ADEQ Arizona Department of Environmental Quality

DRAFT FACT SHEET

Aquifer Protection Permit 102811
Place ID 522, LTF 61311
Imsamet of Arizona

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an 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:	Imsamet of Arizona
Mailing Address:	Imsamet of Arizona 3819 S. Estrella Parkway Goodyear, AZ 85338
Facility name and location:	Imsamet of Arizona 3819 S. Estrella Parkway Goodyear, AZ 85338

Amendment Description

A pilot study was conducted as authorized by Temporary Aquifer Protection Permit 106243, to evaluate whether a heap separation pad and brine solution pond could be used for full scale operations in place of the slurry ponds. Imsamet concluded from the pilot study that the heap separation and brine solution pond method is not practical to handle the slurry from the full scale wet grinding process and instead the facility will change to a dry milling operation and all APP discharging facilities will be closed. The Heap Separation Pad and Brine Pond constructed and used in the pilot study have been included in this permit and will be utilized along with the Slurry Ponds. The dry milling operation, scheduled to be completed within 14 months of permit signature, will not utilize any impoundments or other APP discharging facilities. Use of the slurry ponds for wet grinding mill slurry will be discontinued within

eighteen (18) months of permit signature as required by the permit compliance schedule. Use of the slurry ponds for wash plant wash water will be discontinued within 57 months of permit signature as required by the permit compliance schedule. The slurry ponds will be allowed to dry and then be backfilled with Aluminum Oxide Solids (AOS). The AOS will be processed in the wash plant to produce Alumina Cement Additive (ACA), and the wash water will be contained in the Heap Separation Pad the Brine Solution Pond. Once all the AOS is processed, the soil below the Slurry Ponds will be sampled at regular intervals down to groundwater, and Imsamet will develop a soil remediation and confirmation sampling plan for approval. This permit amendment authorizes use of the heap separation pad and brine solution pond previously permitted in the Temporary Aquifer Protection Permit, and requires cessation of all discharges to the slurry ponds within 57 months of permit issuance. A schedule for implementation of closure requirements for all discharging is included as a compliance schedule item in the permit.

Regulatory Status

An Aquifer Protection Permit was issued for the facility on January 23, 2006. The Director of the Arizona Department of Environmental Quality (ADEQ) and Imsamet entered into Consent Order APP-38-12, effective November 26, 2012. The Consent Order was amended, effective February 27, 2015, to incorporate a schedule for submittal of an APP amendment application by February 27, 2015, and final design documents, cost estimates, financial mechanism and an implementation schedule for construction of facilities meeting Best Available Demonstrated Control Technology (BADCT) by August 31, 2015. The order further required that the schedule specify that completion of construction be no later than 540 calendar days after ADEQ issues an Aquifer Protection Permit that approves the final design of the approved facilities.

Facility Description

Imsamet operates a secondary aluminum processing facility that uses furnaces to convert aluminum-containing material into high quality aluminum ingots. In addition to the production of aluminum ingots, Imsamet produces exothermic fines for the steel industry and Alumina Cement Additive (ACA), an aluminum oxide product, for the cement industry. Exothermic fines (exes) are a blend of aluminum metal and aluminum oxides. The ACA is a washed Aluminum Oxide Solids (AOS).

Imsamet receives scrap aluminum metal, white dross and black dross for processing at its facility. White dross typically contains from 30% to 80% aluminum metal with little, if any flux. It is fed into the furnaces along with scrap metal and some salt fluxes. Black dross typically contains from 4% to 25% aluminum metal and 20% to 30% salt flux. Black dross is not used for furnace feed. Black dross is processed in a manner so that small pieces of aluminum metal contained in the dross can be removed, dried, and re-melted in the furnaces.

A wet grinding process is used to produce aluminum concentrate and exothermic fines from the cake generated in the Imsamet furnaces and from black dross shipped to Imsamet from other facilities. The wet grinding process allows small pieces of aluminum to be separated from

the remaining components of the dross, primarily aluminum oxide and salt. The material left after the removal of the aluminum concentrate metal is slurry containing salt and aluminum oxide. This slurry is currently pumped into two onsite unlined slurry ponds (Slurry Pond – North and Slurry Pond- South) for temporary storage. The solid fraction of the slurry (AOS), is removed from the ponds and processed in a wash plant to produce ACA. Water used in the wash plant is pumped to the wet grinding process where it is used to separate metallic aluminum from the dross.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY (BADCT)

The Slurry Ponds do not meet BADCT requirements and will close in accordance with the permit closure requirements and compliance schedule. Discharge to the Slurry Ponds will cease within 57 months of permit signature, liquids in the ponds will be allowed to evaporate and percolate, and the ponds will be backfilled with AOS. Sampling of the subsurface soils will be performed after the AOS is removed from the site, and a soil characterization and remediation plan will be provided for ADEQ review and approval.

The Heap Separation Pad and Brine Solution Pond meet BADCT requirements through the use of liners and operational controls. These facilities will operate until the AOS is removed from the site, then they will be closed by removing sediments and liners, and conducting confirmation sampling of underlying soils.

III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Hydrologic Setting

Hydrogeologic information was provided from Hydrological Investigation Report was prepared by ERM-West, Inc. and is dated January 2008.

