City of Tempe
P.O. Box 5002
255 E. Marigold Ln.
Tempe, AZ 85281
480-350-8207

Tempe

Water Utilities
Department

RECEIVED
AUG 06 2012
ARIZONA DEPARTMENT
OF WATER RESOURCES

August 3, 2012

Mr. Andrew Craddock
Manager
AAWS and Recharge Section
ADWR Water Management Division
3550 N Central Ave.
Phoenix, AZ 85012

Re: Underground Storage Permit No. 71-563943.0002

Dear Mr. Craddock:

The City of Tempe is seeking to modify the Underground Storage Facility permit for its recharge project at the Ken McDonald Golf Course. The current permit is for the annual storage of 3,400 acre-feet of effluent from Tempe's Kyrene Water Reclamation Plant. The City would like to modify the permit to allow the recharge of surface water from either NCS or CAP in place of effluent. An application to amend the current permit, along with supporting documentation, is attached.

If you have any questions or comments, please call me at 480-350-2603.

Sincerely,

Basil J. Boyd Jr., R.G.
Water Resources Hydrologist

Printed on Recycled Paper.

ARIZONA DEPARTMENT OF WATER RESOURCES
Water Management Division
3550 North Central Ave, 2nd Floor
Phoenix, Arizona 85012-2105
Phone (602) 771-8585 Fax (602) 771-8689

RECEIVED
AUG 06 2012
ADWR
RECHARGE

APPLICATION FOR UNDERGROUND STORAGE FACILITY PERMIT (A.R.S. § 45-811.01)

FOR OFFICE USE ONLY
Application No.:
Date Received:

The initial fee for an Underground Storage Facility Permit Application is $2,000. Total fees for this application are based upon an hourly billable rate, which can be found on the ADWR web site @www.azwater.gov. If the costs of reviewing your application exceed $2,000, you will be invoiced for the difference, up to a maximum total fee of $25,000. Payment may be made by cash, check, or credit card, (if you wish to pay by credit card, please contact the Recharge Program at 602-771-8599). Checks should be made payable to the Arizona Department of Water Resources. In addition to the hourly application fee, the applicant must pay any review-related costs associated with the application and the actual cost of mailing or publishing any legal notice of the application or any notice of a pre-decision administrative hearing on the application. Review related costs are: (1) costs associated with a pre-decision hearing on the application, such as court reporter services and facility rentals for the hearing, and (2) mileage expenses for a site visit conducted before issuing a decision on the application. **Failure to enclose the initial application fee will cause the application to be returned. Fees for an Underground Storage Facility Permit Application are authorized by A.R.S. § 45-871.01 and A.A.C. R12-15-103.**

FACILITY DESIGN: (check one)

☒ **Constructed**

☐ **Managed**

APPLICATION FOR: (check one)

☐ **Underground Storage Facility (USF)**

☒ **Modification of USF permit no.:**
71-563943.0002

☐ **Renewal of USF permit no.:**
71-_____

GENERAL INFORMATION

1. Name of Applicant: CITY OF TEMPE

255 E. MARIGOLD LANE | TEMPE | AZ | 85281
Mailing Address | City | State | Zip

Contact Person: BASIL BOYD Telephone: 480-350-2603 Fax: 480-350-8336

2. Is this a State Demonstration Project? _____ Yes X No

(**NOTE:** Pursuant to A.R.S. § 45-893.01, **only** Conservation Districts qualify to participate in State Demonstration Project program.)

3. Name of Active Management Area or Irrigation Non-Expansion Area where the facility will be located:

PHOENIX AMA

(If the facility is NOT located within an AMA or INA, please indicate "NONE.")

4. Name of groundwater basin and subbasin where the facility will be located:

EAST SALT RIVER VALLEY SUB-BASIN

5. Legal description of the location of the facility: SE 1/4, SEC 10, T1S, R4E, GSRB & M

(quarter/quarter/quarter/section, township and range – see Appendix C of USF Application Guide)

6. Does the applicant own the land where the facility is to be located? X Yes _____ No

7. The total design capacity of the facility: 27,200

(acre-feet to be stored over the duration of the USF permit)

8. The maximum annual amount of water proposed for storage at this facility: 3,400

(acre-feet per year)

9. Proposed duration of permit: 8

(years)

10. Type of source water to be stored:

☒ CAP Water ☐ Effluent ☒ Decreed and Appropriative Surface Water

If Decreed and Appropriative Surface Water, list river(s): SALT RIVER (PLAN 6 NCS)

11. I agree under penalty of law to obtain any required floodplain use permit from the county flood control district before beginning any construction activities, as required by A.R.S. § 45-811.01(C)(4). ☒ Agree ☐ Disagree

12. **For managed USFs where effluent will be stored only:** Are you requesting that this facility be designated as a facility that could add value to a national park, national monument or state park, as described in A.R.S. § 45-811.01(D)?

