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Mr. Barnes Johnson
U.S. Environmental Protection Agency
Office of Resource Conservation and Recovery
Mail Code 5303P
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

Attn: Docket ID No. EPA-HQ-SFUND-2015-0781

Re: Financial Responsibility Requirements under CERCLA Section 108(b) for Classes of Facilities in the Hardrock Mining Industry; 82 Federal Register 3388, January 11, 2017; 82 Fed. Reg. 12333 (March 2, 2017) (extending comment period through July 11, 2017)

Dear Mr. Johnson:

The Mosaic Company (Mosaic), on behalf of its subsidiaries Mosaic Fertilizer, LLC (Mosaic Fertilizer) and Mosaic Potash Carlsbad Inc. (Mosaic Potash), submits these comments in response to the United States Environmental Protection Agency's (EPA) proposal to establish specific financial responsibility requirements applicable to certain classes of mines and associated mineral processing facilities which it describes as being within the so-called hardrock mining sector under Section 108(b) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. § 9608(b). *See* 82 Fed Reg. 3388 (Jan. 11, 2017); 82 Fed. Reg. 12333 (March 2, 2017) (extending Comment Period through July 11, 2017) (hereinafter the "Proposed Rule").

Mosaic Fertilizer is one of the world's largest producers of manufactured phosphate products with 15% of world phosphate production. For more than a century, Florida's phosphate industry has been a major economic driver in central Florida. Mosaic Fertilizer currently owns or controls more than 350,000 acres of land and has approximately 3,600 employees in central Florida (with an additional 2,200 contractors working at Mosaic Fertilizer's Florida sites). Mosaic Fertilizer also owns fertilizer manufacturing plants in Louisiana with approximately 400 employees. As of March 2017, Mosaic and its subsidiaries have a total of 4,655 employees in the U.S., including 414 employees at the Carlsbad, New Mexico, potash mine and the corporate office in Plymouth, MN.

Mosaic is proud to be a competitive producer with strong customer relationships, and has the financial strength to invest in growth and innovation. Mosaic has led the industry in

developing high-quality premium products that help farmers succeed, while demonstrating its shared commitment to good corporate citizenship in all of its operating communities. Mosaic's products nourish about 65% of the nation's crops, helping to maintain a stable and reliable food supply.

Mosaic is a member of The Fertilizer Institute (TFI) and incorporates by reference comments of this national trade association. In addition, we support comments submitted by the National Association of Manufacturers, of which Mosaic is a member, and the National Mining Association.

Executive Summary

EPA's proposal to include phosphate and potash mining, phosphate mineral processing and phosphate fertilizer manufacturing¹ in the definition of "hardrock mining" as sectors that present the "highest level of risk" and require evidence of financial assurance (FA) under CERCLA § 108(b) is inconsistent with governing statutory and regulatory requirements, and is unsupported by the relevant facts and the rulemaking record.

The comments that follow, and the attached Technical Memoranda,² support that position and establish the following: First, phosphate and potash mining sectors are different from the

¹ For clarification, the following definitions accurately describe Mosaic's phosphate, phosphate mineral processing (phosphoric acid manufacturing), and phosphate fertilizer manufacturing operations and will be used throughout these comments: (1) "Mining" includes extraction by shallow surface (phosphate) and underground (potash) mining techniques; (2) "Beneficiation" includes physical separation and sizing to physically separate the phosphate ore/potash from associated earthen materials, mostly sand and clay (phosphate) and co-present minerals such as clays and salts (potash); (2) "Mineral Processing" (phosphoric acid manufacturing) follows beneficiation and occurs at separate manufacturing plants that chemically convert phosphate rock into a "first salable product" under RCRA, in this case, phosphoric acid, and (3) "Phosphate Fertilizer Manufacturing" is the production of phosphate fertilizer using phosphoric acid as feedstock. EPA's use of the term "*mineral processing*" in the rulemaking appears to include processes that are (physical) beneficiation and (chemical) manufacturing. This is confusing and inconsistent with the way the Agency has traditionally viewed "mineral processing" in the regulatory context. In the phosphate sector, "mineral processing" is considered to include the steps *following* beneficiation up to the point of producing a "First Saleable Product" (here, phosphoric acid). *See*, EPA, "Final Technical Background Document-Identification and Description of Mineral Processing Sectors and Waste Streams," at 503 (Apr. 1998). EPA views everything after the production of the phosphoric acid, which includes most fertilizer manufacturing, as chemical manufacturing. *Id.* at 506. For purposes of these comments, Mosaic's use of the term, "mineral processing" will be consistent with EPA's definition of the term created solely for this rulemaking. We will use the term "phosphate mineral processing" when referring to EPA's existing regulatory definition applicable to phosphate.

² For a detailed description of Mosaic Fertilizer's phosphate mining operations and how they differ from hardrock mining, *see* Technical Memorandum from Environmental Consulting & Technology, Inc., to

hardrock mining that is the focus of the rulemaking. EPA has erroneously included phosphate and potash within the hardrock mining sector³ based on a misunderstanding of the characteristics and practices employed by these industries and the risks associated with them. As will be discussed more in this document, phosphate and potash mining are low risk and more comparable to the 59 excluded commodities than traditional hardrock mining. Second, phosphate fertilizer manufacturing is not “mining.” EPA’s rule is over-inclusive, extending the Proposed Rule to separate, independent, manufacturing facilities that are engaged in chemical manufacturing, not mining operations, a category EPA has acknowledged should not be considered part of the term “hardrock mining.”⁴ EPA’s Proposed Rule and accompanying model for estimating the amount of FA are metal-mining focused and an implausible fit for phosphate and potash sectors. Third, if EPA nonetheless – improperly – includes phosphate and potash mining and phosphate fertilizer manufacturing within the rule’s reach, these sectors should be exempted, like the commodity sectors EPA has excluded from the rule, because, similarly, they are: (a) not high risk or (b) already covered by substantial Resource Conservation and Recovery Act (RCRA) and/or state law FA requirements. For these reasons, there is little risk of unfunded future releases, no plausible basis for characterizing them as high risk, and consequently no additional FA obligation is justified under the requirements of 108(b).

EPA’s authority to impose FA requirements under CERCLA 108(b) is limited. CERCLA § 108(b) is focused on minimizing the risk that the cost of future corrective actions will require expenditure of public funds. That authority extends only to those facilities that represent the highest risk that the cost of remediation will fall on the public. The statute is also clear that authority to impose FA requirements does not extend to facilities already subject to RCRA or other federal laws.⁵ EPA seeks to exceed these statutory limitations by imposing FA

Mosaic Fertilizer, LLC *Technical Analysis – Justification Analysis for Exempting Mosaic Fertilizer, LLC, from CERCLA §108(b) Requirements* (2017), (incorporated herein by reference) (hereinafter the “ECT Phosphate Justification”), Attachment A. For a detailed discussion of Mosaic Potash’s potash operations and how they differ from hardrock mining practices, see Technical Memorandum from Arcadis U.S., Inc., to Mosaic Carlsbad Potash Inc., *Technical Analysis, - Justification for Potash Exclusion from CERCLA §108(b) Requirements* (2017) (hereinafter, “Arcadis Potash Justification”), Attachment B.

³ EPA’s rulemaking analysis is focused on those industrial sectors that have been traditionally defined as “hardrock mining” to include those ores containing metals, gold, silver, copper, nickel zinc, lead, and molybdenum. Mosaic’s comments make use of the term “traditional HRM” when referencing these metal-mining sectors traditionally considered hardrock mining.

⁴ See *Evidence of CERCLA Hazardous Substances and Potential Exposures at CERCLA 108(b) Mining and Mineral Processing Sites*, p. 11 (Sept. 23, 2016) (“Some mineral processing is categorized as chemical manufacturing and, thus, would be outside the scope of the proposed 108(b) regulations for mining and mineral processing.”).

⁵ See 42 U.S.C. § 9608(b)(1). The plain language of the statute is clear that consideration of whether FA requirements are needed is limited to facilities that are not already covered by RCRA or other federal laws. Both phosphoric acid and phosphate fertilizer manufacturing facilities are subject to RCRA and, as

requirements on facilities, such as Mosaic Fertilizer’s phosphate mining and phosphate mineral processing operations and Mosaic Potash’s potash mining operations, that each exhibit a low level of risk, and Mosaic Fertilizer’s phosphate fertilizer manufacturing facilities, which are already addressed under RCRA, including in consent decrees addressing operational practices, closure and post-closure care and substantial FA. Finally, EPA has considerable discretion under CERCLA §108(b) to determine acceptable risks in establishing requisite FA amounts, and the “zero risk” approach reflected in EPA’s proposed rule is both unnecessary and inappropriate, and it cannot be supported in the context of a fair and accurate analysis of the costs imposed and benefits derived.

I. Background

CERCLA § 108(b) directs EPA to develop regulations that require classes of facilities to establish and maintain evidence of financial responsibility consistent with the degree and duration of risk associated with the production, transportation, treatment, storage, or disposal of hazardous substances.⁶ Section 108(b)(1) directs EPA to focus the rulemaking on “those classes of facilities ... that the President determines present the highest level of risk.”⁷

As of 2009, EPA interpreted its obligations under CERCLA § 108(b) as “discretionary because Section 108(b) does not specify a date-certain deadline for completion of either requirement [i.e., promulgating financial responsibility requirements and subsequently imposing those requirements on applicable entities].”⁸ U.S. District Court Judge William Alsup agreed with EPA, holding that “the duty to promulgate and impose financial responsibility regulations under CERCLA is discretionary based on the combination of the absence of a date-certain deadline and CERCLA’s legislative history.”⁹

On July 28, 2009, EPA published a Priority Notice of Action identifying classes of facilities in the “hardrock” mining industry for development of CERCLA § 108(b) financial

such, they fall outside of the scope of CERCLA § 108(b) by virtue of the plain language of the statute, read in its proper context, that is, of addressing risk. Even if EPA views this language differently, and instead adopts a position that the shield is limited only to facilities already subject to FA requirements under these laws, EPA should recognize that Mosaic’s facilities are subject to robust cradle- to- grave regulatory schemes designed to minimize potential danger to human health and the environment.

⁶ 42 U.S.C. § 9608(b).

⁷ 42 U.S.C. § 9608(b)(1).

⁸ *Sierra Club v. Johnson*, 2009 WL 2413094, at *3 (N.D. Cal. Aug. 5, 2009) (where EPA also argued that CERCLA’s legislative history supported its position “because Congress rejected a proposed amendment to add a date-certain deadline for the promulgation of financial responsibility requirements”).

⁹ *Id.* at *4.

responsibility requirements.¹⁰ “Hardrock mining” was defined for purposes of the Priority Notice as the extraction, beneficiation or processing of metals (e.g., copper, gold, iron, lead, magnesium, molybdenum, silver, uranium, and zinc) and, arbitrarily, non-metallic, non-fuel minerals (e.g., asbestos, phosphate rock, and sulfur).¹¹ EPA also identified certain classes of facilities that it exempted from the rulemaking, even though they fell within the above definition of “hardrock mining.”¹² EPA compared the types and amounts of chemicals from 59 non-fuel hardrock commodity sectors, noting that the amount and types of releases were significantly lower than, and do not pose as significant a risk as, other hardrock commodities.

In August 2014, various environmental groups filed a lawsuit in the U.S. Court of Appeals for the District of Columbia Circuit seeking a writ of mandamus requiring issuance of CERCLA § 108(b) financial responsibility rules for the hardrock mining industry and three additional industries. Following oral argument, EPA and the petitioners submitted a Joint Motion for an Order on Consent, filed on August 31, 2015, which included an ambitious schedule for further administrative proceedings under CERCLA § 108(b). The court order granting the motion was issued on January 29, 2016.¹³ Pursuant to the court’s order, EPA must publish a final rule by December 1, 2017. The D.C. Circuit also made clear that while EPA had to act, the final action could be no rule at all: “[T]he proposed joint order ‘does not *require* EPA to promulgate a new, stricter rule. At most, it ‘merely requires that EPA conduct a rulemaking and then decide whether to promulgate a new rule – the content of which is not in any way dictated by the [proposed order on consent] – using a specific timeline.”¹⁴

In January 2017, EPA published the Proposed Rule and subsequently extended the comment period to July 11, 2017.¹⁵ EPA’s rule seeks to impose FA obligations on hardrock mines, “mineral processing” facilities and certain chemical manufacturing plants that it claims present the highest level of risk and those that are also not covered by other federal programs.

EPA has determined, solely for purposes of this rulemaking, that phosphate and potash mining sectors and phosphate mineral processing operations should be included in the rulemaking as “hardrock mining.” Mosaic contends that EPA has erroneously included all of those sectors based on a misunderstanding of the characteristics and practices employed by these

¹⁰ *Identification of Priority Classes of Facilities for Development of CERCLA Section 108(b) Financial Responsibility Requirements*, 74 Fed. Reg. 37,213 (July 28, 2009).

¹¹ *Id.* at 37,214.

¹² Stephen Hoffman & Shahid Mahmud, U.S. Environmental Protection Agency, Memorandum to the Record: *Mining Classes Not Included in Identified Classes of Hardrock Mining* (hereinafter “2009 Excluded Classes Memo”).

¹³ See *In re Idaho Conservation League*, 811 F.3d 502 (D.C. Cir. 2016).

¹⁴ *Id.* at 514 (quoting *Defenders of Wildlife v. Perciasepe*, 714 F.3d 1317, 1324) (emphasis added).

¹⁵ 82 Fed. Reg. 3388 (January 11, 2017); 82 Fed. Reg. 12333 (March 2, 2017).

industries and the risks associated with them. The attached Technical Memoranda provide EPA with an accurate and complete description of the practices employed by these sectors and an assessment of the associated risks under the criteria EPA used to exempt 59 industry sectors from the rule, which shows the similarities of Mosaic's operations to the exempted sectors.

EPA also was improperly over-inclusive in including phosphate fertilizer manufacturing plants in a rule described on its face as addressing mining. Phosphate fertilizer manufacturing is chemical manufacturing, not mining or mineral processing. Indeed, EPA recognized that "some mineral processing is categorized as chemical manufacturing and, thus, would be outside the scope of the proposed 108(b) regulations for mining and mineral processing." Nonetheless, EPA swept in Mosaic Fertilizer's phosphate fertilizer manufacturing facilities that are, without question, chemical manufacturing. EPA's proposal and accompanying model for estimating the amount of FA is metal-mining focused and applying it to phosphate fertilizer manufacturing is arbitrary and not defensible. Even if EPA decides to include these manufacturing facilities in the hardrock mining sector, any final rule must recognize that additional FA requirements are unwarranted where any risks associated with these operations are already addressed under RCRA Subtitle C regulations and Consent Decrees under EPA's RCRA National Enforcement Initiative.¹⁶ The language of CERCLA § 108(b) is clear that EPA's authority to promulgate FA requirements extends only to "facilities in addition to those under Subtitle C of the Solid Waste Disposal Act [42 U.S.C.A. § 6921 et seq.] and other Federal law."¹⁷ Where, as in the case of Mosaic Fertilizer's phosphate fertilizer manufacturing facilities, facilities are already subject to RCRA, EPA has no authority under CERCLA § 108(b). Any final rule must be consistent with the clear language of the Act.

EPA's improper inclusion of these sectors likely resulted from misapplication of data unrelated to risk addressed under CERCLA 108(b). EPA improperly construed the type of risk CERCLA 108(b) is intended to address, resulting in an overly broad universe of covered facilities. CERCLA § 108(b) is designed to minimize the risk that the cost of future corrective actions will require expenditure of public funds. It is indisputable that Congress was interested in ensuring that owners and operators of facilities would have funds available to cover the cost of recovery actions due to any future releases from those facilities. EPA's analysis used to identify industry sectors that would be included in the regulated universe as "hardrock mining" has erroneously included data and information that fall outside this narrow focus to include: 1) releases from historical operations (pre-1990) that predate when environmental regulatory programs were instituted; 2) closed or abandoned operations that are not within the intended CERCLA 108(b) focus on the ability of current owners and operators to cover the cost of any

¹⁶ See EPA, National Enforcement Initiative: "Reducing Pollution from Mineral Processing Operations", available at <https://www.epa.gov/enforcement/national-enforcement-initiative-reducing-pollution-mineral-processing-operations>.

¹⁷ 42 U.S.C. § 9608(b)(1).

future releases from active operations; 3) releases not associated with “hazardous substances” as defined by CERCLA § 101(14) or that are federally permitted and also outside the scope of CERCLA § 108(b) authority; 4) releases from facilities that are not mining facilities at all but instead are chemical manufacturing facilities and EPA itself acknowledged should not be included in the proposed regulation; and 5) releases from facilities that are already subject to EPA’s RCRA National Enforcement Initiative, including state and federal negotiated consent decrees addressing operational practices, closure and post-closure care and substantial FA requirements.

It appears that EPA’s inclusion of phosphate and potash mining facilities in the Proposed Rule’s regulated universe may be the result of EPA’s misapplication of data and information completely unrelated to the risk that can be addressed under CERCLA § 108(b). When analyzed properly, taking into consideration Congress’ clearly expressed limitations -- requiring that the focus should be on risk that public funds would be needed and on releases that are within the scope of a CERCLA recovery action-- it is clear that EPA relied on improper data to sweep phosphate and potash sectors into the rulemaking. EPA should recognize this error and consider it as a basis for excluding these sectors from any final rule.

II. EPA’s Inclusion of Phosphate and Potash Mining in the Proposed Rule is Arbitrary and Capricious.

i. Phosphate and Potash Mining Sectors Are Not Like “Hardrock Mining.”

EPA has not established any factual basis for concluding that the phosphate and potash mining sectors should be included within the “hardrock mining” sector EPA determined represents the “highest level of risk” for purposes of CERCLA § 108(b).¹⁸ EPA’s proposal to include these two sectors is without any credible record support. Phosphate and potash mining practices and features are not like the hardrock mining practices EPA erroneously attributed to these sectors in assuming high risk.

As a general principle, EPA correctly recognized that facility characteristics and practices employed will differ even within the same commodity sector, such that an entire sector of an industry may not present the same level of risk under EPA’s analysis.¹⁹ Accordingly, EPA requested comments on whether there may be additional mining sectors that present a lower level

¹⁸ On the question of whether EPA has appropriately identified the hardrock mining industry as representing the “highest risk” for purposes of CERCLA § 108(b), Mosaic agrees with and incorporates by reference the comments of the National Mining Association submitted in response to EPA’s request for comments, 82 Fed. Reg. 3388 (Jan. 11, 2017).

¹⁹ 82 Fed. Reg. at 3,456.

of risk for purposes of CERCLA § 108(b) based on “facility characteristics and operations.”²⁰ Specifically, EPA requested comment on whether there is evidence to support excluding the phosphate mining sector. Notably, in its Final Report on EPA’s Planned Proposed Rule, the Small Business Administration’s Office of Advocacy requested that EPA solicit comments on whether such classes of mines, defined based on facility characteristics, could potentially encompass iron ore, **phosphate**, and uranium mines.²¹ These comments and Technical Memoranda provide technical support to document that phosphate *and* potash mining are not like the hardrock mining sectors EPA analyzed for application of the rule, and that there is ample evidence to support an EPA determination that these two sectors should be exempted like the 59 commodity sectors EPA appropriately determined should be excluded.

It is incorrect as a technical matter for EPA to analyze the phosphate and potash mining sectors under the same lens used for hardrock mining. With regard to phosphate, EPA’s inclusion of that sector appears to be largely based on a 2004 EPA Office of Inspector General (OIG) Report on the “Nationwide Identification of Hardrock Mining Sites” (the “2004 OIG Report”),²² but this report does not support EPA’s conclusion. First, that OIG Report is wholly inaccurate with respect to Florida phosphate mining operations. Notably, the 2004 OIG Report indicates that EPA believed there was a “likelihood of acid mine drainage” (AMD) at phosphate mines that Region 4 was failing to consider in its cost estimates.²³ However, this position further demonstrates EPA’s fundamental misunderstanding of phosphate mining operations like Florida phosphate operations. There is *no* likelihood of AMD at these sites, as explained by Florida state environmental authorities.²⁴ This belief – false at least as to Mosaic Fertilizer’s operations – nonetheless led to a conclusion in the 2004 OIG Report that cleanup costs at each of these sites could total over \$100 million to address AMD, and that the total cleanup costs for 22 Florida phosphate mining sites could range from \$2.2 billion to \$11 billion.²⁵ These

²⁰ *Id.*

²¹ See Letter from Darryl DePriest, U.S. Small Business Administration, *et al.* to The Honorable Gina McCarthy, EPA, re: “Report of Small Business Advocacy Review Panel” on EPA’s Planned Proposed Rule Financial Responsibility Requirements for the Hardrock Mining Industry under CERCLA 108(b) (Dec. 1, 2016); Comments of U.S. Small Business Administration re Financial Responsibility Requirements for the Hardrock Mining Industry (Jan.19, 2017); *see also* Comments of the American Exploration & Mining Association, CERCLA 108(b) SBREFA Panel.

²² U.S. Environmental Protection Agency Office of Inspector General, Evaluation Report, Nationwide Identification of Hardrock Mining Sites, Report No. 2004-P-00005 (March 31, 2004) (hereinafter “2004 OIG Report”).

²³ *Id.* at 49.

²⁴ See Letter from John C. Coates, Florida Department of Environmental Protection, to Linda Barr, U.S. Environmental Protection Agency, (Aug. 19, 2016), Attachment C.

²⁵ OIG Report, at 49, 69 (noting that “[t]his is a major difference in total costs”).

estimates are clearly off-base. In actual fact, because there is no risk of AMD at Florida phosphate mining sites, no AMD-related potential cleanup costs should be considered.

