Fact Sheet

Aquifer Protection Permit No. P-100517
Place ID 2476, LTF 43942
Significant Amendment
Mineral Park Mine

The Arizona Department of Environmental Quality (ADEQ) proposes to issue a Significant Amendment to the aquifer protection permit for the subject facility that covers the life of the facility, including operational, closure, and post closure periods unless suspended or revoked pursuant to Arizona Administrative Code (A.A.C.) R18-9-A213. This document gives pertinent information concerning the issuance of the permit. The requirements contained in this permit will allow the permittee to comply with the two key requirements of the Aquifer Protection Program: 1) meet Aquifer Water Quality Standards at the Point of Compliance; and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). BADCT's purpose is to employ engineering controls, processes, operating methods or other alternatives, including site-specific characteristics (i.e., the local subsurface geology), to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer or to prevent pollutants from reaching the aquifer.

I. FACILITY INFORMATION

Name and Location

Permittee's Name:	Mineral Park, Inc.
Mailing Address:	8275 N. Mineral Park Road Golden Valley, AZ 86413
Facility Name and Location:	Mineral Park Mine 8275 N. Mineral Park Road Golden Valley, AZ 86413

Regulatory Status

On December 3, 1998 Equatorial Mineral Park, Inc. (EMPI) was issued an APP to operate the Mineral Park Mine, an open pit copper mine, utilizing a leaching process with recovery of copper from the leach solution through a solvent extraction-electrowinning (SX-EW) process. On March 27, 2003 an Other Amendment to the APP was issued to EMPI to revise some of the original compliance deadlines. On April 18, 2007, the ADEQ Groundwater Section received from Mineral Park, Inc. (MPI) an application for a Significant APP amendment to expand the mining/extraction operation at the Mineral Park Mine.

Facility Description

Mineral Park Incorporated (MPI) is operating the Mineral Park Mine, an open pit copper mine, utilizing a leaching process with recovery of copper from the leach solution through a solvent extraction-electrowinning (SX-EW) process. The owner is authorized to conduct dump and in situ rubblized leaching, and operate process solution ponds, stormwater runoff ponds, and other facilities according to the design and operational plans approved by the Arizona Department of Environmental Quality (ADEQ), Water Permits Section. MPI is currently leaching the existing mine waste rock dumps, recently constructed dumps of blasted rock, and rock drilled and blasted in place around existing open pits with dilute sulfuric acid to recover copper. The pregnant leach solution (PLS) is collected and pumped to the SX plant where an organic solvent is added to extract the copper. The copper-rich feed solution is then pumped to the EW plant for electrowinning. The resulting cathodes are physically stripped of copper and the copper is shipped off-site for further processing. The raffinate is refortified with sulfuric acid and circulated back to the active leach areas.

On April 18, 2007, the ADEQ Groundwater Section received from MPI an APP amendment application to expand the mining/extraction operation at the Mineral Park Mine. The amendment includes 1) expansion and deepening of the open pit mine, 2) construction of a froth floatation mill, 3) deposition of tailings material, 4) expansion of existing waste rock and leach dumps, and 5) design and construction of a new stormwater impoundment.

The purpose of facilities expansion and construction of a non-stormwater impoundment is to facilitate recovery of molybdenum and increase the recovery of copper metal.

The APP facilities that are affected by the expansion plan are: 1) Hardy Dump, 2) Bismark Dump, 3) Shop Dump, 4) Terminal Storage Facility (TSF) and 5) construction of a Non-stormwater Impoundment. The proposed changes will comprise ore material added to the existing leach dump, expanded footprint and increase in the facility's permitted elevation. The total estimated discharge of 359 gallons per minute (gpm) for the proposed expansion plan compares with 395 gpm estimated for the affected facilities contained in the APP Application Supplement (TerraMatrix 1996). The discharge reduction is largely due to removal of portion of the dumps by mining and considerable reduction in the pool size at the Terminal Storage Facility (TSF).

Amendment Description

The amendment request plans to expand the mining and extraction operation to recover molybdenum and increase copper recovery. This amendment covers the expansion of the open pit mine, construction of a froth floatation mill, the deposition of new tailings onto the Tailings Storage Facility (TSF), the expansion of numerous waste rock piles, expansion of numerous leach dumps, and the construction of a new storm water impoundment.

Closure Description
Not Applicable

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

Based on the information/data contained in the submittals relating to the APP Significant Amendment application and pursuant to A.R.S. 49-243.B/A.A.C. R18-9-A202.A.3 and A.5, the proposed facility upgrades satisfy the BADCT requirements in accordance with the Arizona Mining BADCT Guidance Manual.

III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Monitoring and Reporting Requirements

The amendment request plans to expand the mining and extraction operation to recover molybdenum and increase copper recovery. This amendment covers the expansion of the open pit mine, construction of a froth floatation mill, the deposition of new tailings onto the Tailings Storage Facility (TSF), the expansion of numerous waste rock piles, expansion of numerous leach dumps, and the construction of a new storm water impoundment.

