



January 4, 2010

Arizona Department of Environmental Quality  
Waste Programs Division - Remedial Projects Section  
1110 West Washington Street  
Phoenix, Arizona 85007-2952

Attention: Ms. Jennifer Edwards Thies, Project Manager

**SUBJECT: ROOSEVELT IRRIGATION DISTRICT (RID) EARLY RESPONSE ACTION IMPLEMENTATION PLAN AND GROUNDWATER RESPONSE ACTION PLAN FOR WEST VAN BUREN WATER QUALITY ASSURANCE REVOLVING FUND (WQARF) SITE - - REFERENCE TO DRAFT PLANS PREPARED BY RID, DATED SEPTEMBER 25, 2009 AND OCTOBER 5, 2009**

*Initial Opinions of Air Liquide Specialty Gases, LP (Air Liquide) regarding RID's Proposed Response Action in the West Van Buren WQARF Site and Request for Creation of a Technical Working Group: Submitted in response to November 30, 2009 Public Notice, Notice of Solicitation of Remedial Objectives for the West Van Buren Water Quality Assurance Revolving Fund (WQARF) Site*

Dear Ms. Thies:

BASIN & RANGE HYDROGEOLOGISTS, INC. (BASIN & RANGE) has prepared this letter on behalf of Air Liquide, formerly known as Air Liquide USA, LLC in connection with the West Van Buren Water Quality Assurance Fund (WQARF) Site (Site) and the above-captioned Public Notice.

As you know, BASIN & RANGE has been assisting Air Liquide with hydrogeological investigations and groundwater quality monitoring activities at the Air Liquide America Specialty Gases Fill Plant in compliance with Arizona Consent Order W-47-07. Because of its work at the Fill Plant for Air Liquide and its experience with other similar environmental-related projects, BASIN & RANGE has become quite familiar with the Site. Moreover, the firm believes that it has client and professional obligations to offer considered opinions and suggestions for Arizona Department of Environmental Quality's (ADEQ's) serious consideration in connection with RID's proposed groundwater remediation plans.

In short, Air Liquide believes that ADEQ should delay approval of *RID*'s "early response action" plans until the State can obtain greater technical input from larger community and perform a more comprehensive analysis of viable long-term remediation options.

BASIN & RANGE reviewed the groundwater response action implementation plan that *RID* submitted to ADEQ. That plan consists of a September 25, 2009, draft document entitled "*Groundwater Response Action Implementation Plan*", and an October 5, 2009, draft *Work Plan*, both of which were prepared by Montgomery & Associates for Gallagher & Kennedy, P.A.

As emphasized by Montgomery & Associates in the executive summary of the *Implementation Plan*, *RID*'s proposed response actions are based on a *preliminary* evaluation and a *conceptual* implementation plan. Thus, given the enormous, estimated financial costs associated with *RID*'s proposed remedies, Air Liquide does not believe that ADEQ should approve the *Plan* without having any meaningful collaboration and input from other parties.

Specifically, *RID*'s *Implementation Plan* appears to be based only on preliminary evaluations and conceptual plans. Furthermore, the *Plan* purportedly addresses groundwater contamination that allegedly has impacted or threatens to impact non-potable water wells operated by *RID*. Moreover, *RID*'s *Plan* does not appear to contemplate a long-term remedial solution to which *RID* would contribute.

Among its objections, Air Liquide believes that *RID*'s proposed large-scale pump-and-treat remedy might impermissibly result in a level of treatment of groundwater to enable the *RID* to expand its service area and enable it to sell treated groundwater for potable uses, as opposed to its currently permitted, non-potable irrigation purposes. In addition, Air Liquide does not believe the *RID*'s proposal is cost-effective nor is it consistent with a long-term remedial strategy, should such a strategy ever become necessary. The gist of its proposal is to arrange for other parties to fund *RID*'s operation of a long-term and expensive pump-and-treat system, as opposed to implementation of reasonable and cost-effective source control measures.

