



The
Fertilizer Institute

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The Fertilizer Institute's Opposition to The Petition for Rulemaking
Pursuant to Section 7004(a) of The Resource Conservation and Recovery Act,
Section 21 of The Toxic Substances Control Act, and
Section 553 of The Administrative Procedure Act
Concerning The Regulation of Phosphogypsum and Process Wastewater
from Phosphoric Acid Production

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Attachment A – Ardaman & Associates, Inc., Technical Memorandum on PG and Process Wastewater Management (Mar. 26, 2021)

Attachment B – Letter from Andrew Wheeler, EPA Administrator, to Corey Rosenbusch, TFI President and CEO (Oct. 14, 2020) (Dkt. ID No. EPA-HQ-OAR-2020-0442-0015)

The Fertilizer Institute (“TFI”), on behalf of its members, respectfully submits this Opposition to the February 8, 2021, Petition for Rulemaking (hereinafter, “Petition”) filed with the U.S. Environmental Protection Agency (“EPA” or “Agency”) pursuant to the Resource Conservation and Recovery Act (“RCRA”) § 7004(a),¹ Toxic Substances Control Act (“TSCA”) § 21,² and the Administrative Procedure Act (“APA”) § 553.³ The Petitioners⁴ seek “the promulgation of rules that:

- (1) reverse [EPA’s] 1991 Beville regulatory determination excluding phosphogypsum [(“PG”)] and phosphoric acid production process wastewater (‘process wastewater’) from [RCRA] Subtitle C hazardous waste regulation;
- (2) govern the safe treatment, storage and disposal of [PG] and process wastewater as hazardous wastes under RCRA Subtitle C;
- (3) initiate the prioritization process for designating [PG] and process wastewater as high priority substances for risk evaluation under [TSCA] § 6(b)(1)(B)(i);
- (4) require manufacturers to conduct testing on [PG] and process wastewater under TSCA § 4(a)(1)(A)(ii); and
- (5) determine under TSCA § 5(a) that the use of [PG] in road construction is a significant new use.”⁵

For the reasons set forth below, Petitioners requested actions must and should be denied.

¹ 42 U.S.C. § 6974(a).

² 15 U.S.C. § 2620.

³ 5 U.S.C. § 553.

⁴ The Petitioners are the People for Protecting Peace River, Atchafalaya Basinkeeper, Bayou City Waterkeeper, Calusa Waterkeeper, Center for Biological Diversity, Cherokee Concerned Citizens, Healthy Gulf, ManaSota-88, Our Santa Fe, People for Protecting Peace River, RISE St. James, Sierra Club’s Florida and Delta chapters, Suncoast Waterkeeper, Tampa Bay Waterkeeper, Waterkeeper Alliance, Waterkeepers Florida, and WWALS Watershed Coalition.

⁵ Petition at 1.

I. Executive Summary

The Bevill Amendment to RCRA precluded EPA from regulating solid waste from the extraction, beneficiation, and processing of ores and minerals, including phosphate rock, until the Agency (1) performed a “detailed and comprehensive study on the adverse effects on human health and the environment, if any, of the disposal and utilization of solid waste” from these sectors; (2) submitted reports to Congress on the results of the study; (3) solicited public comment on its reports to Congress; and (4) issued a regulatory “determination” regarding the final RCRA status of these waste streams.⁶ EPA’s evaluation included PG and process wastewater and was comprehensive, spanning nearly six years and consisting of nine *Federal Register* notices. EPA completed the evaluation in 1991 and concluded that Subtitle C regulation was unwarranted.⁷

This 1991 Regulatory Determination was a one-time determination and brought the Bevill evaluation process mandated by Congress to an end. Congress was precise in its language to distinguish a “determination” from a “regulation” or a “rule.” Petitions like the one at issue here may only seek review of “regulations” under RCRA and “rules” under the APA. The 1991 Regulatory Determination that Petitioners request EPA to “revisit” is neither.⁸ Further, the U.S. Court of Appeals for the District of Columbia Circuit (“D.C. Circuit”) concluded that the 1991 Regulatory Determination at issue here was a one-time determination not subject to re-visitation at a later date, rejecting industry arguments that the scope of Bevill-exempt mineral processing waste streams could expand over time.⁹ Thus, Petitioners’ jurisdictional claim that EPA can grant their requested relief through RCRA § 7004(a) or APA § 553 is incorrect.

⁶ RCRA §§ 6921(b)(3)(A)(ii) (42 U.S.C. § 3001(b)(3)(A)(ii)), 6921(b)(3)(C) (42 U.S.C. § 3001(b)(3)(C)) & 8002(p) (42 U.S.C. § 6982(p)).

⁷ 56 Fed. Reg. 27,300 (June 13, 1991) (Regulatory Determination).

⁸ See *Am. Portland Cement All. v. EPA*, 101 F.3d 772 (D.C. Cir. 1996); *Appalachian Voices v. EPA*, 989 F.2d 30 (D.D.C. 2013).

⁹ *Solite Corp. v. EPA*, 952 F.2d 473, 491 (D.C. Cir. 1991).

Further, even assuming *arguendo* that EPA could grant their requested relief and engage in a rulemaking to “revisit” its 1991 Regulatory Determination, the examples proffered by Petitioners are inapposite. In the first example, EPA’s 2010 coal combustion residuals (“CCR”) proposed rule,¹⁰ the Agency expressly left open the possibility of revisiting its 2000 Regulatory Determination¹¹ that Subtitle C regulation was not warranted. In their second example, Petitioners reference EPA’s 1997 RCRA supplemental proposed rule, wherein the Agency solicited comment on purported “damage” cases associated with certain Bevill-exempt mineral processing streams.¹² However, EPA did not commit, much less even suggest, that it would reexamine the regulatory status of any such stream.¹³

Finally, Petitioners fail to acknowledge (1) the now comprehensive federal and state regulations that have evolved since EPA’s 1991 Regulatory Determination (including EPA’s own recent studies and determinations regarding those regulations), and (2) the enforcement actions resulting in binding Consent Decrees and RCRA Consent Orders that apply to PG stack systems and address the purported risks identified in the Petition.

Similarly, the requested relief under TSCA must be denied. In seeking to have EPA initiate prioritization under TSCA § 6¹⁴ and issue a significant new use rule under TSCA § 5(a)(2)¹⁵ Petitioners disregard, and ask EPA to ignore, the clear limits that Congress set forth in Section 21¹⁶ of the Act. That section identifies the specific EPA actions that may be pursued by administrative petitions, and designation for prioritization under TSCA § 6 and promulgation of significant new

¹⁰ 75 Fed. Reg. 35,128, 35,146-35,148 (June 21, 2010) (Proposed Rule).

¹¹ 65 Fed. Reg. 32,214 (May 22, 2000) (Regulatory Determination).

¹² 62 Fed. Reg. 26,041, 26,054 (May 12, 1997) (Supplemental Proposed Rule).

¹³ 63 Fed. Reg. 28,556, 28,580 (May 26, 1998) (Final Rule).

¹⁴ 15 U.S.C. § 2605.

¹⁵ *Id.* § 2604(a)(2).

¹⁶ *Id.* § 2620.

use rules under TSCA § 5(a) are excluded from the types of actions that may be sought or granted through a petition.

Putting aside the impropriety of the Petition, PG and process wastewater fail to satisfy several key criteria for prioritization. Among other things, PG and process wastewater (and their components) are not listed in the 2014 update to the TSCA Work Plan; they are not widely commercialized and are not used in consumer applications; and they are not associated with widespread exposure. Similarly, the use of PG in road construction is neither “new” nor “significant” as those terms are used under TSCA § 5(a)(2), particularly in light of EPA’s recent conclusion that use of PG in road construction would be “at least as protective of public health” as disposal in PG stacks.

Petitioners also ask EPA to require testing under TSCA § 4,¹⁷ but fail to specify what testing is necessary. They also fail to meet their heavy burden under Section 4 to set forth facts to demonstrate that existing data and information on PG and process wastewater are insufficient to meet EPA’s data needs. Moreover, Petitioners ignore the substantial body of data that already exists, which does not support the idea that the manufacture, distribution, processing, use, or disposal of PG or process wastewater “may present an unreasonable risk of injury to health or the environment,” as is needed to justify a rule under Section 4 to require testing.

Finally, Petitioners imply but fail to offer any evidence to establish that regulation under TSCA is necessary because other existing regulatory authorities – under federal or state law – are inadequate.

¹⁷ *Id.* § 2603.

II. Statement of Interest

TFI represents companies that are engaged in all aspects of the fertilizer supply chain in the United States. Our industry is essential to ensuring that American farmers receive the nutrients they need to enrich the soil and, in turn, grow the crops that feed our nation and the world. The fertilizer industry supports nearly 500,000 high-quality American jobs and has an economic benefit of more than \$130 billion annually. Half of crop yields are attributable to fertilizer, demonstrating its critical importance to farmers and national food security.

The two streams identified in the Petition result from the production of phosphoric acid at TFI member companies' phosphate fertilizer production facilities. Over the span of nearly six years, EPA evaluated whether these streams, and others generated by the mining and mineral processing sectors, should be regulated as hazardous waste in response to a mandate by Congress enacted on October 21, 1980, commonly referred to as the "Bevill Amendment."¹⁸ The proposals included: (1) 50 Fed. Reg. 40,292 (Oct. 2, 1985); (2) 53 Fed. Reg. 41,288 (Oct. 20, 1988); (3) 54 Fed. Reg. 15,316 (Apr. 17, 1989); (4) 54 Fed. Reg. 39,298 (Sept. 25, 1989); and (5) 55 Fed. Reg. 32,135 (Aug. 7, 1990). TFI submitted comments and provided testimony throughout each of these proceedings (including submissions on November 14, 1985,¹⁹ November 21, 1988,²⁰ May 31,

¹⁸ The Bevill Amendment, named after its sponsor, Senator Tom Bevill, prohibited EPA from regulating solid wastes from the extraction, beneficiation, and processing of ores and minerals, including phosphate rock, as hazardous waste until EPA studied "the adverse effects on human health and the environment, if any," associated with these streams and issued a Report to Congress and subsequent Regulatory Determination. See 42 U.S.C. §§ 6921(b)(3)(A)(ii), 6921(b)(3)(C) & 6982(p).

¹⁹ TFI, "Comments to the Environmental Protection Agency, Office of Solid Waste by The Fertilizer Institute Concerning Proposed Rules Published October 2, 1985 for Reinterpretation of the Mining Waste Exclusion" (Nov. 14, 1985).

²⁰ TFI, "Comments to the Environmental Protection Agency, Office of Solid Waste by The Fertilizer Institute Concerning Proposed Rule Published October 20, 1988 Defining The Scope of The Bevill Exclusion With Respect to Mineral Processing Wastes" (Nov. 21, 1988).

1989,²¹ November 9, 1989,²² and October 19, 1990).²³ Ultimately, EPA concluded its obligations under the Bevill Amendment with a July 1990 Report to Congress,²⁴ and a June 13, 1991 Regulatory Determination for twenty mineral processing streams, including PG and process wastewater.²⁵

Thus, given TFI's representation of the fertilizer industry, including phosphoric acid and phosphate fertilizer manufacturers, and its substantial involvement on behalf of the industry during the rulemakings, development of the Report to Congress, and ultimate 1991 Regulatory Determination, TFI has a substantial interest in EPA's response to the Petition.

III. Petitioners' RCRA Rulemaking Petition is Barred by The Plain Language of the Bevill Amendment

In the RCRA component of the Petition, Petitioners invoke RCRA § 7004(a)²⁶ and APA § 553(e)²⁷ seeking (1) “a rule reversing EPA’s 1991 Bevill regulatory determination excluding [PG] and [process wastewater] from RCRA Subtitle C hazardous waste regulation;” and (2) the “promulga[tion of] regulations under RCRA Subtitle C governing the safe treatment, storage and disposal of [PG] and process wastewater as hazardous wastes.”²⁸ EPA must deny these requests because a RCRA “determination” is neither a “regulation” nor a “rule” subject to a petition under either RCRA § 7004(a) or APA § 553(e). Notwithstanding this statutory bar, the Petitioners fail

²¹ TFI, “Comments to the Environmental Protection Agency by The Fertilizer Institute Concerning Proposed Rule Mining Waste Exclusion” (May 31, 1989).

²² TFI, “Comments to the Environmental Protection Agency by The Fertilizer Institute Concerning Proposed Rule Mining Waste Exclusion and Definition of Designated Facility” (Nov. 9, 1989).

²³ TFI, “Comments to the U.S. Environmental Protection Agency by The Fertilizer Institute Concerning Report to Congress on Special Wastes from Mineral Processing” (Oct. 19, 1990).

²⁴ EPA, “Report to Congress on Special Wastes From Mineral Processing, Volume I: Summary and Recommendations” (July 1990) (hereinafter, “Report to Congress, Vol. I”) and EPA, “Report to Congress on Special Wastes from Mineral Processing, Volume II: Methods and Findings” (July 1990) (hereinafter, “Report to Congress, Vol. 2”).

²⁵ 56 Fed. Reg. at 27,300.

²⁶ 42 U.S.C. § 6974(a).

²⁷ 5 U.S.C. § 553(e).

²⁸ Petition at 6.

to recognize that the Bevill Amendment mandated a one-time Report to Congress and a Regulatory Determination for mineral processing wastes. As such, Petitioners requested RCRA relief is not available, and EPA must deny this request.

A. History of EPA’s Study of Mineral Processing Wastes, Report to Congress, and 1991 Regulatory Determination

The long and involved administrative history of EPA’s evaluation of phosphate mineral processing wastes bears restating if only to remind the Agency of its extensive rulemaking efforts, as well as the substantial expenditure of time, energy, and resources that the Agency, industry, environmental advocates, and other stakeholders have expended responding to those efforts.

The Bevill Amendment stems from Congress’ concern that EPA was proposing hazardous waste management regulation for mining and mineral processing wastes without the requisite information regarding the asserted hazards of such wastes, the feasibility of their regulation under hazardous waste management requirements, and the economic impact of such regulation. In 1978, EPA proposed exempting certain “special wastes” from management as hazardous wastes because the Agency had “very little information on the composition, characteristics, and the degree of hazard posed by these wastes”²⁹ EPA identified “special wastes” as high volume, low hazard wastes, specifically including “phosphatic-rock mining, beneficiation, and processing wastes.”³⁰ Upon promulgation of the May 1980 final rule implementing the first set of RCRA hazardous waste management regulations, however, EPA abandoned the “special waste” concept and sought to apply the full panoply of hazardous waste regulations to mining and mineral processing wastes.³¹

²⁹ 43 Fed. Reg. 58,946, 58,991 (Dec. 18, 1978) (Proposed Rule).

³⁰ *Id.* at 59,015.

³¹ 45 Fed. Reg. 33,066 (May 19, 1980) (Final Rule and Interim Final Rule).

Before those rules took effect, in October 1980, Congress passed the Bevill Amendment requiring that EPA defer RCRA Subtitle C regulation of “special wastes” until at least six months following the submission of a Report to Congress.³² Congress included within the wastes to be studied “solid waste from the extraction, beneficiation, and processing of ores and minerals, including phosphate rock.”³³ Further, Congress specified eight criteria³⁴ to be analyzed in EPA’s study and resulting Report to Congress, and required EPA to consider “studies and other actions of Federal and State agencies concerning” the wastes at issue, “with a view toward avoiding duplication of effort.”³⁵ Finally, no later than six months after the Report to Congress, EPA was required to issue a regulatory “determination” on whether Subtitle C management of any of the studied wastes was warranted.³⁶

1. EPA’s Temporary Deferral of Hazardous Waste Regulation for Mineral Processing Wastes

In response to the Bevill Amendment, on November 19, 1980, EPA issued an interim final rule (“IFR”) amending its hazardous waste regulations to exclude from Subtitle C regulation solid waste from the extraction, beneficiation and processing of ores and minerals — including phosphate rock.³⁷ EPA noted that its IFR was meant to provide “clear guidance” to the mining and mineral processing industries that these streams were not subject to regulation as hazardous

³² RCRA § 3001(b)(3)(A) (42 U.S.C. § 6921(b)(3)(A)).

³³ RCRA § 3001(b)(3)(A)(ii) (42 U.S.C. § 6921(b)(3)(A)(ii)) (emphasis added).

³⁴ The criteria for evaluation were: “(1) the source and volumes of such materials generated per year; (2) present disposal and utilization practices; (3) potential danger, if any, to human health and the environment from the disposal and reuse of such materials; (4) documented cases in which danger to human health or the environment has been proved; (5) alternatives to current disposal methods; (6) the costs of such alternatives; (7) the impact of these alternatives on the use of phosphate rock and uranium ore, and other natural resources; and (8) the current and potential utilization of such materials.” RCRA § 8002(p) (42 U.S.C. § 6982(p)).

³⁵ *Id.*

³⁶ RCRA § 3001(b)(3)(C) (42 U.S.C. § 6921(b)(3)(C)).

³⁷ 45 Fed. Reg. 76,618 (Nov. 19, 1980) (Interim Final Rule). EPA specifically excluded from hazardous waste regulation, “[s]olid waste from the extraction, beneficiation and processing of ores and minerals (including coal), including phosphate rock and overburden from the mining of uranium ore.” *Id.* at 76,620 (40 C.F.R. § 261.4(b)(6)).

waste; however, the Agency also indicated its intent to engage in further rulemaking regarding the scope of the Bevill Amendment.³⁸

EPA bifurcated its Bevill Amendment reviews between mining (consisting of extraction and beneficiation) and mineral processing. The two waste streams at issue in the Petition – PG and process wastewater – result from mineral processing operations. EPA’s evaluation of mineral processing operations spanned nearly six years, and concluded when the Agency issued its June 1991 Regulatory Determination for mineral processing wastes.³⁹

Throughout its rulemaking process to meet its Bevill Amendment obligations, and develop “high volume” and “low hazard” criteria to determine what mineral processing wastes should be temporarily excluded from Subtitle C regulation pending its Report to Congress and Regulatory Determination, EPA consistently viewed PG as meeting its exemption criteria. For example, in its October 2, 1985,⁴⁰ October 20, 1988,⁴¹ and April 17, 1989,⁴² proposed rules, EPA concluded that PG met its proposed criteria.⁴³ In addition, on September 1, 1989, EPA issued its final rule setting forth its “high volume” and “low hazard” criteria to evaluate mineral processing wastes,⁴⁴ and concluded that PG met the criteria for temporary deferral of Subtitle C and inclusion in the Report to Congress and a Regulatory Determination.⁴⁵ Accordingly, EPA amended 40 C.F.R. § 261.4(b)(7) to exclude from hazardous waste regulation:

³⁸ *Id.* at 76,618.

³⁹ 56 Fed. Reg. at 27,300.

⁴⁰ 50 Fed. Reg. at 40,294

⁴¹ 53 Fed. Reg. at 41,296.

⁴² 54 Fed. Reg. at 15,342.

⁴³ Notably, in its October 2, 1985, proposal, EPA determined that PG was generated at an annual rate of 47 million tons per year, and was the highest volume mineral processing waste at that time, generated in significantly higher volumes than “waste generated by other industries already subject to regulation under Subtitle C.” 50 Fed. Reg. at 40,294. Similarly, in its October 20, 1988, proposal, EPA concluded that PG was generated in the largest amounts of the mineral processing streams proposed for temporary deferral of Subtitle C regulation based on both industry-wide and average facility data. 53 Fed. Reg. at 41,296.

⁴⁴ 54 Fed. Reg. 36,592 (Final Rule).

⁴⁵ *Id.* at 36,631.

Solid waste from the . . . processing of ores and minerals (including coal), including phosphate rock and overburden from the mining of uranium. . . . (i) The following solid waste from the processing of ores and minerals [] are retained within this exclusion: . . . (D) Phosphogypsum from phosphoric acid production; . . .⁴⁶

Similarly, EPA concluded that process wastewater should be subject to temporary deferral from Subtitle C regulation, pending completion of its Report to Congress and a Regulatory determination. EPA proposed the inclusion of process wastewater on April 17, 1989,⁴⁷ conditionally retained it in a September 1, 1989 final rule,⁴⁸ and proposed to permanently retain it in a September 25, 1989, proposed rule.⁴⁹ Ultimately, in a January 23, 1990, final rule,⁵⁰ EPA listed process wastewater as one of the 20 mineral processing streams subject to temporary Subtitle C deferral, study, inclusion in its Report to Congress, and ultimate Regulatory Determination.⁵¹ As such, EPA revised 40 C.F.R. § 261.4(b)(7) to exclude from hazardous waste regulation:

Solid waste from the . . . processing of ores and minerals (including coal), including phosphate rock and overburden from the mining of uranium ore. . . . For the purposes of § 261.7(b)(7), solid waste from the processing of ores and minerals will include only the following wastes, until EPA completes a report to Congress and a regulatory determination on their ultimate regulatory status: . . . (iv) Phosphogypsum from phosphoric acid production; . . . (xvi) Process wastewater from phosphoric acid production . . .⁵²

In promulgating the final rule, EPA announced: “This final rule completes the rulemaking regarding the Bevill status of mineral processing wastes until the completion of the required report to Congress and Regulatory Determination.”⁵³

⁴⁶ *Id.* at 36,641 – 642.

⁴⁷ 54 Fed. Reg. at 15,342, 15,344, Table 2.

⁴⁸ 54 Fed. Reg. at 36,631, Table 2.

⁴⁹ 54 Fed. Reg. at 39,305 (noting that process wastewater was generated at an average per facility rate of 56,359,141 metric tons per year).

⁵⁰ 55 Fed. Reg. 2322 (Jan. 23, 1990) (Final Rule).

⁵¹ *Id.* at 2338, 2341-42, Table 2 (concluding that process wastewater “is [a] high volume and low hazard waste and, is, therefore, retained in the exemption”).

⁵² *Id.* at 2353.

⁵³ *Id.* at 2323.

2. EPA's Study and Report to Congress on Mineral Processing Wastes

In the 1990 Report to Congress, EPA's tentative determination was that "regulation under Subtitle C of RCRA is unwarranted for . . . process wastewater from phosphoric acid production [and PG] from phosphoric acid production"⁵⁴ EPA's conclusion in the Report to Congress regarding additional regulation of PG and process wastewater under RCRA Subtitle C is consistent with the primary concerns underlying Congress' enactment of the Bevill Amendment, and the enunciation of the study criteria: Namely, the need for a strong and economically viable American mining and minerals industry and the substantial threat to that continued viability posed by RCRA Subtitle C regulation. The D.C. Circuit recognized this very fact in reviewing Congress' intent in enacting the Bevill Amendment: "... Congress intended attention to cost and the economic impact of regulatory controls in making a regulatory determination. The emphasis on economic factors is consistent with Congress' obvious goal in passing the Bevill Amendment — to relieve the mining industry of the onerous economic burden of stringent Subtitle C controls if at all possible."⁵⁵

EPA solicited comment on its Report to Congress as required by the Bevill Amendment.⁵⁶ In response, TFI provided detailed comments in support of EPA's conclusion that Subtitle C regulation of PG and process wastewater was unwarranted.⁵⁷ Specifically, TFI noted the unsuitability and inflexibility of the Subtitle C program for PG and process wastewater given the geographic variability in the nature and concentration of naturally occurring constituents in the phosphate ore body.⁵⁸ Thus, a "one-size-fits-all" treatment requirement would not be practical.

⁵⁴ Report to Congress, Vol. I at 11-12.

⁵⁵ *Env'tl. Def. Fund v. EPA*, 852 F.2d 1309, 1315 (D.C. Cir. 1988).

⁵⁶ 55 Fed. Reg. at 32,135.

⁵⁷ *See supra* n. 23.

⁵⁸ *Id.* at 35.

