

Petrified Forest National Park - Rainbow Forest Wastewater Treatment System  
Aquifer Protection Permit No. P-512573  
Place ID 184015, LTF No. 71818

**I. Introduction:**

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an 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. 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.

**II. Facility Location:**

6618 Petrified Forest Road  
Petrified Forest, Arizona 86028

**III. Facility Description:**

The National Park Service is authorized to operate the 5,200 gallon per day (gpd) Petrified Forest National Park - Rainbow Forest Wastewater Treatment System (WWTS). The WWTS originally operated under a 1.09 (P-101035) General permit. The current facility receives wastewater from the Rainbow Forest District, which includes 7 residential units, a visitor center, and a gift shop. The raw sewage is discharged to a 1.5 acre, three (3) cell partially lined lagoon system. The wastewater is evaporated in the lagoon system with no discharge to the surface waters.

The new WWTS includes two (2) hydraulically connected Geomembrane 45 mil firestone reinforced polypropylene (fPP-R) lined effluent 1.631 total acre evaporative impoundments, which will be converted from the existing three (3) cell lined lagoon system.

Sewage from the Rainbow Forest District will enter through the existing Polyvinyl chloride (PVC) sewer line to a new 7,000- gallon septic tank system. The effluent from the septic tank system will flow through a six (6) inch (PVC) sewer line to the hydraulically connected north and south impoundments. Additional improvements to the facility will include new piping, widened berms for maintenance vehicle access, and a new fence around the impoundments.

**IV. Amendment Description:**

Not Applicable – New Facility

**V. Regulatory Status:**

The latest inspection dated March 27, 2018 indicates that the facility was found to be in compliance with the APP and Arizona rules and statutes.

**VI. Best Available Demonstrated Control Technology (BADCT):**

Project consists of the installation of 7,000-gallon septic tank and two lined impoundments (North Impoundment and South Impoundment) which are hydraulically connected. Sewage will flow from the park facilities to the septic tank. Effluent from the septic tank will flow in a PVC sewer line to the lined evaporation impoundments.

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.

**VII. Compliance with Aquifer Water Quality Standards (AWQS):**

The pollutant management area (PMA) as described in Arizona revised Statutes (ARS) §49-244 as the limit projected in the horizontal plane of the area on which pollutants are or will be placed. Due to the long distance between the septic tank and the evaporation ponds, the project has two PMAs. One at the septic tank site and one surrounding the evaporation ponds. Given that the discharging facilities are designed so they will not leak, the PMAs' boundary coincides with the boundary of the discharging facilities. One has the boundary of the septic tank, and the 2<sup>nd</sup> PMA coincides with the boundary of the site of the two line evaporation lagoons.

The discharge impact area (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 DIA is similar in shape and size to the PMA because all discharging facilities are lined and no discharge is expected.

Inspection of the treatment plant components, Impoundments, Berms, Liners and Freeboard will be performed at least weekly. Septic tank and cleanouts shall be inspected semi-annually.