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November 22, 2024

Jonathan D. Edwards
Office of Radiation and Indoor Air
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460

Re: Opposition to the Pending Approval for Other Use of Phosphogypsum (Docket ID No. EPA-HQ-OAR-2024-0446)

Dear Director Edwards,

On behalf of the Surfrider Foundation, we oppose the Environmental Protection Agency's ("EPA") pending approval of the use of phosphogypsum in a roadway pilot project by Mosaic Fertilizer, LLC ("Mosaic") at its New Wales facility in Polk County, Florida. The Surfrider Foundation is a grassroots environmental organization dedicated to the protection and enjoyment of the world's ocean, waves, and beaches. Our volunteer network of more than 200 chapters and clubs protect thousands of miles of U.S. coastline through education, advocacy, and stewardship. Our twelve Florida chapters stretch from Jacksonville Beach to the Florida Keys to the Emerald Coast. The EPA's pending approval of Mosaic's pilot project contravenes well-documented harms and serious risks associated with phosphogypsum in roadways, and poses a threat to public health and the environment in Florida.

Phosphogypsum is a radioactive waste created from the production of fertilizer. It emits harmful, cancer-causing radon gas and contains other carcinogens and heavy metals like arsenic, cadmium, and lead.[1] The EPA's regulations under the Clean Air Act require that phosphogypsum be disposed of in stacks ("gypstacks") to limit public exposure to radiation.[2] In 1992, after promulgation of the National Emissions Standards for Hazardous Air Pollutants for phosphogypsum, the EPA reviewed a petition for reconsideration and

[1] U.S. EPA, *Potential Uses of Phosphogypsum and Associated Risks: Background Information Document* (May 1992), https://www.epa.gov/sites/default/files/2015-07/documents/0000055v.pdf [hereinafter *1992 Phosphogypsum BID*].
[2] 40 § C.F.R. 61.202; 42 U.S.C. §§ 7412, 7601.

specifically assessed phosphogypsum use for agriculture, research, and road construction purposes.[3] The EPA approved narrow phosphogypsum uses for agriculture and research purposes but rejected use in road construction.[4] The 1992 rule then outlined the process for the EPA to consider "other" uses of phosphogypsum, which includes an EPA determination that the proposed distribution or use of the phosphogypsum is at least as protective of public health, in both the short term and long term, as disposal of phosphogypsum in a stack or a mine.[5] Accordingly, Mosaic's petition for phosphogypsum use in road construction is not an appropriate request for "other" use within the meaning of 40 C.F.R. 61 Subpart R because the EPA has already evaluated phosphogypsum use in roads in well-documented rulemaking and determined that it presents an unreasonable risk to public health.

Even if Mosaic's petition is considered an appropriate request for "other" use of phosphogypsum within the meaning of 40 C.F.R. 61 Subpart R, significant concerns remain regarding the petition and pending approval. For over three decades, the EPA has prohibited the use of phosphogypsum in road construction, citing numerous scenarios that would expose the public, and especially road construction workers, to an unacceptable risk of cancer.[6] Further, the EPA has found that phosphogypsum used in roads may leach and contaminate nearby surface and groundwater quality, and that radioactive material could be disseminated into the air by wind and vehicle traffic.[7] The EPA's pending approval of Mosaic's pilot project risks exposing our Florida communities to cancer-causing radon, carcinogens, and heavy metals, as well as threatening the environmental health of waterways and aquatic life.

Mosaic's risk assessment[8] in its petition utilizes a cancer risk threshold of $3x10^{-4}$ for phosphogypsum use in roads, meaning the proposed phosphogypsum use would not increase fatal cancer risk of any individual by more than three in ten thousand.[9] Although