Further, TFI noted that the effects of phosphate rock mineral processing are determined almost exclusively by the hydrogeologic setting of each facility.⁵⁹ Also, TFI indicated that if Subtitle C requirements are applied to PG stacks, every active PG stack would need to be closed in accordance with Subtitle C, leading to severe supply disruptions of a needed agricultural nutrient.⁶⁰ Finally, TFI challenged EPA on the Agency's cost estimates for Subtitle C compliance, noting that EPA had severely underestimated the costs of (1) constructing new stacks, closing existing stacks, neutralizing process wastewater, and managing stormwater in PG stacks, and (2) replacing process equipment due to the scaling of calcium and other metallic fluorosilicates in piping and equipment as a result of neutralizing process wastewater.⁶¹

3. EPA's 1991 Regulatory Determination

On June 13, 1991, EPA concluded its statutory duties under the Bevill Amendment with publication of its Regulatory Determination for the twenty "high volume" and "low hazard" mineral processing wastes.⁶² For both PG and process wastewater, the 1991 Regulatory Determination concluded that Subtitle C regulation was unwarranted.⁶³ EPA concluded that even a Subtitle C-Minus program (which would have involved tailored Subtitle C standards based on EPA's exercise of its authority under RCRA § 3004(x) (42 U.S.C. § 6924(x)) would result in the industry incurring compliance costs that would be "difficult to withstand" and "would create economic hardship for and threaten the continued viability of many of the facilities in the industry."⁶⁴ In view of these economic impacts, EPA determined that RCRA Subtitle C controls

⁵⁹ *Id.* at 36.

⁶⁰ *See, e.g., id.* at 51-53.

⁶¹ *Id.* at 41-69.

⁶² 56 Fed. Reg. at 27,300.

⁶³ *Id.* at 27,316.

⁶⁴ *Id.* In their Petition, Petitioners cite to this provision as a basis for Subtitle C-Minus regulation of PG and process wastewater (Petition at 39); however, such an application was already evaluated, and rejected, by EPA in the 1990 Report to Congress and 1991 Regulatory Determination.

were too inflexible and costly.⁶⁵ Moreover, because EPA believed that even a RCRA Subtitle D program might be difficult for the industry to withstand, EPA stated that it “has serious reservations regarding the economic feasibility of a traditional waste management program designed within the contours of the RCRA statute.”⁶⁶ Thus, with its Regulatory Determination, EPA retained both streams under its exclusion from hazardous waste regulation at 40 C.F.R. § 261.4(b)(7).

The Agency, having ruled out any form of Subtitle C control, and seriously discounting the possibility of Subtitle D providing a feasible basis for regulation, identified a two-pronged approach for PG and process wastewater. First, it would “rely upon existing authorities under RCRA Section 7003 and CERCLA Section 106 to respond effectively to emergency situations that arise.”⁶⁷ RCRA § 7003⁶⁸ provides EPA with broad authorities to address activities that may pose an imminent and substantial endangerment to health or the environment, and CERCLA § 106⁶⁹ provides EPA with similar authorities to address the release or threatened release of hazardous substances.⁷⁰ Second, EPA would evaluate potential options under TSCA “to address the complex issues associated with phosphoric acid industry special wastes.”⁷¹

While Petitioners assert that the 1991 Regulatory Determination “announced the development and future promulgation of a TSCA regulatory program for [PG] and process wastewater,”⁷² this is wrong. Rather, EPA noted that the TSCA evaluation would “focus on developing risk management strategies to reduce or eliminate risks posed by phosphoric acid

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ 42 U.S.C. § 6973.

⁶⁹ *Id.* § 9606.

⁷⁰ Although the Petition cites to these provisions, there is no recognition that they are in place to address activities at phosphoric acid manufacturing facilities that may pose an imminent and substantial endangerment. *See* Petition at 16. Nor does the Petition recognize that EPA has invoked RCRA § 7003 in regulating PG and process wastewater operations. *See infra* at 43, 49.

⁷¹ 56 Fed. Reg. at 27,316.

⁷² Petition at 16.

production wastes,” including methods to “reduce the toxicity and/or volume of these wastes.”⁷³ Importantly, EPA never suggested that it would back-track on its extensive work to implement the Bevill Amendment under RCRA.

4. EPA’s TSCA Dialogue Committee

To fulfill its stated evaluation scope under TSCA, EPA convened the TSCA Phosphoric Acid Waste Dialogue Committee (“Committee”), comprised of representatives of industry, environmental organizations,⁷⁴ and state and federal agencies.⁷⁵ The Committee engaged technical consultants to support its evaluation, and met six times between December 1, 1992 and March 29, 1994.⁷⁶

Committee deliberations focused on evaluating process changes that were “technically and economically feasible,” and that did not “introduce new environmental or human health risks.”⁷⁷ In particular, the Committee evaluated “major opportunities for volume and/or toxicity reduction in the phosphoric acid production process.”⁷⁸ The Committee thoroughly evaluated potential process modifications and technologies that may be applicable to phosphoric acid production.

For example, the Committee identified “all of the major opportunities for volume and/or toxicity reduction in the phosphoric acid production process,” with the goal of defining “those alternatives with the most promise as well as those alternatives that offered little possibility of

⁷³ 56 Fed. Reg. at 27,316.

⁷⁴ The environmental organizations were the Nature Conservancy, Pamlico/Tar River Foundation, Environmental Defense Fund, ManaSota-88, Environmental Assistance Foundation, and Southwest Research and Information Center. *See* Memorandum from Greg Bourne, Committee Facilitator, Southeast Negotiation Network, to Phosphoric Acid Waste Dialogue FACA Committee Members at 16, 74 (Sept. 29, 1995) (hereinafter, “TSCA Committee Report”).

⁷⁵ Notably, although one of the Petitioners, ManaSota-88, was a member of the Committee, Petitioners assert that they were unable to locate the TSCA Committee Report, and, instead, elected to cite in their Petition to an EPA report issued in an unrelated rulemaking and three years after the Committee concluded its activities. *See* Petition at 17 & nn. 93, 94 & 96.

⁷⁶ TSCA Committee Report at 1.

⁷⁷ *Id.* at 19.

⁷⁸ *Id.* at 20-21.

achieving the Committee's objectives."⁷⁹ This effort resulted in the identification of over 32 potential technologies or practices to investigate.⁸⁰ Based on a viability review performed by EPA, and discussion by the Committee, the vast majority of the technologies were rejected because they did not "offer promise for significant reductions in volume or toxicity, other than sulfur and fluoride recovery."⁸¹

The Committee also evaluated sulfur and fluoride recovery technologies and their applications to the phosphoric acid industry.⁸² The sulfur recovery option was terminated "due to lack of sufficient information on emerging technologies that might offer some promise."⁸³ This left the fluoride recovery technology, which focused on recovering fluorosilicic acid from PG stacks and using it to make hydrogen fluoride.⁸⁴ Although some fluoride recovery technology has been utilized by the industry, more comprehensive fluoride recovery was ultimately dismissed because of its limited application.⁸⁵

After a thorough review of potential technologies spanning 15 months, the Committee concluded that no better alternatives to the existing process were available.⁸⁶ As a result, the Committee's work was terminated and TSCA regulation was deemed inappropriate.⁸⁷

⁷⁹ *Id.*

⁸⁰ *Id.* at 76-81.

⁸¹ *Id.* at 21.

⁸² *Id.* at 22-25.

⁸³ *Id.* at 24.

⁸⁴ *Id.* The fluoride recovery option is premised on reducing fluoride concentrations in PG stacks, but does not eliminate a PG stack.

⁸⁵ *Id.* at 25. See Leif Bouffard, Phosphate Engineering & Construction Co. presentation to the American Institute of Chemical Engineers, entitled "PECO HF Process" (May 25, 1991), available at https://aichecf.starchapter.com/images/downloads/14_Phosphate_General/1991.2.7.pdf.

⁸⁶ TSCA Committee Report at 63.

⁸⁷ *Id.* at 2.

B. EPA Has No Legal Justification for Revisiting Its Earlier Regulatory Determinations

While Petitioners concede that the D.C. Circuit has distinguished between a RCRA “regulation” and “determination,” with the latter being a one-time process, they nonetheless attempt to maneuver around this insurmountable jurisdictional hurdle by asserting “nothing precludes EPA from conducting additional study or revisiting the initial determination at a later date”⁸⁸ However Petitioners seek to characterize their effort, this argument fails based on the plain language of RCRA and case law concluding that (1) a RCRA “determination” is neither a “regulation” nor a “rule,” and (2) a RCRA “determination” is a one-time event that EPA cannot revisit.

1. The Petition Must Be Denied Because a Regulatory Determination Is Neither a Regulation Subject to RCRA § 7004(a) Nor a Rule Subject to APA § 553(e)

Petitioners ask that EPA engage in rulemakings to (1) “reverse” its 1991 Regulatory Determination as to PG and process wastewater, and (2) list the two streams as hazardous waste.⁸⁹ As the bases for their demand, Petitioners invoke both RCRA’s petition for regulation provision (RCRA § 7004(a))⁹⁰ and the APA’s petition for rulemaking provision (APA § 553(e)).⁹¹ Petitioners’ proposed relief reflects a fundamental misunderstanding of RCRA, as the 1991 Regulatory Determination is neither a “regulation” nor a “rule,” but rather is a “determination” mandated by Congress. Without the ability to petition EPA to engage in a rulemaking to “reverse” its 1991 Regulatory Determination, Petitioners’ second request (*i.e.*, that EPA list the two streams

⁸⁸ Petition at 17.

⁸⁹ *Id.* at 1, 17-19.

⁹⁰ 42 U.S.C. § 6974(a).

⁹¹ 5 U.S.C. § 553(e). *See* Petition at 6.

as hazardous waste) necessarily fails because the 1991 Regulatory Determination concluded that these streams would not be subject to Subtitle C.

At least two courts have held that a regulatory “determination” is not a RCRA “regulation.” First, in 1996, a group of petitioners challenged EPA’s 1995 Regulatory Determination for cement kiln dust in the D.C. Circuit under RCRA’s judicial review provision (RCRA § 7006(a)(1)).⁹² The 1995 Regulatory Determination resulted from requirements in the Bevill Amendment for cement kiln dust that were similar to those found in the Bevill Amendment for mineral processing wastes – namely, a study, Report to Congress, and Regulatory Determination.⁹³ As with mineral processing wastes, EPA was precluded from regulating cement kiln dust as a hazardous waste until it completed these activities and issued its Regulatory Determination.⁹⁴

RCRA § 7006(a)(1) applies to legal challenges to an “action of the Administrator in promulgating any regulation, or requirements under [RCRA] or denying any petition for the promulgation, amendment or repeal of any regulation under [RCRA].”⁹⁵ After an exhaustive evaluation of the statutory language requiring EPA to issue a regulatory determination for cement kiln dust, the D.C. Circuit concluded that EPA’s 1995 Regulatory Determination was not a “regulation” subject to judicial review under RCRA § 7006(a)(1).⁹⁶ In particular, the D.C. Circuit noted “the text of the Bevill Amendment juxtaposes the terms ‘determin[ation]’ and ‘regulation,’ signifying that, consistent with the principle that effect must be given to each word of a statute, the two terms were intended to have distinct meanings.”⁹⁷ Thus, the D.C. Circuit dismissed the petitions for review.

⁹² *Am. Portland Cement All. v. EPA*, 101 F.3d at 772.

⁹³ *See* 42 U.S.C. §§ 6921(b)(3)(A)(iii), 6921(b)(3)(C) & 6982(o).

⁹⁴ *Id.* at § 6921(b)(3)(C).

⁹⁵ *Id.* § 6976(a)(1) (emphasis added).

⁹⁶ *Am. Portland Cement All.*, 101 F.3d at 775.

⁹⁷ *Id.*

Second, in 2013, the U.S. District Court for the District of Columbia heard a legal challenge to an EPA regulatory determination under the Bevill Amendment, this time EPA’s 1993 and 2000 Regulatory Determinations for coal ash.⁹⁸ The issue before the court was whether the Regulatory Determinations were a “regulation” subject to RCRA § 2002(b).⁹⁹ In this case, plaintiffs asserted that EPA failed to perform a non-discretionary duty under RCRA § 2002(b) to review and, as necessary, revise 40 C.F.R. § 261.4(b)(4) for coal ash at least every three years.¹⁰⁰ RCRA § 2002(b) requires such a review and, as necessary, revision to EPA’s RCRA “regulations.”¹⁰¹

The Court recognized the D.C. Circuit’s analysis in *American Portland Cement* regarding the distinction between a RCRA “regulation” and “determination.” In light of this analysis, the Court first concluded that “the Bevill Amendment carves out a distinct regulatory process for Bevill wastes that does not fall within the EPA’s routine regulatory authority under the RCRA.”¹⁰² Second, and as a result, the Court concluded that RCRA § 2002(b) did not apply to 40 C.F.R. § 261.4(b)(4) because it resulted from EPA’s actions under the Bevill Amendment, including the resulting 1993 and 2000 Regulatory Determinations for coal ash.¹⁰³

Here, Petitioners seek to compel EPA to “reverse” its 1991 Regulatory Determination for PG and process wastewater and revise 40 C.F.R. § 261.4(b)(7)(ii) to remove both streams from the hazardous waste regulation exclusion. However, just as the D.C. Circuit and U.S. District Court concluded that RCRA §§ 7006(a)(1) and 2002(b) do not apply to Bevill Amendment regulatory determinations and the resulting exclusions from the definition of hazardous waste set

⁹⁸ *Appalachian Voices*, 989 F.2d at 30.

⁹⁹ 42 U.S.C. § 6912(b).

¹⁰⁰ Section 261.4(b)(4), like 40 C.F.R. § 261.4(b)(7), resulted from EPA’s evaluation under the Bevill Amendment of coal ash, concluding that Subtitle C regulation was not warranted. Both regulatory sections exclude the enumerated solid wastes from regulation as hazardous waste.

¹⁰¹ 42 U.S.C. § 6912(b).

¹⁰² *Appalachian Voices*, 989 F.2d at 53.

¹⁰³ *Id.*

forth in EPA’s regulations, EPA also is precluded from granting Petitioners’ request under RCRA § 7004(a).

Like RCRA §§ 2002(b) and 7006(a)(1), RCRA § 7004(a) applies to “the promulgation, amendment, or repeal of any regulation under [RCRA].”¹⁰⁴ It does not authorize the submission of a petition to amend, revise, or reverse a regulatory “determination” or the resulting regulatory exclusion resulting from it. Thus, this provision is inapposite to the relief requested by Petitioners and cannot be provided by EPA.

Similarly, Petitioners’ request under APA § 553(e) must fail. APA § 553(e) allows an interested party to petition an agency “for the issuance, amendment, or repeal of a rule.”¹⁰⁵ In relevant part, a “rule” is defined as “the whole or part of an agency statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy”¹⁰⁶ For “rulemakings,” the APA requires a notice of proposed rulemaking, except when the rulemaking is purely interpretative in nature.¹⁰⁷ Thus, the APA only applies to “legislative rules,” which must go through notice-and-comment rulemaking, and “interpretive rules,” which do not. The D.C. Circuit has described the difference as follows:

An interpretive rule . . . only “reminds affected parties of existing duties.” On the other hand, if by its action the agency intends to create new law, right or duties, the rule is properly considered to be a legislative rule.¹⁰⁸

However, the Bevill Amendment specifically refers to a “determination” and does not invoke either the RCRA or APA rulemaking provisions.¹⁰⁹ Rather, it required EPA to solicit public

¹⁰⁴ 42 U.S.C. § 6974(a) (emphasis added).

¹⁰⁵ 5 U.S.C. § 553(e) (emphasis added).

¹⁰⁶ *Id.* § 551(4).

¹⁰⁷ *Id.* § 553(b).

¹⁰⁸ *Gen. Motors Corp. v. Ruckelshaus*, 742 F.2d 1561, 1565 (D.C. Cir. 1984) (internal citations omitted).

¹⁰⁹ *See* 42 U.S.C. § 6921(b)(3)(C).

comment only on its Report to Congress.¹¹⁰ Fulfilling this obligation, EPA solicited public comment on its Report to Congress in August 1990,¹¹¹ approximately ten months before issuing its “final” 1991 Regulatory Determination.

Reinforcing EPA’s correct position that a RCRA regulatory “determination” is not a “rule,” EPA did not prepare a regulatory flexible analysis for the determination “[b]ecause in today’s regulatory determination EPA does not establish new regulatory controls.”¹¹² The Regulatory Flexibility Act applies “[w]hen an agency promulgates a final rule under section 553 [of the APA], after being required by that section or any other law to publish a general notice of proposed rulemaking.”¹¹³ Because a RCRA “determination” is not a “rule,” as defined in the APA, Petitioners attempt to invoke APA § 553(e) to compel EPA to “revisit” the 1991 Regulatory Determination cannot be granted.

Finally, Petitioners’ demand that EPA engage in a rulemaking to list both PG and process wastewater as hazardous wastes must fail.¹¹⁴ While EPA has the authority to promulgate “regulations” identifying hazardous waste characteristics and listing particular hazardous wastes, such authority is limited by the Bevill Amendment and EPA’s 1991 Regulatory Determination. To be sure, the Bevill Amendment did provide EPA with the authority to identify mining and mineral processing wastes as hazardous waste, but limited EPA’s ability to do so until (1) at least six months after submission of the Report to Congress,¹¹⁵ and (2) only if the Agency identified in

¹¹⁰ *Id.*

¹¹¹ 55 Fed. Reg. at 32,135 (“Information submitted in public comments will be used in conjunction with the Report to Congress to make the final regulatory determination on these wastes.”) (emphasis added).

¹¹² 60 Fed. Reg. 7366, 7377 (Feb. 7, 1995) (Regulatory Determination). In the 1991 Regulatory Determination, EPA previously determined, as part of its Report to Congress, that there were no “small businesses” in the mineral processing industries. Thus, EPA had no reason to discuss whether a “determination” is a “rule” subject to the Regulatory Flexibility Act. *See* 56 Fed. Reg. at 27,317.

¹¹³ 5 U.S.C. § 604(a) (emphasis added).

¹¹⁴ Petition at 18-19.

¹¹⁵ 42 U.S.C. § 6921(b)(3)(A).

its Regulatory Determination that such regulation was warranted.¹¹⁶ For both PG and process wastewater, the 1991 Regulatory Determination identified EPA’s intent not to proceed with Subtitle C regulation for either stream.¹¹⁷ Under the Bevill Amendment, the § 261.4(b)(7)(ii) moratorium is inextricably linked to the 1991 Regulatory Determination, and inasmuch as EPA concluded not to impose Subtitle C on PG and process wastewater, the condition precedent for EPA’s statutory authority to regulate these streams as hazardous waste was not fulfilled. Thus, the Bevill Amendment precludes the relief sought by Petitioners because it is not a “regulation.”

2. EPA’s 1991 Regulatory Determination Was a One-Time Event

Petitioners assert that EPA is able to “revisit” its 1991 Regulatory Determination, and describe it as an “initial” determination.¹¹⁸ However, Petitioners’ assertion misses the mark based on the clear congressional language, contemporaneous EPA statements regarding the one-time nature of its Bevill Amendment obligations, and federal case law concluding that the Bevill process for mineral processing wastes was a one-time event. As such, Petitioners’ request for EPA to “revisit” its 1991 Regulatory Determination is unsupported and cannot proceed.

EPA’s actions under the Bevill Amendment are clearly one-time events, and not subject to further reevaluation under the Bevill Amendment, RCRA § 7004(a), or any other RCRA provision. The language of RCRA § 8002(p)¹¹⁹ contemplates a “detailed and comprehensive study.” Next, RCRA § 3001(b)(3)(A)¹²⁰ prohibits EPA from regulating any mineral processing waste under Subtitle C “until at least six months after the date of the submission of the applicable study” as required by RCRA § 8002(p). Finally, under RCRA § 3001(b)(3)(C),¹²¹ EPA must

¹¹⁶ *Id.* § 6921(b)(3)(C).

¹¹⁷ 56 Fed. Reg. at 27,316.

¹¹⁸ Petition at 17.

¹¹⁹ 42 U.S.C. § 6982(p) (emphasis added).

¹²⁰ *Id.* § 6921(b)(3)(A) (emphasis added).

¹²¹ *Id.* § 6921(b)(3)(C) (emphasis added).

“either determine to promulgate regulations [under Subtitle C] or determine that such regulations are unwarranted,” and sets a time frame to do so within “six months after the date of the applicable study required to be conducted under” RCRA § 8002(p).

Words matter and the use of the singular in each of the above quotes indicates Congress’ intent to establish a one-time study, one Report to Congress, and a single Regulatory Determination. It is a fundamental principle of administrative law that all exercises of EPA’s power must be grounded in a grant of congressional authority — it cannot be presumed.¹²² As such, the one-time Bevill Amendment requirements for PG and process wastewater were completed by EPA with the Agency’s 1991 Regulatory Determination, as set forth in 40 C.F.R. § 261.4(b)(7)(ii)(D) (for PG) and (P) (for process wastewater). Applying RCRA § 7004(a) in an unauthorized attempt to revisit EPA’s Bevill Amendment activities would trigger a rulemaking process that, if granted, would not be subject to specific deadlines, procedures and decisional criteria mandated by the Congress in 1980, and would be at odds with the explicit statutory requirements set forth in RCRA §§3001(b)(3)(A), 3001(b)(3)(C), and 6982(p) for mineral processing wastes.

Courts have given great deference to an agency’s interpretation of its statutory mandate made contemporaneous with the discharge of its obligations.¹²³ In the course of EPA’s implementation of its Bevill Amendment mandate, the Agency consistently recognized that the Amendment required a one-time study, Report to Congress, and Regulatory Determination. In its

¹²² See *North Carolina v. EPA*, 531 F.3d 896, 922 (D.C. Cir. 2008) (“Lest EPA forget, it is ‘a creature of statute,’ and has ‘only those authorities conferred upon it by Congress’; ‘if there is no statute conferring authority, a federal agency has none.’”) (internal citations omitted); *Am. Bus. Ass’n v. Slater*, 231 F.3d 1, 8 (D.C. Cir. 2000) (Sentelle, J., concurring) (“[A] statutory silence on the granting of a power is a *denial* of that power to the agency.”) (emphasis in original).

¹²³ *Power Reactor Dev. Co. v. Int’l Union of Electricians*, 367 U.S. 396, 408 (1961) (“Particularly is this respect due when the administrative practice at stake ‘involves a contemporaneous construction of a statute by the men charged with the responsibility of setting its machinery in motion; of making the parts work efficiently and smoothly while they are yet untried and new.’”) (internal citations omitted).

October 20, 1988, proposed rule, EPA stated that if the proposal is promulgated “this reinterpretation and the subsequent Report to Congress and regulatory determination represent the final stages of EPA’s response to the provisions of RCRA section 8002(p); there will be no further studies or regulatory determinations related to ore and mineral processing wastes as a group.”¹²⁴ In responding to comments on the October 20, 1998 proposed rule, EPA likewise noted that Congress had directed it to conduct “a single study” “over a fixed time period,” with the result being a “one-time” determination.¹²⁵

In its September 1, 1989 final rule on mineral processing wastes, EPA responded to a comment suggesting that the Agency was under a continuing statutory duty to study and report to Congress on mining and mineral processing wastes. With respect to mineral processing wastes, EPA again noted that its Bevill activities were “one-time” events “over a fixed period of time.”¹²⁶ And, with respect to mining wastes, which were also subject to a Bevill evaluation, EPA stated that “the 1985 Report [to Congress on mining wastes], and the subsequent regulatory determination, discharged its statutory duty with respect to all extraction and beneficiation wastes.”¹²⁷

Further, in its September 25, 1989 proposed rule on mineral processing wastes, EPA reassured stakeholders and the public that it “will take final action on the proposed wastes by January 15, 1990. At that time, the final boundaries of the Bevill exclusion for mineral processing wastes will be established.”¹²⁸ Finally, in the Agency’s January 23, 1990 final rule on mineral processing wastes, EPA stated that “[t]his final rule completes the rulemaking regarding the Bevill

¹²⁴ 53 Fed. Reg. at 41,288 (emphasis added).

¹²⁵ 54 Fed. Reg. at 15,337-38.

¹²⁶ 54 Fed. Reg. at 36,596.

¹²⁷ *Id.* (emphasis added).

