443. This is quite a big difference, and everyone who lives here or has visited here has seen the economic problems up close (United States Census Bureau, 2017).

A simple Google search for "unemployment rate in Clare County Michigan" will tell you it is 8.1% as of March 2018 (Google Search "Unemployment Rate in Clare County Michigan," 2018).

Another serious flaw in the EJ evaluation of this project is failure to consider impact on the tourism and recreation industry in this area. Indeed, recreation is one of the major industries that Clare County still has. Every year, people from all over the State of Michigan and the rest of America come here to golf, swim and fish in our many lakes and rivers, hunt, and enjoy a multitude of other outdoor recreational activities.

Draining an unlimited amount of water from our aquifers at the risk of water contamination will create a terrible economic burden – regardless of whether or not these operations affect water quality or availability. Just the news that this sort of industrial development is occurring here is enough to scare tourists and hurt local businesses, thereby further harming the economic vitality of this community. This will lead to more poverty. And if there were an accident or a leak, it would destroy this community, which is already struggling.

Consider the abundance of poverty in Clare County. According to the census data, the Median household income (in 2016 dollars), 2012-2016 was only $34,911. This is far below the national average of $55,322 for the same period. "Per capita income" and "persons in poverty, percent" figures are noticeably worse in Clare County than the national average. "Per capital income" in Clare County is a mere $20,418; the National Average is $29,829. "Persons in poverty, percent" for Clare County is 21.7%; the National Average is 12.7%. (United States Census Bureau, 2017).

In other words, Clare County has an awful lot of people who are poor, sick, under-educated, unemployed, uninsured, members of a minority group or immigrant community, or military veterans.

As a struggling community, every industry in the area plays an important role in simply sustaining the community. Anything that could potentially harm one of the industries in the area would be extremely bad.

And agriculture is one of the few industries that does play an important role in sustaining this community, thus to fully evaluate Environmental Justice, the EPA should consider the Agricultural Industry, its impact on this community, and how operation of this well might affect this industry, and thus this community. In addition to new affects, the pre-existing environmental conditions caused by

the presence of the agricultural industry already has an impact on the area and the economic situations of the residents. Thus, this must be considered as well. These things are important for several reasons:

1. Because it is an agriculture area, the EPA already recommends residents test for the following additional contaminants: Nitrate, nitrite, pesticides, coliform bacteria. Also, the EPA recommends that many residents of this area, due to their proximity to other potential water hazards ("Dump, junkyard, landfill, factory, gas station or dry-cleaning operation nearby"), should test for "Volatile organic compounds, total dissolved solids, pH, sulfate, chloride, metals" (EPA, 2017).

2. People around here are already recommended to do a lot of expensive testing. Now many of them will need to do even more water testing. Again, this community is full of people who can't afford to pay for these tests. Also, because most of the people in this community do not have college degrees and many of them lack high school diplomas, many residents do not have the research skills necessary to know which tests to request, how to test, or where to learn more about testing.

3. There is a great deal to be concerned with regarding the local agricultural industry and gas and oil development is that the farms in the area – and there are a lot of farms in the area – also use aquifer water. Imagine a nightmare scenario where a well failure occurs, something toxic leaks into the ground water, the farmers unknowingly water their crops with it. Or perhaps simply depleting the aquifer levels causing the farmer's water to gradually become toxic without the farmer being aware of it. Does the poison water kill the crops? Does the farmer lose the whole harvest? Or do the plants live, and now they are shipping vegetables that have been watered with radon or arsenic to half the grocery stores in the country?

IV. PRE-EXISTING RISKS TO DRINKING WATER NOT ADDRESSED

Another important consideration is the source of drinking water in this community. Literally the entire community relies on underground wells for their water supply. Indeed, even the cities use underground aquifers. For example, the City of Gladwin relies on aquifers for its municipal water. And everyone living outside the city relies on private wells to access aquifer water, as they are too far away for municipal water (which relies on aquifer water, anyway).

