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City of Phoenix
OFFICE OF ENVIRONMENTAL PROGRAMS

May 6, 2013

Ms. Tina LePage
Arizona Department of Environmental Quality
Waste Programs Division
1110 West Washington Street
Phoenix, Arizona 85007

Re: Roosevelt Irrigation District's Draft Final Feasibility Study Work Plan dated February 2013 for the West Van Buren Water Quality Assurance Revolving Fund (WQARF) Registry Site

Dear Ms. LePage:

On behalf of the 16 public and private stakeholders ("Stakeholders") listed below, I am writing to provide comments on Roosevelt Irrigation District's Draft Final Feasibility Study Work Plan for the West Van Buren WQARF Registry Site. The Draft Final Work Plan was prepared by Synergy Environmental, LLC and is dated February 2013.

General Comments

The Work Plan describes the data sources and types of information that will be presented in the Feasibility Study (FS) Report after the FS has been completed. Insufficient information is provided regarding the specific methods and procedures that will be followed to conduct the FS. Accordingly, the Work Plan is not in substantial compliance with A.A.C. R18-16-Article 4 and must be revised to include the specific methods and procedures that will be used to conduct the FS. In addition, significant legal obstacles exist that must be overcome for RID to implement a regional remedy that involves pumping and treating groundwater for a new potable end use by municipalities outside the West Van Buren (WVB) WQARF Site given the Assured Water Supply rules and contractual agreements with Salt River Project Agricultural Improvement and Power District (SRP). For this reason, the Work Plan must include an evaluation of contingent remedial strategies and contingent well measures to account for these uncertainties associated with the future use of any remediated groundwater from the WVB Site.

Specific Comments

Page 3, 2nd Paragraph, Section 1.2 Scope of the Feasibility Study Work Plan

Synergy states that the scope of the FS will "*not include source control actions for surface and subsurface soils in consideration of remedial alternatives for the groundwater remedy.*" While it is true that many sources of hazardous substance in the WVB WQARF Site have been remediated, some sources have not been remediated and continue to release hazardous substances into the groundwater. One example of a continuing source of volatile organic compounds (VOCs) and chromium to the groundwater is the ChemResearch facility which has

not been remediated despite the Arizona Department of Environmental Quality's (ADEQ's) efforts. For the selected remedy to achieve the remedial objectives (ROs), the scope of the FS must identify areas of the regional groundwater adversely impacted by known or suspected continuing sources of hazardous substances and evaluate the potential impacts of those continuing sources as part of the FS.

Page 3, 4th Paragraph, Section 1.2 Scope of the Feasibility Study Work Plan

Synergy acknowledges in the Work Plan that chromium is a designated contaminant of concern (COC) in the WVB WQARF Site, but states that it will not be addressed in the FS because "*its occurrence is limited to localized areas in the groundwater that can only be clearly attributed to one known source area in the southeast portion of the WVBA Site.*" That source area is the ChemResearch facility which has not been remediated and is a continuing source of VOCs and chromium to the regional groundwater. As stated in the previous comment, the FS must evaluate the potential impacts of continuing sources, like ChemResearch, to ensure that the selected remedy will achieve the ROs. Chromium also requires different groundwater treatment technologies than VOCs. Therefore, it is necessary that chromium be included as a COC for the FS.

Page 6, Section 2.2 Contaminants of Concern

The Remedial Investigation (RI) Report for the WVB WQARF Site concluded that chromium is a COC in groundwater. As such, chromium must be included as a COC in Section 2.2 of the Work Plan.

The last sentence of Section 2.2 states that hazardous properties, environmental fate, and potential routes of exposure to public health and aquatic and terrestrial biota for each VOC will be summarized in the FS Report. However, no mention is made of conducting a human health risk assessment in accordance with U.S. Environmental Protection Agency (USEPA) and Arizona Department of Health Services (ADHS) methodology and guidance. As stated in Section 1.1, the purpose of the FS is to identify and select a proposed remedy that, among other things "*assures protection of public health, welfare, and the environment.*" To achieve that objective, a risk assessment must be conducted to determine the risks to public health, welfare, and the environment created by the presence of VOCs and chromium in groundwater within the WVB Site. Because a risk assessment was not conducted as part of the RI, and the Public Health Exposure Assessment conducted by Roosevelt Irrigation District (RID) was not complete and did not follow USEPA and ADHS methodology, a risk assessment must be conducted as part of the FS in accordance with USEPA and ADHS procedures and guidance. The results of the risk assessment should then be used to identify and evaluate remedial strategies to address the potential adverse exposures (if any) to public health.

