



Janice K. Brewer  
Governor

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Henry R. Darwin  
Director

## *Via U.S. Mail and E-Mail*

September 5, 2014  
RPU 15-041

Donovan L. Neese  
Superintendent  
Roosevelt Irrigation District  
103 West Baseline Road  
Buckeye, Arizona 85326

**RE: Review of Operation and Maintenance Plan - Roosevelt Irrigation District Wellhead Treatment Systems**  
West Van Buren Area WQARF Registry Site  
Phoenix, Arizona

Dear Mr. Neese:

The Arizona Department of Environmental Quality (ADEQ) Remedial Projects Unit (RPU) has reviewed the *Operation and Maintenance Plan - Roosevelt Irrigation District Wellhead Treatment Systems* (O&M Plan), dated October 2013 (revision 3) and received on April 7 and April 10, 2014. The O&M Plan was prepared by Synergy Environmental, LLC on behalf of Roosevelt Irrigation District (RID). RPU has reviewed the O&M Plan under an executed working agreement dated October 8, 2009, amended on February 27, 2014, between RID and ADEQ.

Pursuant to Arizona Administrative Code (A.A.C) R18-16-411(D), RID was required to prepare and implement an O&M Plan for their Early Response Action (ERA), which was conditionally approved by ADEQ on June 24, 2010, then their Modified ERA, which was conditionally approved by ADEQ on February 1, 2013. The February 1, 2013 conditional approval supersedes ADEQ's previous conditional approval of the ERA. Pursuant to A.A.C. R18-16-411(E), the O&M Plan requires an opportunity for public comment as well as review, approval, and certification by ADEQ.

Based on RPU's review of the O&M Plan, ADEQ has the following comments:

### **Required Information**

1. In accordance with A.A.C. R18-16-411(E)(4), the O&M Plan shall include "a process for the treatment system operator to promptly notify potentially affected water providers of a failure of a key treatment system component that could affect the quality of a discharge of treated water."

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While RID has provided a brief notification procedure description in Section 4.1, which includes notification to ADEQ, RID has not included *potentially* affected water providers such as the City of Phoenix, the City of Tolleson, and Salt River Project. ADEQ requests that RID update Section 4.1 to include the notification of other potentially affected water providers.

2. Pursuant to A.A.C. R18-16-411(E) and R18-16-404, an opportunity for public comment on an operations and maintenance plan shall be provided. The public comment period commenced on June 19, 2014 and concluded on July 21, 2014. ADEQ received comment letters from three individuals/entities (enclosed).

ADEQ requests that RID submit a response to these comment letters, along with responses to ADEQ's comments, within 45 calendar days of the date of this letter.

3. ADEQ requests that RID submit a revised O&M Plan within 45 calendar days of the date of this letter. Once received, ADEQ will review, and if appropriate, provide approval pursuant to A.A.C. R18-16-411(E) and "certification by the Department that the elements of the operations and maintenance plan adequately protect public health against treatment system failure" in accordance with A.A.C. R18-16-411(E)(1).

### **Recommendations**

The suggestions below are not required by State law and there are no legal consequences should RID choose to disregard them; however, ADEQ asks RID to consider the following:

#### **General Comments**

4. Engineering drawings from each treatment system should be included as an appendix to the O&M Plan including a cross section of the influent/effluent pipelines with the materials of construction noted.
5. Tables should be included that show the normal operating pressures at all monitored locations for each treatment system.
6. Discussion is needed regarding the engineering features of the outlet structures. It is not clear to ADEQ how the discharge structures were modified to accommodate the discharge piping.
7. Discussion is needed regarding routine system start-up. The interaction with the SCADA system, such as clearing any alarms, time delays on automatic system controls, and start-up trouble shooting, should be included.

#### **Specific Comments**

8. Section 1.0 – Introduction, page 5, last paragraph and page 6, second complete paragraph:  
To provide a more accurate description of the approval letters from ADEQ to RID, ADEQ requests that RID add the word "conditional" or "conditionally" in front of any references to ADEQ's conditional approval of RID's Early Response Action (ERA) Work Plan and the Modified ERA Work Plan.

9. Section 2.2 – Contaminants of Concern, page 8:

The list of contaminants of concern (COCs) contains methyl tert-butyl ether (MTBE) which is not considered a COC of the WVBA WQARF site. ADEQ suggests removing MTBE from the WVBA WQARF site COC list or define the list to be specific to RID's concerns.

10. Section 4.0 – Operation and Maintenance:

ADEQ requests that RID include information on the recently completed warranty repairs on the wellhead treatment systems.

11. Section 4.1 – System Operation Upset Notifications:

In addition to Comment 1 under "Required Information", ADEQ requests that RID specify the maximum amount of time that will lapse before the system operator will "promptly notify potentially affected water providers" in accordance with A.A.C. R18-16-411(E)(4).

ADEQ recommends including the contact information for the individuals and entities to be notified in the O&M Plan.

12. Section 4.2 – Well Pump Details, page 12:

Please provide a brief description of the operation of each of the RID wells. Please include the operating pressure at each well head and indicate whether the flow is controlled by a variable frequency motor.

