

Aquifer Protection Permit 101275
 Place ID 1353, LTF 61725
 Significant Amendment
 ME Global Leach Field System

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 (AWQS) at the Point of Compliance (POC); 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:	ME Global Inc.
Mailing Address:	5857 South Kyrene Road Tempe, Arizona 85283
Facility Name and Location:	ME Global Leach Field System 5857 South Kyrene Road Tempe, Arizona 85283

Regulatory Status

This is an existing facility. The facility was issued a Notice of Disposal on February 16, 1987. An Individual Aquifer Protection Permit (APP) was issued on February 12, 2003. This permit amendment was received by ADEQ on April 27, 2015.

Facility Description

ME Global Inc. is a secondary iron and steel foundry that produces castings used primarily by the mining industry for both wear-resistant and structural applications. The permittee is authorized to discharge 10,000 gallons per day (gpd) of cooling tower blowdown water from 7 non-contact cooling towers (CT#3 through CT#8, and CT#11) through leach lines designated as the ME Global Leach Field System (LFS). The cooling towers use water from the City of Tempe water and on-site water supply well to cool processes such as furnaces, carbon units, sand coolers, and air

compressors in the foundry's production process via heat exchange. Chemical additives are added to the water to control scaling, bacterial, and algal buildup.

The site includes the following permitted discharging facilities:

Facility	Latitude (North)	Longitude (West)
Leach Field	33° 22' 22.92" N	111° 56' 33.56" W

Amendment Description

This amendment was submitted to:

- Remove the East Septic System Leach Field (ESSLF), consisting of a 6,074 gallon septic tank, a concrete distribution box, and a PVC distribution line that leads to four brick lined seepage pits and has a working capacity of approximately 3,471 gallons per day. This system shall be issued a Maricopa County Type IV General Permit for typical sewage from bathrooms.
- Add the new 10,000 gpd LFS.

The permittee and ADEQ have agreed to the miscellaneous permit changes listed below:

1. Section 2.1, Facility/Site Description: Updated the facility description.
2. Section 2.2, Best Available Demonstrated Control Technology: Updated the facility BADCT.
3. Section 2.21, Engineering Design: Update the current Engineering design information.
4. Section 2.2.1.1, Leach Field Disposal System: This section was added to describe the leach field system.
5. Section 2.2.4.1, Description of the Discharge Operation: Added the description of the discharge operation.
6. Section 2.2.3, Pre-Operational Requirements: Added the requirement to monitor initial discharges in two intervals.
7. Section 2.3.1, Leach Field System: Updated the discharge limit.
8. Section 2.3.1.1, Authorized and Unauthorized Materials: Added language to describe the discharge limits.
9. Section 2.5.1.1, Initial Discharge Monitoring was added.
10. Section 2.5.3.1, Ambient Groundwater Monitoring was added.
11. Section 2.6.2.3, Exceeding of Alert Levels (ALs) Set for Discharge Monitoring: added monitoring requirement for an additional Table, IA-2.

12. Section 2.6.3 Discharge Limit Violations: added Tables IA-1 and IA-2.
13. Section 2.7.1, Self Monitoring Report Forms: Updated the monitoring requirement.
14. Section 3.0; Compliance Schedule: Added compliance schedule items per Section V. COMPLIANCE SCHEDULE in this factsheet.
15. Section 4.1: Added Tables
 - Table I-1, Initial Discharge Monitoring
 - Table I-2, Initial Discharge Monitoring
16. Section 4.2: Added Tables
 - Table IA-1, Routine Discharge Monitoring for Flow
 - Table IA-2, Routine Discharge Monitoring
 - Table IIA, Ambient Groundwater Monitoring
 - Table IIB, Routine Groundwater Monitoring
 - Table III, Facility Inspection Monitoring
17. Other changes include updating the permit language to conform to the most current permit format.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

The leach field system has a maximum capacity of approximately 10,000 gallons per day. All current and new chemicals used in the treatment of cooling tower water shall be restricted to only chemicals that do not contain hazardous constituents per A.R.S. 49-201(18) based on the information provided in the MSDSs and shall be accepted for use by the water treatment industry as common industry practice. The disposal system has been designed, and shall be constructed according to ADEQ approved plans. The quality of the discharge eliminates the need for treatment of the cooling tower blowdown water by continuously monitoring discharge quality for specific conductivity (SC), automatically ceasing discharges based on a SC discharge quality alert limit, performing contingency sampling (if necessary), and performing periodic sampling of the discharge and sampling of groundwater at the point of compliance.

III. HYDROGEOLOGIC SETTING

The Site is located in the north-western portion of the Eastern Salt River Valley (ESRV) sub-basin, which is part of Arizona's Basin and Range physiographic province. The Site hydrogeology is divided into three basic types of water bearing units including:

1. the S-Zone (the upper shallow, perched aquifer) located at 0 to approximately 112 feet below ground surface (bgs);
2. the D-Zones - the underlying (deep) sand and/or gravel dominant sediments (aquifers); and
3. the A-Zones - the low permeability primarily fine grained sediments with some coarse grained intervals (aquitards).

The planned leach field operations will discharge through the vadose zone soils to the perched S-Zone. The vadose zone soils at the Site consist primarily of interbedded silts, sands, caliche, and clays (in order of dominance). The depth to groundwater in the S-Zone is approximately 60 feet below land surface in the proposed discharge area. The groundwater flow in the S- Zone is primarily to the south-southwest to southwest and is primarily influenced by recharge from lakes, canals, and irrigation. The S-Zone hydraulic conductivity ranges from less than 1 foot per day to 12 feet per day with a geometric mean of approximately 7 feet per day. The S-Zone aquifer is not used for groundwater supply at or near the Site.