¹²⁸ 54 Fed. Reg. at 39,300 (emphasis added).

status of mineral processing wastes until the completion of the required [R]eport to Congress and Regulatory Determination.”¹²⁹

Confirming EPA’s contemporaneous conclusion that the Bevill Amendment was a one-time event, the D.C. Circuit rejected arguments by industry groups that the Bevill exclusion should be available for future mineral processing waste streams.¹³⁰ That court found that “[t]he statutory provision directing EPA to study Bevill wastes suggests by its terms that a one-time study is sufficient.”¹³¹ In reviewing that statutory language, and its earlier interpretation of the Bevill Amendment, the *Solite* court stated “we clearly enough rejected the theory that Congress intended the coverage of the Bevill exclusion to evolve with time.”¹³² Notably, in the *Solite* litigation, it was EPA, consistent with its position while implementing its Bevill mandate, arguing that the Bevill Amendment process was a one-time event:

This decision followed from EPA’s reading of congressional intent based on the statutory language and scheme of sections 3001(b)(3) and 8002(p) of RCRA, which establish a temporary exclusion for a fixed period of time and which fail to expressly impose a continuing obligation to study new wastestreams. EPA’s construction was also based on other indicia, such as the strict statutory time periods governing the mineral processing waste exclusion in section 3001(b)(3)(A) of RCRA. 54 Fed. Reg. at 15,338; 54 Fed. Reg. at 36,956. From this evidence of congressional intent, EPA reasonably determined that Congress authorized EPA to make a one-time interpretation or snapshot of mineral processing wastes, rather than a continuing series of studies and regulatory determinations. . . .

* * *

There is nothing in the statute itself which suggests that the Bevill process should be an ongoing, evolving process, with updated reports to Congress and regulatory determinations.¹³³

¹²⁹ 55 Fed. Reg. at 2,323 (emphasis added).

¹³⁰ See *Solite Corp.*, 952 F.2d at 491.

¹³¹ *Id.* citing 42 U.S.C. § 6982(p) (“The Administrator shall conduct a detailed and comprehensive study . . . and shall publish a report of such study”) (emphasis added).

¹³² *Id.*

¹³³ Brief for the Respondent, *Solite Corp.*, at 68-69 (filed May 8, 1991) (Final Brief) (emphasis added).

Thus, having satisfied its Bevill Amendment obligations in 1991, absent further Congressional direction, EPA does not have authority to revisit its 1991 Regulatory Determination. Congress precluded that possibility not only by directing EPA on the criteria and methodology for the studies, but also by requiring that EPA submit the report to both houses of Congress.¹³⁴ Congress required that EPA fully apprise it of EPA's potential actions with respect to mining and mineral processing wastes. Clearly, Congress reserved to itself the authority to consider EPA's ultimate regulatory determinations in the context of the reports submitted by EPA. Congress' silence signaled its approval of EPA's actions. Accordingly, the Agency cannot move forward and reexamine its 1991 Regulatory Determination without receiving Congressional authorization to do so.

Finally, a re-visitation of EPA's 1991 Regulatory Determination would undo the regulatory certainty that EPA has championed.¹³⁵ EPA rejected industry comments that precluding application of the Bevill exclusion to future waste streams might inhibit technology changes that could result in a net decrease in waste generation.¹³⁶ The Agency pointed out that by foreclosing future Bevill determinations, industry would not be faced with regulatory uncertainty that would inhibit the development of new technological processes.¹³⁷ Clearly, for existing waste streams, certainty was precisely what Congress intended. If the Agency were to grant the Petitioners' request and reexamine its 1991 Regulatory Determination, it would undermine, in whole or in part,

¹³⁴ RCRA § 8002(p) required the Reports to Congress for both mining and mineral processing wastes to be transmitted to the U.S. Senate Committee on Environment and Public Works and the U.S. House of Representatives Committee on Energy and Commerce.

¹³⁵ In addition, such a re-visitation would receive considerably less deference in litigation. *See, e.g., INS v. Cardoza-Fonseca*, 480 U.S. 421, 446 n. 30 (1987) ("An additional reason for rejecting the INS's request for heightened deference to its position is the inconsistency of the positions the BIA has taken through the years.") (citing *Watt v. Alaska*, 451 U.S. 259, 273 (1981)); *see also Smiley v. Citibank (South Dakota), N. A.*, 517 U.S. 735, 742 (1996) ("[s]udden and unexplained change, or change that does not take account of legitimate reliance on prior interpretation, may be 'arbitrary, capricious [or] an abuse of discretion.'" (internal citations omitted)).

¹³⁶ 54 Fed. Reg. at 36,596.

¹³⁷ *Id.*

the substantial state and industry efforts at developing and implementing regulatory controls and programs over the intervening period since the 1991 Regulatory Determination.

3. Petitioners' Reliance on EPA's Coal Combustion Residuals Rulemaking is Inapposite, And Their Assertions That EPA Contemplated The "Reopening" of Its 1991 Regulatory Determination Are Factually Incorrect

Attempting to sever the 1991 Regulatory Determination from the required study and Report to Congress, Petitioners cite to three reasons why EPA could "revisit" its 1991 Regulatory Determination for PG and process wastewater: (1) EPA announced its decision to "revisit" its 2000 Regulatory Determination for coal combustion residuals ("CCRs"); (2) EPA statements in its 1991 Regulatory Determination regarding PG and process wastewater; and (3) EPA's 1997 supplemental proposed rule wherein EPA solicited comment on purported "damage" cases associated with certain Bevill-exempt mineral processing streams.¹³⁸ TFI's preceding comments demonstrate conclusively why the Bevill Amendment requirements, consisting of EPA's temporary deferral of mineral processing wastes from hazardous waste regulation, development of criteria for determining what mineral processing wastes would be evaluated, the study, Report to Congress, 1991 Regulatory Determination, and ultimate exclusion of twenty mineral processing wastes from hazardous waste regulation, were a one-time occurrence.¹³⁹ Nonetheless, TFI responds to Petitioners' three remaining arguments below.

¹³⁸ Petition at 17-18.

¹³⁹ TFI is aware that EPA took the position before the District Court in the *Appalachian Voices* case, in the context of the Subtitle C exclusion for CCRs, that it did "have authority to revisit these initial Bevill Amendment Regulatory Determinations should it conclude that it is appropriate to do so." EPA, "Combined Opposition to Plaintiffs' Motions for Summary Judgment, and Memorandum in Support of EPA's Cross-Motion for Summary Judgment in Case Nos. 1:12-CV-00585 and 1:12-CV-00629, and for Partial Summary Judgment and Order to Govern Further Proceedings in Case No. 1:12-CV-0052," *Appalachian Voices* at n. 5 (filed Oct. 11, 2012). As shown in TFI's Opposition, (1) that conclusion is in error, and (2) even were it correct, it would not apply to PG and process wastewater.

EPA's 2000 Regulatory Determination for CCRs,¹⁴⁰ while explicitly recognizing the exclusion of CCRs from Subtitle C and development of Subtitle D standards, also indicated the Agency may "revise this determination accordingly" and impose Subtitle C standards if the results of its further studies suggested a need to do so.¹⁴¹ By contrast, EPA's 1991 Regulatory Determination at issue here expressly concluded that Subtitle C regulation of PG and process wastewater was unwarranted.¹⁴² But, the Agency decided to convene a committee comprised of representatives of industry, state and federal regulatory agencies, and environmental groups to evaluate possible regulation of these streams under TSCA.¹⁴³ And, EPA only indicated that it would "revisit" its 1991 Regulatory Determination regarding PG and process wastewater "[i]f information obtained or findings developed during the TSCA investigation are such that RCRA could better handle this matter."¹⁴⁴

As discussed in Section III.A.4 of TFI's Opposition, to evaluate TSCA controls on the two phosphate streams, EPA convened a Committee that met six times.¹⁴⁵ At the conclusion of the Committee's deliberations, there were no consensus-based process changes or other technologies identified that were technically and economically feasible, and that did not introduce new environmental or human risks.¹⁴⁶ Importantly, the Committee did not conclude, much less suggest, that RCRA "could better handle this matter." Thus, the condition precedent, assuming *arguendo* that EPA has the authority to revisit a regulatory determination, is not met here.

¹⁴⁰ 65 Fed. Reg. at 32,214.

¹⁴¹ *Id.* at 32,215.

¹⁴² 56 Fed. Reg. at 27,316 ("Therefore, the Agency has serious reservations regarding the economic feasibility of a traditional waste management program designed within the contours of the RCRA statute.").

¹⁴³ *Id.*; see TSCA Committee Report at 74.

¹⁴⁴ 56 Fed. Reg. at 27,316 (emphasis added).

¹⁴⁵ See TSCA Committee Report at 1.

¹⁴⁶ *Id.* at 19.

Also, in the CCR rulemaking, EPA based its decision to “revisit” Subtitle C regulation on additional cases of “proven” and “potential” damage cases since the 2000 Regulatory Determination.¹⁴⁷ In particular, EPA identified more than 100 “alleged” damage cases.¹⁴⁸ Unlike those circumstances, Petitioners refer to fewer than 10 alleged “damage” cases related to PG and process wastewater since the 1991 Regulatory Determination.¹⁴⁹ Those largely are historical and predate EPA’s comprehensive and enforceable settlements and orders under the Agency’s RCRA National Enforcement Initiative for Mining and Mineral Processing (“MMPI”) regarding the management of these streams, including financial assurance and corrective action requirements.¹⁵⁰

Finally, in its CCR rulemaking, EPA expressed concern that impoundments holding CCR wastes did not have groundwater monitoring, citing to its 2000 Regulatory Determination that only 38% of the units storing CCR wastes had groundwater monitoring systems in place.¹⁵¹ By comparison, all active PG stacks have groundwater monitoring in place, which has been significantly enhanced through the settlements and orders under the MMPI. Thus, Petitioners reliance on the CCR rulemaking is inapposite.

As a last gasp to persuade EPA to revisit its 1991 Regulatory Determination, Petitioners point to a 1997 EPA supplemental proposed rule where the Agency, according to Petitioners, “suggested it would revisit its Bevill regulatory determinations for certain ‘high-risk’ mining wastes.”¹⁵² However, this argument is misleading and unconvincing.

¹⁴⁷ 75 Fed. Reg. 35,128, 35,146-35,148 (June 21, 2010) (Proposed Rule).

¹⁴⁸ *Id.* at 35,147.

¹⁴⁹ *See* Petition at 24-25, 29, 30-32, 35.

¹⁵⁰ *See infra* Section IV.B for a discussion of the MMPI and resulting Consent Decrees and RCRA Consent Orders.

¹⁵¹ 75 Fed. Reg. at 35,144.

¹⁵² Petition at 17.

In the supplemental proposed rule, EPA never suggested “it would revisit” its 1991 Regulatory Determination. Rather, EPA solicited comment on purported “damage” cases associated with the management of certain mineral processing streams.¹⁵³ Industry responded with evaluations of these cases, and comments regarding the one-time nature of EPA’s 1991 Regulatory Determination.¹⁵⁴ In the final rule, EPA merely acknowledged the receipt of the comments without further indicating an intent to reexamine the Bevill-exempt status of any excluded mineral processing streams.¹⁵⁵ And, in the 14 years since, EPA has taken no action in this regard.

IV. Robust and Mature Regulatory Frameworks Already Regulate PG Stacks and Are Buttressed By Consent Decrees and RCRA Consent Orders Tailored to Individual Facility Conditions Under EPA’s MMPI

Petitioners reference so-called “damage” cases they assert support their request for additional federal regulation of PG and process wastewater. Petitioners fail to acknowledge, however, that these cases, in large part, antedate significant enhancements in state regulations, the MMPI, and the legally binding Consent Decrees and RCRA Consent Orders resulting from the MMPI, which collectively address the risks asserted in the Petition.

In its 1991 Regulatory Determination, EPA acknowledged that consideration of alternative state regulatory schemes, in addition to existing federal schemes, is contemplated by RCRA § 8002(p)(5).¹⁵⁶ Contrary to Petitioners’ assertions, EPA and the states have developed robust programs to regulate PG stacks in a manner protective of human health and the environment. The imposition of additional, vastly different and inconsistent requirements on phosphate mineral

¹⁵³ 62 Fed. Reg. at 26,054.

¹⁵⁴ See, e.g., TFI, “Comments to the United States Environmental Protection Agency by The Fertilizer Institute Concerning EPA’s Proposed Rule on Land Disposal Restrictions” (Aug. 12, 1997).

¹⁵⁵ 63 Fed. Reg. at 28,580.

¹⁵⁶ 56 Fed. Reg. at 27,305.

processing wastes would substantially interfere with these existing federal, state, and local programs.

Further, EPA's MMPI subjected twenty phosphoric acid mineral processing facilities to comprehensive inspections. As a result of the MMPI inspections, industry negotiations with EPA and state environmental agencies have resulted in binding settlements and orders imposing comprehensive design, operation, closure, post-closure, groundwater protection, corrective action, and financial assurance obligations applicable to the majority of remaining facilities' PG stacks.¹⁵⁷

Industry has modified their manufacturing processes and PG stack systems, and constructed new processes and systems specifically to comply with these existing state and local requirements, and additional measures adopted under the MMPI. These efforts have resulted in substantial expenditures to assure protection of human health and the environment. Retrofitting these units based on additional federal regulation (such as RCRA Subtitle C) would result not only in increased and potentially unsustainable costs, but also would result in the inequitable loss of expenditures made to modify and construct phosphoric acid production and associated waste management facilities consistent with existing regulation and legally binding agreements entered under the MMPI.

Finally, EPA already has comprehensively evaluated the phosphoric acid industry on two recent occasions as part of its statutory mandate under Section 108(b) of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"),¹⁵⁸ and determined in the CERCLA context, there is no need to impose additional federal regulation on the management

¹⁵⁷ See, e.g., EPA, "National Enforcement Initiative for Mining and Mineral Processing Summary of Activities 2005 to 2016," at 2-3 (Nov. 15, 2016) (Dkt. EPA-SFUND-2015-0781-0390).

¹⁵⁸ 42 U.S.C. § 9608(b).

of PG and process wastewater based on the degree and duration of risk represented by the modern industry.

A. Since the 1991 Regulatory Determination, Comprehensive Federal and State Programs Have Been Implemented for PG Stacks

While Petitioners assert that additional regulation is needed for PG stacks, they fail to acknowledge the comprehensive federal and state laws and regulations that are in place for PG stacks to protect public health and the environment. At the federal level, these include EPA's enforcement authority under RCRA § 7003,¹⁵⁹ which allows the Agency to take action to abate any actual or threatened imminent and substantial endangerment to human health or to the environment from PG or process wastewater. This broad enforcement authority enables EPA to take action even before any damage has occurred, as long as the PG or process wastewater presents a risk of harm that would be "imminent and substantial." In addition to this RCRA enforcement authority, which EPA has utilized to address PG and process wastewater operations, *see infra* at 43, 49, federal law also provides additional regulation through the National Emission Standards for Radon Emissions from PG Stacks ("PG NESHAP")¹⁶⁰ and the Phosphoric Acid NESHAP.¹⁶¹

Petitioners summarily dismiss the PG NESHAP as not protective of human health: Their statement is false.¹⁶² As noted in the 1989 PG NESHAP final rule, "EPA strives to provide maximum feasible protection against risks to health from hazardous air pollutants . . . by means of a two-step standard setting approach."¹⁶³ The first step in the evaluation determines an "acceptable risk that considers all health information, including risk estimation uncertainty."¹⁶⁴ The second

¹⁵⁹ 42 U.S.C. § 6973.

¹⁶⁰ 40 C.F.R. Part 61, Subpart R.

¹⁶¹ 40 C.F.R. Part 63, Subpart AA.

¹⁶² Petition at 15.

¹⁶³ 54 Fed. Reg. 51,654, 51,655 (Dec. 15, 1989) (Final Rule).

¹⁶⁴ *Id.*

step sets the standard “at a level that provides ‘an ample margin of safety’ in consideration of all health information.”¹⁶⁵

After thorough evaluation, EPA concluded that, with some exceptions, PG should be exclusively managed in stacks or mines to protect human health.¹⁶⁶ In concluding that this practice provided sufficient safety, EPA evaluated health information, and conservatively considered risk estimation uncertainty. Finally, EPA provided an “ample margin of safety” in its standard by requiring that radon emissions from an inactive stack not exceed 20 pCi/m²-s.¹⁶⁷

Petitioners fail to mention or substantively evaluate the Phosphoric Acid NESHAP and its recent amendments that address PG stacks as part of EPA’s most recent eight-year technology review and “residual risk” evaluation under the Clean Air Act (“CAA”).¹⁶⁸ In performing such “residual risk” evaluations, EPA is required to determine whether its emission standards provide an ample margin of safety to protect public health.¹⁶⁹ In 2015, after completing its most recent evaluation of the Phosphoric Acid NESHAP, EPA enhanced its regulations, requiring additional, meaningful measures at PG stacks and cooling ponds to reduce potential fugitive hydrogen fluoride emissions (hydrogen fluoride is a CAA Hazardous Air Pollutant).¹⁷⁰

¹⁶⁵ *Id.*

¹⁶⁶ In 1992, EPA revised the PG NESHAP to allow for the use of PG in agriculture and research and development, provided certain conditions were met. 57 Fed. Reg. 23,305 (June 3, 1992) (Final Rule). In addition, EPA put in place a procedure to request EPA’s approval of other uses of PG, provided the proposed use is at least as protective as PG disposal in a stack or mine. *Id.* at 23,316 (codified at 40 C.F.R. § 61.206).

¹⁶⁷ 54 Fed. Reg. at 51,655.

¹⁶⁸ 42 U.S.C. § 7412(d)(6) & 7412(f)(2).

¹⁶⁹ *Id.* § 7412(f)(2)(B).

¹⁷⁰ 80 Fed. Reg. 50,386 (Aug. 19, 2015) (Final Rule). Specifically, EPA’s regulations require the preparation and submission to EPA of a “gypsum dewatering stack and cooling pond management plan” identifying control measures to minimize fugitive hydrogen fluoride emissions. 40 C.F.R. § 63.602(d). For existing stacks, at least one control measure must be identified, and for new stacks, at least two control measures must be identified, selected from seven options identified by EPA, and based on the Agency’s independent technical evaluation and consultation with industry and other stakeholders. *Id.* § 63.602(e)(3). The plan must include details on how the facility will implement the plan and show compliance with the selected control measures, and also requires specific EPA approval. *Id.* § 63.602(e)(4).

Beyond federal regulations, the states where active PG stacks are located also have implemented comprehensive regulations. These state regulations reflect the specific local geography, geology, and climate of each state. Specifically, Florida, Idaho, Louisiana, North Carolina, and Wyoming each have enacted legislation and promulgated regulatory programs comprehensively regulating PG stacks in the manner best suited to protect human health and the respective environment of each state. Reluctantly, Petitioners include a cursory acknowledgement of these detailed state programs regulating PG stacks, but assert there is a lack of regulations specific to PG stacks.¹⁷¹ They are mistaken. As explained below, these state regulations provide a comprehensive state regulatory scheme complementing existing federal regulation (including the PG NESHAP and Phosphoric Acid NESHAP), resulting in substantial protections of human health and the environment.

1. Florida

Florida's PG Management Rules provide robust protections for health and the environment. The Florida Department of Environment Protection ("FDEP") oversees the crucial aspects of PG systems, including the storage and management of process water from phosphoric acid production.¹⁷² Florida's regulatory scope is comprehensive, covering PG stack siting, design, construction, operations and maintenance, closure, post-closure long-term care, and financial assurance. These regulations are especially important because Florida has far more phosphoric acid manufacturing facilities than any other state.

FDEP has promulgated a litany of regulations to manage PG stacks and phosphoric acid production creating a comprehensive regulatory scheme covering all aspects of PG stack

¹⁷¹ Petition at 25.

¹⁷² As authorized by the PG management program. Fla. Stat. Ann. § 403.4154.

operation.¹⁷³ FDEP has promulgated regulations prohibiting disposal of PG without a permit,¹⁷⁴ the procedure for requesting a written determination,¹⁷⁵ prohibiting any construction, operation, expansion, or modification of a PG stack without a permit issued by FDEP,¹⁷⁶ long-term care of PG stacks for fifty years from the date of closure,¹⁷⁷ financial assurance as a condition to the issuance of a PG stack permit,¹⁷⁸ and the closure of unlined PG stacks.¹⁷⁹

Further, FDEP has promulgated highly detailed performance standards specifying location, operation, groundwater monitoring, surface water management, leachate management, and interim stack management plans to control the potential movement of solutions into the environment, and to prevent potential violations of applicable discharge standards.¹⁸⁰ Finally, for closure of a PG stack, FDEP requires PG stack owners to submit closure plans and schedules¹⁸¹ that must meet numerous requirements, including general information related to the owner and history of the PG stack, information regarding the topographical, hydrological, and geological aspects of the area affected by the PG stack, a groundwater monitoring plan, assessment of effectiveness of the existing PG stack design and operation, closure performance standards, and closure design and operation plans which must be certified by a registered professional engineer.¹⁸²

Moreover, FDEP has promulgated comprehensive regulations regarding construction of new PG stacks or lateral expansion of existing PG stacks,¹⁸³ including specific requirements for

¹⁷³ See also Ardaman & Associates, Inc., “Technical Memorandum on Phosphogypsum and Process Wastewater Management” at 4 – 11 (Mar. 26, 2021), included as Attachment A (hereinafter, “Ardaman Technical Memorandum”).

¹⁷⁴ Fla. Admin. Code Ann. R. 62-673.300.

¹⁷⁵ *Id.* R. 62-673.310.

¹⁷⁶ *Id.* R. 62-673.320.

¹⁷⁷ *Id.* R. 62-673.630.

¹⁷⁸ *Id.* R. 62-673.640.

¹⁷⁹ *Id.* R. 62-673.650.

¹⁸⁰ *Id.* R. 62-673.340.

¹⁸¹ *Id.* R. 62-673.600.

¹⁸² *Id.* R. 62-673.610.

¹⁸³ In particular, FDEP has promulgated regulations requiring composite liners and leachate control systems with specific parameters best suited to protect the environment in Florida. See *id.* R. 62-673.400.

earthen dams for dikes used for PG stacks.¹⁸⁴ Additional regulations specify freeboard standards and govern requirements for decanting process water from the top of PG stacks.¹⁸⁵ Further, operating plans for the PG stack must address nearly every aspect of operating PG stacks¹⁸⁶ and require annual training of personnel.¹⁸⁷

It is important to recognize that FDEP's comprehensive regulatory program is relevant well beyond the state of Florida – the robust FDEP program has served as the model for supplemental measures applicable to facilities located in other states, under legally binding Consent Decrees and RCRA Orders agreed to with EPA and relevant state environmental agencies pursuant to the MMPI.

2. Idaho

The Idaho Department of Environmental Quality ("IDEQ") oversees several programs addressing PG stacks, including programs protecting groundwater and air quality. With respect to groundwater protections, IDEQ requires best management practices and best practical methods used to prevent potential degradation of groundwater aquifers by PG stacks.¹⁸⁸ In terms of air quality standards, IDEQ has established annual, bimonthly, and monthly standards for the total fluoride content in vegetation for feed and forage which requires monitoring of forage adjacent to

¹⁸⁴ See *id.* R. 62-672.300, 62-672.600, 62-672.650. Specifically regarding PG stacks, these provisions include requiring new PG stacks to meet certain minimum specifications including specific parameters as to the width and thickness of each gypsum dike, the slope of the PG stack, lengths of the inboard dike, levee, or windrow used to create rim ditch, and maximum fluid levels in the rim ditch. *Id.* R. 62-672.700, 62-672.750.

¹⁸⁵ These regulations include specific methods for decanting, the distance from decant location to the outer edge of any cut on the exterior slope on the stack, measures for the decant pipe, and inspections. *Id.* R. 62-672.760.

¹⁸⁶ For instance, the operating plans must include, among other parameters, the method used to raise and operate the stack, the procedures used to decant process water, the location of pumps, spillways, and staff gauges, emergency measures in the event of mechanical or power failures, waste management plan, and site specific water management plans that must be based on a five-year water balance analysis and updated annually. *Id.* R. 62-672.780. FDEP further has promulgated rules regarding the operating procedures for both earthen dams and dikes used for PG stacks. *Id.* R. 62-672.400, 62-672.650.

¹⁸⁷ *Id.* R. 62-672.800–870.

