

Environmental Permitting Requirements – Proposed Potash Mining in the Holbrook Basin December 2011

As of the date of this publication, the Arizona Department of Environmental Quality (ADEQ) hasn't received any permit applications from companies seeking to mine potash east of Holbrook; thus, ADEQ isn't able to predict the precise environmental permitting requirements which may apply to such facilities. Nevertheless, to help address public inquiries on this subject, here is a general overview of potentially applicable environmental permits.

General Permits and Individual Permits

Environmental permits can be categorized as either "general permits" or "individual permits."

General permits, which are prepared with public participation, contain standard requirements for similar and less-complex facilities or pollution sources. Applicants seeking coverage under general permits must demonstrate the ability to meet the standard requirements.

Individual permits are issued on a case-by-case basis, usually for larger, more-complex facilities or pollution sources, and normally require more time and cost to process. For each individual permit, a public notice and comment period is required and a public hearing may be necessary if specifically requested.

Water Quality Protection Permits

Aquifer Protection Permits

Aquifer Protection Permits (APPs) are needed for "discharges" of a pollutant either directly to an underground, water-bearing layer (aquifer) or to the land surface or subsurface in such a manner that there is a reasonable probability that the pollutant will reach an aquifer.

With underground mining, the usual storage and sediment impoundments, stockpiles, and waste rock piles would likely require APP coverage, either via multiple APPs or a single, "areawide" APP. With "solution" mining processes that inject fluids into underground ore deposits to extract minerals, storage impoundments, evaporation ponds and injection/extraction wells would likely be employed. These discharging facilities, and others

which may be associated with material processing, would also need APP coverage.

The applicant for an individual APP must demonstrate that:

- 1) Best Available Demonstrated Control Technology (BADCT) will be utilized to prevent or eliminate the discharge of pollutants,
- 2) Aquifer Water Quality Standards will not be violated in groundwater at the "point of compliance,"
- 3) the applicant has financial and technical capability to comply with the permit, and
- 4) the property has been properly zoned for the activity.

Individual APPs are issued for the operational life of a facility. Review and processing may take from six months to more than a year to complete, depending on the complexity of the project, the extent of public involvement and the responsiveness of the applicant. Permits can be processed more quickly if an application is submitted that is complete and technically sufficient to meet program requirements.

AZPDES Permits

Arizona Pollutant Discharge Elimination System (AZPDES) permits regulate a "point source" discharge (i.e. any pipe, channel, ditch, conduit or other discrete conveyance through which pollutants are or may be discharged into waters of the United States). An individual AZPDES permit may be needed if this situation is expected to occur at a potash mine. Once a complete individual AZPDES permit application is received, processing time is generally between six months and one year, depending on the complexity of the project.

Coverage under some of ADEQ's general AZPDES permits, including AZDPES Stormwater General Permits, would likely be required. Stormwater runoff from construction sites can include sediment and other pollutants that may become mobilized when land surfaces are disturbed.

Thus, coverage under the Construction General Permit is likely necessary prior to commencement of mine facility construction activities. Additionally, coverage under the Multi-Sector General Permit would likely be required and stormwater runoff control measures would be implemented for ongoing mining site operations, to prevent releases of potassium, sediment and other pollutants to surface waters and groundwater.

Underground Injection Control

Solution mining techniques that use injection and extraction wells would require permitting through the U.S. Environmental Protection Agency's Underground Injection Control (UIC) Program. Information on the UIC Program is available at <http://water.epa.gov/type/groundwater/uic/>.

Air Quality Control Permits

Sources that emit regulated air pollutants into the air above specified levels will be required to first obtain an air quality permit or permit revision prior to constructing or operating such a source, or making a modification to an existing source. There may be many of these emission sources at a large mining site, including haul roads, conveyors, bin and truck loading activities, waste piles, crushing and screening equipment, stationary generators, boilers and dryers.

Individual air quality permits contain conditions specific to a facility or operation to ensure that the air pollutants emitted do not exceed National Ambient Air Quality Standards. General permits are issued for categories of operations, such as hot mix plants and crushing and screening operations. Once a general air quality permit is issued by ADEQ, companies can apply to be covered under that permit, if appropriate, rather than an individual permit. Since general permits are written for categories of operations, companies must agree to comply with the pre-established permit conditions, including air pollution control requirements.

The time required to obtain an individual Air Quality Control Permit is dependent on the size and complexity of an operation, quality of the application put together, an applicant's responsiveness to deficiencies and whether or not a public hearing is required. A minimum of six months is usually needed. General permit coverage is much quicker to obtain since the permit has already been issued by ADEQ and the applicant is being authorized to operate under the general permit.

Waste Disposal Permits

Unless otherwise exempted by law, regulated hazardous wastes generated from mining operations

must be managed, stored, transported and disposed properly according to federal and state hazardous waste regulations. Generators of more than 220 pounds of hazardous waste per month must apply for an EPA identification number from ADEQ for a system which tracks hazardous materials from their point of generation to their ultimate disposal site.

A Hazardous Waste Treatment, Storage and Disposal permit is required for any facility that accepts hazardous waste from offsite for the purpose of treatment, storage or disposal. A hazardous waste permit is also required for a facility that generates and stores its own hazardous waste for longer than specified time periods. Determining the need for a hazardous waste treatment, storage, and disposal permit is complex due to numerous requirements and exemptions in rule.

If mining operations will involve on-site disposal of non-hazardous, regulated waste materials (termed "solid waste"), Aquifer Protection Permit (APP) requirements will likely apply. On-site landfills may be covered under an individual, "areawide" APP for a large mining facility.

Other Permits and Approvals

There are a variety of other ADEQ permits, approval and registrations which may come into play, depending upon site-specific needs and plans. For instance, ADEQ plan approval is needed to construct and operate facilities which supply drinking water to workers, and which convey and treat sewage. ADEQ's Permitting Web page contains lists of potentially applicable permits, by industry type: <http://www.azdeq.gov/function/permits/doineed.html>

For More Information

Another publicly available resource is the Arizona Department of Mines and Mineral Resources' *Arizona Mining Permitting Guide*, dated May 30, 2011. This document can be accessed online at:

http://repository.azgs.az.gov/uri_gin/azgs/dlio/1128

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