



Fact Sheet

Aquifer Protection Permit #P-105922
 PLACE ID 128761, LTF 45191
 Palo Verde Utilities Company Campus 1 Area
 Recharge Facility

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:	Global Water – Palo Verde Utilities Company
Mailing Address:	21410 North 19th Avenue Suite 201 Phoenix, Arizona 85027
Facility Name and Location:	Palo Verde Utilities Company Campus 1 Area Recharge Facility Several facilities owned by PVUC located in the City of Maricopa, Arizona, in Pinal County, Arizona (Pinal County)

Regulatory Status

This is a new facility applying for an Aquifer Protection Permit received by ADEQ on August 13, 2007.

Facility Description

The Global Water – Palo Verde Utilities Company (PVUC) Campus 1 Area Recharge Facility is authorized to discharge to the subsurface up to a total maximum average monthly flow of 6,844 acre-feet per year, equivalent to a monthly average flow of 6.11 million gallons per day (mgd), of tertiary treated denitrified effluent from the Palo Verde Utilities Company (PVUC) Wastewater Reclamation Facility (WRF). The PVUC WRF is regulated under Aquifer Protection Permit (APP) No P-105228 and AZPDES permit AZ0025071. The tertiary treated effluent shall be discharged to Aquifer Storage and Recovery (ASR) wells within a twenty four square mile area called “Campus 1 Area” consisting of five recharge sites located within three Discharge Impact Areas (DIA) of approximately 2 mgd each.

The Campus 1 Area extends throughout the City of Maricopa, and includes the following five recharge sites: Campus 1 recharge WRF site; Maricopa Groves Water Treatment Plant; Rancho El Dorado Water Distribution Center; Villages Lift Station; and Maricopa Grove Well Site. The Campus 1 Area extends approximately 2 miles to the west, south and east of the five sites and is bounded to the southwest by the Ak Chin Indian Community and to the north by the Gila River Indian Community.

The effluent shall flow through a 24 inch diameter pipeline, to a network of up to eighteen aquifer storage and recovery (ASR) wells located at the five recharge sites. The water quality samples shall be obtained at the discharge sample point for the PVUC Water Reclamation Facility APP #105228. Operation of the effluent pipeline is exempt from APP by A.R.S. §49-250(B)(22). There are five inflow points where the pipeline enters the five ASR well sites. Discharge quality samples may be obtained at the inflow point if necessary, or as part of a contingency action. Volume of water discharged will be measured at the inflow points. Proper operation and maintenance of the pipeline should prevent the water quality from changing during transmission to the ASR wells.

There are three ASR well sites designated as “preferred” and two as “contingency” recharge sites. The preferred sites are Campus 1 WRF (in the setback areas of P-105228), Maricopa Groves WTP, and Rancho El Dorado WDC. The contingency sites are Villages Lift Station and Maricopa Groves Well Site. The ASR wells shall be installed at the three preferred sites in the following order: up to six ASR wells in the set back of the Campus 1 WRF, up to five ASR wells at the Maricopa Groves WTP, up to five ASR wells at Rancho El Dorado WDC, one ASR well at Villages Lift Station and one ASR well Maricopa Grove Well Site. Each ASR well is capable of injection rates from 300 – 500 gpm and intervals of 180 – 480 feet bgs and shall be protected by a concrete pad and /or an earthen berm. The top of the concrete pad or earthen berm will be 2 feet above the 100-year flood level, or 3 feet above current land surface.

The depth to groundwater ranges from approximately 75 to 150 feet below land surface and the direction of groundwater flow is toward the northwest.

Amendment Description

Not Applicable.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY (BADCT)

Not applicable as per A.A.C. R18-9-A201(C).

III. HYDROGEOLOGIC SETTING

The Palo Verde Utilities Company Campus 1 Area Recharge Facility is located within the Basin and Range Physiographic Province of Arizona which is defined by uplifted blocks or mountain ranges with intervening alluvial basins or valleys, created by extensional (pull apart) faulting. The elongated basins and ranges typically trend northwest-southeast and parallel one another.