¹⁸⁸ See Idaho Admin. Code R. 58.01.11.301.

phosphoric acid plants and PG stacks to ensure compliance.¹⁸⁹ Also, phosphoric acid unit processes are subject to limitations on fluoride emissions.¹⁹⁰

Additionally, Idaho legislation comprehensively regulates construction and design requirements applicable to PG stacks. Prior to construction of a new PG stack, a material component thereof, or lateral expansion the owner must submit to IDEQ a plan for review and approval which must meet design and construction specifications to control and minimize the potential movement of solutions and constituents into the environment.¹⁹¹ The minimum design requirements include run-on and runoff controls, composite liners (or approved alternatives), leachate control systems, collection (decant) ponds for leachate control systems, synthetic liners for auxiliary holding ponds, liner or pipes to convey process wastewater, and design standards for freeboard, safety, and slope stability.¹⁹² The owner must also submit a construction completion report that includes final record drawings and conformance of construction to the approved design and construction plan, including construction quality control plans.¹⁹³

3. Louisiana

The Louisiana Department of Environmental Quality (“LDEQ”) has promulgated the Louisiana Solid Waste Regulations¹⁹⁴ which regulate PG stacks as solid waste landfills and surface impoundments.¹⁹⁵ Louisiana has standards for landfills and impoundments (along with all other types of industrial solid waste disposal facilities) that include siting restrictions, buffer zones, geology standards, implementation plans, groundwater monitoring, surface hydrology, stormwater

¹⁸⁹ See *id.* R. 58.01.01.577.

¹⁹⁰ See *id.* R. 58.01.01.750-51.

¹⁹¹ Idaho Code Ann. § 39-176E.

¹⁹² See *id.*

¹⁹³ *Id.* § 39-176F.

¹⁹⁴ As authorized by La. Stat. Ann. §§ 30:2151, *et seq.*

¹⁹⁵ See 33 La. Admin. Code Pt VII, 709–713.

run-on and run-off protection, plans and specifications, liners, facility administrative procedures, operating restrictions, operation plans and standards, emergency response plans, closure/post-closure requirements, and financial assurance.¹⁹⁶

In addition, landfills in Louisiana are required to have a leachate control, collection, treatment, and removal system and a slope stability analysis performed by a professional engineer with expertise in geotechnical engineering.¹⁹⁷ Surface impoundments must be designed, constructed, maintained, and operated to prevent overtopping.¹⁹⁸

Complementing Louisiana's Solid Waste Regulations, LDEQ additionally oversees the Louisiana Pollutant Discharge Elimination System ("LPDES") program and further requires air quality permits for any source which emits or has the potential to emit any air contaminant in Louisiana. The LPDES program regulates any potential discharges from PG stack systems to surface waters of the state.¹⁹⁹ Given the high precipitation in Louisiana, this robust program serves to safeguard the waters of the state from potential impacts from PG stack systems. Moreover, LDEQ, through its air quality permit program,²⁰⁰ has specifically limited the quantity of atmospheric fluoride emitted from phosphoric acid facilities.²⁰¹

4. North Carolina

The North Carolina Department of Environmental Quality ("NCDEQ") comprehensively regulates PG stacks through numerous programs designed to protect human health and the environment. Subchapter 02T of the North Carolina Administrative Code, for instance, regulates specified waste management systems, including PG Stacks. NCDEQ must approve PG stacks as

¹⁹⁶ *Id.*; see also 33 La. Admin. Code Pt. VII, §§ 801-803, 1303-1399.

¹⁹⁷ 33 La. Admin. Code Pt VII, § 711.

¹⁹⁸ *Id.* § 713.

¹⁹⁹ 33 La. Admin. Code Pt. IX, §2301, *et seq.*

²⁰⁰ *Id.* Pt. III, §301, *et seq.*

²⁰¹ *Id.* § 2305.

adequate to protect human health and the environment (including ground and surface waters) after review and permitting of designs, plans and specifications, and installation by a supervised professional engineer.²⁰² These facilities are then subject to permitting requirements and regular inspections by NCDEQ to ensure ongoing compliance with Subchapter 02T and other environmental laws.²⁰³

Mining, groundwater, and air regulations in North Carolina buttress the above waste management rules providing a comprehensive regulatory scheme. Mining permits (which must be periodically renewed) regulate PG management in North Carolina, requiring the owners to provide extensive information to NCDEQ, including a description of the measures to be taken to prevent hazards to local communities and anticipated effects on wildlife (including aquatic life).²⁰⁴ Groundwater protection rules establish compliance, review, and waste boundaries for permitted disposal systems and require monitoring of parameters associated with these systems.²⁰⁵ If there is an exceedance of standards above background, the groundwater program requires initiation of corrective action overseen by NCDEQ.²⁰⁶ Finally, PG stacks are regulated under Title V air permits issued by NCDEQ's Division of Air Quality addressing potential radon emissions from PG stacks.²⁰⁷

5. Wyoming

The State of Wyoming has a number of requirements applicable to PG stacks, including permits for construction of PG stacks, protections for waters of the State, PG stack closure procedures, and air quality standards. The permit for construction of a PG stack requires the permit

²⁰² See 15A N.C. Admin. Code §§ 2T.0101, *et seq.*

²⁰³ See *id.*

²⁰⁴ See *id.* §§ 05A.0101, *et seq.*

²⁰⁵ See *id.* §§ 02L.0101, *et seq.*

²⁰⁶ See *id.*

²⁰⁷ See *id.* §§ 02Q.0101, *et seq.*

application to be sealed by a professional engineer and all plans and specifications must conform to common and accepted engineering practices as determined by the Administrator of the Wyoming Department of Environmental Quality (“WDEQ”).²⁰⁸ Moreover, the permit application must include a detailed subsurface study to demonstrate the PG stack will adhere to the State’s groundwater standards.²⁰⁹ WDEQ also implements a monitoring program during operation and closure of a PG stack to ensure adherence to groundwater standards.²¹⁰ Closure of PG stacks must be engineered to inhibit future erosion or ponding of surface water, must have a final cover including an infiltration barrier and six inches of topsoil, and revegetation of the surface.²¹¹ Finally, WDEQ has two sets of ambient air quality standards for fluoride: one specific to a county where there is a phosphate fertilizer plant and another general standard to protect forage for animal consumption.²¹²

6. The Breadth of Existing State Programs Tailored to Specific Conditions Demonstrates That Additional Regulation Is Unnecessary

For those states with active PG stacks within their borders, laws and regulations already exist to protect the environment (even setting aside applicable federal oversight by EPA). The states already have implemented and refined these programs to account for their own specific environmental concerns within each region. While Petitioners conclude that these regulations are insufficient to protect the environment because the regulations in each state may not specifically apply to PG stacks, this conclusion misses the mark entirely: The state programs summarized above result in detailed monitoring and oversight of PG stacks with respect to waste, air, surface

²⁰⁸ See Wyo. Admin. Code 020.0011.3 §§ 5-6.

²⁰⁹ *Id.* at § 17.

²¹⁰ *Id.*

²¹¹ *Id.* at § 7.

²¹² Wyo. Admin. Code 020.0002.2 § 9.

water, and groundwater protections. When combined with existing federal regulations, these state programs provide multi-media protections for health and the environment, making additional federal regulation unnecessary.

Confirming this, Ardaman & Associates, Inc. (“Ardaman”), an engineering firm with substantial expertise in PG stacks, provided its analysis of the modern day design, construction, and operation of PG stacks (included as Attachment A).²¹³ As noted by Ardaman, the design of a new PG stack or the expansion of an existing stack is a complex undertaking, with substantial state oversight and permitting to protect public health and the environment. Design evaluations include hydrogeological investigations, characterization of the subsurface conditions, evaluating the suitability of the underlying soils for support, preparing detailed design and construction reports to meet state requirements associated with the use of a composite liner and seepage control systems, and laboratory testing of materials.²¹⁴ Further, based on site-specific conditions, additional engineering evaluations may be performed, including photolinear analysis, subsurface assessment of topographic depressions, microgravity surveys, and seismic reflection surveys, all to ensure the stability of the PG stack.²¹⁵

Similarly, the construction and operation of PG stacks is a complex process designed to protect human health and the environment and entails many improvements since the 1991 Regulatory Determination. Examples of such improvements include the use of wet rim-ditch material for dike construction to reduce the risk of piping failure, the use of a wide rim-ditch and wide breach to reduce the risks of overtopping, and the use of decant siphons (instead of a decant cut) to transfer process wastewater from the top of a PG stack.²¹⁶ The operation of a PG stack

²¹³ See Ardaman Technical Memorandum.

²¹⁴ *Id.* at 11 – 12.

²¹⁵ *Id.* at 12.

²¹⁶ *Id.*

requires an extensive operating plan, groundwater and, where applicable, surface water monitoring plans (along with periodic monitoring), site inspections, and continually assessing the stack stability.²¹⁷ In addition, closure and post-closure plans are required, along with the development and periodic updating of financial assurance to perform the required activities.²¹⁸

B. EPA’s MMPI Has Addressed and Will Continue to Address Any Residual Risks Posed by PG Stacks

In evaluating the relief sought in the Petition, EPA should consider fully the history and impact of its own MMPI and other regulatory actions. This history illustrates that the existing laws and regulations provide appropriate regulation of PG and process wastewater operations across the country. There is no question that EPA has, over the past 20 years, devoted substantial enforcement and technical resources to phosphoric acid manufacturing, and has focused on every phosphoric acid manufacturing facility in the United States and the two Bevill-exempt streams that are the subject of the Petition.

EPA’s MMPI, for example, has entailed: (1) comprehensive inspections of each phosphoric acid facility; (2) administrative orders requiring, or voluntary agreements to undertake, interim measures to address concerns identified by EPA; (3) a series of comprehensive judicial Consent Decrees, negotiated and approved by EPA and the U.S. Department of Justice (“DOJ”) as well as certain states in which the facilities are located, and entered by federal courts after notice and consideration of public comments, setting forth in extraordinary detail the obligations of the covered facilities to adopt measures to enhance protection of human health and the environment; and (4) entry of RCRA §§ 3013²¹⁹ and 7003²²⁰ Consent Orders detailing similar environmental

²¹⁷ *Id.*

²¹⁸ *Id.* at 7 – 8.

²¹⁹ 42 U.S.C. § 6934.

²²⁰ *Id.* § 6973.

protection enhancements and corrective action measures that are in place at the remaining operating facilities.

The MMPI and other EPA regulatory actions, which are barely mentioned in the Petition, are critically relevant to the consideration of the Petition in a number of ways:

- TFI’s phosphoric acid-producing members, EPA, and affected state environmental agencies already have devoted enormous resources to addressing the very RCRA issues raised by the Petition. Consent Decrees, RCRA Consent Orders, and/or other federal enforceable orders²²¹ aimed at addressing these issues are in place at every operating facility in the United States. Certain TFI members have also agreed to, or are continuing to negotiate, these Consent Decrees and/or Orders stemming from the MMPI, and TFI’s members are implementing these vast and extensive EPA requirements under all relevant enforceable orders.
- The existing Consent Decrees are unprecedented in scope, each containing hundreds of pages of detailed requirements, and were the result of an effort led by EPA to combine a series of uniform standards across facilities and states (referred to as “core injunctive relief” – in large part based on the comprehensive FDEP program summarized above), with particularized requirements that differ based on the circumstances of each facility. Thus, they combine the uniformity of rulemaking with the specificity and flexibility of a negotiated enforcement resolution, even as TFI’s members have steadfastly denied that any violation of the RCRA requirements has occurred.

²²¹ See, e.g., *United States v. FMC Corp. and J.R. Simplot Co.*, No. 99-296-E-BLW, “Remedial Design/Remedial Action Consent Decree with Defendant J.R. Simplot Co.” (D. Id. 2001); *United States v. FMC Corp. and J.R. Simplot Co.*, No. 99-296-E-BLW, “First Amendment to RD/RA Consent Decree with Defendant J.R. Simplot Co.” (D. Id. 2010).

- The requirements of the existing Consent Decrees, RCRA Consent Orders, and other EPA enforcement orders govern significant process modifications, PG stack system liner and closure measures, corrective action and other environmental enhancements tailored to each operating facility and collectively addressing sufficiently the potential risks asserted in the Petition.
- In asking federal courts to approve the Consent Decrees, and responding to public comments, EPA has made clear that it believes that the agreements are in the public interest and protective of public health and the environment.
- A decision by EPA to commence rulemaking to reconsider the relevant Bevill exemptions now: (i) would undermine the expectations and extraordinary reliance of TFI's members who have spent many years and tremendous resources participating collaboratively in EPA's MMPI negotiation process and meeting the commitments they have agreed to; (ii) would distract from the ongoing effort to finalize Consent Decrees at the remaining facilities currently subject to enforceable EPA Orders pursuant to RCRA and other legal authorities; and (iii) could undermine the Consent Decrees and Consent Orders already entered.

1. The History of the Mineral Processing Initiative

Starting in the early 2000's,²²² EPA commenced its MMPI to focus special attention on phosphoric acid manufacturing facilities, and in particular two Bevill-exempt streams: PG and

²²² The EPA enforcement focus on mineral processing was already evident in an Enforcement Alert entitled "Hazardous Waste Management Practices at Mineral Processing Facilities Under Scrutiny by U.S. EPA" issued in November 2000, <https://www.epa.gov/sites/production/files/2013-09/documents/mineral.pdf> (last visited Mar. 16, 2021).

process water. In particular, EPA has investigated a total of 20 phosphoric acid facilities in seven states.²²³ The effort was summarized last year by an EPA official as follows:

More than a decade ago, EPA began investigating environmental violations within the phosphoric acid mineral processing and fertilizer industry. EPA's effort has been directed to ensuring compliance with provisions of [RCRA] that provide a limited exclusion from hazardous waste regulation for certain solid wastes produced during the extraction, beneficiation, and processing of ores and minerals, known as "the Bevill exclusion." EPA's investigation has focused on the mixing or commingling of hazardous wastes with other mineral processing wastes that are not regulated as hazardous wastes based on the Bevill exclusion.

EPA's investigation led to EPA's issuance of notices of violation to a number of owners and operators of phosphoric acid and phosphate fertilizer manufacturing facilities concerning those facilities' management of hazardous wastes in gypsum stacks, where EPA found reason to believe that hazardous wastes that are outside the scope of the Bevill exclusion have been commingled with wastes that are within the Bevill exclusion -- phosphogypsum and process wastewater. In response to EPA's notices of violations, phosphoric acid manufacturers have disputed that waste streams EPA identified as hazardous are not "process wastewater from phosphoric acid production" excluded from regulation as hazardous wastes under the Bevill exclusion, i.e., the manufacturers contend such wastes are within the Bevill exclusion and are not hazardous wastes. To date, EPA has required through judicial and administrative settlements that 12 phosphate fertilizer facilities complete extensive injunctive relief and bring their operations into compliance with RCRA.

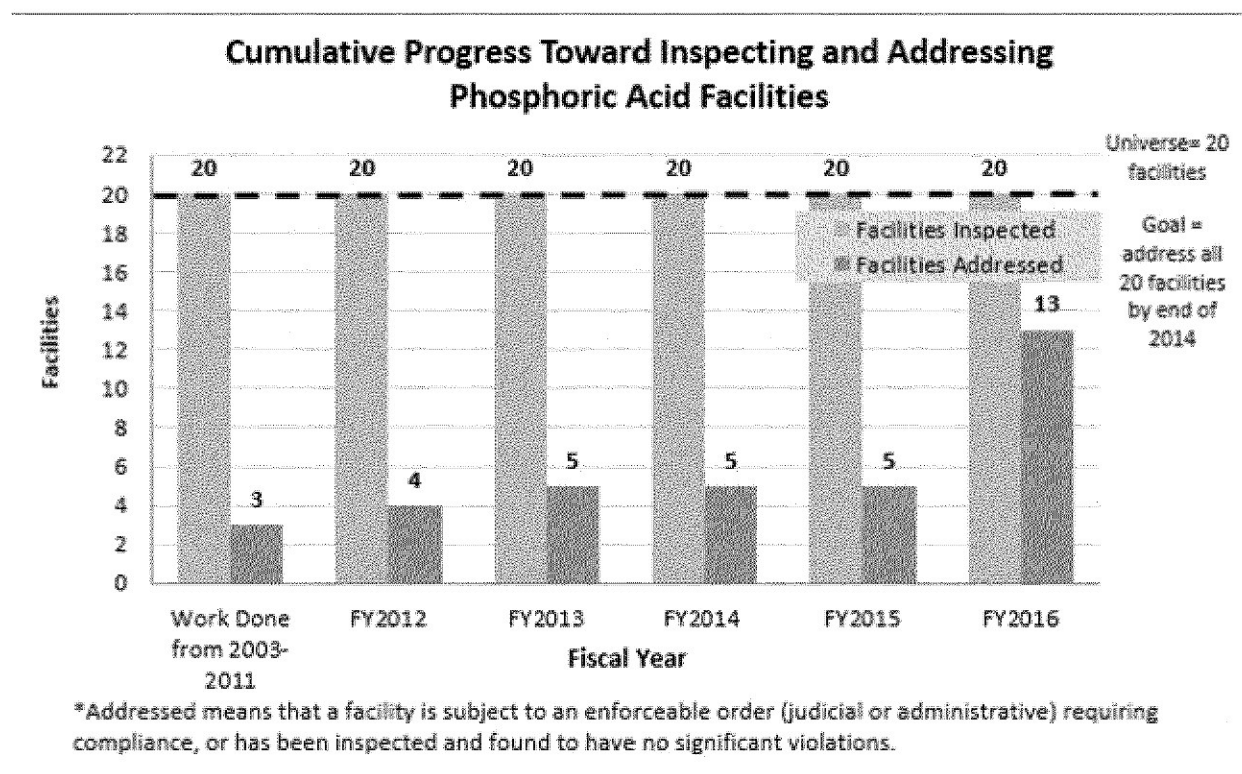
Another of EPA's objectives in pursuing settlements with companies in this industry was to ensure that, if needed, the companies would perform RCRA corrective action to remediate contamination related to past management of wastes in the companies' gypsum stacks. To facilitate this process, EPA issued orders pursuant to Section 3013 of RCRA under which the companies have performed required sampling and analysis of groundwater so that EPA (and/or the relevant state environmental agency) could determine the extent of any contamination and whether corrective action was needed to clean up the contamination.²²⁴

EPA's reference to having reached settlements applicable to 12 facilities does not include the J.R. Simplot Co. Consent Decree entered last year, which would bring the total to 13. The

²²³ https://archive.epa.gov/epapages/newsroom_archive/newsreleases/7826d13e033a1cac8525777a006bfa26.html.

²²⁴ Declaration of Van E. Housman, Aug. 27, 2020, *United States v. J.R. Simplot Co. et al.*, Civil No. 20-CV-125-F, Docket No. 6-1 (D. Wyo.).

following table showing EPA's summary of its progress on the initiative through 2016 suggests that the total addressed (with the Simplot settlement) is now at least 14.²²⁵



2. MMPI Consent Decrees and RCRA Consent Orders

As a central objective of the MMPI, EPA and DOJ have entered into various Consent Decrees with a number of TFI members covering multiple facilities, and continue to negotiate similar Consent Decrees governing the remaining operating facilities. These Consent Decrees are comprehensive, span hundreds of pages each, and require — among many other things — extensive controls and waste management measures, including comprehensive requirements addressing PG stack management, liner installation and maintenance,²²⁶ closure and long-term

²²⁵ <https://archive.epa.gov/epa/enforcement/national-enforcement-initiatives-fiscal-years-2014-2016-reducing-pollution-mineral.html>.

²²⁶ Among other things, the Consent Decrees require that unlined PG Stack Systems must be closed or must be lined in compliance with the extensive technical requirements set forth in the Consent Decrees.

care, and financial assurances. Collectively, these Decrees have required or will require the expenditure by TFI's members of hundreds of millions of dollars.

For example, in two Consent Decrees entered between the United States and Mosaic,²²⁷ Mosaic agreed to environmental protection projects (including waste management, reduction and reuse programs, PG stack liner, closure and post-closure care measures) that EPA reported would cost \$170 million. Mosaic also agreed to financial assurance obligations of \$630 million in cash trust funds, as well as a \$50 million letter of credit, that would be invested until reaching \$1.8 billion. In announcing these settlements, EPA and DOJ explained that they “will ensure the proper treatment, storage, and disposal” of waste at eight Mosaic facilities.²²⁸

The Consent Decrees all use essentially the same template. Among other things:

- The Consent Decrees set forth extensive “Compliance Requirements” including as to how the covered facilities will be managed to meet the requirements of RCRA and remain within the scope of the Bevill exemptions.
- The Consent Decrees contain lengthy appendices that address in detail the design, quality assurance of construction, management and operation of the PG stack systems, including a core injunctive relief provision template modeled on state requirements.
- So long as facilities meet the specified Consent Decree requirements resolving the governments’ allegations, EPA agreed the facilities “shall not be required to obtain a

²²⁷ <https://www.epa.gov/sites/production/files/2016-03/documents/florida-cd.pdf>; *United States of America and Louisiana Department of Environmental Quality v. Mosaic Fertilizer, LLC*, Civil Action No. 2:15-cv-04889, Docket No. 5-1 (E.D. La.).

²²⁸ <https://archive.epa.gov/epa/newsreleases/major-fertilizer-producer-mosaic-fertilizer-llc-ensure-proper-handling-storage-and.html>.

RCRA permit as a Treatment Storage and Disposal Facility” with respect to management of the waste which was the subject of the government’s allegations.²²⁹

All of the Consent Decrees entered to date have been subject to a public comment period and judicial review before entry. In the case of the two Mosaic Decrees, extensive comments were received, a total of 117, including from certain of the Petitioners here who are making many of the same arguments to EPA in the Petition that they unsuccessfully made to EPA in their Consent Decree comments.²³⁰

As part of this process, commenters requested the funding of additional epidemiological and human health studies to assess the risks associated with the management and storage of PG. The proposed Consent Decrees had not required such studies and EPA responded that that was appropriate. In so doing, EPA reaffirmed, less than five years ago (in June 2016), the basis for the 1989 and 1990 Bevill rulemakings. EPA noted that the phosphate industry had already been the subject of “numerous epidemiological studies,” which “found no statistical link between the phosphate industry and the studied adverse health effects.”²³¹ As EPA explained at the time, these and other studies were “consistent with EPA’s study and determination in the 1989 and 1990 Bevill

²²⁹ Each company entering into a Consent Decree did so without making any “admission of law or fact with respect to the allegations in the Complaint and denies any non-compliance or violation of any law or regulation identified therein.”

²³⁰ Comment 89 was submitted on behalf of a group that included the following Petitioners: People for Protecting Peace River, Center for Biological Diversity, Suncoast Waterkeeper and Sierra Club, Florida. Comment 102 was submitted by Petitioner ManaSota-88. See Comments 89, 102 at *United States and Florida Department of Environmental Protection v. Mosaic Fertilizer, LLC*, Civil Action No. 8:15-cv-02286, Docket No. 17-1 (M.D. Fla.).

²³¹ EPA elaborated on the prior studies: “For example, 1985, 1996 and 2015 studies of phosphate industry workers found no increased mortality rates from either lung cancer or other diseases when compared to the general public. Additionally, in 2004, the Florida Department of Health published a study of the community adjacent to a former phosphate mine and processing facility (Coronet) located in central Florida. That study did not find a statistically significant increase in the number of observed cancers in the nearby community. A 2007 U.S. Department of Health and Human Services study also concluded that the former Coronet facility presented ‘no apparent health hazard’ after analyzing the threat of exposure to wastewater.” *United States and Florida Department of Environmental Protection v. Mosaic Fertilizer, LLC*, Civil Action No. 8:15-cv-02286, Docket No. 17-1, at 8-9 (M.D. Fla.).

rulemakings that process wastewater and phosphogypsum from phosphoric acid production, although high in volume, are low in toxicity.”²³²

Moreover, in responding to comments on the various Consent Decrees, EPA addressed several key points that further undermine the merits of the Petition. For example, EPA stated:

- That the “Consent Decrees . . . include numerous provisions that will strengthen and supplement existing federal and state law requirements, and thus further protect surrounding communities from risks of harm. These include, among others: stringent groundwater monitoring requirements that are tied directly to potential future threats to public health; and comprehensive design and operating requirements for . . . PG . . . stack systems.”
- That the Consent Decrees set forth specific “methods and controls for safe management for long-term use of gypstacks, and eventual closure and remediation of the gypstacks at the end of their useful life.”
- That the Consent Decrees “bolster existing state requirements governing how phosphogypsum stack systems are constructed, operated, and closed.”
- In response to the suggestion that there should be a moratorium on permitting of new expanded gypstacks, EPA stated that the controls required under the Consent Decrees achieve “a long-term solution for safe management of the phosphogypsum stack systems.”
- That the financial assurance and long-term care requirements “protect human health and the environment,” as well as “the public against the financial risk of having to assume the significant costs of proper closure and long-term care of the stack system at the facility.”