Page 8, 3rd Paragraph, Section 2.4 Early Response Actions

The first sentence in this paragraph is incorrect and should be deleted from the Work Plan. As stated numerous times in comments submitted to ADEQ on December 3, 2012 from public and private stakeholders, the Early Response Action (ERA) proposed by RID is not necessary to protect RID's current and reasonably foreseeable water uses, or to address current and future risks to public health, welfare, and the environment from exposures to contaminants in the groundwater. Groundwater pumped by RID from the WVB Site is mixed with wastewater

treatment plant effluent in RID's canals and used exclusively for crop irrigation. Data presented in the WVB final RI Report indicate that water quality in the RID canals meets applicable surface water quality standards and is suitable for irrigation use. In addition, RID has failed to identify current risks to public health, welfare, and the environment sufficient to justify implementation of an ERA. In fact, RID's September 16, 2011 Public Health Exposure Assessment supports the conclusion that no current unacceptable public exposure exists.

Pages 12-13, Section 3.3.1 Motorola 52nd Street CERCLA Site

This section lists the potentially responsible parties (PRPs) for operable unit (OU) -2 and OU-3, but not OU-1. Motorola should be listed as a PRP for OU-1 and OU-2.

Page 14, Section 3.3.2 West Central Phoenix WQARF Site

West Central Phoenix (WCP) is no longer listed by ADEQ as a WQARF Registry Site. In 1998, the former WCP Site was split into five separate and distinct WQARF Sites (WCP-East Grand Avenue, WCP-West Grand Avenue, WCP-North Plume, WCP-North Canal Plume, and WCP-West Osborn Complex (WOC)), each of which is listed on the WQARF Registry. As such, this section must be clarified to remove references to the WCP site, and to state that groundwater flow and contaminant transport from the WCP-West Osborn Complex Site is to the southwest and into the WVB Site.

Furthermore, based on ADEQ's proposed remedy, the last sentence of this section should be edited to clarify that implementation of ADEQ's proposed remedy for the WCP-WOC Site will reduce the levels of VOCs present in impacted groundwater migrating onto the WVB Site.

Page 15, Section 3.4.1 Soil/Unsaturated Zone

Synergy states that "(g)*iven the historical focus on source areas and extensive work to characterize and remediate soil and vadose zone contamination, this FS WP will not reconsider these source areas but rather will focus on critical factors potentially affecting the regional groundwater remedy.*" As stated in above comments, one of the critical factors potentially affecting the regional groundwater remedy is the presence of contaminant sources that have not been adequately remediated and continue to contribute VOCs and chromium to the groundwater. The Work Plan must be revised to indicate that known or suspected continuing sources of hazardous substances will be evaluated and considered in development of the remedial alternatives to be evaluated in the FS.

Page 15, Section 3.4.2 Groundwater

The last sentence in Section 3.4.2 acknowledges that evaluation of the groundwater data may indicate the presence of continuing sources of dissolved groundwater contamination. In fact, continuing sources do exist (e.g., ChemResearch). The potential impacts of these continuing sources must be evaluated as part the FS.

Page 16, Section 3.4.3 Potential Occurrence of DNAPLs.

Re-evaluation of site characterization data to assess for the potential presence of dense non-aqueous phase liquid (DNAPL) is not necessary and would be an inefficient use of time and resources for sources that have already been remediated.

Pages 16-17, Section 3.4.4 Canal/Surface Water

This section states that there has been limited characterization of the nature and extent of contamination in surface water, including the water conveyance canals at the WVB Site. If that is true, how will the process of selecting the groundwater remedy "*address the relative effects that proposed remedial alternatives have on contaminant transfer to surface water in RID canals and its fate in the environment*"? Will additional data be collected? Additional information must be provided in the Work Plan to describe how this will be accomplished and how the information will be used to identify and evaluate remedial alternatives.

Page 17, Section 3.4.5 Air

Same comment as listed above for Section 3.4.4. If limited characterization data are available, what data will be collected and how will those data be used during the FS to "*address the relative effects that proposed remedial alternatives have on contaminant transfer to air and its fate in the environment*"? The Work Plan must be revised to describe the specific procedures and methods that will be used to evaluate contaminant transfer to air and its fate in the environment.