13. Section 4.3 – IGAC Treatment Skids, page 13:

For ease in referring to the location of the appropriate vessel on the pictures included in Section 3.0, ADEQ suggests that RID add the vessel identifications provided in Section 4.3 onto the pictures.

14. Section 4.4.2 – Bypass Mode:

ADEQ recommends that RID provide information regarding the notification process when the wellhead treatment systems are placed into bypass mode. It would be prudent for RID to include a process for notifications of planned, unplanned, partial, or full bypass.

15. Section 4.4.3 – IGAC Change-Outs and Backwash:

ADEQ requests RID to include the following with respect to the Point of Compliance (POC) sample(s):

- a. Describe the locations of POC sample ports within the treatment train.
- b. Inclusion of the above information within "Section 2.4 – Treatment Goals".

ADEQ suggests that RID discuss the estimated carbon change out frequency at each treatment site based upon recent influent concentrations.

16. Page 15, Section 4.5, Instrumentation and Control:

Portions of the narrative discussing instrumentation appear to contradict figures 2 through 5. Specifically, the figures do not show flow meters on all bypass piping, well head pressure indicators, or pressure gauges, used to measure differential pressure, downstream of the carbon vessels.

ADEQ also suggests that information be added to the instrumentation section mentioning the monitoring of water levels in the secondary containment sumps.

17. Section 4.5.1 – Well Pumps:

ADEQ suggests including the location of the pressure readings mentioned in the last two bullets and modifying the applicable figures accordingly.

18. Section 4.5.2 – Flow Meters:

ADEQ suggests including the value for the low flowrate that will cause the well pump to shutdown as alluded to in the second bullet at the top of page 16 which states that low flow is a shutdown condition. Note that this appears to contradict what is stated in the third bullet of this section.

ADEQ requests that RID include the position of the flow meters located on the bypass piping on Figures 2, 3, and 5.

19. Section 4.5.3 – Pressure Transmitters:

ADEQ suggests including the value of the high differential pressure that would be considered critical to warrant shutdown of the well pump. The location of the pressure transmitters should be included on figures 2 through 5.

ADEQ requests that RID include a discussion of the expected pressure losses across the 3-way valve when a portion of the total flow is diverted to the bypass piping. The pressure loss across the valve should be acknowledged and considered when the operator evaluates the pressure differential set point of 25 pounds per square inch.

20. Section 4.5.5 – Sump Level Switches:

ADEQ recommends that a referral to the notification procedure in Section 4.1 be included in this section for when the wellhead treatment systems are switched to bypass mode because of a high-high critical alarm associated with the secondary containment sump.

ADEQ requests that RID provide a discussion of why the secondary containment sump pumps do not operate automatically in response to high sump water levels which is typical practice. ADEQ requests additional discussion regarding why a high-high level in the sump does not result in a system shut down but only a diversion of water to the bypass piping. With this functionality, it appears that the system will continue to operate even if water is leaking upstream of the diversion valve or from the bypass piping.

The complete pipe route from the secondary containment sump to the discharge point should be detailed on figures 2 through 5.

21. Section 4.5.6 – SCADA System and Control Strategy, page 19:

ADEQ requests that O&M Plan include screen shots from the SCADA system. The information provided in this section does not adequately document the remote system operation. ADEQ recommends that a table outlining the SCADA system alarm parameters be included in this section.

22. Section 4.5.9 – Unplanned Shutdowns/System Operation Upset Events:

ADEQ advises that a referral to the notification procedure in Section 4.1 be included in this section for when a power outage, heavy rain, or critical alarm occurs. ADEQ recommends that a list of the critical alarm conditions be provided in this section.

23. Section 4.6 – Sampling and Analysis:

The Field Sampling Plan and Quality Assurance Project Plan for the WVBA WQARF site was not developed with the sampling and QA/quality control (QC) procedures for the operations of a groundwater treatment/remedy system. As such, ADEQ recommends that RID develop their own sampling and QA/QC procedures for their wellhead treatment systems.

24. Section 4.6.2 – Frequency and Locations of Sampling:

ADEQ requests that any change in sampling frequency be approved by the department before implementation.

25. Section 4.6.3 – Sampling Methods:

Refer to Comment 23. In addition, ADEQ suggests that RID clarify that samples to be collected are for system operations purposes as opposed to investigative. ADEQ also recommends that RID develop their own Health and Safety Plan (HASP) that is specific to the work being conducted by RID and its contractors.

26. Section 5.0 – Spent GAC Management:

ADEQ suggests that RID include or reference the procedure for collecting a representative grab sample of carbon for analysis and profiling.

27. Section 6.2 – Progress Reports:

ADEQ noted that the example progress report included in Appendix K did not include information that covered all of the bulleted items in this section. ADEQ recommends that documentation of carbon change outs be included in the progress reports.

Note that in general, RPU requests one hardcopy and one electronic copy of monthly progress reports.