²³² *Id.*

- That PG stacks “have been and will continue to be heavily regulated, including with respect to air emissions and surface and groundwater discharges” and that EPA and the state agencies were expressly reserving “their rights under their existing legal authorities to take any action necessary to protect human health, including to abate any immediate hazards should such be identified in the future.”

The operating phosphoric acid facilities not yet subject to Consent Decrees are in active negotiations with EPA, DOJ and relevant state environmental agencies similar to those that led to the Consent Decrees already entered. Yet regardless, these remaining operational facilities are already subject to Administrative Orders on Consent under RCRA and/or other legal authorities, which also contain provisions that ensure protection of human health and the environment. Such actions, and ongoing EPA and state oversight of these facilities, further confirm that additional federal regulation of PG stacks is not warranted. Indeed, such additional regulation at this late stage would likely interfere with EPA’s ongoing enforcement initiative and the negotiation and implementation of the various Consent Decrees and RCRA Orders.

3. The Facilities Identified as “Damage” Cases in the Petition Are Covered by Binding Consent Decrees or RCRA Compliance Orders or Are No Longer in Operation

The Petition references specific incidents or so-called “damage” cases at seven facilities: the Mosaic New Wales facility,²³³ Mosaic Uncle Sam facility,²³⁴ Mosaic Riverview facility,²³⁵ White Springs Agricultural Chemicals, Inc. facility,²³⁶ Mulberry Phosphates Piney Point

²³³ Petition at 24, 25.

²³⁴ *Id.* at 29.

²³⁵ *Id.* at 34

²³⁶ *Id.* at 24-25. EPA’s investigation and enforcement action concerning this facility was grounded in its authority to abate operations that “may present” an “imminent and substantial endangerment” to human health or the environment, RCRA § 7003.

facility,²³⁷ Mississippi Phosphates facility,²³⁸ and the former ExxonMobil facility in Pasadena, Texas.²³⁹ However, the Mulberry Phosphates and Mississippi Phosphates facilities both are no longer in operation and are not representative of the remaining facilities currently in operation.²⁴⁰ On the contrary, the remaining four facilities cited by Petitioners (New Wales, Uncle Sam, Riverview, and White Springs) that continue to produce phosphoric acid are covered by binding federal Consent Decrees or RCRA Consent Orders requiring substantial modifications to enhance protection of human health and the environment. And, the former ExxonMobil facility, although operational (but no longer producing phosphate fertilizers), is subject to a RCRA Consent Agreement requiring it to conduct extensive closure and cleanup work on the PG stack system.²⁴¹

As previously discussed, among other measures, the Consent Decrees and RCRA Consent Orders for operational facilities include enhanced PG stack system design, operation and closure standards, including robust stack and pond liners, capping, financial assurance, groundwater monitoring and corrective action measures where appropriate. Many of the measures industry has agreed to implement under these Consent Decrees and RCRA Orders go well above and beyond current federal and state regulatory standards.

In sum, the damage cases cited by Petitioners in large part antedate the Consent Decrees and RCRA Consent Orders currently in place at the remaining operational facilities. Taken together, these existing Decrees and Orders, and additional forthcoming Decrees and Orders

²³⁷ *Id.* at 30-31, 33.

²³⁸ *Id.* at 31-32, 35.

²³⁹ *Id.* at 33.

²⁴⁰ Mulberry Phosphates filed bankruptcy in 2001, well before EPA's MMPI. The Mississippi Phosphates facility was inspected as part of EPA's MMPI, but also filed bankruptcy in 2014, prior to entry of a Consent Decree or RCRA Order adopting robust financial assurance and other environmental protection measures included in the Consent Decrees and RCRA Orders applicable to the remaining phosphoric acid production facilities currently in operation. Thus, Mulberry Phosphates and Mississippi Phosphates are not representative of the industry's current practices.

²⁴¹ See <https://www.epa.gov/enforcement/agrifos-fertilizer-company-settlement> (last visited Mar. 16, 2021).

currently under negotiation with EPA and relevant state agencies, specify robust PG stack system design, construction, operation, closure, and post-closure care, and financial assurance requirements, as well as groundwater protection and corrective action provisions. These requirements reflect modern day practices; indeed, many of the measures governed by these Consent Decrees and RCRA Consent Orders are more stringent and comprehensive than the requirements of existing federal and state regulation.

Companies that have agreed to adopt enhanced PG stack system controls under the MMPI have expended significant resources to negotiate tailored measures appropriate to differing conditions at each individual facility, and to design and implement those agreed measures. Changing the requirements now by imposing additional, different and inconsistent requirements would be highly inequitable and inefficient to industry, and an inappropriate use of public resources. By citing to damage cases that in large part predate the settlements and which are not representative of current industry practices, and neglecting to recognize the substantial enhanced measures adopted under the MMPI, Petitioners' assertions are unpersuasive and fail to demonstrate any need, much less a compelling one, for additional federal regulation respecting the management of PG and process wastewater.

C. EPA Recently Evaluated the Risks Associated with PG and Process Wastewater from Phosphoric Acid Production, and Declined to Impose Additional Federal Regulation

Further illustrating the sufficiency of existing federal and state regulation of PG stacks, on two recent occasions EPA evaluated the possible need for financial responsibility requirements for the phosphoric acid mineral processing industry pursuant to CERCLA § 108(b), and declined to

do so both times.²⁴² In these rulemakings, EPA explicitly evaluated the risks associated with PG and process wastewater from phosphoric acid production in the context of existing federal and state regulations, and industry practices.

In its final actions, EPA concluded that, given the existing regulatory framework, the degree and duration of risk associated with phosphoric acid production did not warrant the imposition of CERCLA financial responsibility requirements to supplement legally binding requirements already in place under existing state standards and federal Consent Decrees and Consent Orders.²⁴³ EPA’s comprehensive review of these processes, and consideration of comments from industry and non-industry parties (including a number of the Petitioners), confirmed that further regulation is unnecessary.

1. In Its Hardrock Mining Rulemaking, EPA Evaluated, But Did Not Require, Additional Financial Responsibility Requirements for PG and Process Wastewater

EPA’s hardrock mining rulemaking evaluated the degree and duration of risk associated with both the mining of phosphate ore (*i.e.*, the extraction and beneficiation of the ore) and the “mineral processing” of the beneficiated phosphate ore. Starting with EPA’s 2009 priority notice, wherein the Agency identified the hardrock mining industry as a priority industry for a CERCLA financial responsibility evaluation, EPA defined the industry to include the extraction, beneficiation, and processing of minerals, including phosphate rock.²⁴⁴

²⁴² 42 U.S.C. § 9608(b) (requiring EPA to promulgate CERCLA financial responsibility requirements for certain classes of facilities based on an analysis of the payment history of Superfund for industrial sectors, and considering the “degree and duration of risk” associated with a sector).

²⁴³ 83 Fed. Reg. 7556 (Feb. 21, 2018) (Final Action); 85 Fed. Reg. 77,384 (Dec. 2, 2020) (Final Action).

²⁴⁴ 74 Fed. Reg. 37,213, 37,214 (Jul. 28, 2009) (Priority Notice) (defining the scope of the industry as “facilities which extract, beneficiate or process metals . . . and non-metallic, non-fuel minerals (*e.g.*, asbestos, gypsum, phosphate rock, and sulfur)”) (emphasis added).

Consistent with the 2009 priority notice’s scope of the contemplated hardrock mining rulemaking, EPA stated that its hardrock mining proposed rule “would establish specific financial responsibility requirements applicable to certain classes of mines and associated mineral processing facilities within the hardrock mining industry.”²⁴⁵ The hardrock mining proposed rule contained a broad definition of “mineral processing” that included activities “to recover, purify or create a final mineral product . . . or a feedstock of sufficient purity that it can then be used in further industrial or manufacturing operations.”²⁴⁶

In the hardrock mining rulemaking, EPA extensively evaluated phosphoric acid mineral processing facilities.²⁴⁷ Similarly, EPA’s background documents contained extensive references to phosphoric acid production, waste management practices, and resulting settlements under the MMPI.²⁴⁸

In its final action, EPA confirmed that its decision not to impose CERCLA financial responsibility on the hardrock mining industry included “mineral processing” operations, identifying that for purposes of the final action, “hardrock mining” included the definition set forth in the priority notice.²⁴⁹ In support of the hardrock mining final action, EPA reexamined purported risks associated with a phosphoric acid mineral processing facility.²⁵⁰ EPA’s evaluation concluded

²⁴⁵ 82 Fed. Reg. 3388, 3400 (Jan. 11, 2017) (Proposed Rule) (“In addition, requirements under this proposal would apply to owners or operators of mineral processing facilities identified in the 2009 priority notice”); *id.* at 3455 (“Any facility that meets the definition of a hardrock mining or mineral processing facility . . . would also be subject to the requirements in this proposed rulemaking.”) (emphasis added).

²⁴⁶ *Id.* at 3504 (proposed 40 C.F.R. § 320.62).

²⁴⁷ *See, e.g., id.* at 3458-59, 3478 & nn. 164 & 167.

²⁴⁸ *See, e.g.,* EPA, “National Enforcement Initiative for Mining and Mineral Processing Summary of Activities 2005 to 2016,” at 2-3 (Nov. 15, 2016) (Dkt. EPA-SFUND-2015-0781-0390); EPA, Press Release re: “Mosaic Fertilizer, LLC Settlement” (Sept. 23, 2016) (Dkt. EPA-SFUND-2015-0781-2332).

²⁴⁹ 83 Fed. Reg. at 7556, 7557 n. 3. EPA’s methodology to evaluate the “degree and duration of risk” posed by the hardrock mining industry, and its ultimate conclusion that CERCLA financial responsibility was not required, was upheld by the D.C. Circuit in a case where TFI participated as an intervenor in support of EPA. *Idaho Conservation League, et al. v. EPA*, 930 F.3d 494 (D.C. Cir. 2019).

²⁵⁰ EPA, “CERCLA Section 108(b) Hardrock Mining Final Rule – Technical Support Document,” at 13 (Dec. 1, 2017) (Dkt. EPA-HQ-SFUND-2015-0781-2832) (discussing the Agrifos phosphoric acid mineral processing facility).

that the degree and duration of risk associated with modern hardrock mining, including mineral processing, did not warrant imposition of financial responsibility requirements for this industry given the federal and state regulatory programs regulating these facilities and the industry's modern management practices.²⁵¹ Further, similar to EPA's acknowledgement in the 1991 Regulatory Determination that CERCLA § 106 provides the Agency enforcement mechanisms to effectively respond to emergency situations,²⁵² in its CERCLA § 108(b) hardrock mining final action, EPA identified the usefulness of this statutory provision as a rationale for not imposing financial responsibility on the phosphoric acid sector.²⁵³

2. Similarly, In Its Chemical Manufacturing Industry Rulemaking, EPA Evaluated, But Did Not Require, Additional Financial Responsibility Requirements for PG and Process Wastewater

Similar to its evaluation of the hardrock mining industry, in its proposed rule evaluating the chemical manufacturing industry, EPA considered just two years ago whether it should require additional financial requirements under CERCLA § 108(b) for the chemical manufacturing industry, including phosphoric acid and phosphatic fertilizer manufacturing.²⁵⁴ EPA's evaluation of the degree and duration of risk associated with the chemical manufacturing industry was conservative in its approach, considering a broad range of facilities and measuring each risk consistent with its final action for the hardrock mining industry.

Despite already evaluating the degree and duration of risk associated with phosphoric acid mineral processing in the hardrock mining rulemaking, EPA nonetheless evaluated the industry

²⁵¹ 83 Fed. Reg. at 7556.

²⁵² 56 Fed. Reg. at 27,316.

²⁵³ 83 Fed. Reg. at 7558.

²⁵⁴ 85 Fed. Reg. 10,128, 10,134 (Feb. 21, 2019) (Proposed Rule).

again in its CERCLA § 108(b) chemical manufacturing industry proposed rule.²⁵⁵ For example, the proposed rule references state financial responsibility requirements for phosphate fertilizer manufacturing facilities (which actually apply to PG stacks).²⁵⁶ Additionally, the background document discussing state financial responsibility requirements identifies Florida financial assurance requirements for the closure, long-term care, and water management associated with stacks receiving PG and process wastewater.²⁵⁷ EPA's Regulatory Summary Document also contains clear references to regulations applicable solely to phosphoric acid mineral processing facilities.²⁵⁸

Finally, EPA's documentation regarding enforcement settlements and judgments in the chemical manufacturing industry discusses settlements at phosphoric acid mineral processing facilities under the MMPI.²⁵⁹ The documentation concludes that the MMPI Consent Decrees and RCRA Consent Orders provide results demonstrating reduced "risk[s] from phosphoric acid facilities to drinking water, rivers, and streams."²⁶⁰

In its final action, EPA concluded that, after examining the existing environmental protections and regulations in place and analyzing the Superfund program's experience cleaning up sites in the chemical manufacturing industry, the chemical manufacturing industry operates

²⁵⁵ *Id.* EPA's evaluation of the chemical manufacturing industry included facilities in North American Industry Classification System ("NAICS") code 325, which includes "Phosphatic Fertilizer Manufacturing" (NAICS Code 325312). *Id.* Phosphatic Fertilizer Manufacturing, in turn, includes phosphoric acid manufacturing. *See* U.S. Census Bureau Website re: "2017 NAICS Definition for 325312," <https://www.census.gov/cgi-bin/sssd/naics/naicsrch> (last visited Mar. 16, 2021).

²⁵⁶ 85 Fed. Reg. at 10,143.

²⁵⁷ EPA, "Review of Existing Financial Responsibility Laws Potentially Applicable to Facilities in the Chemical Manufacturing Industry," at 5, A-2 (posted Feb. 24, 2020) (Dkt. EPA-HQ-OLEM-2019-0086-1015).

²⁵⁸ EPA, "Summary Report: Federal and State Environmental Regulations and Industry Voluntary Programs in Place to Address CERCLA Hazardous Substances at Chemical Manufacturing Facilities," at 72 (identifying 40 C.F.R. Part 60, Subpart T (Standards of Performance for Wet-Process Phosphoric Acid Plants)), 75 (identifying 40 C.F.R. Part 63, Subpart AA (National Emissions Standards for Hazardous Air Pollutants from Phosphoric Acid Manufacturing Plants)) (posted Feb. 23, 2020) (Dkt. EPA-HQ-OLEM-2019-0086-1019).

²⁵⁹ *See* EPA, "Enforcement Court Settlements & Judgments in the Chemical Manufacturing Industry," at 55 (posted Feb. 24, 2020) (Dkt. EPA-HQ-OLEM-2019-0086-1014).

²⁶⁰ *Id.*

under a modern regulatory framework that does not present a level of risk that warrants financial responsibility requirements under CERCLA § 108(b).²⁶¹ In response to a comment from TFI on the proposed rule (*i.e.*, that phosphoric acid production should not be included in the chemical manufacturing industry evaluation because it was already evaluated in the hardrock mining rulemaking), EPA stated its evaluation “span[ned the] hardrock mining and chemical manufacturing industries.”²⁶² The Agency also responded that it “did not conduct a more detailed evaluation of this issue as it would not impact the Agency’s analysis and conclusion to not require CERCLA 108(b) financial responsibility for the Chemical Manufacturing Industry.”²⁶³

EPA’s review of phosphoric acid mineral processing facilities in its two recent rulemakings has already considered potential risks from PG and process wastewater. EPA’s conservative analysis of the types of facilities that generate PG and process wastewater from phosphoric acid production, and its decision that further financial assurance under CERCLA § 108(b) is unnecessary, buttresses the conclusion that the additional federal regulation Petitioners request is inappropriate and unnecessary.

V. Petitioners’ Demand That EPA Prioritize PG and Process Wastewater Under TSCA § 6 is Inappropriate and Unfounded

TSCA § 6²⁶⁴ establishes a carefully calibrated process for EPA to follow in evaluating the potential risks associated with chemical substances listed on the TSCA Chemical Substances Inventory (the TSCA “Inventory”).²⁶⁵ Recognizing the Herculean task EPA would face in

²⁶¹ 85 Fed. Reg. at 77,384.

²⁶² See EPA, “Response to Comments Document,” at 54 (Nov. 2020) (posted Dec. 1, 2020) (Dkt. EPA-HQ-OLEM-2019-0086-1086).

²⁶³ *Id.*

²⁶⁴ 15 U.S.C. § 2605.

²⁶⁵ The TSCA Inventory is a comprehensive list of substances known to have been in commerce in the United States. See <https://www.epa.gov/tscainventory/about-tscachemicalsubstanceinventory>. According to EPA, more than 86,000 chemical substances are currently listed on the TSCA Inventory.

evaluating the more than 80,000 chemical substances on the Inventory, Congress directed EPA to promulgate regulations to establish procedures the Agency would follow to prioritize substances for review.²⁶⁶ The prioritization process involves public participation and can take no shorter than nine months and no longer than one year to complete.²⁶⁷ Under the statute and EPA's implementing regulations, substances that complete the prioritization process set forth in EPA's procedural regulations are designated as either "High Priority" or "Low Priority." If a substance is designated as high-priority, it is immediately placed into risk evaluation – a separate process that must take no longer than three years, with a possible six-month extension.²⁶⁸ Conversely, designation of a substance as low-priority reflects the Agency's determination that a risk evaluation is not warranted at the time of designation.

In addition to directing EPA to promulgate procedural regulations for prioritization, Congress also identified several specific factors EPA must consider in its prioritization determinations. First, Section 6 specifies that the prioritization process should be risk-based and take into account both hazard and potential exposure, including consideration of, among other factors, persistence and bioaccumulation potential.²⁶⁹ In addition, Congress specifically directed EPA in its prioritization determinations to give preference to substances that are listed in the 2014 update to the TSCA Work Plan for Chemical Assessments (the "TSCA Work Plan") and are persistent and bioaccumulative, are known human carcinogens, or have high acute and chronic toxicity.²⁷⁰

²⁶⁶ 15 U.S.C. § 2605(b)(1). EPA's prioritization regulations are codified at 40 C.F.R. Part 702.

²⁶⁷ *Id.* § 2605(b)(1)(C).

²⁶⁸ *Id.* § 2605(b)(2) and (3).

²⁶⁹ *Id.* § 2605(b)(1)(A).

²⁷⁰ *Id.* § 2605(b)(2)(D).

A. Petitioners' Demand Is Not Cognizable Under TSCA § 21

Under TSCA § 21,²⁷¹ any person may petition EPA to take certain specific actions under TSCA. In particular, a person may petition EPA to “initiate a proceeding for the issuance, amendment, or repeal of a rule under section[s] [4, 5, or 6] of [TSCA].”²⁷² Petitioners here demand that EPA initiate the prioritization process for PG and process wastewater under TSCA § 6; however, the prioritization process is not “the issuance of a rule” under TSCA § 6. Rather, prioritization is an assessment that EPA carries out for a substance in accordance with the procedures already established under EPA’s existing prioritization regulations. At the end of that assessment, EPA may designate the substance as a low priority.²⁷³ Alternatively, if EPA designates the substances as a high priority, the risk evaluation process is initiated. Under the risk evaluation process, rulemaking only occurs if EPA concludes that the substance under evaluation presents an unreasonable risk of injury to health or the environment under the conditions of use – prompting the need for a risk management rule under Section 6(a).²⁷⁴

Thus, Petitioners’ demand that EPA initiate prioritization for PG and process wastewater is not a petition for a rule under Section 6. Since TSCA § 21 only permits petitions to be filed for “the issuance, amendment, or repeal of a rule” under Section 6, the Petitioners’ demand to initiate prioritization is not cognizable and must be rejected.

²⁷¹ *Id.* § 2620.

²⁷² *Id.* § 2620(a) (emphasis added).

²⁷³ *Id.* § 2605(B)(1).

²⁷⁴ *Id.* § 2605(c).

B. PG and Process Wastewater Are Not Eligible for Prioritization Under TSCA § 6

The prioritization process established in TSCA § 6²⁷⁵ and EPA’s implementing regulations²⁷⁶ applies to chemical substances and, where appropriate, categories of chemical substances. As defined in the statute, the term “chemical substance” specifically excludes “any mixture.”²⁷⁷ In a recent Agency white paper examining potential approaches to identifying candidate chemicals for prioritization, EPA signaled its intent to select candidate substances for prioritization from the “active” substances on the TSCA Inventory.²⁷⁸ In particular, EPA expressed the view that by concentrating on “active” substances and dividing those substances into different “bins” based on available data, EPA would be able to “focus on chemicals that are most likely to meet the statutory standard of high priority chemicals.”²⁷⁹

PG and process wastewater are mixtures of different component substances and, as mixtures, they are not listed as “active” substances on the Inventory. Indeed, because they are mixtures and not chemical substances, PG and process wastewater are not eligible for prioritization under 40 C.F.R. Part 702, since, as the regulations make clear, the prioritization process is intended to apply to chemical substances and not mixtures.²⁸⁰

C. PG and Process Wastewater Do Not Satisfy Key Criteria for Prioritization

Even if PG and process wastewater were eligible for prioritization under Section 6, they do not satisfy key criteria for prioritization and therefore should not be entered into the

²⁷⁵ *Id.* § 2605.

²⁷⁶ 40 C.F.R. Part 702.

²⁷⁷ 15 U.S.C. § 2602(2)(B)(i).

²⁷⁸ EPA, *A Working Approach for Identifying Potential Candidate Chemicals for Prioritization* (Sept. 27, 2018); <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/identifying-existing-chemicals-prioritization-under-tsca>. Much of this document focuses on approaches to separating the “active” Inventory into different “bins” to help enhance the efficiency with which substances on the Inventory could be prioritized under Section 6.

²⁷⁹ *Id.* at 17.

²⁸⁰ 40 C.F.R. § 702.1.

prioritization process at this time. First, as noted above, when TSCA was substantially amended less than five years ago, Congress specifically directed EPA to give preference in its prioritization determinations to substances listed in the 2014 update to the TSCA Work Plan. As Congress noted:

The Committee expects that many, if not all, of the Agency's selections for Agency initiated risk evaluations in the first years after enactment will come from the Work Plan and that risk evaluations for Work Plan Chemicals will be completed in the first years.²⁸¹

Consistent with this Congressional mandate, EPA, in its prioritization regulations, provides that “in selecting a candidate for prioritization” EPA will give preference to:

- (i) Chemical substances that are listed in the 2014 update to the TSCA Work Plan for Chemical Assessments as having a persistence and bioaccumulation score of 3; and
- (ii) Chemical substances that are listed in the 2014 update to the TSCA Work Plan for Chemical Assessments that are known human carcinogens and have high acute and chronic toxicity.²⁸²

Neither PG nor process wastewater are listed in the 2014 update to the TSCA Work Plan. Similarly, the primary component of PG, calcium sulfate dihydrate, is also not listed in the 2014 update to the TSCA Work Plan. Trace chemical components found in PG consist primarily of elements (metals) associated with sulfate, phosphate, or hydroxyl groups (like metal silicates or fluorosilicates) that are also not listed in the Work Plan.²⁸³ Trace components found in process wastewater, including cadmium, selenium and chromium, are similarly not listed in the Work Plan.²⁸⁴ The fact that none of these constituents is listed in the 2014 update to the TSCA Work

²⁸¹ H.R. Rep. No. 114-176 at 24 (2015).

²⁸² 40 C.F.R. § 702.5(c). Notably, EPA's *Working Approach for Identifying Potential Candidate Chemicals for Prioritization*, also includes a preference for the selection of chemicals in the Work Plan for prioritization.

²⁸³ The primary, significant and “appreciable” components of PG are discussed in EPA's background document entitled “Potential Uses of Phosphogypsum And Associated Risks – Background Information Document,” at 2-6 (May 1992), available at <https://www.epa.gov/sites/production/files/2015-07/documents/0000055v.pdf>.

²⁸⁴ The composition of process wastewater is addressed in the TSCA Committee Report at 4.

Plan should create a strong presumption that PG and process wastewater (and their components) do not warrant prioritization under TSCA § 6.