The State of Florida has formally expressed concerns with regard to EPA's incomplete understanding of and erroneous conclusions about the phosphate industry.²⁶ The Florida Department of Environmental Protection (FDEP) stated that "inclusion of Florida phosphate mining in EPA's financial assurance requirements for the hardrock mining industry would be based on a misunderstanding of and confusion about operations for phosphate extraction, beneficiation, and processing in Florida. Phosphate mining in Florida is not 'hardrock mining' nor are the operations and actual risks sufficiently similar to warrant EPA's inclusion under regulations specifically designed to address hardrock mining concerns."²⁷ With regard to phosphoric acid and fertilizer manufacturing, FDEP stated that "any risks that do exist, particularly related to mineral processing facilities, are already comprehensively addressed in Florida by a unique combination of existing state and federal laws and regulatory actions."²⁸ Furthermore, FDEP stated that, as a result, there is already both state and federal oversight and financial assurance requirements covering the potential for related hazardous substance release²⁹ and that FDEP believes EPA's rule could weaken and frustrate Florida's efforts to ensure that phosphate mining in Florida is accountable for both land reclamation obligations, and for operating in a manner that protects the state's land and water resources.

EPA's risk analysis in support of the proposed rule is weighted towards metals mining. This makes sense because EPA's initial analyses, Phase I (Feb. 2009) and Phase II (July 2, 2009)³⁰ Reports, targeted those metal mining sectors known as "hardrock mining," specifically, gold, silver, copper, nickel, zinc, lead and molybdenum sectors. The hardrock mining analyses appropriately focused on mining and beneficiation, in contrast to "mineral processing." This approach was consistent with Congressional intent that facilities already addressed under RCRA or other federal laws would not be the focus of CERCLA 108(b) (inasmuch as phosphate mineral

²⁶ See Letter from John A. Coates, P.E. Director, Division of Water Resource Management, Florida Department of Environmental Protection, to Linda Barr, Office of Resource Conservation and Recovery, U.S. Environmental Protection Agency (August 19, 2016) (sharing details about FEDP's concerns with inaccurate risk information that is referenced in the rulemaking's supporting documentation, and the potential for adverse impacts to and preemption of existing state regulatory requirements for phosphate mining in Florida).

²⁷ *Id.* at pg. 2.

²⁸ *Id.*

²⁹ *Id.* at pp. 2-4.

³⁰ See U.S. Environmental Protection Agency, CERCLA Section 108(b) Financial Responsibility: Phase I: Preliminary Analysis (Feb. 2009) (EPA-HQ-SFUND-2009-0265-0033); U.S. Environmental Protection Agency, CERCLA Section 108(b) Financial Responsibility: Phase II Preliminary Analysis (July 2, 2009) (EPA-HQ-SFUND-2009-0265-0020).

processing facilities typically employ practices such as solid waste land disposal or use hazardous substances that are subject to RCRA and other federal environmental laws, and produce Bevill exempt waste streams³¹ that Congress specifically excluded from CERCLA recovery actions).³²

Without any change in the statute or explanation from EPA, in 2009, EPA issued a Notice of Proposed Rulemaking announcing an expansive and arbitrary definition of hardrock mining that would represent the classes of facilities subject to EPA's CERCLA 108(b) rulemaking.³³ In addition to adding new mining sectors, including phosphate, that would be considered hardrock mining for the sole purpose of the CERCLA 108(b) rulemaking, EPA expanded the scope of applicability to include phosphate mineral processing facilities and redefined key terms in order to capture a broad swath of facilities and operations, even including those that are chemical manufacturing and not mining at all. According to the notice, for purpose of this rulemaking only, EPA decided to include non-metallic, non-fuel minerals, e.g., asbestos, phosphate rock, and sulfur.³⁴ EPA did not invite public comment on its unprecedented expansion of the traditional use of the term "hardrock mining" at the time of its announcement in 2009, and the Agency specifically foreclosed any such opportunities in the January 11, 2017 notice.³⁵

EPA's 2009 notice also announced the decision to exclude certain mineral commodity sectors, similar to phosphate and potash, based on the Agency's conclusion that these commodities represent lower risk.³⁶ Notably, at the time, Mosaic understood that potash, while not specifically mentioned, fit within the salt category that was subject to the exclusion, along with salt brine evaporation, crushed and broken limestone production, sand and gravel, and kaolin and ball clay, which EPA decided to exclude from further analysis. A comparison between potash operations and each exempted commodity is provided in the attached, Arcadis

³¹ In 1980, Congress enacted both CERCLA and amendments to the Solid Waste Disposal Act commonly known as the Bevill Amendment. The Bevill Amendment explicitly exempts fossil fuel combustion waste; waste from the extraction, beneficiation, and processing of ores and minerals (including phosphate rock and overburden from uranium ore mining); and cement kiln dust from regulation under the RCRA until such time as comprehensive studies of these wastes and their adverse effects could be completed.

³² See *infra* pp. 18-20; see also Comprehensive Report: An Overview of Practices at Hardrock Mining and Mineral Processing Facilities and Related Releases of CERCLA Hazardous Substances, Final Report, at 153 n.637 (Nov. 30, 2016) (acknowledging that petroleum is specifically excluded as a CERCLA hazardous substance, so is not subject to CERCLA response authority and liability).

³³ 74 Fed. Reg. 37, 213 (July 28, 2009).

³⁴ *Id.* at 37,214.

³⁵ See 92 Fed. Reg. at 3455 ("EPA is not seeking comment on the 2009 *Priority Notice*.").

³⁶ See 2009 Excluded Classes Memo.

Potash Technical Memoranda at Appendix B. This analysis shows that potash, which involves soft rock mineral salts mining, is in all relevant respects similar to the excluded commodity sectors and nothing like hardrock mining as it is traditionally known.

Prior to January 11, 2017, EPA did not make known its intent in any way to include potash mining as a covered sector. Indeed, had the potash industry been aware, the industry would have marshalled resources to educate EPA on the similarities between potash mining and salt mining, an excluded sector, and explain that inclusion of potash was unsupported and improper. Furthermore, EPA did not mention potash mining in its required consultation with the state of New Mexico where Mosaic Potash's potash mining operations (85% of U.S. production) are located. There is no evidence in the record that the state had any knowledge EPA intended to include the potash commodity sector within the scope of the rule.³⁷ Among other reasons why this is important is the fact that EPA's summary report³⁸ on New Mexico's state hardrock mining regulatory program did not recognize that New Mexico's hardrock mining regulations expressly *exclude* "potash mining" and no separate analysis addressing potash regulation was completed. Notably, New Mexico considers potash production to be comparable to sand, gravel, caliche, borrow dirt and quarry rock, and exempted these sectors from regulation under the New Mexico Mining Act Reclamation Program.³⁹ Moreover, New Mexico's silence as to potash is in stark contrast with its vigorous warning to EPA of the negative consequences from imposing duplicative FA requirements on the hardrock mining sector and supports Mosaic's view that EPA's decision to include the potash sector was arbitrarily decided and never communicated to state authorities, contrary to EPA's obligations under the statute.⁴⁰

ii. EPA has Provided No Relevant Evidence to Support High Risk

EPA has not identified any Florida phosphate mining or potash damage cases. EPA's analysis identified common features or processes employed at hardrock mining and mineral

³⁷ See Letter from William C. Olson, Chief, Ground Water Quality Bureau and Charles de Saillan, Assistant General Counsel, New Mexico Environment Department, to James R. Berlow, U.S. Environmental Protection Agency (February 28, 2011); Letter from William Brancard, General Counsel, New Mexico Energy, Minerals and Natural Resources Department, Office of the Secretary, to James R. Berlow, U.S. Environmental Protection Agency (Feb. 28, 2011); Bill Brancard, General Counsel, New Mexico Energy Minerals and Natural Resources Department, Presentation, New Mexico: Financial Assurance for Hard Rock Mines; EPA State Mining Program Summary.

³⁸ U.S. Environmental Protection Agency, *Summary of New Mexico State Financial Responsibility Requirements Applicable to Classes of Potential CERCLA 108(b) Hardrock Facilities*, October 2012.

³⁹ See 69 NMC Section 36-3.H.

⁴⁰ See Letter from William Brancard, General Counsel, New Mexico Energy, Minerals and Natural Resources Department, Office of the Secretary, to James R. Berlow, U.S. Environmental Protection Agency (Feb. 28, 2011).

processing facilities that EPA predicts typically result in federal CERCLA expenditures. Under EPA's analysis, where these features are found, EPA assumed evidence of risk of unfunded responses warranting FA coverage would occur. In identifying the relevant features, EPA relied on "damage cases" found in each mining sector.⁴¹ However, none of the cases referenced by EPA involved Florida phosphate or any potash mining operations. Of the entire list, EPA identified only two Western phosphate mine sites; however, neither of these cases is a proper indicator of risk of future unfunded response actions. First, in both cases, the release is associated with historical mining practices no longer employed or authorized at Western phosphate mining sites, and both are owned by well-funded companies that are already addressing the relevant environmental issues. Because of that, there is little risk of future unfunded response actions from either of these Western phosphate mining operations. Therefore, there are no phosphate mining operations that could properly be considered by EPA to pose high risk much less the "highest level of risk" which EPA must target for purposes of CERCLA §108(b) FA. Similarly, EPA also has provided no evidence of damage from potash mining features and processes.

In an attempt to create perspective of high risk, EPA has improperly relied on four examples of releases from Florida phosphate fertilizer manufacturing facilities.⁴² But none of these facilities are "mining" sites. In addition, even if the examples were mining-related incidences, they do not present the type of risk CERCLA 108(b) is intended to address. Properly characterized, all of the Florida examples fall into the following categories, none of which is appropriate for establishing risk under CERCLA § 108b: 1) historical or legacy sites -- facilities were constructed and releases were from operations conducted using older, pre-1990- practices no longer employed or authorized under any permit. These facilities are either closed or they have been incorporated into ongoing operations and the current operator has assumed responsibility and cost of remediation; 2) no hazardous substance was involved -- where there is no hazardous substance released, there is no risk for purposes of CERCLA § 108(b); or 3) associated with facilities already covered under RCRA (contrary to the plain language of CERCLA § 108(b)), making additional FA obligations unnecessary and duplicative. None of these situations would be addressed under EPA's Proposed Rule because they are not the type of releases Congress intended CERCLA § 108(b) would cover. EPA should exclude the use of these "damage" cases for purposes of the final rule analysis.

⁴¹ See U.S. Environmental Protection Agency, *Damage Cases and Environmental Releases from Mines and Mineral Processing Wastes* (April 1998).

⁴² CF Industries, Inc. Bartow Phosphate Complex; Cargill Fertilizer, Inc. Fort Meade Mine; IMC Agrico Hopewell Phosphate Mine; and, IMC Agrico New Wales Chemical Complex are addressed in detail in comments of The Fertilizer Institute.

iii. Risk from Phosphate and Potash Mining is Low, Similar to the Excluded Commodity Sectors.

A closer examination of the record shows that phosphate and potash mining are more similar to the excluded commodity sectors than to the traditional hardrock mining industries identified in the Proposed Rule. As explained more fully in the attached Technical Memoranda; like the excluded sectors (and unlike traditional hardrock mining), the phosphate and potash mining operations of Mosaic conduct shallow surface (Florida phosphate) and underground (New Mexico potash) mining operations that use no chemicals or hazardous substances during the extraction process.⁴³ Instead, like the excluded sectors, these operations utilize simple physical separation methods to separate out the target mineral.⁴⁴ Like the excluded sectors, there are no phosphate or potash mining sites listed on the National Priorities List (NPL) as a result of mining operations.⁴⁵ And like the excluded sectors, EPA has not used any CERCLA funds for remedial activities associated with any phosphate and potash mining operations.⁴⁶ Additionally, these excluded sectors are, like phosphate and potash mining, listed under NAICS category 2123 (“Nonmetallic Mineral Mining and Quarrying”) and not, like the traditional hardrock mining industries included in the Proposed Rule, under NAICS category 2122 (“Metal Ore Mining”).

It becomes even clearer that EPA erroneously and arbitrarily did not include phosphate mining in the list of exempted sectors when one considers the “commonly employed practices and . . . commodity-specific issues and processes” that EPA identified as potential sources and releases of CERCLA hazardous substances in the Proposed Rule.⁴⁷ These practices and issues include:

(1) surface and underground mining; (2) non-entry (in-situ leaching or solution) mining; (3) physical, gravity, and magnetic processing; (4) flotation; (5) cyanidation; (6) acid leach, solvent extraction, and electrowinning; (7) pyrometallurgical processes; (8) Bayer process for refining alumina; (9) ion exchange in uranium and phosphoric acid processing; (10) mine-influenced water; (11) waste rock piles; (12) tailings management; and (13) mining processes leaks and spills.⁴⁸

Mosaic’s phosphate and potash mining operations, like the sectors excluded from the Proposed Rule by EPA, involve primarily surface (phosphate) and underground (potash) mining,

⁴³ 2009 Memo at 1-3.

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ 82 Fed. Reg. at 3471.

⁴⁸ *Id.* at 3471-72.

and beneficiation by physical gravity processes and flotation. However, like the excluded sectors and unlike traditional hardrock mining, these sectors do not involve the majority of the remaining practices EPA identified. Specifically, and contrary to EPA's conclusions, these operations do not employ ion exchange in phosphoric acid processing and do not create waste rock piles, acid mine or elevated selenium mine-influenced water. With respect to tailings management, both potash (clay and salts) and phosphate (sand and clay) tailings are benign and are either stacked or used in reclamation.⁴⁹

Not a single Florida phosphate mining site has been listed to the NPL since CERCLA's passage 36 years ago, and no federal expenditures have been made to mitigate the release of hazardous materials from Florida phosphate mining facilities. In addition, contrary to the 2004 OIG Report, there is no risk of acid mine or for that matter, elevated selenium drainage, at any Florida phosphate mining sites. Similarly, as discussed extensively in the Arcadis Technical Memorandum, potash mining and beneficiation has a 120 year history in the United States. The sector includes some of the longest running mining operations, such as Mosaic Potash's operations in New Mexico, which have been ongoing for over 75 years. There are no potash mining sites on the NPL and no CERCLA Superfund expenditures associated with them. Accordingly, there is no credible basis to contend that there is high risk of future unfunded response actions within the phosphate and potash mining sectors.

iv. Existing Laws Provide Sufficient Risk Management and Financial Assurances.

Existing laws already provide more than sufficient oversight and assurances with respect to these sectors, rendering § 108(b) FA requirements wholly unnecessary. For example, the State of Florida has enacted multiple statutes and regulations governing the phosphate mining industry, including groundwater permitting and a groundwater zone of discharge program that includes corrective action standards. These regulations further reduce the minimal risk posed by Mosaic Fertilizer's phosphate mining operations.⁵⁰ Technical Memoranda (Attachments A and B) provide a complete explanation of the comprehensive regulatory regimes the phosphate and potash mining sectors operate under in Florida and New Mexico.

⁴⁹ See ECT Phosphate Technical Memorandum at 7, ("Clay Settling Areas are not the equivalent of "tailings impoundments" at hardrock mines."); Arcadis Technical Memorandum at 5.

⁵⁰ See also ECT Justification Analysis, at pp. 12-14 (discussing Florida's regulatory scheme, including the "Zone of Danger" requirements for discharges to groundwater).

III. Phosphate Fertilizer Manufacturing Should Not Be Subject to CERCLA Financial Assurance Requirements under the Proposed Rule.

The Proposed Rule's inclusion of phosphate fertilizer manufacturing facilities among covered sectors is misguided and not supported by the record or real-world conditions. As explained more fully below, phosphate fertilizer manufacturing operations are not like phosphate mining operations, nor are they a part of the mining operation. Instead, these facilities are within the chemical manufacturing industry sector, with operations and facilities completely independent from phosphate mines. Moreover, these separate manufacturing facilities are already addressed under RCRA which already has imposed, or will impose, extensive financial assurance requirements on them.

i. Phosphate Fertilizer Manufacturing is not Hardrock Mining.

EPA has recognized that "some mineral processing is categorized as chemical manufacturing, and, thus, would be outside the scope of this regulation for mining and mineral processing."⁵¹ But the Proposed Rule is in direct conflict with this statement. The Proposed Rule fails to recognize important distinctions between those industries that are considered phosphate rock *mining*, identified as NAICS Code 212392, and industries that are engaged in phosphate fertilizer *manufacturing*, identified as NAICS Code 32531. The different industries are also covered by different point source categories in the federal regulations.⁵² EPA overlooks this critical distinction by choosing, for purposes of the Proposed Rule only, to sweep it all into one convenient category, hardrock mining. Importantly, the 2004 OIG Report also fails to distinguish phosphate mining operations from subsequent processing/manufacturing facilities. These processing/manufacturing facilities are, however, most certainly not mining operations.

While phosphate mining facilities extract and beneficiate phosphate ore, Mosaic Fertilizer's manufacturing plants chemically convert phosphate rock into phosphoric acid and convert phosphoric acid into phosphate fertilizer products. After beneficiation, the phosphate is conveyed to the manufacturing facilities where it is used as a feedstock in the production of phosphoric acid and, from there, used to manufacture phosphate fertilizers. Phosphoric acid production and phosphate fertilizer manufacturing do not occur at the mine site or at a co-located manufacturing facility; rather, the phosphate ore is transported to the manufacturing facility, miles away. The manufacturing facilities are completely separate operating units with independent utility as evidenced by the fact that they often receive phosphate ore from a variety of unrelated sources for use in manufacturing. The Proposed Rule fails to acknowledge or discuss any of these distinguishing factors.

⁵¹ See *supra* fn. 4.

⁵² See 40 C.F.R. 436, Subpart R; 40 C.F.R. § 422; 40 C.F.R. § 418.

EPA also appears to have confused phosphate fertilizer manufacturing with phosphate mineral processing associated with mining, blurring important, longstanding regulatory distinctions. For example, in the RCRA context, EPA considers those activities following the beneficiation (e.g., crushing, grinding, sizing, etc.) of phosphate rock up to the production of the “first salable product” (phosphoric acid) as phosphate mineral processing. Using that construct, activities that follow the point at which phosphate mineral processing ends are chemical manufacturing. EPA’s Proposed Rule overlooks this important regulatory distinction and inappropriately sweeps chemical manufacturing (not intended to be addressed in the hardrock mining rule) into EPA’s newly defined, “mineral processing” activities covered by the rule. EPA’s indiscriminate approach in the Proposed Rule results in an improper implementation of CERCLA § 108(b) by imposing FA obligations on facilities, like Mosaic’s fertilizer manufacturing plants. Beyond that, Mosaic Fertilizer’s phosphate fertilizer manufacturing operations are already subject to strict obligations under RCRA Subtitle C.

That EPA’s overly broad approach is improper as applied to phosphate fertilizer manufacturing is further illustrated when one attempts to apply the formulaic model that EPA intends to be used to calculate the required amount of FA.⁵³ The formula has no relevance in the context of phosphate fertilizer manufacturing facilities. For example, the proposed formula has three different components for: (i) response actions; (ii) a health assessment; and (iii) natural resource damages. The response component is based on response costs from NPL and non-NPL CERCLA response actions associated with certain activities conducted at certain sites, none of which are Florida phosphate fertilizer manufacturing facilities.⁵⁴ EPA determined that 13 site features served as the source of release⁵⁵ and used those features to create 13 different “response category equations,” including: (1) solid and hazardous waste disposal category; (2) open pit category; (3) underground mine category; (4) waste rock category; (5) heap/dump leach category; (6) tailings category; (7) process pond and reservoir category; (8) slag pile category;

⁵³ 82 Fed. Reg. at 3461.

⁵⁴ *Id.* EPA’s focus on the Simplot Don facility, Idaho, is misplaced. The releases associated with this facility occurred at the co-located former FMC Corporation elemental phosphorous facility, a facility that produces neither phosphoric acid nor phosphate fertilizers and has no relevance to the analysis of risk from these facilities.

⁵⁵ EPA has inappropriately decided that 1980 marks the advent of the “modern mining era” and, as such, considers releases occurring 1980 and beyond representative of releases that could occur at currently operating mines. This approach is incorrect and has skewed EPA’s analysis. All significant regulations under which mining is regulated, including the Clean Air Act, Clean Water Act, Safe Drinking Water Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, the Endangered Species Act, and the National Environmental Policy Act, were promulgated after the passage of CERCLA § 108(b) in 1980. In fact, there was almost no comprehensive regulation of surface and groundwater discharges prior to 1990. See Joseph H. Baird, *Hardrock Mining Through Changing Values, Changing Laws and Experience: A Federal and State Regulatory Success Story* (June 30, 2013).

(10) interim O&M category; (11) water treatment category; (12) short-term O&M and monitoring category; and (13) long-term O&M monitoring category.⁵⁶

To implement the formula, a facility must input various pieces of information into the model; however, when considering these inputs, it becomes clear that the majority of these categories are completely inapplicable to phosphate fertilizer manufacturing, which does not involve open pits, underground mining, waste rock, heap/dump leaching, slag piles, etc. Thus, attempting to apply this formula to phosphate fertilizer manufacturing makes no sense, and it appears that EPA was likely not considering phosphate fertilizer manufacturing when developing the Proposed Rule.

Additionally, when developing the Proposed Rule, EPA also identified specific current hardrock mining, mineral processing, and associated waste management practices that EPA determined would likely lead to future CERCLA cleanup actions, including: (1) surface and underground mining; (2) non-entry (in-situ leaching or solution) mining; (3) physical, gravity, and magnetic processing; (4) flotation; (5) cyanidation; (6) acid leach, solvent extraction, and electrowinning; (7) pyrometallurgical processes; (8) Bayer process for refining alumina; (9) ion exchange in uranium and phosphoric acid processing; (10) mine-influenced water; (11) waste rock piles; (12) tailings management; and (13) mining processes leaks and spills.⁵⁷ Of these, ion exchange is not employed in Mosaic's phosphoric acid processing and only tailings management and mining processes leaks and spills are relevant to phosphoric acid processing, not fertilizer manufacturing. However, neither is relevant for purposes of EPA's rulemaking because these practices are already addressed under RCRA or other federal statutes, and not within EPA's jurisdiction under CERCLA § 108(b). Therefore, application of EPA's formula, tailored largely for traditional hardrock mining activities, is meaningless and inappropriate for phosphate fertilizer manufacturing.

