

## ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES)

This document gives pertinent information concerning the reissuance of the AZPDES permit listed below. This facility is a groundwater treatment facility and is considered to be a minor facility under the NPDES program. The effluent limitations contained in this permit will maintain the Water Quality Standards listed in Arizona Administrative Code (A.A.C.) R18-11-101 et. seq. This permit is proposed to be issued for a period of 5 years.

Permittee's Name:	Motorola Solutions, Inc.
Permittee's Mailing Address:	2900 S. Diablo Way, Building A, Suite 150 Tempe, AZ 85282
Facility Name:	North Indian Bend Wash- Granular Activated Carbon Treatment Facility (NGTF)
Facility Address or Location:	5985 Cattletrack Road Scottsdale, AZ 85250
County:	Maricopa
Contact Person(s): Phone/e-mail address	Terry Lockwood (602) 760-4763
AZPDES Permit Number:	AZ0026123
Inventory Number:	511163

<b>I. STATUS OF PERMIT(s)</b>	
AZPDES permit applied for:	Renewal
Date application received:	<b>September 11, 2017</b>
Date application was determined administratively complete:	September 11, 2017
Previous permit expiration date:	March 25, 2019
<b><u>208 Consistency:</u></b> 208 Plan consistency is not required for industrial facilities.	

<b>II. GENERAL FACILITY INFORMATION</b>	
Type of Facility:	Privately owned groundwater treatment system
Facility Location Description:	West side of the Arizona Canal in Scottsdale, Arizona.

Nature of facility discharge:	Treated groundwater. Groundwater containing concentrations of volatile organic compounds is pumped to the NGTF where granular activated carbon is used to remove the contaminants. Trichloroethene (TCE) is the primary chemical of concern.
Average flow per discharge:	The application indicates a daily discharge rate of 3.4 to 6.4 MGD.
Continuous or intermittent discharge:	continuous

In 1981, a plume of volatile organic compounds (VOCs), with trichloroethylene (TCE) as the predominant contaminant, was identified in the groundwater. From subsequent investigations, a project area was identified and established as the North Indian Bend Wash (NIBW) Superfund site in 1983. The facility is designed to reduce concentrations of NIBW Chemicals of Concern including TCE, PCE, 1,1-DCE, 1,1,1-TCA, and chloroform from groundwater prior to discharge to the Arizona Canal. Pumping of groundwater from wells at the site is intended to contain plume migration and reduce impacts on other drinking water wells.

### III. RECEIVING WATER

The State of Arizona has adopted water quality standards to protect the designated uses of its surface waters. Streams have been divided into segments and designated uses assigned to these segments. The water quality standards vary by designated use depending on the level of protection required to maintain that use.

Receiving Water :	Arizona Canal- Phoenix Area Canals: Granite Reef Dam to all municipal WTP intakes
River Basin:	Middle Gila River Basin
Outfall Location(s):	Outfall 001: Township 2N, Range 4E, Section 14 Latitude 33° 31' 23.8" N, Longitude 111° 54' 56.9" W

The outfall discharges to, or the discharge may reach, a surface water listed in Appendix B of A.A.C. Title 18, Chapter 11, Article 1.

Designated uses for the receiving water listed above:	Agricultural Irrigation (AgI) Agricultural Livestock watering (AgL) Domestic Water Supply (DWS)
Is the receiving water on the 303(d) list?	No, and there are no TMDL issues associated.

Given the uses stated above, the applicable narrative water quality standards are described in A.A.C. R18-11-108, and the applicable numeric water quality standards are listed in A.A.C. R18-11-109 and in Appendix A thereof. In developing AZPDES permits, the standards for all applicable designated uses are compared and limits that will protect for all applicable designated uses are developed based on the standards.

### IV. DESCRIPTION OF DISCHARGE

Because the facility is in operation and discharges have occurred, effluent monitoring data are available. The following is the measured effluent quality reported in the application.

Parameters	Units	Maximum Daily Discharge Concentration
Arsenic	µg/L	8.3
Chromium VI	µg/L	11
Chloroform	µg/L	1.1
1,1- DCE	µg/L	<0.5
PCE	µg/L	<0.5
1,1,1- TCA	µg/L	<0.5
TCE	µg/L	<0.5
pH	S.U.	9.0

**V. STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT**

Date of most recent inspection:	11/3/2014; no potential violations were noted as a result of this inspection.
DMR files reviewed:	January 2014 through September 2017.
Lab reports reviewed:	July 2013 through July 2017
DMR Exceedances:	None
NOVs issued:	None
NOVs closed:	N/A
Compliance orders:	None

**VI. PROPOSED PERMIT CHANGES**

The following table lists the major changes from the previous permit in this draft permit.