Although Congress intended that “many, if not all” of EPA’s early selections for prioritization would come from the Work Plan,²⁸⁵ the statute makes plain that substances (but not mixtures) that are not part of the Work Plan can still be selected for prioritization under Section 6 if certain criteria are taken into account. To that end, EPA’s regulations establish criteria for prioritization of substances (again, but not mixtures) beyond those addressed in the Work Plan. For example, the regulations provide that in selecting candidates for prioritization “it is EPA’s general objective to select those chemical substances with the greatest hazard and exposure potential first, considering reasonably available information on the relative hazard and exposure of potential candidates.”²⁸⁶ Recently, EPA’s Children’s Health Protection Advisory Committee (“CHPAC”) elaborated further on these criteria by suggesting specific exposure-related factors to be considered in prioritization decisions, including: (i) whether a substance is used in consumer products, particularly those marketed to children; and (ii) whether the substance is used in electronics.²⁸⁷

Importantly, exposure to PG and process wastewater in the United States is very limited. These materials are contained in a limited number of PG stacks located in a handful of states, and they are not used in consumer products, including products marketed to children and are not found in electronics. And while PG has limited commercial use in the United States, process wastewater is used exclusively within the phosphoric acid manufacturing process to utilize the phosphate, other nutrient acid and water values. Thus, critical criteria for prioritization under TSCA § 6 are

²⁸⁵ H.R. Rep. No. 114-176 at 24 (2015).

²⁸⁶ 40 C.F.R. § 702.5(a).

²⁸⁷ Children’s Health Protection Advisory Committee, *Protecting Children’s Health Under Amended TSCA: Chemical Prioritization* (Jan. 26, 2021).

not satisfied by PG and process wastewater, reinforcing the conclusion that prioritization of PG and process wastewater is not warranted.

VI. The Petition Does Not Justify the Issuance of a Testing Rule Under TSCA § 4, Requiring PG and Process Wastewater Manufacturers to Develop Information

Under TSCA, the Petitioners bear the burden of establishing that there is insufficient information about a given chemical to warrant testing; the burden is not on EPA or manufacturers to rebut such an assertion. Petitioners have not met their statutorily-imposed burden. As EPA has explained:

TSCA section 21 requires the petitioner, not EPA, to “set forth the facts which it is claimed establish that it is necessary to issue... a rule under TSCA sections 4, 6, or 8, or an order under TSCA sections 4 or 5(c)”. . . . The petitioners must affirmatively demonstrate, through facts, that there is “insufficient information and experience.”²⁸⁸

A petitioner inherently fails to meet this burden of setting forth facts which are necessary to demonstrate that there is “insufficient information” if “upon a cursory review” EPA can “easily identify existing, reasonably available information not mentioned in the petition” and petitioners must “provide[] the facts necessary to determine whether there is ‘insufficient information or experience’” for each substance in the petition.²⁸⁹ Indeed, “a petitioner is required to provide the EPA with all of the facts needed to review the petition and reach a decision that is consistent with the overall statutory scheme,” meaning that “it is not unreasonable to think that the petitioner could be tasked with producing substantial information.”²⁹⁰ This is a high burden; Petitioners have not met it.

²⁸⁸ 86 Fed. Reg. 6602, 6608 (Jan. 22, 2021) (Petition; Reasons for Agency Response) (emphasis added).

²⁸⁹ *Id.*

²⁹⁰ *Food & Water Watch, Inc. v. United States Env'tl. Prot. Agency*, No. 17-CV-02162-EMC, 2019 WL 8261655, at *12 (N.D. Cal. Dec. 30, 2019).

Petitioners have not identified what studies and data exist and their deficiencies. They have not even specified the testing they believe should be required. Petitioners vaguely allude to studies about “the toxicity, concentration of hazardous constituents at various U.S. PG stacks, exposure, and other health and environmental effects relevant to an unreasonable risk finding.”²⁹¹ Petitioners have thus generically described virtually all possible testing under TSCA. They go on to say that “updated information on population-level exposure risks for radionuclide constituents and radon emissions for phosphogypsum stack systems is necessary” due to a change in population and the number and size of stacks, and that “[u]pdated toxicity information using the Toxicity Characteristic Leach Procedure (TCLP)” should be collected.²⁹² From that confusing statement it is unclear whether these two suggestions are meant to be the totality of the testing request (replacing the earlier laundry list), or whether these are just examples. Even if the generation of population-level exposure risks and toxicity information using the TCLP were the sole requests, Petitioners do not identify testing they believe EPA should require in a Section 4 regulation. The call for an updated population level exposure risk assessment is not a request for testing; and the TCLP test does not provide toxicity information of the kind Petitioners appear to contemplate. The TCLP test is designed to determine whether analytes in a waste stream leach at such a rate as to potentially exceed a pre-determined regulatory level for purposes of regulatory decisions under RCRA, not TSCA. Petitioners have not identified any regulatory levels that they believe would be applicable and useful for such a TCLP test or any other test. Thus, Petitioners have not identified which tests they believe are necessary, and the “tests” to which they primarily point are not, in fact, tests for the topics they identify or are not tests at all.

²⁹¹ Petition at 40.

²⁹² *Id.*

In fact, even if the burden did not rest on Petitioners, which it does, EPA should not issue a testing rule under TSCA § 4 because the facts do not meet the standard for testing. Under TSCA § 4(a)(1)(A)(i), EPA must make several findings before it may require testing through a rule.²⁹³ Specifically, EPA must find that the manufacture, distribution in commerce, processing, use, or disposal of a chemical substance or mixture “may present an unreasonable risk of injury to health or the environment” that information and experience are insufficient to reasonably determine or predict the effects of the chemical substance or mixture on health or the environment; and that “testing of such substance or mixture with respect to such effects is necessary to develop such information.” None of the three required findings can be met here.

First, the data do not support the idea that the manufacture, distribution, processing, use, or disposal of PG or process wastewater “may present an unreasonable risk of injury to health or the environment.” In fact, as discussed in Section IV.C, *supra*, EPA evaluated the risks associated with PG and process wastewater from phosphoric acid production and concluded that the degree and duration of risk associated with these substances did not warrant imposition of additional regulation.

Second, existing information and experience are sufficient to reasonably determine the potential effects of PG and process wastewater on health or the environment. Because PG and process wastewater are mixtures, there are sufficient data on each of the components to determine the effects of PG and process wastewater on human health and the environment. PG manufacturers whose PG or process wastewater is utilized for commercial purposes, such as use in agriculture, regularly submit to EPA under the TSCA chemical data reporting rule information regarding the constituent chemical substances. In fact, such component substances are well-known enough that

²⁹³ 15 U.S.C. § 2603(a)(1)(A)(i).

Petitioners identified several in their own Petition. Each of these individual substances has been individually studied, so the health and environmental effects of each component are understood. To the extent Petitioners would argue that there is insufficient information on the PG and process wastewater as a whole, this assertion is incorrect. EPA has evaluated data regarding PG and process wastewater, as discussed in Section IV.C, *supra*. It is unclear what specific information is currently lacking that could add to EPA's understanding of risks. Existing information negates the need to conduct additional studies on PG or process wastewater.

Finally, testing of PG and process wastewater is not necessary to develop information to understand associated risks. As previously mentioned, there are sufficient data, and EPA has the necessary experience, to understand the potential risks of PG and process wastewater as a whole, as well as each component substance. To the extent Petitioners' concerns relate to the "concentration of hazardous constituents at various U.S. [PG] stacks,"²⁹⁴ such information will vary from stack-to-stack, so none of the requested testing will provide the information Petitioners seek. The constituent substances are generally understood, and such a general understanding has shown that PG and process wastewater do not present risks that require additional data or further analysis, much less regulation.

As should be clear at this juncture, most, if not all, of Petitioners' claims concerning the need for further testing can be addressed by the data already available on the constituents of the mixtures that are called PG and process wastewater. Congress specifically accounted for such a scenario and prohibited requiring testing on a mixture when information on the constituents is sufficient. Congress declared that, in the case of a mixture, EPA cannot issue a regulation to require testing on the mixture's effects on health or the environment if the relevant information

²⁹⁴ Petition at 40.

can “be reasonably and more efficiently determined or predicted by testing the chemical substances which comprise the mixture.”²⁹⁵

Petitioners have failed to demonstrate that testing is appropriate for the mixtures that constitute PG and process wastewater, rather than any specific components of concern. In fact, Petitioners have not addressed the issue at all. Petitioners could not have met such a burden if they tried. There is variability in PG and wastewater from different parts of the country, due to the composition of the minerals mined and then processed in different parts of the country. Thus, testing and any appropriate regulation would need to be limited to the specific components of concern, which may not be universal from stack-to-stack. Consequently, testing on PG and process wastewater as mixtures is not justified.

Taking a more-granular look, testing on the individual components of concern is unwarranted as well. Petitioners have identified the component substances with which they are concerned, and they are all substances that have been listed on the TSCA Inventory for decades and for which there is significant literature and data.²⁹⁶ Additional data are not necessary to determine the effects of the component substances on humans or the environment.

Even if all of the aforementioned deficiencies were resolved in favor of Petitioners, resource constraints and more pressing TSCA priorities make clear that EPA should not undertake a Section 4 rulemaking to require testing of PG and process wastewater. Although EPA has authority under TSCA, under limited circumstances, to require testing relating to a mixture, given the necessity to complete ongoing risk evaluations and to issue risk management rulemakings under Section 6 of TSCA will consume considerable resources in the Agency’s TSCA program,

²⁹⁵ 15 U.S.C. § 2603(a)(1)(B).

²⁹⁶ See Petition at 19 (“Phosphogypsum leachate contains the following toxic constituents listed in Appendix VIII to 40 C.F.R. § 261: arsenic, lead, nickel, cadmium, chromium, silver, antimony, copper, mercury, and thallium”).

office. Accordingly, promulgating a Section 4 test rule is not an appropriate priority under TSCA. Furthermore, and considering the relatively limited number of test rules EPA has issued since TSCA was enacted,²⁹⁷ it would be inappropriate for EPA to dedicate and expend the significant resources that would be required to issue a rule requiring testing of a substance that the TSCA testing prioritization committee has found to be less in need of testing than the substances on the testing list developed by the multi-agency committee whose entire purpose is to determine the substances for which EPA should require the submission of data.²⁹⁸ The Interagency Testing Committee has prioritized other substances, and EPA should not delay its work on these other substances. The Petition does not provide information supporting such a shift in Agency priorities to accommodate the Section 4 test rule Petitioners request.

VII. The Petition Does Not Support Promulgation of a Significant New Use Rule

The Petitioners' demand for promulgation of a Significant New Test Rule ("SNUR") under TSCA § 5(a)²⁹⁹ cannot be supported under TSCA § 21, and even if Petitioners could properly make such a request, EPA cannot support a determination that the use of PG in road construction is a significant new use.

First, the request for a SNUR must inherently fail due to limitations imposed by TSCA § 21. Petitioners' request for a SNUR is unlawful under that section and issuance of a SNUR by EPA in response to this petition would be *ultra vires*. TSCA authorizes EPA to issue SNURs, in the form of regulations, based on determinations that the use of a substance is significant and new.

²⁹⁷ As reflected in 40 C.F.R. Part 799, EPA has issued a total of less than two dozen test rules since TSCA was first enacted.

²⁹⁸ 15 U.S.C. § 2603(e) ("There is established a committee to make recommendations to the Administrator respecting the chemical substances and mixtures to which the Administrator should give priority consideration for the development of information..."); Interagency Testing Committee (ITC) Reports, *available at* <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/interagency-testing-committee-itc-reports> (containing the ITC reports, which do not recommend testing on PG and process wastewater).

²⁹⁹ 15 U.S.C. § 2604.

Although a petitioner can request that EPA take certain actions under TSCA § 21, issuance of a significant new use rule under TSCA § 5(a)³⁰⁰ is not a permissible petition request. To the extent that citizens may petition EPA under TSCA § 21 to take action under TSCA § 5, such petition must be limited to issuance of orders under TSCA § 5(e) or 5(f).³⁰¹ In certain circumstances, a TSCA § 5(e) or 5(f) order may be a pre-requisite to a SNUR, but these orders and the subsequent SNUR are separate and distinct actions.³⁰² Petitioners have not requested any action under these subsections, so their Petition inherently falls outside the permissible scope.

Even if Petitioners had requested the proposed SNUR by citing subsections (e) or (f), such a request would still fail as invalid and inconsistent with TSCA. Petitioners do not seek an order, the only type of action under Section 5 that Petitioners can request; they seek a rule applicable to all manufacturers. Congress specifically excluded requests for generally-applicable rules under Section 5 from the scope of Section 21 petitions.³⁰³ Because Petitioners have not requested action under any Section 5 provision that may be subject to a petition, Petitioners cannot lawfully petition for, and EPA cannot lawfully issue, a TSCA § 5(a) SNUR.

Even if these procedural defects were not dispositive, EPA could not issue a SNUR for PG because it is a mixture of chemical substances. Unlike other sections of TSCA, which provide EPA some authority to regulate mixtures, Congress specified that TSCA § 5 applies to “chemical substances,” not mixtures.³⁰⁴ Thus, EPA cannot regulate PG under a TSCA § 5(a) SNUR.

Finally, assuming *arguendo* that EPA could issue a Section 5(a) SNUR in response to the Petition, such a decision would be inappropriate based on the considerations that support issuing

³⁰⁰ *Id.* § 2604(a).

³⁰¹ *Id.* § 2620(a) (“Any person may petition the Administrator to initiate a proceeding for the issuance, amendment, or repeal of ... an order under section 2603 or 2604(e) or (f) of this title.”).

³⁰² *Id.* § 2604(f)(4).

³⁰³ *See id.* (permitting petitions relating to rules under other sections of TSCA, but not § 5).

³⁰⁴ *Id.* § 2604.

SNURs. The first and most-crucial consideration in deciding whether a use is a new use that requires a SNUR is whether the use is “new” at all. As EPA has explained, “[t]o establish a significant new use, EPA must determine that the use is not ongoing.”³⁰⁵ Based on the Petition and publicly-available information, EPA has no basis to define a previously-approved use as a new use. As Petitioners, themselves, admit, “On October 20, 2020, the EPA ... approved the use of phosphogypsum in roads.”³⁰⁶ Since EPA’s October 2020, approval, use of PG in road construction has been a lawful use, yet Petitioners do not allege that such use is not ongoing. In light of EPA’s prior decision and lacking any reason to believe use has not yet commenced, EPA cannot conclude that use of PG in road construction is a new use, let alone a significant new use.

To the extent use of PG in road construction may be “new,” it does not meet the criteria for a “significant” new use, based on a consideration of all factors set out in TSCA § 5(a)(2).³⁰⁷ There, Congress laid out that a finding of a significant new use must be based on the following factors:

- (A) the projected volume of manufacturing and processing of a chemical substance,
- (B) the extent to which a use changes the type or form of exposure of human beings or the environment to a chemical substance,
- (C) the extent to which a use increases the magnitude and duration of exposure of human beings or the environment to a chemical substance, and
- (D) the reasonably anticipated manner and methods of manufacturing, processing, distribution in commerce, and disposal of a chemical substance.³⁰⁸

³⁰⁵ 85 Fed. Reg. 65,782 (Oct. 16, 2020) (Proposed Rule); *see e.g.*, 40 C.F.R. § 721.10536(b)(5) (listing ongoing uses not subject to the SNUR applicable to long-chain perfluoroalkyl carboxylate chemical substances).

³⁰⁶ Petition at 41 (citing 85 Fed. Reg. 66,550 (Oct. 20, 2020) (Notice)).

³⁰⁷ 15 U.S.C. § 2604(a)(2).

³⁰⁸ *Id.*

All factors advise against a finding of significance of the use of PG in road construction, and weighing the totality of all such factors shows that a finding of significance would be unsupportable.

First, a consideration of the volume manufactured would advise against a finding of a significant new use because use of PG in road construction will not change the amount of PG that is manufactured and that must be managed in some manner. Phosphoric acid manufacturers will not produce less PG, a byproduct of phosphoric acid production, if EPA prohibits one of the few productive uses of the PG. Thus, a consideration of the volume manufactured weighs against a finding of a significant new use. Manner and methods of manufacturing, processing, distribution in, and disposal also do not support the imposition of a SNUR. The manner of manufacture will not change as a result of use in road construction. Additionally, as discussed above, EPA has already concluded that a shift in the processing, distribution, and disposal of PG to include use “in road construction would be at least as protective of public health as disposal of phosphogypsum in stacks.”³⁰⁹ Under the conditions EPA has imposed on the use of PG in road construction, such use reduces the potential for contact with surface and groundwater.³¹⁰ As a result, the manner of manufacturing and disposal does not support the conclusion that use in road construction is a significant new use.

Because Petitioners’ request for a SNUR is procedurally impermissible and substantively unsupported, EPA cannot propose such a SNUR.

³⁰⁹ Letter from Andrew Wheeler, EPA Administrator, to Corey Rosenbusch, TFI President and CEO, at 4-5 (Oct. 14, 2020) (Dkt. ID No. EPA-HQ-OAR-2020-0442-0015), included as Attachment B.

³¹⁰ *Id.* at 6-7.

VIII. TSCA § 9 Cannot Be Invoked to Justify Regulation of PG or Process Wastewater Under TSCA

Petitioners assert that “other federal regulatory programs remain inadequate” to address the potential risks posed by PG and process wastewater and, invoking TSCA Section 9, they insinuate but do not state directly that, therefore, regulation under TSCA is appropriate.³¹¹ This implied but unstated argument is without merit. As discussed previously, adequate authorities under federal law are available, and have been invoked, to regulate the potential risks associated with PG and process wastewater.³¹² These already-adequate federal authorities are (and have been) supplemented by regulatory action under State law authorities and are buttressed by CERCLA Consent Decrees, MMPI Consent Decrees and/or RCRA Consent Orders to address any risks associated with PG and process wastewater.³¹³ Moreover, as discussed in Section IV.C, *supra*, EPA has evaluated the risks associated with PG and process wastewater from phosphoric acid production and concluded that the degree and duration of risk associated with these substances did not warrant imposition of additional restrictions.

IX. Petitioners’ Discussion of So-Called “Feasible Alternatives” is Unsupported and Does Not Provide a Basis for Rulemaking

The Petition closes with a conclusory, single paragraph assertion that “feasible alternatives” to present management practices for PG and process wastewater are available.³¹⁴ The Petition lists seven such “alternatives,” with attempts at supporting citations for only two. The assertion that the industry is somehow ignoring feasible alternatives that would be preferable to the present management practices is baseless and wrong.

³¹¹ Petition at 42.

³¹² See Section IV.A, *supra*.

³¹³ See Section IV.A, B, *supra*.

³¹⁴ Petition at 42-43.

First, as we have shown, the industry has already implemented new management practices, in response to: (1) the existing federal and state regulatory schemes under which they operate; and (2) the enforcement measures taken by EPA. These new practices have included such things as stack and pond liners, leachate monitoring and collection, advanced water management, enhanced financial assurances obligations and a host of other measures.

Second, if there were other and better “feasible alternatives” readily available, the industry, its regulators, and government enforcers would have identified them long ago. The industry has every incentive to reduce its need to rely on impounding PG in stacks that are resource and engineering intensive to design, build and maintain. State regulators have long been looking at ways to advance PG stack design and management. And EPA’s enforcement officials have spent years and years seeking out the most protective and feasible alternatives and have incorporated them in the Consent Decrees and Consent Orders that they have been party to.

Third, as an indication of the industry’s efforts to reduce reliance on stacks, one has only to look to TFI’s successful effort to obtain EPA’s authorization for the use of PG, under prescribed limitation and restrictions, in road construction. Of course, rather than welcoming that development that will reduce the need for PG stack expansion, the Petitioners have challenged that practice as well.

Fourth, Petitioners have not shown that any of the alternatives they reference are feasible or appropriate. For example:

- The Petition mentions the possibility of cleaning an entire stack with clean water and collecting and treating the leachate.³¹⁵ But the article cited in the Petition in support of this

³¹⁵ *Id.* at 42.

alternative suggests that such an approach is “possible,” and certainly does not conclude that it is “feasible.”

- The Petition mentions the possibility of double lining any future PG stack expansions, rather than single lining as would now be required.³¹⁶ But there is no information provided as to the costs or benefits of such a requirement, and no basis to second-guess the judgment of state regulators and EPA enforcement officials that a single lining is appropriate for such expansions.
- The Petition suggests multiple ways in which the industry could make fundamental changes in their methods of operations.³¹⁷ These include such things as changing the chemical process uses to make phosphoric acid, changing their supply of phosphate ore, or even, simply making less phosphoric acid. There is no support at all, much less a showing, that any of this would be feasible³¹⁸, and certainly none that would justify requiring such fundamental changes in how this critical industry operates.
- The Petition mentions a number of other possible management measures that could be taken, such as the possibility of requiring reverse osmosis treatment for stored process wastewater and stack leachate or the cover of inactive portions of active stacks.³¹⁹ These are simplistic statements about issues that are addressed at great length in regulations and enforcement agreements. So, for example, while reverse osmosis is in use at certain facilities, requiring it for all operating facilities could undermine industry’s ongoing efforts

³¹⁶ *Id.*

³¹⁷ *Id.* at 42-43.

³¹⁸ The only support given for the proposal to require that facilities stop using the dihydrate process is an EPA report that merely recites that a different process is used in Japan and some places in the United States, but most facilities in the United States use the dihydrate process. Nothing is said about the feasibility, costs and benefits of switching processes for existing facilities.

³¹⁹ Petition at 43.

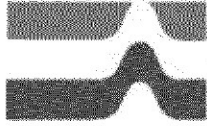
to recover valuable resources from the process water. And the regulations and agreements have extensive provisions concerning the use of vegetative and other covers. Moreover, once again, no information is provided about the costs and benefits of these approaches, and there is simply no reason to revisit prior government determinations that have already established a comprehensive approach to these very issues.

X. Conclusion

TFI appreciates EPA's consideration of its Opposition to the Petition. TFI's Opposition conclusively demonstrates that EPA cannot grant the relief requested in the Petition, and, therefore, the Petition must be denied. If you have any questions regarding TFI's Opposition, please contact Ed Thomas by telephone at (202) 515-2714, or by email at ethomas@tfi.org.

ATTACHMENT A

**ARDAMAN & ASSOCIATES, INC., TECHNICAL MEMORANDUM ON PG AND
PROCESS WASTEWATER MANAGEMENT (MAR. 26, 2021)**



March 26, 2021

TECHNICAL MEMORANDUM ON PHOSPHOGYPSUM AND PROCESS WASTEWATER MANAGEMENT

PURPOSE

The intent of this technical memorandum is to provide a succinct summary of the current regulatory framework and the latest engineering practice that relate to the design, permitting, construction, operation, closure, and post-closure of phosphogypsum stack systems associated with the manufacturing of fertilizers for food production by the phosphate industry in the United States.

Although this technical memorandum focuses on practices and standards governing phosphogypsum stack systems in Florida, where most of the systems in the United States are located, the discussions are also relevant or applicable for phosphogypsum stack systems located in other states, which have essentially adopted standards or requirements similar to those in Florida.

As discussed below, phosphogypsum stack systems are engineered facilities that are subject to rigorous standards and stringent requirements, and are heavily regulated by state environmental agencies.

PHOSPHATE MINING AND PROCESSING

Phosphate, with the chemical symbol " PO_4^{3-} ", is an inorganic molecular anion that contains phosphorus, which is a natural element with the chemical symbol "P". Phosphorus is an essential macro nutrient for plants and crops. Phosphate deposits, which occur naturally in soils or rocks and include minerals that contain phosphorus as well as other elements, are mined to manufacture fertilizers to enhance crop yields for food production. Phosphate is also used to produce animal feed supplements.

Phosphate mining in Florida dates back to the 1880s, when wheelbarrows, picks, and shovels were used to mine river-pebble phosphate deposits in the Peace River. In the early 1920s, after diesel engines had become popular, draglines were commonly used to mine land-pebble phosphate deposits, which significantly increased the efficiency and output of the mining operation. In Florida, the land-pebble phosphate deposits occur within a soil matrix layer that lies beneath the sandy overburden soil. The top of the soil matrix layer generally occurs at depths ranging from approximately 15 to 50 feet below land surface. In areas that are considered economical to mine, the soil matrix layer has an average thickness of approximately 10 to 20 feet and consists of approximately equal parts of phosphate deposits, sand, and clay.

