ADEQ Arizona Department of Environmental Quality

DRAFT FACT SHEET

City of Sedona Wastewater Reclamation Plant
Aquifer Protection Permit #102298
Place ID #1824, LTF #60474
SIGNIFICANT AMENDMENT

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an amendment to the Aquifer Protection Permit (APP) 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 (POC); and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). The purpose of BADCT 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

Name of Permittee:	City of Sedona
Mailing Address:	102 Roadrunner Drive Sedona, Arizona 86336
Facility Name and Location:	City of Sedona Wastewater Reclamation Plant 7500 West State Route 89A Sedona, Arizona, 86336 Yavapai County

Regulatory Status

Listed in the table below are various wastewater licenses issued by ADEQ to the permittee pertaining to the facility:

Type of license	License identifier	Effective date
Notice of Disposal (NOD) issued	n/a	6/19/1990
APP	P-102298 (14831)	7/ 23/1992

Type of license	License identifier	Effective date
Major modification	P-102298 (14842)	1/ 29/1999
Major modification	P-102298 (14804)	1/28/2000
Significant Amendment (to reflect the changes in the effluent management system)	P-102298 (27689)	10/29/2004
Other Amendment (to install a new water supply well that also serves as an upgradient monitor well)	P-102298 (47523)	12/18/2008
Other Amendment (to reclassify the effluent from Class B+ to Class A+ Reclaimed Water Standards, upgrade the ultraviolet (UV) system and to reconfigure the existing Area 2 wetlands)	P-102298 (54580)	2/6/2012
Other Amendment (to change the daily fecal coliform testing requirement to weekly, and include groundwater monitoring for the up-gradient potable water well)	P-102298 (56644)	9/13/2013
Other Amendment (to establish alert levels (ALs) and aquifer quality levels (AQLs) at POC Well #3)	P-102298 (57650)	1/22/2014
Other Amendment (to upgrade the plant by replacing the aeration basin blowers, to add one new secondary clarifier for redundancy, to add new aeration blowers, to add aerobic digester for redundancy, and add a digester blower facility)	P-102298 (59115)	6/24/2014

An application for this significant permit amendment was received on February 29, 2016 to add injection wells, to remove alternate pathogen monitoring requirement from discharge monitoring table, to install spray irrigation facilities in Area 2B and to discharge effluent from Storage Reservoir Nos. 1, 2, and/or 3 to wetland basins.

Facility Description

The permittee is authorized to operate the City of Sedona Wastewater Reclamation Plant (WWRP) with a maximum monthly average flow of 2.0 million gallon per day (mgd). The WWRP treatment process consists of headworks with two (2) mechanical bar screens and grit removal system, four (4) activated sludge treatment basins with anoxic and aeration zones for nitrification-de-nitrification, new aeration blowers, clarifiers (two existing clarifiers and one new clarifier), four (4) travelling bridge filters, chemical feed, two ultraviolet (UV) disinfection units, two (2) effluent pump stations for irrigation, a new injection well pump station and two (2) emergency storage basins.

Sludge generated from the treatment process will be digested in one existing and one new aerobic digester and is dried using ten sludge drying beds and a centrifuge. The sludge is hauled off site and disposed of at an approved landfill.

The permittee may dispose of the effluent through land disposal over 318 acres of natural vegetation, recharge through rapid infiltration basins (RIBs) and injection wells or reuse under a valid reclaimed water permit. Excess effluent shall be stored in two riparian basins (Riparian Basin No. 1 and Riparian Basin No. 2) and in an on-site storage reservoir (Reservoir No. 3).

The facility has five (5) effluent disposal areas identified as Area 1, Area 2, Area 2B, Area 3, and Area 4. Disposal Areas 1, 3, and 4, are restricted access parcels of land that are bermed so that no run off occurs. Effluent disposal at Area 2 consists of three rapid infiltration basins, a marsh basin 4, two fields (Fields 1 and 2), six reconfigured wetland basins, an existing wetland basin No. 7, an existing overflow pond basin No. 8, two riparian basins (Reservoir Nos. 1 and 2), and a storage reservoir (Reservoir No. 3).

Depth to groundwater at the WWRP site is approximately 450 feet below ground surface (bgs) and the direction of groundwater flow is generally to the southwest.

In addition to the APP conditions pertaining to treatment and disposal of sewage sludge, the permittee must also comply with the requirements for any sewage sludge disposal in 40 Code of Federal Regulations (CFR) Part 503 and 18 A.A.C. Ch. 9, Art. 10.