Parameter	Existing Permit	Proposed permit	Reason for change
Reporting Location	Mail in hard copies of DMRs and other attachments	DMRs and other reports to be submitted	Language added to support the NPDES electronic DMR

		electronically through myDEQ portal	reporting rule that became effective on December 21, 2015.
<p>Anti-backsliding considerations – “Anti-backsliding” refers to statutory (Section 402(o) of the Clean Water Act) and regulatory (40 CFR 122.44(l)) requirements that prohibit the renewal, reissuance, or modification of an existing NPDES permit that contains effluent limits, permit conditions, or standards that are less stringent than those established in the previous permit. The rules and statutes do identify exceptions to these circumstances where backsliding is acceptable. This permit has been reviewed and drafted with consideration of anti-backsliding concerns.</p> <p>No limits have been removed from the permit. Limits are retained in the draft permit for parameters where reasonable potential (RP) for an exceedance of a standard continues to exist or is indeterminate. In these cases, limits will be recalculated using the most current Arizona Water Quality Standards (WQS). If less stringent limits result due to a change in the WQS then backsliding is allowed in accordance with 303(d)(4) if the new limits are consistent with antidegradation requirements and the receiving water is in attainment of the new standard; see Section XII for information regarding antidegradation requirements.</p>			

<p><b>VII. DETERMINATION OF EFFLUENT LIMITATIONS and ASSESSMENT LEVELS</b></p>
<p>When determining what parameters need monitoring and/or limits included in the draft permit, both technology-based and water quality-based criteria were compared and the more stringent criteria applied.</p>
<p><b><u>Technology-based Limitations:</u></b>          There are no promulgated technology-based limits (TBELs) for a groundwater treatment system such as the NIBW GAC Treatment Facility. TBELs may be established for VOCs for such treatment systems based on best professional judgment (BPJ), however, all pollutants of concern at this facility have water quality-based limits (WQBELs) applied as described below.</p>
<p><b><u>Numeric Water Quality Standards:</u></b> As outlined in A.A.C. R18-11-109 and Appendix A:          Per 40 CFR 122.44(d)(1)(ii), (iii) and (iv), discharge limits must be included in the permit for parameters with “reasonable potential” (RP), that is, those known to be or expected to be present in the effluent at a level that could potentially cause any applicable numeric water quality standard to be exceeded. RP refers to the possibility, based on the statistical calculations using the data submitted, or consideration of other factors to determine whether the discharge may exceed the Water Quality Standards. The procedures used to determine RP are outlined in the <i>Technical Support Document for Water Quality-based Toxics Control (TSD)</i> (EPA/505/2-90-001). In most cases, the highest reported value for a parameter is multiplied by a factor (determined from the variability of the data and number of samples) to determine a “highest estimated value”. This value is then compared to the lowest applicable Water Quality Standard for the receiving water. If the value is greater than the standard, RP exists and a water quality-based effluent limitation (WQBEL) is required in the permit for that parameter. RP may also be determined from BPJ based on knowledge of the treatment facilities and other factors. The basis for the RP determination for each parameter with a WQBEL is shown in the table below.</p>
<p>The proposed permit limits were established using a methodology developed by EPA. Long Term Averages (LTA) were calculated for each designated use and the lowest LTA was used to calculate the average monthly limit (AML) and maximum daily limit (MDL) necessary to protect all uses. This methodology takes into account criteria, effluent variability, and the number of observations taken to determine compliance with the limit and is described in Chapter 5 of the TSD. Limits based on A&amp;W criteria were developed using the “two-</p>

value steady state wasteload allocation” described on page 99 of the TSD. When the limit is based on human health criteria, the monthly average was set at the level of the applicable standard and a daily maximum limit was determined as specified in Section 5.4.4 of the TSD.

**Mixing Zone:**

The previous permit authorized a mixing zone for arsenic and chromium VI. A review of the discharge data submitted to ADEQ indicates that on occasion effluent arsenic and chromium VI concentrations had reasonable potential to exceed the applicable standards for the receiving water. Pursuant to R18-11-114(G), the director shall reevaluate a mixing zone upon reissuance of the permit. Because conditions have not changed from the last permit cycle, the applicant requested, and ADEQ has approved the mixing zone for arsenic and chromium VI for discharges into the Arizona Grand Canal.