☐ Yes ☒ No

If yes, please submit a completed USF Permit Application Supplement to designate a Managed Underground Storage Facility as one that could add value to a national park, national monument, or state park and all additional information as described on the USF Permit Application Supplement.

13. **For permit modifications only**, give a brief description of the modification(s) requested by this application: SOURCE WATER TO BE CHANGED FROM EFFLUENT TO CAP/NCS DELIVERED THROUGH THE CITY'S POTABLE WATER DISTRIBUTION SYSTEM

SUPPORTING EVIDENCE

Check the following items that have been included with this submittal. For a new USF application, all items **must** be submitted prior to receiving a complete and correct determination by the Department. For a modification to an existing USF permit, submit only those items that apply to the modification. For a full description of these requirements refer to the USF Application Report in the USF Application Guide.

14. USF Site and Facility Characteristics:

☐ Site Characteristics ☐ Geology

☐ Facility Characteristics ☐ Hydrogeology

15. Unreasonable Harm and Hydrologic Feasibility Analysis:

☐ Procedures and Results for Calculating Maximum Area of Impact and Mounding Analysis

☐ Land and Water Use Inventory ☐ Unreasonable Harm Analysis ☒ Monitoring Plan

☐ Water Quality ☐ Hydrologic Feasibility Conclusions ☐ Operation and Maintenance

16. Legal Requirements:

☐ Technical Capability ☐ Financial Capability ☐ Legal Access

NOTARIZED SIGNATURE

I (We), Basil Boyd, the applicant(s) named in this application, do hereby certify under the penalty of perjury, that the information contained and statements made herein are to the best of my (our) knowledge and belief true, correct and complete.

480-350-2603
Telephone

Signature of owner or authorized agent

Water Resources Hydrologist
Title

255 E. MARIGOLD LANE	TEMPE	AZ	85281
Mailing Address	City	State	Zip

STATE OF ARIZONA)
) ss.
County of MARICOPA)

Subscribed and sworn to before me this 3rd day of AUGUST, 2012

Marianne VanAuken
Notary Public

1/16/14
My commission expires

MARIANNE VAN AUKEN
Notary Public - Arizona
Maricopa County
My Comm. Expires Jan 16, 2014

Modification to Underground Storage Facility Permit No. 71-563943.0002

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AUG 06 2012
RECHARGE

Introduction

The City of Tempe (City) is seeking to modify the Underground Storage Facility permit for its recharge project at the Ken McDonald Golf Course (KMGC). This permit was originally issued in 2000 for the annual storage of 3,400 acre-feet of effluent from Tempe's Kyrene Water Reclamation Plant (KWRP) using six vadose zone wells. Only one of those wells was drilled and it operated only briefly before becoming clogged. In 2011 Tempe was granted an amendment of that permit that replaced the vadose zone wells with upper alluvial aquifer storage and recovery (ASR) wells. One of those wells was drilled and is currently being outfitted with pumps, supply lines and appurtenant structures.

Tempe is seeking this modification due to the recent decision to suspend operations at the KWRP and consolidate all Tempe wastewater treatment at the regional 91st Avenue waste water Treatment plant. Declining water demand and lower wastewater flows observed in recent years have led to an economic decision by Tempe to keep the KWRP offline until future development and wastewater flow target levels are met.

Source Water

In place of effluent from KWRP Tempe will take delivery of either CAP or NCS surface water supplies at its water treatment plants. This water will be treated and sent out into the distribution system. A tap is being added to the distribution system west of the recharge site and piping installed to carry that water to the recharge well. The completed design plans for the construction of this pipeline and for all piping and structures at the recharge well is attached.

The various contracts, agreements and permits that establish Tempe's Legal Basis for Acquiring the CAP and NCS water to be stored are listed below.

Central Arizona Project (CAP) Colorado River Water:

1. Central Arizona Project Subcontract No. 07-XX-30-W0506, dated July 13, 2007

   Subcontract among the United States, the Central Arizona Water Conservation District, and the City of Tempe Providing for Water Service

2. Central Arizona Project Excess Water Contract for CAP M & I Water, dated May 25, 2001

   Agreement between the Central Arizona Water Conservation District and the City of Tempe Providing for the Delivery of Excess Central Arizona Project Water

3. Central Arizona Project Incentive Recharge Contract for CAP Water, dated October 4, 2001

   Agreement between the Central Arizona Water Conservation District and the City of Tempe Providing for the Delivery of Excess Central Arizona Project Water

4. Including any renewal of these contracts, and any other contracts under which Permittee acquires the right to receive CAP water

Plan 6 Surface Water (NCS) Captured in the Additional Storage Capacity Created by Modified Roosevelt Dam:

1. Arizona Department of Water Resources Permit to Appropriate Surface Waters of the State of Arizona – Permit No. 33-96226
2. Operating Agreement for Additional Active Conservation Capacity at Modified Theodore Roosevelt Dam among the Salt River Project Agricultural Improvement and Power District, Salt River Valley Water Users' Association, United States Bureau of Reclamation, Flood Control District of Maricopa County, and the Arizona Cities of Chandler, Glendale, Mesa, Phoenix, Scottsdale and Tempe

Water Quality Monitoring Plan

In Tempe's original permit the water quality monitoring was covered under an Aquifer Protection Permit (APP) to discharge effluent. In idling the KWRP Tempe has placed its APP in temporary cessation status with no monitoring required. Tempe is proposing the following monitoring plan.