By assuming an overly broad regulatory reach, EPA oversteps its jurisdiction under CERCLA. Mosaic's Technical Memoranda addresses this important distinction in more detail, however, for purposes of the Proposed Rule, EPA should revise any final rule such that the use of key regulatory terms is consistent with RCRA and excludes chemical manufacturing facilities.

ii. Risk from Fertilizer Manufacturing Is Already Addressed.

Like phosphate mining, the Proposed Rule fails to adequately justify the inclusion of phosphate fertilizer manufacturing based on the corresponding level of risk (or lack thereof). The Proposed Rule primarily references phosphate fertilizer manufacturing facilities with respect to issues identified by recent consent decrees that were entered into pursuant to EPA's National

⁵⁶ 82 Fed. Reg. at 3466.

⁵⁷ *Id.* at 3471-72.

Enforcement Initiative for Mining and Mineral Processing under RCRA, including recent consent decrees between EPA, the FDEP, and Mosaic Fertilizer, concerning five facilities in Florida,⁵⁸ and between EPA, the Louisiana Department of Environmental Quality (LDEQ) and Mosaic Fertilizer concerning two facilities in Louisiana.

These consent decrees resolved regulatory allegations about the management of waste under RCRA; they are not a justification for finding such facilities to be high risk and imposing significant § 108(b) FA requirements. To the contrary, they show that these facilities are adequately regulated and provide for extensive FA coverage. These consent decrees build upon state regulatory analogues and impose extensive requirements and obligations, including operational requirements, corrective action standards and design, construction, operation, closure and post-closure standards for phosphogypsum stacks. Importantly, the consent decrees also include significant FA requirements as Mosaic Fertilizer established a \$630M trust and will issue a \$50M letter of credit in support of obligations to close and care for the phosphogypsum stacks. The Mosaic Company (Mosaic Fertilizer's parent company) also agreed to guarantee any cost difference between the amounts held in trust and estimated closure and long-term care costs.

Aside from these consent decrees, phosphate fertilizer manufacturing facilities are extensively regulated under laws in Florida and Louisiana, which further mitigates the likelihood of releases. For example, Florida phosphate fertilizer manufacturing facilities are regulated under Florida Statutes §§ 403.4154–55, which impose various obligations related to the complete life cycle of phosphogypsum stacks at these facilities and also require FA. Like those state and local laws applicable to phosphate mining, these preexisting requirements could be preempted by § 108(b) FA requirements based on the language found in CERCLA § 114(d).⁵⁹ Moreover, their very existence makes FA requirements under § 108(b) duplicative and unnecessary.

IV. The Proposed Rule Exceeds EPA's Authority under CERCLA.

i. EPA May Not Impose Financial Assurance Requirements on Facilities and Wastes Congress Excluded from the Statute.

EPA's authority under CERCLA to impose FA requirements under § 108(b) is limited.⁶⁰ That authority is by its terms limited to the highest risk categories of facilities. Consistent with this limitation, Congress was clear that authority to impose FA requirements did not extend to

⁵⁸ *United States v. Mosaic Fertilizer, LLC*, No. 8:15-cv-02286 (M.D. Fla, 2016); *United States v. Mosaic Fertilizer, LLC*, No. 2:15-cv-04889 (E.D. La. 2016).

⁵⁹ *See, e.g.*, Letter from John A. Coates, P.E. Director, Division of Water Resource Management, Florida Department of Environmental Protection to Linda Barr, Office of Resource Conservation and Recovery, U.S. Environmental Protection Agency, Attachment A p.5 (Aug. 19, 2016).

⁶⁰ 42 U.S.C. § 9608(b)(1).

facilities already subject to RCRA Subtitle C and other federal laws.⁶¹ Furthermore, Congress determined certain, high volume, low toxicity wastes from the extraction, beneficiation and mineral processing are not hazardous substances subject to CERCLA.⁶² The Proposed Rule completely ignores the plain language of the statute and exceeds these limits by seeking to impose FA obligations on fertilizer manufacturing facilities already subject to RCRA and other federal laws, and on certain phosphate and potash mining and beneficiation wastes that have been determined to be low risk and exempt from CERCLA under RCRA's Bevill Amendment.

In 1980, Congress enacted both CERCLA and amendments to the Solid Waste Disposal Act commonly known as the Bevill Amendment.⁶³ The Bevill Amendment explicitly exempts waste from the extraction, beneficiation, and processing of ores and minerals (including phosphate rock), under RCRA Subtitle C. Congress also included corresponding language extending the Bevill Amendment's mining waste exclusion to CERCLA's definition of "hazardous substances."⁶⁴

In a subsequent report, EPA addressed "high-volume, low-toxicity" mineral processing wastes and concluded that the available data showed that regulation under RCRA Subtitle C is unwarranted for *inter alia* process wastewater from phosphoric acid production; [and] phosphogypsum from phosphoric acid production[.]⁶⁵ An important factor in EPA's justification for not imposing federal Subtitle C regulation was Congress' expressed concern that any costs imposed by regulation must not threaten the continuance of a viable mining industry.⁶⁶ EPA now proposes to impose at least \$7.1 billion in FA obligations on the same industry sectors under CERCLA 108(b).⁶⁷ EPA's proposal is completely void of any recognition of this relevant history regarding how best to manage the risks from mining, including these important Bevill

⁶¹ *Id.*

⁶² 42 U.S.C. § 9601(14) defines hazardous substance to not include any waste that has been exempt from regulation by Congress.

⁶³ Solid Waste Disposal Act Amendments of 1980, Pub. L. 96-482, 94 Stat. 2337 (to be codified at 42 U.S.C. § 6921).

⁶⁴ 42 U.S.C. § 9601(14)(C).

⁶⁵ U.S. Environmental Protection Agency, Report to Congress on Special Wastes and Mineral Processing (July 1990), p. 11.

⁶⁶ 42 U.S.C.A. § 6921(b)(3)(A).

⁶⁷ *See* 82 Fed. Reg. at 3392; *see* Comments of the National Mining Association incorporating by reference the independent economic analysis completed by OnPoint Analytics, Inc., finding EPA substantially underestimated the cost of the rule by several orders of magnitude. Specifically, OnPoint concludes that the cost of the Proposed Rule could be as high as \$39.4 billion on a net present values basis, 18 times the total amount EPA estimated in the Regulatory Impact Analysis developed for the Proposed Rule.

studies and subsequent regulatory determinations, and disregards Congress' expressed concern with the economic impact on the mining industry from any regulatory burdens imposed.

Moreover, a related Senate Report explicitly rejected the notion that Bevill wastes may be treated as CERCLA "hazardous substances" even if they contain hazardous constituents,⁶⁸ and therefore clearly expresses Congress's intent that Bevill wastes would not be considered hazardous wastes under CERCLA. Thus, imposing CERCLA FA obligations on Bevill Amendment wastes is not only completely unnecessary in light of the minimal risk associated with these wastes as determined by EPA, but is also beyond EPA's statutory authority.

ii. EPA May Not Consider Federally Permitted Releases in Determining the Necessary Amount of Financial Assurance.

EPA has inappropriately used data from federally permitted releases to represent risk from mining operations. In addition to exempting Bevill wastes from designation as a hazardous substance under CERCLA, Congress clearly prohibited cost recovery for federally permitted releases. Under CERCLA § 107(j), recovery "for response costs or damages resulting from a federally permitted release shall be pursuant to existing law in lieu of" CERCLA.⁶⁹ This exclusion applies for all releases covered by then-existing law (e.g., under the Clean Air Act (CAA), Clean Water Act (CWA), and RCRA).⁷⁰ The exclusion was contained in the Senate version of CERCLA (S. 1480) as well as the legislation that was ultimately enacted.⁷¹ And numerous federal courts have recognized that federally permitted releases are not subject to CERCLA.⁷²

By factoring in federally permitted releases to the collection of "risks" requiring FA, EPA is essentially creating a methodology that allows it to recoup costs which would otherwise be

⁶⁸ S. Rep. No. 848, 96th Cong., 2d Sess. 28 (1980) ("It should be noted that any substance or material for which regulation is specifically suspended by Act of Congress under the Solid Waste Disposal Act is excluded from designation as a hazardous substance for the purpose of S.B. 1480 [CERCLA], notwithstanding the presence in such substance of any hazardous or toxic chemical.").

⁶⁹ 42 U.S.C. 9607(j).

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² See, e.g., *Blankenship v. Consolidation Co.*, 850 F.3d 630 (4th Cir. 2017) (mining releases authorized by National Pollutant Discharge Elimination System (NPDES) permit could not serve as basis for cause of action under CERCLA); *Reading Co. v. Philadelphia*, 823 F. Supp. 1218, 1230 (E.D. Penn. 1993) (discussing exemption); *Iron Mt. Mines*, 812 F. Supp. at 1540 (same); *U.S. v. Washington State Dep't of Transp.*, 716 F. Supp. 2d 1009, 1016 (W.D. Wash. 2010) (same); *Horsehead Industries, Inc. v. St. Joe Minerals Corp.*, 1996 WL 33415778, at *20 (same).

exempt from CERCLA recovery actions. EPA must not extend any FA requirements to those releases Congress has expressly exempted from CERCLA recovery actions.

iii. EPA Has Failed to Properly Exercise Its Discretion.

CERCLA does not require that EPA set the appropriate level of financial responsibility such that there is “zero risk” involved for the relevant activity. Instead, as EPA notes in the Proposed Rule, “CERCLA § 108(b)(2) directs that the level of financial responsibility shall be initially established, and, when necessary, adjusted to protect against *the level of risk that EPA in its discretion believes is appropriate* based on the payment experience of the Fund, commercial insurers, courts settlements and judgments, and voluntary claims satisfaction.” (Emphasis added.) CERCLA is therefore clear: EPA has discretion to determine the appropriate amount of FA commensurate with the level of risk involved.

EPA has, however, failed to exercise its discretion appropriately and has instead taken an extremely conservative approach in developing the Proposed Rule. A system in which the amount of financial responsibility required must cover *all* possible (even those that are only remotely possible) risks (i.e., “zero risk” coverage) is overly conservative and cannot be justified under a proper assessment of the costs imposed and benefits derived.

EPA relies on data from NPL sites of certain mining sectors and extrapolates these costs as a basis for determining the necessary assurance requirements for all mining sectors. However, NPL sites are, by their very nature, the worst possible scenarios, and this approach leads to FA requirements that are grossly excessive in comparison to what is actually necessary for the majority of mines, particularly the limited number of existing phosphate mines. Again, there are no Florida phosphate mines listed on the NPL and likewise, there is no payment history relevant to Florida phosphate mining. Furthermore, EPA improperly relies on data based on releases from historical operations (pre-1990) permitted before environmental regulatory programs were instituted as well as releases that are statutorily excluded from the scope of EPA’s CERCLA authority.

By imposing grossly inflated FA requirements that are based on worst-case scenarios taken from different types of mining and other inappropriate sources of data, EPA is imposing extraordinary costs that are completely disproportionate to the risks presented. EPA should not use CERCLA as a back door means for imposing costs that may threaten the viability of these important industries. To avoid such an outcome and to more appropriately follow the statutory intent of CERCLA, EPA should exercise its discretion in a manner that is commensurate with the risks posed.

V. General Comments

i. EPA Has Created a De Facto Mining Regulatory Regime.

The Proposed Rule includes a formula that facilities would use to determine a FA amount that would be required to insure their facilities. EPA also proposes to allow owners or operators to reduce the response cost component of the FA formula by demonstrating that risk reducing mechanisms are already required at the facility.⁷³ On its face, this seems like a reasonable approach, that the existence of enforceable, risk mitigating practices could be recognized by EPA and used to offset or avoid the need for additional FA. However, rather than EPA's providing offsets for existing federal and state risk reducing and FA requirements, EPA has developed entirely new, "specific minimum standards" that must be met.⁷⁴ EPA refers to these standards as "performance standards" and "future engineering controls and practices" intended by EPA to reduce risks associated with hazardous substances at the site.⁷⁵ But that is exactly what the federal land management and state mining regulatory programs are designed to do. EPA exceeds its authority under CERCLA by attempting to promulgate new performance standards, engineering controls and practices for hardrock mining operations, usurping the authority of the federal and state agencies Congress intended to regulate mining on federal lands and within the states.

Under the guise of implementing CERCLA § 108, EPA has created a new role for itself as "regulator-in-chief" over mining operations, devoid of statutory authority or regulatory due process. EPA's prescriptive, specific minimum performance standards are designed to replace the existing federal and state standards, essentially installing a de facto EPA-led regulatory scheme. This is true because EPA, and not these recognized mining regulators, sets the criteria. EPA decides whether or not a facility meets the criteria, and EPA decides when an eligible facility becomes ineligible for cost reductions. Nowhere in EPA's discussion of cost recovery reductions, is any consideration given to the standards and criteria that already exist at these facilities and that were developed under precise, site-specific analysis. Nor has EPA recognized that these federal and state programs will likely be displaced because the Proposed Rule

⁷³ See 82 Fed. Reg. at 3504-09; 40 C.F.R. § 320.63 (proposed).

⁷⁴ See 40 C.F.R. § 320.63(c)(3) (proposed).

⁷⁵ See U.S. EPA, Office of Land and Emergency Management, *Financial Responsibility Requirements Under CERCLA 108(b) for Classes of Facilities in the Hardrock Mining Industry Proposed Rule: Financial Responsibility Reductions Technical Support Document*, Dec. 1, 2016, at pg. 1.

establishes a system where a facility has one of two choices: comply with EPA's newly devised performance standards or satisfy staggering FA requirements that are disproportionate to the risks. Moreover, EPA's unauthorized jurisdiction attaches even when a facility meets all of the relevant cost recovery criteria (highly unlikely considering the high bar proposed by EPA) because fixed-fee requirements would still apply (despite being totally unnecessary in light of the negligible risk involved for such facilities).

CERCLA was not intended to give EPA this type of almost infinite regulatory authority over ongoing business concerns. It was established instead to accomplish two primary goals: "(1) to ensure the prompt and effective cleanup of waste disposal sites, and (2) to assure that parties responsible for hazardous substances bear the cost of remedying the conditions they created."⁷⁶ Therefore, by creating these specific minimum performance standards, EPA is exceeding its statutory authority once more.

ii. The Proposed Rule is Not Consistent with the Principles Embodied in Executive Orders 12866, 13771, and 13777, and Should be Reviewed and Conformed to those Directives.

The Proposed Rule was published in early January 2017, before the issuance of Executive Orders 13771 of January 30, 2017, on *Reducing Regulation and Controlling Regulatory Costs*⁷⁷ and 13777 of February 24, 2017, on *Enforcing the Regulatory Reform Agenda*.⁷⁸ These Executive Orders (EOs) establish principles intended to "manage the costs associated with the governmental imposition of private expenditures required to comply with Federal regulations" and ensure that rules regulate only to the extent necessary, minimize adverse impacts on jobs, and are fully cost justified. EO 13777 specifically requires conformity with EO 12866 of September 30, 1993,⁷⁹ on *Regulatory Planning and Review*, which directs that "Federal agencies should promulgate only such regulations as ... are made necessary by compelling public need, such as material failures of private markets to protect or improve the health and safety of the public, the environment, or the well-being of the American people."

The Proposed Rule pays lip service to the requirements of EO 12866, but a closer look reveals its deficiencies, particularly given the higher expectations instilled by EOs 13771 and 13777. Notably, EO 13777 directs federal agencies to target for revocation regulations that "(i) eliminate jobs, or inhibit job creation; (ii) are outdated, unnecessary, or ineffective; [or] (iii) impose costs that exceed benefits...." These same criteria apply with equal force to new rules,

⁷⁶ *Pakootas v. Teck Cominco Metals, LTD.*, 830 F.3d 975, 981 (2016).

⁷⁷ 82 Fed. Reg. 9339 (Feb. 3, 2017).

⁷⁸ 82 Fed. Reg. 12285 (March 1, 2017).

⁷⁹ 58 Fed. Reg. 51735 (Oct. 4, 1993).

since it would make no sense to repeal nonconforming existing regulations yet allow new ones with the same flaws to go into force. The Proposed Rule fails this test in numerous ways.

Despite a lengthy preamble and 200-page Regulatory Impact Analysis (RIA), the Proposed Rule falls well short of the analytical rigor required by EOs 12866, 13771, and 13777. For example, the RIA's discussion of impacts on employment is cursory and amounts to a shrug of the shoulders over a task deemed too laborious to pursue: "EPA did not have sufficient data to model and quantify the potential changes in facilities' employment levels as a result of the proposed regulation. Potential countervailing impacts on labor demand in both the mining and financial sectors make the direction of change unknown."⁸⁰

Further, as detailed above, EPA's failure to take into account existing FA obligations and other factors specific to the phosphate and potash mining sectors, which make new requirements duplicative, is contrary to EO directives against unnecessary regulation. And finally, the inadequacy of EPA's cost benefit analysis, particularly as to these sectors, establishes no credible record that EPA has carried its burden of demonstrating the benefits of new FA requirements would outweigh their costs, on the basis of a careful review consistent with the principles set forth in EO 12866 and OMB Circular A-4, which defines best practices for regulatory analyses.⁸¹

For all these reasons, EPA must conduct a far more demanding analysis of the Proposed Rule's compliance with governing Executive Orders, and finalize only those portions, if any, that can credibly withstand a best practices-compliant benefit-cost review.

iii. EPA's Rule is Based on a Flawed Model.

EPA's model for calculating FA amounts is fatally flawed. First, the model is flawed as applied to phosphate and potash sectors because it was developed using almost solely metal-mining inputs and EPA has said nothing about its intent to tailor the model to fit these non-metal mining sectors.⁸² As Mosaic's Technical Memoranda point out, non-metal mineral mining extraction and beneficiation employ very different practices as compared to metal-mining

⁸⁰ EPA, Office of Land and Emergency Management, *Regulatory Impact Analysis of Financial Responsibility Requirements under CERCLA § 108(b) for Classes of Facilities in the Hardrock Mining Industry Proposed Rule*, at E-13 (Dec. 1, 2016). The two pages devoted to this analysis in the full RIA are no more rigorous, *id.* at 6-4 to 6-6.

⁸¹ Office of Management and Budget Circular A-4 (Sept. 17, 2003), available at https://www.whitehouse.gov/omb/circulars_a004_a-4.

⁸² See MDB, Inc., Hardrock Mining Peer Review-Combined Documents, November 23, 2016, Comment of Reviewer #4, pg. 3 ("Generally the extraction and processing of industrial minerals has very different environmental effects from the extraction and processing of metals. ... I have trouble with EPA's methodology not having separate formulas for industrial minerals ...").

operations and similarly, the environmental effects and the cost of recovery will also differ. EPA's methodology imposes cost recovery amounts derived from metal and other mining sectors on Mosaic's Florida phosphate and potash operations. This overly-simplistic approach is not defensible.

Next, under the Proposed Rule, the amount of FA a facility must obtain is determined by a formulaic model that evaluates a number of different input variables to produce estimates of recovery cost.⁸³ The model adopts a generic, "one-size-fits-all" approach, and fails to consider important, site-specific information that can have a profound impact on cost of recovery at a specific facility. EPA's simplistic approach has been rejected by the federal lands management agencies and most states for its lack of precision,⁸⁴ and EPA agreed, acknowledging that a site specific approach is the most precise approach.⁸⁵ Rejecting this advice, acquired by mining regulators over decades, EPA developed a model based on this flawed approach.

EPA obtained peer review of this approach from just four reviewers. Of them, only one provided meaningful commentary on EPA's formulaic model, and was largely critical of it, indicating grave concerns with the integrity of the data as collected and recommending EPA could benefit from interaction with industry professionals to address the impression that there is a stark lack of understanding of the workings of the industry that the EPA is tasked with regulating.⁸⁶ Furthermore, this reviewer stated that he was "astounded" the independent reviewers did not find these same errors in EPA's dataset.⁸⁷ Finally, the reviewer concluded that those collecting the primary data from the source documents did not correctly understand the information in the documents or mine reclamation in general.⁸⁸ The remaining reviewers expressed uncertainty over the model and the data they were reviewing. One reviewer indicated [he/she] "got lost" several times despite the fact that [he/she] was taking notes while reading the report, and in some places "[he/she] just [could not] follow the logic of the Agency."⁸⁹

⁸³ 82 Fed. Reg. at 3460-70.

⁸⁴ Comment submitted by Leslie A. C. Weldon, Deputy Chief, National Forest System, U.S. Forest Service, Department of Agriculture at 5 (Apr. 18, 2017); BLM Presentation, "Hardrock Reclamation Bonding" June 2016 Small Business Entity meeting; Comment submitted by Beth A. Botsis, Deputy Executive Director, Interstate Mining Compact Commission (Aug. 16, 2016); Comment submitted by Wyoming Governor Matthew H. Mead and Montana Governor Steve Bullock, Chairmand and Vice Chair of Western Governors Association (March 29, 2016).

⁸⁵ 82 Fed. Reg. at 3460.

⁸⁶ MDB, Inc., Hardrock Mining Peer Review—Combined Documents, November 23, 2016, Comment of Reviewer #4, pp. 4-9.

⁸⁷ *Id.* at pg. 4.