Compliance with the arsenic and chromium VI limits will be required in the mixing zone prior to any water deliveries to municipal water treatment plants downstream of the discharge consistent with the mixing zones established for arsenic and chromium VI in the Salt River Project (SRP) Groundwater Wells AZPDES Permit No. AZ0024341. The results of the SRP mixing zone model may be used to demonstrate compliance with arsenic and chromium VI limits in Table 1 of the permit.

**Whole Effluent Toxicity (WET):**

ADEQ does not require WET testing if the receiving water has no aquatic and wildlife designated uses although the narrative standard prohibiting the discharge of toxic pollutants applies to all discharges. Therefore, WET testing is not required in this permit, and Part IV for WET testing is shown as “not applicable.”

**Permit Limitations and Monitoring Requirements:**

The table that follows summarizes the parameters that are limited in the permit and the rationale for that decision. Also included are the parameters that require monitoring without any limitations or that have not been included in the permit at all and the basis for those decisions. The corresponding monitoring requirements are shown for each parameter. In general, the regulatory basis for monitoring requirements is per 40 CFR §122.44(i) *Monitoring requirements*, and 40 CFR §122.48(b), *Required monitoring*; all of which have been adopted by reference in A.A.C. R18-9-A905, *AZPDES Program Standards*.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (1)
Flow	---	---	---	---	---	Discharge flow is to be monitored on a continual basis using a flow meter.
Arsenic	10 µg/L/ DWS	8.3 µg/L	16	20.75 µg/L	RP exists (2)	Monitoring required and a limit remains in the permit. A mixing zone has been approved for Arsenic.
Chromium VI	21 µg/L/ DWS	11 µg/L	16	27.5 µg/L	RP exists (2)	Monitoring required and a limit remains in the permit. A mixing zone has been approved for Chromium VI.
Tetrachloroethylene (PCE)	5 µg/L/ DWS	<0.5 µg/L	59	N/A	N/A	Monitoring required and a limit remains in the permit.
Trichloroethylene (TCE)	5 µg/L/ DWS	<0.5 µg/L	59	N/A	N/A	Monitoring required and a limit remains in the permit.
Chloroform	80 µg/L/ DWS (TTHM)	1.1 µg/L	43	N/A	N/A	Monitoring required for Discharge Characterization.
1,1-dichloroethylene	7 µg/L/ DWS	<0.5 µg/L	43	N/A	N/A	Monitoring required for Discharge Characterization.
1,1,1-trichloroethane	200 µg/L/ DWS	<0.5 µg/L	43	N/A	N/A	Monitoring required for Discharge Characterization.
pH	Minimum: 6.5 Maximum: 9.0 AgL A.A.C. R18-11-109(B)	9.0 S.U.	59	N/A	N/A	pH is to be monitored using a discrete sample of the effluent and a WQBEL is set. 40 CFR Part 136 specifies that grab samples must be collected for pH.

Footnotes:

- (1) The monitoring frequencies are as specified in the permit.
- (2) Mixing Zone was applied for and approved for Arsenic and Chromium VI. See Part V.A of the permit for mixing zone requirements.

### VIII. NARRATIVE WATER QUALITY STANDARDS

All narrative limitations in A.A.C. R18-11-108 that are applicable to the receiving water are included in Part I, Sections B and C of the draft permit.

### IX. MONITORING AND REPORTING REQUIREMENTS (Part II of Permit)

Section 308 of the Clean Water Act and 40 CFR Part 122.44(i) require that monitoring be included in permits to determine compliance with effluent limitations. Additionally, monitoring may be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality.

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Monitoring frequencies for some parameters may be reduced in second term permits if all monitoring requirements have been met and the limits or ALs for those parameters have not been exceeded during the first permit term.

Discrete (i.e., grab) samples are specified in the permit for all parameters because the groundwater quality is not expected to vary significantly over a 24 hour period.

Monitoring locations are specified in the permit (Part I.A and Part I.D) in order to ensure that representative samples of the influent and effluent are consistently obtained.

The requirements in the permit pertaining to Part II, Monitoring and Reporting, are included to ensure that the monitoring data submitted under this permit is accurate in accordance with 40 CFR 122.41(e). The permittee has the responsibility to determine that all data collected for purposes of this permit meet the requirements specified in this permit and is collected, analyzed, and properly reported to ADEQ.