This amendment has updated the Aquifer Quality Limits (AQLs) and Alert Levels (ALs) in a number of groundwater monitoring tables, where appropriate. Certain constituents such as specific conductance, calcium, sodium, chloride, and potassium will no longer have alert levels, but will be required to be monitored. In some instances, total dissolved solids, sulfate, copper, and zinc will continue to have an alert level in areas where the aquifer is impacted, and the demonstration of no further degradation is required.

The water quality in the vicinity of MW-6 has been improving. Therefore, the AQLs and ALs calculated from data collected in 1995 -1998 appeared to be outdated and in some instances, statistically overestimated the AQL concentrations, given the recent groundwater quality information. The AQLs and ALs proposed for MW-20 also seem to overestimate the concentration, because a standard deviation greater than two (2) was used. Therefore, ADEQ recommended the recalculation for those constituents for MW-6 and MW-20 using groundwater data collected in 2004-2006. Those constituents have been updated as part of this amendment request. Also, some ALs were changed because the Alert Level was not set at 20% of the AWQS. Some of the constituents were added to the monitoring table because they were inadvertently left out of the original monitoring requirements, or some constituents have been added such as molybdenum, due to the mine expansion. The additional rounds of ambient groundwater monitoring for those constituents listed as “reserved” will be required as part of the Compliance Schedule of the permit. The AQLs and ALs for MW-19 (located near No Name Wash) have all been set as “reserved” due to improving water quality in the vicinity. Additional facility upgrades are required near MW-19, and therefore, ambient groundwater quality will begin once facility construction is completed at No Name Wash.

The frequency of groundwater compliance monitoring stayed the same for the quarterly compliance rounds; however, the biennial monitoring requirements were changed to an annual frequency. The frequency of groundwater compliance monitoring was changed to yearly, so that any changes in groundwater as a result of increasing the height/footprint of the leach dumps, waste rock piles, the tailing storage facility, and the expansion of the open pit could be effectively monitored during the initial phases of the mine expansion.

Point(s) of Compliance (P.O.C)

Monitoring Point	Designation	Lat./Long.	ADWR Number
Points of Compliance			
Groundwater Well Number MW-2a	Hazardous and non-hazardous point of compliance	35° 21' 00" N 114° 10' 30" W	55-551147
Groundwater Well Number MW-5	Hazardous and non-hazardous point of compliance	35° 19' 39" N 114° 50' 30" W	55-623090
Groundwater Well Number MW-6	Hazardous and non-hazardous point of compliance	35° 21' 51" N 114° 50' 27" W	55-542766
Groundwater Well Number MW-19	Hazardous and non-hazardous point of compliance.	35° 21' 56" N 114° 09' 45" W	55-565213
Groundwater Well Number MW-20	Hazardous and non-hazardous point of compliance.	35° 22' 20" N 114° 09' 31" W	55-565214

IV. STORM WATER AND SURFACE WATER CONSIDERATIONS

Three hydrogeologic units have been identified in the Mineral Park mine: alluvium, weathered bedrock, and fractured unweathered bedrock. The available data suggest that these units are hydraulically well connected and act as a single, unconfined aquifer system.

The regional direction of groundwater flow typically follows site topography moving west-southwest from the Cerbat Mountains toward the axis of the Sacramento Valley. Groundwater flow directions at the mine site are consistent with the regional pattern, except that groundwater near the open pit mining area flows toward the Ithaca Pit. As the pits are expanded and deepened, it is assumed the boundary of the hydrologic sink will expand accordingly. Further passive containment demonstration to define the groundwater flow directions in and around the pits is required as part of the compliance schedule of the permit. The current Pollutant Management Area (PMA) or the Discharge Impact Area (DIA) currently on file with ADEQ, is not estimated to change due to the proposed mine expansion.

The depth to groundwater near the open pit mining area ranges from at or near ground surface to approximately 300 feet at the Ithaca Sump. The depth to groundwater along the alluvial washes is estimated at 50 to 80 feet. Groundwater south of the Sacramento Fault is in excess of 600 feet bgs.

The mine site is located within the Sacramento Valley Watershed. There are numerous smaller washes that drain the site that are typically ephemeral with discharge occurring during the wet winter months and as a result of high-intensity summer precipitation events. Flow has been observed in some washes during the dry season where flowing adits from historic and inactive mines will discharge water to a receiving wash.

The main drainages located at the mine site currently all flow onto the upper surface of the Tailings Storage Facility (TSF). The main drainages include Upper Mineral Park Wash, Lower Mineral Park Wash, Keystone Wash, Bismark Canyon, Turquoise Wash, Jamison Wash and Long Wash. The Upper Bismark Canyon sub-basin drains into the pit. The storm water run off from the facility area sub-basin drains to either the pit or the Flood Control Basin in Mineral Park Wash. This amendment includes the construction of a new stormwater impoundment at the northwest corner of the Tailings Storage Facility. Currently runoff from the Bismark, Shop and Gross Dump areas is captured by the TSF. However when gravity drainage of storm water to the TSF is no longer possible due the tailings pile expansion, the new storm water impoundment will begin to receive impacted run-off.

