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VIA EMAIL AND U.S. MAIL

December 4, 2009

Ms. Julie Riemenschneider
Remedial Projects Section, Office of Waste Programs
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, Arizona 85007

Re: West Van Buren WQARF Site
Roosevelt Irrigation District's Proposed Early Response Plan

Dear Ms. Riemenschneider:

The Salt River Project Agricultural Improvement and Power District (SRP) has reviewed the Roosevelt Irrigation District (RID) Groundwater Response Action Implementation Plan (GRA) prepared by Montgomery and Associates for Gallagher & Kennedy on behalf of RID to address groundwater contamination of RID's production wells in the West Van Buren (WVB) Water Quality Assurance Revolving Fund (WQARF) site. SRP appreciates the invitation by the Arizona Department of Environmental Quality (ADEQ) for SRP and others to provide comments as ADEQ evaluates RID's proposal. Because SRP believes that the GRA is both inconsistent with applicable state and federal law and fails to adequately take into account all existing facts, SRP is providing initial, high-level comments at this time. SRP contemplates that it will provide additional comments to ADEQ as a remedy is developed for the WVB WQARF area.

According to the GRA, RID is proposing to construct in Phase 1 a new 20,000 gallon per minute (gpm) treatment plant on RID property located outside the WVB WQARF area to treat its contaminated wells in the WVB WQARF area. Treated water from this proposed treatment system would be marketed and conveyed via four miles of new pipeline to municipalities in western metropolitan Phoenix for a new drinking water end use. Phase 2 of RID's proposed plan is to construct a second treatment system to treat wells with capacity totaling approximately 12,000 gpm. Treated water from this second treatment system would be discharged to RID's Main Canal and would be conveyed for use as irrigation water by RID's customers in southwest Phoenix. A total of 17 RID wells would be connected to these two treatment systems.

While SRP supports resolution of groundwater contamination in the WVB WQARF area, SRP would like to bring to ADEQ's attention several significant concerns it has with RID's proposed plan and to express SRP's belief that the proposal is not a reasonable approach for the WVB WQARF area.

POTENTIAL LEGAL CONCERNS AND HISTORICAL BACKGROUND

Pursuant to existing agreements between SRP and RID, RID's right to pump groundwater from wells located within the Salt River Reservoir District (SRRD) boundaries, which include the WVB WQARF area, terminates in 2026. Thus, any proposed remedy that contemplates RID's pumping of groundwater within the SRRD after that time necessarily violates those agreements.

As background, the groundwater in the WVB area underlies SRP's water service area and is an integral component of the water rights of SRP shareholders. SRP and its shareholders hold long-standing rights to the groundwater within SRP's water service area that were initiated and perfected under federal and state laws beginning in 1903 when the area was set aside to establish the Salt River Federal Reclamation Project. Beginning in 1903 landowners in the Salt River Valley established the Salt River Valley Water Users' Association (Association) and agreed through its articles of incorporation, and later its bylaws, to set aside the water underlying the Association's SRRD (SRP's present day water service area) for the use and benefit of the shareholders of the Association. In accordance with the Association's articles of incorporation and bylaws, any groundwater withdrawn from within the SRRD must be used within the SRRD boundaries. Since 1903, except for shallow groundwater that threatened the economic viability of some of the farmlands within the SRRD, SRP shareholders have consistently and continuously used groundwater from within the SRRD as a water supply for their lands.

In contrast to SRP's rights to the groundwater within the SRRD, RID's authorization to utilize the drainage groundwater from within the SRRD began in the early 1920s and that authorization was intended to be only temporary, as limited by contract. That authorization expires in 2026. As noted above, SRP faced a serious water logging problem in the late 1910s. At the time, the vast majority of the lands within the SRRD were under cultivation. Due to regional hydrogeologic conditions and irrigation return flows, groundwater in the regional aquifer rose to levels that were too high to sustain agriculture. In 1920, SRP entered into an agreement with Carrick and Mangham Agua Fria Lands and Irrigation Company (Carrick-Mangham), the predecessor to RID. That agreement authorized RID to withdraw a limited amount of groundwater within a portion of the SRRD to relieve water logging conditions in the area. The 1920 agreement and subsequent supplemental agreements with Carrick-Mangham and RID (the "SRP-RID agreements") collectively provide RID with the privilege to withdraw water from the water logged lands for a period of 99 years. The SRP-RID agreements were approved by the Secretary of the Interior in accordance with the Secretary's responsibilities to the Salt River Federal Reclamation Project and expire in 2026. In short, after the expiration of the SRP-RID agreements in 2026, RID may not legally pump and transport groundwater from

the wells within the WVB WQARF area for use outside the SRRD. Thus, ADEQ should not approve any proposed regional remedy that contemplates the pumping of groundwater in violation of existing agreements and that impedes upon the rights of SRP and its shareholders.