Additional information regarding the occurrence of COCs in air at the WVB Site is provided in a screening risk assessment prepared by AMEC on behalf of SRP. The screening risk assessment quantified the potential public health risks from the RID water conveyance system using typical techniques and assumptions as required by public health agencies including USEPA and ADHS. Using estimates of exposure through incidental ingestion, dermal contact, inhalation of volatilized chemicals and fish consumption, AMEC found that public health impacts, if any, are substantially below typical regulatory levels of concern (i.e., theoretical lifetime cancer risks substantially less than one in one million (1×10^{-6}) and a Hazard Quotient that is orders of magnitude less than 1). The results of AMEC's screening risk assessment were submitted to ADEQ by SRP on August 18, 2010.

Page 19, Section 4.1 Regulatory Requirements

This section must discuss and reference the regulatory requirements listed in Arizona Administrative Code (A.A.C.) R18-16-407 for conducting an FS. Currently, the section only lists the remedial action criteria listed in Arizona Revised Statutes (A.R.S.) § 49-282.06.

Page 20, Section 4.2 Response Actions/Remedial Goals at M52 and WCP Sites

This section states that remedy selection information including remedial objectives and regulatory requirements from the M52 CERCLA site will be used "*to provide benchmarks of requirements that are applicable or relevant and appropriate to WVBA groundwater remedy selection to ensure consistency and protectiveness of adopted remedial actions.*" The WQARF statute and associated remedy selection rule are different from CERCLA by design. CERCLA

remedial objectives, regulatory requirements, and remedy selection procedures do not apply to the FS process for any WQARF site including the WVB Site. Reference to the M52 Site in this section should be deleted. Any references to the ultraviolet oxidation at OU2 in the Work Plan should be clarified to state that although the groundwater extraction system is so equipped, it has never been utilized due to the lack of detectable vinyl chloride at the extraction wells.

Page 21, Section 4.3 Current and Reasonably Foreseeable Land Use

The source(s) of the statements regarding land use and expected significant increases in employment and growth in Estrella Village and eastern City of Tolleson needs to be referenced.

Page 22, Section 4.4.1 Municipal Groundwater Use

The Work Plan states that City of Goodyear and Town of Buckeye have expressed interest in using remediated groundwater from the WVB Site through an agreement with RID. However, the Work Plan fails to acknowledge that significant obstacles must be overcome for RID to provide water to either city for municipal public supply purposes. Several legal and contractual barriers exist that prevent RID from complying with the Groundwater Management Act and Assured Water Supply Rules. These issues were discussed in detail in comments submitted to ADEQ on December 3, 2012 from public and private stakeholders regarding RID's modified ERA Work Plan.

For the cities to use the remediated groundwater from within the WVB WQARF Site, they would be subject to the Assured Water Supply rules unless an exemption was filed prior to the January 10, 2010 deadline. To our knowledge, no filings were made. Therefore, if the cities are going to use this remediated groundwater for potable use in the future, they would need to meet the Assured Water Supply requirements, including the requirement to replenish the groundwater and the requirement to show legal availability of the water supply for at least 100 years. The ADWR has indicated that for the agency to make an Assured Water Supply determination, the dispute with SRP over the termination of the existing agreement between RID and SRP would need to be resolved. SRP has previously stated that groundwater within the Salt River Reservoir District (SRRD) is reserved for use within the SRRD boundaries and absent a continuing agreement with SRP, RID's diversion or withdrawal from the western SRRD, which encompasses the WVB Site, is prohibited. Any continued diversions or withdrawals by RID beyond 2026 (when the existing agreement terminates) will require a water exchange agreement to keep SRP whole in accordance with the body of law prohibiting off-Project water transportation and use (SRP Comments on the Draft Remedial Objectives Report). According to SRP, no such agreement exists that extends beyond 2026. Even if the proposed potable use of remediated groundwater from the WVB Site were exempt from the Assured Water Supply rules, the dispute with SRP over continued RID diversions or withdrawals beyond 2026 would need to be resolved. These significant legal obstacles to using remediated water from the WVB Site as a municipal water supply should be discussed in the Work Plan.

