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October 28, 2010

Via U.S. Mail and Electronic Mail

Mr. Henry Darwin
Deputy Director
ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
1110 West Washington Street
Phoenix, Arizona 85007

Re: **Response to ADEQ Comments on the Roosevelt Irrigation District Early Response Action “Public Health Exposure Assessment and Mitigation Work Plan”**

Dear Mr. Darwin:

On behalf of the Roosevelt Irrigation District (RID), Gallagher & Kennedy is submitting this response to comments from the Arizona Department of Environmental Quality (ADEQ) on the Public Health Exposure Assessment and Mitigation Work Plan (Task 1 Work Plan), submitted on July 26, 2010, associated with the RID Early Response Action (ERA) that was approved by ADEQ on June 24, 2010. The ADEQ comments, contained in ADEQ’s October 7, 2010 letter, were further clarified during our meeting on October 18, 2010. During this meeting, RID agreed to provide immediate written responses to the ADEQ comments in order to quickly reach agreement with ADEQ on appropriate revisions to the Task 1 Work Plan to allow expedited implementation of the ERA, as directed by ADEQ. However, as discussed during our October 18 meeting, due to some inaccurate statements and descriptions in ADEQ’s October 7 letter, some of ADEQ’s comments and requests for additional information exceed ADEQ’s intended scope of the Task 1 Work Plan. Accordingly, RID’s responses are consistent with RID’s discussions and ADEQ’s clarifications during the October 18 meeting.

For convenience, the RID responses to the ADEQ comments are provided consistent with the numerical listing set forth in the October 7, 2010 letter, with the summary of ADEQ comments recapped in italics followed by the RID responses and/or recommendations.

- 1. The work plan has no date, signature, or State of Arizona registered professional stamp.*

The Task 1 Work Plan will be revised to include the revision date, and State of Arizona registered professional stamp, including the stamping professional's signature.

2. *The work plan lacks the four components of a site-specific human health risk assessment as described in A.A.C. R18-16-401.*

As expressly described to RID by ADEQ in meetings held prior to RID's submittal of the Task 1 Work Plan and as confirmed by ADEQ during the October 18, 2010 meeting with ADEQ staff, the Task 1 Work Plan is intended to identify and assess the nature of exposure pathways to VOC contamination that occur from RID operations in the WVBA Site and describe how the ERA will mitigate the identified risks. The Task 1 Work Plan is not intended to be a site-specific human health risk assessment.

The requirements for an Early Response Action, as defined in A.A.C. R18-16-405, do not include the conduct of a site-specific human health risk assessment. As stated in A.A.C. R18-16-406.E, "... a site-specific risk evaluation may be conducted to characterize the current risks to public health ..." during the remedial investigation phase of remedy selection, not during implementation of the ERA.

However, RID will incorporate some additional components into the Task 1 Work Plan to provide most of the information requested by ADEQ in its October 7 comment letter, including: identification of potential contaminants, assessment of potential exposure pathways, and characterization of risk. These modifications are consistent with agreements reached during the RID meetings with ADEQ on October 7 and October 18, 2010. The scope and nature of these additional considerations are detailed in the following comment section.

3. *The work plan should identify the contaminants present and the harmful effects caused by the contaminants including the expected dosage that the public may be exposed to. The following need to be completed:*

- A. *The quantity of chemicals of concern (COCs) released to the air through volatilization at the point of well discharge to the canals,*

As discussed with ADEQ, RID will conduct air sampling for the COCs immediately adjacent to the discharge from several of the highest COC-concentration wells. This sampling will be conducted at the fenceline of the RID well site(s), representing the worst-case scenario for reasonable public exposure. Based on the results of this sampling, additional wells may be subject to similar sampling to further evaluate the potential magnitude of exposure to the public. Sampling locations, methodology and techniques, as well as approaches for data interpretation, will be described in the Revised Task 1 Work Plan.

- B. *The quantity of COCs released to the air due to volatilization of COCs from the surface of the canal,*

As discussed with ADEQ, RID will conduct air sampling for the COCs immediately above the surface of the Main Canal and in the head-space of the Salt Canal at locations adjacent to the points-of-discharge to these canals from several of the highest COC-concentration wells. Again, sampling locations, methodology and techniques, as well as approaches for data interpretation, will be described in the Revised Task 1 Work Plan.

- C. *The potential exposure to each of these COCs to nearby residents (Adult and child) from the point of well discharge to the canals and the surface of the canal,*

RID will assess the relative exposure potential to each of the COCs to nearby residents based on a screening level assessment of concentrations determined at the point-of-discharge from the wells and from the surfaces of canals, as described in sections A and B, above. The relative exposure potential assessment methodology will be based on comparison to the Arizona Ambient Air Quality Guidelines (AAAQGs) developed by the Arizona Department of Health Services for the ADEQ.

As stated in the introduction to these guidelines, "*AAAQGs are residential screening values that are protective of human health, including children. Chemical concentrations in air that exceed AAAQGs may not necessarily represent a health risk. Rather, when contaminant concentrations exceed these guidelines, further evaluation may be necessary to determine whether there is a true threat to human health.*"

Consistent with these guidelines, should any COC be determined to exceed these guidelines, further evaluation will be considered, in cooperation with ADEQ, to determine whether an actual threat to human health exists. This provision for further evaluation will also be defined in the Revised Task 1 Work Plan.

- D. *The potential exposure to each of these COCs to nearby industrial workers from the point of well discharge to the canals and the surface of the canal,*

RID will assess the relative exposure potential to each of the COCs to nearby industrial workers based on a screening level assessment of concentrations determined at the point-of-discharge from the wells and from the surfaces of canals, as described in sections A and B, above. Consideration of these data, and determination of need for further evaluation, will be provided for as described in section C, above.