Under the SRP-RID agreements, RID operates approximately 50 wells within the SRRD (32 of these wells are located in the WVB area) to relieve water logging conditions. RID then transports the groundwater to the RID irrigation service area. Since 1928, RID has pumped approximately 135,000 acre feet per year. Slightly more than half of this pumping is from wells in the WVB area. SRP is performing an evaluation of the need to continue pumping for drainage purposes beyond 2026 given the continued conversion of agricultural lands to municipal, industrial and other uses. Over the last 80-plus years, groundwater levels have dropped approximately 150 feet. Based on SRP's preliminary assessments, RID's continued level of pumping will cause further mining of resources. SRP believes that groundwater levels in the area can be maintained at appropriate levels with substantially less pumping. SRP, in conjunction with municipalities that are located within the SRRD, is committed to managing and preserving this groundwater supply for long-term beneficial uses within the SRRD.

CURRENT ENVIRONMENTAL CONDITIONS AND END USES

SRP has several concerns with the GRA in light of current environmental conditions and end uses for the water.

Existing data show that groundwater in the WVB WQARF area is contaminated with several volatile organic compounds (VOCs), principally TCE and PCE. Of the 32 RID wells in the WVB WQARF area, approximately 17 have been contaminated to various levels from the VOCs, which RID proposes to connect to treatment systems. RID has been pumping groundwater from the WVB WQARF area for decades and delivering this water for irrigation use via its conveyance system of pipelines and canals. Any groundwater pumped from impacted wells is blended with treated effluent, which is also discharged to the RID Main Canal from the City of Phoenix 23rd Avenue Wastewater Treatment Plant, as well as with groundwater pumped from RID's wells that have not been impacted by VOCs (up to 38,000 gpm) and from the other 18 or so RID wells outside the WVB WQARF area. In addition, RID has wells located on the west side of the Agua Fria River, outside of the SRRD. Based on RID's current operational practices of blending groundwater from the WVB impacted wells with effluent and other clean wells, it appears unlikely that any VOCs would be detected in the irrigation water at the first point of delivery in the RID system.

The primary use of water delivered by RID from the SRRD is for agricultural irrigation. There are some parks and large residential lots within the RID service area that use the water for irrigation of landscaping. To SRP's knowledge, no groundwater pumped from within the area of known contamination currently is being (or historically has been) used for drinking water. The RID canal is not specifically listed in the Arizona Water Quality Standards. However, if the RID canal were listed, the relevant applicable water uses would likely include partial body contact and agricultural irrigation/livestock watering. With respect to partial body contact,

Arizona water quality standards specify the following water quality criteria for the chemicals of concern:

TCE – 280 ug/l (Partial Body Contact)

PCE - 14,000 ug/l (Partial Body Contact)

There are no numeric water quality criteria associated with agricultural irrigation/livestock watering for TCE or PCE.

SRP is unaware of any RID canal deliveries that have ever exceeded the above water quality criteria. According to the October 2008 ADEQ Draft Remedial Investigation Report (Draft RI), the current detected levels of these chemicals in the groundwater in the WVB WQARF area meet these current end use standards and in fact are significantly below the water quality standards.

Other constituents that have been detected in the groundwater within the WVB WQARF area include chromium and MTBE. According to the GRA, total chromium levels detected in two of RID's wells were significantly less than the AWQS level of 100 ug/l. The agricultural irrigation/livestock watering for total chromium is 1000 ug/l. RID has two wells that have been contaminated with MTBE. The GRA indicates that the current levels of MTBE in those two wells are within or only slightly above EPA's health advisory levels of 20 to 40 ug/l. There are no numeric water quality criteria associated with agricultural irrigation/livestock watering for MTBE.

While the groundwater contamination levels in WVB area are currently below the State's water quality standards for the existing end uses of RID water, it may be prudent to perform an early response action that is reasonable and cost effective in minimizing the relocation or transfer of VOCs from groundwater to the environment and in containing and controlling the plume for the existing and reasonable foreseeable future uses of the aquifer.

SPECIFIC COMMENTS ON RID'S EARLY RESPONSE ACTION PROPOSAL

1. RID's proposed pumping plan is excessive and not effective in plume containment. According to ADEQ's Draft RI, there are several areas with VOCs within the WVB WQARF area, with the largest area of TCE contamination being the regional plume that has migrated into the eastern WVB WQARF area. The Draft RI also indicates that more localized areas of PCE contamination occur in generally the southeastern and western areas of the Site. The Draft RI reports that, in 2008, the highest detected TCE concentration in the regional plume area was 160 ug/l; the highest detected PCE concentration was approximately 390 ug/l, located in the southeastern section of the WVB area. As previously mentioned, RID's plan is to treat its 17 contaminated wells. However, only 3 of the 17 wells are located in the regional plume area and contain TCE concentrations greater than 50 ug/l. Most of the wells proposed for treatment have TCE concentrations of generally less than 20 ug/l and PCE concentrations of less than 15

ug/l. Under RID's proposal, the lower concentration water would be blended with the higher concentration water, thereby requiring the treatment of unreasonable large volumes of water.

