

HOUSTON CREEK LANDING WASTEWATER TREATMENT PLANT

Aquifer Protection Permit No. P-103676

Place ID 5395, LTF No. 92945

Significant Amendment

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. Permittee & Facility Location:

Pine Meadows Utilities, LLC Owns and operates the Houston Creek Wastewater Treatment Plant (WWTP), located at 390 Granite Ridge Road, Star Valley, Gila County, Arizona 85541, over the groundwater of the Tonto Creek. The Houston Creek WWTP is located on Pine Meadows Utilities, LLC owned Gila County Parcel 302-60-200B, while the discharge to Houston Creek is located on the State of Arizona owned Gila County Parcel 302-60-205D.

III. Facility Description:

The permittee is authorized to operate the Houston Creek Landing Wastewater Treatment Plant (WWTP), with a maximum average monthly flow of 37,000 gallons per day (gpd). The Department has graded this facility as a Grade 2 wastewater treatment plant. The facility shall have an operator in direct responsible charge who is certified for the class and grade of the facility and is available to the "onsite representative" and ensures an onsite operator visits the facility weekly for a Grade 2 WWTP.

The Houston Creek Landing WWTP utilizes a Santec treatment system consisting of a series of underground fiberglass tanks and airlift pumps. Wastewater enters the wastewater treatment plant through a fiberglass influent manhole with drop in manual bar screens that can be pulled up cleaned and reinstalled, then flows into an equalization tank with two mechanical pumps (lead/lag) and a pump control panel with high level floats hooked to audible and visual alarms. The pumps push influent through a flowmeter vault, to the biological treatment process based upon the activated sludge principle, that includes two (2) tanks split with a fiberglass divider into two reactors in each tank (Reactor #1-Anoxic, #2-aerobic in the 1st tank, and Reactor #3, and #4 are both aerobic in the 2nd tank), each with three manways for access, and a third tank with denitrification (1st manway), and a reaeration tank with three clarifiers (2nd, 3rd, and 4th manway). A methanol dosing system is utilized to assist, as necessary, with denitrification. Mixed liquor suspended solids from the reaeration tank and return activated sludge (RAS) from the clarifiers flow through air lift pumps back to Reactor #1, or RAS is wasted (WAS) to an aerated sludge holding tank that decants

to the flow equalization tank to thicken the sludge. From the clarifiers, secondary effluent gravity flows through a Norweco tablet feeder into a chlorine contact tank. From the chlorine contact tank, the effluent flows through a dechlorination tablet feeder, and an effluent flowmeter to a 4-ft diameter by 12-ft deep effluent pump station wetwell equipped with two (2) 50-gpm (0.3-hp) pumps. The effluent pump station discharges to a recharge basin (the primary method of disposal) through a 2" pipe and flowmeter. The effluent recharge basin has a divider in the middle to form two basins, has a berm around the perimeter to prevent stormwater run-off from entering, is designed with a bottom recharge area of 700-sf (approximately 35-ft x 20-ft) and an estimated percolation capacity of 17,900 gpd. A minimum of 2-ft of freeboard will be maintained, and a float in the recharge basin will turn the effluent pumps off and engage a visual alarm to alert the facility that a discharge to Houston Creek may be occurring. The primary method of discharge will be to this on-site effluent recharge basin with the constructed effluent lift station so that the effluent percolates to groundwater. The effluent pump station has a 4" overflow drain pipe that discharges to Houston Creek, regulated under AZPDES permit AZ0025305, a tributary to Tonto Creek. For emergency purposes, if the recharge basins have reached their discharge limit, or for maintenance of the basin, the permittee can discharge directly to Houston Creek under a current AZPDES permit.

There shall be no overflow pipes between the recharge basin and the effluent pump station, and there shall be no overflow pipes that carry effluent back to the influent pump station of equalization basin.

All the sludge, including the screenings, grit, and scum, is hauled offsite and disposed of in accordance with State and Federal regulations.

All industrial hookups and other non-residential hookups to the treatment system shall be authorized according to the applicable federal, state or local regulations.

IV. Amendment Description:

The purpose of this amendment is to construct an alternative effluent disposal works (method of disposal) at the sewage treatment facility site. The facility was designed to produce effluent that would flow off-site to Houston Creek, tributary to Tonto Creek as regulated under AZPDES permit AZ0025305. The creek is normally dry with ephemeral use during precipitation or up-stream run-off. The effluent drains by gravity in a 4" pipe to the outfall.

Under this amendment, the permittee will construct an on-site effluent pump station (EPS) and two effluent recharge basins (one recharge basin area with a separating berm to form two individual recharge basins to allow for maintenance) for the effluent to percolate as a primary method of discharge, discharging to the Houston Creek Basin only as a back-up method of disposal, or for maintenance of the recharge basin. The recharge basin will have a float that will stop the pumps in the EPS and send an alarm if the level reaches allowable freeboard levels. An overflow pipe will discharge effluent from the EPS to the Houston Creek 4-inch conveyance pipe to the Houston Creek discharge. All effluent manholes between the Houston Creek WWTP and Houston Creek discharge point shall be secured to prevent illicit dumping and tampering with effluent discharges.

The permit category for this amendment was determined to be a “Significant Amendment” as per A.A.C. R18-9-A211(B)(9)

V. Regulatory Status

The facility is currently under Consent Judgement CV 2022-012164 dated September 22, 2022. This Amendment was submitted in response to Section VII. Work/Compliance Schedule Item D of the Consent Judgement.

VI. Best Available Demonstrated Control Technology (BADCT):

The treatment facility shall be designed, constructed, operated, and maintained 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).

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

The permittee shall monitor the effluent according to Section 4.2, **Error! Reference source not found.** Representative samples of the effluent shall be collected at the point of discharge from the dechlorination system. Effluent flow into the recharge basin shall be monitored using the effluent flow meter. Effluent to the AZPDES shall be reported as the difference from the flowmeter located after dechlorination minus the flowmeter located at the Effluent Pump Station.

Conceptual POC has been established at the following locations:

Table 2: POINT(S) OF COMPLIANCE			
POC #	POC Location	Latitude	Longitude
1 (Conceptual)	Southeast Corner of the WWTP	34°14'48" N	111°14'48" W
2 (Conceptual)	Southeast and downstream of the NPDES/AZPDES discharge point to Houston Creek	34°14'46" N	111°14'55" W

The direction of the groundwater is towards the east-southeast and the depth to groundwater at the WWTP is between 55 and 95 feet below ground surface.

Groundwater monitoring is not required at the point of compliance wells. POC #1 and POC #2 wells are conceptual wells, monitoring is not required except as a contingency action. The director may require an amendment of this permit to install a monitoring well if there is cause or concern that groundwater quality may be impacted at the POC. The Director may amend this permit to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.