Further, under the current operating conditions, significant modifications would need to be made to RID's distribution system to separate treated groundwater from WWTP effluent which would take years to complete and significant capital investment.

Page 28, Section 5.1 Formulation of Remedial Strategies and Measures

As stated in previous comments, this section must be revised to indicate that known or suspected continuing sources of hazardous substances to the groundwater (e.g., ChemResearch) will be evaluated and considered in development of the remedial alternatives during the FS.

As indicated under A.A.C. R18-16-407 (E)(1), Section 5.1 must be revised to indicate that the remedies evaluated during the FS will include contingent remedial strategies and/or contingent remedial measures. These contingent strategies and measures are required to address reasonable uncertainties or uncertain timeframes regarding achievement of remedial objectives, or reasonably foreseeable end uses of water produced by impacted wells. For example, use of remediated water from RID wells as a public water supply would require resolving several significant technical and legal obstacles which may never be overcome. As such, the remedial alternatives selected for evaluation in the FS must focus on protecting the current use of water from the RID wells (i.e., crop irrigation), and must include contingent strategies and well measures to address potential future use of the water for municipal supply purposes.

Pages 29-30, Section 5.2 Screening of Remediation Technologies

The specific criteria that must be used to evaluate the reference and alternative remedies, including the associated technologies and well measures, are listed in A.A.C. R18-16-407(H)(3) and include practicability, risk, cost, and benefit. The following criteria listed in Section 5.2 of the Work Plan are not listed in A.A.C. R18-16-407(H)(3) and must be removed:

- Applicable or relevant and appropriate regulatory requirements; and
- Consistency with regional remedial action sites

Section 5.2 also limits the number of treatment technologies that will be screened in the FS based on *"similar work at other sites and consideration of presumptive technology selection for remedies addressing VOCs."* No presumptive technologies have been established for remediation of VOCs in the WQARF statute or remedy selection rules. Limiting the technologies evaluated based on remedies at CERCLA sites or "*presumptive technology selection*" must be removed from the Work Plan. As mentioned in our previous comments, the approach to groundwater remediation under WQARF is different than the CERCLA approach and focuses on providing water fit for use at the time of that use and not necessarily aquifer restoration. The Work Plan must abide by the WQARF process in evaluating and selecting a remedy and cleanup goals.

The criteria listed above and Synergy's approach to limit the treatment technologies evaluated in the FS are a blatant attempt to skew the FS evaluation toward the area-wide pump and treat approach and liquid granular activated carbon (GAC) treatment technology included in RID's modified ERA. The FS conducted for the WVB Site must be an objective analysis of all applicable remedial strategies, treatment technologies, and well measures so an appropriate proposed remedy can be recommended for consideration by ADEQ.

Page 31, Section 5.3 Development of the Reference Remedy and Alternative Remedies

As stated in previous comments, this section must be revised to indicate that known or suspected continuing sources of hazardous substances to the groundwater (e.g., ChemResearch) will be evaluated and considered in development of the remedial alternatives during the FS. In addition, this section must clarify that the remedial alternatives evaluated will provide well measures for all impaired wells and any necessary remedial measures will be developed in consultation with the water providers.

Page 34, Section 6.3.2 Risk

As stated earlier, the risk evaluation in the FS needs to be more than simply a "screening-level comparative analysis." Because a risk assessment was not conducted as part of the RI, and the Public Health Exposure Assessment conducted by RID was not complete and did not follow USEPA and ADHS methodology, a risk assessment must be conducted as part of the FS in accordance with USEPA and ADHS procedures and guidance.

Pages 34-35, Section 6.3.3 Cost

As indicated in A.A.C. R18-16-47(H)(3)(c), the cost analysis must also include well measures such as well replacement, well modifications and engineering controls, in addition to alternative water supply or treatment.

We appreciate your consideration of our comments on RID's Draft Final FS Work Plan. We are available to discuss the comments presented in this letter at your convenience.

Sincerely,

Philip McNeely, R.G., Manager
Office of Environmental Programs

Submitted on behalf of the following:

- Air Liquide America Specialty Gases, LP
- Arizona Public Service Company
- City of Phoenix
- Dolphin, Inc.
- Freescale Semiconductor, Inc.
- Holsum Bakery, Inc.
- Honeywell International Inc.
- ITT Corporation
- 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.

c: Henry Darwin (via electronic mail)
Laura Malone (via electronic mail)