[3] National Emission Standards for Hazardous Air Pollutants; National Emissions Standards for Radon Emissions from Phosphogypsum Stacks, 57 Fed. Reg. 23305 (June 3, 1992).
[4] *Id.* at 23311-12.
[5] *Id.* at 23316; 40 § C.F.R. 61.206.
[6] *Id.* at 23312 (June 3, 1992); U.S. EPA, *1992 Phosphogypsum BID* 4-26-4-35, https://www.epa.gov/sites/default/files/2015-07/documents/0000055v.pdf.
[7] *See* U.S. EPA, *1992 Phosphogypsum BID* 2-6, 2-8, https://www.epa.gov/sites/default/files/2015-07/documents/0000055v.pdf.
[8] Mosaic's petition adapts the risk assessment used in the Fertilizer Institute's 2019 petition for phosphogypsum use in government road construction. The Fertilizer Institute describes itself as "the [fertilizer] industry's leading voice." The Fertilizer Institute's petition received conditional approval in 2020 but approval was rescinded by the EPA in 2021 on procedural grounds, citing premature approval without all of the required information. U.S. EPA, *Review of the Small-Scale Road Pilot Project on Private Land in Florida Submitted by Mosaic Fertilizer, LLC* 6 (Oct. 1, 2024); Withdrawal of Approval for Use of Phosphogypsum in Road Construction, 86 Fed. Reg. 35795 (July 7, 2021); *Member Benefits*, The Fertilizer Institute, https://www.tfi.org/membership/member-benefits/.
[9] U.S. EPA, *Review of the Small-Scale Road Pilot Project on Private Land in Florida Submitted by Mosaic Fertilizer, LLC* 14 (Oct. 1, 2024).

this risk threshold is referenced in rulemaking (as a potentially acceptable threshold for "certain uses" of phosphogypsum)[10] and included in the EPA's 2005 workbook for submitting other use of phosphogypsum petitions (published as guidance without opportunity for public notice and comment),[11] the EPA's pending approval of this threshold is a departure from the "presumptively safe" cancer risk threshold of $1x10^{-4}$ (one in ten thousand) that is repeated in hazardous air pollutant rulemaking and associated with the EPA's historical assessment of phosphogypsum use in road construction.[12]

Mosaic's petition also relies on "reasonable maximum exposure"[13] for calculating risk assessments.[14] While "reasonable maximum exposure" has been used in CERCLA Superfund assessments,[15] the terminology is not present in Clean Air Act regulations or the EPA's guidance for submitting other use of phosphogypsum petitions. Mosaic's petition appears to use reasonable maximum exposure as a rationale for not calculating the pilot project's risk for a "reclaimer," a scenario in which an individual would live on the proposed site in the future, because the pilot project's size and location on Mosaic private property make the scenario "not reasonably plausible."[16] Mosaic's risk assessment calculations also utilize a 26-year time period for calculating an individual's lifetime cancer risk, which is a strikingly shorter time period than the 70-years utilized by the EPA in its 1989 and 1992 hazardous air pollutant rulemaking and supplemental background documents.[17] The EPA's guidance and the technical review of Mosaic's petition

[10] National Emission Standards for Hazardous Air Pollutants; National Emissions Standards for Radon Emissions from Phosphogypsum Stacks, 57 Fed. Reg. 23305, 23311-12 (June 3, 1992).

[11] U.S. EPA, *Applying to EPA for Approval of Other Uses of Phosphogypsum: Preparing and Submitting a Complete Petition Under 40 CFR 61.206: A Workbook* 1, 5 (Dec. 2005), https://www.epa.gov/sites/default/files/2015-05/documents/wrkbk_sub-r_appl_1105.pdf [hereinafter *2005 Phosphogypsum Other Use Workbook*].

[12] National Emission Standards for Hazardous Air Pollutants; Benzene Emissions, 54 Fed. Reg 38044 (Sept. 14, 1989) ("The EPA will generally presume that if the risk to that individual is no higher than approximately 1 in 10 thousand, that risk level is considered acceptable[.]"); National Emission Standards for Hazardous Air Pollutants; National Emissions Standards for Radon Emissions from Phosphogypsum Stacks, 57 Fed. Reg. 23305, 23312 (June 3, 1992) ("For the road construction scenarios analyzed, the use of phosphogypsum always resulted in a MIR [maximum individual risk] greater than the outer bound of the presumptively safe level of approximately $1x10^{-4}$."); U.S. EPA, *1992 Phosphogypsum BID* 4-26-4-35, https://www.epa.gov/sites/default/files/2015-07/documents/0000055v.pdf.