Both source water and groundwater will be sampled and analyzed in accordance with the analyte list and schedule shown in Table 1. All analyses will be conducted using an EPA- or ADHS-approved method for compliance with Aquifer Water Quality Standards (AWQS).

Source Water

Tempe conducts frequent sampling and analysis of water from its distribution system in several locations around the City. One of these locations is at the Ken McDonald Golf Course, south of the recharge well location. The City proposes to use this location as its source water sampling point. This location is shown in Figure 1, attached.

Groundwater

There are five monitoring wells at the site that were installed to monitor the original vadose zone recharge project. The location of these wells is shown on Figure 1. Tempe is proposing that groundwater monitoring be conducted in MW-1, MW-2 and MW-3.

Figure one shows the groundwater elevation contours and groundwater flow direction based on water level reading taken on June 25th 2012. This map indicated that MW-2 is down-gradient of the recharge well. It also indicates that under mounding conditions MW-1 and MW-3 would intercept groundwater along the same general flow path as MW-4 and MW-5 but would intercept that water closer to the recharge well. As a result Tempe is proposing to sample only MW-1, MW-2 and MW-3. However, water level data will be gathered from all five monitoring wells, as outlined in the original permit with no modifications.

Wells will be purged of at least 3 borehole volumes (as calculated using the static water level) or until indicator parameters (pH, temperature, and conductivity) are stable, whichever represents the greater volume. Tempe may also elect to use a low-flow purging method as described in the Arizona Water Research Center, March 1995 Field

Manual for Water quality Sampling. In that case the wells would be purged until the indicator parameters stabilize. The indicator parameters for low-flow sampling shall include dissolved oxygen, turbidity, pH, temperature, and conductivity.

Storage Volume

Tempe's current storage permit is for a total annual volume of 3,400 acre feet. This volume is based on the assumption that all six of the recharge wells listed in the permit are operational. In fact Tempe's will drill and outfit wells in phases. RW-1 has been drilled and installed at the location shown in Figure 1. Additional wells will be added according to the availability of source water and the needs of the City. All additional wells will be drilled in the same location as shown in the original permit.

As a result of this phased approach Tempe's initial annual recharge volume will be 567 acre feet (one sixth of the ultimate 3,400 af/yr final volume). Tempe will notify the ADWR as new wells are added and adjust the annual volume accordingly, up the maximum volume of 3,400 acre feet. Tempe will also request a change to this initial annual volume if this first well is found to be highly productive and capable of recharging more water than described above.

Table 1
Source Water and Groundwater Quality Monitoring
Inorganics and Microbiological

Analyle	AWQS (mg/l)	Monitoring Frequency		Reporting Frequency	
		Minimum of 1st 12 months of operation	Remainder of Permit	1st 4 quarters of operation	Remainder of permit
Field					
pH	NA	Quarterly	Every 6 months	Quarterly	Annually
Specific Conductance	NA	Quarterly	Every 6 months	Quarterly	Annually
Temperature	NA	Quarterly	Every 6 months	Quarterly	Annually
Dissolved Oxygen	NA	Quarterly	Every 6 months	Quarterly	Annually
Turbidity	NA	Quarterly	Every 6 months	Quarterly	Annually
Inorganic Analytes					
Alkalinity	NA	Quarterly	Every 6 months	Quarterly	Annually
Ammonia	NA	Quarterly	Every 6 months	Quarterly	Annually
Boron	NA	Quarterly	Every 6 months	Quarterly	Annually
Calcium	NA	Quarterly	Every 6 months	Quarterly	Annually
Chloride	NA	Quarterly	Every 6 months	Quarterly	Annually
Fluoride	4	Quarterly	Every 6 months	Quarterly	Annually
Nitrate (as N)	10	Quarterly	Every 6 months	Quarterly	Annually
Nitrite (as N)	1	Quarterly	Every 6 months	Quarterly	Annually
Nitrate and Nitrite (as N)	10	Quarterly	Every 6 months	Quarterly	Annually
Potassium	NA	Quarterly	Every 6 months	Quarterly	Annually
Sodium	NA	Quarterly	Every 6 months	Quarterly	Annually
Sulfate	NA	Quarterly	Every 6 months	Quarterly	Annually
Total Dissolved Solids	NA	Quarterly	Every 6 months	Quarterly	Annually
Trace Metals					
Antimony	0.006	Quarterly	Every 6 months	Quarterly	Annually
Arsenic	0.05	Quarterly	Every 6 months	Quarterly	Annually
Barium	2	Quarterly	Every 6 months	Quarterly	Annually
Beryllium	0.004	Quarterly	Every 6 months	Quarterly	Annually
Cadmium	0.005	Quarterly	Every 6 months	Quarterly	Annually
Chromium	0.1	Quarterly	Every 6 months	Quarterly	Annually
Copper	NA	Quarterly	Every 6 months	Quarterly	Annually
Iron	NA	Quarterly	Every 6 months	Quarterly	Annually
Lead	0.05	Quarterly	Every 6 months	Quarterly	Annually
Magnesium	NA	Quarterly	Every 6 months	Quarterly	Annually
Manganese	NA	Quarterly	Every 6 months	Quarterly	Annually
Mercury	0.002	Quarterly	Every 6 months	Quarterly	Annually
Nickel	0.1	Quarterly	Every 6 months	Quarterly	Annually
Selenium	0.05	Quarterly	Every 6 months	Quarterly	Annually
Thallium	0.002	Quarterly	Every 6 months	Quarterly	Annually
Zinc	NA	Quarterly	Every 6 months	Quarterly	Annually
Microbiological					
Total Coliform	[Repeat Positive/NA]	Quarterly	Every 6 months	Quarterly	Annually

