

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: January 20, 1976

SUBJECT: Clarification of Sources Subject to Prevention
of Significant Deterioration (PSD) Review

FROM: D. Kent Berry, Director
Policy Analysis Staff

TO: Asa B. Foster, Jr., Director
Air and Hazardous Materials Division
Region IV

This is in response to your November 26, 1975, memo to Dr. Steigerwald requesting clarification of the emission points in phosphate rock processing plants and fuel conversion plants that should be subject to PSD review. I understand from discussions with your staff that you are mainly interested in a clarification of the general processes and -operations covered by the PSD review rather than the specific emission points that would normally be associated with each process or facility. As a general policy, all emission points of SO₂ and particulate matter at a facility covered by the PSD review should be considered in determining the air quality impact of the facility. A BACT determination should generally be made for all emission points also, although you have the flexibility not to specify a BACT emission limit for certain emission points if little would be gained.

Fuel conversion plants are defined for purposes of PSD as those plants which accomplish a change in state for a given fossil fuel. The large majority of these plants are likely to accomplish these changes through coal gasification, coal liquefaction, or oil shale processing. The recently promulgated NSPS governing new coal preparation plants regulate most particulate emissions from pre-gasification or liquefaction operations and thereby define BACT for them. NSPS for both SO₂ and PM already exist for the boilers which are necessary in most fuel conversion operations to generate process steam. An SSEIS for coal gasification plants is being drafted with the intent to include the gasification process itself for sulfur and HC emissions in cases where pipeline quality gas would be produced.

We have examined several of the first-generation fuel-conversion processes and can provide, if you need it, more detailed information on specific emission points and typical emission rates as well as the location of a number of proposed plants. Mike Trutna in Jean Schueneman's division should be the contact for additional information in this area, including assistance on BACT determinations (see Jean's memo to you of December 2, 1975).

With respect to phosphate rock processing, the same philosophy stated above should apply: all processes emitting SO₂ and/or particulate matter located on the same premises with phosphate rock preparation operations are subject to PSD review. A list of the processes commonly associated with phosphate rock preparation is presented in Table 1 and shown in Figure 1. If, however, any of the chemical or fertilizer production processes are not associated with the phosphate rock processing operation, we feel there is no basis for their inclusion under the PSD regulation as presently worded. In addition, the particulate impact of these processes meeting NSPS is relatively minor.

In our opinion, the measures required to meet the NSPS fluoride standards for the fertilizer production operations also represent BACT for particulate matter and therefore a separate BACT determination for particulate matter is not necessary. However, some estimate of the particulate emissions is needed to complete the air quality impact analysis and an estimate of these emissions is

presented in Table 1. Further assistance in quantifying the particulate emissions can be provided on a case-by-case basis.

In addition to the process sources, fugitive dust emissions from haul roads, tailings piles etc. may need to be examined with respect to BACT (probably by specifying operating and maintenance practices) and also for their air quality impact (although where the plant covers a large land area, the concentration may have dropped off substantially by the time the plume reaches the plant boundary).

I hope this adequately answers your questions. If you need further assistance or want to discuss our response in more detail, please contact Mike Trutna (8-629-5365) or myself (8-629-5543). Enclosures

cc: Dick Denney
Barbara Brown
Cheryl Wasserman

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: Nov 26, 1975

SUBJECT: Definition of Sources Subject to Prevention of
Significant Deterioration (PSD) New Source Review

FROM: Asa B. Foster, Jr., Director
Air & Hazardous Materials Division

TO: Dr. Bernard J. Steigerwald
Deputy Assistance Administrator
Air Quality Planning & Standards

Summary

Two of the source categories contained in the Prevention of Significant Deterioration (PSD) regulations are Phosphate Rock Processing Plants and Fuel Conversion Plants. In implementing these regulations there is some confusion as to the emission points actual covered in the definition. Any further definition and/or clarification is desirable.

Action

Please provide-me with a clarification of the emission points that EPA intends to be included in the definitions of Phosphate Rock Processing and Fuel Conversion Plants.