[13] In CERCLA Superfund assessment guidance, reasonable maximum exposure is defined as "the highest exposure that is *reasonably* expected to occur at a site" based on current and future land-use conditions. U.S. EPA, *Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A)* 6-5 (Dec. 1989), https://www.epa.gov/system/files/documents/2024-10/rags_a_508.pdf (emphasis added).

[14] Small-scale Road Pilot Project on Private Land in Florida, Mosaic Fertilizer 5 (Mar. 31, 2022).

[15] *See* U.S. EPA, *Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A)* 6-5 (Dec. 1989), https://www.epa.gov/system/files/documents/2024-10/rags_a_508.pdf.

[16] Small-scale Road Pilot Project on Private Land in Florida, Mosaic Fertilizer 9 (Mar. 31, 2022).

[17] *Id.* at 5-9, 14-15; National Emission Standards for Hazardous Air Pollutants; Benzene Emissions, 54 Fed. Reg. 38044, 38065 (Sept. 14, 1989); National Emission Standards for Hazardous Air Pollutants; National Emissions Standards for Radon Emissions from Phosphogypsum Stacks, 57 Fed. Reg. 23305, 23311 (June 3, 1992) ("*Maximum Individual Risk*–The maximum additional cancer risk imposed on a person due to

acknowledge that a "small-scale study" will have a reduced risk given its limited scope compared to a full-scale implementation project.[18] However, given the significance of approving phosphogypsum use in road construction after decades of prohibition, the public must be provided with a detailed explanation and clarity regarding the applicable cancer risk threshold, whether "reasonable maximum exposure" can be applied to the evaluation of phosphogypsum use, and how the resulting risk assessment calculations appropriately quantify "maximum individual risk," which is the relevant standard in the EPA's regulations under the Clean Air Act.[19]

Phosphogypsum contains Radium-226, a material with a radioactive decay half-life of 1,600 years,[20] a period far outlasting our human lifetimes and stretching across future generations. This period also outlasts the expected lifetime of roadways, which generally have a lifespan of 12-20 years before needing rehabilitation in Florida.[21] Florida is susceptible to major storms, occurring with increasing frequency and severity, that cause damage and further diminish the expected lifetime of roads.[22] This fall, in the span of just two weeks, Polk County, where Mosaic's New Wales facility is located, and Florida's West Coast were impacted by major hurricanes Helene and Milton.[23] Storms cause extensive

exposure to a pollutant for a 70-year lifetime."); U.S. EPA, *1992 Phosphogypsum BID* 4-26-4-35, https://www.epa.gov/sites/default/files/2015-07/documents/0000055v.pdf.

[18] U.S. EPA, *2005 Phosphogypsum Other Use Workbook* 1, 9, https://www.epa.gov/sites/default/files/2015-05/documents/wrkbk_sub-r_appl_1105.pdf; U.S. EPA, *Review of the Small-Scale Road Pilot Project on Private Land in Florida Submitted by Mosaic Fertilizer, LLC* 14 (Oct. 1, 2024).

[19] 40 § C.F.R. 61.206(b)(8); National Emission Standards for Hazardous Air Pollutants; National Emissions Standards for Radon Emissions from Phosphogypsum Stacks, 57 Fed. Reg. 23305, 23311 (June 3, 1992) ("*Maximum Individual Risk*–The maximum additional cancer risk imposed on a person due to exposure to a pollutant for a 70-year lifetime.").

[20] U.S. EPA, *EPA Facts About Radium*, https://semspub.epa.gov/work/HQ/176334.pdf; U.S. EPA, *TENORM: Fertilizer and Fertilizer Production Wastes*, https://www.epa.gov/radiation/tenorm-fertilizer-and-fertilizer-production-wastes.

[21] A road's lifespan is referred to as its "design life" and the period varies depending on the asphalt and concrete composition. *Evaluation of Long-Life Concrete Pavement Practices for Use in Florida*, Florida Department of Transportation Research BDK75 977-48 (2012), https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/research/reports/fdot-bdk75-977-48-sum.pdf.