In addition to the increased efficiency in the mining operation, the processing of phosphate ore has also improved over time. Processing of phosphate ore involves separation of the phosphate particles from the sand and clay in the soil matrix layer inside a beneficiation plant. In the early years, the mined materials in the soil matrix layer were mechanically separated using a wet screening process that washed the phosphate ore and captured the larger phosphate particles, with the smaller phosphate particles discarded as a waste product along with the sand and clay. The wet screening process became obsolete in the 1930s, when a newly developed flotation process was adopted to allow the recovery of the small, sand-sized, phosphate particles from the washer debris. The flotation process uses a turbulent water system, various reagents, and air bubbles to float the phosphate particles to the water surface where they are skimmed off. Utilization of this process has increased production capacity and product grade. After beneficiation, the clay is pumped to settling areas for storage and dewatering, and the sand is pumped back to the mine pits for reclamation.

After mining and beneficiation, the phosphate particles are reacted with sulfuric acid (with the chemical formula " H_2SO_4 ") to produce phosphoric acid (with the chemical formula " H_3PO_4 "), which is used in manufacturing of water-soluble fertilizers and other phosphate products. The chemical reaction also produces calcium sulfate or gypsum, typically in dihydrate form with the chemical formula " $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ ", as a byproduct. Typically, the production of one ton of phosphoric acid will yield approximately 5 tons of phosphogypsum.

CHARACTERISTICS OF PHOSPHOGYPSUM AND PROCESS WASTEWATER

Phosphogypsum produced by the phosphate industry is generally similar to natural gypsum except that phosphogypsum contains a low level of radioactivity caused by the naturally occurring radioactive materials (NORM) such as uranium, radium, etc., that exist in phosphate ore.

Process wastewater generated from the manufacturing of fertilizer typically contains dilute phosphoric and fluorosilicic acids. The water is acidic, with a typical pH of 1.5 to 2.0.

PHOSPHOGYPSUM AND PROCESS WASTEWATER MANAGEMENT

Prior to 1989, phosphogypsum was a commercial product that was sold for agricultural use in central and northern Florida, as well as throughout the United States in regions where it was produced. In 1989, Subpart R titled "National Emission Standards for Radon Emissions from Phosphogypsum Stacks" of 40 CFR Part 61 titled "National Emission Standards for Hazardous Air Pollutants" was promulgated to regulate emission standards for radon emissions from phosphogypsum stacks. Specifically, §61.206 titled "Distribution and Use of Phosphogypsum for Other Purposes" of Subpart R states in part as follows: "Phosphogypsum may not be lawfully removed from a stack and distributed or used for any purpose not expressly specified in §61.204 or §61.205 without prior EPA approval." In 1992, Subpart R was revised to permit alternate uses of phosphogypsum for the following purposes: (i) outdoor agricultural uses, (ii) indoor research and development activities, and (iii) other activities that are approved by the United States Environmental Protection Agency (EPA) on a case-by-case basis. Specifically, §61.204 titled "Distribution and Use of Phosphogypsum for Outdoor Agricultural Purposes" permits phosphogypsum to be removed from a stack and distributed for use in agriculture if the average radium-226 concentration at the location where the phosphogypsum is proposed to be removed does not exceed 10 picocuries per gram (pCi/g). Except in northern Florida and some western states, phosphogypsum in the United States typically has a radium-226 level higher than this

threshold value. Accordingly, phosphogypsum is typically a waste product that has to be stored and managed on-site in phosphogypsum stacks¹.

In the United States, the prevailing practice for constructing and raising a phosphogypsum stack employs the wet stacking method. Using this method, phosphogypsum is transported as a slurry with a typical solids content (i.e., dry weight of solids divided by total weight of solids and water) of 15 to 30 percent, and typically stored in a phosphogypsum stack constructed near the chemical processing facility. Two or more slurry pipelines are usually installed to transport the phosphogypsum slurry from the chemical processing facility to the phosphogypsum stack, with one pipeline being active and the other one serving as backup. The process wastewater used for hydraulic transport of phosphogypsum to a phosphogypsum stack and recovered from the decant operations in a phosphogypsum stack is stored on top of the stack or in cooling pond(s), and is eventually re-circulated back to the chemical processing facility for cooling and for producing more phosphogypsum slurry via a return water ditch or a return pipeline. If needed, fresh water from on-site production wells can also be used as make-up water to produce phosphogypsum slurry.

Phosphogypsum stacks are essentially above-ground monofills that hold wastewater contained in the phosphogypsum slurry. A phosphogypsum stack can cover an area ranging from 100 to more than 1,000 acres, and can reach a height of up to 300 feet above natural ground surface.

Up until the mid-1970s, the wet stacking method typically discharged phosphogypsum slurry at a single point into one of two compartments on top of a phosphogypsum stack, with one compartment being used for slurry deposition and the other compartment being idle to allow settling of the phosphogypsum particles, dewatering of the phosphogypsum slurry, and raising of the perimeter dikes. Such a practice was found to be inefficient. Furthermore, with a single-point slurry discharge, the perimeter dike at the low end had the potential to overtop during heavy storm events.

Since the mid-1970s, a more efficient, practical, and safer approach in operating a wet phosphogypsum stack has been to construct and operate an elevated rim ditch along the perimeter of the stack top. The rim ditch is contained between an inner dike and an outer dike, and the water level in the rim ditch is maintained at an elevation higher than the elevation of the ponded water in the operating compartment on top of the stack. Phosphogypsum slurry is discharged into the rim ditch at a single point or at multiple points, and allowed to travel down the sloping rim ditch to distant locations from the discharge point(s). The phosphogypsum deposited in the rim ditch is used for raising of the inner and outer dikes, often without the need for moisture conditioning. As the rim ditch fills with slurry and then gypsum solids, the operator can direct the slurry to open sections of the ditch or into the settling compartment. This is often achieved by sequentially using diversion features at progressively more distant locations from the discharge point(s). By using the rim ditch to direct the phosphogypsum slurry to targeted areas, the slurry discharge point(s) can remain stationary. In such a sedimentary-type deposition, beaches are developed and their extent can be controlled to create either a deep or a shallow pond on top of a phosphogypsum stack, thereby allowing an operator to control the ponded water inventory on top of the stack. More importantly, this practice reduces the risk of piping and overtopping failures and allows the operator to raise the dikes and create emergency storage capacity rapidly.

¹ 40 CFR § 61.206 stipulates the procedures for distribution and use of phosphogypsum for other purposes. The phosphate industry, through The Fertilizer Institute, filed a request with EPA in 2019 for approval to use phosphogypsum as a component for road construction under certain conditions. This request was approved by EPA on October 14, 2020.

Phosphogypsum excavated from the rim ditch is used to raise the outer dike using the upstream method of construction, as well as to raise the inner dike or windrow that separates the rim ditch from the operating compartment on top of the phosphogypsum stack. Draglines with a long reach were commonly used in the past along with a wide rim ditch and a narrow inner dike or windrow, but this type of equipment was slow and required high maintenance. Over time, the industry has replaced draglines with hydraulic excavators. The transition to hydraulic excavators has required a trafficable inner dike with a wide dike crest. Even though the quantity of phosphogypsum required for dike construction has increased, construction using hydraulic excavators can proceed at a safer and faster pace.

REGULATORY FRAMEWORK

Florida Experience. Discharges of pollutants into the waters of the United States, including those from phosphogypsum stacks, are regulated by the Federal Clean Water Act of 1972 and state rules. With promulgation of Chapter 17-520² of the Florida Administrative Code (F.A.C.) titled “Ground Water Classes, Standards, and Exemptions” in 1983, Florida established groundwater quality standards and required groundwater monitoring around phosphogypsum stack systems. Following enactment of Chapter 17-302³, F.A.C. titled “Surface Water Quality Standards” circa 1990, Florida further established surface water quality standards and discharge criteria to surface waters.

Following enactment of Chapter 17-9⁴, F.A.C. titled “Minimum Requirements for Earthen Dams, Phosphate Mining and Processing Operations” in 1972, Florida stipulated minimum requirements for earthen dams used in phosphate mining and beneficiation. With subsequent revisions of this rule in 1999 and 2012, Florida further extended some of the rule requirements to dikes used in phosphogypsum stack systems.

Since 1993, with promulgation of Chapter 62-673, F.A.C. titled “Phosphogypsum Management”, Florida has imposed strict regulatory requirements on phosphogypsum stack systems. Those requirements encompass permitting, design, construction, operation, closure, long-term care, and financial assurance. Specifically, Chapter 62-673, F.A.C., comprises the following key sections that regulate the different aspects of a phosphogypsum stack system:

- 62-673.320 Permitting of Phosphogypsum Stack Systems
- 62-673.340 Phosphogypsum Stack System General Criteria
- 62-673.400 Phosphogypsum Stack System Construction Requirements
- 62-673.600 Closure of Phosphogypsum Stacks
- 62-673.610 Closure Plan Requirements
- 62-673.620 Closure Procedures
- 62-673.630 Long-Term Care
- 62-673.640 Financial Assurance
- 62-673.650 Closure of Unlined Systems

² Superseded by Chapter 62-520, F.A.C. titled “Ground Water Classes, Standards, and Exemptions” in 2009.

³ Superseded by Chapter 62-302, F.A.C. titled “Surface Water Quality Standards” in 2010.

⁴ Superseded by Chapter 17-672, F.A.C. titled “Minimum Requirements for Earthen Dams, Phosphate Mining and Processing Operations” in 1999, and later by Chapter 62-672, F.A.C. titled “Minimum Requirements for Earthen Dams Used in Phosphate Mining and Beneficiation Operations and for Dikes Used in Phosphogypsum Stack System Impoundments” in 2012.

Paragraph 62-673.300(1), F.A.C. states that "No person shall dispose of, or store prior to disposal, any phosphogypsum except within a phosphogypsum stack system permitted by the Department in accordance with this chapter. This provision shall not be construed to prohibit any use or reuse of phosphogypsum not otherwise prohibited by law." Paragraph 62-673.320(1), F.A.C. further states that "No phosphogypsum stack system shall be constructed, operated, expanded, modified or closed without an appropriate and currently valid permit issued by the Department in accordance with this chapter. Facilities operating without a permit on 3-25-93 shall, within 180 days, apply for a temporary operating permit from the Department." These provisions essentially subject all phosphogypsum stack systems to regulations in Florida.

The permit application to construct and operate a phosphogypsum stack has to be filled out on the Florida Department of Environmental Protection (FDEP) Form 62-673.900(1) titled "Application for Permit to Construct/Operate a Phosphogypsum Stack System" and submitted to the FDEP Bureau of Mining and Minerals Regulation, Phosphate Management Program. The application must include design drawings, technical specifications, and other supporting information and data prepared by a licensed professional engineer such that FDEP can determine whether the proposed facility meets all applicable regulatory requirements and poses no threat to human health and the environment. The construction permit is incorporated into the National Pollutant Discharge Elimination System (NPDES) permit for industrial wastewater for the facility. After the permit is issued and construction of the phosphogypsum storage area is complete, a third-party licensed professional engineer is required to prepare and submit FDEP Form 62-673.900(2) titled "Certification of Construction Completion for a Phosphogypsum Stack System", along with all supporting information and data, to certify that the completed construction meets the intent of the design. These requirements essentially require all phosphogypsum stack systems in Florida to follow standard protocols in design and construction, and to secure state permits upon regulatory review and approval.

Most importantly, Chapter 62-673, F.A.C. mandates the use of and stipulates the design standards for composite liner (i.e., a two-liner system that consists of a geosynthetic component and a soil component) and seepage control systems for all new phosphogypsum stacks and cooling ponds in Florida.

The first geomembrane-lined phosphogypsum stack in the United States was constructed at the Simplot Rock Springs Facility in Wyoming in 1986. The first geomembrane-lined phosphogypsum stack system constructed in Florida was the Phase I Expansion at the Mosaic (formerly IMC) New Wales Facility, which underwent design, permitting, and construction from 1988 to 1992, and was the model used for development of the technical requirements and standards contained in Chapter 62-673, F.A.C. The first phosphogypsum stack closure in Florida was at the Mosaic (formerly Cargill) Riverview Facility in 1989, which was the model used for development of the closure requirements and standards contained in Chapter 62-673, F.A.C.

One of the first geomembrane-lined phosphogypsum stacks that was designed and constructed under Chapters 62-672 and 62-673, F.A.C., was at the Mosaic Green Bay Facility in Florida. This phosphogypsum stack was constructed in 2000 and was provided with an inverted composite liner that consists of a 60-mil thick high-density polyethylene (HDPE) liner overlain by a 24-inch thick compacted phosphogypsum cover with a saturated permeability or hydraulic conductivity of less than 1.0×10^{-4} cm/sec. This phosphogypsum stack was constructed on top of reclaimed land backfilled with sand tailings (i.e., a permeable foundation). Monitoring wells that were installed around the perimeter of this lined stack have not detected any groundwater impacts associated with leakage of process wastewater through the liner.

Other States. Most of the regulatory requirements and case histories referenced above are specific to Florida because the majority of the phosphogypsum stacks in the United States are located in Florida. Nevertheless, the Florida practices have been adopted in design, construction, and operation of phosphogypsum stack systems outside Florida, and have influenced rulemaking and regulations in other states. Idaho has recently passed legislation on phosphogypsum stack design that incorporates elements of the Florida requirements. It should further be noted that consent decrees executed between EPA and various fertilizer companies have incorporated language that originated from the Florida rule requirements on phosphogypsum stack systems. The consent decrees have also imposed training requirements on Resource Conservation and Recovery Act (RCRA) regulations for employees and contractors.

DESIGN REQUIREMENTS

Prior to promulgation of Chapter 62-673, F.A.C., phosphogypsum stack systems typically incorporated *in situ* clay liners to control vertical seepage and seepage collection ditches to control lateral seepage. Following enactment of Chapter 62-673, F.A.C. in 1993, phosphogypsum stack systems are required to comply with minimum design standards for constructed liners and seepage control systems, as well as for liquid containment and conveyance systems.

Rule 62-673.400, F.A.C., requires all phosphogypsum stacks and cooling ponds in Florida to have composite liner and seepage control systems. The composite liner must consist of an HDPE geomembrane liner with a minimum thickness of 60 mils, and either a compacted soil liner with a minimum thickness of 18 inches and a maximum permeability or hydraulic conductivity of 1×10^{-7} cm/sec beneath the HDPE geomembrane liner, or a compacted phosphogypsum cover with a minimum thickness of 24 inches and a maximum permeability or hydraulic conductivity of 1×10^{-4} cm/sec above the geomembrane liner. Both composite liner options provide equivalent protection to the environment.

Rule 62-673.400, F.A.C., requires all seepage control systems to comply with the following requirements:

- A perimeter underdrain system must be provided to maintain stability of the phosphogypsum stack slope.
- Perimeter drainage conveyances used in the seepage control system must consist of either:
(i) covered or uncovered ditches that are lined continuously with the phosphogypsum stack liner, or (ii) collection pipes that are chemically compatible with the process wastewater.
- All toe drain or seepage collection systems must be constructed within the lined system.

For most facilities, the current practice is to have the phosphogypsum stack perimeter surrounded by a lined decant water/runoff collection ditch that also serves as a lined seepage collection ditch.

Rule 62-673.400, F.A.C., further requires all liquid containment and conveyance systems to comply with the following requirements:

- Composite liners must be provided for all liquid containments and open conveyances used for phosphogypsum slurry transport, process wastewater containment, and process wastewater return.

- Pump and piping systems used for transport of phosphogypsum slurry or process wastewater that cross surface waters must be double-contained with chemically compatible materials in a manner that assures that all liquids are contained in the event of a pipe leak or failure.

CLOSURE REQUIREMENTS

The closure requirements under Chapter 62-673, F.A.C., apply to all phosphogypsum stack systems, except for those had already been closed or were required to be closed under an FDEP permit or pursuant to a consent order that was in effect before March 25, 1993.

A closure permit application, general plans and schedule for closure, stack configuration at closure, a water management plan during closure, and an estimate of closure costs are required by Chapter 62-673, F.A.C. Specifically, the rule requires the submittals of and specifies the requirements for the following documents: (i) general and area information report; (ii) groundwater monitoring plan, (iii) assessment of effectiveness of the existing phosphogypsum stack system design and operation, (iv) closure design plan, (v) closure construction quality assurance plan, and (vi) closure operation plan. These submittals are required to be certified by a third-party licensed professional engineer.

The closure design plan must provide engineering drawings, procedures during closing of a phosphogypsum stack system, and monitoring and maintenance protocols during the long-term care period after closure. Furthermore, the closure design plan must also address: (i) the type of process wastewater seepage control system proposed to prevent process wastewater seepage from causing violations of water quality standards beyond the approved zone of discharge for the phosphogypsum stack system, (ii) compliance with groundwater protection requirements, and (iii) the proposed method of stormwater control.

Under Chapter 62-673, F.A.C., a phosphogypsum stack is required to have a final cover placed over the entire stack surface for closure. The final cover may consist of geomembrane, soil, or amended soil or phosphogypsum. The top gradient of a final cover must be designed to prevent ponding and to minimize erosion. The final cover for the stack top is required to have a minimum 18-inch thick barrier soil layer that is overlain by an 18-inch thick layer of soil or amended phosphogypsum that can sustain a vegetation cover to control erosion. For unlined phosphogypsum stacks, the barrier layer is required to have a maximum permeability or hydraulic conductivity of 1×10^{-7} cm/sec. For lined stacks, the barrier layer is required to have a maximum permeability or hydraulic conductivity of 1×10^{-5} cm/sec. If less permeable soils are used, the thickness of the barrier layer may be decreased to 12 inches, provided that infiltration is minimized to an equivalent degree. A geomembrane may be used as an alternative to the low-permeability soil barrier if it is designed to preclude rainfall infiltration into the phosphogypsum stack and is protected by a soil cover with a minimum thickness of 24 inches.

LONG-TERM CARE REQUIREMENTS

Pursuant to Rules 62-673.600 to 62-673.620, F.A.C., the owner or operator of a phosphogypsum stack system is responsible for monitoring and maintenance of the facility in accordance with an approved closure plan for a period of 50 years after closure. Before the expiration of the long-term care period, FDEP may extend the time period if the closure design or closure operation plan is found to be ineffective, subject to some circumstances that may lengthen or shorten that period.

FINANCIAL ASSURANCE REQUIREMENTS

Under Rule 62-673.640, F.A.C., as a condition for issuance of a permit to construct, operate, expand, modify, or close a phosphogypsum stack system, the owner or operator of a phosphogypsum stack system is required to provide proof of financial assurance for closure of the system. The owner or operator must estimate and report separately the costs of terminal closure, including costs associated with closing, long-term care, and water management for the phosphogypsum stack system, based on the phosphogypsum stack system configuration at the end of its useful life. The annual long-term care cost must be multiplied by 50 years to establish a total long-term care cost. All cost estimates must be reviewed, signed, and sealed by a third-party licensed professional engineer.

EARTHEN DIKE REQUIREMENTS

Perimeter earthen dikes are considered part of the phosphogypsum stack systems and are required to meet all applicable requirements in Chapter 62-672, F.A.C., including requirements for site investigation and soil testing, stability analysis, minimum factor of safety, freeboard, and the hydraulic capacities of conveyance ditches, pumps, pipes, and hydraulic structures. In addition, construction materials and methods, certification of construction completion, and routine dike inspection and maintenance are also stipulated in Chapter 62-672, F.A.C.

OPERATING REQUIREMENTS

The minimum standards for raising a phosphogypsum stack and the minimum requirements for decanting process wastewater from the top of a phosphogypsum stack are stipulated in Rules 62-672.750 and 62-672.760, F.A.C., respectively. Rule 62-672.780, F.A.C., further requires the submittal of a phosphogypsum stack system operation plan and prescribes the plan content to include the methods for raising and operating the phosphogypsum stack, the descriptions of phosphogypsum used in dike construction, the procedures for decanting process wastewater, the emergency measures to be taken in the event of mechanical failure of a pump or a power failure, etc. The operation plan has to be approved by an engineer that is experienced in construction and operation of phosphogypsum stacks.

The operation plan for a phosphogypsum stack system must include an evaluation of the adequacy of a site-specific water management plan based on extreme rainfall events and a 5-year water balance analysis using October 1 as the starting date. The water balance analysis, which needs to consider the rates of all water inputs and outputs, any manufacturing production changes, any changes in process watershed area, etc., has to be verified by a third-party licensed professional engineer. In addition, the water balance calculations and water management plan have to be updated annually to reflect any changes in watershed area, storm surge, and projected water balance, and submitted to FDEP by February 1 of each year. The water management plan has to list specific actions, including minimum process wastewater consumption and transfer rates, that need to be implemented when certain "triggers" are exceeded in the cooling pond system. Additionally, the plan has to list any actions that ought to be implemented before the "triggers" are exceeded in the cooling pond system, when such actions are deemed necessary based on results of the 5-year water balance analysis.

Paragraph 62-672.780(9), F.A.C., specifically requires using either one of the following extreme rainfall quantities as inputs in the 5-year water balance analysis:

- The 100-year September rainfall occurring during the 100-year annual rainfall, and multi-year rainfall events that have an equivalent probability for not being exceeded during the 5-year period as that of the 100-year annual rainfall event.
- A total rainfall of 300 inches over a 5-year period in accordance with the following scenarios:

Scenario	Rainfall (inches)					
	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1	76	60	56	56	52	300
2	60	76	56	56	52	300
3	56	60	76	56	52	300
4	52	56	60	76	56	300
5	52	56	56	60	76	300

The water balance analysis must indicate whether the system storage will be able to achieve the following water balance targets:

- Storage to accommodate 16.25 inches of rainfall runoff on June 1 of any year.
- Storage to accommodate 12 inches of rainfall runoff on October 1 of any year.
- Storage to keep impoundment water levels below the maximum design water levels at any time.

If the water balance for a phosphogypsum stack system fails to meet the above water balance targets, the facility owner or operator will be required to provide reasonable assurance that additional process wastewater consumption or management protocols are readily available and can be implemented to maintain the above water balance targets.

As part of the water management plan, an "action plan trigger" that corresponds to the storage volume or operating water level required to contain the rainfall quantity from a storm event generating 12 inches of rainfall in 24 hours (i.e., a storm event with less than 1 percent annual probability of exceedance) must be established. If the "action plan trigger" is exceeded for 72 consecutive hours, the facility owner or operator is required to notify FDEP followed by weekly reporting, and to present a site-specific action plan for process water inventory management and/or consumption.

In accordance with Paragraph 62-672.600(1)(c), F.A.C., all perimeter earthen dikes in a phosphogypsum stack system are required to be operated so as to maintain the design freeboard unless temporary incursions into the freeboard are demonstrated to be safe. The design freeboard of an above-grade perimeter earthen dike must not be less than 5 feet unless a design freeboard of less than 5 feet can be justified based on results of seepage and stability analyses, and wave run-up analyses. In any event, the design freeboard of an above-grade perimeter earthen dike is not allowed to be less than 3 feet.

INSPECTION AND MAINTENANCE REQUIREMENTS

In accordance with Rule 62-672.770, F.A.C., all phosphogypsum stacks in Florida are required to be inspected and maintained regularly to ensure their integrity and performance. Representatives of FDEP may request to be present during any of the required inspections by the facility owner or operator and may inspect starter dikes or gypsum dikes at any reasonable time. Furthermore, all inspection documents must be retained for a period of at least three years and must be made available to FDEP upon request.

Before process wastewater is allowed to be introduced a newly constructed phosphogypsum stack system, a third-party licensed professional engineer must inspect and certify the construction based on his or her inspection and results of field and laboratory testing performed during construction. After a phosphogypsum stack system is put into operation, it is further subject to the following routine inspection and maintenance requirements:

- Any critical conditions, as listed under Rule 62-672.770(6), F.A.C., are required to be inspected daily until corrective measures have been successfully implemented.
- Stack slopes, collection ditches, and drain outlets are required to be inspected weekly.
- Flow from drain outlets are required to be checked quarterly.
- Total areal water coverage on top of the phosphogypsum stack is required to be estimated monthly.
- Total water inventory on top of the phosphogypsum stack is required to be estimated annually.
- The phosphogypsum stack is required to be inspected by a third-party licensed professional engineer annually.
- Any deficiencies observed, recommendations provided, and corrective measures taken must be properly documented in the annual inspection report.
- If corrective measures cannot be completed by the time of the annual inspection report submittal, follow-up inspections must be conducted by the third-party licensed professional engineer on a quarterly basis, along with appropriate documentation, until the corrective measures have been successfully implemented.