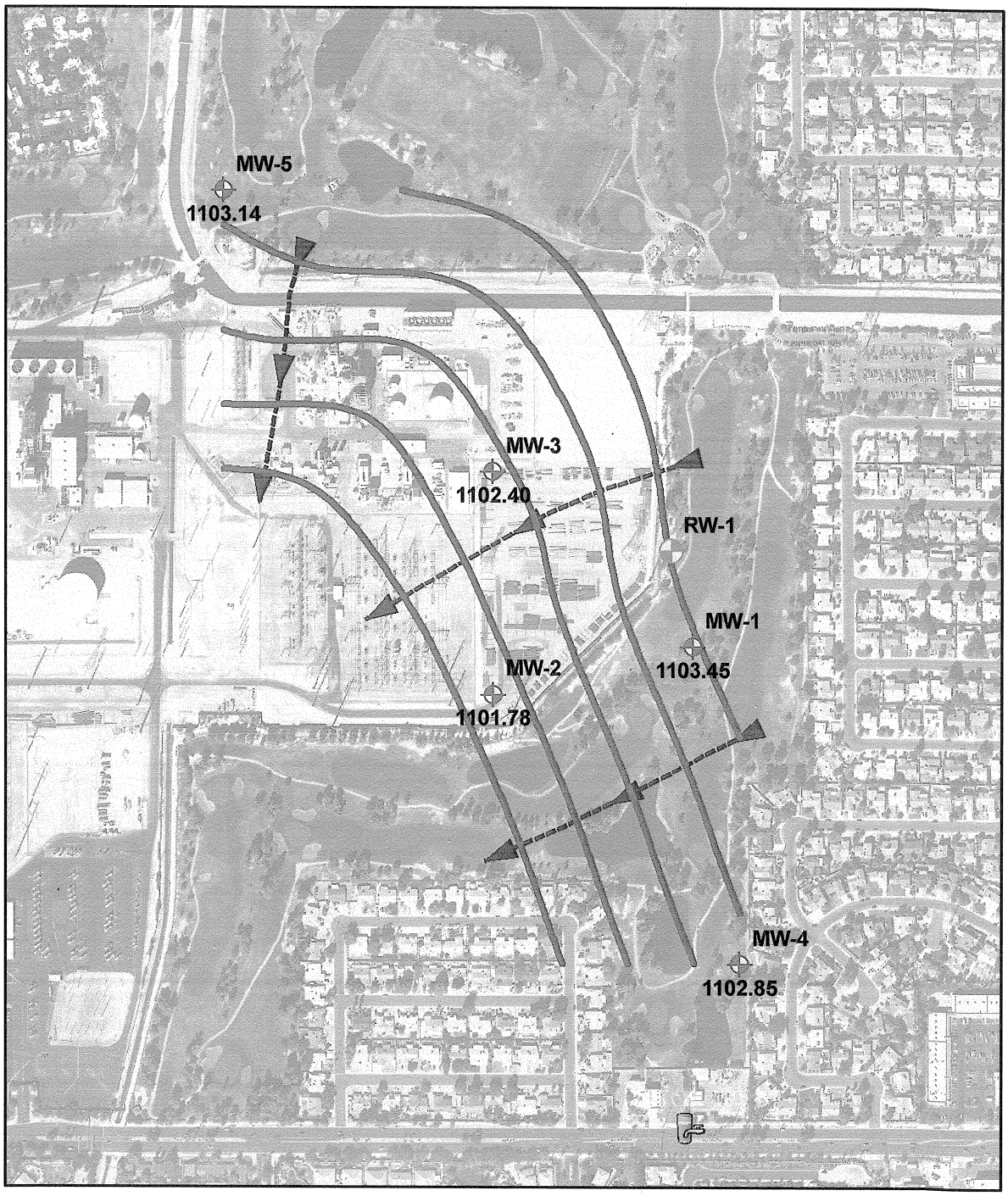
Source Water and Groundwater Quality Monitoring
Inorganics and Microbiological

