Attachment 4

October 3, 2023

To: Allen Batka, USEPA Water Division

IN RE: Michigan Potash & Salt Co.'s applications to modify UIC permit numbers: MI-133-1I-0004, MI-133-1I-0005 and MI-133-1I-0006.

COMMENTS: The Michigan Potash and Salt Company has applied to modify three Class I disposal well permits originally issued in 2016. The applications request to extend the top of the "injection zone" upwards by about 1,000 feet. This will allow injection into the Dundee formation, known to be very porous, but also heavily explored for oil & gas over the years. The formation is perforated by numerous "plugged and abandoned" wells. The EPA has prepared a "Fact Sheet" and draft permits for public review and comment. Two issues associated with this requested action appear unaddressed in the EPA's analysis and are worthy of comment:

1. **The ''Combined'' Area of Review (AOR) appears to rely on flawed assumptions:** The overall "combined" project AOR consists of three overlapping four mile diameter AOR circles, one around each of the three proposed disposal wells. [See Figures 1, 2 below]. Those circles represent the maximum distance injected brines are presumed to migrate under pressure, during the operational life of each well. The underlying modeling used in setting the combined AOR appears to assume that incompressible fluid (i.e. salt brine) injected into each well will not interact dynamically with brines injected at high pressure from other wells. [See Figure 2, below]. But, at the 1,006-psi maximum pressure proposed, physics and common sense suggest that ***these incompressible fluids will push against each other, distorting and expanding outward the perimeter of each well's area of influence.*** The two outer wells would push outward to each side (being pushed by pressure from the center well). Similarly, the area influenced by the center well would bulge out from in between those two areas. The overall effect would be to expand the area of the injection zone, well beyond the limits of the area studied by the EPA. [See Figure 3, below].