⁸⁸ *Id.*

⁸⁹ *Id.* at Reviewer #3, pg. 1

Additionally, [he/she] expressed uncertainty over “[w]hich dataset was used to run the regressions[.]” explaining that [he/she] thought it was two different datasets during two different readings of the report before [he/she] “had literally no idea the third time around. **Help!**”⁹⁰ (Emphasis added.) Lastly, Reviewer #2 stated that EPA assumes all sites will eventually need source control; in practice, however, the CERCLA data show that source control is not always used, so this assumption overstates the true expected future response costs.⁹¹

Such comments are not entirely surprising as EPA provided the reviewers with only initial figures that were then grossly inflated based on a “smearing factor” and “source control assumption.”⁹² EPA did not provide the reviewers with model results to compare with associated closure and reclamation costs.⁹³ And this limited and confusing information made the peer review process incredibly difficult, if not entirely meaningless. Mosaic has reviewed and incorporates by reference a detailed analysis of EPA’s Cost Estimate Formula prepared by SRK Consulting, Inc. for the National Mining Association. The SRK report addresses a number of errors with EPA’s methodology and concludes that the formula is fatally flawed.⁹⁴

Moreover, EPA ignored important procedural steps intended to ensure the objectivity and quality of scientific information the agencies intend to disseminate. Specifically, EPA disregarded OMB Information Quality Bulletin M05-3 that requires “scientific information” considered “highly influential” must be peer reviewed before being disseminated by EPA or other federal agencies.⁹⁵ EPA’s failure to comply with OMB Information Quality criteria also violates EPA’s “Scientific Integrity Policy” that requires adherence to the OMB Information Quality Bulletin for Peer Review.⁹⁶

⁹⁰ *Id.*

⁹¹ *Id.* at Reviewer #2 at pg. 1.

⁹² See Review of Cost Estimate Formula for EPA’s CERCLA 108(b) Proposed Rule, SRK Consulting (U.S.), Inc. (2017), Sections 4.5, 4.5.1, 4.5.2.

⁹³ MDB, Inc., Hardrock Mining Peer Review–Combined Documents, November 23, 2016, Comment of Reviewer #4, pp. 10-11.

⁹⁴ See Review of Cost Estimate Formula for EPA’s CERCLA 108(b) Proposed Rule, SRK Consulting (U.S.), Inc. (2017).

⁹⁵ Executive Office of the President, Office of Management and Budget, *Final Information Quality Bulletin for Peer Review*, M05-3, December 16, 2004.

⁹⁶ See U.S. Environmental Protection Agency *Scientific Integrity Policy*, 2008, available at <http://www.epa.gov/irmpoli8/21060.pdf>; see also U.S. Environmental Protection Agency (2006) *Peer Review Handbook, Third Edition*, available at http://www.epa.gov/peerreview/pdfs/peer_review_handbook_2006.pdf.

These important peer review policies require peer review prior to disseminating scientific information, such as EPA's FA model, that will have a "clear and substantial impact on important public policies or important private sector decisions."⁹⁷ The term "scientific information" is defined to include "factual inputs, data, models, [and] analysis ... related to such disciplines as the behavioral and social sciences, public health and medical sciences, life and earth sciences, engineering, or physics sciences."⁹⁸ The term "highly influential" means "the dissemination could have a potential impact of more than \$500 million in any one year on either the public or private sector or that the dissemination is novel, controversial, or precedent-setting, or has significant interagency interest."⁹⁹

There is no question that EPA's formulaic model is both scientific information and highly influential. Therefore, EPA was required to comply with the OMB Bulletin's peer review requirements. These requirements call for a peer review that is conducted earlier in the process, is public, and is performed by peer reviewers that are objective and independent from the agency.¹⁰⁰ Federal agencies must also "provide reviewers with sufficient background information, including access to key studies, data and models, to perform their role as peer reviewers."¹⁰¹

Instead of following these requirements, EPA conducted an expedited, EPA-directed "peer review" that failed to conform to the recognized guidelines. EPA's shorthand review involved just four peer reviewers and information was not made available to the public until *after* the information had already been disseminated. This is hardly the "extensive review process" the Information Guidelines contemplate.¹⁰² Moreover, because the process was rushed, EPA did not make any changes to the Proposed Rule. Instead, EPA indicated it will make corresponding changes to the formulaic model when it publishes a final rule, but this approach violates the Administrative Procedures Act by failing to take public comment on the model that EPA actually intends to use.¹⁰³

⁹⁷ OMB Bulletin at 8.

⁹⁸ *Id.* at 10-11.

⁹⁹ *Id.* at 23.

¹⁰⁰ *Id.* at 19-23.

¹⁰¹ *Id.* at 22.

¹⁰² See Executive Office of the President, Office of Management and Budget, *Office of Management and Budget Information Quality Guidelines*, Oct. 1, 2002, available at http://www.whitehouse.gov/sites/default/files/omb/inforeg/iqg_oct2002.pdf.

¹⁰³ Response to Peer Review Comments: CERCLA 108(b) Financial Responsibility Formula for Hardrock Mining Facilities Background Document.

Given the numerous failures with EPA's model development methodology and peer review process, any final rule mandating its use would be inappropriate.

iv. EPA Should Not Include Fixed Cost Requirements for Natural Resource Damages and Health Assessments under CERCLA § 108(b).

CERCLA § 108 contemplates that FA should be established commensurate with the risk that releases will result in costs of CERCLA response actions falling to the public. EPA proposes to require FA to cover the cost of response actions, and, in addition, a requirement for natural resource damages (NRD) fixed at 13.4 percent of the total response amount and a fixed \$500,000 flat fee to cover health assessments. The inclusion of these fixed amounts for NRD and health assessments is beyond EPA's statutory authority and should be eliminated from any final rule.

First, with respect to health assessments, it is simply not the case that a health assessment will be required at every hardrock mining site. Whether a health assessment is part of a cost recovery action depends on site-specific variables such as whether there are any health risks or resident populations associated with the site. EPA's assumption that such an assessment will be required in every case is overly conservative and not supported. Indeed, EPA admitted the record does not support this claim when it relied on non-mining assessments to calculate the fixed fee amount, finding insufficient data associated with mining-related actions.¹⁰⁴ The Proposed Rule does not establish an adequate basis for imposing a fixed fee amount for health assessment costs for every hardrock mining site.

EPA's Proposal to include a fixed, 13.5% of the response cost, NRD amount in the FA formula is even more egregious. NRD is specifically addressed under CERCLA § 107(f) and is not within the scope of CERCLA § 108 response costs.¹⁰⁵ Instead, NRD claims are separate actions brought by government natural resource trustees under § 107(f) for imposing punitive damages. Recovery is limited to trustees, including the Federal Government and states or Indian tribes, EPA is not an appropriate trustee eligible to recover costs. Moreover, use of any recovered funds is also limited by statute. CERCLA § 108(b) was not intended to interfere or duplicate the direct action provision that already exists in § 107(f). Furthermore, EPA's proposal waives a facility owner/operator's right to legally challenge or raise defenses against any such actions. For these reasons, EPA should eliminate consideration of including fixed amounts for health assessments and NRD from any FA requirements in the final rule.

VI. Conclusion

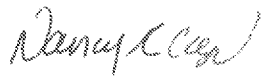
¹⁰⁴ See 82 Fed. Reg. at 3465.

¹⁰⁵ See 42 U.S.C. 9607(f).

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Mosaic appreciates your consideration of its comments on the Proposed Rule. For the reasons set forth above, Mosaic respectfully requests that the final rule recognize the inappropriateness of including the phosphate and potash mining and fertilizer manufacturing sectors within any § 108(b) final rule that relates to hardrock mining, and formally exclude these sectors from the scope of the rule. Should you wish to discuss these comments further, please do not hesitate to contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Nancy Case".

Nancy Case
Vice President - EHS

Phosphate
Technical
Analysis-
Attachment A



To: Mosaic Fertilizer, LLC
From: Gary Uebelhoer and Iyan Nance
Date: July 3, 2017 *GU IN*
Re: Technical Analysis – Justification for Exempting Mosaic Fertilizer, LLC, from CERCLA §108(b) Requirements

The U.S. Environmental Protection Agency (EPA) has proposed to adopt Title 40 of the Code of Federal Regulations Part 320 (40 CFR 320) (the “Proposed Rule”) to implement Section 108(b) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at hardrock mining facilities.⁽¹⁾ As currently drafted, the Proposed Rule would apply to Mosaic Fertilizer, LLC (Mosaic) phosphate mines and manufacturing plants, although EPA solicited comments whether phosphate mine facility characteristics and operations present a lower level of risk of injury and, therefore, should be excluded.⁽²⁾

Mosaic retained Environmental Consulting & Technology, Inc. (ECT) to analyze its phosphate facilities and operations and to compare the potential risk of injury against the more traditional hardrock mining operations analyzed in the preamble to the Proposed Rule. While Mosaic’s phosphate facilities and operations fit within EPA’s definitions of “extraction”, “beneficiation”, and “mineral processing”, the processes utilized and the features associated with Mosaic’s mines and plants do not resemble traditional hardrock extraction, beneficiation, or mineral processing facilities and operations and, therefore, do not correlate with the response categories of the financial assurance model. Of the mining sectors analyzed by EPA, Mosaic’s phosphate mines most closely resemble sand and gravel mines, which EPA has excluded from regulation. Further, EPA and Mosaic have reached agreement on the amount of financial responsibility that is appropriate for Mosaic’s mineral processing plants under the Resource Conservation and Recovery Act (RCRA).

¹ 82 Federal Register (FR) 3388-3512.

² 82 FR 3456.

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Therefore, regulation of Mosaic's mineral processing facilities under the Proposed Rule would be redundant.

1. ANALYSIS OF MOSAIC'S FACILITIES AND OPERATIONS

Mosaic owns or controls approximately 611 million short tons of recoverable phosphate rock reserves in central Florida as of December 31, 2016.⁽³⁾ Mosaic has applied for regulatory and land use approvals to extract and beneficiate sufficient reserves to meet its needs beyond 2030⁴, with the remaining reserves to be permitted in the future.

These reserves lie within a sedimentary re-worked marine deposit composed of carbonate-fluorapatite, including phosphatic fossil remains (e.g., fish scales, bones, teeth, shells). Fluorapatite consists of $\text{Ca}_{10}(\text{PO}_4)_6\text{F}_2$. Also present are aluminum phosphates [$\text{Al}_3(\text{OH})(\text{PO}_4)_2$]. Minor amounts of iron, magnesium, uranium, vanadium, arsenic, silicon, and carbon may be present, all as oxides. A typical phosphate rock sample is comprised of tri-calcium phosphate, iron and aluminum as oxides, lime as CaO, and silica; no sulfides are present.

The phosphate ore was deposited on historic marine terraces, which are major sand and gravel sources in the Atlantic and Gulf Coastal Plains.⁽⁵⁾ Large sand mines are operated within 50 miles of Mosaic's ore reserves. The Florida marine deposits do not contain minerals that are the sources of contamination at hardrock mines.

³ The Mosaic Company. Securities and Exchange Commission Form 10-K, February 2017.

⁴ U.S. Army Corps of Engineers. 2013. **Final Areawide Environmental Impact Statement on Phosphate Mining in the Central Florida Phosphate District.**

⁵ Society for Mining, Metallurgy, and Exploration. 1990. **Surface Mining, Second Edition.**

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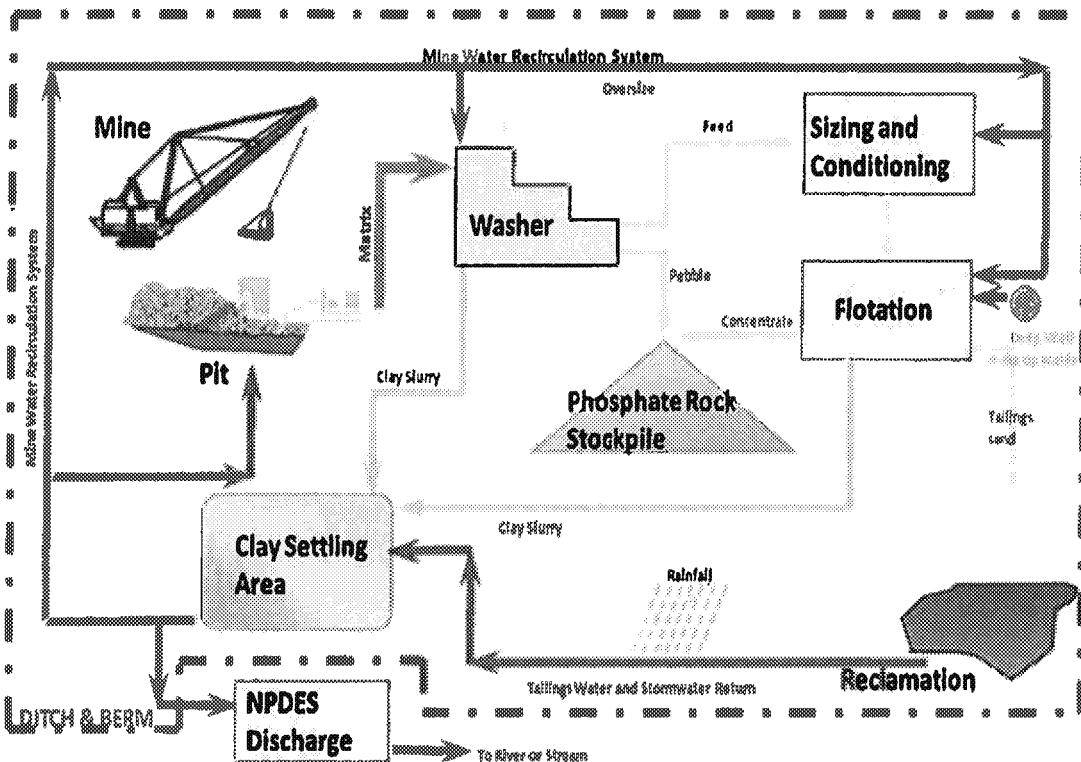
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In sharp contrast, traditional hardrock mines extract and beneficiate ores from volcanic, igneous, or metamorphic consolidated rock formations. The ore is present in veins, thereby requiring crushing and grinding to talcum powder consistency to expose the target mineral to recovery techniques. Typically, hardrock ores containing specific desirable metals (e.g., copper, silver, or gold) also contain undesirable elements such as lead and mercury.⁶

1.1 EXTRACTION AND BENEFICIATION

Operations meeting EPA's definitions of "extraction" and "beneficiation" are conducted at Mosaic's Four Corners, South Fort Meade, South Pasture, and Wingate Creek Mines. All of these mines consist of similar facilities and processes.



⁶ 82 FR 3471.

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Prior to commencing ore extraction, mining areas and pipeline corridors are isolated, or severed, from their watersheds by the installation of perimeter secondary containment berms (the mined voids provide primary containment). These structural best management practices (BMPs) minimize the risk of uncontrolled releases to the environment.

1.1.1 Extraction

At the Four Corners, South Fort Meade, and South Pasture Mines, large, electrically-powered draglines are used to first remove 10 to 40 feet of unconsolidated overburden soils and sands that overlie the ore matrix and place the excavated overburden into adjacent mined areas for subsequent use in reclamation. Then, the ore matrix, which also is typically 10 to 40 feet thick, is extracted by the same dragline and placed into a shallow pit dug in an adjacent unmined area.

The ore in the adjacent pit is converted into a slurry by disaggregation using high pressure water jets (similar to placer mining). The resulting slurry is pumped through pipelines to the beneficiation plant for ore separation.

At the Wingate Creek Mine, both overburden removal and ore extraction are completed using a separate dredge for each function. Use of dredges is preferred at Wingate Creek because that overburden thickness is more than 40 feet across much of the mine.

Being of sedimentary origin, the overburden and ore matrix are excavated without the need to blast prior to mining. Disaggregation of the ore matrix is accomplished solely by water pressure. Crushing or grinding is not required.

The ore matrix is comprised of a mixture of phosphate rock product, barren quartz sand, and clay-sized particles, which are physically separated at the beneficiation plant. The phosphate rock product is then shipped offsite to Mosaic's mineral processing plants.

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The quartz sand and clay-sized particles are returned to mined areas via slurry pipelines to backfill the mined voids. Of the total mined area at each mine, approximately 60 to 75 percent is backfilled with sand and approximately 25 to 35 percent is backfilled with clay-sized particles in clay setting areas (CSAs). The sand backfill landform can be reclaimed into a variety of land uses. A CSA is an area contained by engineered retaining dams where water separates by gravity from the slurry after beneficiation, leaving a consolidated clay surface suitable for reclamation as agricultural land. Where insufficient sand volumes are available, the available overburden is graded to form lakes and shore lines with littoral zones.

Sand and gravel extraction uses similar dragline and dredge mining techniques. Hydraulic excavators are also used.⁽⁷⁾ The mining depths are similar – typically less than 100 feet. Overburden is used to form the shorelines of the lakes that result, with residuals from ore washing and screening deposited in the mine pits.

Traditional hardrock mining seldom occurs at depths of less than 100 feet, with most deposits occurring hundreds to thousands of feet below land surface. Drilling and blasting are required to break the rock into sizes that can be moved from the mine to the mill. According to the preamble, these operations results in waste rock piles, acid mine drainage, and contaminated soils and sediments, all of which have led to CERCLA response actions.⁽⁸⁾

In contrast, Florida law requires all lands disturbed by phosphate mining to be reclaimed to a variety of productive uses. The U.S. Geological Survey and the U.S. Army Corps of Engineers (USACE) have found ground and surface waters on, beneath, adjacent, and downstream of Mosaic's phosphate mines meet applicable water quality standards.⁹

⁷ National Stone, Sand and Gravel Association. 2013. *The Aggregates Handbook, Second Edition*.

⁸ 82 FR 3472.

⁹ U.S. Geological Survey. 1993. *Hydrology and Water Quality of Unmined and Reclaimed Basins in Phosphate-Mining Areas, West-Central Florida*.

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USACE also has found Mosaic capable of mitigating wetland impacts through land reclamation.¹⁰

Mosaic's Florida phosphate mining operations result in reclaimed lakes-type landforms on up to five percent of the mined areas. Reclaimed lakes typically have depths of 40 feet or less; littoral zones of 25 percent of the shoreline are required by rules adopted by the Florida Department of Environmental Protection (FDEP), as are four feet horizontal to one-foot vertical (4H:1V) slopes to depths of six feet for safety reasons. Reclaimed lakes result in highly desirable residential developments. Reclaimed lakes in Polk, Hillsborough, and Hardee Counties are used as public recreation areas and often produce trophy-sized largemouth bass.

Unlike the mine pit lakes resulting from extracting sulfide ores, reclaimed phosphate lakes are not acidic. A comprehensive study¹¹ of 12 reclaimed lakes produced the following findings with respect to EPA's contaminants of concern addressed in the preamble:

- Barium concentrations were low relative to natural surface waters;
- Chromium concentrations were well below standards to protect freshwater aquatic life;
- Arsenic concentrations did not exceed state standards;
- Cadmium concentrations were similar to natural lakes;
- Mercury concentrations generally were lower than in natural lakes;
- Lead concentrations were well below state standards; and
- Selenium concentrations were extremely low.

¹⁰ U.S. Army Corps of Engineers. 2013. **Final Areawide Environmental Impact Statement on Phosphate Mining in the Central Florida Phosphate District.**

¹¹ Environmental Science and Engineering, Inc. 1985. **Ecological Considerations of Reclaimed Lakes in Central Florida's Phosphate Region.**

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The low levels of trace elements found in reclaimed lakes provides EPA with data to distinguish Mosaic's Florida phosphate operations from traditional hardrock mining open pits.

CSAs at a phosphate mine are not the equivalent of "tailings impoundments" at hardrock mines. There are important differences between CSAs and tailings impoundments at hardrock mines that clearly distinguish the levels of risk of injury at each:

- Height – CSA dams are less than 75 feet tall during use as compared to tailings impoundments that measure hundreds of feet tall;
- Terrain – CSAs are located on relatively flat terrain away from riparian valleys as compared to tailings impoundments that are sometimes placed in stream valleys in steep terrain;
- Drainage/watershed area – The rainshed of a CSA is limited to acreage within the perimeter of the dams (i.e., no stormwater runoff from surrounding land can enter the elevated impoundment, which limits the potential for overtopping), as compared to tailings impoundments that have watersheds consisting of the land and stream watershed upstream of the dam;
- Materials of construction – CSA embankments are engineered earthen dams whereas tailings impoundments are constructed with tailings; and
- Reclamation – Upon completion of filling, a CSA consolidates to approximately 10 to 15 feet in height over a period of about five years, after which the embankment is reclaimed to a similar elevation and outlet channels are excavated to prevent further water impoundment, thereby eliminating the risk of a dam failure. In contrast, tailings impoundments retain their original height, and are intended to remain in their operating form in perpetuity, posing over time a risk of breach.

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1.1.2 Beneficiation

The term “beneficiation plant” refers to the facilities and related processes used to physically separate the phosphate rock from the quartz sand and the clay-sized particles in the ore slurry pumped from active mine areas. Two sizes of phosphate rock are recovered at beneficiation plants: pebble, which measures larger than about 1/16-inch in diameter, and sand-sized concentrate, which measures less than 1/16-inch in diameter.

Physically separating the phosphate rock is completed using the following process:

- **Washer** – Slurried ore matrix from the mine is screened and separated into coarse reject, pebble-sized product, sand-sized feed for flotation, and clays. The pebble product is usually an acceptable product ready for shipment to the mineral processing plants, while the sand-sized particles are transferred to the flotation section. Clay and coarse reject sizes are pumped to the CSAs. The washing process that separates the clay-sized particles from the large-sized pebble product and the sand-sized flotation feed material is completely physical; only screening to segregate the various particle sizes is required. No chemicals are used in the washer.
- **Flotation** – In the flotation process, certain reagents are added to the feed, then vigorously aerated to physically separate – as described below – the phosphate rock product from the sand. The process consists of two sequential stages: a “rougher” first stage floats virtually all the phosphate and some sand, while the “cleaner” second stage floats the remaining sand, leaving the phosphate rock concentrate product. The residual sand tailings are then pumped to mined areas for use as reclamation backfill.

