



PRECISION INVESTMENT CASTINGS

April 22, 2010

Ms. Jennifer Edwards Thies  
WQARF Unit Manager  
Arizona Department of Environmental Quality  
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Subject: Early Response Action Proposed by Roosevelt Irrigation District for the West Van Buren Water Quality Assurance Revolving Fund (WQARF) Site

Dear Ms. Thies:

Dolphin, Incorporated (Dolphin) appreciates the opportunity to provide comments to Arizona Department of Environmental Quality (ADEQ) on the Early Response Action (ERA) that has been proposed by Roosevelt Irrigation District (RID). As you are aware, Dolphin has a long history of working cooperatively with ADEQ to investigate and remediate past releases of volatile organic compounds (VOCs), primarily tetrachloroethylene (PCE), that had previously impacted soil and groundwater at its facility. Under close scrutiny from ADEQ, soil and groundwater remediation activities were completed in 2002. Periodic groundwater monitoring continues to show decreases in PCE concentrations beneath our facility.

This letter was prepared specifically to address the content of the February 3, 2010 Work Plan for the ERA prepared for RID and Gallagher & Kennedy by Montgomery & Associates. However, ADEQ should consider our comments applicable to the whole of RID's proposed ERA, as presented during public meetings and in all previously submitted documents, including the draft Implementation Plan for RID Groundwater Response Action, dated September 25, 2009.

You will find that many of our comments echo those provided to you by other entities who oppose RID's proposed ERA. Dolphin supports opposing comments submitted by others, including Lewis & Roca, Gammage & Burnham, Univar USA Inc. (Univar), Salt River Project (SRP), Arizona Public Service Company (APS), and City of Phoenix, and we incorporate their similar comments by reference. We strongly advocate for continuation of the WQARF remedial investigation/feasibility study (RI/FS) process that

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is already underway by ADEQ. We also support formation of a West Van Buren technical working group to provide input to ADEQ during completion of the RI/FS and selection of a final remedy. Dolphin, in conjunction with Brown and Caldwell, has been an active and productive participant in past and ongoing efforts related to the West Van Buren WQARF site, and looks forward to continuing this relationship.

## **COMMENTS ON THE PROPOSED ERA**

The Work Plan does not demonstrate that the proposed ERA is necessary to achieve any of the goals stated in A.A. C. R18-16-405.A. It does not offer any evidence that the ERA is necessary to address current risk to public health, welfare, and the environment; protect or provide a supply of water; address sources of contamination; or control or contain contamination where such actions are expected to reduce the scope or cost of the remedy needed at the site. Rather, it makes baseless claims regarding the risk to public health and it fails to show that the proposed ERA would actually accomplish any of the other section 405.A goals to any greater extent than would be achieved through other more effective and economical remedial alternatives.

RID has provided no demonstration of adverse impact to current or past operation of RID wells in the West Van Buren site. Based upon information provided by RID itself, all current and future RID water uses are non-potable irrigation uses. Data presented in ADEQ's Draft RI Report (October 2008) indicate that water quality in the RID canals is suitable for its intended end use. Additionally, contaminant concentrations have generally been decreasing in recent years.

Although groundwater quality data for certain RID wells indicates contaminants are present at concentrations that exceed drinking water standards, this portion of the aquifer is not used as a public drinking water supply. The impacted wells are used to supply irrigation water, rather than drinking water. Therefore, no appreciable risk to the public in terms of drinking water consumption exists. The vast majority of RID's canal system consists of underground gravity pipelines, with smaller portions consisting of open segments that are surrounded by industrial areas, agricultural fields, and warehouses. While the open segments potentially represent an exposure pathway, the Work Plan fails to show that the RID wells or the canals themselves present a risk to human health. Existing standards that could be used for that analysis, including ADEQ's 2009 final surface water partial body contact standards and ADHS's 1998 draft end use standards for open water conveyances, show that none of the water quality data associated with RID's wells or canal systems exceed those standards or guidance values.

Even if this particular ERA could achieve any of the section 405.A goals, RID has failed to provide any meaningful information on the technical feasibility of its proposal. A.A.C. R18-16-405.C requires a written rationale explaining how the proposed ERA will achieve the applicable goals listed in section 405.A. The Work Plan does not provide a sufficiently detailed technical basis to explain how the proposed ERA will achieve any of these goals. Rather, the written rationale provided in the Work Plan simply reiterates numerous performance objectives that serve RID's purposes and that are reasonably

attributable to the section 405.A goals, without providing meaningful technical details of how the proposed ERA will achieve any of these objectives or goals. In particular, we question whether the following issues have been adequately considered:

- A regional groundwater model is necessary to understand the plume capture and mass removal that can be obtained under any remediation scenario that is contemplated using the RID wells. This model must be calibrated using depth-specific contaminant and groundwater flow information to ensure that existing RID wells will be effective for the stated goals of the proposed ERA. It must be shown that the ERA would not actually result in further lateral or vertical migration of the more highly contaminated portions of the plume.
- Various RID wells are screened in multiple aquifer units. Further details on the current conditions of the RID wells to be used as part of the proposed ERA must be provided in order to evaluate their potential to act as conduits that would facilitate cross-contamination of deeper aquifer units. Design and implementation details for any well rehabilitation activities must be presented to assess the feasibility of conducting such activities without facilitating cross-contamination. Actual screening depths must be cross-referenced and matched against those portions of the aquifer having high transmissibility and high contamination.