Amendment Description

ADEQ reviewed and approved the following changes to the permit:

- Recharge of effluent through six injections wells (two proposed and four future injection wells)
- Removal of alternate pathogen monitoring requirement from Table IA and changing the pathogen monitoring frequency from weekly to daily and removal of contingency monitoring requirements for alternate pathogen monitoring
- Installation of spray irrigation facilities and construction of berms in Area 2B
- Discharge of effluent from Riparian Basin Nos. 1 and 2, and/or Reservoir No. 3 to the Wetland Basins

In addition, ADEQ determined that the existing POC #1 may not appropriate for the intended disposal methods. Therefore, a compliance schedule item was added to evaluate the POC #1. If evaluation of POC #1 determines that a new well is required, the facility shall install a new POC well, POC#4 per Section 3.0, Compliance Schedule Item and Section 2.7.4.5 of the permit.

Listed below are the changes to the permit as a result of this amendment:

1. Section 2.1, Facility/Site Description: Added the injection wells to discharging facilities list. Also added sludge drying beds #1 through #10 and emergency storage basins #1 and #2 information to discharging facilities list which was not in previous permit. Added the detailed description for all discharging facilities.

2. Section 2.2.1, Engineering Design: Added information about injection wells and injection well pump station design.

3. Section 2.2.3, Pre-operational Requirements: Added language pertaining to the Engineer's Certificate of Completion for an injection well pump station, spray irrigation system in Area 2B and injection wells #3, #4, #5 and #6.

4. Section 2.4.1, Other Monitor Well: Added information about potable well, GMP-1.

5. Section 3.0, Compliance Schedule:
   - Added the requirement for compliance schedule item to submit the Engineer's Certificate of Completion for an injection well pump station, construction of berms and installation of spray irrigation system in Area 2B.
   - Added the requirement to submit well construction logs for Injection Wells #3 to #6.
   - Added the requirement to evaluate POC #1, to install a new POC #4, to submit well installation report, and to submit an amendment to set AL and AQL for POC #4.
   - Added the requirement to submit as-built drawings and operation plan for sludge drying beds nos. 1-4 as the facility cannot meet the freeboard requirement of 1 ft for the sludge drying bed nos. 1-4.

6. Section 4.2, Table II, Groundwater Monitoring:
   - Added separate monitoring table for POC #3, Table IIB
   - Added monitoring of groundwater level and Total Dissolved Solids (TDS) for POC #1 and GMP-1. The monitoring of TDS was requested by permittee to detect the influence of reclaimed water at the POC wells and potable well.
   - Previous Table IIB, Groundwater Monitoring for Potable Water Well GMP-1 is now renumbered to Table IIC.
   - Added ambient groundwater monitoring Table IID for POC #4 and added compliance groundwater monitoring Table IIE for POC #4.

8. Changed all references to the Water Permits Section to read *"Groundwater Section"*.

9. Other changes include updating the permit language to conform to the most current permit format.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

The City of Sedona WRP is designed to meet the treatment performance criteria for new facilities as specified in A.A.C. R18-9-B204. The facility shall meet the performance requirement for industrial pre-treatment as per A.A.C. R18-9-B204(B)(6)(b).

The treatment facility shall not exceed a maximum seepage rate of 550 gallons per day per acre for all containment structures within the treatment works.

III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Monitoring and Reporting Requirements

To ensure that site operations do not result in violation of Aquifer Water Quality Standards at the POC, representative samples of the effluent shall be collected from the point of discharge from the downstream of UV disinfection channel. The permittee shall monitor the effluent daily for flow rate and fecal coliform, monthly for total nitrogen, quarterly for metals, and semi-annually for volatile and semi-volatile organic compounds. (See Section 4.2, Table IA in the permit).

To ensure that site operations do not result in violation of Reclaimed Water Standards for the beneficial use of Class A+ reclaimed water, representative samples shall be collected from the point of discharge from the downstream of UV disinfection and is monitored daily for fecal coliform and turbidity, and monthly for total nitrogen.

To ensure that Aquifer Water Quality Standards will be met at the POCs in the aquifer, representative samples of the groundwater shall be collected from POC #1 (MW-4A), POC #3, on-site potable well identified as GMP-1 and POC #4 according to Section 4.2, Tables IIA, IIB, IIC and IIE, respectively.

Facility inspections and operational monitoring shall be performed on a routine basis. (See Section 4.2, Tables III).