The permit (Part II.A.2) requires the permittee to keep a Quality Assurance (QA) manual at the facility, describing sample collection and analysis processes; the required elements of the QA manual are outlined.

Reporting requirements for monitoring results are detailed in Part II, Sections B.1 and 2 of the permit, including completion and submittal of Discharge Monitoring Reports (DMRs).  
The permittee is responsible for conducting all required monitoring and reporting the results to ADEQ on DMRs or as otherwise specified in the permit.

**Electronic reporting.** The US EPA has published a final regulation that requires electronic reporting and sharing of Clean Water Act National Pollutant Discharge Elimination System (NPDES) program information instead of the current paper-based reporting (Federal Register, Vol. 80, No. 204, October 22, 2015). Beginning December 21, 2016 (one year after the effective date of the regulation), the Federal rule requires permittees to make electronic submittals of any monitoring reports and forms called for in their permits. ADEQ has created an online portal called myDEQ that allows users to submit their discharge monitoring reports and other applicable reports required in the permit.

Requirements for retention of monitoring records are detailed in Part II.D of the permit.

## **X. SPECIAL CONDITIONS (Part V in Permit)**

### **Permit Reopener**

This permit may be modified based on newly available information; to add conditions or limits to address demonstrated effluent toxicity; to implement any EPA-approved new Arizona water quality standard; or to re-evaluate reasonable potential (RP), if assessment levels in this permit are exceeded [A.A.C. R18-9-B906 and 40 CFR Part 122.62 (a) and (b)].

## **XI. ANTIDegradation**

Antidegradation rules have been established under A.A.C. R18-11-107 to ensure that existing surface water quality is maintained and protected. The discharge from the NGTF will be to a canal which is subject to Tier 1 antidegradation protection. Effluent quality limitations and monitoring requirements have been established under the proposed permit to ensure that the discharge will meet the applicable water quality standards. As long as the permittee maintains consistent compliance with these provisions, the designated uses of the receiving water will be presumed protected, and the facility will be deemed to meet currently applicable antidegradation requirements under A.A.C. R18-11-107.

## **XII. STANDARD CONDITIONS**

Conditions applicable to all NPDES permits in accordance with 40 CFR, Part 122 are attached as an appendix to this permit.

## **XIII. ADMINISTRATIVE INFORMATION**

### **Public Notice (A.A.C. R18-9-A907)**

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft AZPDES permit or other significant action with respect to an AZPDES 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-A908)**

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-A908(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.

### **EPA Review (A.A.C. R18-9-A908(C))**

A copy of this draft permit and any revisions made to this draft as a result of public comments received will be sent to EPA Region 9 for review. If EPA objects to a provision of the draft, ADEQ will not issue the permit until the objection is resolved.



#### **XIV. ADDITIONAL INFORMATION**

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

Arizona Department of Environmental Quality  
Water Quality Division – AZPDES Individual Permits Unit  
Attn: Richard Mendolia  
1110 West Washington Street  
Phoenix, Arizona 85007

Or by contacting Richard Mendolia at (602) 771 – 4374 or by e-mail at [rjm@azdeq.gov](mailto:rjm@azdeq.gov).

#### **XV. INFORMATION SOURCES**

While developing effluent limitations, monitoring requirements, and special conditions for the draft permit, the following information sources were used:

1. AZPDES Permit Application Forms 1 and 2C, received September 11, 2017, along with supporting data, facility diagram, and maps submitted by the applicant with the application forms.
2. ADEQ files on North Indian Bend Wash GAC Treatment Facility.
3. ADEQ Geographic Information System (GIS) Web site
4. Arizona Administrative Code (AAC) Title 18, Chapter 11, Article 1, *Water Quality Standards for Surface Waters*, adopted January 31, 2009.
5. A.A.C. Title 18, Chapter 9, Article 9. *Arizona Pollutant Discharge Elimination System* rules.
6. Code of Federal Regulations (CFR) Title 40:
  - Part 122, *EPA Administered Permit Programs: The National Pollutant Discharge Elimination System*.
  - Part 124, *Procedures for Decision Making*.
  - Part 133, *Secondary Treatment Regulation*.
  - Part 503, *Standards for the Use or Disposal of Sewage Sludge*.
7. EPA Technical Support Document for Water Quality-based Toxics Control dated March 1991.
8. *Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs*, US EPA, May 31, 1996.
9. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA /821-R-02-013).
10. U.S. EPA NPDES Permit Writers' Manual, September 2010.