The Work Plan itself does not meet the requirements of the WQARF statute. A.R.S. §49-282.06(A)(3) requires, among other things, that a work plan be reasonable, necessary, and cost-effective. Further, ADEQ A.A.C. R18-16-405(B) states that 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, among other things, best available information regarding whether the technology or method could increase the scope or costs of possible remedies for the site. The proposed ERA may very well increase the scope or costs of possible remedies for the West Van Buren WQARF site. Any early response action that allows extraction and mixing of less-contaminated groundwater with more highly contaminated groundwater is not cost-effective and is likely drawing highly contaminated groundwater away from its sources.

The various legal issues regarding RID's continued use of groundwater from the West Van Buren site as well as the proposed drinking water use are especially problematic. It is not clear that RID has long-term groundwater rights to be able to continue extraction of groundwater beyond 2026. This matter must be resolved prior to any implementation of the proposed ERA. Further, the Arizona Groundwater Code (A.R.S. Title 45, Chapter 2) likely would prevent use of any treated water outside of RID's current irrigation use or outside their service area. The Work Plan presents no specific details as to how RID would use or manage the treated water. Such details should be provided such that compliance with the Arizona Groundwater Code can be evaluated.

Finally, the proposed drinking water end use adds substantial complexity and potential liabilities, and unnecessarily increases the cost of the proposed ERA for tangible (e.g.,

infrastructure compliant with applicable drinking water standards) and intangible (e.g., public involvement, liability issues, etc.) reasons. The public involvement program would be significantly prolonged because of the need to include all potential new drinking water users from a currently unknown number of municipalities, who should be allowed to comment on this matter. Although groundwater can be readily treated to meet drinking water standards, this end use imposes unnecessary risks and liabilities to both municipal end users as well as those parties who would be funding the remedy. Resolution of the necessary agreements for water quality liability could by itself significantly delay implementation of the proposed ERA.

## **ALTERNATIVES AND CONCLUSION**

A carefully selected and well implemented early response action can and should address sources of contamination, and control or contain contamination in a manner that reduces the scope or cost of the final remedy. Continued identification of facilities that have contributed to groundwater contamination, and implementation of aggressive source control at those facilities is one example of an effective early response action. In addition to the completed remediation activities at Dolphin, source control has already been implemented at four other facilities within the West Van Buren WQARF site, including ALSCO (soil and groundwater remediation), Maricopa County Materials Management facility (soil remediation), Reynolds Metals (soil remediation), and Univar (soil remediation). A sixth facility, Prudential Overall Supply, is working toward implementation of soil remediation. Significant improvements in groundwater quality have been observed at locations where source control has been completed.

In combination with additional source control at facilities contributing to groundwater contamination, a more effective approach than the proposed ERA would be to extract and treat groundwater from the most concentrated portions of the plume. According to ADEQ's draft RI report (October 2008), several distinct areas exist within the West Van Buren WQARF site. The largest area of TCE contamination exists in the eastern part of the site. Localized sources of PCE contamination occur generally in the southeastern and western portions of the site. The highest TCE and PCE concentrations during 2008 have been reported as 160 micrograms per liter ( $\mu\text{g/L}$ ) and 390  $\mu\text{g/L}$ . In contrast, few RID wells proposed for the ERA have TCE concentrations greater than 50  $\mu\text{g/L}$ , and most of the RID wells have TCE concentrations less than 20  $\mu\text{g/L}$  and PCE concentrations less than 15  $\mu\text{g/L}$ . RID's proposal involves blending groundwater with both higher and lower concentrations, thereby requiring treatment of huge volumes of groundwater. Groundwater pump-and-treat, if selected as an ERA or a final remedy, should focus first, and perhaps only, on areas having the highest concentrations within the plume. This strategy has proven to be very effective in the Motorola 52nd Street Operable Unit 2 groundwater extraction system.

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For the reasons stated above, Dolphin asks that ADEQ reject the ERA proposed by RID. There are more effective and economical alternatives that should be evaluated and implemented to remediate soil and groundwater in the West Van Buren WQARF site. We look forward to continuing to work with ADEQ as it completes the RI/FS phase of work for the West Van Buren site, conducts additional source control activities, and moves toward selection and implementation of a final remedy. Please feel free to contact us if you have any questions or need further information.

Sincerely,

DOLPHIN INCORPORATED



Pete Poleon  
General Manager

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