The IMSAMET facility is located within the Basin and Range Physiographic Province. The Basin and Range Physiographic Province is primarily defined by uplifted blocks or mountain ranges with intervening alluvial basins or valleys. These intervening basins were created by extensional (pull-apart) faulting. The basins and ranges are primarily elongated with a northwest to southeast trend and typically parallel one another. The IMSAMET facility lies within the Phoenix Active Management Area (AMA) – West Salt River Valley, along the southern margin. Within the West Salt River Valley, the Middle Alluvial Unit (MAU) underlies the Upper Alluvial Unit (UAU) and overlies the Lower Alluvial Unit (LAU). The UAU has been divided into three sub-units, designated as A, B, and C. Sub-unit A contains mostly gravels and sands from the ground surface to approximately 130 to 150 feet below ground surface (ft bgs) in the area of IMSAMET. Sub-unit B in the area is approximately 50 feet thick and is composed of silts and clays. Sub-unit C consists of very coarse-grained sediments with some silt and clay lenses and ranges from approximately 100 to 120 feet thick. Groundwater is present in Sub-unit A at the site.

The depth to groundwater at the site (October 3, 2007 data) ranged from approximately 51 to 59 ft bgs. The depth to groundwater were obtained from three groundwater monitoring wells

located on the IMSAMT facility. The groundwater flow direction, based from these wells in October 2007 was to the northwest with a hydraulic gradient calculated as being 0.0095.

Located directly northeast of the IMSAMET facility is the Phoenix-Goodyear Airport (PGA) South National Priority List (NPL) Superfund Site. The PGA-S Superfund Site is conducting groundwater remediation from the Sub-unit A aquifer by pump and treat technology. The treated water is injected back into the Sub-unit A aquifer just up-gradient of the IMSAMET site.

Pollutant Management Area/Discharge Impact Area (DIA)

The Heap Separation Pad and Brine Solution Pond are lined facilities and therefore, the PMA and DIA for these two facilities are lines circumscribed around the two facilities. For the North and South Slurry/Evaporation Ponds, the PMA is a line circumscribing the two ponds. Since these facilities are unlined, the DIA for those facilities has been estimated to be approximately three miles west-northwest of the Slurry/Evaporation Ponds.

Monitoring and Reporting Requirements

Discharge flow and facility operational monitoring are required for the Slurry Ponds, the Heap Separation Pad and Brine Pond, and groundwater monitoring is required at the POC well and at two Non-POC wells.

Point of Compliance (P.O.C)

Groundwater monitoring is required at the POC well location:

Well ID/Description	Well Location	ADWR No.	Latitude	Longitude	Screen Interval
POC Well MW-2	Near the entrance of the Facility along Estrella Parkway	55-581933	33° 24’ 42.0” N	112° 23’ 30.8” W	45-85

Non-POCs

Groundwater monitoring is required at the Non-POC well locations:

Well ID/ Description	Well Location	ADWR No.	Latitude	Longitude	Screen Interval
MW-1 (upgradient)	Immediately East of the South Slurry Pond	55-581934	33° 24’ 42.2” N	112° 23’ 16.3” W	45-85
MW-3 (cross-gradient	Located approx. 200 feet Northwest of the North Slurry Pond	55-581932	33° 24’ 48.6” N	112° 23’ 22.4” W	45-85

IV. STORM WATER and SURFACE WATER CONSIDERATIONS

Stormwater/surface water considerations included whether the IMSAMET facility is located within the 100-year flood plain and whether the discharge had the potential to impact surface water drainages located down-stream of the IMSAMET facility.

The IMSAMET facility is located approximately 5,900 feet north of the Gila River.

The Flood Insurance Rate Map (FIRM) for this area prepared by the Federal Emergency Management Agency (FEMA) indicates that there is an unlined channel along the eastern property boundary that is used to contain flood waters during a 100-year flood event. The IMSAMET facility is not within a 100-year flood plain and should not be affected by flooding.

V. COMPLIANCE SCHEDULE

The permit compliance schedule requires periodic submittal of updated closure/post-closure cost estimates and financial mechanism, submittal of a hydrogeologic investigation report, cessation discharge to the Slurry Ponds within 57 months of permit signature, and a schedule for implementation of the closure activities for the Slurry Ponds.

VI. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

Imsamet of Arizona LLC 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). Consultants and contractors hired to design and/or build facility upgrades have also demonstrated the appropriate technical competence.

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

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of this permit. The estimated total closure and post-closure cost is $935,039.00. The financial assurance mechanism was demonstrated through a cash deposit in the amount of $935,039.00 (A.A.C. R18-9-A203 (C)(7)).

Zoning Requirements

Imsamet has been properly zoned for the permitted use and the permittee has complied with all Maricopa County zoning ordinances in accordance with A.R.S. § 49-243(O) and A.A.C. R18-9-A201(B)(3)..

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 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. 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.

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

The Department shall accept written comments from the public prior to granting the significant amendment. The written public comment period begins on the publication date of the public notice and extends for 30 calendar days. 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))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

Additional Information

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

Arizona Department of Environmental Quality
Water Quality Division – Water Permits Section
Attn: Maribeth Greenslade
1110 W. Washington St., Mail Code 5415B-3
Phoenix, Arizona 85007
Phone: (602) 771- 4578