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Flotation recovery of the concentrate product occurs by sand-sized particles becoming attached to air bubbles floating through and to the top of the water in a flotation cell, where the froth is recovered. Because neither phosphate nor silica sand particles naturally adhere to the air bubbles, reagents are added as described below.

The selective flotation of phosphate or silica sand relies on the surface electric charge of the particles. The surface of silica sand is negatively charged. Thus, to attach to a silica sand particle, a positively-charged (i.e., cationic) reagent must be applied. In contrast, phosphatic minerals are positively charged. Flotation of the phosphate rock is, therefore, accomplished using negatively charged reagents (i.e., anionic).

Phosphate flotation is a physical, not a chemical process. The flotation reagents do not chemically react with the phosphate rock or quartz sand to result in different compounds. As explained below, phosphate flotation reagents rely solely on electrostatic forces to separate phosphate rock from quartz sand.

Fatty acids are anionic negatively-charged compounds that readily adhere to the cationic positively-charged calcium phosphate particles. Fatty acids are monocarboxylic (i.e., COOH chains) acids, many of which are naturally occurring waxes and essential oils. Examples include oleic acid and linoleic acid, which are essential fatty acids required by the human body that must be obtained from the food supply. Example sources of foods containing fatty acids include butter, corn oil, olive oil, and sunflower oil.

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The fatty acids used to float the phosphate particles include oleic acid, linoleic acid, and rosin (abrietie acid) extracted from pine trees when making paper. They are commonly referred to as “tall oil”. Tall oil is approved by the Food and Drug Administration for use in packaging food for human consumption (i.e., coating food containers).

In the flotation circuits, fuel oil works in conjunction with fatty acids to “enhance” flotation. The anionic fatty acid coats the cationic calcium phosphate particle (but not the sand, which does not contain calcium), and the fuel oil sticks to the fatty acid – similar to wax on a painted surface. This mixture repels water like a rain bubble on a waxed car, which allows the phosphate particle to be encapsulated by the bubble and “float” to the surface where it can be skimmed off.

The electrical attraction between the fatty acid and the calcium phosphate particles is optimized in water with a pH level of 8.5 to 9.0 standard units (s.u.). Soda ash is a non-toxic natural mineral (i.e., sodium carbonate) that is added to raise the pH level in the flotation circuits. Soda ash is commonly used to make baking soda; to treat water in swimming pools; and in water softeners.

The first phase of flotation using fatty acid, fuel oil, and soda ash produces what is known as “rougher concentrate”. The concentrate contains about 10 to 20 percent silica sand, which is too impure to process in the mineral processing plants. As a result, the rougher concentrate is subjected to a second stage of flotation.

Before the second stage of flotation begins, however, the residual fatty acid and fuel oil on the surface of the rougher concentrate particles must be removed. This is accomplished by washing the particles with a mixture of recycled water and sulfuric acid, followed by rinsing in water. The pH of the acid wash water is between 3.0 and 4.0 s.u.

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The second stage of flotation is accomplished by applying a positively-charged (i.e., cationic) flotation reagent that belongs to a family of “amines”. As noted earlier, the silica sand particles are negatively-charged (i.e., anionic). The positively-charged cationic amines electrostatically adhere to the anionic silica sand particles and to the air bubbles to float to the surface while the calcium phosphate particles do not, which results in the complete separation of the sand the phosphate particles.

Amines are common compounds we experience daily. Among them are the amino acids lysine and methionine that are essential protein ingredients in the human diet. Proteins are amino acid residues.

The risk of releases of hazardous substances from one of Mosaic’s beneficiation plants is low. Spill prevention, control, and countermeasures plans provide structural and non-structural BMPs to prevent and contain releases of reagents. In addition, the State of Florida has adopted regulations that govern the design, construction, and operation of above-grade petroleum and mineral acid storage tanks. These rules, facilities, and BMPs are protective against releases of fuel oil, surface acid or concentrated reagents.

Mosaic has evaluated the life cycle of reagents used in beneficiation and through those efforts has developed a mass balance of reagent distribution in the rock product, sand, and clay sized fractions.⁽¹²⁾ A mass balance is one that accounts for all of the mass, or pounds, of a substance added to a process and in the products and residuals generated by the process.

¹² BCI Engineers and Scientists, Inc. 2001. **Fate and Consequences to the Environment of Reagents Associated with Rock Phosphate Processing.**

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In the case of a reagent mass balance, the reagents added must end up in the phosphate rock product (except the pebble which is recovered prior to flotation), in the sand tailings, or in CSAs. The following table shows results of the mass balance analysis at one of Mosaic's beneficiation plants:

	Fuel Oil (percent)	Fatty Acid (percent)	Amine (percent)
CSAs	65 – 75	65 – 85	60 – 80
Sand Tailings	10 – 25	5 – 10	15 – 20
Product	5 – 10	10 -15	15 - 20

The organic reagents end up in the CSAs because the water generated by the flotation steps is pumped to CSAs for clarification and storage prior to re-use, with the exception of the water used to pump sand tailings to mined areas for backfill. Even the water recovered at tailings backfill sites is subsequently returned to CSAs.

Within the CSAs, the water is clarified as suspended particles settle to the bottom, leaving the decanted water available for re-use. Reagents electrostatically adhere to particles and remain so, such that the reagents settle with the associated particles. In addition to this physical process, the amines and fatty acids both bond readily with the calcium in the clay particles. This bonding is due to the presence of carboxylate groups in both the amines and the fatty acids.⁽¹³⁾ Water quality data demonstrate the CSAs and mine process water systems are very effective in treating the process water to reduce the concentrations of residual reagents through *in situ* biodegradation, evaporation, and photooxidation processes.

¹³ Id.

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The fate of the inorganic flotation reagents, specifically sulfuric acid and soda ash, is well understood. Both dissolve into the process water and are found as sodium from the soda ash and sulfate from the sulfuric acid in the process water recirculation systems. Process water concentrations of sodium typically average 100 - 125 mg/L and concentrations of sulfate typically average 200 - 300 mg/L.⁽¹⁴⁾ Various concentrations of sodium and sulfate also are added by the groundwater well withdrawal make-up water supplies. The acidity is neutralized by the soda ash and clay particles, such that the pH of water in the recirculation systems is close to neutral.

While there are no federal or state surface water quality standards for either sodium or sulfate, DEP has established groundwater standards for sodium at 160 mg/L and sulfate at 250 mg/L. Groundwater monitoring near CSAs (where these minerals would most likely be found if they were to migrate from the CSAs) has not produced evidence of exceedances of either the sodium or sulfate standard.⁽¹⁵⁾

1.1.3 Framework of Regulations

The State of Florida has adopted a comprehensive framework of regulations that minimize the risk of impacts from Mosaic's extraction and beneficiation operations. The principal permits and approvals that implement the regulatory structure are the Industrial Wastewater/National Pollutant Discharge Elimination System (IW/NPDES) permit, the Environmental Resource Permit (ERP), and the Conceptual Reclamation Plan (CRP) approval.

¹⁴ Mosaic Fertilizer, LLC. 2011 **Ona Mine Application for a Section 404 Federal Dredge and Fill Permit Application.**

¹⁵ Mosaic Fertilizer, LLC. 2017. **Annual Operating Report for the South Pasture Mine.**

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1.1.3.1 IW/NPDES Permit

Mosaic's mine discharge water consists of "process generated wastewater" from washing and flotation and water generated by "mine dewatering" from active mining and reclamation areas. Both of these wastewater types are regulated by FDEP rules published in Chapter 62-671, F.A.C., which incorporate and expand upon the effluent limitations guidelines and new source performance standards published by EPA in 40 CFR 436. FDEP rules define "process generated wastewater" as water used for slurry transport of the ore matrix or the sand and clay residuals; recovery of the phosphate rock by washing and beneficiation at the beneficiation plant; and any other water that becomes commingled in the mine water recirculation system.⁽¹⁶⁾ "Mine dewatering" means any water that is impounded or collects in the mine areas (i.e., water from surficial aquifer, rainfall collected stormwater) that is pumped into the mine water recirculation system.⁽¹⁷⁾ Once water produced by "mine dewatering" enters the mine water recirculation system, it is considered "process generated wastewater."⁽¹⁸⁾

Discharges are authorized by NPDES permits. In addition to authorizing installation and operation of the surface water outfalls, the FDEP permits authorize and regulate discharges to the surficial aquifer, which consist of rehydrating the aquifer during backfilling of mined voids with sand tailings or clay and downward seepage beneath and adjacent to CSAs.⁽¹⁹⁾

The FDEP permits and regulations require all water discharged to receiving streams to meet applicable surface water quality standards at the point of discharge (i.e., without the use of mixing zones) and aquatic life criteria. Mosaic compliance monitoring data was independently examined by USACE and was found to comply with these standards.⁽²⁰⁾

¹⁶ Florida Department of Environmental Protection. 2016. **Industrial Wastewater Facility Permit No. FL 0037958; Mosaic Fertilizer, LLC; South Fort Meade Mine.**

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ U.S. Army Corps of Engineers. 2013. **Final Areawide Environmental Impact Statement on Phosphate Mining in the Central Florida Phosphate District.**

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Discharges to groundwater are required to meet Safe Drinking Water Act standards beyond the “Zone of Discharge” under Rule 62-420.465, F.A.C., which extends 100 feet horizontally beyond the boundary of the discharge area (e.g., sand tailings backfill sites and CSAs) and to the base of the surficial aquifer. USACE independently evaluated Mosaic compliance monitoring data and found groundwater contamination is not present at Mosaic’s mines and beneficiation plants.⁽²¹⁾

1.1.3.2 ERP/CRP

The ERP and CRP regulate land disturbance associated with ore extraction. Chapter 62-330, F.A.C., requires the ERP applicant to demonstrate the proposed ore extraction will not cause or contribute to any excursions from Florida water quality standards, both ground and surface waters. The ERP also constitutes the Section 401 federal Clean Water Act certification.

The CRP requires all lands disturbed by mining operations to be reclaimed to safe and productive land uses following ore extraction. Rule 62C-16.0051, F.A.C., imposes reclamation performance standards, including the requirement that water draining from reclaimed land meets water quality standards. Rule 62C-16.0075, F.A.C., establishes financial responsibility requirements.

In addition, the state of Florida has adopted rules that protect against releases of hazardous substances that all apply to all holders of ERP and IW permits as well as reporting and remediation of releases of hazardous substances. This comprehensive regulatory structure and program is designed to prevent sites from being listed under EPA’s CERCLA program. Therefore, EPA has assurance that any releases of hazardous substances from Mosaic’s Florida phosphate mining operations, while demonstrated to be a low risk above, would be

²¹ Id.

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reported, assessed, and remediated on a timely basis, thereby precluding the need for action by EPA under CERCLA.

1.2 PROCESSING AT CONCENTRATES PLANTS

Mosaic's phosphate concentrates (mineral processing) plants located at Bartow, New Wales, Plant City, and Riverview, Florida and Uncle Sam, Louisiana utilize similar processes to chemically convert phosphate rock into phosphoric acid and to chemically convert phosphoric acid into fertilizer and animal feed ingredients finished products. At these facilities, insoluble phosphate rock is transformed into a suite of water soluble, biologically-available products.

Each of the manufacturing plants consist of one or more sulfuric acid plants, one or more phosphoric acid plants, and one or dry products plants.²² A sulfuric acid plant burns elemental sulfur to produce sulfur dioxide and then converts sulfur dioxide into sulfuric acid. In the phosphoric acid plants, phosphate rock is reacted with sulfuric acid to produce phosphoric acid and calcium sulfate (also referred to as phosphogypsum). In the dry products plants, ammonia or limestone is reacted with phosphoric acid to produce fertilizer or animal feed ingredients products.

Mosaic has worked cooperatively with EPA to assess under RCRA whether any of its five manufacturing plants have experienced releases that resulted in contaminated soils, surface waters, or groundwater on, beneath, or have migrated offsite. These investigations, coupled with groundwater monitoring plans implemented pursuant to the manufacturing plants NPDES permits, while not yet complete, have not discovered contamination that would rise to the level of a CERCLA response action.

²² Mosaic also operates sulfuric acid plants at its South Pierce Florida facility.

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In addition, as noted in the preamble to the Proposed Rule, EPA and Mosaic have reached agreement on funding closure of the manufacturing plants and post-closure operation and maintenance costs.²³ This agreement provides additional assurance that a CERCLA response action will not be necessary in the future at the manufacturing plants.

These actions under RCRA effectively address the financial responsibility concerns EPA is attempting to address in the Proposed Rule under CERCLA. Because EPA is the lead agency, EPA's concerns about the effectiveness of other regulatory programs do not apply.

2. EPA'S FINANCIAL ASSURANCE FORMULA DOES NOT CORRELATE WITH MOSAIC'S LOW-RISK FLORIDA PHOSPHATE MINING OPERATIONS

Section 1.1 above provides documentation to support a finding by EPA that Mosaic's Florida phosphate mining operations do not pose risks similar to those documented by EPA at historical CERCLA NPL sites or current hardrock mining operations. Section 1.2 provides documentation for EPA to find that the State of Florida has implemented a comprehensive multi-media regulatory structure that is protective of the environment and minimizes the risk that one of Mosaic's Florida phosphate mines could require response actions by EPA under CERCLA.

The proposed financial responsibility formula in the Proposed Rule is based upon historical CERCLA response costs at hardrock mine sites with consideration of current practices and processes emphasized. Because no Florida phosphate mines have required CERCLA response actions, EPA's formula cannot take into consideration historical and current processes at Florida phosphate mines. The following discussion explains why the input variables do not correlate to Mosaic's Florida phosphate mining operations.

²³ 82 FR 3478.

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2.1 INPUT VARIABLES

EPA's formula for total financial responsibility is based on a calculated estimate of the response cost, which is then adjusted for inflation. The response cost is the sum of 13 input variables. The applicability or inapplicability of each input variable is addressed below.

2.1.1 *Open Pit Category*

In the preamble, EPA cites examples of traditional open pit hardrock mines causing groundwater contamination due to precipitation coming into contact with sulfide ores, often also resulting in low pH acid mine drainage. Metals were most often cited as the constituents of concern. There are multiple reasons why Mosaic's Florida phosphate mines should not be similarly categorized.

First, traditional open pit mines are single excavations that reach at least 100 feet and often thousands of feet below land surface. Upon completion of ore extraction, the pits become "closed basins" that fill with water. In sharp contrast, Mosaic's Florida phosphate mines are shallow excavations that rarely reach 100 feet in depth. As explained in Section 1.1 above, nearly all of the mine excavations are backfilled with clay, sand and overburden such that only a small percent of mined area is reclaimed as lakes. The "reclaimed lakes" contain pH levels that are near neutral and contain low levels of constituents of concern to EPA.

Second, the vast majority of examples cited by EPA were sulfide ore veins within metamorphic rock formations. In sharp contrast, Section 1.1 documents the ore mined by Mosaic is a marine oxide deposit of sands and clay.

Third, Section 1.1 provides citations from an extensive body of research and monitoring results that document soil and ground and surface water quality on, adjacent, and downstream of Mosaic's Florida phosphate mines meet applicable standards and do not require risk-based corrective action.

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2.1.2 Underground Mine Category

Section 1.1 documents Mosaic's Florida phosphate mines do not fall within the underground mine category.

2.1.3 Waste Rock Category

Section 1.1 documents Mosaic's Florida phosphate mines do not generate waste rock piles. As described in Section 1.1, the phosphate ore is overlain by unconsolidated soils, sands, and clays of marine origin, which is referred to as overburden. The overburden, along with tailings sand, is used to backfill the mine excavations and provide the reclaimed land forms.

2.1.4 Head/Dump Leach Category

Section 1.1 documents Mosaic's Florida phosphate mines do not recover phosphate rock using a heap leaching process.

2.1.5 Tailings Category

The CSAs described in Section 1.1 are not tailings impoundments and should not be compared to tailings impoundments for purposes of determining whether the Proposed Rule should apply to Mosaic's Florida mining operations. As explained therein, CSAs differ from conventional tailings impoundments at hardrock mines where CERCLA response actions have been required.

2.1.6 Process Pond and Reservoir Category

CSAs also provide storage for storm and process water. The CSAs are addressed under tailings impoundments above.

2.1.7 Slag Pile Category

Section 1.1 documents Mosaic's Florida phosphate mines do not generate slag. Therefore, the slag pile category is not applicable.

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2.1.8 Solid and Hazardous Waste Disposal Category

Mosaic does not dispute that its Florida phosphate mines generate solid waste and are registered as small quantity generators of hazardous wastes. Such wastes include office trash and garbage and spent batteries, fluorescent bulbs, and fluids and solvents from mobile equipment repair, many of which are recycled.

Since the enactment of CERCLA in 1980, Mosaic and other Florida phosphate mine operators have closed 18 beneficiation plants, including demolition and removal of all mineral processing equipment, facilities, structures, and wastes. The owners/operators completed this work without imposing any costs on the taxpayer. Combined with the absence of any Florida phosphate mines requiring CERCLA response actions, this track record demonstrates Mosaic's Florida phosphate mines do not fall within this risk category.

2.1.9 Drainage Category

Section 1.1 documents that at Mosaic's Florida phosphate mines, all drainage from active mine areas is contained within the ditch and berm systems; discharged to the environment only through federal Clean Water Act Section 402 NPDES outfalls; and uncontrolled drainage only resumes after reclamation is complete and water quality has been documented to meet Florida water quality standards. Due to this regulatory structure and current operating practices, Mosaic's Florida phosphate mines do not fit within the drainage category described by EPA in the background document.

2.1.10 Interim O&M Category

The interim O&M category is not applicable for the reasons cited in the heap leach and tailings categories above.

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2.1.11 Water Management Category

The water management category is not applicable because Mosaic's Florida phosphate mines do not fit within the in-situ leach category.

2.1.12 Short-Term O&M Monitoring Category

Mosaic's Florida phosphate mines do not fall within this category for the same reasons the drainage category is not applicable.

2.1.13 Long-Term O&M Monitoring Category

Mosaic's Florida phosphate mines do not fall within this category for the same reasons the drainage category is not applicable.

2.2 CONCLUSIONS

An extensive bibliography of publicly and privately funded environmental multi-media data, analyses, and scientific and engineering evaluations is provided in Chapter 7 of the USACE Areawide EIS.²⁴ to support the following findings by EPA:

1. Extraction of oxide deposits in central Florida and physical ore separation (i.e., beneficiation) closely resembles extraction and physical ore separation of oxide sand and gravel deposits found by EPA to have a low degree and duration of risk of injury.
2. Mosaic's Florida extraction and beneficiation operations are not comparable to traditional hardrock mines in terms of types of ores extracted and beneficiated, processes used to beneficiate the target minerals, uses of hazardous materials, and historic and current releases of hazardous substances, which forms the underlying basis for the Proposed Rule.

²⁴ Id.

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3. Mosaic's Florida extraction and beneficiation operations do not require the features or operations/processes that generated the environmental releases addressed in EPA's evaluation. EPA's "modeled universe" did not include Florida phosphate ore extraction or beneficiation sites because none have required CERCLA response actions.
4. Based upon EPA's criteria for exemption, Mosaic's phosphate ore extraction and beneficiation facilities and operations should be excluded from regulation under the Proposed Rule.
5. Mosaic's phosphate mineral processing (fertilizer manufacturing) facilities and operations have financial responsibility amounts and instruments in place under RCRA. Regulation under the Proposed Rule would be redundant.

Potash Technical Analysis- Attachment B

TECHNICAL MEMORANDUM

To:
Mosaic Carlsbad Potash Inc.

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From:

Jo Ann Tischler

Date: June 1, 2017
Arcadis Project No.: 05749034.0000

Subject:
Technical Analysis – Justification for Potash Exclusion from CERCLA § 108(b) Requirements

1.0 Background

The US Environmental Protection Agency (EPA) has published proposed changes to 40 CFR Part 320 in a proposed rule (the Proposed Rule)¹ entitled *Financial Responsibility Requirements Under CERCLA § 108(b) for Classes of Facilities in the Hardrock Mining Industry*, in the Federal Register (FR) of January 11, 2017. Mosaic Potash Carlsbad Inc. (Mosaic) has requested that Arcadis provide this technical analysis of EPA's basis for inclusion of potash mining as one of the classes of "hard rock mining" to be regulated under the proposed Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 108(b) rulemaking.

2.0 Purpose for This Analysis

EPA cites its 2009 *Identification of Priority Classes of Facilities for Development of CERCLA Section 108(b) Financial Responsibility Requirements (Priority Notice)*² as the basis for identifying and prioritizing the classes of facilities within the hardrock mining industry, as defined by EPA, for which EPA would first develop regulations for financial responsibility. The Priority Notice stated that the classes of mines to be prioritized for regulation were determined based on its consideration of the elements used in evaluating risk to human health and the environment, such as probability of releases, type and duration of exposure, and toxicity of releases.

¹ US EPA 2017
² US EPA July 2009

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The preamble to the Proposed Rule also cited EPA's June 29, 2009 Memorandum, *Mining Classes Not Included in Identified Hardrock Mining Classes of Facilities* (the 2009 Memorandum)³. In this Memorandum, several categories of commodities were exempted based on EPA's review of 2007 TRI data, which indicated that these categories released "many orders of magnitude less hazardous substances into the environment than do other classes of hardrock mining." EPA compared the types and amounts of chemicals from 59 non-fuel hardrock commodity sectors, noting that the amount and types of releases were significantly lower than, and do not pose as significant a risk as, other hardrock mining commodities. As a result of their evaluation, EPA exempted the list of 59, which included salt, salt brine evaporation, sand, gravel, limestone, and kaolin. In the Proposed Rule⁴, EPA solicits comments to justify the exclusion of additional classes of mining with low risk under 40 CFR § 320.62, stating:

"EPA solicits comments on whether it would be feasible and appropriate to identify additional classes of hardrock mining facilities as presenting a lower level of risk of injury, particularly classes of mines that differ in their operations and associated risk from more tradition [sic] hardrock mining operations."

