



A subsidiary of Pinnacle West Capital Corporation

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April 22, 2010

Jennifer C. Thies  
Remedial Projects Unit  
Arizona Department of Environmental Quality  
WQARF Unit Manager - 4415B-1  
1110 West Washington Street  
Phoenix, AZ 85007

Re: Notice of Request for Approval of Early Response Action for the West Van Buren Water Quality Assurance Revolving Fund (WQARF) Site

Dear Ms. Thies:

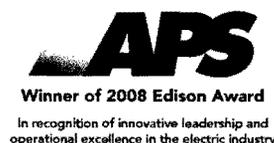
Set forth below are Arizona Public Service Company's (APS) comments on the Roosevelt Irrigation District's (RID) proposed Early Response Action (ERA) Work Plan. The Water Quality Assurance Revolving Fund (WQARF) rules require that an effective remedial plan must be appropriately scaled, targeted, and otherwise meet the rules' legal requirements. The proposed ERA is inconsistent with the WQARF program and should be rejected.

The Work Plan is technically flawed, and its implementation would not properly address the problems that RID claims to exist. It is excessive, cost ineffective, would not properly contain the plume, and inexact. Consequently, ADEQ has no obligation to approve the ERA. Rather, the underlying WQARF statute and the WQARF Program's implementing regulations require that ADEQ disapprove RID's Work Plan.

**1. The Work Plan does not meet the requirements of the WQARF rules.**

A.R.S § 49-282.06(A)(3) mandates that a work plan be, among other things, reasonable, necessary, and cost effective. As the litany of parties who oppose RID's ERA have pointed out in their previous technical comments, the March 22, 2010 West Van Buren WQARF Registry Site stakeholder meeting, and the March 23, 2010 WVB WQARF Community Advisory Board meeting (collectively, the "Technical Comments"), and as APS discusses below, the Work Plan is unreasonable, unnecessary, and cost ineffective.

ADEQ can only approve a work plan that meets the requirements for an Early Response Action, as set forth at A.A.C. R18-16-405(B), which reads as follows:



The method or technology used to implement the early response action shall be selected based upon best engineering, geological, or hydrogeological judgment following engineering, geological, or hydrogeological standards of practice, considering the following information:

1. Best available information characterizing the site.
2. Best available scientific information concerning available remedial methods and technologies; and
3. Best available information regarding whether the technology or method could increase the scope of costs of possible remedies for the site or result in increased risk to public health or welfare or the environment.

As the Technical Comments have established, and as APS illustrates further below, RID's Work Plan, does not meet the requirements of R18-16-405(B). It is technically deficient and should be rejected.

**2. The Proposed ERA is a two-dimensional response to a three-dimensional problem and falls below the standard of practice required by WQARF.**

The RID ERA does not provide a adequate evaluation of the proposed technology to determine if the ERA will increase the scope or cost of the remedy for the site. The RID ERA provides a map of proposed extraction well locations involved in the response action, which is overlaid on the estimated distribution of volatile organic compound (VOC) groundwater concentrations within the West Van Buren Water Quality Assurance Revolving Fund Site (WVB). Visually, the proposed RID well locations are generally within the WVB plume and provide the appearance of a reasonable hydraulic control option. What is missing from the RID ERA, however, is a detailed evaluation of how the RID wells will provide both lateral (i.e., east-west, north-south) and vertical hydraulic control and capture of the WVB contaminants.

The RID ERA Figures of VOC distribution in the Upper Alluvial Unit 1 (UAU1), Upper Alluvial Unit 2 (UAU2) and Middle Alluvial Unit (MAU), show a variable distribution of VOC concentrations with the highest concentrations in the UAU. Selected RID wells proposed to be used in the ERA are screened in the UAU, MAU and LAU. While there is mention in the ERA that wells may be modified to isolate pumping from the UAU or MAU, there is no evaluation of the flow rates, or estimated hydraulic horizontal and vertical capture for the WVB contaminants. Without this evaluation there is no way to assess the effectiveness or efficiency of the proposed RID ERA. Further, the ERA Work

Plan fails to provide a monitoring program to assess the effectiveness of the ERA from both a chemical concentration and hydraulic capture perspective. The Work Plan mentions water elevations, but does not outline a program of monitoring in the UAU, MAU and LAU to understand the effectiveness of the proposed pumping system. At a minimum, the RID ERA should provide the same level of evaluation and assessment as was developed for the Motorola 52<sup>nd</sup> Street Site, OU2 interim groundwater hydraulic control system. Without this evaluation, it is impossible to determine if the RID ERA can control and contain contamination at a level that will reduce the scope or cost of the remedy needed at this Site.

**3. The ERA lacks specific details of design and does not adequately consider technical alternatives required for engineering that would meet the WQARF expected standard of practice.**

Standard engineering practice for a system of this magnitude and capital expense as is being proposed by RID would dictate a robust evaluation of hydraulic capture and an evaluation of alternatives. The current ERA Work Plan has a brief section on alternatives that only provides a brief explanation of the alternative and an explanation of why that alternative may not be appropriate. The evaluation of alternatives is not assessed in terms of capital cost, operational cost and remedial efficiency. For example, in the alternative evaluation section (Section 4.1.2) evaluating new extraction wells, the ERA does not mention the current physical condition of the existing RID wells, or use of paired replacement wells that would operate under the original pumping capacity. The RID wells may be near the end of their operational life and replacement may be necessary even under an early response scenario.