There are many risks to oil and gas development. Although the EPA has ruled that these risks are not sufficient to deny the permit, I believe this ruling was in error, as it clashes with the EPA Environmental Justice philosophy of not overburdening struggling communities and with EPA water testing recommendations for residents in the area of oil and gas operations or recent industrial activity. Specifically, the EPA recommends that people test their water whenever "Conditions near your well have changed significantly (i.e. flooding, land disturbances, and new construction or industrial activity)." (EPA, 2018).

The EPA also considers "Gas drilling operations nearby" as one of the "Conditions or Nearby Activities" that warrants sufficient reason to test your well water. Specifically, they recommend testing it for "chloride, sodium, barium, and strontium" (EPA, 2018).

These tests can be expensive, often costing hundreds of dollars a year. This is an impoverished community. The people who live here just don't have the money to afford the tests that the EPA says they need to protect themselves and their families from the risks of this project, risks such as contamination of their drinking water.

I believe that the EPA has erred with its decision to grant this permit. I will now address the "in scope remarks."

V. IN SCOPE REMARKS

Many of the comments received during the comment period and during the public meeting were about water safety, water pressure, protecting ground water, well leakage, and other matters relating to underground sources of drinking water (USDW):

The following Comments are taken directly from the EPA Underground Injection Control (UIC) Public Notice: Response to Comments and Final Modifications to Permits MI-035-2R-0034:

* Comment 5 (page #5): "Ground water contamination"

> "Injection and waste migration: Once wastewater is underground, there are few ways to track how far it goes, how quickly, or where it winds up, raising concerns that it may migrate upward back to the surface. The hard data that does exist comes from well inspections by federal and state regulators, who can issue citations to operators for injecting illegally, for not maintaining wells, or for operating wells at unsafe pressures, yet the EPA has acknowledged it has done very little with the data it collects. A 1987 General Accountability Office Review tallied 10 cases in which waste had migrated from Class I hazardous waste wells into underground aquifers. After the findings, the federal government drafted more rules aimed at strengthening the injection program. The government outlawed certain types of wells above or near drinking water aquifers, mandating that most industrial waste be injected deeper. In response, the energy industry lobbied and won a critical change in the federal government's legal definition of waste: Since 1988, all material resulting from the oil and gas-drilling process is considered non-hazardous, regardless of its content or toxicity, making it subject to less strict standards than hazardous waste (Class I wells).

Response #5 (page #5):

> "The proposed permit allows only the injection of fresh water for enhanced oil recovery; injection of any wastes for disposal is prohibited. The proposed injection well will have multiple safeguards to prevent any leaks: multiple well casings (steel pipes), annulus fluid (surrounding the injection tubing), cement between the well casings, and a packer to seal off the well annulus. A thick (over 900 feet for this well) confining zone of impermeable rocks lies above the injection zone. In the event of a well leak (loss of mechanical integrity), the permit specifies that Muskegon Development Company must cease injection to the well, and notify the EPA within 24 hours of the incident. After repair of the leak(s), Muskegon Development Company must pressure test the well, pass a mechanical integrity test, transmit the test results to and request permission from EPA for written authorization to resume injection."

The response to this comment states “the proposed permit allows only the injection of fresh water for enhanced oil recover...”

I believe this response is inadequate, as it does not consider the source of the fresh water. Because the injected fresh water will be drawn from the area, there is a serious risk of draining the aquifer. Although this concern is mentioned directly in Comment #16, the fact is that even the EPA acknowledges that withdrawing water can lower water levels, which can allow toxins already present underground to saturate the underground water.