Groundwater-bearing alluvium in the Maricopa-Stanfield sub basin is primarily composed of the unconsolidated sands, gravels, silts, and clays that were deposited by the ancestral Gila and Santa Cruz rivers. The subsurface geology consists of: the Upper Alluvial Unit mostly unconsolidated

to slightly consolidated interbedded sands, gravels, lenses of silt, and clay with finer materials grading towards the center of the basin; the Middle Silt and Clay Unit, Fine grained sediments, predominately silt, clay and sand, mudstone and evaporates mostly weakly consolidated but moderately to well-cemented siltstone/claystone occurs locally; and the Lower Conglomerate Unit, Semi-consolidated to consolidated coarse grained sediments consisting of granite fragments, cobbles, boulders, sand and gravels. The depth to groundwater ranges from approximately 75 to 150 feet below land surface and the direction of groundwater flow is toward the northwest.

Groundwater withdrawals in excess of recharge have tended to differentially lower water levels in this region. A regional cone of depression exists near the northwest corner of the 24-square-mile Campus 1 Area in Township 3South, Range 3East, Section 13, 14, 22, 26, and 27.

In the Pinal AMA, land subsidence and earth fissuring have been recognized as problems for many years. In some areas, subsidence has been substantial. The applicant has referenced the Arizona Geological Survey Open-file Report 07-01 version 1.0 and provided a map of known subsidence areas. None of the 5 recharge sited are near any known areas of subsidence. The nearest suspected earth fissures are more than 5 miles west of the City of Maricopa. No evidence of subsidence or earth fissures were noted during the installation of monitor wells at Campus 1 WRF and the Villages Lift Station. In general, recharge of water to the aquifer should reduce the occurrence of future subsidence.

IV. STORM WATER/SURFACE WATER CONSIDERATIONS

Stormwater / surface water considerations include whether the facility will be located within the 100-year flood plain and if the discharge has the potential to impact surface water drainages. Some of the injection wells will be located in, or near the floodplain. Each well has a surface seal that conforms to ADWRs well construction requirements listed in R12-15-811(B). To provide additional protection from flood waters entering the well, the applicant has agreed to protect the wells by having the well casings extend upward 3.5 feet above the land surface. Each well will be protected by a concrete pad and /or an earthen berm. The top of the concrete pad or earthen berm will be two feet above the 100-year flood level, or 3 feet above current land surface.

Monitoring of nearby drainages was not included as a permit condition because the facility does not discharge to any surface water. Discharges from the PVUC WRF to the Santa Rosa Wash are also regulated by APP 105228 (and AZPDES permit AZ0025071).

V. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Depth-to-groundwater in the vicinity of this facility is approximately 75 to 150 feet below land surface, the direction of groundwater flow is toward the northwest and the effluent is expected to meet Aquifer Water Quality Standards (AWQS) at the point of discharge. The effluent shall flow through a 24 inch diameter pipeline, to a network of eighteen aquifer storage and recovery (ASR) wells. PVUC Campus 1 Area Recharge Facility shall sample the effluent prior to entering the pipeline in accordance with APP 105228.

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 point of discharge in accordance with APP-105228. The Permittee shall be monitor the tertiary treated effluent from APP-105228 daily for flow rate and fecal coliform, quarterly for total nitrogen, quarterly for metals, and semi-annually for volatile organic compounds (see Section 4.2, Table IA in the permit). The permittee shall monitor the groundwater quality according to Section 4.2., Table IIA and IIB. The permittee shall monitor the depth to the top of the recharge mound according to Section 4.2., Table IC.

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 location of the POC is determined by an analysis of the Pollutant Management Area (PMA), the Discharge Impact Area (DIA), and locations and uses of groundwater wells in the area. The POC location is selected to protect off-site uses of groundwater, to verify BADCT performance, and to allow early detection of potential impact from facility discharges. The tertiary treated effluent from Aquifer Protection Permit (APP) No P-105228. shall be discharged to recharge and cover wells within a twenty four square mile area called “Campus 1 Area” consisting of three Discharge Impact Areas (DIA) of approximately 2mgd each

The PMA is described in ARS §49-244 as the limit projected in the horizontal plane of the area on which pollutants are or will be placed. The PMA includes horizontal space taken up by any liner, dike or other barrier designed to contain pollutants in the facility is regulated under a separate permit, Aquifer Protection Permit (APP) No P-105228