IV. HYDROGEOLOGIC SETTING

The City of Sedona WWTP is situated on alluvial deposits consisting of silt, clay, sand, and cobbles. These surficial deposits are underlain in some areas by the Verde Formation, which is comprised of limestone, siltstone, and sandstone. The Verde Formation is in turn underlain by basalts. Both the Verde formation and basalt occur in outcrops in the area. In the subsurface, basalt is underlain by the Supai Formation, which is a fine-grained red sandstone. Geologic maps of the area indicate several small faults that are located between the WWTP and the City of Sedona.

Groundwater is encountered at a depth of about 450 feet below ground surface in the area and flows generally southwest. Basalt in this area has a very low long-term average hydraulic conductivity and significantly inhibits infiltration from the surface.

Point of Compliance

The Points of Compliance (POCs) have been designated at the following locations:

POC #	Permittee Identifier	POC Location	Latitude	Longitude
1	POC #1 (MW-4A)	Hazardous and non-hazardous groundwater monitor well in Area 4 ADWR Well #55-587580	34° 48’ 53” N	111° 54’ 03” W
2	POC #2 (Conceptual Well)	Theoretical Hazardous and non-hazardous POC location in Area 2	34° 49’ 55” N	111° 53’ 33.9” W
3	POC #3	Located down-gradient of wetland basins	34° 49’ 33” N	111° 53’ 58” W
4	POC #4	To be determined (TBD)	TBD	TBD

Groundwater monitoring is required at the point of compliance (POC) monitor wells identified as POC #1 (MW-4A), and at POC #3 according to Section 4.2, Tables IIA and IIB. The theoretical hazardous and non-hazardous point of compliance (POC #2) is located just southwest of an on-site potable well. Currently, groundwater monitoring is not required at POC #2. However, depending on groundwater quality monitoring from the nearby potable well (GMP-1) and the groundwater quality monitoring at POC #1, a monitor well at POC #2 may be required in the future pursuant to the contingency requirements in the permit. A POC well #4 will be installed if required by Compliance Schedule Item #8.

Other Monitoring Well

The Points of Compliance (POCs) have been designated at the following locations:

Well #	Permittee Identifier	Well Location	Latitude	Longitude
4	GMP-1	On-site potable water well in Area 2 (up-gradient well) ADWR Well #55-910254	34° 49’ 55.7” N	111° 53’ 32.1” W

Groundwater monitoring is required at the on-site potable well identified as GMP-1 according to Section 4.2, Tables IIC. This potable well, GMP-1, exists in Area 2 just northeast of the administrative building. This well is used to supply potable water to meet the needs for the plant employees and is not used off site. It is located in the deeper regional aquifer.

V. SURFACE WATER CONSIDERATIONS

The WRF is not located within a 100-year floodplain.

VI. COMPLIANCE SCHEDULE

The compliance schedule items included in the permit requires submittal of an Engineer's Certificate of Completion upon completion of construction of a new clarifier, new aeration blowers, an aerobic digester and a blower facility for aerobic digester, berms and spray irrigation system in Area 2B, submittal of geological and well construction logs for injection wells #3 to #6, submittal of evaluation report for POC #1, a well installation report for POC #4 and an amendment application to set alert levels and aquifer quality limits for a new well.

In addition, the compliance schedule item #13 requires the submittal of as-built drawings for sludge drying beds Nos. 1-4 and an operation plan for sludge drying bed nos. 1-4 which addresses typical operation including freeboard, methods to prevent overtopping during rain events and contingency actions to prevent overtopping.

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The City of Sedona 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).

The permit 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 City of Sedona 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(B)(1) and (2). The estimated dollar amount demonstrated for financial capability is $2,868,373. The permittee is expected to maintain financial capability throughout the life of the facility.

Zoning Requirements

The City of Sedona WWRP has been properly zoned for the permitted use and the permittee has complied with applicable zoning ordinances in accordance with A.R.S. § 49-243(O) and A.A.C. R18-9-A201(B)(3).

VIII. 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 XXXX on XXX, under public notice No. XXX.

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.

No comments were received during the public notice period.

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.

A public hearing was deemed to be unnecessary for this permit application.

IX. ADDITIONAL INFORMATION

Additional information relating to this permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division - APP Unit I
Attn: Shivani Shah
1110 W. Washington Street, Mail Code 5415B-3
Phoenix, Arizona 85007
Phone: (602) 771-4465