Depleted aquifer levels means that the proportion of arsenic and other naturally-occurring toxins will increase relative to the amount of water. Thus, even if only freshwater is injected into the well (as the approved permit stipulates), the mere act of depleting aquifer levels will cause the toxicity of the ground water to increase. The government acknowledges this:

> “Arsenic can enter the water supply from natural deposits in the earth or from industrial and agricultural pollution. It is widely believed that naturally occurring arsenic dissolves out of certain rock formations when ground water levels drop significantly” (CDC, 2018)

* Comment #10 (page #7): “Well design and construction inadequate to protect Underground Sources of Drinking Water (USDW’s)”

> “The permit applicant, Muskegon Development Company, and the EPA, have not sufficiently demonstrated that the proposed injection well will not endanger Underground Sources of Drinking Water (USDW) and will likely present a public nuisance. The proposed injection well and any nearby offset wells are not properly designed and constructed and may endanger USDW’s.”

* Response #10 (page #7):

> “EPA’s technical review of the permit application included analysis of the engineering design of the injection well and cement plugs, evaluation of the site geology to determine the depth of the USDW, and the suitability of the rock formation(s) for injection, calculation of the maximum injection pressure, and a search for and evaluation of any operating or plugged wells within the Area of Review (AOR) that penetrate the injection zone, to ensure that USDW’s are protected.”

This response is inadequate because it mentions nothing of how the act of water withdrawal might affect USDW’s. By lowering the water table, the proportion of naturally-occurring toxins is increased, perhaps beyond safe levels. The response did not address this. It also did not mention the method of the search. Which database was used?

The following comments and their responses are all along the same lines, and not one single response mentions the possibility that depleting aquifer levels could allow the levels of naturally occurring toxins to increase above safe levels. I will not go through each comment or response individually, though there is a failure in the responses to mention depletion of aquifer levels. The responses to these comments make no mention of lowered water tables causing increased contaminants in residential wells, and they should do this simply for the sake of complete analysis of the problem.

* Comment / Response #11 (page #7): “Area of Review not sufficiently protective of USDW’s”
* Comment / Response #12 (page #8): “Surface Casing is not deep enough to protect USDW’s”

* Comment / Response #21 (page #14): "Risk of water pollution at the well"
* Comment / Response #23 (pages #15-16): "Injection well failure rates"
* Comment / Response #24 (page #:16): "Well casing failures"

In addition to this pattern, I would also like to add that no response was issued to the following comments:

* Comment #25 (page #3): "Structural failures inside injection wells are common"
* Comment #26 (page #3): "Please protect the water supply"
* Comment # 27 (page #3): "There is insufficient information in the permit application to support a decision"

Again, if Comments #25-27 were "in scope," why was no official response given?

Two comments did address the issue of depleted aquifer levels. I will address these comments individually:

* Comment 13: "Fresh water should not be used for injection in lieu of brine water"
* Comment 16: "Injection wells can drain the aquifer and cause earthquakes"

* Comment #13: "Fresh water should not be used for injection in lieu of brine water"

> "There is an issue regarding the level of ground water withdrawal for the purpose of oil production enhancement. Because there is no limitation, in essence there is no coordination with the aquifer that's going to provide the fresh water, so you are basically allowing the permittee to drain the aquifer. That shouldn't happen. That should be a violation of the Safe Drinking Water Act. The Safe Drinking Water Act says you are supposed to protect all of the aquifers from loss or contamination. In Michigan we have a little bit more than 4 million people who draw their water every day from an aquifer, and we need to protect them all as far as I'm concerned, and I know that's exactly what you want to do. So I do think you need to readjust the standard that you have for these – this class of injection to consider the aquifer that is – to consider where the fresh water is coming from. Well, frankly, you should not use fresh water. You should do what they do in EPA Region 10 or Region 9 or Region 8."

* Response #13:

> "There is no prohibition in the Safe Drinking Water Act (SDWA) or UIC regulations to using fresh water or ground water for injection to enhance recovery of oil or natural gas. The SDWA does not restrict the withdrawal of fresh water from an aquifer. The State of Michigan regulates ground water and the volume or rate of ground water withdrawal."

Again, this response is inadequate. It does not even mention aquifer levels, except to hand the responsibility off to the State of Michigan. If the EPA is going to approve this project, the EPA should address the issue of depleted aquifer levels causing water levels to drop or quantities of naturally occurring toxins to increase relative to the amount of water.