Because there has been no evidence showing exceedances of health-based action levels applicable to *RID*'s non-potable irrigation groundwater, subject to *RID*'s proposed *Early Response Plan*, Air Liquide recommends that ADEQ methodically analyze the technical facts regarding groundwater contamination within the Site. Such analysis and protocol should be done in a manner that is consistent with applicable ADEQ regulations, guidance documents, and policies. In addition, ADEQ should consider seeking technical and legal input from the numerous parties associated with the Site (or potentially associated with the Site) and that may own properties that could be adversely impacted by *RID*'s proposed approach.

Following are Air Liquide's initial opinions regarding some of the more significant technical shortcomings of *RID*'s proposed remedial actions, should ADEQ effectively allow for implementation:

- 1) Relative to the number of current and former facilities that exist, and the population of people residing in the Area (for whom *RID*'s wells are not current sources of drinking water), only small numbers of groundwater contamination sources have been identified in the Site. This suggests that many sources of groundwater contamination have yet to be identified or evaluated in any meaningful way. Thus, in most of the Site area, hydrogeological conditions remain largely unknown, both in respect to sources and identification and characterization of constituents.

2) Very limited information and only sparse hydrogeological data are available for the middle and lower aquifers beneath the Study Area. Neither ADEQ nor *RID* have developed a thorough understanding of the regional hydrogeology and complex groundwater flow systems that exist beneath the Study Area. With such a great lack of understanding, it is quite unlikely that *RID*'s massive-scale pump and treat system would be capable of "capturing" the contaminants of concern, hydraulically containing the movement of contaminated groundwater (as *RID* has stated so assuredly), or contribute significantly to the effective performance of a long-term regional groundwater solution.

3) The extent of known and suspected individual and commingled contaminated plumes in the upper aquifers, coupled with the relatively long period of time that the aquifers in question have been contaminated, suggests that a short-term and massive groundwater pump and treat system would not be capable of effectively "capturing" the contamination. Therefore, *RID*'s proposal would not contribute to the efficient performance of any long-term or permanent remedy to the regional groundwater problem that has affected the Site.

4) The *RID* proposal indicated that *RID* plans to utilize some of the wells in its existing network of irrigation supply wells to serve as contaminant capture wells. To the extent that a pump and treat system would be a component of a long-term remedy, a more effective system could be comprised of newly installed wells that would be specifically designed and strategically installed within the Site for such purposes.

5) The extensive pumping system that *RID* has proposed is likely to induce hydraulic gradients that could mobilize contaminated groundwaters that are not currently associated with the Site. Thus, it could cause new challenges in areas that might not have been adversely impacted by the contaminants of concern.

6) Because Arizona, its major cities, and to a larger degree, Arizona's industrial economic base, are suffering from a severe and long-term budget crisis and general economic hardships, thorough evaluations and understandings of the groundwater flow systems are necessary in order for those parties and ADEQ to make the most cost-effective decisions and provide for a long-term regional groundwater solution for the Site.

7) There does not appear to be compelling evidence to show that current groundwater conditions constitute an imminent and substantial endangerment to human health or to the environment, or that there is an imminent impact on *RID*'s ability to deliver non-potable irrigation water to its customers.

Therefore, ADEQ should not approve *RID*'s current proposal. Instead, Air Liquide recommends that ADEQ consider working with the greater community and organize and convene a technical working group comprised of qualified professionals. ADEQ's establishment of such a working group, which it has done successfully in the past for other groundwater contamination sites, would help to elicit input from community leaders, municipalities, state agencies, and the numerous other stakeholders within and nearby the Site.

Such a measured approach is entirely consistent with ADEQ's commitment to stakeholder input, and it would help to ensure that a cost-effective *regional* remedy is developed and implemented.

*Kirchner to Thies*

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Please contact me if you have any questions or care to discuss these matters.

Sincerely,



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for BASIN & RANGE HYDROGEOLOGISTS, INC.,  
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on behalf of Air Liquide Specialty Gases, L.P.

cc: Ms. Donna Smith (Air Liquide USA LLC)  
Ms. Julie Riemenschneider (ADEQ)  
Mr. John Dugdale (Andrews Kurth LLP)