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September 1, 2011

Via E-mail (hrd@azdeq.gov) and U.S. Mail

Henry R. Darwin, Director
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, Arizona 85007

Re: Request for Written Interim Decision on Roosevelt Irrigation District's "Early Response Action, RID-95 Wellhead Pilot Treatment System Proposal"

Dear Director Darwin:

This letter is written on behalf of: Air Liquide America Specialty Gases, LLC, Arizona Public Service, City of Phoenix, Holsum Bakery, Inc., Honeywell International, Inc., Laundry & Cleaners Supply, Inc., Maricopa Land and Cattle Company, Milum Textile Services Co., Prudential Overall Supply, Salt River Project Agricultural Improvement and Power District, and Univar USA, Inc. (collectively, the "Stakeholders").

The Stakeholders hereby request, pursuant to A.R.S. § 49-116, that the Arizona Department of Environmental Quality ("ADEQ") make a written interim decision disapproving the Roosevelt Irrigation District's "Early Response Action, RID-95 Wellhead Pilot Treatment System Proposal" (the "RID-95 Pilot"). ADEQ should disapprove the RID-95 Pilot for the reasons set forth in the attached comments provided by CH2M Hill on behalf of a number of parties, dated August 31, 2011.

Sincerely,

David J. Armstrong
DJA/cmw

cc: Amanda Stone, Waste Programs Division Director (via email – as3@adeq.gov))
Julie Riemenschneider, Manager, Remedial Projects Section (via email – jjr@azdeq.gov)
Jennifer Edwards Thies, Remedial Projects Unit Manager (via email – jce@azdeq.gov)
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August 31, 2011

Via Electronic and First Class Mail – hrd@azdeq.gov

Henry Darwin
Director
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, Arizona 85007

Subject: West Van Buren WQARF Site
Roosevelt Irrigation District's "Early Response Action, RID-95 Wellhead Pilot **Treatment System Proposal"**

Dear **Director** Darwin:

On behalf of Honeywell International, Inc., and the companies listed below, CH2M HILL provides comments on the Roosevelt Irrigation **District's (RID) "Early Response Action RID-95 Wellhead Pilot Treatment System Proposal"** (RID-95 Pilot). The subject document was prepared by Synergy Environmental, LLC for Gallagher & Kennedy, P.A. and was submitted to the Arizona Department of Environmental Quality (ADEQ) on August 18, 2011. A separate cover letter prepared by Gallagher & Kennedy, P.A. was submitted to ADEQ on August 19, 2011 and was identified **as the "Executive Summary of the RID-95 Wellhead Pilot Treatment System Proposal."**

As described further below, like the proposed Early Response Action (ERA) that precedes it, the RID-95 Pilot proposes work that is not necessary to address any current risk to public health, to evaluate potential future treatment options, or otherwise. The RID-95 Pilot is not necessary to meet any of the legitimate objectives of an ERA, nor is it necessary to meet the purported objectives presented by RID. It will not reduce the scope or cost of the final remedy, it is not necessary to provide a supply **of water, and it will not provide "earlier capture" of VOCs or "earlier restoration" of the aquifer. The RID-95 Pilot is particularly ill-**timed in light of the fact that a comprehen**sive WQARF Feasibility Study (FS) – that will evaluate the factors ignored by RID – is underway.**

As you know, the undersigned parties are members of a group of regional stakeholders who are currently conducting an FS for the West Van Buren WQARF site (the Site). This FS is designed to select a final remedy for the Site that meets the remedial objectives established by ADEQ. Preliminary FS work is well underway, and the regional stakeholders will submit the FS Work Plan to ADEQ in September, 2011, along with a formal request for approval under R18-16-407(K). Provided that ADEQ timely finalizes the remedial objectives for the Site, the group hopes to complete and submit the Draft FS Report to ADEQ by mid-2012.

The group is also committed to addressing any current threat to public health, should one be identified (to date, risk evaluations have identified none).

