

## Sedona View RV Resort – Wastewater Treatment Plant

Aquifer Protection Permit 512045

Place ID #149143, LTF #63820

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 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., local subsurface geology) to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer, or to keep pollutants from reaching the aquifer.

### I. FACILITY INFORMATION

#### Name and Location

Name of Permittee:	Happy Jack Lodge LLC
Mailing Address:	2899 North Kristin Flagstaff, Arizona 86001
Facility Name and Location:	Sedona View RV Resort – Wastewater Treatment Plant 4900 South Genesis Drive Cottonwood, Arizona 86326 Yavapai County

#### Regulatory Status

An application for this Aquifer Protection Permit was received on August 22, 2016.

#### Facility Description

The Sedona View RV Resort is authorized operate the Sedona View RV Resort Wastewater Treatment Plant (WWTP), with a maximum monthly average flow of a 20,000 gallons per day (gpd). The WWTP shall treat domestic wastewater from the proposed 300 space recreational vehicle (RV) site. The facility shall be constructed in two phases. Phase I shall consist of 200 RV spaces with a treatment capacity of 12,000 gpd (0.012 million gallons per day (mgd)). Phase II shall consist of an additional 100 RV sites for a total of 300 RV spaces. The facility may increase the discharge to 20,000 gpd (0.02 mgd) upon demonstrating the disposal capacity for 20,000 gpd,

The treatment process for both Phases shall consist of a series of two septic tanks (26,700 and 16,800 gallons (gal) each), two pumps, a geoflow headworks, a Wisconsin mound system (20,000 Square feet), a tablet chlorinator, and a natural clay lined evaporation basin (1,200,000 gal). The waste from the RV sites is gravity fed to the septic tanks through an 8 inch sewer line to either of

the two pumps, through the headworks, to the Wisconsin mound system; the effluent is then gravity fed, through an 8 inch sewer line through the chlorination system, and discharged to the evaporation basin. The septic tank solids will be pumped periodically and disposed to a Municipal Treatment Plant.

Groundwater flow direction at the site is toward the southeast at a depth of approximately 378 to 400 feet below ground surface (bgs).

The site includes the following permitted discharging facilities:

Facility	Latitude	Longitude
Septic Tanks	34° 38' 50" N	111° 57' 49" W
Wisconsin Mound	34° 38' 51" N	111° 57' 51" W
Evaporation Basin	34° 38' 46" N	111° 57' 47" W

**II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY (BADCT)**

The WWTF is designed to meet the treatment performance criteria for new facilities as specified in Arizona Administrative Code R18-9-B204(D). The design flow was calculated based on 60 gallons per person per RV space based on a published article provided by the facility.

- Wisconsin Mound:** The Wisconsin Mound is designed to encompass approximately 20,000 sq. ft. The mound will have six (6) inches of topsoil layer covered by Bermuda grass, filter fabric, a 9 inch thick layer of silty sand or sandy loam layer, 12 inches of concrete sand, an additional layer of filter fabric, and six (6) inches of thick drainage bed with rocks. The pressure distribution line with emitter will be installed in 12 inches of concrete sand layer. A four (4) inch perforated PVC pipe shall be installed in the drainage bed layer to collect the effluent from the mound, then discharged to the tablet chlorinator for final disposal to the Evaporation Basin. The effluent discharges from Wisconsin Mound treatment system will have a Total Suspended Solids of 30 mg/l, BOD of 30 mg/l, and Total Nitrogen of 53 mg/l. Effluent will not be discharged through the mound.
- Evaporation Basin:** The evaporation basin shall be constructed to store and evaporate the effluent. The basin shall be 13 feet deep with a storage capacity of 1.2 million gallons. The basin shall be lined with a 12 inch thick compacted clay liner. The design report included the laboratory testing results for soil classification and hydraulic conductivity which demonstrated that the 12 inch thick clay liner is adequate to meet the permeability rate of less than 550 gallons per acre per day.
- Septic Tanks:** The septic tanks will be constructed of fiberglass. The septic tanks shall be pumped by a licensed septage pumper and hauler for disposal at a Municipal Treatment Plant.

### III. HYDROGEOLOGIC SETTING

The Sedona View RV Park overlies the Verde Formation which is comprised, generally, of four geologic units proceeding from shallowest to deepest:

- an uppermost poorly sorted gravel conglomerate that is approximately 20 feet thick
- a clay-rich mudstone unit that is approximately 246 feet thick,
- a blue shale unit that is approximately 140 feet thick
- a basal limestone unit interbedded with mudstone beds with unknown thickness.