I ask you to deny the permit on these grounds.

* Comment #16: "Injection wells can drain the aquifer and cause earthquakes"

"An earthquake of Richter Magnitude 4.2 occurred in Michigan during May of 2015. An earthquake easily can affect the confining strata within a 200 mile-plus area of the epicenter. Another problem with this well, and in particular, with the Class II wells, is that an infinity limitation on ground water withdrawal allows the permittee to drain the aquifer. The U.S. Geological Survey made a finding that injection wells do, in fact, cause earthquakes. If you live in Oklahoma, you don't have to wonder about that finding at all."

* Response #16:

"EPA considered seismic risk as part of its technical review of the permit application. The May 2, 2015 earthquake epicenter was located about 125 miles away near Galesburg, Michigan, in Kalamazoo County, with a Richter Magnitude of 4.2. News reports of surface damage were minimal. Upon technical review, no seismicity concerns related to the proposed injection into the Holcomb 1-22 well were identified.

"Studies have documented that certain injection wells in Oklahoma can cause earthquakes. However, there are a number of prerequisite factors that must exist: 1) excessively high injection pressures and fluid volumes, and 2) the existence of fault zones. The injection pressure and fluid volume for the proposed Holcomb 1-22 well, combined with the general lack of fault zones in the area, are an unlikely scenario for injection-induced earthquakes. Also, the geology of Michigan is very different than that of Oklahoma, and the studies from Oklahoma cannot reasonably be extrapolated to the proposed well site in Michigan."

Response #16 is inadequate for several reasons:

1. It only address earthquakes. It does not address other problems with draining the aquifer (such as lower water levels causing naturally-occurring contaminants, such as radon and arsenic, to increase) . Is there a response to this?

2. It does not mention the criteria for the technical review of "seismicity concerns related to the proposed injection into the Holcomb 1-22 well." What were the criteria for this review?

3. It fails to define "excessively high injection pressures and fluid volumes." How high? What pressure level do they consider "excessively high"? It also fails to consider where the "fluid volumes" are coming from. Do they mean "fluid volumes" injected into the well, or do they mean "fluid volumes" withdraw from the aquifer? This seems like an important distinction.

4. "Studies from Oklahoma cannot reasonably be extrapolated to the proposed well site in Michigan." Then what studies are relevant? Are there any relevant studies on earthquakes and water injection in Michigan or other areas with similar geology? Are there any studies on depleted water levels in similar geological areas having an adverse effect on water levels in private wells or on water quality of private wells?

Although it was difficult to obtain guidelines for Environmental Justice, nor could anyone to whom I spoke at the EPA direct me to such guidelines, during the comment period there were concerns that the "low income population of the well site area should be factored into the permit decision" (Comment

#20). The EPA responded to these concerns briefly in the final decision documentation; however, I believe the response was inadequate and failed to fully consider all relevant factors (Response #20).

Below, please see Comment #20 and Response #20 issued by the EPA.

* Comment #20: "Low income population of the well site should be factored into permit decision."

> "My hope is that EPA staff will understand the human condition that surrounds this well site and give due consideration to those concerns if any of the other conditions of the approval are in question. If you look at the demographics of Michigan, you will notice that Lake County and Clare County are the most impoverished area within our state. The northern half of Clare County is the most impoverished area within our county. The last numbers I saw, the median income in that area was under $20,000 per household. The Dodge City area is likely the most impoverished area in northern Clare County and it is located 2 miles west of Holcomb 1-22 well site. As a full time realtor in Clare, Gladwin, and Isabella County for over 25 years, I have seen this poverty first hand. Last year (per the Clare/Gladwin MLS), there were 239 home sales in the Harrison Area. 105 of those sales were under $50,000. Most of these sales are in residential areas served by private wells and septic systems. Most of the wells we see in that area are 1 or 1.5-inch diameter hand-driven wells that were put in prior to the health department permit requirements and they remain in use today because of the cost of upgrading and the home owner's inability to fund improvements. While I understand that contamination from this project is unlikely, the unlimited use of excessive and unlimited quantities of water from the water table is a concern."