- E. *The potential exposure to each of these COCs due to swimming in the canals, as appropriate,*

RID will assess the potential exposure to each of the COCs to individuals who may swim and/or bathe in the canals using existing water quality data from the canals and, if necessary, by conducting additional canal water sampling. Potential exposure will be assessed by comparison of these data to the Arizona Numeric Surface Water Quality Standards for the designated end-use of Full Body Contact.

While it is not anticipated that these data will show exceedance of these standards, should any COC be determined to exceed these standards, further evaluation will be considered, in cooperation with ADEQ, to determine whether an actual threat to human health exists. This provision for further evaluation will be defined in the Revised Task 1 Work Plan.

F. The potential exposure to an individual that ingests fish caught in the canal,

RID will assess the potential exposure to individuals that consume fish caught in the RID canals using the data described in section E, above. Similarly, these data will be used to assess potential exposure by comparison to the Arizona Numeric Surface Water Quality Standards for the designated end-use of Fish Consumption.

While it is not anticipated that these data will show exceedance of these standards, should any COC be determined to exceed these standards, further evaluation will be considered, in cooperation with ADEQ, to determine whether an actual threat to human health exists. This provision for further evaluation will be included in the Revised Task 1 Work Plan.

In addition to these specific ADEQ comments, RID will also assess the potential risk to individuals due to the potential of drinking canal water. RID will assess the potential exposure to individuals that may consume water from the RID canals using the data described in section E, above. Similarly, these data will be used to assess potential exposure by comparison to the applicable Water Quality Standards for the designated end-use of Drinking Water.

Based on existing data, it is anticipated that these standards will be exceeded for samples taken from the Salt Canal. Consequently, RID plans to implement the mitigation measures included in the approved ERA Work Plan that consists of enclosing the last two open segments of the Salt Canal and providing a new, enclosed pipeline to convey the Salt Canal flow to the treatment facility to be located at the RID Maintenance Yard.

- 4. Sampling methods/techniques of the various media that contain the contaminants need to be identified and thoroughly described. The collection of data may be supplemented by the use of existing data where available.*

RID will provide a thorough description of sampling methods and techniques for the various media included in the Revised Task 1 Work Plan. RID will utilize existing data where such data exist.

- 5. The work plan is vague when explaining how the data will be interpreted and used to determine the level of risk caused by the presence of VOCs contained in the groundwater. The work plan should describe techniques/modeling to be used to calculate risk if any.*

As discussed with ADEQ and described in the preceding sections, RID will use applicable, relevant and appropriate Arizona water quality standards to determine the relative level of risk caused by the presence of COCs in the waters of the RID canals. These standards will be used to determine compliance with established levels of acceptable risk for the various defined end-uses. Since the Health Exposure Assessment under the Task 1 Work Plan is a screening level evaluation, modeling and/or calculation of quantitative risk will not be conducted.

- 6. The work plan is vague in describing what, if any, procedures will be proposed to mitigate risks to human health and the environment. The work plan should present engineering procedures/remedial activities to be used to determine the most effective method to be utilized to mitigate the risk.*

Consistent with EPA, ADEQ and Maricopa County policies prohibiting pollutant transfer from one media (groundwater) to another (air) and as described in the approved ERA Work Plan, the ERA will isolate and control these emissions emanating from the most highly contaminated wells and associated conveyances by implementing mechanical enclosures. The ERA wellheads will be modified with mechanical enclosures to prevent volatilization from the wellheads and the open sections of the associated Salt Canal will be converted to enclosed pipeline with a new section of enclosed pipeline constructed to convey this contaminated water from the current Salt Canal terminus to the central groundwater treatment facility to be located at the RID Maintenance Yard. Treatment by liquid-phase granular activated carbon will remove and eliminate the groundwater contaminants from the RID water supply.

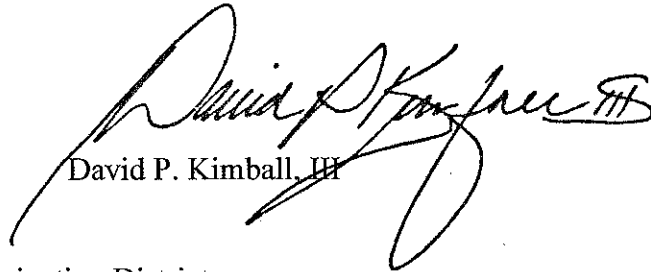
- 7. The work plan states that the scheduling of the risk analysis is contingent upon receipt of project funding. The Working Agreement with RID and approval of work is not based on RID's project funding source.*

Contrary to this comment, section 4 of the Agreement to Conduct Work, dated October 8, 2009, between ADEQ and RID expressly states: "The RID shall prepare and submit Work Plans detailing the Work [defined to include the ERA and FS] to be conducted. Once submitted and approved by ADEQ and when adequate funds are available from potentially responsible parties or cost recovery actions, the Work Plans shall become an enforceable part of this Agreement."

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We respectfully request that RID's conceptual revision of the Task 1 Work Plan, as described above, be reviewed quickly by ADEQ and any comments regarding these responses and revisions be provided to RID so that we can implement appropriate changes and submit the Revised Task 1 Work Plan in a manner that will expedite ADEQ approval.

Very truly yours,



David P. Kimball, III

Cc: Stan Ashby, Roosevelt Irrigation District
Dennis H. Shirley, PG, Synergy Environmental