[22] *See* Daniel Raimi et al., *Florida Climate Outlook: Assessing Physical and Economic Impacts through 2040*, Resources for the Future 18-21 (2020), https://media.rff.org/documents/Florida_Climate_Outlook.pdf.

[23] Langston Taylor et al., *For Tampa Bay, Hurricane Helene was the Worst Storm of the Century*, Miami Herald (Oct. 2, 2024), https://www.miamiherald.com/news/weather/hurricane/article293362924.html; Terry Spencer & Kate Payne, *More Than 2 Million Without Power as Hurricane Milton Slams Florida, Causes Death and Flooding*, Associated Press (Oct. 10, 2024), https://apnews.com/article/hurricane-milton-tampa-florida-08bde4b9c29460f471d43c6512821c93.

roadway damage in Florida and present a serious, emerging factor in the risk assessment of exposure and pollution pathways for phosphogypsum use in road construction.[24]

The EPA's technical review of Mosaic's groundwater monitoring highlights the importance of considering "site-specific conditions" and states that the 18-month monitoring period "may not necessarily be sufficient to support conclusions about longer term use in a full-scale project."[25] We agree. Eighteen months of water monitoring is hardly sufficient to ascertain the long-term consequences and risks of phosphogypsum use in roads. Given the EPA's previous acknowledgement that "water transport [of metals and radionuclides] is an area of considerable uncertainty,"[26] Florida's unique groundwater and extensive watershed system, and the likelihood of storm damage and other degradation impairing road integrity, the review of phosphogypsum use in roads must include greater assessment of water transport risks and full consideration of the lifespan of roads in the environment in which they are placed. Any approval must take these considerations into account and require adequate water monitoring for an extended period of time that includes data collection as a road is subjected to different weather events and degradation over years.

Surfrider's Suncoast Chapter, spanning from Citrus County to Charlotte County, is located just west of Mosaic's New Wales facility, the proposed pilot project site. Surfrider members and local communities in Florida have borne the risk of the gypstack system and its failures, resulting in spills and sinkholes.[27] In March 2021, hundreds of millions of gallons of toxic wastewater were discharged into Tampa Bay because of a leak at Piney Point, a former phosphate-processing facility.[28] From June to August 2021, Tampa Bay experienced one of the worst red tides in decades, resulting in decimated bay health and the death of over 600 tons of marine life.[29] Years later, the estuary is still in recovery and the state of Florida has spent more than $85 million on clean-up efforts for just this one

[24] *See Damage from Hurricane Ian Cuts Sanibel Island Off From Florida's Mainland*, NPR (Sept. 30, 2022), https://www.npr.org/2022/09/30/1126204141/sanibel-causeway-hurricane-ian (In 2021, Hurricane Ian destroyed large parts of the Sanibel Causeway, a roadway and bridge connecting the island to the mainland).
[25] U.S. EPA, *Review of the Small-Scale Road Pilot Project on Private Land in Florida Submitted by Mosaic Fertilizer, LLC* 21-22 (Oct. 1, 2024).
[26] *Id.* at 21 (referencing the EPA's 2020 review of the Fertilizer Institute's petition).
[27] *See* Christopher O'Donnell, *Mosaic Plant Sinkhole Dumps 215 Million Gallons of Reprocessed Water into Floridan Aquifer*, Tampa Bay Times (Sept. 16, 2016), https://www.tampabay.com/news/environment/water/mosaic-plant-sinkhole-dumps-215-million-gallons-of-reprocessed-water-into/2293845/.
[28] Max Chesnes, *Piney Point Pollution Spread Further Than First Thought, Study Shows*, Tampa Bay Times (June 13, 2023), https://www.tampabay.com/news/environment/2023/06/13/piney-point-pollution-spread-farther-than-first-thought-new-study-shows/.
[29] Nick Valencia, *600 Tons of Marine Life Have Washed Up on Florida Shores*, CNN (July 30, 2021), https://www.cnn.com/videos/us/2021/07/30/tampa-bay-florida-red-tide-marine-life-valencia-dnt-lead-vpx.cnn.