Although RID asserts that the RID-95 Pilot was submitted "as an engineering design study consistent with Task 4" of the ERA conditional approval (notably, neither the RID-95 Pilot nor the accompanying cover letter was stamped and signed by a registered professional), the RID-95 Pilot is not necessary and will not meet the intended scope and objectives set forth by RID. We are particularly concerned with RID's request that ADEQ's approval of the RID-95 Pilot also automatically apply to wellhead treatment systems at other RID wells, prior to those wells being subjected to the same well investigations that are required by ADEQ's conditional approval of the ERA. At a minimum, RID should be required to conduct a detailed well investigation at any well for which it proposes wellhead treatment.

Comments Regarding the Objectives and Necessity of the RID-95 Pilot

The August 19, 2011 cover letter states that the intended scope and objectives of the RID-95 Pilot are to: 1) evaluate the reliability and effectiveness of using two different types of liquid-phase granular activated carbon (GAC) to remove volatile organic compounds (VOCs) from groundwater, 2) provide "earlier capture and control," and "earlier restoration" of RID's "impacted" water supply, as well as "reduce the scope and cost of the final remedy" to be selected after the FS is completed, and 3) evaluate the "feasibility and constraints" and financial implications of conducting wellhead treatment for at least some of the RID production wells. We address each of these stated objectives below.

1. **Evaluation of Liquid-phase Granular Activated Carbon**

   The RID-95 Pilot is not necessary as a means to compare the effectiveness of liquid-phase GAC technologies. Treatment, including wellhead treatment, using GAC has long been accepted by the United States Environmental Protection Agency (USEPA) and ADEQ as a proven groundwater treatment technology. In fact, RID need only refer to the extensive public record of the treatment systems at Operable Unit 1 and Operable Unit 2 located in the Motorola 52nd Street Superfund Site for the efficacy of using GAC (both coal-based and coconut-based) to treat dissolved-phase VOCs. There is simply no reason in this day and age, and in this area, to conduct a pilot test to determine if GAC will be successful in removing VOCs from groundwater.

2. **Providing Earlier Capture and Control, Earlier Restoration, and Reducing the Scope and Cost of the Final Remedy**

   Conducting the RID-95 Pilot will not provide "earlier capture and control," nor will it provide "earlier restoration" of the Site groundwater when compared to current RID pumping. Furthermore, there is no evidence provided or analysis performed to indicate that the RID-95 Pilot will reduce the scope and cost of the final remedy.

   RID has provided no information to show that the proposed pumping from RID-95 or any additional RID wells subjected to wellhead treatment will capture and control a substantial amount of the VOCs any more than what it is currently doing. Simply running the already extracted groundwater through GAC will have no effect on hydraulic capture or control. In fact, RID has only investigated one of its wells (despite

the requirement in ADEQ's conditional approval that RID investigate all its wells), and the short-term aquifer test conducted at that well could not produce sufficient information regarding the extent of hydraulic capture. Drawdown was virtually non-existent at the aquifer test monitoring wells, indicating hydraulic capture may be much more limited than previously thought or assumed by RID.

RID is already removing groundwater containing VOCs from the subsurface and providing it as irrigation water to its customers. The quality of that water is fit for irrigation use without treatment. Accordingly, conducting a pilot test at one (or more) wells where that extracted water is unnecessarily treated will not provide "earlier restoration" of the groundwater. Furthermore, RID has not produced any time-to-cleanup estimates to show it can restore the groundwater any "earlier" simply by providing ex-situ treatment of the VOCs that are already being removed from the subsurface.

Because the RID-95 Pilot will not provide earlier capture and control or provide earlier restoration of the Site groundwater, there is no indication whatsoever that conducting this pilot test will reduce the scope and cost of the final remedy. RID has not provided any information as to how running the already extracted groundwater through GAC and then discharging it into its existing canal system will have any effect on reducing anything, including the scope and cost of the final remedy.

Moreover, what RID lists as objectives of the RID-95 Pilot are actually criteria for ERAs under the WQARF rules. This fact reveals that the RID-95 Pilot is not a true technical evaluation of the feasibility of the proposed technology, but is rather a proposal to conduct a different ERA than the one RID has proposed in the past. It is, in fact, a means to achieve early implementation of a portion of RID's conditionally-approved ERA while circumventing most of the conditions previously imposed by ADEQ[1] to demonstrate whether the ERA is actually necessary.

