IABLE J-1ACTIVITIES, POLLUTANT	SOURCES, AND POLLUTANTS—	Continued
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Activity	Pollutant source	Pollutant
	Fertilizers	Nitrogen, phosphorus.

Sources: Storm water group applications, Part 1 and 2 and EPA. "Development Document on the Mineral Mining and Processing Point Source Category." (EPA 440/1–76/059b). July 1979.

Significant materials include, "\* \* \* but [are] not limited to: raw materials, fuels, materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; \* \* hazardous substances designated under Section 101(14) of CERCLA; any chemical facilities required to report pursuant to Section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharge" (40 CFR 122.26(b)(12)). Significant materials commonly found at mining facilities include: overburden; waste rock; subore piles; tailings; petroleum-based products; solvents and detergents; manufactured products; and other waste materials.

Materials management practices are defined as those practices employed to diminish contact by significant materials with precipitation and storm water runon, or practices utilized to reduce the offsite discharge of contaminants. To this end, sediment ponds, discharge diversion techniques, as well as methods of dispersion, are used to minimize impacts of significant materials on storm water. For mine sites requiring additional sources of water for processing operations, rainfall events as well as storm water runon will be managed for use in dust suppression, processing, and washing activities. Many mine sites are already equipped with sedimentation ponds and other established process wastewater treatment methods in order to meet effluent limitation guidelines. Additional storm water management practices used at mineral mining facilities include: discharge diversions; drainage/storm water conveyances; runoff dispersion; sediment control and collection practices; vegetation/soil stabilization; and capping contaminated sources.

Nonmetallic minerals are recovered using four basic forms of extraction techniques: open pit, open face or quarry mining; dredging; solution mining; and underground mining. Each type of extraction method may be followed by varying methods of beneficiation and processing. Presented below are brief descriptions of the industrial activities, significant materials, and materials management practices associated with these four extraction processes and associated beneficiation activities. Due to similarities in mining operations for many of the minerals within this sector, industrial activities, significant materials, and materials management practices are fairly uniform across this sector. Unique practices are noted.

a. Open Pit, Open Face, or Quarry Mining. Many mineral mining and processing industries access mineral deposits using open pit, open face or quarrying extraction techniques. For facilities producing dimension stone, crushed and broken stone, construction and industrial sand and gravel, clays, as well as other minerals (borate, phosphate, potash), surface mining is generally the most economical form of extraction.

(1) Industrial Activities. Extraction activities include removal of overburden and waste rock to access mineral deposits. These land-disturbing activities generate piles of topsoil and other overburden as well as waste rock, which are typically stored beside, or within, the pit or quarry. In addition, land disturbance, blasting, crushing, and materials handling activities create large amounts of dust that are either dispersed by local wind patterns or collected in air pollution control mechanisms. At closure, overburden and waste rock may or may not be used to reclaim the pit or quarry depending on Federal, State and local requirements. In addition, access roads and rail spurs, and associated loading and unloading areas, are found onsite.

Following extraction, the mined materials may be transferred to a nearby beneficiation/processing facility or may be beneficiated within the pit or quarry. At a beneficiation/processing facility, unfinished materials may be subjected to dry or wet processing methods. Dry forms of processing include crushing, grinding, sawing, and splitting of the mined material. Wet processing may include simple washing, flotation, or heavy media separation.

(2) Significant Materials. Significant materials generated by most extraction activities at open pit, open face, and quarry mines include overburden piles, waste rock piles, ore and subore piles, and materials spilled from loading and unloading activities. Other exposed

materials that can be generated at these types of operations (as well as other mineral mines), include: tailings from flotation and other separation stages; soils impacted by fugitive dust emissions; other process wastes such as clays from phosphate mines; settling ponds that receive process wastewaters; dredged sediment disposal areas; as well as raw material and product storage. Dust and particulate matter collected in air pollution control mechanisms may also be disposed of in onsite waste piles.

(3) Materials Management Practices. Materials management practices at open pit or quarry mining facilities are typically designed to control dust emissions and soil erosion from extraction activities, and offsite transport of significant materials. At many facilities structural Best Management Practices (BMPs) may have already been implemented to manage process wastewaters subject to effluent limitation guidelines. Settling ponds and impoundments are commonly used to reduce Total Suspended Solids (TSS), Total Dissolved Solids (TDS), and other contaminants in process generated wastewaters. These controls may also be used to manage storm water runoff and runon with potentially few alterations to onsite drainage systems. Some facilities included in part 1 of the group applications reported the use of storm water diversions to divert storm water away from pits and quarries, raw material piles, overburden, and waste rock piles.

Tailings impoundments are used to manage tailings generated at facilities engaged in flotation or heavy media separation operations. These impoundments are used to manage beneficiation/processing wastewaters generated at the facility and may also be used to manage storm water runoff.

*b. Dredging.* Dredging is an extraction method used to access nonmetallic mineral deposits located in quarries or pits (where completely or partially below the water table); in rivers; or estuaries; or offshore, in open bays or sounds. For these types of operations, ore is recovered using scooping devices and suction dredges. Minerals commonly excavated by dredging include sand and gravel, and calcium carbonate.