Analytes	AWQS (mg/l)	Monitoring Frequency	Reporting Frequency
Alachlor	0.002	Once	Once
Atrazine	0.003	Once	Once
Carbofuran	0.04	Once	Once
Chlordane	0.002	Once	Once
Dalapon	0.2	Once	Once
2,4,-Dichlorophenooxyacetic Acid	0.07	Once	Once
Dinoseb	0.007	Once	Once
Diquat	0.02	Once	Once
Endothall	0.1	Once	Once
Endrin	0.002	Once	Once
Glyphosate	0.7	Once	Once
Heptachlor	0.0004	Once	Once
Heptachlor Epoxide	0.0002	Once	Once
Lindane	0.0002	Once	Once
Methoxychlor	0.04	Once	Once
Oxamyl	0.2	Once	Once
Pentachlorophenol	0.001	Once	Once
Picloram	0.5	Once	Once
Simazine	0.004	Once	Once
Toxaphene	0.003	Once	Once
2, 4, 5-Trichlorophenoxypropionic Acid	0.05	Once	Once

Source Water and Groundwater Quality Monitoring
Volatile Organics

Analytes	AWQS (mg/l)	Monitoring Frequency	Reporting Frequency
Benzene	0.005	Once	Once
Benzo(a)pyrene	0.0002	Once	Once
Carbon Tetrachloride	0.005	Once	Once
1,2-Dibromo-3-chloropropane	0.0002	Once	Once
o-Dichlorobenzene	0.6	Once	Once
p-Dichlorobenzene	0.075	Once	Once
1,2-Dichloroethan	0.005	Once	Once
1,1-Dichloroethylene	0.007	Once	Once
cis-1,2-Dichloroethylene	0.07	Once	Once
trans-1,2-Dichloroethylene	0.1	Once	Once
Dichloromethane	0.005	Once	Once
1,2-Dichloropropane	0.005	Once	Once
Ethylbenzene	0.7	Once	Once
Ethylene Dibromide	0.00005	Once	Once
Hexachlorobenzene	0.001	Once	Once
Hexachlorocyclopentadiene	0.05	Once	Once
Monochlorobenzene	0.1	Once	Once
Polychlorinated biphenyls	0.0005	Once	Once
Styrene	0.1	Once	Once
Tetrachloroethylene	0.005	Once	Once
Toluene	1	Once	Once
1,2,4-Trichlorobenzene	0.07	Once	Once
1,1,1-Trichloroethane	0.005	Once	Once
Trichloroethylene	0.005	Once	Once
Trihalomethanes (Total)	0.1	Once	Once
Vinyl Chloride	0.002	Once	Once
Xylenes (Total)	10	Once	Once

Figure 1
Ken McDonald Golf Course Recharge Project



Explanation

- Source Water Monitoring Point
- Monitoring Wells
- 1102.85 Groundwater Elevation on 6/25/12
- Recharge Well
- Groundwater Elevation Contour
- Flow Direction

N

0 250 500 1,000 Feet

APPENDIX A

UNDERGROUND STORAGE FACILITY PERMIT No. 71-563943.0002

ARIZONA DEPARTMENT OF WATER RESOURCES

CONSTRUCTED

UNDERGROUND STORAGE FACILITY PERMIT

MODIFIED

PERMIT NO. 71-563943.0002

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

This is to certify that Application No. 71-563943.0002 meets the requirements of Arizona Revised Statutes Title 45, Chapter 3.1, Article 2, for a Constructed Underground Storage Facility Permit. The Director hereby grants authority to the City of Tempe to operate a constructed underground storage facility, subject to the following limitations and conditions:

Permit Limitations

Permittee:	City of Tempe 255 E. Marigold Lane Tempe, AZ 85281
Name of Facility:	Ken McDonald Recharge Facility

Active Management Area:	Phoenix AMA
ADWR Groundwater Sub-basin:	East Salt River Valley Sub-basin
Cadastral Location of Facility:	SE¼, Sec. 10, T1S, R4E, GSRB&M
General Location of Facility:	Within the Tempe Ken McDonald Golf Course located between Elliot and Guadalupe Roads and Kyrene and Rural Roads
Maximum Storage at Facility:	3,400 acre-feet per annum
Source Water to be Stored:	Effluent
Effective Date:	July 1, 2011
Expiration Date:	January 31, 2020

Permit Conditions

1. Hydrologic Report:

   a. City of Tempe Ken McDonald Golf Course Groundwater Recharge Project Phase II Report: Groundwater Modeling, Well Installation and Recharge Testing by HydroSystems, Inc., Tempe, AZ, dated May 7, 1997

   b. City of Tempe Ken McDonald Golf Course Groundwater Recharge Facility Numerical Modeling Report by HydroSystems, Inc., Tempe, AZ, dated September 1998.

   c. City of Tempe Ken McDonald Golf Course Groundwater Recharge Project Underground Storage Facility Application, dated March 2, 1999.

   d. Technical Specifications for Recharge at Ken McDonald Golf Course – Phase I by Brown & Caldwell, Phoenix, AZ, dated January, 1999.

   e. Letter and documents from the City of Tempe to the Department entitled "Underground Storage Permit No. 71-563943" dated May 7, 2010.

   f. Response to Incomplete and Incorrect Determination for Underground Storage Facility Permit No. 71-563943 date stamped September 27, 2010.