Because the proposed RID system will involve a substantial expenditure of capital expense, it should be evaluated based on cost and resource efficiency. Regardless if the proposed system response is early, interim, or final; it will have a significant energy demand and involve a critical Arizona resource. A value engineering study would be appropriate. This type of study would ensure that a complete life-cycle evaluation of the proposed system is performed and all stakeholders understand that the final design is the most cost and resource efficient as required under A.A.C. R18-16-405(B).

**4. The proposed ERA would be a better Late Response Action (LRA)**

The RID ERA does not address the sources of contamination as required under A.A.C. R18-16-405(A). The remedial investigation (RI) performed by ADEQ identified multiple VOC sources present within the WVB plume in addition to contributions from the U.S. EPA Motorola 52<sup>nd</sup> Street Superfund Site Operable Unit 3 (OU3). The presence of individual source areas within WVB would favor an approach of individual source control combined with a regional hydraulic control for the diffuse plume. VOC mass removal and source control is most effective when the pumping is performed proximate to the source. Large regional

systems are more appropriate for control of diffuse plumes that have emanated away from individual source control systems. RID's regional groundwater pump and treat approach, or a similar approach would be better applied as a later supplement to individual source control.

**5. The proposed ERA may be detrimental to a final remedy and prolong the overall time to cleanup**

Varying ratios of VOCs throughout WVB VOC plume indicate the heterogeneity of the VOC concentrations due to multiple source areas. The locations of the RID wells are not optimized to source area locations, increasing the potential for the RID wells to mobilize contaminants away from source areas. Not implementing source control and allowing high concentrations to be pulled to RID wells will further disperse the contaminants, both laterally and vertically throughout the aquifers and prolong the time needed to operate the final remedy. It is impossible to determine if the RID ERA can control and contain contamination at a level that will reduce the scope or cost of the remedy needed at this Site as required under A.A.C. R18-16-405(A) (B). It is understood that the RID wells have been pumping for a long time and currently mobilizing contaminants within WVB. However, the proposed well modifications to RID wells to focus on the UAU and MAU will only exacerbate this influence. Therefore, from an early response and life cycle perspective, it will be more efficient to implement source control prior to consideration of the RID ERA. Once the effectiveness of individual source control systems can be established, then a regional system could be properly designed and implemented.

**6. A feasibility study should be performed prior to any other remedial work.**

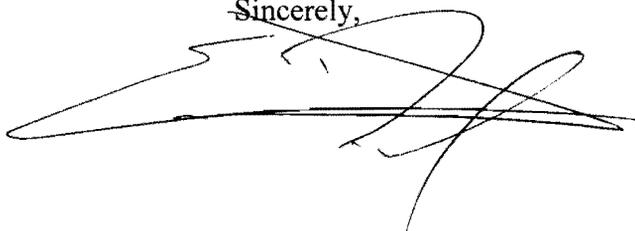
The proposed RID ERA is a very large and resource intensive approach to addressing VOC-affected groundwater in WVB. Because the ERA Work Plan does not appropriately address hydraulic control, monitoring and alternative analysis, it does not meet what would be considered "standard engineering practice." A more extensive evaluation is necessary to fully assess hydraulic control, source control and cost/resource efficiency of the proposed action.

The well established ADEQ WQARF Feasibility Study (FS) process is a proven approach to ensure that the selected remedial approach is appropriate. The process applies equally to early, interim or final remedies. Given the scope and cost of the proposed ERA action, and the possible implications on the final remedy for WVB, a more detailed FS, or "FS level" study should be performed prior to implementing any regional remedy such as proposed by RID in its ERA. The RID ERA is an inappropriate use of the ERA provided under WQARF.

For the reasons set forth above, APS requests the ADEQ disapprove of RID's Work Plan. Not only does it not meet the regulatory requirements for an early response action, but it

does not represent the best path forward for remediating the West Van Buren site under the WQARF process. In the meeting with ADEQ on March 22, 2010, APS along with the participating parties in the West Van Buren WQARF Registry Site stakeholder group provided a proposal to complete a group-funded FS and to commit to continued participation in the WQARF process. This approach will provide the appropriate path forward for the successful and timely remediation of the Site utilizing the WQARF process.

Sincerely,

A handwritten signature in black ink, appearing to be "Jennifer C. Thies", written over a horizontal line.

cc: Benjamin H. Grumbles, ADEQ Director (via email)  
Henry R. Darwin, ADEQ Assistant Director (via email)  
Amanda Stone, ADEQ Director, Office of Waste Programs (via email)  
Julie J. Riemenschneider, ADEQ Remedial Projects Section, Manager  
Judy Heywood, APS Remedial Project Manager  
Ken Miller, APS Law Department (via email)  
Molly Cagle, Vinson & Elkins (via email)