ENVIRONMENTAL HEALTH PROJECT
DEFENDING PUBLIC HEALTH 2012-2022
environmentalhealthproject.org

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Submitted Via eComment

Environmental Quality Board
P.O. Box 8477
Harrisburg, PA 17105-8477

RE: Proposed Rulemaking: Exclusion for Identification and Listing Hazardous Waste at MAX Environmental Technologies, Inc. Bulger & Yukon Facilities (#7-566)

To the Environmental Quality Board:

Please accept this comment submitted on behalf of the Environment Health Project (EHP). The Environmental Health Project is a nonprofit public health organization that assists and supports residents of Southwestern Pennsylvania and beyond who believe their health has been, or could be, impacted by shale gas development (or fracking). We submit these comments based on the potential public health risks to residents through the misclassifying or mishandling of hazardous waste materials.

EHP respectfully urges the Environmental Quality Board to deny a request by MAX Environmental Technologies, Inc., (MAX) to delist sludge generated from the treatment of disposal impoundment and landfill leachate and contact stormwater at MAX's Yukon (Westmoreland County) and Bulger (Washington County) facilities.

One major toxic the F039 Delisting Petitions do not address in the leachate sludge testing is radium. Radium 226 and 228 are present in the shale gas waste stream. It is present in Pennsylvania black shales and is brought to the surface with drill cuttings and produced water.[1] Note that oil and gas waste brought to the surface during fracking operations is exempt from hazardous waste regulations under Subtitle C of the Resource Conservation and Recovery Act (RCRA).[2] This in no way means that the waste is benign: if it was, it would not require an exemption.

According to its website, MAX accepts oil and gas drilling wastes (drill cuttings, muds, drilling fluids, equipment clean out and unused frac sand).[3] Note that scale solids from equipment cleanout is another source of accumulated and concentrated radioactive material. It is imperative for the health and safety of residents living near these facilities

that these sources of emissions be recognized for having hazardous and toxic components.

As water percolates through the landfills, water-soluble materials—including salts and radium from the shale formations—will leach out and concentrate. As the amount of shale gas waste continues to accumulate at the MAX facilities, the volume of TENORM (technically enhanced naturally occurring radioactive material) rises as well. Over time, this will increase the amount of radium present in the leachate and in the resulting sludge filter cake from the facilities.

Taken directly from the PA DEP TENORM report from 2016, Section 9, Observations and Recommendations:[4]

> Filter cake from three of the nine selected landfills was sampled and analyzed using gamma spectroscopy. Radium was detected in all of the filter cake samples. Radium-226 results ranged from 8.73 to 53.0 pCi/g, with an average of 24.3 pCi/g. Radium-228 results ranged from 1.53 to 5.03 pCi/g, with an average of 3.85 pCi/g. (Section 5.2.2)
>
> *There is little potential for radiological exposure to workers and members of the public from handling and temporary storage of filter cake at landfills that accept O&G waste for disposal.*
>
> *However, there is a potential for radiological environmental impacts from spills and the long-term disposal of landfill filter cake from landfills that accept O&G waste for disposal.*

This is not a problem that will go away; it will only grow worse as the amount of TENORM in the landfills increase. An additional health risk to populations in proximity to the facilities is the radon coming off each landfill as the radium decays.

MAX's Bulger and Yukon facilities were not included in the list of facilities that were tested for TENORM in the 2016 TENORM study, but to have a better understanding of the extent of the problem in Pennsylvania, *Public Herald* has mapped the 144 locations that were tested in a report titled "We Found the Names of Radioactive Waste Locations That Government Kept Secret" (January 24, 2022)[5]. Note that these are not the only locations that are impacted but rather are the locations were selected for sampling in the TENORM study. Note also that this study was released in 2016 and so will not include the additional waste stream that has accumulated over the last 6 years.

Radium 226 is of particular concern from a public health perspective as the human body recognizes it as calcium and has a tendency to accumulate it in bones, which may result in cancer. Radium exposure is also associated with anemia, cataracts, and broken teeth. Exposure to radon, a decay product of radium, is associated with lung cancer risk.

In general, Pennsylvania fails to treat TENORM from shale gas development as low-level radioactive waste. Failure to treat it as such jeopardizes the health and well-being of those living in proximity to any site where this waste is accumulating.

Improper handling of TENORM, especially when it comes to the disposal of shale gas waste, is a legacy problem for the state of Pennsylvania, one that will impact the public health of Pennsylvanians well into the future. Radium 226 has a half-life of 1,600 years. It is concentrated in the leachate and resulting sludge at landfills, including MAX's Bulger and Yukon facilities. We ask that the Environmental Quality Board deny MAX's request to delist the sludge generated from the treatment of disposal impoundment and landfill leachate and contact stormwater.

Respectfully,

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[1] US EHP. TENORM: Oil and Gas Production Wastes. Accessed 1/26/2022. https://www.epa.gov/radiation/tenorm-oil-and-gas-production-wastes#:~:text=The%20geologic%20formations%20that%20contain,Thorium%20and%20decay%20products.

[2]US EPA. Certain wastes from the exploration and production of oil, natural gas, and geothermal energy are excluded from hazardous waste regulations under Subtitle C of RCRA. These wastes include those that have been brought to the surface during oil and gas exploration and production operations, and other wastes that have come into contact with the oil and gas production stream

(e.g., materials used to process natural gas). Accessed 1/26/2022. https://www.epa.gov/hw/special-wastes - crude

[3] MAX Environmental, Inc. https://www.maxenvironmental.com/our-facilities/bulger-site/

[4] PA DEP. (2016). Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) Study Report, Rev. 1, page 9-8. http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=5815&DocName=01%20PENNSYLVANIA%20DEPARTMENT%20OF%20ENVIRONMENTAL%20PROTECTION%20TENORM%20STUDY%20REPORT%20REV%201.PDF%20

[5] Conley, J. (2022). We Found the Names of Radioactive Waste Locations That Government Kept Secret. *Public Herald*. https://publicherald.org/we-found-the-names-of-radioactive-waste-locations-that-government-kept-secret/