2. Annual Reporting Schedule:

The permittee shall submit all monitoring data and analyses in the form of annual supplemental data reports as specified below:

The permittee shall submit an annual report, on an ADWR-approved form, and a supplemental data report no later than March 31 following the end of each completed annual reporting period. The first reporting period shall be from the effective date of this permit through December 31, 2010. Subsequent reporting periods shall be from January 1 through December 31. Any fourth quarter data report required by this permit may be combined with the supplemental data report for that year. Annual reports are required regardless of the operational status of the facility. If no deliveries are made to the facility during the reporting period, the permittee shall indicate that fact on the annual report and in the supplemental data report. **The permittee shall send one (1) copy of all annual reports and supplemental data reports to the Recharge and Adequate/Assured Water Supply Section, Water Management Division, Arizona Department of Water Resources, 3550 North Central Avenue, Phoenix, Arizona 85012.**

3. Annual Supplemental Reporting Requirements:

The annual supplemental data reports shall include all information and monitoring data required by this permit and as described in the hydrologic report. The data reports shall include the following:

a. Facility Map:

The data reports shall include a facility map showing the location of all facility monitoring points and relevant facility features including recharge wells and measurement devices. The map shall include township, range, and section boundaries, if applicable.

b. Water Level Monitoring Data:

The data reports shall contain static water levels measured at all water level monitor points during the reporting period as specified in **permit condition 4.a.** and **Table 1.** The water level data shall be displayed in tables and hydrographs containing the following: facility well identifier, ADWR well registration number, cadastral location, measurement date, the depth to water in feet below land surface, and the groundwater elevation in feet above mean sea level. The reports shall note any condition, such as pumping from nearby wells, surface water flows, or any other hydrologic or environmental condition that may be reasonably known and have affected the water level at the time of measurement.

c. Water Quantity Monitoring Data:

The data reports shall contain all water quantity data for the recharge facility as specified in **permit condition 4.b.** and **Table 2**. The data shall be presented in monthly summary tables indicating the month, the facility monitor point identifiers, daily flowmeter readings, daily delivered volume in gallons, and the total delivered volume for the month, quarter and year in gallons and acre-feet.

d. Operational Monitoring Data:

The data reports shall contain the results of pressure transducer calibrations and summarize any out of service event as specified in **permit condition 6.d.**.

e. Alert Level and Operation Prohibition Limit Exceedances and Other Reportable Events:

i. The data reports shall summarize activities and information described in **permit condition 5.a.** for any exceedance of an alert level or operation prohibition limit for water levels at any monitor point listed in **Table 1**.

ii. The data reports shall summarize the failure(s) of any water quantity measuring device that causes the measurement device to be out of compliance with **permit condition 5.b.** and corrective action(s) taken to resolve the failure(s).

iii. If Aquifer Protection Permit (APP) number **P-100405** is suspended, revoked or terminated during the reporting period, the annual supplemental data report shall summarize events that resulted in the suspension, revocation or termination. The summary shall include all water quality data collected during the reporting period and shall be presented in a table indicating the sample date, sample point identification, analyte(s), the APP limit(s) exceeded, and the sample results.

4. Monitoring Requirements:

a. Water Level Monitoring Requirements:

i. The permittee shall measure the depth to water to the nearest one-tenth (0.1) foot at all water level monitor points listed in **Table 1**. The frequency of monitoring shall be once every two weeks until the facility has operated for a period of twelve (12) consecutive months with less than two (2) instances of the facility having entered alert or prohibition status for water levels. After this twelve (12) consecutive month period, the monitoring frequency shall be automatically reduced to monthly without the need for a permit modification.

ii. In wells equipped with a pump, water levels shall be allowed to recover for at least twenty-four (24) hours after the pump has been turned off before making depth to water measurements, except that if a 24-hour recovery period is not feasible, a shorter recovery time may be used and shall be noted in the data reports.

b. Water Quantity Monitoring Requirements:

The permittee shall measure the total volume of water delivered to the recharge facility each day with the approved water measuring devices listed in **Table 2**.

c. Water Quality Monitoring Requirements:

The source water and groundwater quality shall be monitored at the recharge facility as specified in Aquifer Protection Permit (APP) number **P-100405**, issued by the Arizona Department of Environmental Quality (ADEQ).