This analysis responds to EPA's request, and provides deep justification for the Agency to exclude potash mining from the scope of the proposed rule. The analysis included herein provides a basis for determining that the potash industry poses a "Lower Level of Risk of Injury Consistent with other Classes Not Included in the Proposal," and should therefore be excluded from regulation under the Proposed Rule. Specifically, the analysis demonstrates that:

1. Potash extraction and beneficiation consists of the same types of activities as other commodities, which EPA has specifically excluded from the current rulemaking due to their low level of risk of environmental impact.
2. The potash sector is not comparable to the other mining sectors included for regulation under the Proposed Rule and that potash extraction and beneficiation does not include the types of activities and features that have a history of releases, liabilities and costs evaluated by EPA as a basis for regulation under the rulemaking.
3. The "modeled universe," which served as EPA's basis for assessment of compliance cost for hardrock commodities, did not include and was not reflective of soft rock mining commodities like potash.
4. The potash sector in New Mexico, which accounts for 85% or more of potash production in the US, is strictly regulated, and has operated for multiple decades with no history of releases, environmental risk, or financial liabilities to federal regulatory agencies or the public.

The Proposed Rule⁵, cites the 2009 Priority Notice as the basis for its definitions of "hardrock mining" and its component activities: "extraction "beneficiation" and "processing." The Priority Notice defines hardrock mining as:

³ US EPA June 2009

⁴ 82 Fed. Reg. p3456

⁵ Ibid. p3390

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“the extraction and beneficiation of rock and other materials from the earth that contain a target metallic or non-metallic mineral. Mineral processing separates and refines mineral concentrates to extract the target material.”

Per the Priority Notice,

“Extraction means the sequence of activities intended to physically gain access to and remove ore or a mineral body.”

“...beneficiation involves separating and concentrating the target mineral from the ore.” EPA’s definition describes beneficiation as the steps in which separation of the target mineral from waste occurs and in which size reduction or enlargement to facilitate processing occurs. EPA identifies both flotation and leaching as the most common beneficiation techniques in practice, and defines the waste remaining after separation of target minerals as “tailings.”

“Processing is the refining of ores or mineral concentrates after beneficiation to extract the target material.” EPA’s definition considers pyrometallurgical techniques such as smelting to be typical of processing/mineral refining.

The Proposed Rule relies on those definitions in describing the component activities of hardrock mining and their impacts. While the mining industry does not define or use the above terms in exactly the same way as EPA does in its Rulemaking, for the sake of clarity, this analysis will utilize EPA’s terminology to the extent possible.

3.0 Overview of Potash Extraction and Beneficiation

Potash is a term currently used to refer to several potassium minerals including muriate of potash or potassium chloride (KCl), potassium sulfate (K_2SO_4), potassium magnesium sulfates (K-Mags), and potassium nitrate (saltpeter)⁶. Prior to discovery of natural potash mineral deposits in these mineral forms, potash was produced by evaporation of potassium carbonate leached from wood ashes. Potash has been produced in the United States primarily from harvesting of ores since 1930, following the discovery in 1925 of sylvinite (potassium chloride ore) and langbeinite (potassium magnesium sulfate ore) in the Carlsbad, New Mexico area.⁷

Like the exempt salt mining sector, all commercial potash mineral deposits result from evaporites, water soluble minerals crystallized from aqueous solutions and deposited, typically at depth, from sea water in ancient inland oceans or lakes. Deposits which have been economically developed in the US include Searles Lake in California; the Bonneville Salt Flats in Wendover, Utah; Sevier Dry Lake area of Paradox Basin in southeastern Utah; Delaware Basin in southeastern New Mexico; Holbrook Basin in east-central Arizona; and the Michigan Basin, as well as surface and near surface potassium brines from Great Salt Lake, Utah.

Underground potash deposits in the form of potassium chloride are found in the Great Salt Lake and Sevier Dry Lake areas of Utah, within in the Paradox Basin, approximately 3,000 feet below ground, as well as in the Michigan Basin at 7,000 to 8,000 feet below ground.⁸

⁶ Gary, et. al. 1974

⁷ Austin 1984

⁸ International Potash Institute 2017

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Potash minerals, generally as potassium sulfates, are also present at economical concentrations in the North Arm of Great Salt Lake, in Utah. Production of potash and halite (sodium chloride or common salt) from Great Salt Lake salt brine evaporation began in the late 19th century.

The only potash deposit currently mined by underground methods is the Carlsbad deposit in New Mexico. Thick sections of salt and evaporite minerals were deposited and continually replenished during the Ochoan period in the Permian Basin in west Texas and southeastern New Mexico. The potash-containing minerals were concentrated in a small area on the west side of Permian Basin in what is known today as the Carlsbad Mining District. Approximately 85% of US production of potash minerals originates in New Mexico, and the Carlsbad deposits have been mined nearly continuously for over 75 years, making this one of the longest-operating underground potash mining areas in the US.

Evaporite mineral deposits and host rock are considered sedimentary rock, or "soft rock"⁹, as opposed to other minerals found in igneous and metamorphic, or "hard rock." As discussed further in Sections 3.1 through 3.3, potash is extracted from its deposits in the host formation or media by one of three mining methods: deep shaft mining, in-situ solution mining, or salt brine evaporation (evaporation of naturally occurring surface or subsurface brines).

3.1 *Conventional Extraction and Beneficiation*

All potash mines in and to the east of the Carlsbad Mining District are underground mines with mine shaft depths varying from 650 to 1,750 feet. The relatively flat ore zones are mined with modified coal-mining equipment, in room and pillar or similar workings.¹⁰

Potash mines in the Carlsbad Mining District are deep shaft mines, usually consisting of two or more shafts: a service shaft for transport of personnel and equipment, and a production shaft for hoisting of the excavated ore. The potash is present in multiple, nearly flat or shallowly-sloped continuous beds that can be mined by using continuous mining machines. Because the potash minerals are present as extensive continuous beds of excavatable soft rock mineral salts, no explosive blasting of host rock to expose mineralized surfaces is required, as it is in traditional hard rock mining. In addition, because the potash minerals are not interbedded with non-mineralized rock, the segregation of non-mineralized waste rock, and the associated production of low-grade ore piles and waste rock dumps, does not occur.¹¹

Groundwater is typically scarce in the entire region. When groundwater is present, the ore zones and mine workings are typically below the water table. In the case of Mosaic's New Mexico mining works, a hydraulic head exists between the water table and the base mining elevation.

Mosaic's Carlsbad, New Mexico potash facility, which is typical of potash mining and beneficiation in the region, consists of an underground mine and surface mill that produces potash products from langbeinite ore ($K_2SO_4 \cdot 2MgSO_4$). The major steps associated with the operation are simple manual/mechanical underground mining with above ground separation and size grading, accomplished by physical equipment for crushing, screening, granulation, drying, storing, and loading. Langbeinite ore is hoisted 900 feet from the underground mine to the surface and conveyed to a crushing circuit, where it is screened. Undersized

⁹ Gary, McAfee and Wolf, 1974

¹⁰ Yager 2016

¹¹ Austin 1980

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material goes to a fine ore bin while oversized material is crushed in an impact crusher and rescreened. The fine ore is transported by belt to a wet purification circuit where impurities are removed from the ore, by contact with water and magnetite, a non-hazardous iron mineral. After the wet circuit, the langbeinite material is dewatered over a belt filter and dried in a rotary dryer. The dried langbeinite is sized by several screens in a screening tower, and the various size grades are dispatched to warehouses and sold as either granular, standard, or a premium blend of potassium magnesium sulfate (known as K-Mag®). Approximately 30-50% of the langbeinite product is transferred to a granulation circuit, finely ground in two Raymond mills, injected into a rotating drum granulator with binder material, consisting of non-hazardous oils, amines and urea, to form uniform granules, and dried in a rotary dryer. The dried product is sized by screening, and the optimally sized product is dispatched to a warehouse. Over- and undersized product is recycled through the granulation circuit.

The above sequence of operations, in practice at Mosaic's New Mexico location, does not use acid, caustic or cyanide leaching agents. Further, no synthetic organic chemical reagents or extraction solvents are added. The operations have typically been small quantity generators of the types of wastes regulated under the Resource Conservation and Recovery Act (RCRA) from use of small quantities of reagents in on-site assay or quality control laboratories. Hence, the facility is a small quantity generator under RCRA and New Mexico's hazardous waste regulations.

Like the exempt salt mining sector, extraction and beneficiation of conventionally-mined potash produces relatively benign tailings composed of clay, soils, and sodium chloride from the mined deposit, which is accumulated on site. Cuttings are hoisted from the mine to the surface and transported to a screening and crushing circuit. Oversized material is crushed and recycled to the screen, while the appropriately-sized material is slurried with water and pumped to the tailings area.

At the Mosaic New Mexico operation tailings, containing salts and clays, are deposited in a management area referred to as the "salt stack." Larger or heavier clay particles and salts settle in the salt stack, and a clear brine containing fine clay is transferred to the clay settling area. Following fine clay settlement, clear brine is transferred by pipeline to Laguna Grande, where salt is harvested for commercial reuse in man-made evaporation recovery ponds, in an operation run by third parties. As discussed below, salt brine evaporation has been exempted from regulation under the Proposed Rule.

Because the beneficiation of potash, , does not involve digestion with mineral acids, caustics or cyanide solutions, the resulting tailings from current operations are not corrosive, do not contain dissolved heavy metals, and do not generate a leachate.

Most potash mining in New Mexico occurs in remote, sparsely populated areas, with moderate to very dry climate, and minimal precipitation.

3.2 *Solution Mining Extraction and Beneficiation*

As is done in the exempt salt mining sector, solution mining methods are used when the potash ore is deposited at depths too great for conventional mining techniques, or to recover ores left behind after the cessation of conventional mining. The deposit formerly mined at Hersey, Michigan was developed as a solution mine, and the former conventional mines at Cane Creek, Utah and northeast of Carlsbad, New Mexico have been converted to solution mines. Solution mining involves injection of heated natural salt brine solutions into the underground ore body to dissolve the potash-containing minerals. Before being

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surfaced, potash brine solutions may be pumped initially to underground caverns for additional residence time to allow additional dissolution of the potash minerals. Brine solutions laden with dissolved potash minerals are pumped to surface evaporation ponds or above-ground equipment where salts are crystallized, and potash minerals are subsequently separated from brine salts by flotation.^{12,13}

3.3 *Potash Salt Brine Evaporation*

In the North Arm of Great Salt Lake in Utah, potash is also produced by salt brine evaporation of naturally-occurring surface and subsurface brines, which contain high levels of sodium chloride, magnesium chloride, and potassium sulfate. In this situation, potash in the potassium sulfate form is produced from the same source, in the same facility and equipment as common salt, from salt brine evaporation, which EPA has exempted from regulation under the Proposed Rule.

3.4 *Processing or Refining*

Potash production does not involve "processing" or "refining" of mineral concentrates as defined by EPA in the Proposed Rule and its supporting studies. Because potash minerals exist in nature in substantially the same chemical form in which they will be marketed, and because they can be separated from co-present minerals with simple mechanical operations, potash production does not involve the types of processes or features which EPA determined to be the key causes of environmental risk and CERCLA liability from processing or refining. Specifically, because potash production does not involve the thermal purification of solid metals, it requires no solvent extraction, no calcining and no smelting; and therefore, produces no waste solvents, no furnace residues or smelter slags, and no thermal equipment stack scrubbing solutions. Because potash production does not require the creation of a metal product, it does not involve casting, forming, machining, or metal finishing, and does not produce any of the wastes associated with those processes.

In summary, potash extraction and beneficiation, including the New Mexico conventional mining operations:

- Generate no waste rock dumps, spent ore, or low-grade stockpiles piles;
- Do not involve explosives and blasting (although many mining classes in the list of 59 exempted by EPA do involve blasting);
- introduce no acid, caustic or cyanide leaching solutions;
- Are limited to physical and mechanical operations for sizing, separation, and product classification;
- Does not involve; and therefore, does not transfer leaching solutions or heavy metals to the surface impoundments;
- Produce only minimal quantities of laboratory-generated hazardous waste as defined in RCRA;
- Produce benign tailings comprised of residual constituents from the native mineral deposit. (Solution mining and surface brine evaporation generate no tailings, but do produce residual mineral salts); and,

¹² Kent et. al 2007

¹³ Yager 2016

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- Because the tailings, where produced, are non-acidic with no heavy metals, they do not produce acid mine runoff.

4.0 Potash Production Consists of the Same Activities as other Commodities which EPA has Exempted from the Current Rulemaking Due to Low Risk of Environmental Impact

As mentioned in Section 2.0, above, EPA cited its 2009 Priority Notice as the basis for identifying and prioritizing the classes of facilities within the hardrock mining industry for which EPA would first develop regulations for financial responsibility. The Priority Notice defined hardrock mining facilities as those which extract, beneficiate, and process metals, and non-metallic, non-fuel minerals.

In the preamble to the Proposed Rule¹⁴, EPA states that, in addition to excluding coal mining operations from a list of potentially regulated facilities,

“EPA also removed 44,845 mines associated with 59 non-fuel hardrock commodities to conform with the scope of those classes of facilities identified in the 2009 Priority Notice.”

The preamble to the Proposed Rule also cited EPA's June 29, 2009 Memorandum, *Mining Classes Not Included in Identified Hardrock Mining Classes of Facilities* (the Memorandum). As described in the Memorandum, several categories of commodities were exempted from regulation after EPA reviewed 2007 TRI data, which indicated that these categories released “many orders of magnitude less hazardous substances into the environment than do other classes of hardrock mining.” These included mining and quarrying of crushed and broken limestone, crushed and broken granite, other crushed and broken stone, and the mining of kaolin and ball clay, and clay and ceramic refractory minerals. These commodities were exempted from regulation based on TRI data indicating that they released 164,000 pounds of hazardous substances into the environment in total, which EPA considered immeasurably smaller than the rest of the hardrock mining universe. It should be noted that in comparison, the potash industry released significantly lower amounts than those identified by EPA above. For example, releases from Mosaic's New Mexico operations have historically been and remain so low that they fall below the modest reporting thresholds established for TRI reporting and have been considered de minimus .

EPA compared the types and amounts of chemicals from 59 non-fuel hardrock commodity sectors, noting that while some do release some of the same types of hazardous substances as the hardrock mining universe, the amount and types of releases were significantly lower and do not pose as significant a risk. As a result of their evaluation, EPA also exempted the list of 59 which, in addition to the commodities listed above, included salt, salt brine evaporation, sand, and gravel.

As will be discussed in the following sections, potash extraction and beneficiation is comparable to, and in some cases identical to, the following mining classes and commodities, each of which EPA has categorically excluded from regulation under the Proposed Rule because they pose a much lower environmental risk than other hardrock commodities: salt and salt brine evaporation, crushed and broken limestone production, sand and gravel, and kaolin and ball clay. A comparison between potash operation and each exempted commodity is provided in the remainder of this section, and summarized in Table 4-1 at the end of this section.

¹⁴ 82 Fed. Reg. p3390

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4.1 *Salt and Salt Brine Evaporation*

Like potash, sodium chloride (common salt) is an evaporite, crystallized and deposited from sea water in ancient inland oceans or lakes in the same locations and in the same geologic periods. As would be expected, economic mineral deposits of salt and potash minerals are frequently co-located. In underground deposits they are usually intermixed or stratigraphically adjacent at depth in soft rock host formations. In the North Arm of Great Salt Lake, they are co-present as dissolved minerals.¹⁵

In the salt brine evaporation of lake brines, the sodium chloride product and the potash minerals are simultaneously recovered in evaporation ponds or crystallizers, then separated by flotation.

EPA concluded from review of three Society of Mining, Metallurgy and Exploration (SME) texts^{16,17,18} that salt and salt brine evaporation is one of 59 commodities that "are produced by simple physical methods which separate the product from overburden." EPA also noted that the 59 commodities do not appear, at this time, to routinely use hazardous substances to produce a final product.

As described above, potash mining uses the same simple physical methods to separate product from natural materials, and potash production does not routinely use hazardous substances to produce a final product. Moreover, in potash recovery from lake brines, the potash product is sequentially harvested from the same equipment in the same salt brine evaporation facilities which EPA has exempted from regulation under the Proposed Rule.

4.2 *Limestone*

Crushed and broken limestone production were included in the 59 commodities which EPA exempted from regulation under the Proposed Rule because of their low environmental risk, as stated in the 2009 Memorandum.

EPA concluded from review of three SME texts that limestone quarrying is one of 59 commodities that "are produced by simple physical methods which separate the product from overburden." EPA also noted that the 59 commodities do not appear at this time to routinely use hazardous substances to produce a final product."

Like the quarrying of crushed and broken limestone, potash production involves the recovery of an alkaline mineral resource from a sedimentary host rock, and the mineral resource exists in continuous strata in the native material in essentially the same chemical form in which it will be marketed. Hence, both limestone and potash production involve simple physical beneficiation processes focused on the removal of impurities from the native mineral deposit via flotation or other physical processes, and classification/size segregation via mechanical equipment (i.e., grinding, screening). Likewise, under current practices, neither limestone quarrying nor potash production require acid, caustic or cyanide leaching, chemical conversion, or thermal processing to achieve a marketable product.

As in limestone mining, the tailings from potash mining are composed solely of residuals of native materials from the host rock, such as silica, clay and iron, which do not generate a leachate.

¹⁵ Peters 1978

¹⁶ Hartman 1992

¹⁷ Kennedy 1990

¹⁸ Weiss 1985

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As described above, potash mining uses simple physical methods to separate product from natural materials, and potash production does not routinely use hazardous substances to produce a final product.

As EPA has identified from review of the SME texts, all of the potash produced in the US is recovered either from deep underground bedded ore zones, or from two-well solution mining, solar evaporation, and selective crystallization. No open pit, strip mining, or other surface mining techniques are employed in the current potash industry. Potash recovery, therefore, produces far fewer impacts to the land surface than the exempted limestone mining, which most commonly employs open pit/surface mining of shallow formations of limestone, marble, chalk, or dolomite. Hence potash recovery does not involve the environmental effects and risks associated with:

- pit high wall safety issues,
- disruption of natural surface hydrologic features,
- incursion of groundwater into surface workings, and
- consumption of backfill material sources for reclamation,

which accompany the exempted limestone open pit/surface mining operations.

EPA's review of TRI data for 2007 indicated that "11 facilities in the crushed and broken limestone category released 67,525 pounds of chemicals, primarily lead and mercury."". In comparison, releases from Mosaic's New Mexico operations were even lower than from the limestone category; they remain below the reporting thresholds for TRI reporting and are considered de minimus, EPA considered limestone operations, even in combination with 58 other categories, to "release many orders of magnitude less hazardous substances into the environment than other classes of hardrock mining. Additionally, EPA did not identify any limestone quarries that were placed on the National Priorities List (NPL) due to contamination from operations at the site; therefore, EPA has spent no CERCLA public funds on the cleanup of such sites.

Similarly, there are no potash sites on, or proposed for inclusion on, the NPL. Unlike limestone, potash operations do not release lead or mercury.

4.3 Sand and Gravel

Sand and gravel were included in the 59 commodities that EPA exempted from regulation under the Proposed Rule because of their low environmental risk, as stated in the 2009 Memorandum.

Sand and gravel deposits found along surface water bodies and channels are primarily quartz (silicon dioxide or SiO₂) remaining after the weathering of granite, from either igneous rock or the metamorphic re-melting of sedimentary rock. Quartz remaining after the weaker components of granitic rock have weathered away are deposited at beaches, stream beds, and deltas. Sands and gravels are typically mined from surface features by mechanical equipment such as front-end loaders, scrapers, and bulldozers, or by hydraulic dredges. Mechanically excavated sands and gravels are hauled to the recovery plant by truck, while hydraulically dredged material can either be pumped, or stockpiled and trucked. Because the product is a native material that does not require chemical extraction, conversion, purification or refining, recovery plants involve only physical steps such as washing, size-screening, and conveying.

Like the quarrying of sand and gravel, potash production involves the recovery of a mineral resource that exists in continuous strata in the native material in essentially the same chemical form in which it will be marketed. Hence, both sand and gravel operations and potash production involve simple physical

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beneficiation processes focused on the removal of impurities from the native deposit, and classification/size segregation via mechanical equipment (i.e., grinding, screening, washing, conveying). Likewise, neither sand and gravel quarrying nor current methods of potash production require acid, caustic or cyanide leaching; chemical conversion; or thermal processing to achieve a marketable product.

Wastes from sand and gravel quarrying are residual native materials such as non-silica components and sediments from the excavation or dredging. Likewise, wastes from potash mining are composed solely of residuals of native materials from the host rock, such as silica, clay and iron, which do not generate a leachate.

In-stream, near-stream, and sand and gravel mining can be associated with environmental impacts such as changes to the sub-channel sediment load ("sediment budget"), degraded stream habitats, loss of riparian (streamside) habitats, changes in aquatic species balances, and loss of land. Nonetheless, EPA has considered the impacts from sand and gravel operations not to be as significant as those from other types of hardrock mining, and these operations have been exempted from regulation under the Proposed Rule. It should be noted that potash recovery from deep mineral deposits, whether by deep mining or solution mining, do not generate the impacts associated with surface channel mining.

EPA did not identify any sand and gravel operations that were placed on the NPL due to contamination from operations at the site; therefore, EPA has spent no CERCLA public funds on the cleanup of such sites.

Likewise, there are no potash mining facilities on the NPL, and no CERCLA public funds have been spent on the cleanup of potash mine sites.