V. COMPLIANCE SCHEDULE

The following compliance items must be addressed and are a condition of APP approval.

Compliance Schedule Items		
Item Description	**Time To Complete**	**Remarks**
Setting Alert Levels and Aquifer Quality Limits for reserved constituents at MW-2a, MW-5, MW-6 and MW-20.		
Permit Amendment to set ALs and AQLs	Within twelve (12) months of the permit amendment issuance	Submit an amendment application and copies of all laboratory analytical reports, field notes, the QA/QC procedures used in collection and analysis of the samples, and a report including statistical calculation of the ALs and AQLs to the GWS-TSU for those constituents listed as reserved at groundwater wells MW-2a, MW-5, MW-6 and MW-20.
Setting Alert Levels ands Aquifer Quality Limits for MW-19		
Permit Amendment to set ALs and AQLs	Within twelve (12) months after final upgrade to No Name Wash	The well shall be sampled for ambient water quality for at least eight monthly sampling events. The wells shall be sampled for all of the parameters listed in Table 1E and Table 2E. The copies of all laboratory analytical reports, field notes, the QA/QC procedures used in collection and analysis of the samples, and a report including statistical calculation of the ALs and AQLs to the GWS-TSU for those constituents listed as reserved at MW-19.

Compliance Schedule Items		
Item Description	**Time To Complete**	**Remarks**
Passive Containment Demonstration		
Passive Containment Demonstration Investigation	Within 5 years of the permit amendment issuance	The permittee shall submit a report to the APP Program containing the demonstration showing that the expanded open pit, meets the requirement for passive containment in accordance with ARS §49-243.G.1. The criteria set forth in Section 2.5.3.6 must be met in this demonstration, in addition to defining the boundaries (vertical and horizontal) where the hydrologic sink ceases to exist, using site specific geologic and hydrologic data. If the model fails to demonstrate that the passive containment will be met, the permittee shall submit a containment transport model that demonstrates that the discharge from the mine will not exceed an AWQS or results in further degradation of an aquifer at a point of compliance well down gradient of the open pit.
Passive Containment Post Audit Report	Every 5 years after initial demonstration	The permittee shall submit a post audit report to the APP Program updating the passive containment demonstration, including any revisions resulting from hydrologic or operational changes observed during the re-evaluation every five (5) years, after the initial demonstration. The collection, analysis and interpretation of groundwater elevation, gradient information and or groundwater quality collected from the hydrologic sink demonstration wells will be required throughout the life of the facility. The data from the hydrologic sink demonstration wells shall be used to update the initial passive containment demonstration.
Engineering Requirements		
Phreatic Surface and Slope Movement Monitoring Plan	Within 90 days	The permittee shall submit an instrumentation equipment plan for monitoring the phreatic surface and slope movement along the Terminal Storage Facility dam embankment, including installation schedule for the approved equipment.
No-Name Wash Non-Stormwater Impoundment	Within 30 days after completion of the No-Name Wash Non-Stormwater Impoundment	The permittee shall submit a copy of the as-built drawings (plan and section) of the facility construction.

VI. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

Mineral Park, Inc has demonstrated the technical competence necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A202(B).

ADEQ requires that appropriate documents be sealed by an Arizona registered geologist or professional engineer. This requirement is a part of an on-going demonstration of technical capability. The permittee is expected to maintain technical capability throughout the life of the facility.

Financial Capability

Mineral Park, Inc has demonstrated the financial responsibility necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee is expected to maintain financial capability throughout the life of the facility.

The estimated closure and post-closure cost is $ 3,150,600. The financial assurance mechanism was demonstrated through a Trust Fund in the amount of $3,150,600 under A.A.C. R18-9-A203.C.4. ADEQ is taking comments on whether the financial capability demonstration amount is adequate.

Zoning Requirements

Mining activity of greater than 5 contiguous acres is exempt from zoning requirements pursuant to A.R.S. § 11-830.

VII. ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-108(A))

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft permit or other significant action with respect to a permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

Public Comment Period (A.A.C. R18-9-109(A))

The aquifer protection program rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-109(B))

During the public comment period interested parties requested a public hearing. The Director determined that a public hearing should be held due to the interest expressed during the 30-day public comment period.

A Public Hearing will be held at the Mohave County Building at 700 W. Beale St. Kingman, Arizona on Wednesday, February 04, 2009 from 6 p.m. to 8 p.m.

VIII. ADDITIONAL INFORMATION

Additional information relating to this proposed permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division – APP and Drywell Unit
Attn: Barry Rechtorovich
1110 W. Washington St., Mail Code: 5415B-3
Phoenix, Arizona 85007
Phone: (602) 771- 4789