28. Figure 1 – Study Area:

ADEQ requests the following changes to Figure 1:

- a. Update current plume boundaries.
- b. Update label of RID-111 to RID-111R.
- c. Label the RID wells with wellhead treatment systems differently than the wells without treatment systems.
- d. Add a boundary outline for the Phoenix Central City and Estrella urban villages that are described in Section 2.1.

29. Figures 2 through 5:

ADEQ requests that the figures be revised to include items mentioned in previous comments as well as:

- a. Accurate and complete piping and instrumentation diagrams (PID) for each treatment system.
- b. The title of the figures “process flow diagram” should be revised to reflect what is included in the figures since process information such as flow rates, temperatures, and pressures are not provided.
- c. Identification of all flow and pressure transmitters and water level switches.
- d. Show all valves, sampling ports, and air release valves on the carbon vessels.

30. Appendix H – Health and Safety Plan:

*General*

ADEQ recommends that RID develop their own HASP that is specific to the work being conducted by RID and its contractors.

*Section 1.1 – Scope of Work*

ADEQ requests, in order to provide a more accurate description of the approval letters from ADEQ to RID, that the word “conditional” be added in front of the reference to ADEQ’s conditional approval of RID’s Early Response Action (ERA) Work Plan.

*Section 2.0 – Work Objectives*

ADEQ suggests including details regarding the following work objectives related to the wellhead treatment systems: operations, inspections, maintenance, and sampling.

*Section 5.0 – Key Personnel and Emergency Contact List*

ADEQ advises that RID should consider updating the key personnel and emergency contact list.

*Section 6.0 – Emergency Procedures*

ADEQ requests that the emergency procedures that are not incorporated by reference be listed or that RID develop their own HASP that is specific to the work being conducted by RID and its contractors.

*Figure 1 – West Van Buren Project Area*

ADEQ requests the following changes to Figure 1:

- a. Update current plume boundaries.
- b. Update label of RID-111 to RID-111R.
- c. Label the RID wells with wellhead treatment systems differently than the wells without treatment systems.

*Figure 2 – Hospital Location Map*

ADEQ requests the following changes to Figure 2:

- a. Add the locations of the RID wells with wellhead treatment systems.

31. Appendix J – Weekly Operation & Maintenance Inspection Form:

ADEQ recommends that the form include the following:

- a. Documentation of site conditions as they relate to site security.
- b. Documentation of water present in the secondary containment sumps and the suspected source (rainfall, system piping, valves, tank, etc.).
- c. A schedule for checking the secondary containment sump pumps, water level switch operation, and exercising of all treatment system valves.
- d. Totalizer readings of all flow meters and inspection of the well heads and discharge structures.
- e. Documentation of carbon change outs.

**How to Submit**

ADEQ requests that RID submit a response to the enclosed comment letters, along with responses to ADEQ's comments, within 45 calendar days of the date of this letter.

ADEQ also requests that RID submit a revised O&M Plan within 45 calendar days of the date of this letter. Once received, ADEQ will review, and if appropriate, provide approval pursuant to A.A.C. R18-16-411(E) and "certification by the Department that the elements of the operations and maintenance plan adequately protect public health against treatment system failure" in accordance with A.A.C. R18-16-411(E)(1).

In accordance with the executed working agreement dated October 8, 2009, amended on February 27, 2014, between RID and ADEQ, please submit documents sent in response to this letter using one of the following methods:

1. Hard copy to:

ADEQ

Attention: Scott Green, R.G., Remedial Projects Unit Manager

1110 West Washington Street

Phoenix, AZ 85007

2. E-mail to [srg@azdeq.gov](mailto:srg@azdeq.gov)

In general, RPU requests two hard copies and one electronic copy of submitted documents.

**Additional Information**

Information pertaining to the WQARF program can be obtained by accessing ADEQ's web page at [www.azdeq.gov](http://www.azdeq.gov), or by visiting ADEQ's office at 1110 W. Washington Street, Phoenix, Arizona. Information pertaining to Arizona Revised Statutes Title 49 can be obtained by accessing the Arizona State Legislature web page at [www.azleg.gov](http://www.azleg.gov). Information pertaining to Arizona Administrative Code rule citations may be found at [www.azsos.gov](http://www.azsos.gov).

You may contact the ADEQ Records Management Center staff about reviewing or copying file information at 602-771-4380.

If you have any questions or need additional information, please contact me at (602) 771-4293 or by email at [lepage.tina@azdeq.gov](mailto:lepage.tina@azdeq.gov).

Sincerely,



Tina LePage, Manager  
Remedial Projects Section, Waste Programs Division

Enclosures:

- July 14, 2014 Comment Letter – Ridenour Hienton, PLLC
- July 17, 2014 Comment Letter – Ridenour Hienton, PLLC
- July 21, 2014 Comment Letter – David C. Iwanski, WVBA CAB Member
- July 21, 2014 Comment Letter – Fennemore Craig, P.C.
- July 21, 2014 Comment Letter – Ridenour Hienton, PLLC

- cc:
- Laura Malone, ADEQ
  - Scott Green, ADEQ
  - Danielle Taber, ADEQ
  - Rich Olm, P.E., ADEQ
  - Dennis Shirley, Synergy Environmental, LLC