Two water supply wells are located within one half mile of the proposed leach field. One water supply well, WS1, is located on the Site and is owned operated by ME Global as needed for back-up fire suppression water. Periodically this well is tested and a small volume of the groundwater is discharged to the cistern. The other water supply well is located north-northwest of the Site along the Western Canal at Baseline Road and is owned and operated by the SRP. This well discharges water to the Western Canal which is used for agricultural and irrigation purposes. Both water supply wells are screened in the deeper hydrostratigraphic units (D2 to D3-Zones) and are not used for drinking water purposes.

Numerous groundwater monitoring wells are located within one half mile of the proposed leach field. The groundwater monitoring wells are owned and operated by Victoria Technology, Inc. (VTI) and are used to monitor the groundwater conditions at the Former Capitol Castings Site. One groundwater monitoring well (MW-17) is also used by ME Global as a point of compliance (POC) well for ESS discharges.

POLLUTANT MANAGEMENT AREA (PMA)

Arizona Revised Statutes (A.R.S.) § 49-244(1) defines the pollutant management area (PMA) as “the limit projected in the horizontal plane of the area on which pollutants are or will be placed.” The boundary of the PMA coincides with the boundary of the proposed leach field area. .

DISCHARGE IMPACT AREA (DIA)

The DIA is defined by ARS §49-201(13). The DIA means the potential aerial extent of pollutant migration, as projected on the land surface, as the result of a discharge from a facility. The boundary of the DIA extends approximately 100 feet beyond the boundary of the PMA.

IV. STORM WATER/SURFACE WATER CONSIDERATIONS

The proposed leach field is located outside of the 100-year flood plain, including the flood plain associated with the Western Canal.

No natural surface water bodies are present within ½ mile of the Site; however, numerous man-made surface-water features are present in the form of canals and lakes. The Salt

River Project's (SRP) Western Canal is runs northwestward along the eastern boundary of the Site. The City of Tempe's Kiwanis Lake located east of the Site and is used for recreational purposes.

V. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Monitoring and Reporting Requirements

To ensure that site operations do not violate Aquifer Water Quality Standards at the point of compliance, representative samples of the effluent shall be collected. (See Tables located in Section 4.2 in the permit.

Points of Compliance

The POCs are established by the following conceptual location(s):

POC Locations	Latitude (North)	Longitude (West)
POC 1 -Located approximately 100 feet South and downgradient of the leach field area	32° 22' 20.925" N	111° 56' 53.966" W

VI. COMPLIANCE SCHEDULE

Section 3.0, Compliance Schedule contains the following requirements:

3.1	POC Well Construction logs: Geologic and well construction logs shall be submitted to the WPS. The logs shall include ADWR well- registration number, and the “as-built” latitude and longitude co-ordinates of the well.	Within forty-five (45) days of well installation	No
3.2	Ambient Groundwater Monitoring in POC Well: The POC well shall be sampled for ambient water quality every two weeks after well installation and development until 8 events of ambient sampling data is available. Sampling shall include all constituents in the ambient Groundwater Table IIA.	Begin ambient groundwater monitoring in the first month following POC well installation.	No
3.3	Submit an amendment application, along with copies of all laboratory analytical reports, field notes, QA/QC procedures used in collection and analysis of the samples, and a report including the statistical calculations of the applicable ALs, AQLs and DLs.	Submit within 30 days of receipt of laboratory report for final ambient sample.	Yes
3.4	Compliance Groundwater Monitoring: Routine compliance groundwater monitoring as detailed in Section 4.2, Table IIB. To receive the SMRFs (Table IIB) the permittee shall notify the Water Quality Compliance Section, Data Unit.	Within 15 days of commencement of Groundwater Monitoring.	No
3.5	The permittee shall submit a closure work plan for the East Septic System (ESS). Conduct the approved closure activities following the cessation of discharge to the ESS. The ESS shall be removed from this permit and permitted under a type IV General Permit with Maricopa County.	Submit a closure work plan for the ESS within 30 days from issuance of the final APP. Conduct approved closure	Yes

		activities within 60 days following the cessation of discharge of cooling tower blowdown to the ESS. Submit a permit amendment application for removal of the ESS.	
3.6	The permittee shall submit monitoring report that shall include sampling results for the parameters listed in Section 4.1 Table I-1 the correlation between the SC and TDS, and a proposed AL for SC.	Submit within 30 days of completion of the 12 Week Initial Discharge Monitoring.	No
3.7	The permittee shall submit monitoring report that shall include sampling results for the parameters listed in Section 4.1 Table I-2 and confirmation of the SC alert level	Submit within 30 days of completion of the Monthly Initial Discharge Monitoring	No
3.8	The permittee shall submit updated cost estimates for facility closure and post-closure, as per A.A.C. R18-9-A201(B)(5) and A.R.S. 49-243.N.2.a, and an updated financial assurance demonstration for the updated cost estimate as per A.A.C. R18-9-A203.	Every 6 years from the date of permit signature, for the duration of the permit.	Yes

VI. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

ME Global 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 ongoing demonstration of technical capability. The permittee is expected to maintain technical capability throughout the life of the facility. ME Global Inc. is expected to maintain technical capability throughout the life of the facility.

Financial Capability

ME Global 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 for the facility is \$59,928.00. The financial capability was demonstrated through A.A.C. R18-9-A203(C)(2).

Zoning Requirements

The ME Global Leach Field System 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.

The public notice was published in the XXXXXXXX onXXXXXX, under public notice No. 16-XX.

VIII. ADDITIONAL INFORMATION

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

Arizona Department of Environmental Quality
Water Permits Section, Water Quality Division – APP Unit
Attn: Monica Phillips
1110 W. Washington St., Mail Code: 5500B-3
Phoenix, Arizona 85007
Phone: (602) 771- 2253