Under Rule 62-672.770(6), F.A.C., any of the following items is considered a critical condition:

- Concentrated seepage on the stack slope, at the toe of slope, or beyond the toe of slope with active signs of piping at the point of seepage.
- Evidence of slope instability, including sloughing, bulging, or heaving of the stack slope or near the toe of slope.

- Lateral movement or subsidence of the stack slope or crest.
- Formation of non-shrinkage cracks or enlargement of wide cracks on the stack slope or crest.
- Observed or suspected damage to the liner system.
- Drains discharging turbid water.
- Concentrated seepage in the vicinity of a decant pipe.

If a critical condition is confirmed, the owner or operator is required to notify FDEP immediately, and to prepare a written report to document the critical condition and to propose corrective actions within seven days.

CONTINGENCY PLAN REQUIREMENTS

In accordance with Rule 62-672.850, F.A.C., the owner or operator of a phosphogypsum stack system is required to prepare a contingency plan and update it annually to address unplanned releases of process wastewater. The elements of such a plan must address the applicable elements of the National Response Team's Integrated Contingency Plan format.

TRAINING REQUIREMENTS

The owner or operator of a phosphogypsum stack system is required to provide annual training in inspection, operations, and contingency plan requirements to appropriate personnel.

ENGINEERING PRACTICE

In conjunction with the changes or updates in regulations, the engineering practice associated with the planning, design, construction, and operation of a phosphogypsum stack system has advanced over the years. The current engineering practice associated with construction of a new phosphogypsum stack or expansion of an existing stack often includes the following efforts to ensure compliance with applicable regulatory requirements and a phosphogypsum stack system that is protective of human health and the environment:

- Performance of a hydrogeological investigation for the project area.
- Characterization of the subsurface conditions at the project site by performance of geophysical surveys, drilling of boreholes, performance of cone soundings, installation of piezometers, recovery of soil and rock samples, field testing of the *in-situ* soils and aquifers, and laboratory testing of the recovered soil and rock samples.
- Performance of engineering analyses to evaluate the suitability of the site for construction and operation of a phosphogypsum stack system, and the competency of the foundation materials for supporting a composite-lined phosphogypsum stack.
- Development of engineering reports, detailed design drawings, technical specifications, and construction quality assurance plan.

- Performance of field observation and testing during construction.
- Performance of laboratory testing of materials before and during construction.
- Preparation of as-built report and certification of construction at completion.

The following engineering efforts will continue throughout the active life and into closure of an existing phosphogypsum stack or a new stack after construction:

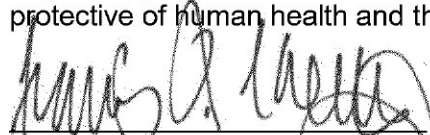
- Development and update of an operation plan.
- Development and update of a water management plan.
- Development and update of closure and post-closure care plans.
- Development of a contingency plan.
- Development of groundwater and surface water monitoring plans.
- Assistance in development and update of financial responsibility.
- Performance of regular and annual site inspections.
- Monitoring of groundwater and surface water quality.
- Monitoring and evaluation of stack stability, movement, and deformation.

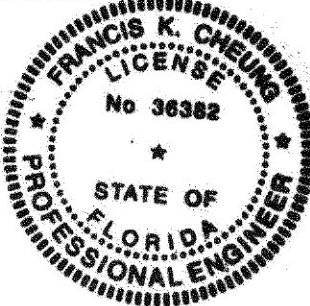
It should be noted that engineering practice has improved and will continue to improve with time, as new circumstances arise, new knowledge is gained, new technologies emerge, and new ideas and solutions are conceived. It should further be noted that the engineering and design efforts for certain sites and phosphogypsum stack systems often go above and beyond what are required by current rules and regulations, and what are normally considered acceptable as standard engineering practice. Most notably, site characterization has evolved from a visual reconnaissance of a potential site to a detailed engineering study that often includes sinkhole frequency analysis, photolinear analysis, subsurface assessment of topographic depressions, subsurface evaluation of photolinear intersections, microgravity survey, seismic reflection survey, soil and rock drilling, piezometer installation, etc. Any potential issues identified during the site characterization study are addressed, and design features or elements are often incorporated to safeguard the stack and to allow performance monitoring. On recent projects, these design features have included foundation drainage system, foundation piezometer monitoring system, micro-seismic foundation monitoring systems, groundwater monitoring, etc. For water management, recent engineering efforts have included water balance updates to account for extreme storm events, utilization of water treatment technologies such as reverse-osmosis, double-lime treatment, enhanced evaporation, deep well injection, etc., to reduce water inventory. Phosphogypsum stack operation techniques have also advanced over the years, including the use of wet pulverized rim-ditch material for dike construction to reduce the risk of piping failure, the use of a wide rim-ditch and wide beach to reduce the risks of overtopping and wave runup, the use of decant siphons instead of decant cut to remove process wastewater from the top of a phosphogypsum stack, etc.

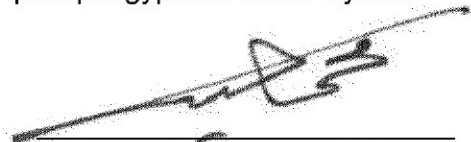
SUMMARY AND CONCLUSION

Phosphogypsum management has evolved from unplanned and unregulated deposition of phosphogypsum and process wastewater in open mine cuts and on uncharacterized lands, often without much engineering input, into a very sophisticated and well-regulated activity with a high level of site characterization, engineering, and design efforts to ensure that a phosphogypsum stack system complies with all applicable regulatory requirements and is protective of human health and the environment.

It is our professional opinion that the current regulations are adequate for management of phosphogypsum and process wastewater in the phosphate industry. It is also our professional opinion that, with compliance of the current regulatory requirements and implementation of sound engineering practice tailored for site-specific conditions, a phosphogypsum stack system is protective of human health and the environment.


Francis K. Cheung, P.E.
Principal Engineer 03/26/21
Florida License No. 36382




Mohamad Al-hawaree, P.E.
Senior Consultant

This item has been electronically signed and sealed by Francis K. Cheung on the date adjacent to the seal using a *SHA* authentication code.

Printed copies of this document are not considered signed and sealed and the *SHA* authentication code must be verified on any electronic copies.

ATTACHMENT B

**LETTER FROM ANDREW WHEELER, EPA ADMINISTRATOR, TO COREY
ROSENBUSCH, TFI PRESIDENT AND CEO (OCT. 14, 2020)
(DKT. ID NO. EPA-HQ-OAR-2020-0442-0015)**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

October 14, 2020

THE ADMINISTRATOR

Mr. Corey Rosenbusch
President and Chief Executive Officer
The Fertilizer Institute
425 Third Street, SW, Suite 950
Washington, D.C. 20024

Dear Mr. Rosenbusch:

The Fertilizer Institute, on behalf of its members that own or operate phosphogypsum stacks, has asked the U.S. Environmental Protection Agency to approve, under 40 C.F.R. § 61.206, the removal of PG from required stacks for use in government road construction projects. As discussed below, the EPA grants the request subject to certain conditions.

Background

On October 15, 2019, TFI submitted its initial "Request for Approval of Additional Uses of Phosphogypsum Pursuant to 40 C.F.R. § 61.206," requesting that the EPA approve the use of PG in road construction. Subsequently, on April 7, 2020, TFI submitted, on behalf of its members that own or operate PG stacks, a revised request: "Revised Request for Approval of Additional Uses of Phosphogypsum Pursuant to 40 C.F.R. § 61.206: Use in Road Construction Projects Authorized by Federal, State and Local Departments of Transportation or Public Works" (hereinafter the "Revised Request"). In evaluating TFI's submittals, the EPA generally has focused on the revised request, which we understand to be the most recent, complete version of TFI's request. The EPA has, however, evaluated TFI's request in light of all the materials submitted, including information submitted in connection with the initial request, as well as information subsequently submitted. The Revised Request asks the EPA to approve the use of PG in certain road construction projects:

A determination by EPA, pursuant to 40 C.F.R. § 61.206, that PG containing up to an average of 35 picocuries per gram [pCi/g] may be used in road base, paving, and various combinations of road base and paving in Government Roadway Projects that meet the commitments of this petition and are:

1. Authorized by federal, state and local Departments of Transportation (DOT) or Public Works (PW), and

2. Conducted as part of a government road project using appropriate, generally accepted road construction standards and specifications such as American Society for Testing and Materials (ASTM), Federal Highway Administration (FHWA), federal or state DOT standards and specifications, or standards developed or approved in consultation with the appropriate regulatory DOT or PW authorities.

Revised Request at 23-24.

TFI submitted or resubmitted a number of materials with the Revised Request, including miscellaneous federal and state road construction specifications and requirements; a Summary of the Risk Assessment (previously submitted by TFI); a Radiological Risk Assessment in Support of Petition for Beneficial Use of Phosphogypsum prepared by Arcadis Canada Inc. on behalf of TFI (previously submitted by TFI); a technical memorandum prepared by Exponent on behalf of TFI relating to a chemical risk screening to evaluate potential risks associated with metals/metalloids in PG; responses – apparently prepared by Arcadis Canada Inc. on behalf of TFI – to various questions and comments from the EPA; a discussion by TFI of the results of sampling and radiological testing of samples of PG from 10 stacks in four states; an economic analysis by the Policy Navigation Group, on behalf of TFI, to estimate potential regulatory cost savings associated with using PG in road construction; information on the location of certain PG stacks in Florida, Louisiana, Wyoming and Idaho; a list of materials cited in the Revised Request and other items submitted by TFI. These submissions are identified in TFI's Revised Request as Attachment A and Appendices 1 through 8, respectively. Revised Request at 2-3 and Attachment A and Appendices 1-8.

A significant part of the Revised Request and related information submitted by TFI relates to TFI's assessment of the risks associated with the use of PG in road construction. TFI evaluated the risks under various scenarios, including risks to road construction workers, truck drivers transporting PG, road users, utility workers performing work on utilities at or under roads constructed with PG and residents living near roads constructed with PG. TFI assessed risk based on certain identified assumptions about the amount of PG used in road construction projects and on the amount of radium-226 in the PG used in road construction. With the assumptions used in TFI's risk assessment, TFI's calculated risks for the reasonably maximally exposed individual were no more than 0.5 in 10,000, less than the 3 in 10,000 risk that TFI maintains the EPA uses as the risk of the PG if left in the stack. See, for example, Revised Request, at 16 (Table 1). TFI's risk assessment concluded that the risk of using PG in road construction is low and using PG in road construction would be at least as protective as keeping PG in stacks.

The Revised Request notes the requirements of 40 C.F.R. § 61.206, including the information that a request for approval of other uses of PG (other than keeping the PG in stacks) must contain. See, for example, Revised Request at 24-25. The Revised Request asserts that it has provided sufficient information for the EPA to determine whether the proposed use would be at least as protective as disposal of PG in stacks, suggesting that it has provided the information required by 40 C.F.R. § 61.206(b)(1), (2), and (6)-(9). Revised Request at 50, footnote 123. The Revised Request essentially acknowledges that it has not provided the information required by 40 C.F.R. § 61.206(b)(3)-(5) and (10) but suggests that the EPA approval may be "conditioned upon receipt" of such information. *Id.*

The Revised Request includes discussion of various other considerations that TFI argues weigh in favor of supporting or allowing uses of PG, such as use in road construction, rather than simply requiring that PG be kept in stacks. Among these considerations are the following contentions: there has been significant growth in the industry and resulting significant increases in PG material generated that the EPA did not anticipate when generally requiring that PG be kept in stacks; the number and size of PG stacks have increased, as well as the costs to manage and maintain the stacks; other countries do not strictly require that PG be kept in stacks and more readily allow PG to be used for other purposes; and allowing other uses to be made of PG is consistent with the EPA's interest in "beneficial uses" of materials and with general EPA policies encouraging recycling.

Discussion

The EPA's *Clean Air Act* regulations at 40 C.F.R. Part 61, Subpart R, address concerns about radon emissions from PG. Subpart R generally applies to owners or operators of PG stacks and to "each person who owns, sells, distributes, or otherwise uses any quantity of phosphogypsum." 40 C.F.R. § 61.200. The basic requirement of Subpart R is that PG must be placed in stacks and may not be removed from stacks, except "as expressly provided." 40 C.F.R. § 61.202. Subpart R provides three sets of exceptions under which PG may be removed from stacks: PG may be removed from stacks and used "in outdoor agricultural research and development and agricultural field use" under certain circumstances (40 C.F.R. § 61.204); PG may be removed from stacks and used "in indoor research and development activities" under certain circumstances (40 C.F.R. § 61.205); and, upon request, the EPA may approve the removal of PG from stacks and the use of PG for "other purposes" (40 C.F.R. § 61.206). Relying on this "other purpose" approval authority, the Revised Request asks the EPA to approve the removal of PG from stacks for use in government road construction.

As the Revised Request acknowledges, a request for approval of the use of PG for other purposes must contain certain information, including information about the specific location(s) where the PG will be used. 40 C.F.R. § 61.206(b)(1)-(10). The procedure also requires that a request be "signed and dated by a corporate officer or public official in charge of the facility." 40 C.F.R. § 61.206(b)(10). A request must include, for example, the location – including mailing address – of each "facility" where any use, handling or processing of PG will take place. 40 C.F.R. § 61.206(b)(3), (4). The Revised Request has provided the locations of PG stacks owned or operated by TFI member companies, locations where at least some of the use, handling or processing of the PG to be used in road construction may occur. The Revised Request has not, however, provided any specific location information where the ultimate requested use – road construction – will take place. In addition, to the extent that there may be intermediary locations (such as processing facilities or construction yards) between a PG stack and a road under construction with PG, the Revised Request has not identified any such intermediary locations. A request under 40 C.F.R. § 61.206 for approval of other use of PG also must include information on the quantity of PG to be used by each "facility." The Revised Request provided information about the percentage of PG likely to be used in either roadbed or pavement but has not provided information on the quantity of PG to be used in each road construction project.

The Revised Request has provided considerable information about the anticipated use of PG in road construction. The Revised Request has, for example, provided information about the types of roads that may be constructed using PG, how PG may be used and the road construction process. The Revised Request has provided information about the proposed average concentration of radium-226 in the PG to be used. Critically, the Revised Request assessed and estimated risks associated with the use of PG in road construction.

The agency may approve a request to use PG for some “other purpose” if the proposed distribution or use is at least as protective of public health, in the short and long term, as disposal of PG in a stack. 40 C.F.R. § 61.206(c). In the event the agency approves a request to remove PG from stacks and use PG for other purposes, certain prescribed requirements must be met, including requirements set out in 40 C.F.R. §§ 61.206(d) and 61.209. These include requirements on the owner or operator of a stack from which PG is removed to determine radium-226 concentrations; on stack owners or operators and on PG sellers or resellers, distributors and end users to ensure proper preparation and maintenance of certification documents; and on end users to prepare and maintain various records. 40 C.F.R. §§ 61.206(d) and 61.209. In addition, the EPA has the authority to impose additional terms and conditions. 40 C.F.R. § 61.206(e).

Although the Revised Request has not provided complete information about the specific locations where roads will be built using PG and has not identified the specific quantity of PG to be used in road construction, the lengthy, detailed information provided by the Revised Request about using PG in road construction and the thorough risk assessment is sufficient information for the agency to determine whether use of PG in road construction is at least as protective as disposal in a stack, at least under the circumstances and conditions described in the Revised Request and reflected in the risk assessment. In light of the information provided by TFI, the nature of the request and the conditions identified below, the agency concludes that the additional information required as part of a request under 40 C.F.R. § 61.206(b) – especially information on specific address locations where the PG may be used – is not essential to making the determination of whether the proposed use of PG would be at least as protective of public health as stacking.

In evaluating risks associated with using PG in road construction, the Revised Request used an average radium-226 concentration of 27 pCi/g. Revised Request at 20 and 51. (The Revised Request also extrapolated that, even if the average radium-226 was as high as 148 pCi/g, the use of PG in road construction would be still be sufficiently protective of public health, and the Revised Request requested a “concentration limit” – that is, the limit on the level of radium-226 that may be in PG used in road construction – of 35 pCi/g. See, for example, Revised Request at 28.) The risk assessment was also based on assumptions that, when PG is used in road bed material, it would comprise no more than 50 percent of the road bed material, by weight (the other material would be “soil”), and, when used in road surface material, PG would comprise no more than 2.25 percent, by weight, of the surface pavement. Revised Request at 19. As noted above, the Revised Request evaluated risks from the standpoint of various exposure scenarios, including exposure of: persons engaged in road construction or transportation of PG (truck drivers); nearby residents (residing no closer than 50 feet from the road); and utility workers. At the EPA’s request, the Revised Request also addressed risks to persons living on abandoned, reused or reclaimed roads (the “reclaimer scenario”). Revised Request at 22-23. Under all these scenarios, the Revised Request, as calculated in the TFI risk assessment, indicated that the risks associated with using PG in road construction

would be significantly less than a lifetime risk of fatal cancer from radon emissions of 3 in 10,000 and that using PG in road construction would be at least as protective of public health as disposal of PG in stacks. *Id.*

As initially promulgated, Subpart R required “stacking” and did not authorize alternative uses of PG. In 1992, the EPA amended Subpart R to categorically authorize use of PG for agricultural or research and development purposes under certain circumstances and to establish a procedure to request approval of other uses of PG. See 57 Fed. Reg. 23305 (June 3, 1992). At that time, the EPA considered also categorically authorizing the use of PG in road construction, but the EPA decided not to do so because it concluded that “the use of phosphogypsum in road construction presents an unacceptable level of risk to public health.” *Id.* That determination largely was based on a concern about the risks to people living in a house constructed on land where roads built using PG once existed. The EPA did not necessarily foreclose any or all use of PG in road construction, but simply declined, at that time, to categorically authorize – as for agricultural or research and development uses – use of PG in road construction.

The EPA agrees that for purposes of assessing whether other uses of PG will be at least as protective as disposing of PG in stacks or a mine (and consistent with the agency’s overall risk management policies), the radiation risk associated with phosphogypsum stacks (or disposing of PG in mines) may be numerically interpreted as a lifetime risk of excess mortality no greater than 3 in 10,000 (3×10^{-4}) for any member of the public. The EPA’s review of the Revised Request’s risk assessment concludes that the use of PG in road construction, when conducted in a manner consistent with the methods and scenarios described in TFI’s application and under the conditions stated herein, will not create risks in excess of this threshold.

Because the risks associated with the “reclaimer scenario” previously were of particular concern to the EPA, the EPA asked TFI to address those risks in its analysis, and the Revised Request specifically addressed that scenario. Although the Revised Request regarded such a scenario as “extreme” and “unlikely,” it, nonetheless, examined the risk associated with the scenario and concluded that the risk is low and that using PG in road construction still would be at least as protective as stacking. While the TFI risk assessment indicates the risk to the reclaimer could be as protective as leaving the PG in the stack, the EPA has questioned some of the modeling assumptions used by TFI to generate the estimate for the reclaimer. TFI’s risk assessment assumed, for example: the PG concentration under a home would be less than that of the road base; there would be a layer of clean soil between the PG and slab of the house; and there would be a vapor barrier. We do not believe that these assumptions can be relied upon to limit potential risks to a future residential reuser of an abandoned road constructed with PG. The EPA has, however, reevaluated the use of PG in road construction in light of the new information and analysis in the Revised Request and now concludes that the risks associated with the “reclaimer scenario” can be addressed with conditions associated with possible future reuse of roads constructed with PG (as noted below).

In accordance with the discussion, above, and subject to certain qualifications and conditions (stated below), the EPA determines that the Revised Request adequately demonstrates that the use of PG in road construction is at least as protective of public health, in the short and long term, as disposal of PG in stacks, and, subject to the same qualifications and conditions, PG

may be removed from stacks and used in government road construction, as requested by TFI. Accordingly, subject to the following conditions, PG may be used in government road projects authorized by federal, state and local departments of transportation or public works, and conducted as part of a government road project using appropriate, generally accepted road construction standards and specifications such as ASTM, FHWA, federal or state DOT standards and specifications or standards developed or approved in consultation with the appropriate regulatory DOT or PW authorities. See Revised Request at 23-24.

This approval to use PG in road construction does not authorize the removal of any PG from any stacks or the use of any PG for road construction unless and until the information required by the “Initial Conditions,” below, is provided to the EPA. After such information is provided to the EPA, PG may be removed from stacks and used in road construction, provided that the conditions expressed in “Other Conditions,” below, continue to be met.

Initial Conditions

Prior to the distribution and/or use of PG for any government road project, the owner or operator of the stack from which PG is to be distributed or the governmental entity responsible for building and maintaining the road (the “end user”), as appropriate, must submit the following information to the agency, in writing, to the attention of the Director, Radiation Protection Division, U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Mail Code 6608T, Washington, D.C. 20460, and by email to radiation.questions@epa.gov:

- a) Identification of the project and of the responsible government agency, including an authorized point of contact and complete mailing address;
- b) Geospatial information describing the location and extent of the road construction project using PG and the physical address or geospatial coordinates of any facility where intermediate handling or processing of the PG will take place. This information may be provided as map coordinates or computer files compatible with geospatial software (e.g. .kml, .gpx, .shp);
- c) The total quantity of PG expected to be used in each project, the source of PG (company and stack) and the average concentration of radium-226 in the PG to be used;
- d) A description of the measures which will be taken to prevent the uncontrolled release of PG into the environment during transportation, handling and construction; and
- e) Written confirmation that the road construction project (inclusive of supporting contractors) will comply with the following conditions set forth in this approval, signed and dated by the public official responsible for the road construction project.

Other Conditions

In accordance with 40 C.F.R § 61.206(d)(1) and 40 C.F.R § 61.207, the owner or operator of a stack from which PG is removed to be used in road construction must determine annually the average radium-226 concentration at the location in the stack from which the PG is removed.

In accordance with 40 C.F.R § 61.206(d)(2) and 40 C.F.R § 61.208, the owner or operator of a stack from which PG is removed to be used in road construction and any subsequent distributor, retailer or reseller, shall prepare, make available and provide, and retain appropriate certification documentation and any subsequent purchaser or transferee of PG shall receive and retain appropriate certification.

In accordance with 40 C.F.R § 61.206(d)(3) and 40 C.F.R § 61.209, each stack owner or operator and end user facility must maintain appropriate records.

In accordance with the circumstances and qualifications associated with the Revised Request and, especially, the risk assessment performed in connection with the Revised Request, as well as the agency's authority under 40 C.F.R § 61.206(e) to impose terms or conditions:

In addition to other generally applicable engineering specifications, PG may only be used in government road construction (no private road building) of paved roads (no unpaved roads) and the road design must fall within the following limits:

- a) Average radium-226 content of PG to be used in road base or pavement must not exceed 35 pCi/g;
- b) Pavement may contain no more than 2.25 percent PG by weight;
- c) Road base may contain no more than 50 percent PG by weight;
- d) Road base containing PG may consist of one lift of up to 25 cm depth and not extend beyond paved areas of the road; and
- e) A minimum 50-foot setback is required from the edge of the road to inhabited structures.

Roads constructed with PG may not be abandoned (or otherwise permanently cease to be used as a road) and used for other non-road purposes or uses, including the construction of structures on such former roads.

Any PG that is unused in the road construction or removed as part of road maintenance and not reincorporated into the road base must be returned to the stack.

Records required by 40 C.F.R §61.209(c) must be maintained by the end user facility (i.e. government agency) for the life of the road. The government agency shall make those records available for public review.

Prior to use of PG in a road project, the responsible government agency shall provide public notice that the planned road will use PG. This may occur as part of public outreach processes associated with the road project and must include an opportunity for the public to review road plans and risk assessment materials.

Workers involved in road construction shall be informed that PG contains elevated levels of naturally occurring radionuclides and instructed in proper industrial hygiene.

Any use of PG not consistent with the limitations set forth in this approval shall be construed as unauthorized distribution of PG and may constitute a violation of or noncompliance with 40 C.F.R. Part 61, Subpart R. This approval is pursuant to Subpart R promulgated under the authority of the *Clean Air Act*. This approval does not relieve TFI, phosphogypsum stack owners or operators or resellers, retailers, distributors or end users or other entities handling, processing or using PG of responsibility to comply with other applicable laws and regulations.

If your staff has further questions, please reach out to Lee Ann B. Veal, Director of the Radiation Protection Division, at veal.lee@epa.gov or (202) 343-9448.

Sincerely,



Andrew R. Wheeler