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

POC Identification	Latitude	Longitude
POC 1 (55-907127) North edge of the WRF setbacks of P-105228	33°05'11.44"	112°00'45.67"
POC 2 (55-205362) Western edge of the Maricopa Groves WTP recharge site	33°02'40.56"	112°01'46.05"
POC 3 (Proposed) 750 feet Northwest of the Rancho El Dorado WDC recharge site	33°04'30.36"	112°01'51.05"
POC 4 (Proposed) Northwest corner of the Villages Lift Station recharge site	33°04'19.70"	112°01'54.87"
POC 5 (Proposed) South edge of the Maricopa Groves Well Site recharge site.	33°02'46.90"	112°01'50.91"

Monitoring and Reporting Requirements

Effluent, groundwater, and recharge monitoring are required for this facility and are recommended to monitor as follows:

Monitoring Point	POC Identification	Latitude	Longitude
1	Effluent pump station of P-105228	33° 05' 13.18" N	112° 00' 44.51" W
2	Inflow Point Campus 1 WRF setbacks	33° 05' 13.18" N	112° 00' 44.51" W
3	Inflow Point to Maricopa Groves	32°59'40"N	111°36'08" W
4	Inflow Point to Rancho El Dorado WDC	33°04'21.64" N	112°01'33.80" W
5	Inflow Point to Villages Lift Station	33°04'19.71" N	112°01'54.65" W
6	Inflow Point to Maricopa Groves Well Site	33°02'47.36" N	112°01'50.91" W
7	POC 1 (55-907127) North edge of the WRF setbacks of P-105228	33° 05' 11.44" N	112° 00' 45.67" W
8	POC 2 (55-205362) Western edge of the Maricopa Groves WTP recharge site	33° 02' 40.56" N	112° 01' 46.05" W
9	POC 3 (Proposed) 750 feet Northwest of the Rancho El Dorado WDC recharge site	33° 04' 30.36" N	112° 01' 51.05" W
10	POC 4 (Proposed) Northwest corner of the Villages Lift Station recharge site	33° 04' 19.70" N	112° 01' 54.87" W
11	POC 5 (Proposed) South edge of the Maricopa Groves Well Site recharge site.	33° 02' 46.90" N	112° 01' 50.91" W
Sampling Point	Recharge Mound Well Identification	Recharge Site	AL bgs
12	RM-1 (Not Established)	Campus 1	(Not Established)
13	RM-2 (Not Established)	Maricopa Groves	(Not Established)
14	RM-3 (Not Established)	Rancho El Dorado WDC	(Not Established)
15	RM-4 (Not Established)	Villages Lift Station	(Not Established)
16	RM-5 (Not Established)	Maricopa Groves Well Site	(Not Established)

VI. COMPLIANCE SCHEDULE

A compliance schedule is included in Section 3.0 of the permit which includes the requirement for, Ambient Groundwater Monitoring Report for POC-1, notification of cessation of discharges to the ASR wells, install alert level wells at the remaining four ASR sites to monitor the top of the mound(s) within 8 months prior to recharge at each site and ambient groundwater monitoring for the three ASR well sites.

VII. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The Global Water – Palo Verde Utilities Company (PVUC) Campus 1 Area Recharge Facility 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 permittee is expected to maintain technical capability throughout the life of the facility.

Financial Capability

The Global Water – Palo Verde Utilities Company (PVUC) Campus 1 Area Recharge Facility has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The estimated dollar amount demonstrated for financial capability is \$90,600.00 operating costs and \$171,000 closing costs. The permittee shall maintain financial capability throughout the life of the facility.

Zoning Requirements

The Global Water – Palo Verde Utilities Company (PVUC) Campus 1 Area Recharge Facility does not require an Industrial Use Permit or special zoning in accordance with the City of Maricopa Zoning Ordinance Sec. 2303. Therefore, the permittee has complied with all 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 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. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

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

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. 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 and Reuse Unit
Attn: Monica Phillips
1110 West Washington Street, Mail Code 5415B-3
Phoenix, Arizona 85007
Phone: (602) 771-2253

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