The uppermost gravel conglomerate is reportedly not present at the WWTF site.

The facility is located in the Verde River Basin. The groundwater in the WWTF area occurs under confined conditions, with groundwater encounters beginning at depths from 378 to 430 feet below ground surface (bgs). Groundwater flow direction at the site is toward the southeast.

Soil samples from the Verde Formation at the site were classified as high plasticity clay (CH). Based on several hydraulic conductivity values from a set of similar clay classifications provided by the Bureau of Reclamation, the estimated hydraulic conductivity of the mudstone beds below the WWTF is  $10^{-4}$  to  $10^{-5}$  feet per day.

One water supply well (Arizona Department of Water Resources (ADWR) # 55-225673) is located on the site near the southwest corner of the property (cross-gradient) of the WWTF site. At this time, there should be no impact by the WWTF site to the well. Three water supply wells are located on a property adjoining the southwest corner of the site.

#### **POLLUTANT MANAGEMENT AREA (PMA)**

The PMA for the WWTF site is the property boundary which circumscribes the septic tanks, Wisconsin Mound, and the liners and berms for the effluent evaporation basin.

The Wisconsin Mound will utilize underdrains to collect treated effluent for routing to the evaporation basin and will prevent the discharge of pollutants from the Wisconsin Mound. The evaporation basin will utilize a bentonite liner to retain treated effluent within the basin for evaporation. The liner prevents the discharge of pollutants from the basin.

#### **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. Based on the basin liner, Wisconsin Mound underdrain and the relatively impermeable underlying mudstone, the DIA is directly below and equivalent to the PMA.

### IV. STORM WATER/SURFACE WATER CONSIDERATIONS

The Sedona View RV Resort is located in the Verde River Basin in Map Panel 04025C1790H, Zone X which is the area of outside of the 0.2% annual chance of floodplain. The facility is outside of the 100-yr floodplain. The Verde River Basin and has an ephemeral wash that lies

adjacently to the South of the proposed WWTF and feeds into a northeast/southwest oriented ephemeral wash and later into the Verde River.

**V. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS**

**Monitoring and Reporting Requirements**

Facility inspection and operational monitoring shall be performed on a routine basis (see Section 4.2, Table III, in the permit). Discharge monitoring to measure flow only, shall be performed on a routine basis (see Section 4.2, Tables IA-1 and IA-2, in the permit)

**Point of Compliance (POC)**

The Point of Compliance (POC) is designated at the following location:

<b>POC No.</b>	<b>Location</b>	<b>Latitude</b>	<b>Longitude</b>
1 (Conceptual Location)	Approximately 686 feet down gradient from the southeastern PMA of the WWTF	34° 38' 48" N	111° 57' 43.2" W

POC #1 is only theoretical and no groundwater monitoring is required, unless as part of a contingency action.

The Director may amend this permit to require installation of the well(s) and initiation of groundwater monitoring at the POC or to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

**VI. COMPLIANCE SCHEDULE**

The permittee shall submit a signed, dated, and sealed Engineer’s Certificate of Completion that confirms that the Septic Tanks, the Wisconsin Mound and the Evaporation Basin were constructed according to the Department-approved design report or plans and specifications, as applicable, prior to discharging under this permit and within 90 days of completion of construction. The financial assurance mechanism from A.A.C. R18-9-A203 (C)(2) (Performance Surety Bond) for closure/post closure costs shall be submitted 60 days prior to commence the operation of the WWTF. Additional Compliance items include requirements to need to commence operation of the second phase of the WWTF.

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

**Technical Capability**

The Sedona View RV Resort 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 Sedona View RV Resort has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of the facility. The financial assurance mechanism was demonstrated through a Performance Surety Bond per A.A.C. R18-9-A203(C)(2). The estimated dollar amount for facility closure/post closure cost is \$43,189.00.

### **Zoning Requirements**

The Sedona View RV Resort 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.

### **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 permit may be obtained from:  
Arizona Department of Environmental Quality



Water Quality Division – Groundwater Section – APP Unit 1  
Attn: Monica Phillips  
1110 West Washington Street, Mail Code 5600D-3  
Phoenix, Arizona 85007  
Phone: (602) 771-2253