5. Alert Levels, Operational Prohibition Limits, and Response Requirements:

a. Water Level Alert Levels and Operational Prohibition Limits:

i. If the water level at any monitor point listed in **Table 1** rises to, or above, the alert level specified for that monitor point in the table, a water level alert status shall exist and the permittee shall implement the following:

(1) Take actions that are sufficient to prevent water levels from reaching the operational prohibition limit for water levels at all monitor points.
(2) Notify ADWR in writing within forty-eight (48) hours of becoming aware of the alert status.
(3) Increase the frequency of water level measurements at all monitor points listed in **Table 1** to daily.
(4) Submit weekly reports of daily water level measurement results to ADWR. The water level data shall be displayed in tables and hydrographs containing the following: facility well identifier, ADWR well registration number, cadastral location, measurement date, the depth to water in feet below land surface, and the groundwater elevation in feet above mean sea level. The reports shall note any condition, such as pumping from nearby wells, surface water flows, or any other hydrologic or environmental condition that may be reasonably known and have affected the water level at the time of measurement.
(5) Resume routine water level monitoring when the alert status ends. The alert status ends when water levels remain below the alert level for fourteen (14) consecutive days.
(6) Submit a final report to ADWR describing the incident within fourteen (14) days after the alert status ends. The report shall include a listing of

all water level measurements made during the alert status for water levels, a description of actions taken to lower water levels to below the alert levels, and an assessment of any potential impacts to land and other water users.

ii. If the water level at any monitor point listed in **Table 1** rises to, or above, the operation prohibition limit specified for that monitor point in the table, a water level prohibition status shall exist and the permittee shall implement the following:

(1) Immediately cease all recharge activities pursuant to this permit.
(2) Take actions that are sufficient to prevent water levels from causing unreasonable harm to land and other water users.
(3) Notify ADWR in writing within forty-eight (48) hours of becoming aware of the prohibition status.
(4) Increase the frequency of water level measurement(s) at all monitor points listed in **Table 1** to daily. If daily water level measurements are already required under an alert status, continue the daily water level measurement(s).
(5) Submit weekly reports of daily water level measurement results to ADWR. The water level data shall be displayed in tables and hydrographs containing the following: facility well identifier, ADWR well registration number, cadastral location, measurement date, the depth to water in feet below land surface, and the groundwater elevation in feet above mean sea level. The reports shall note any condition, such as pumping from nearby wells, surface water flows, or any other hydrologic or environmental condition that may be reasonably known and have affected the water level at the time of measurement.
(6) The prohibition status ends when water levels decline below the operational prohibition limit for seven (7) consecutive days. Alert level status and associated monitoring frequency and reporting requirements as specified in **permit condition 5.a.i.** shall resume at this time and recharge activities pursuant to this permit may recommence.

b. Water Quantity Operational Response Requirements:

i. The water quantity measurement devices and methods listed in **Table 2** shall continue to quantify flow accurately pursuant to A.A.C. R12-15-905. If any water quantity measurement device fails to perform its designated function for more than seventy-two (72) hours, the permittee shall notify ADWR in writing within seven (7) calendar days of the failure (A.A.C. R12-15-906). The notice shall state the reason for the failure and include the estimated date the device will be returned to service.

ii. The permittee shall notify ADWR in writing within seven (7) days after the measuring device is returned to service. The notice shall identify the device that failed and include the date of the malfunction, the amount of time the device failed to properly operate, an estimate of the amount of flow during the period the device was out of service, and a description of the method(s) used to calculate the amount of flow while the device was out of service.

c. Water Quality Operational Response Requirements:

The Permittee shall notify ADWR in writing of any suspension, revocation, or termination of APP No. **P-100405** within ten (10) days of the suspension, revocation, or termination. The notification shall include a written description of the reason for the suspension, revocation, or termination and a copy of any written action by ADEQ suspending or revoking the APP. The Permittee shall not store water pursuant to this permit during any period in which the APP is suspended by final administrative decision of ADEQ. If the APP is revoked by a final administrative decision of ADEQ or otherwise terminates, the Permittee shall cease water storage pursuant to this permit and ADWR shall terminate this permit.

6. Operational Provisions:

a. Initial Static Water Levels:

Prior to commencing recharge activities at the facility under this modified permit, the initial static water levels at the monitor points listed in **Table 1** shall be measured. The results shall be reported in the first annual supplemental report. If the monitor wells are equipped with a pump, initial static water levels shall be measured at least seventy-two (72) hours after all facility well pumps have been turned off.

b. Monitoring Plan Changes:

Any changes to the design, operation, and/or monitoring of the facility are prohibited except through a modification of this permit.

c. Well Construction, Location, and Wellhead Elevation Data:

The permittee shall submit all well construction data, location, and wellhead elevations for each ASR well listed in **Table 3** prior to commencing recharge in that well pursuant to this permit.

d. Pressure Transducers:

The pressure transducer measuring devices listed in **Table 1** shall be calibrated quarterly using an electrical sounder or any other method approved by ADWR. ADWR shall be notified of any pressure transducer listed in **Table 1** that is taken out

of service due to a malfunction within seven (7) calendar days of becoming aware of the malfunction. The notification shall describe the malfunction, the monitoring to take place while the transducer is out of service, and the timetable for repairing or replacing the device. The permittee shall notify ADWR within thirty (30) days of the pressure transducer being returned to service.