3. **Evaluation of the Feasibility and Constraints**

The RID-95 Pilot is not necessary to evaluate the feasibility and constraints of wellhead treatment for RID wells. The RID wells and surrounding infrastructure are already in place. RID and its engineering consultants should have no difficulty evaluating the available space at each wellhead, along with the size and cost of piping, power, and any other ancillary equipment necessary, without having to physically build and operate multiple systems. These types of systems are typically "off-the-shelf" and have been used at hundreds, if not thousands, of sites across the country. As such, should wellhead treatment be selected as the final remedy or part thereof, these systems can be designed and sized appropriately without having to conduct multiple pilot tests.

Additional Comments on the Necessity and Performance of the RID-95 Pilot

In addition to the RID-95 Pilot being unnecessary because it will not meet the objectives stated by RID, the RID-95 Pilot also suffers from the following shortcomings:

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[1] Refer to ADEQ letter dated June 24, 2010: "Conditional Approval of a Water Quality Assurance Revolving Fund (WQARF) Early Response Action (ERA) Work Plan for the West Van Buren Registry Site."

4. **The RID-95 Pilot is not necessary to provide a supply of water**

   The water extracted from RID-95 already meets standards for its current use, and it cannot legally be put to an alternate use requiring additional treatment for so long as the water from the well is blended with treated effluent. Accordingly, the proposed GAC treatment is not required for the current end-use of the water, which is non-food crop irrigation. Water pumped from RID-95 is discharged into the Main Canal, where it is mixed with treated effluent from the City of Phoenix's 23rd Avenue Wastewater Treatment Plant and is then conveyed further west for irrigation of non-food crops. Because of the effluent mixing, the water cannot be used for either food crop irrigation or drinking water. All available data indicate that VOC concentrations in the canal water are appropriate for its end-use. Three of the other wells proposed for wellhead treatment, RID-100, RID-89, and RID-92, also discharge directly into the Main Canal. The fourth well considered by RID for treatment, RID-114, discharges to the Salt Canal, which eventually joins with the Main Canal, again providing irrigation water further west for non-food crops.

5. **RID's request for ADEQ approval of additional wellhead treatment "systems" as part of the RID-95 Pilot is without merit considering that the required investigations on those additional wells, along with the required groundwater modeling, has not been conducted.**

   RID proposes that ADEQ's approval of the RID-95 Pilot "system" (after an extremely short 2-3 week "demonstration period") later be deemed to "extend to the remaining wellhead treatment systems." This proposal would allow additional systems to be immediately commissioned and operated prior to implementation of the ERA or completion of the additional work upon which ADEQ conditioned its approval of the ERA. This request is clearly not justified. RID states that implementation at other wells (up to three at this time) would be based on the "successful performance during the assessment period" for RID-95. However, RID fails to clarify what criteria will be used to assess whether "successful performance" was achieved. The associated discussion in Section 7.1 of the subject document references a "near-term evaluation" that is intended to show whether the pilot system is "reliable" and "protective." No definitions or quantitative criteria are proposed by which these standards could be objectively evaluated to determine whether "successful performance" has been achieved, and no reporting requirements associated with the assessment period are specified.

   Moreover, as stated above, given that pump-and-treat with GAC is considered by USEPA and ADEQ to be a proven groundwater treatment technology, RID's intent is to obtain ADEQ approval of the RID-95 Pilot and use that to further obtain a de facto approval of the same plan for (at least) three additional wells. This is critical because no supporting information has been produced by RID to document an actual threat to public health in connection with any of the RID wells. There has been no investigation of any wells other than RID-95 to confirm their suitability for groundwater remediation, and there has been no groundwater modeling to confirm that any changes to pumping at these or other RID wells will not adversely affect groundwater quality and elevations, including consideration of other nearby contaminant plumes. ADEQ's conditional

approval required RID to complete investigations on its wells and to conduct groundwater modeling. To circumvent these conditions, RID has opted to relabel as a pilot test wellhead treatment that may or may not ultimately be supportable. RID is seeking approval from ADEQ to move forward without meeting the conditions of ERA approval. These conditions were put in place so that RID would not move ahead blindly and without an understanding of how changed pumping schemes will affect the groundwater conditions in the nearby and surrounding areas. We are concerned that allowing RID to proceed with additional wellhead treatment systems at this time will prevent those wells from being investigated at a later date.