Response #20:

> "EPA considers a number of factors in review of a permit application, including environmental justice (EJ) screening to identify areas where people are most vulnerable or may be exposed to different types of pollution, in order to assure that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental or commercial operations or policies. One of those EJ screening factors identified by EPA was that 56% of the local population were in the low income level. Other factors include evaluation of the well design; plugging and abandonment plan; and, geological suitability of the rock formations for injection."

I would ask what screening criteria used? I have already submitted statistics from the US Census Department that show demographics, race, income, education, military status, health, etc. I believe my data should be used to help complete the picture for the Environmental Justice review of the surrounding area.

VI. OUT OF SCOPE REMARKS

There were also several "out of scope" comments relating to aquifer levels and ground water protection that were not considered relevant, and therefore not addressed. Specifically, the following comments were considered "out of scope":

* “Fresh water should not be withdrawn at an unlimited rate because it may lower water levels in private wells”

* “Fresh water should not be withdrawn at an unlimited rate because it may deplete the aquifer”

As aquifer levels affect both well water levels and the proportion of naturally-occurring contaminants, these comments should be considered very much “in scope.”

The act of draining water from an aquifer changes the qualities of the water present in it by changing the ratio of water to the toxins that are already present in the ground. The less water, the higher the level of toxins that tend to show up in the drinking water (like arsenic, radon, and all the other toxins that are naturally found undergound).

As acknowledge of how decreased ground water levels can affect water quality, I will again refer to the Centers for Disease Control and Prevention:

> “Arsenic can enter the water supply from natural deposits in the earth or from industrial and agricultural pollution. It is widely believed that naturally occurring arsenic dissolves out of certain rock formations when ground water levels drop significantly” (CDC, 2018)

In light of this fact, the following information from the U.S. Geological Survey becomes important. According to the U.S. Geological Survey, depleting aquifer levels can cause the following problems:

- drying up of wells
- deterioration of water quality
- reduction of water in streams and lakes
- increased pumping costs
- land subsidence

(USGS, 2018).

Depleting the aquifer can change water quality. And this permit, by granting unlimited withdrawal, could result in depleted aquifer levels. These remarks are in scope, thus, these “out-of-scope remarks” and the logical extensions and conclusions of these remarks should be considered “in scope.”

VIII Concluding Remarks

I urge you to give further consider to the concerns I have developed above, concerns which have already been entered into the record as public comments.

In particular, please consider the aquifer levels and how withdrawing large quantities of water might deplete water levels, cause naturally-occurring toxins and hazardous compounds to appear in residential well water, or simply increase levels of such toxins and hazardous compounds to levels in excess of safety standards.

I believe that denying this permit is in the best interest of the residents, local businesses, and the entire United States of America.

Please reconsider this decision and deny this permit.

Sincerely,

Emerson Joseph Addison
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248-348-5401
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VIII: Statement of Compliance

This appeal is approximately 5,000 words in length, putting it under the word limit. I, Emerson Joseph Addison III, swear that I have followed all the guidelines required of this appeal by the EPA and EAB to the best of my knowledge.

IX: TABLE OF AUTHORITIES

page #

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ACKNOWLEDGE OF SERVICE CONSENT

I, Emerson Joseph Addison, have spoken to the Executive Assistant, “Maggie,” of Muskegon Development Company. Maggie gave me the email address for the President of Muskegon Development Company, Bill Myler, and the Head Engineer of Muskegon Development Company, David Bell.

Maggie also informed me that it should be ok if I sent Notice of Service via email, as Muskegon Development Company was a small company.

Maggie then transferred me to David Bell’s office answering machine, which I left a message on informing him that I would serve notice by email to both him and to Bill Myler.

This conversation occurred at approximately 3:58 p.m. on August 10, 2018.

I am submitting this statement as acknowledge of Notice of Service Requirements.

Sincerely,

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