EPA concluded from review of three SME texts that sand and gravel is one of 59 commodities that "are produced by simple physical methods which separate the product from overburden." EPA also noted that the 59 commodities do not appear at this time to routinely use hazardous substances to produce a final product.

As described above, potash mining uses simple physical methods to separate product from natural materials, and potash production does not routinely use hazardous substances to produce a final product.

4.4 *Kaolin and Ball Clay*

Kaolin and ball clay were included in the 59 commodities that EPA exempted from regulation under the Proposed Rule because of their low environmental risk, as stated in the 2009 Memorandum.

Kaolin (China clay or hydrated aluminum silicate) and ball clay (kaolinite clays containing mica and quartz) are typically extracted from open-pit mines ranging from tens to hundreds of thousands of dry metric tons produced per year. Beneficiation and purification of kaolin is accomplished by either the dry/air flotation process (to control particle size) or the wet/water wash process (to control particle size and color).

Dry or air float kaolin recovery transports crude kaolin to a dry mill where it undergoes size reduction in roll or other type crushers, and rotary drying. The dried material is fed to an air-floating circuit for pulverization. Pulverized material is fed to an air separator where fine particles are segregated and collected as product, and oversize particles are returned for re-pulverization.

The majority of kaolin in the US is mined from the central Georgia mining belt and refined through a wet process. In these operations, raw kaolin is dispersed in water for grit removal. De-gritted slurry is

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centrifuged to segregate fine, intermediate, and coarse particle size fractions. These fractions may be ozone or chemically-bleached to oxidize iron-based coloration, which is removed by magnetic separation, flocculation, or froth flotation. De-pigmented product is dewatered by filtration, then rotary-dried, apron-dried, spray dried, or in some cases calcined in furnaces.

Many components of dry and wet kaolin beneficiation are identical to the mechanical/physical size reduction and size segregation steps of potash recovery operations and use the same types of equipment, including crushing, screening, drying, conveying, and loading equipment.

However, kaolin recovery, which has been exempted by EPA from the current rulemaking, incorporates a number of high temperature, chemical reagent introduction and thermal processing steps that are not required in potash recovery such as:

- Blunging (high-energy mixing with water) to form slurries,
- Centrifugation to product particle size,
- Reductive chemical leaching, ozone oxidation, and
- Calcining furnaces.

Nonetheless, based on the criteria described in the 2009 Memorandum. EPA has determined the kaolin commodity to be of low enough environmental risk to be exempted from regulation under the current rulemaking.

EPA's review of TRI data for 2007 indicated that there were "2 facilities in the kaolin and ball clay category which released 31 pounds of chemicals, primarily lead and mercury". EPA considered these operations, even in combination with 58 other categories, to "release many orders of magnitude less hazardous substances into the environment than other classes of hardrock mining. In comparison, releases from Mosaic's New Mexico operations were even lower than from the kaolin and ball clay category; they remain below the thresholds for TRI reporting and are considered de minimus. Additionally, EPA did not identify any kaolin and ball clay operations that were placed on the NPL due to contamination from operations at the site; therefore, EPA has spent no CERCLA public funds on the cleanup of such sites.

EPA concluded from review of three SME texts that kaolin and ball clay is one of 59 commodities that "are produced by simple physical methods which separate the product from overburden." EPA also noted that the 59 commodities do not appear at this time to routinely use hazardous substances to produce a final product.

Potash mining has not been associated with the release of lead or mercury, and releases from Mosaic's New Mexico operations have historically been and remain so low that they fall below the modest reporting thresholds established for TRI reporting, and have been considered de minimus. Additionally, there are no potash mining facilities on the NPL and no CERCLA public funds have been spent on the cleanup of potash mine sites.

As described above, potash mining uses simple physical methods to separate product from natural materials, and potash production does not routinely use hazardous substances to produce a final product.

The State of New Mexico, which has the US's most extensive experience with the regulation of potash production, considers potash production to be comparable to each of the mining categories discussed

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above. The above categories, including potash, were collectively exempted from regulation under the Mining Act Reclamation Program (MARP)¹⁹. MARP was created under the New Mexico Mining Act of 1993 to regulate hard rock mining reclamation activities for all minerals except the exploration and extraction of potash, sand, gravel, caliche, borrow dirt and quarry rock used as aggregate in construction, which were considered to be of low risk and suitable for regulation under other programs, as discussed in Section 9.0, below.

**Table 4-1
Comparison of Potash Operation to Commodities Exempt from Proposed Rule**

Operation	Salt	Limestone	Kaolin	Sand and Gravel	Potash
Requires surface mining?	No	Yes	Yes	Yes	No
Beneficiation limited to physical methods?	Yes	Yes	No	Yes	Yes
Requires acids, caustics or cyanide leaching?	No	No	No	No	No (per current methods)
Requires smelting or metal refining?	No	No	No	No	No

¹⁹ 69 NMC § 36-3.H

5.0 The Potash Sector is Not Comparable to the Other Mining Sectors Included for Regulation Under the Proposed Rule

As mentioned in Section 3.4 above, because potash minerals exist in nature in substantially the same chemical form in which they will be marketed, and because they can be separated from co-present minerals with simple mechanical operations, potash production does not involve the types of processes or features that EPA determined to be the key causes of environmental risk and CERCLA liability from hardrock mines. The differences between potash production and other mining sectors included for regulation under the Proposed Rule are discussed in this Section, and summarized in Table 5-1.

Specifically, potash production requires no blasting, no heap leaching, no dump leaching, and typically no introduction of mineral acids or cyanide and, based on current methods of production, produces no acid tailings or acid runoff. As mentioned in Section 3.1 above, current potash recovery produces tailings composed only of residual natural materials from the mined deposit, which do not generate a leachate. Because potash production does not involve the thermal purification of solid metals, it requires no smelting; and therefore, produces no smelter emissions, slags, or smelter stack scrubbing solutions.

As mentioned in Section 2.0 above, multiple times in the Preamble to the Proposed Rule, EPA cited its 2009 Priority Notice as the basis for identifying and prioritizing the classes of facilities within the hardrock mining industry for which EPA would first develop regulations for financial responsibility. The Priority Notice defined hardrock mining facilities as those which extract, beneficiate, and process metals, and non-metallic, non-fuel minerals. The Priority Notice also stated that the classes of mines to be prioritized for regulation were determined based on its consideration of the elements used in evaluating risk to human health and the environment, such as:

“probability of releases, type and duration of exposure, and toxicity of releases.”

As defined in the Priority Notice,

“Toxicity is reflected in the designation of substances as CERCLA hazardous substances.”

Based on a review of materials employed in potash extraction and recovery, and comparison to the CERCLA Hazardous Substances List, potash recovery does not introduce any materials defined by EPA as reflecting “toxicity.” As described in Section 3.1, potash recovery employs only limited quantities of a few reagents, as extractants and standards for assays and quality control testing, in on-site laboratories – none are used in production.

As further detailed in the Priority Notice, EPA chose to evaluate the following factors, which per EPA can relate to the probability of a release of a hazardous substance:

“(1) annual amounts of hazardous substances released to the environment; (2) the number of facilities in active operation and production; (3) the physical size of the operation; (4) the extent of environmental contamination; (5) the number of sites on the CERCLA site inventory (including both National Priority List (NPL) sites and non-NPL sites); (6) government expenditures; (7) projected clean-up expenditures; and (8) corporate structure and bankruptcy potential.”

Key factors from the above list are addressed below.

- Annual amounts of hazardous substances released to the environment: Potash mining does not release CERCLA listed hazardous substances to the environment.

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- Number of sites on the CERCLA site inventory, including both NPL and non-NPL sites: There are no potash facilities on the CERCLA site inventory.
- Government expenditures: To date there have been no government expenditures associated with remediation of releases or environmental impacts from potash mining.
- Projected clean-up expenditures: As potash operations do not use hazardous substances, projected expenditures for cleanup of hazardous releases is zero. Projected expenditures for restoration of potential environmental disturbances, particularly in New Mexico operations, are addresses by reclamation plans and surety under the New Mexico Mining Act, as discussed in Section 9.0.

EPA's additional conclusions from the 2009 Priority Notice are addressed below.

EPA states in its Priority Notice that EPA's past experience leads it to concluding that hardrock mining facilities are likely to present a substantial financial burden requiring "enormous expenditures" by the federal government. In support of this claim, EPA cites a Government Accountability Office (GAO) study, which reported that the US government spent over \$2.6 billion to remediate hardrock mining sites from 1998 to 2007, with EPA spending the largest amount at \$2.2 billion. However, in this study, which EPA argues as a rationale for regulation of hardrock mines, none of the sites were potash mines or potash recovery facilities.

EPA states that the agency itself has spent \$2.7 billion between 1988 and 2007 on mining sites proposed, listed, or deleted from the NPL and sites with Superfund alternative approach agreements in place. However, there are no potash facilities on or proposed for the NPL, and no potash facilities requiring Superfund alternate approach agreements.

EPA identified that as of April 2009, 90 hardrock mining sites have been listed on the NPL and 20 additional hardrock facilities have been proposed for inclusion on the NPL. Again, none of these 110 facilities are potash facilities.

EPA additionally cited, as justification for regulation, the fact that bankruptcies in the hardrock mining industry, particularly in operations held by foreign owners, have resulted in government expenditure of funds for mining reclamation. The examples cited include Summitville Mine, Edge Mine, Zortman Landusky Mine, and an ASARCO mine in Idaho/eastern Washington. Again, none of the examples were potash operations.

**Table 5-1
Comparison of Potash Production to EPA Criteria for Regulating Hardrock Mining**

EPA Criterion from Priority Notice	Potentially Regulated Universe	Potash Production
Introduce materials defined as toxic per CERCLA Hazardous Substances List	Yes	No
Associated with reported releases of hazardous substances to the environment	Yes	No
Some sites on or proposed for NPL?	Yes	No
Federal government has incurred expenditures for cleanup (due to bankruptcy or other causes)?	Yes	No
Based on past expenditures, federal government projects financial burden for cleanup?	Yes	No

6.0 The “Modeled Universe” that Served as the Basis for EPA’s Assessment of Compliance Cost Did Not Include, and Was Not Representative of, Potash Mining

In the Proposed Rule²⁰, EPA requested comments on using the “modeled universe” to estimate the overall costs to comply with the Proposed Rule. EPA’s assessment of compliance cost was based on a “modeled universe” of just “49 facilities”. Review of Draft Table X-1 of the Proposed Rule Preamble demonstrates that:

- a) None of the 49 facilities in the modeled universe were potash facilities.
- b) Over 75% of the facilities in the modeled universe (38 out of 49) were surface mines. No potash is recovered from surface mines in the US.

As discussed in Section 3 above, brine extraction and processing bears many operational similarities to potash extraction. However, the six brine extraction/production facilities potentially to be regulated were represented by zero facilities in the “modeled universe.”

EPA also states that they extrapolated the results from analyzing the subset of facilities and applied them to the full set, or universe, of potentially regulated facilities under the Proposed Rule.

As discussed above, the features used to develop the compliance cost are not representative of potash facilities.

In the Proposed Rule²¹, EPA describes the use of data collected from 438 operable units at 88 NPL or Superfund alternative hardrock mining sites, stating that there was a relationship between 13 site features of mining sites and releases or threatened releases of hazardous substances and to remedies that incurred response costs. The thirteen site features are specified in the footnotes on page 3461. Dr. Gary Davis, one

²⁰ 82 Fed. Reg. p3391

²¹ Ibid. p3461

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of four academic peer reviewers contracted by EPA to review the cost responsibility formula, in his SME 2017 Annual Conference paper²², presented the source data and extrapolation curves used by EPA to develop the costs for two of the site features in the formula: "open pits/pit lakes" and "waste rock or overburden." The curves were extracted from the Background Document²³ cited by EPA on page 3461 and described in the Response Component Regression Analysis on page 3463.

In the case of both of those site features, EPA arbitrarily included a singularly high cost outlier case as "typical" of costs (e.g., EPA included the Phoenix Mine with a remediation cost 20 times higher than the industry average rate for pit back-filling as typical of contamination costs from open pits) and captured the outlier costs in regression lines, which EPA argues on page 3463 are "the best fit possible for the data."

It can also be argued that the cost extrapolation process was similarly unrepresentative, not just of potash operations, but in the case of certain mine features and of operator managed response action costs in general.

In describing their response component cost data collection²⁴, EPA states that they obtained a sample of 63 facilities' reclamation and closure plans engineering cost data from mines identified by the Mine Safety and Health Administration (MSHA) and the United States Geological Survey (USGS), exclusive of the commodities exempted in the 2009 Memorandum. EPA states that:

"This 63 facility subset was representative of the frequency of states and commodities identified in the full universe of 354 potentially regulated mines. Thus, EPA expected it would be representative of the larger group of facilities."

However, although potash mining is retained in the universe of 354 potentially regulated mines, not a single potash mining facility was included in the 63-facility subset. Hence, the subset is not representative of potash mining, and its costs extrapolation to the potash industry in the potentially regulated universe of 354 regulated mines is unfounded.

EPA incorporated supporting information²⁵ to justify applicability of the Proposed Rule to the universe of facilities, regardless of whether they have no prior history of releases. EPA cites their "Office and Land and Emergency Management Memorandum, *Releases from Hard Rock Mining*", which discusses:

"30 recently or currently operating mines and mineral processing facilities with no previous significant legacy issues, with releases to the environment subsequently mitigated under CERCLA."

The facilities identified as having no history of releases prior to requiring response action under CERCLA included gold, silver, copper and zinc; however, the memorandum does not identify a single potash facility.

On FR page 3475, EPA based their assessment of risk from releases of hazardous substances, in part, on the "Evidence of CERCLA Hazardous Substances" report, which looked at 30 sites in operation in 2009 and concluded the same practices are in use at other sites, especially those with the same commodities. The

²² Davis and Yang, 2017

²³ EPA 2015

²⁴ 82 Fed. Reg. p3463

²⁵ Ibid. p3471

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reviewed sites included aluminum, copper, lead, zinc (16 sites), precious metals (10 sites), and lithium (1 site). None of the sites were potash facilities, and the operations at the majority of the facility types, such as acid leaching, cyanide leaching, smelters, calcining furnaces, and acidic tailings ponds, differ significantly different from potash operations. The extension of the assumption that the same practices are used at potash facilities is unjustified.

EPA concludes that:

“Overall the compiled information demonstrates that sites requiring cleaned up [sic] under Superfund in the past, and sites operational in 2009 share characteristics related to the potential release of CERCLA hazardous substances and the exposure of human and ecological receptors, and illustrates the applicability of EPA’s CERCLA experience to evaluating currently operating mines and processors.”²⁶

A review of the source documents demonstrates that neither the sites cleaned up in the past, nor any of the 2009 current sites considered in the comparison, were potash facilities. Thus, while the generalization regarding “shared characteristics” between past cleanups and operative sites may be appropriate for facilities of the same commodity, it can not be accurately extended to potash operations.

On FR page 3477, EPA described their examination of TRI data and its use as a basis to estimate hazardous substance releases from currently operating facilities in the hardrock mining industry. EPA’s 2010 through 2013 TRI data indicated that the metal mining industry reported onsite releases of hazardous substances averaging nearly 1.7 billion pounds per year. EPA states further that the metal mining sector accounted for 47% of the releases for all industries and 7% of the of the on-site land disposal for all sectors. However, EPA describes the metal mining industry as including gold, lead, zinc, copper, and like metals, none of whose operations are comparable to potash. Moreover, the list of 20 specific hazardous substances of concern released by mining facilities are not released at potash facilities. Hence, the use of either the nature or quantity of these reported releases as a basis for estimation of releases at potash operations is meaningless.

EPA, in considering the total remediation costs and other expenditures from other NPL sites to develop total (past and future) response costs for incorporation into the formulas,

“estimates that the historical response costs total 12.9 billion at 243 hardrock mining and mineral facilities for which data were available at the time of the analyses.” “... or an average of \$103 million per site.”²⁷

However, as in all the other subsets of cost data, potash sites are not included. There have been no potash NPL or CERCLA sites; therefore, extension of any cost estimates derived from these historical costs to potash operations is unfounded.

7.0 Potash Mining Site Features Do Not Correlate with the Response Categories of the Financial Assurance Model or With Reasonable Industry Costs for the Response Categories

²⁶ 82 Fed. Reg. p3475

²⁷ Ibid. p3479

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EPA's Proposed Rule sets forth a formula that develops the total financial responsibility amount for a facility by totaling the response category amounts for 13 categories of site features specified on page 3505 of the FR. While potash mining is currently regulated under the Proposed Rule, unlike the other types of hardrock mining, the majority of the site features/response categories are not found on; and therefore, inapplicable to potash mines, as listed below. Each Roman numeral listed below is one of the specific response components in the Proposed Rule, Section 320.63, page 3505 of the FR.

Open pit category (i) – Potash mining does not employ open pits.

Waste rock category (iii) – Potash mines produce no waste rock dumps.

Heap and dump leach category (iv) – Potash mines do not employ heap leaching or dump leaching.

Tailings category (v) – It is inappropriate to compare potash tailings, or their potential for hazardous releases or cleanup costs, to other hardrock mining types. Potash mining produces tailings of native clay, soils, and halite (salt), which are non-hazardous, contain no leach agents or extractants, and do not produce leachate or release hazardous substances.

Process pond and reservoir category (vi) – It is inappropriate to compare potash surface ponds, or their potential for hazardous releases or cleanup costs, to other hardrock mining types. Potash operations do use tailings retention ponds and salt recovery ponds. However, because potash operations do not use leaching agents, chemical extractants, or other hazardous materials, the potash tailings ponds or salt ponds do not receive, and therefore cannot release, these hazardous substances.

Slag pile category (vii) – Potash operations produce no slag.

Solid and hazardous waste disposal category (viii) – No hazardous chemicals are used in potash production and typically no hazardous waste treatment, storage, or disposal units are operated on site. Potash operations are small quantity generators of materials shipped and managed off site.

8.0 The Potash Sector in the US Has Operated for Multiple Decades with No History of Releases, Risk, or Financial Liabilities to the Federal Government or Public

As mentioned above, potash mining and beneficiation has a history of over 120 years in the US. The sector includes some of the longest running conventional mining operations in the US, such as Mosaic's Carlsbad operations, which have continued over 75 years. If potash mining is evaluated by the types of criteria described by EPA in the Preamble, several facts must be considered.

- All currently operating conventional underground potash mines are located in New Mexico, yet there are no New Mexico potash mines on CERCLIS.
- There are no potash mining sites on the NPL or proposed for the NPL.
- There have been no past CERCLA Superfund expenditures on potash mining sites in any state.
- Mosaic's Carlsbad mine, which is one of the longest continual mining operations of any type in the US, has been in operation for 75 years and has produced no discharges or disturbances that required a CERCLA investigation or response action.

9.0 New Mexico Environmental Department (NMED) Heavily Regulates Potash Mining to Minimize Potential Environmental Risk

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The New Mexico Environmental Department's (NMED's) framework for regulation of mining facilities in New Mexico includes its authority through the following regulations in the New Mexico Statutes Annotated (NMSA) and their implementing regulations in the New Mexico Administrative Code (NMAC):

- Air Quality Control Act NMSA 1978, §§ 74-2-1 to-17
- Environmental Improvement Act NMSA 1978, §§ 74-1- 1 to-17
- Ground Water Protection Act NMSA 1978, §§ 74-6B-1 to-14
- Hazardous Waste Act NMSA 1978, §§ 74-4-1 to-14
- Radiation Protection Act NMSA 1978, §§ 74-3-1 to-16
- Solid Waste Act NMSA 1978, §§ 74-9-1 to-43
- Water Quality Act NMSA 1978, §§ 74-6-1 to-17

The Mining Environmental Compliance Section of NMED regulates mining of all types, including hard rock and other recoverable resources. As described in the New Mexico Mining Environmental Compliance Section (MECS) page of the NMED website:

“The Mining Environmental Compliance Section (MECS) conducts all of the permitting, spill response, abatement and public participation activities for mining facilities in New Mexico in accordance with the Water Quality Control Commission (WQCC) Regulations (20.6.2 NMAC). In addition, the MECS participates in the implementation of the New Mexico Mining Act and Non Coal Mining Regulations by reviewing and commenting on mine permits and closeout plans, coordinating environmental protection requirements at mine sites with the Mining and Minerals Division of the Energy, Minerals and Natural Resources Department, and providing determinations that environmental standards will be met after closure of New Mexico mining operations. Currently the MECS manages over 55 active mining permits.”

These include the permits under which all potash producers in New Mexico operate.

The Mining and Minerals Division of the Energy, Minerals and Natural Resources Department regulates mining activities in New Mexico, including potash, through the New Mexico Mining Act (NMMA). The NMMA requires the development and approval of new mining operating permits for proposed operations and requires that at the time of application,

“the mine be designed to meet without perpetual care all applicable environmental regulations imposed by the New Mexico Mining Act and regulations adopted pursuant to that act and other laws following closure.”

Therefore, the Division may only approve mining plans which, by design, will not produce releases that require post closure remedial actions.

The NMMA likewise requires the development of a closeout plan for each existing operation, which specifies the activities that will,

“reclaim the physical environment of the permit area to a condition that allows for the reestablishment of a self-sustaining ecosystem on the permit area following closure.”

NMED's success in regulating the potash industry is demonstrated by the fact that while New Mexico regulates the largest potash mining operation in the US, and potash is the second largest employer in the New Mexico mining industry, in the history of potash mining in the state, there have been no releases warranting response actions or federal remedial intervention of any kind.