2. SRP believes a more effective early response action would be to immediately contain the regional plume presently located in the eastern portion of the WVB WQARF area and prevent further VOC mass migration into the WVB area. Localized areas of PCE contamination may be more effectively addressed through source control programs rather than relying on regional scale pumping. It also may be beneficial for RID to shut off some of its wells that are located near the PCE and TCE plumes and such an option should be evaluated. RID could meet the balance of its irrigation demand by using wells outside the WVB WQARF area.
3. RID's proposed drinking water end use, which increases public health exposure and risk, is not an appropriate or necessary element of an early response action for the WVB WQARF area given the existing irrigation end use. As an early response action, RID has proposed to pump and treat up to 20,000 gpm for a new drinking water end use. RID further intends to classify this water as remediated water under the State's water code to exempt this water from municipal groundwater pumping restrictions. SRP believes this component of RID's proposal is inconsistent with prudent water management and, as discussed below, applicable law, and imposes unnecessary risks and liabilities to both municipal water users and parties that might contribute to funding of the remedy. It is unlikely that the necessary agreements for water quality liability could be executed by all the involved stakeholders in a timely manner, which would further delay the implementation of an early response action.
4. RID is proposing to market 20,000 gpm of the treated groundwater under the early response action as "remediated groundwater" to provide further incentive to municipalities in the western metropolitan Phoenix area to contract for the water. In 1997, the Arizona Legislature passed legislation to provide incentives to encourage the beneficial use of groundwater withdrawn pursuant to approved remedial action projects. On June 14, 1999, the Arizona Department of Water Resources (ADWR) published a substantive policy statement, setting forth the various factors to be considered in determining whether a groundwater remedial action project is consistent with Title 45, Arizona Revised Statutes, and would be accounted for as surface water. The drinking water component of RID's proposal is inconsistent with several of the factors listed in ADWR's substantive policy statement. Most notably, the policy encourages the *least* amount of groundwater necessary to facilitate a project's remedial goal. The ADWR policy also scrutinizes the end uses to which groundwater will be put. Specifically, the policy states that ADWR will encourage preventing new permanent uses that would not have occurred without the incentive to use remediated groundwater. SRP believes that RID's proposed pumping volumes are substantially greater than those needed to facilitate plume capture. Without the remediated groundwater incentives, the west side cities interest in treated groundwater from the WVB area would be substantially

reduced. As there is adequate long-term irrigation demand for the remediated groundwater, RID's plan to market the treated groundwater as "remediated groundwater" as an incentive for prospective drinking water customers is inconsistent with the ADWR policies and is inappropriate for incorporation into an early response plan.

5. RID's proposed drinking water end use unnecessarily increases the overall cost of an early response action in WVB. Higher levels of treatment technology and safeguards would be necessary for drinking water end use. A new separate pipeline constructed to Safe Drinking Water Act standards would be required to convey the water to a proposed new treatment plant (rather than using the existing infrastructure of irrigation pipeline and ditches to convey the water for irrigation uses). Such treatment requirements would substantially increase costs over an early response action based on maintaining the existing irrigation end use. Because groundwater pumped from RID wells already meets relevant current end use standards, an irrigation end use early response action likely would require the application of less costly treatment and monitoring. At a minimum, an early response action based on an irrigation end use should be thoroughly considered before RID's proposal proceeds any further.
6. RID's proposed early response action plan entailing drinking water end use also would add substantial complexities and delays to a public involvement program. Because RID has not specified any municipalities that might contract for the treated water, the necessary public outreach program likely would need to include all the potential new drinking water consumers in several cities. Each municipality would want to (and should) be engaged in any communication process to convey necessary information to their customers, further increasing the time and cost of a public outreach program. RID's proposal to classify the water as remediated water also would require engaging ADWR and other stakeholders. In contrast, an early response action directed at current end uses would facilitate timely implementation because it would streamline the community involvement process and reduce concerns about water quality liability.
7. As mentioned above, RID's proposal for an early response action involving long-term off-project end use is not reasonable or appropriate given the expiration of the SRP-RID agreements in 2026. Any proposal by RID to continue pumping beyond 2026 would at a minimum require a new agreement with SRP and approval by the Secretary of the Interior.
8. Because early response actions may be used as the starting point for the development of a reference remedy for a feasibility study, any early response action should be evaluated in light of Arizona Administrative Code (A.A.C.) R18-16-407(H), which requires "[a]n evaluation of consistency with the water management plans of affected water providers...." RID's proposed early response action does not meet that standard because it is not consistent with all current and potential future water uses in the WVB area and does not effectively contain the plume.