Background

40 CFR 52.21(d).

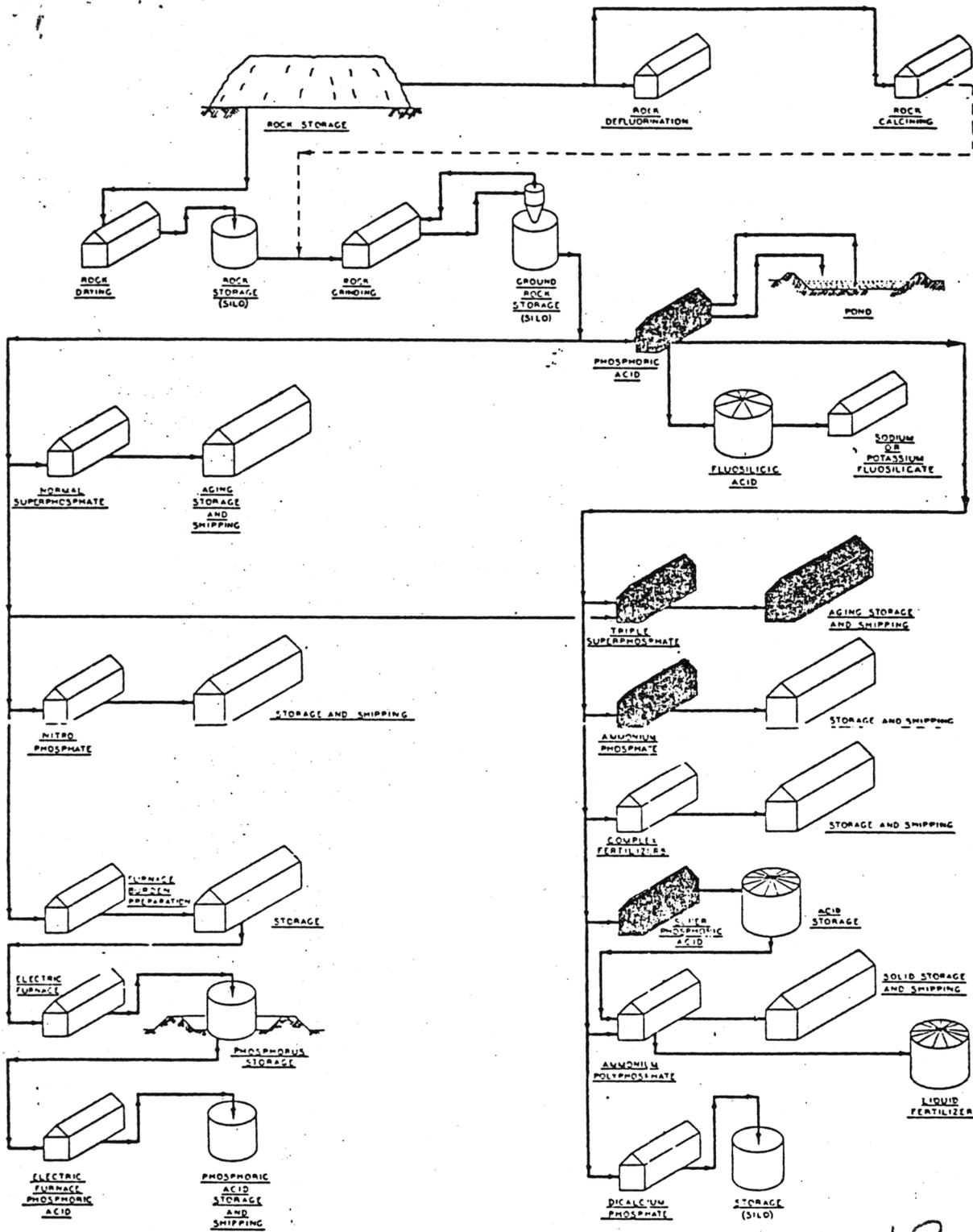


FIGURE 1
PHOSPHATE ROCK PROCESSING INDUSTRY

20/3

1/24

Table 1 - Processes Commonly Associated with Phosphate Rock Preparation

| Emission Source | Emission Factors | | BACT ² | Typical Size of New Facility | Emissions from Typical Facility | Comments | | |
|---|---|-------------------|---------------------------------|------------------------------------|---------------------------------|---|----------|--|
| | Potential ¹ | BACT ² | | | | | | |
| I. Phosphate Rock Preparation Mining Beneficiation Drying Calcining Modulizing Grinding Thermal Defluorination Material Handling and Storage | Negl. | NA | NA | NA | 21.5#/hr | Mining wet rock (10 - 15% moisture) Concentration processes occur in a wet slurry None expected | | |
| | 3.3-14#/ton | .086#/ton | NA | Scrubber(99%) | 8.0#/hr | | | |
| | 7.9#/ton | .159#/ton | NA | Scrubber(98%) | 4.3#/hr | | | |
| | 1.8 to 4.4#/ton | .031#/ton | Baghouse(99%) | 50tons/hr | -- | | | |
| | 7.5#/ton | .075#/ton | Scrubber(99%) | NA | 0.9#/hr | | | |
| | 1.3 to 2#/ton | .017#/ton | Scrubber(99%) | 50tons/hr | | | | |
| | II. Phosphate Fertilizer Industry Phosphoric Acid Mfg Wet Process Thermal Process Superphosphoric Acid Plant Vacuum Evaporation (evaporators, cooling tanks, hot wells) Submerged combustion Diammonium Phosphate Plants (reactor, granulator, dryer, cooler, screens, mills) Run-of-Pile Trible Super- phosphate (mixer, curing belt, conveyors, storage) granular Trible Superphosphate (reactor, granulator, dryer, cooler, screens, mills, storage) | Negl. | NA | NA | 500tons/day | | | Covered under NSPS/Fluorides, low part impact None expected |
| | | 134#/ton | .134#/ton | NA | Scrubber(99%) | | | |
| | | 1.3#/ton | .013#/ton | Venturi Scrubber w/packed tower | 200tons/day | | 0.1#/hr | |
| | | 82#/ton | 1.64#/ton | Scrubber(98%) w/packed tower | 500tons/day | | 34.2#/hr | |
| 2.5#/ton | | 0.05#/ton | Scrubber(98%) w/packed tower | 600tons/day | 1.25#/hr | | | |
| 1.51#/ton | | 0.03#/ton | Scrubber(98%) w/packed tower | 500tons/day | 0.6#/hr | | | |
| None expected No data | | | | | | | | |
| III. Other Products Elemental phosphorous Animal feed | | | | | | | | |

1. Estimates only, especially in II.
2. Intended to be indications only.

3/3