7. General Provisions:

a. In accordance with A.R.S. § 45-814.01(G), the Director may modify the conditions of this permit.

b. The facility shall continue to meet the requirements of A.R.S. § 45-811.01 during operation of the facility.

c. No waters other than those waters specified under the permit limitations are authorized for recharge at this facility.

d. The issuance of this permit does not waive compliance with any federal, state, county or local government statutes, rules or permits.

e. The facility shall be operated only in conjunction with the applicable Water Storage Permit(s) and subject to the conditions set forth within that/those permit(s).

f. Recharge pursuant to this permit may not commence until ADWR conducts a pre-recharge inspection and notifies the permittee that recharge may commence. The permittee shall contact ADWR at least thirty (30) days prior to commencing recharge to schedule a pre-recharge inspection of the site.

g. The Director may terminate this permit if the permittee does not substantially complete construction of the facility within five (5) years after the effective date of the permit, or, if after recharge activities are commenced the permittee suspends those activities for a period of five (5) or more consecutive years.

h. All ADWR agency notifications and reports, other than annual reports, shall be addressed to the Recharge and Adequate/Assured Water Supply Section, Water Management Division, Arizona Department of Water Resources, 3550 North Central Avenue, Phoenix, Arizona 85012.

Witness my hand and seal of office this 1st day of July, 2011.

Douglas W. Dunham, Manager
Recharge, Assured & Adequate Water Supply Programs

Table 1
Water Level Monitoring
Monitor Wells

Monitor Point ID	ADWR Registration Number	Cadastral Location	Well Elevation (feet msl)	Well Depth (feet bls)	Screened Interval (feet bls)	Measuring Device	Monitoring Frequency		Reporting Frequency	Alert Water Level (feet bls)	Operation Prohibition Limit (feet bls)
							Minimum of 1st 12 months of operation[1]	Remainder of permit			
MW-1	55-545261	D(1-4) 10dac	1180.08	200	100-160 180-200	Transducer	Once every two weeks	Monthly	Annually	25	20
MW-2	55-545362	D(1-4) 10dbd	1180.77	160	100-160	Transducer	Once every two weeks	Monthly	Annually	25	20
MW-3	55-545363	D(1-4) 10dbd	1180.64	165	105-165	Transducer	Once every two weeks	Monthly	Annually	25	20
MW-4	55-582988	D(1-4) 10dcc	1178.62	161	97-160.5	Transducer	Once every two weeks	Monthly	Annually	25	20
MW-5	55-582989	D(1-4) 10bdd	1183.83	161	97-160.5	Transducer	Once every two weeks	Monthly	Annually	25	20

[1] Upon commencing recharge under this permit, the monitoring frequency shall be once every two weeks until the facility has operated for a period of twelve (12) consecutive months with less than two (2) instances of the facility entering alert status for water levels. After this twelve-month period, the monitoring frequency shall be automatically reduced to monthly without the need for a permit modification.

Table 2
Facility Monitoring

Monitor Point ID	Measuring Device	Parameter	Cadastral Location	Monitoring Frequency[1]	Reporting Frequency
FM-1	Totalizing Flowmeter	Water Inflow into RW-1	D(1-4) 10dac	Daily	Annually
FM-2	Totalizing Flowmeter	Water Inflow into RW-2	D(1-4) 10dbd	Daily	Annually
FM-3	Totalizing Flowmeter	Water Inflow into RW-3	D(1-4) 10dab	Daily	Annually
FM-4	Totalizing Flowmeter	Water Inflow into RW-4	D(1-4) 10acd	Daily	Annually
FM-5	Totalizing Flowmeter	Water Inflow into RW-5	D(1-4) 10acc	Daily	Annually
FM-6	Totalizing Flowmeter	Water Inflow into RW-6	D(1-4) 10bdd	Daily	Annually

1. The data shall be summarized by month and reported to ADWR as specified in this table.

Table 3
ASR Recharge Wells

Monitor Point ID	ADWR Registration Number*	Cadastral Location	Well Elevation (feet msl)	Screened Interval (feet bls)	Well Depth (feet bls)
RW-1	55-	D(1-4) 10dac	*	100-160*	170*
RW-2	55-	D(1-4) 10dbd	*	100-160*	170*
RW-3	55-	D(1-4) 10dab	*	100-160*	170*
RW-4	55-	D(1-4) 10acd	*	100-160*	170*
RW-5	55-	D(1-4) 10acc	*	100-160*	170*
RW-6	55-	D(1-4) 10bdd	*	100-160*	170*

* The permittee shall submit the Well Registration Numbers and as-built construction data to ADWR upon installation of each ASR well. The information will be inserted into this table at that time.

APPENDIX B

COMPLETE FOR CONSTRUCTION PLANS FOR THE RECHARGE WELL No. 1 AND SOURCE WATER SUPPLY LINES