Finally, in addition to the reasons above, RID's attempt to gain advance approval for treatment at additional wells beyond RID-95 is highly unusual and inappropriate because RID has submitted no work plan for the additional work, and has not demonstrated that early action at the additional wells is reasonable, necessary, or otherwise consistent with WQARF. It is wholly inappropriate for RID to request advance approval for implementation of additional treatment units at wells that have not been investigated as ADEQ has already mandated.

6. **The RID-95 Pilot is a proposal for entirely different work than the previous RID ERA proposal, and must be evaluated on its own merits.**

RID's previous proposal (ERA) was for a large regional groundwater transportation and treatment system. The RID-95 Pilot proposes early wellhead treatment on one RID well that was not even included in Phase 1 of the ERA (three of the four other potential wellhead treatment wells identified by RID were also not included in Phase 1 of the ERA). The early action proposed here could have entirely different impacts than the early actions in the RID ERA. It is unclear whether RID believes the RID-95 Pilot is subject to ADEQ's prior conditional approval for the ERA, or is new work. Regardless, the RID-95 Pilot should not be approved without appropriate evaluation by the agency (either under the structure of the agency's conditional approval or independently on its own merits).

In evaluating the RID-95 Pilot on its own merits, ADEQ must first evaluate whether RID has demonstrated that the early work is necessary and cannot await selection of the final remedy. Then, ADEQ must determine whether there is a risk that the early work will exacerbate the existing contamination.

ADEQ's conditional approval of the RID ERA required a series of reasonable evaluations by RID to determine whether early action is actually necessary, and if so, whether the proposed RID ERA is an effective means to conduct that action. Those evaluations are also designed to demonstrate that the proposed early action will not exacerbate the existing contamination or adversely affect the plume or adjacent areas. The evaluations required by ADEQ's conditional approval for the ERA are appropriate for evaluation of the RID-95 Pilot regardless of whether it is formally treated as subject to the conditional approval.

The first condition is that RID conduct a risk evaluation (Task 1). RID has previously claimed that it must take early action before completion of the FS to address an actual

risk to human health. To evaluate that assertion, ADEQ required RID to demonstrate the existence of a public health threat by conducting a risk evaluation, followed by a demonstration of how and when the RID ERA would mitigate the risks. RID has conducted a small percentage of the work required under Task 1, but RID has provided **no information to contradict ADEQ's conclusion** that there are no current risks to human health at the Site.

The second condition of the RID ERA approval is that RID conduct a comprehensive investigation of the RID wells (Task 2), conducting both testing and modeling to ensure that changes in pumping would not adversely affect groundwater quality and levels within the Site, and to determine how the RID ERA would affect the aquifer and wells in the area. This investigation is required to include all RID wells within the plume boundary, and is to include, at a minimum, water levels, screen intervals, spinner log testing, depth specific analytical testing, and video logging. To date, RID has only conducted this investigation at a single well, and that investigation provided information showing that well modifications and rehabilitation were necessary, and probably long overdue.

ADEQ also required RID to conduct groundwater modeling (Task 3) to confirm that any changes in RID well pumpage would not adversely affect groundwater quality and elevations in the area or in nearby contaminant plumes. The modeling was also to consider the impact of various pumping rates and regimes on drawdown and potential capture zones.

Finally, ADEQ required RID to demonstrate the safety and reliability of its proposed water treatment by conducting an engineering design study (Task 4), securing all applicable permits, and submitting an Operations and Maintenance Plan to ADEQ.

