



# Fact Sheet

Aquifer Protection Permit 100273  
 Place ID #795, LTF #49145  
**SIGNIFICANT AMENDMENT**  
 Forest Highlands WRF

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an 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). 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:	Forest Highlands Water Reclamation Company
Mailing Address:	658 Forest Highlands Flagstaff, Arizona 86001
Facility Name and Location:	Forest Highlands Water Reclamation Facility 658 Forest Highlands (approximately five miles south of the city of Flagstaff)

### 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)	n/a	6/23/1986
Approval to Construct (original package treatment plant)	860419	11/6/1986
Approval of Construction (original package treatment plant)	860419	2/14/1989
Reclaimed Wastewater Reuse Permit	R-0011-03	11/28/1987
Approval to Construct (expansion from 30,000 gpd to 180,000 gpd)	870220	7/20/1990

Approval of Construction (expansion from 30,000 gpd to 180,000 gpd)	870220	12/2/1992
Reclaimed Wastewater Reuse Permit (renewal)	R100273	3/30/1993
Approval to Construct (facility modification to treat limited, high-flow holiday periods)	970139	6/18/1997
Reclaimed Wastewater Reuse Permit (renewal)	R100273	9/11/1997
Aquifer Protection Permit	P-100273	12/26/1997
Approval of Construction (facility modification to treat limited, high-flow holiday periods)	970139	2/10/1999
Aquifer Protection Permit "Other" Amendment (to classify the treatment facility for Class B reclaimed water, and to provide additional storage at Kachina Village under APP P-100362)	P-100273	11/7/2003
Type 2 Reclaimed Water General Permit - Class B	R105432	11/17/2003
Type 2 Reclaimed Water General Permit - Class B (renewal)	R105432	7/24/2008

An application for a significant permit amendment to add a new effluent storage pond (later revised to also include the existing emergency overflow pond) was received on December 12, 2008.

The latest inspection report (dated April 9, 2007), indicates that the facility was found to be in compliance with the APP and Arizona rules and statutes.

**Facility Description**

The Forest Highlands Water Reclamation Company is authorized to operate the Forest Highlands Water Reclamation Facility (WRF), with an average design flow of 0.18 million gallons per day (mgd), and an expanded treatment capacity of 0.21 mgd during peak holiday periods. The WRF is designed to treat flows from single-family residential dwellings and the golf course clubhouses. The treatment process consists of extended aeration, clarification, filtration, and disinfection (chlorination). Storage of reclaimed water is accomplished in three ways: pumped to an on-site eight-million-gallon above-ground steel storage tank; pumped to an existing wetland pond at Kachina Village (regulated under Aquifer Protection Permit #P-100362); or pumped to an on-site lined effluent storage pond. There is also a lined emergency overflow pond on-site for storage of influent or effluent in emergency situations. Sludge produced by the treatment process is removed off-site to an approved landfill. The reclaimed water may be used for beneficial purposes under a valid reclaimed water permit (A.A.C. R18-9, Article 7).

The permittee shall notify all users that materials authorized to be disposed of through the WRF are domestic strength wastewater and pre-treated commercial wastewater and shall not include motor oil, gasoline, paints, varnishes, hazardous wastes, solvents, pesticides, fertilizers or other materials not generally associated with toilet flushing, food preparation, laundry facilities and personal hygiene.

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**

The permittee requested to amend the APP due to the addition of a new on-site effluent storage pond. During the permit amendment process it was discovered that an existing on-site emergency overflow pond was not covered in the previous permit, and therefore this amendment incorporates this pond into 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 new effluent storage pond and the existing emergency overflow pond. Added sections on Annual Registration Fee and Financial Capability.
2. Section 2.2., Best Available Demonstrated Control Technology (BADCT): Updated to include information on the new effluent storage pond and the existing emergency overflow pond.
3. Section 2.2.1, Engineering Design: Added information about previous engineering design approvals and construction approvals.
4. Section 2.2.2, Site-specific Characteristics: Inserted information on depth-to-groundwater and groundwater flow direction.
5. Section 2.2.3, Pre-operational Requirements: Added language pertaining to the Engineer's Certificate of Completion for the new effluent storage pond.
6. Added Section 2.2.5, Reclaimed Water Classification.
7. Added Section 2.2.6, Certified Areawide Water Quality Management Plan Conformance.
8. Section 2.3, Discharge Limitations: Updated this section to current permit format, and added limits on discharging to the existing emergency storage pond in the case of a failed liner test, or replacement of the liner.
9. Section 2.5, Monitoring Requirements: Divided into separate sub-sections for routine discharge monitoring, reclaimed water monitoring, facility/operational monitoring, groundwater monitoring (which will not apply at permit issuance), surface water monitoring (which will not apply at permit issuance), analytical methodology, and installation and maintenance of monitoring equipment.