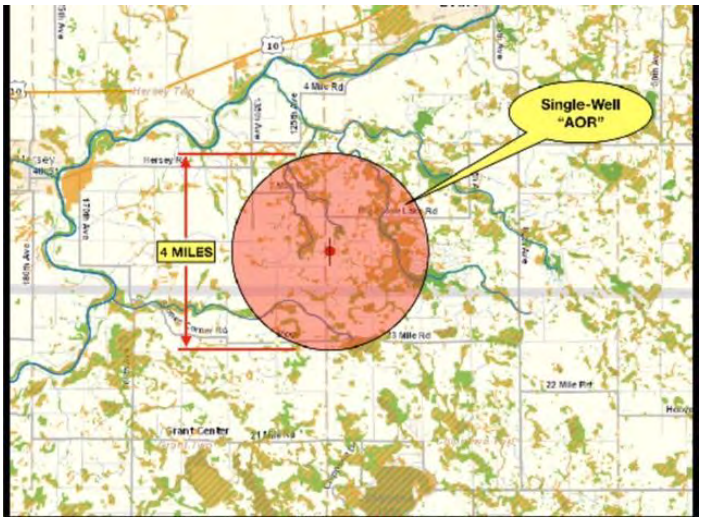

Figure 1

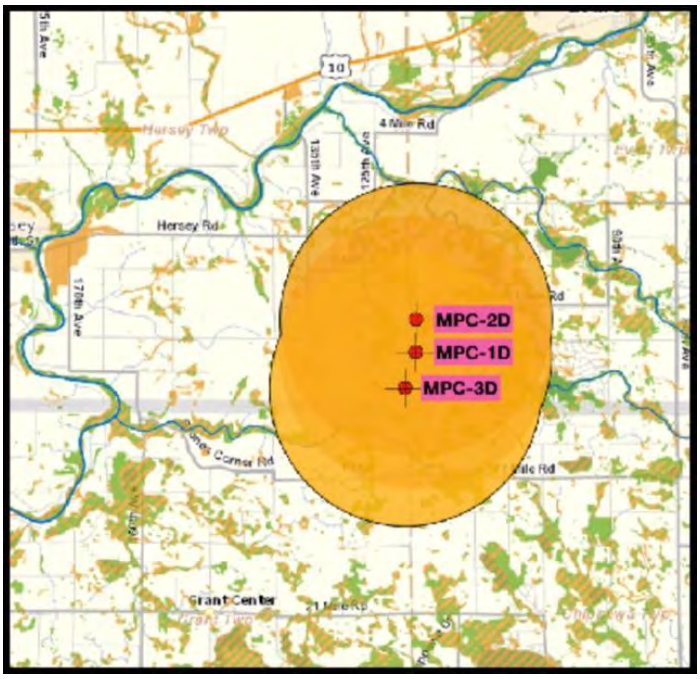

Figure 2

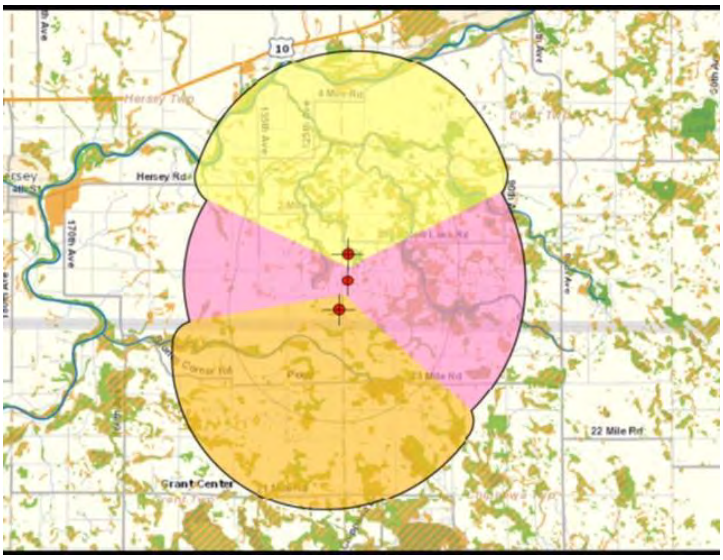

Figure 3

2. **The proposed Combined AOR ignores additional possible breaches in confining layer:** The flawed "combined" AOR has been found to contain upwards of 36 "plugged and abandoned" well-bores that penetrated the original confining layer (Upper Detroit River Group at 4,170' to 4,962 feet deep) to reach the injection zone (Amherstberg, Sylvania Sandstone, Bois Blanc formation and Bass Island Group at 4,170 to 4,962 feet deep). [See Figure 4]. While historical records (well logs) have purportedly been reviewed for 23 of these bore-holes, suggesting that they were properly plugged, no physical integrity testing has been conducted. Each of these bore-holes is a potential conduit for upward migration of high-pressure injected brines and constitutes a threat to potable water aquifers above. Those aquifers are the sole sources of potable water for the many farms and residences within the AOR. The threat of upward fluid migration is exacerbated by the presence of at least 17 additional abandoned bore-holes penetrating the original confining layer (Upper Detroit River Group - 4,170' to 4,962 feet deep) that would fall within an expanded combined AOR if fluid incompressibility were properly taken into account. It is unknown if any of these have been reviewed or evaluated to determine if they were properly plugged. Also, with the top of the injection zone now proposed to move upward 1,000 feet to include the Dundee and Lucas formations, many more abandoned bore-holes may exist that did not penetrate the original confining layer, but do penetrate the new (Bell Shale 3,889 to 3,942 feet deep). These will require review and evaluation to determine their integrity.

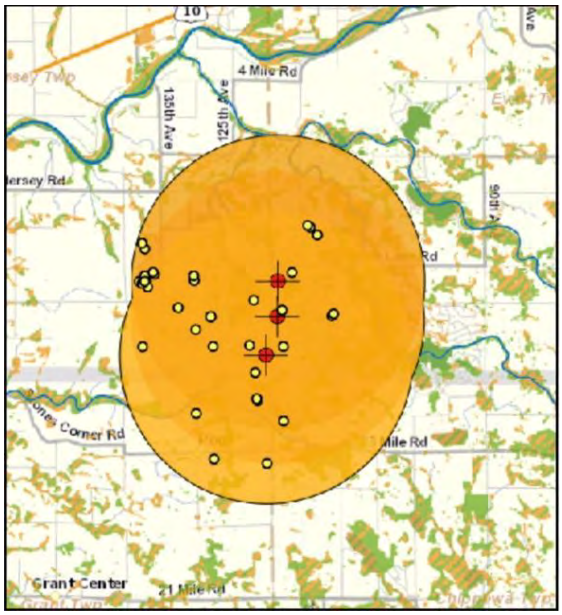

Figure 4

REQUEST FOR PUBLIC HEARING: The issues presented in the comments above are of paramount concern to the community that may be compelled to live with this self-described "transformational" industrial development. These issues merit full airing in a question/ answer-type public forum. Accordingly, I respectfully request a formal public hearing.

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