ELEMENTS OF A MORE EFFECTIVE EARLY RESPONSE ACTION

SRP believes that an effective early response action would consider, at a minimum, the following elements:

- **Locate wells to intercept the plume and enhance mass removal:** Experience with the Motorola 52nd Street Operable Unit 2 groundwater extraction system has shown that pumping in the main plume area has been very effective in narrowing the regional plume. A similar groundwater extraction system should be evaluated for the regional plume in the WVB WQARF area, supplemented with pumping at the leading downgradient edge of the plume.
- **Maintain current agricultural and urban irrigation end uses:** While SRP believes that properly treated groundwater is safe for human consumption, a more prudent risk management approach would be to first pursue alternative end uses of remediated groundwater. Past experience in other superfund sites has shown the public sensitivity to domestic water use of remediated groundwater. As previously mentioned, the legal and other complexities of directing this water for drinking water use would eliminate any “timely response” to the early response action. Adequate irrigation demand within the RID service area exists to sustain pumping levels needed for an early response action in WVB through 2025. Furthermore, other industrial users within the WVB area may be able to use a portion of the required groundwater pumping.
- **Groundwater Treatment Standards:** Although not required to meet water quality standards associated with RID’s current irrigation end use, some or all of the groundwater could be treated to reduce the transfer of VOCs from the current plume to the air. Any standards established for the discharge of remediated groundwater to the irrigation system should be based on proper management of installed treatment technology rather than meeting specific numeric criteria. Since groundwater already meets applicable irrigation end use standards, the environmental goal of reducing public health exposure and contaminant transfer would be achieved by meeting applicable Maricopa County Air Quality Regulations and ensuring the technology is operating consistent with vendor recommendations.
- **Integration with the Final Remedy:** An alternative early response action based on strategically located capture wells for containing the regional plume and maintaining the current agricultural and urban irrigation end uses could be efficiently integrated with a final remedy that adequately addresses the needs of all water resource providers, including SRP and the Cities of Glendale, Tolleson, and Phoenix, in the WVB area. The groundwater extraction and treatment system could be transitioned to other alternate end uses to accommodate a final remedy.

- **Collaboration with interested stakeholders:** Given the current economic conditions, which impact both private and public entities, ADEQ should only consider an early response action that is focused on the highest priority environmental goals and that is fiscally prudent. Parties that may be asked to help fund an early response action will want assurances that the plan is both necessary for public health protection and appropriate in scope. Water resource stakeholders, such as SRP, ADWR, and the Cities of Phoenix, Glendale, and Tolleson will be supportive of an early response plan that is consistent with water rights laws, water conservation policies, and prudent groundwater management practices. RID's proposal has several key elements that directly conflict with the interests of many stakeholders. Greater stakeholder collaboration would be accomplished with an early response action that reduces cost and mitigates legal impediments while still achieving the goals of an early response action.

CONCLUSION

Groundwater beneath the WVB WQARF area is an important resource for SRP and its shareholders as we plan for long-term sustainable water supplies. SRP is committed to working with all involved stakeholders to develop and implement an appropriately scaled and targeted early response action in WVB that would sustain and be fully protective of current water uses, provide for plume containment, and satisfy all applicable water rights and environmental requirements.

As noted above, SRP does not believe that RID's proposal meets those goals and therefore is not a reasonable approach for the WVB WQARF area. RID's authorization to withdraw groundwater from within the WVB area is based upon agreements with SRP and the United States. Those agreements expire in 2026, at which time RID no longer will be authorized to pump such water and transport it for use outside of the SRRD.

Because RID's proposal is not reasonable, is technically complex, costly and would impose significant (and unnecessary) consequences on many stakeholders, SRP requests that ADEQ initiate a WVB technical working group to fully evaluate early action strategies in the WVB WQARF area, and that notice of the formation of that group be provided to other potentially interested parties outside of the area. The formation of such a technical working group would provide for a measured and thoughtful process in formulating a remedial strategy that fully considers stakeholder and community input.

December 4, 2009

Ms. Julie Riemenschneider

Thank you for your consideration of our comments. We would be happy to meet with ADEQ and discuss these comments in greater detail. If you have any questions, please call Karol Wolf at 602-236-5767.

Cordially,

A handwritten signature in black ink that reads "William R. Powell". The signature is written in a cursive style with a large, prominent initial "W".

W.R. Powell

Manager, Risk Management and Environmental Services

cc: B. Grumbles, ADEQ
H. Guenther, ADWR