ADEQ required Tasks 1 and 2 to be conducted concurrently, and Tasks 2, 3, and 4 to be conducted sequentially, with each submittal due date based on completion and approval of the prior task. As of the date of this letter, RID has not completed any of the tasks required in the conditional approval of the RID ERA.

7. **RID has failed to meet even one of the requirements of ADEQ's conditional approval of the RID ERA.**

Because RID has not adhered to ADEQ's mandate for the ERA conditional approval, RID is unable to demonstrate that the RID-95 Pilot is feasible (beyond just using RID-95 based on its limited well investigation). RID likewise is unable to demonstrate that extending the RID-95 Pilot approach to other wells will not adversely affect groundwater quality, groundwater levels, and nearby contaminant plumes (due to the lack of required additional well investigations and groundwater modeling).

Furthermore, RID is calling the RID-95 Pilot **an "engineering design study consistent with Task 4" of the ERA conditional approval,** but has failed to complete Task 1, Task 2, **and Task 3 – that is, any task. As stipulated in ADEQ's conditional approval letter, the** engineering design study cannot be conducted concurrently with, or prior to, the well investigation effort or the groundwater modeling; any engineering design study must be conducted sequentially with the other tasks. The appropriateness of the RID-95 Pilot, as

Task 4, cannot be evaluated in the absence of any results from Tasks 1, 2, and 3. Again, this is true whether the RID-95 Pilot is deemed subject to the conditional approval or not; the technical work required by prior tasks is necessary to evaluate the merits of the pilot test in any event. Nor is there even sufficient information within the RID-95 Pilot to meet the terms of an engineering design study, and as noted earlier, neither the RID-95 Pilot nor the accompanying cover letter was stamped and signed by a registered professional.

8. **Early action is unnecessary at this Site.**

   As described throughout this comment letter, there has been no information submitted by RID to date to suggest that early action is necessary at the Site. The regional stakeholder group is proceeding with an FS to select an appropriate final remedy that will meet the remedial objectives being established by ADEQ. The regional stakeholder group will be submitting the FS Work Plan to ADEQ in September, 2011.

Additional Technical Comments

9. RID indicates that it may not treat the entire flow from a particular well (due to individual site constraints). This suggests that RID is only interested in treating mass at some level, but that it is not interested in treating all the mass possible from its water supply, even from individual locations, because there is no need or requirement to treat this water to begin with given the water's end use.

10. With regard to water samples, RID states (page 12, last paragraph), "Small air bubbles will be accepted, however, if an air bubble (or accumulation of air bubbles) larger than pea size is observed, the sample will be discarded and the location re-sampled." This is unacceptable; there should not by ANY air bubbles in the sample.

Summary

In summary, the RID-95 Pilot is not necessary to meet any of the legitimate objectives of an ERA, nor is it necessary to meet the purported objectives presented by RID. It will not reduce the scope or cost of the final remedy, it is not necessary to provide a supply of water, and it will not provide earlier capture of VOCs or quicker restoration of the aquifer. Furthermore, given the ongoing groundwater remediation occurring in the vicinity of the Site, there is no reason to conduct a pilot test in this area to determine if GAC will be successful at removing VOCs from groundwater.

If you have any questions or require discussion, please contact me at 480-295-3927 or Troy Kennedy at 973-455-4279. For your convenience, my e-mail address is Robert.Frank@ch2m.com and Troy's is troy.j.meyer@honeywell.com.

Sincerely,

CH2M HILL

Robert J. Frank

Robert J. Frank, R.G.
Senior Hydrogeologist

Submitted on behalf of the following:

Air Liquide America Specialty Gases, LP
Arizona Public Service Company
City of Phoenix
Dolphin, Inc.
Holsum Bakery, Inc.
Honeywell International Inc.
Laundry and Cleaners Supply, Inc.
Maricopa Land and Cattle Co.
Milum Textile Services Co.
Penn Racquet Sports
Prudential Overall Supply
Salt River Project Agricultural Improvement & Power District
Schuff Steel Co.
Univar USA Inc.

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