spill alone.[30] The EPA's pending approval of Mosaic's pilot project would add another potential risk for these communities with phosphogypsum use in a roadway at the New Wales facility – and the likelihood that this project opens the door for the approval of more petitions for phosphogypsum use in roads in the future.[31]

Surfrider members and supporters don't just work to protect our ocean, waves, and beaches – they enjoy them. Whether swimming, wading, surfing, snorkeling, fishing, kayaking, and the like, our members and their families are in the ocean and coastal waterways. Floridians, and the state's many visitors, rely on clean air and clean water. Local communities should not be the testing grounds for the fertilizer industry to explore another way to offload and profit from a hazardous byproduct that can have harmful consequences for human health and environmental health for generations. Historically, disadvantaged communities have borne the disproportionate burden and harm of fertilizer plants and related processing and waste facilities.[32] The pilot project site is located within a disadvantaged community and bordered by disadvantaged communities to the north and east according to the Climate and Economic Justice Screening Tool.[33] The pending approval of the pilot project continues to put overburdened and underserved communities on the frontlines of negative health and environmental impacts from the fertilizer industry.[34]

Florida's beaches and estuaries continue to grapple with harmful algal blooms, fish kills and seagrass die-offs, and allowing the use of a known radioactive pollutant in roads will only further diminish and destroy the state's most valuable resource: water. Permitting

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[30] *Timeline: Key Developments at the Piney Point Phosphate Plant*, WUSF NPR (Apr. 19, 2023), https://www.wusf.org/environment/2023-04-19/timeline-key-developments-piney-point-phosphate-plant.

[31] Mosaic's petition references the EPA 2005 Workbook guidance for other use of phosphogypsum petitions and defines the "small-scale pilot project" as "the *intermediate step* between laboratory testing and *full-scale implementation* of the alternative use." Small-scale Road Pilot Project on Private Land in Florida, Mosaic Fertilizer 3 (Mar. 31, 2022) (emphasis added); U.S. EPA, *2005 Phosphogypsum Other Use Workbook* 15, https://www.epa.gov/sites/default/files/2015-05/documents/wrkbk_sub-r_appl_1105.pdf.

[32] Katie Delk, *In the Shadow of Phosphate: A Data Story on Life Near Industry in Florida*, WUFT (2024), https://projects.wuft.org/priceofplenty/justice/in-the-shadow-of-phosphate-a-data-story-on-life-near-industry-in-florida/; *see* Sofi Zeman, *Living in the 'Sacrifice Zone'*, WUFT (2024), https://projects.wuft.org/priceofplenty/justice/living-in-the-sacrifice-zone-louisiana-residents-face-fertilizer-industry-in-their-communities/.

[33] Climate and Economic Justice Screening Tool, https://screeningtool.geoplatform.gov/en/#10.58/27.7642/-81.9811.

[34] The Fertilizer Institute's 2019 petition for phosphogypsum use in roads stated that economic viability would necessitate phosphogypsum use in roads within 200 miles of existing gypstacks. If future petitions for phosphogypsum use in roads follow the same logic, it suggests there will be far more roadways with phosphogypsum through and surrounding disadvantaged communities already in proximity to plants and gypstacks. *See* Revised Request: Appendix 6 Economic Analysis of Phosphogypsum Reuse, The Fertilizer Institute 19 (Dec. 2019); Approval of the Request for Other Use of Phosphogypsum by the Fertilizer Institute, 85 Fed. Reg. 66550, 66552 (Oct. 20, 2020), https://www.federalregister.gov/d/2020-23154/page-66551.

the use of phosphogypsum in road construction will inevitably lead to toxic runoff in local waterways endangering the public health of nearby communities, environmental health of waterways and aquatic life, and economic health of local businesses and the tourism industry.

We urge you to rescind the pending approval of Mosaic's petition for use of phosphogypsum in a roadway pilot project in Florida.

Sincerely,

Katie Bauman
Florida Policy Manager
Surfrider Foundation