10. Section 2.6.2.1, Exceeding of Alert Levels/Performance Levels: Added sub-section to address procedures for annual hydraulic testing of the emergency overflow pond liner.
11. Section 2.7.5, Reporting Locations: Added ADEQ Northern Regional Office.
12. Section 2.7.7, Changes to Facility Information in Section 1.0: Added requirement to notify ADEQ Northern Regional Office
13. Section 3.0, Compliance Schedule: Added requirements pertaining to the Engineer's Certificate of Completion for the new effluent storage pond, and hydraulic testing of the liner of the existing emergency overflow pond.
14. Section 4.0, Tables of Monitoring Requirements: Added sub-sections 4.1, Pre-operational Monitoring, (which is not applicable), and 4.2, Compliance or Operational Monitoring. Under 4.2, the tables have been renumbered and renamed to reflect the following:
  - Previous Table I, Discharge Monitoring is now Table IA, Routine Discharge Monitoring.
  - Previous Table II, Reclaimed Water Quality Monitoring is now Table IB, Class B Reclaimed Water Monitoring.
  - Inserted placeholder for Table II, Groundwater Monitoring (not applicable).
  - Table III - Facility Inspection (Operational Monitoring) - No changes were made to the title of this table.

*(Note: Herein, the new titles shall be used for the tables.)*

- 15 Section 4.2, Table IA, Discharge Monitoring:
  - inserted a discharge limit (DL) of 0.21 mgd (to accommodate peak holiday periods);
  - inserted an alert level (AL) for monthly average flow (95% of the DL);
  - added daily fecal coliform monitoring with established DLs of 800 CFU or MPN per 100 ml sample (single sample) and 200 CFU or MPN for four of seven samples in a week;
  - added antimony, beryllium, cyanide (as free cyanide), fluoride, nickel, and thallium to the list of metals (to be consistent with the current Aquifer Water Quality Standards (AWQS));
  - changed the metals monitoring frequency from quarterly to semi-annually (as there have been no exceedances of these parameters in the last two years);
  - added dichloromethane, hexachlorobenzene, hexachlorocyclopentadiene, 1,2,4-trichlorobenzene, and 1,1,2-trichloroethane to the list of VOCs (to be consistent with the current AWQS).
16. Section 4.2, Table IB, Reclaimed Water Monitoring: Removed the two rows for flow monitoring, as these are in Table IA.

17. Section 4.2, Table III, Facility Inspection (Operational Monitoring): Added monitoring parameters for the new effluent storage pond, and the existing emergency overflow pond.
18. Changed all references to the Water Permits Section to read "*Groundwater Section*".
19. Other changes include updating the permit language to conform to the most current permit format.

## **II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY**

The WRF (except for the new effluent storage pond) was designed and constructed, and shall be operated and maintained to meet the treatment performance criteria (BADCT) which was in effect at the time the original permit was issued. The new effluent storage pond shall be designed, constructed, operated and maintained to meet the performance levels for new facilities as specified in A.A.C. R18-9-B204(B)(7). Testing of the liner of the emergency overflow pond shall be conducted and reported to ADEQ as per compliance schedule item #2 (see Section 3.0 in the permit). If the liner meets the leakage rate of less than 550 gpd/acre, then it will be considered to meet the BADCT for new facilities under A.A.C. R18-9-B204(B)(7).

## **III. 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 from the downstream end of the chlorine contact basin. The permittee shall monitor the effluent daily for fecal coliform, monthly for total nitrogen, semi-annually for metals, and annually for VOCs (see Section 4.2, Table IA in the permit).

To ensure that site operations do not violate the Reclaimed Water Quality Standards for the beneficial use of Class B reclaimed water, the permittee shall monitor the reclaimed water at the same effluent sampling point as indicated above. The permittee shall monitor the reclaimed water daily for fecal coliform (see Section 4.2, Table IB in the permit).

Facility inspection and operational monitoring shall be performed on a routine basis (see Section 4.2, Table III in the permit).

### **Point of Compliance (POC)**

The POC location is based on the delineation of the pollutant management area (surficial area on which wastewater is treated and contained) at the WRF site. The direction of groundwater

flow is toward the south. Therefore, the POC for this facility has been designated at the downgradient (south) boundary of the WRF.

The POC for this facility is designated at the following location:

POC#	POC Locations	Latitude	Longitude
1	Downgradient (south) boundary of the WRF	35° 06' 24" N	111° 41' 15" W

Groundwater monitoring is not required at permit issuance. The Director may amend this permit to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

#### IV. HYDROGEOLOGIC SETTING

The subsurface lithology consists of the following, in descending order: volcanics, basalt, exposed Kaibab limestone (exposed and eroded to a thin layer in many areas), Coconino sandstone (exposed in some areas, only slightly eroded), Supai formation. Depth to groundwater has been measured on-site at 885 feet below ground surface, and the direction of groundwater flow is to the south.

#### V. SURFACE WATER CONSIDERATIONS

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

#### VI. COMPLIANCE SCHEDULE

The two compliance schedule items included in the permit include submittal of an Engineer's Certificate of Approval upon completion of construction of the new effluent storage pond, and hydraulic testing of the liner of the existing emergency overflow pond.

#### VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

##### Technical Capability

The Forest Highlands Water Reclamation Company 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 Forest Highlands Water Reclamation Company 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.

### **Zoning Requirements**

The Forest Highlands WRF 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(A)(2)(c).

## **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.

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

The Department shall accept written comments from the public before a significant permit amendment is made. 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.

## **IX. ADDITIONAL INFORMATION**

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

Arizona Department of Environmental Quality  
Water Quality Division - APP and Reuse Unit  
Attn: Marcy Mullins  
1110 W. Washington Street, Mail Code 5415B-3  
Phoenix, Arizona 85007  
Phone: (602) 771-4464

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