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10.0 Conclusions

From the information presented in the foregoing sections, it can be concluded that:

1. Potash recovery resembles, in the nature of its operations, limited environmental effects, and low risk, the commodities which were exempted from regulation in the 2009 Memorandum.
2. The potash sector is not comparable to the other mining sectors retained for regulation because, as discussed in Section 4.0 above, it does not use the types or volume of hazardous materials, and does not release more than de minimus quantities any of the hazardous substances, which EPA anticipates will produce a risk of future clean-up actions.
3. The potash sector is not comparable to the other mining sectors included for regulation because it does not contain the types of features which resulted in environmental releases in EPA's evaluation. More than half of the types of features which generated environmental releases, and the types of features which generated the most significant releases, are not present on potash sites.
4. The "modeled universe," which served as the basis of EPA's cost estimation, did not include potash production or any commodities comparable to it. None of the sites cleaned up in the past, and none of the sites currently undergoing cleanup, from which EPA developed its estimates of remediation costs, were potash facilities, nor could they be, because potash operations have never been associated with a CERCLA cleanup.
5. The existing regulatory framework in states like New Mexico, has been sufficiently stringent to maintain the number of federal government cleanups at potash facilities at zero over its history.
6. Based on the criteria applied in the 2009 Memorandum for exemption, and the criteria applied in the Priority Notice as risk-based justification for regulation, potash production should be excluded from regulation under the Proposed Rule.

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Letter from
Florida
Department of
Environmental
Protection –
Attachment C



Florida Department of Environmental Protection

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Rick Scott
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Jonathan P. Steverson
Secretary

August 19, 2016

Linda Barr, Office of Resource Conservation and Recovery
Barnes Johnson, Director, Office of Resource Conservation and Recovery
United States Environmental Protection Agency
Attention: Docket ID Nos. EPA-HQ-SFUND-2009-0265
and EPA-HQ-SFUND-2009-0834
Mailcodes 5305T and 5301P
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RE: Florida Department of Environmental Protection - Federalism Consultation Comments
CERCLA Section 108(b) Docket ID No. EPA-HQ-SFUND-2009-0265 and EPA-HQ-
SFUND-2009-0834

The Florida Department of Environmental Protection (Department) is the executive agency for the State of Florida with primary responsibility for implementing land reclamation, surface water, ground water and related environmental protections for phosphate mining and associated land reclamation activities. The Department is also responsible for ensuring cleanup and rehabilitation of sites contaminated with hazardous substances within the state, and for implementing related programs to prevent pollutant discharges and to control exposure and potential risk of exposure to humans and the environment.

The Department appreciates the opportunity to comment on the Office of Resource Conservation and Recovery (ORCR) efforts to develop appropriate and enforceable financial responsibility requirements under the authorities of the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). These comments on EPA's planned rulemaking share details about our concerns with inaccurate risk information that is referenced in the rulemaking's supporting documentation, and the potential for adverse impacts to and preemption of existing state regulatory requirements for phosphate mining in Florida. Our comments also provide you with input for your Federalism Consultation as requested in the July 7, 2016, "CERCLA 108(b) Proposed Rulemaking for Hardrock Mining," call with states.

It is our understanding that EPA is considering including phosphate mining in Florida under proposed regulations that would require financial responsibility for hardrock mining industries,

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and that EPA is required to publish a proposed rule by December 1, 2016¹. The Department appreciates the ORCR's intent to ensure that financial responsibility requirements are provided to address risks from hazardous substances. However, the Department has critical concerns about the decision making basis to include Florida phosphate mining with hardrock mining, and the similar overlap with and preemption of state regulations that are currently providing environmental protections and financial assurances. Such preemption could lead to a reduction in protections for Floridians.

Inclusion of Florida phosphate mining in EPA's financial assurance requirements for the hardrock mining industry would be based on a misunderstanding of and confusion about operations for phosphate extraction, beneficiation, and processing in Florida. Phosphate mining in Florida is not "hardrock mining," nor are the operations and actual risks sufficiently similar to warrant EPA's inclusion under regulations specifically designed to address hardrock mining concerns.

The Department has discovered that relevant supporting information in EPA's records related to operations and risks is inaccurate and mischaracterizes phosphate mining in Florida. Importantly, any risks that do exist, particularly with respect to related mineral processing facilities, are already comprehensively addressed in Florida by a unique combination of existing state and federal laws and regulatory actions.

In addition, inclusion of Florida phosphate mining in the proposed rules presents federalism concerns by interfering with the state's right to implement effective environmental protection programs, and could specifically preempt state's rights given the provisions under Section 114(d) of CERCLA. Given our discovery of the fundamental misunderstanding of operations and associated risk in EPA's supporting information, and our concerns regarding unintended impacts to Florida's laws and existing protections, direct consultation with the Department is warranted and should be done in advance of any proposal of CERCLA financial responsibility rules for any mining activities in Florida.

Attached are Florida's comments summarizing the concerns we have identified to date. Our general comments are included in Attachment A. Attachment B offers comments in response to the questions provided in EPA's July 7, 2016, call with States as part of the Federalism Consultation.

We hope these comments are informative. We appreciate the intent of the proposed rulemaking to provide protections for cleanup liability and related hazardous substance response actions. In this case, we believe that the proposed rule simply is not warranted in Florida, and could negatively impact the comprehensive and rigorous existing requirements under state and federal programs that are currently providing important environmental protections and benefits in this

¹ EPA slides from May 17, 2016, webinar on, "CERCLA Section 108(b) Financial Responsibility," for hardrock mining, from <https://www.epa.gov/superfund/superfund-financial-responsibility>, July 2016.

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state. If you have any questions on these comments, please contact me at your convenience at
(850) 245-8709, or by email at john.coates@dep.state.fl.us.

Sincerely,



John A. Coates, P.E., Director
Division of Water Resource Management
Florida Department of Environmental Protection

Attachments: As noted.

cc: Sonya Sasseville, Director, EPA ORCR
Anna Krueger, EPA ORCR
Paula Cobb, Deputy Secretary, Regulatory Programs, FDEP
Joseph Ullo, Director, Division of Waste Management, FDEP
Franklin Hill, Director, Superfund Division, EPA Region 4
Anita Davis, Enforcement Branch Chief, Superfund Division, EPA Region 4

The Florida Department of Environmental Protection (Department) offers the following general comments and preliminary observations in response to the requested Federalism Consultation:

Inaccurate Information on Risk and Conclusions

- EPA appears to be preparing to regulate phosphate mining in Florida as a type of hardrock mining. The Department strongly believes that this classification is not technically supportable, and is based on a fundamental misunderstanding of Florida phosphate mining and mineral processing risks. The Department also believes it will lead to unintended consequences that could weaken and frustrate Florida's efforts to ensure that phosphate mining in Florida is accountable for both land reclamation obligations, and for operating in a manner that protects our state's land and water resources. Phosphate mining in Florida is conducted by excavation of pebble phosphate deposits and does not involve many of the activities that are primarily associated with the hardrock mining industry. It is critical that EPA acknowledge that phosphate mining in Florida does not involve those activities such as blasting, and in-situ chemical treatments that are often relevant to the evaluation of risk for those activities commonly associated with the hardrock mining sites.
- EPA's 2009 Federal Register (FR) Notice (74 FR 37213) relied on information in an earlier 2004 EPA Office of Inspector General Report that provided background information for EPA's proposed nationwide identification of hardrock mining sites and associated risks² (2004 Report). The underlying information is unfortunately incorrect in regards to phosphate mining in Florida. Please note the following concerns:
 - A review of EPA's agency responses in the 2004 Report indicates that there was an incorrect belief that there is a "likelihood of acid mine drainage" at phosphate mining sites in Florida. This represents a critical misunderstanding about these mining sites in Florida. There is no amount or potential for acid mine drainage given the nature of the pebble phosphate deposits that occur and are mined in Florida. Accordingly, any conclusions about potentially elevated risks due to the erroneous conclusion that there is a "likelihood of acid mine drainage" at Florida phosphate mining sites is factually incorrect. As stated previously, phosphate mining in Florida is not hardrock mining and does not involve many of the operations that would commonly be associated with such activities. This is a significant difference where Florida phosphate mining does not have the particular

² See "Evaluation Report, Nationwide Identification of Hardrock Mining Sites," Report No. 2004-P-00005, March 31, 2004, United States Environmental Protection Agency Office of Inspector General.

- risks that may otherwise be associated with true hardrock mining operations, and as such warrants EPA's reconsideration of whether or not to incorporate Florida phosphate mining in regulations intended for the hardrock mining industry.
- This incorrect information led to additional false conclusions in the 2004 Report, including the belief that hazardous substance related cleanup costs at each phosphate mining site could be on the order of \$100 million or more because of the false expectation that there could be acid mine drainage at each of these mines in Florida. Since acid mine drainage is not a possibility, let alone a risk at Florida phosphate mines, assigning risk and any associated cost liability for cleanup of acid mine drainage and any associated hazardous substances responses is fundamentally incorrect.
 - Finally, the 2004 Report inappropriately attributes these costs to 22 phosphate mining sites that were then identified in EPA's inventory for Florida, indicating that the total for cleanup costs could range from \$2.2 to \$11 billion, a difference of \$8.8 billion between the low and high end according to EPA's analysis. In reality, there is essentially zero risk and no associated liability for acid mine drainage at Florida phosphate mining sites.
 - ◆ The plans for proposed rules would also cover beneficiation of phosphate in Florida. However, it is not apparent on review of the underlying information sources referenced in EPA's July 9, 2009 Notice whether EPA has properly evaluated existing information that evaluates the relative risk of phosphate beneficiation in Florida. The Department has conducted its own studies related to the potential or release of hazardous substances from phosphate beneficiation facilities. The Department encourages EPA to further discuss and review this information to better understand the low level of risk and current regulations that are applied to these activities in Florida.

Direct Conflicts with State and Other Federal Laws Relating to Hazardous Substances

- EPA's plans to promulgate CERCLA 108(b) financial assurance regulations for extraction, beneficiation, and processing of phosphate as part of regulations for the hardrock mining industry would adversely impact both state laws and federal requirements related to protections for liability connected to the release of a hazardous substance.
- CERCLA Section 114(d) provides that an owner or operator of a facility which establishes and maintains evidence of financial responsibility under section 108(b) cannot be required under state law, "to establish or maintain any other evidence of financial responsibility in connection with liability for the release of a hazardous substance..." The Department is gravely concerned that EPA's planned rulemaking could adversely impact Florida's state laws, and our existing environmental protections related to such financial responsibility requirements.

- The phosphoric acid processing (aka, mineral processing) facilities in Florida, are separate and distinct operations from phosphate mining sites. Indeed, these mineral processing facilities do have the potential for releases of hazardous substances; however, they are significantly fewer in number and size than phosphate mining sites. As a result of the potential for release of hazardous substances, these mineral processing facilities have been extensively regulated under Florida laws including Sections 403.4154 and 403.4155, F.S. Regulations implemented under these laws include extensive construction, operational, closure and associated financial responsibility obligations under Department rules that are focused on preventing and addressing the liabilities related to potential releases of hazardous substances. Establishment of an overlapping and duplicative CERCLA financial responsibility obligation would at least cause an unnecessary regulatory burden on the State of Florida and the Department when having to resolve conflicts between state and duplicative federal requirements for the same purpose. At worst, the state's existing regulatory programs could be severely restricted or pre-empted by the provisions of CERCLA Section 114(d).
- As correctly noted in the 2004 Report, the State of Florida did determine that its then existing financial assurance requirements needed strengthening after the 2001 bankruptcy of a company that mined and processed phosphate in Florida. In 2005, the State of Florida completed that rulemaking and adopted revised state financial assurance rules that strengthened requirements for financial responsibilities including important provisions to provide more accurate cost estimates for treating hazardous substances and nutrients in acidic process water at these facilities. The Department has not found any evidence in the record to suggest that EPA has reviewed or had any concerns with Florida's revised regulations for financial assurances. Most importantly, without such review, EPA would not be able to accurately evaluate risk for the Florida phosphate mineral processing in the absence of the planned CERCLA Section 108(b) financial responsibility rulemaking.
- In Florida, the mined phosphate rock is utilized in separate phosphoric acid and fertilizer manufacturing facilities where acidic process water is stored and reused in open impoundments. It is apparent that the 2004 Report incorrectly attributed the potential for releases of acidic process water to phosphate mining sites when the consideration would only be relevant for the separate mineral processing facilities. The 2004 Report does not appear to properly differentiate between potential risks at phosphate mining sites and those applicable to mineral processing facilities. This misunderstanding is critical since hazardous substance risks at the mineral processing facilities have already been addressed by state rules and are also addressed by actions being taken under EPA's National Enforcement Initiative for Mining and Mineral Processing. During the intervening 12 years since the time of the 2004 Report, EPA's Resource Conservation and Recovery Act (RCRA) program staff in Region 4 and EPA Headquarters have been extensively engaged in federal regulatory activities under EPA's RCRA National Enforcement Initiative for Mining and Mineral Processing. As a results of those activities, EPA and the Department have been negotiating RCRA settlements related to the operational, closure, and financial

assurance requirements that are also directly, “in connection with liability for the release of a hazardous substance,” as referenced under Section 114(d) of CERCLA. Both Florida and EPA are parties to the settlements that have been reached to date in Florida. As a result of these settlements under federal RCRA regulations, there is already both state and federal regulatory oversight and financial assurance requirements covering the potential for related hazardous substance releases. Accordingly, efforts to include Florida phosphate mining in the upcoming CERCLA financial assurance rulemaking would be duplicative, is unnecessary to effect further environmental protection, and potentially frustrates and preempts the effectiveness of existing state and federal regulatory programs designed to address the potential hazardous substance releases and financial responsibilities for the referenced mineral processing facilities. Accordingly, efforts to include Florida phosphate mining in the upcoming CERCLA financial responsibility rulemaking would be duplicative, is unnecessary to effect further environmental protection, and potentially frustrates and preempts the effectiveness of existing state and federal regulatory programs designed to address the potential hazardous substance releases and financial responsibilities for the referenced mineral processing facilities. The Department believes that EPA should update the 2004 Report to correct inaccurate Florida specific information and to address relevant Florida developments that occurred since 2004, particularly if EPA chooses not to reconsider the risk factors as discussed in our comments. The Department is available for direct consultation and believes such is warranted prior to publication of any proposed rule that would include mining activities in Florida.

- We have serious concerns that EPA’s plan to include Florida phosphate mining in the CERCLA section 108(b) rulemaking will undermine the Department’s ability to enforce state regulatory programs in accordance with related settlement agreements. The most recent settlement under EPA’s National Enforcement Initiative for Mining and Mineral Processing (Civil Action No. 8:15-cv-0286-JDW-TBM) was just entered by the United States District Judge for the Middle District of Florida on August 5, 2016, and includes important provisions for Florida to act under related state law provisions. The Department notes that because of Section 114(d) of CERCLA, where an owner or operator would be required under CERCLA to establish evidence of financial responsibility in accordance with section 108(b), such an owner or operator could not be required under any state or local law “to establish or maintain any other evidence of financial responsibility in connection with liability for the release of a hazardous substance from such vessel or facility.” The settlements under EPA’s National Enforcement Initiative for Mining and Mineral Processing in Florida each contain carefully negotiated provisions that bind the United States and the Department, and which rely heavily on the Department’s ability to implement state laws and regulations related to the potential release of hazardous substances from these mineral processing facilities. EPA’s plans to include Florida phosphate mining in the CERCLA financial responsibility rulemaking may very well preempt Florida’s ability to effectively implement state laws

that are incorporated into these settlements for the facilities covered thereunder, and preempt implementation of state regulations at similar facilities that are not covered under the settlements.

Relationship to Other State Regulations that also Relate to Hazardous Substance Risks at Mining Sites

- Florida's Environmental Resource Permitting (ERP) requirements are applicable to any new phosphate mining and phosphate reclamation areas in the state. The statutory and regulatory requirements under the state's ERP program (see Part IV, Chapter 373, F.S., and Chapter 62-330, F.A.C.) are extensive and require critical water quality protections for both surface water and ground waters in the state. As such, both phosphate mining activities and mandatory reclamation activities are required to be planned and implemented in a manner that does not violate the state's water quality standards, including those for hazardous substances, for both surface water and ground water. Accordingly, the combination of state mandatory mine reclamation and state water resource protections are already in place for any newly permitted mining activities, and work to ensure that hazardous substances are not a significant or meaningful risk for phosphate mining in Florida.
- In accordance with Part II, Chapter 378, F.S., and Chapter 62C-16, F.A.C., new lands mined for phosphate after July 1, 1975, and after July 1, 1984 for lands used for clay settling areas, are subject to mandatory reclamation requirements. As such, they are also subject to corresponding financial responsibility requirements designed to ensure that reclamation activities are completed in a timely manner. Since the application of these state reclamation and financial responsibility requirements also addresses the potential for hazardous substance related risks through state permitting requirements, additional financial responsibility to address hazardous substance related liabilities is unnecessary in Florida for such new mining or reclamation areas. In addition, the Department is very concerned that imposition of CERCLA financial responsibility requirements for phosphate mining in Florida would potentially interfere with or preempt the state's phosphate reclamation financial responsibility requirements.
- The ORCR's inclusion of Florida phosphate mining in the rule to be proposed for the hardrock mining industry would also appear to be duplicative of state laws intended to address liabilities and damages for the release of hazardous substances, including financial responsibility provisions for facilities under Sections 376.308 and 376.309, F.S., and additional liability provisions under Section 403.727, F.S.
- Although EPA's rulemaking is intended to be forward looking, the imposition of CERCLA financial responsibility rules is also unnecessary to address reclamation activities that would be done in the future, on lands that were mined for phosphate prior to the state's mandatory reclamation requirements that first became effective in 1975.

Florida's legislatively established program continues to provide state funding from a portion of Florida's phosphate severance taxes for the purpose of funding reclamation of those historically mined lands so that they may be returned to beneficial uses (see Part I, Chapter 378, F.S., and Chapter 62C-17, F.A.C.). The applicable regulatory requirements include provisions specifically for addressing applicable water quality standards, and any health or safety hazards on the land. In addition, reclamation done under this existing state funding program is also required to be conducted in accordance with the ERP regulatory criteria that require compliance with state surface water and ground water quality criteria. Therefore, these regulations also require that any risks from hazardous substances also be addressed as part of state funded reclamation on pre-1975 phosphate mined lands. Accordingly, Florida's regulatory programs address both historical and current mining related operations.

Attachment B

Responses to Selected EPA Federalism Consultation Questions

Florida Department of Environmental Protection

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The responses below are provided by the Florida Department of Environmental Protection (Department) in an attempt to provide constructive input specifically related to the actual environmental circumstances and existing regulatory programs that are being implemented in Florida for phosphate mining. We encourage EPA to consult further with the Department prior to any proposal of rules for the hardrock mining industry, if EPA intends to include Florida phosphate mining, beneficiation, or processing in the proposed rules.

1. Since states have raised concerns about potential preemption or duplication of state hardrock mining financial assurance requirements, we would like to give you the opportunity to discuss those concerns with us, or any other concerns with or questions about the CERCLA 108(b) hardrock mining financial assurance rulemaking. We are forwarding letters we received regarding the CERCLA Section 114(d) preemption provision, from the states of Alaska, Arizona, Colorado, and New Mexico in 2011, and would like to give the state participants an opportunity to elaborate on or discuss current state thinking on this issue.

Florida has provided information related to these concerns in our general comments in response to the requested Federalism Consultation. Based on our review of the relevant information, we strongly recommend that additional and direct consultation is needed with the Department to provide a full understanding of the level of risk associated with Florida phosphate mining, beneficiation, and processing operations, particularly given the interplay of exiting state and federal regulatory actions in this state.

2. How do your programs apply on mines located on land with shared federal-state ownership?

Florida has extensive regulatory programs that apply to extraction activities, beneficiation, associated mineral processing facilities, and to corrective actions in response to releases of hazardous substances. These programs apply regardless of ownership type. Our general comments show the interdependence of our regulatory programs that have a connection with the release of hazardous substances in Florida.

3. How does your state approach spills or releases of hazardous substances from a mining site? Does your state require financial responsibility specifically for such releases?

The Department's laws under Chapter 376, F.S., and Chapters 62-780 and 62-777, F.A.C., are applicable to any releases of hazardous substances, including those from a mining site in Florida. In addition, the regulations cited in our general comments, in conjunction with additional regulatory authorities implemented under our state's authorized Resource Conservation and Recovery Act (RCRA) and Clean Water Act National Pollutant Discharge Elimination System (NPDES) permitting programs are also

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utilized to regulate potential sources of pollutants, including hazardous substances, at mining extraction, beneficiation, and processing facilities in Florida.

4. What reporting requirements do you have for mining facilities, either related to mine operations or maintenance of their financial instruments? Do you have any difficulties with compliance with these requirements?

Reporting requirements apply to each of the required state regulatory programs that are referenced in the Department's general comments and in these question responses. The Department relies on these reporting requirements in conjunction with our various regulatory inspections programs and do not have any unaddressed or overriding difficulties with compliance with these requirements.

5. How frequently has your state needed to take enforcement actions against a mining entity for violations relating to financial assurance? How would you characterize the types of violations that trigger enforcement?

The Department closely oversees and ensures compliance with applicable requirements for financial assurance. With respect to financial responsibility related to hazardous substances at phosphate mineral processing facilities, the Department has issued three orders since the state financial assurance requirements were strengthened in 2005, not including the referenced mineral processing settlements that were discussed for the Florida phosphate industry in our general comments.

6. Does your state require third party certification for assessing mine site features or to verify the calculation of cost estimates related to your state programs? If so, we would be interested in hearing about your experience with these approaches.

The Department requires that cost estimates be certified by a third party engineer in relation to financial responsibility for phosphate related mineral processing facilities in Florida. The Department would be happy to further discuss any questions with EPA.

7. What is your experience with Environmental Management Systems, ISO certification, third party inspection programs, or similar types of programs in reducing risk from mining operations?

The Department does not currently rely on Environmental Management Systems, or ISO certifications in its regulatory programs. Our regulations often require inspections by a qualified and licensed professional engineer where appropriate for compliance and safety related evaluations.