



Janice K. Brewer  
Governor

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Benjamin H. Grumbles  
Director

Registered Mail/Return Receipt

October 8, 2010

RPU11:045

Mr. Stanley H. Ashby  
Superintendent  
Roosevelt Irrigation District  
103 W. Baseline Road  
Buckeye, AZ 85326

Re: Review of Well Investigation Work Plan  
Roosevelt Irrigation District Early Response Action  
West Van Buren (WVB) Water Quality Assurance Revolving Fund (WQARF) Site  
Phoenix, Arizona

Dear Mr. Ashby:

The Remedial Projects Unit (RPU) of the Arizona Department of Environmental Quality (ADEQ) has reviewed the above referenced work plan dated on August 9, 2010. The work plan was prepared by Montgomery & Associates on behalf of Gallagher & Kennedy, P.A. and the Roosevelt Irrigation District (RID). This work plan was requested by ADEQ as part of ADEQ's approval of the proposed Early Response Action (ERA) to be conducted in the West Van Buren Area (WVBA) Water Quality Assurance Revolving Fund (WQARF) Registry Site. The work plan was to specify techniques and procedures to be followed to determine if modification of pumpage of the RID wells would adversely affect water levels and groundwater quality and nearby wells. RPU reviews this work plan under a working agreement dated October 8, 2009 and signed by both Roosevelt Irrigation District (RID) and ADEQ.

The RPU has the following comments:

## General Comments

1. The work plan needs to specify the objectives of the investigation activities to be conducted. It then needs to detail what decision criteria will be evaluated to determine if the objectives have been met.
2. At a minimum, a full explanation of what RID means by "project funding" is necessary. If RID does not have the funding for the ERA, then the ERA should be withdrawn.
3. Although there will be no net change in annual groundwater pumping volumes by RID in the WVB Site, ADEQ is concerned that cones of depression will adversely affect existing wells and plume migration. Therefore, the groundwater system needs to be better understood so that the impact of extended pumpage of each RID well can be anticipated.

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4. ADEQ understands the need to conduct well investigations in a phased approach to minimize impact on RID operations and maximize efficiency. ADEQ does not agree with investigating only four RID wells. ADEQ required in the conditional approval that all RID wells chosen for Phase I of the ERA be fully investigated. This includes fluid movement investigations and depth specific sampling. After this full investigation of Phase I wells is completed, RID can propose options for Phase II wells.
5. If there will be modifications to the techniques or number/types of tests to be performed on the RID wells, then the work plan needs to spell out the modifications expected and the criteria that the modifications will be based on.
6. The work plan states that field activities etc. will be conducted according to ADEQ protocol presented in ADEQ plans. This is fine for tasks that are presented in the ADEQ documents but other tasks which are not contained in the ADEQ documents need to be fully documented in RID documents submitted to and approved by ADEQ. Any planned deviations from methods and procedures presented in the ADEQ documents need to be identified and fully explained. No field activities should be conducted until these documents are approved by ADEQ.

### Specific Comments

1. Section 3.4, second paragraph, second sentence – The work plan states that “The contaminated groundwater in the WVBA site impairs RID’s wells, its operations, and restricts the use of this water supply.” Please be more specific in how wells, operations, and use have been impaired to date.
2. Section 4.0: - A higher level of specific technical detail for each of the tasks and how the data would be used needs to be included in this section.
3. Section 4.0, fourth paragraph, first sentence: – The work plan states that test equipment will access zones below the pumps. What about zones above the pumps? All of the proposed tests should also be performed on well zones that are above the pumps including depth specific sampling.
4. Section 4.0, last paragraph, last sentence: – ADEQ requests a minimum of two weeks notice prior to initiation of field activities.
5. Section 4.1, last sentence – Scheduling of work needs to be planned so that well investigations are completed within a time frame where minimal hydrogeologic variation occurs within the system (i.e., within one season). This will allow the extrapolation of data to other seasons if seasonal variation in the aquifer system is understood.
6. Section 4.2, fourth paragraph – Please give details of a monitoring program in this work plan. ADEQ should not have to refer to a “future” report/work plan.
7. Section 4.3, fifth sentence – Please state when video surveys will occur. ADEQ cannot guess when impacts will be minimized or it will be feasible to conduct video surveys for RID. ADEQ requires that all wells to be used in the ERA be video logged. Wells which need to be repaired/cleaned should be video logged again after completion of the repairs/cleaning.
8. Section 4.4.1, first paragraph, second sentence: – This sentence states that flow rates of portable pumps installed into the RID wells for the well investigation will be similar to

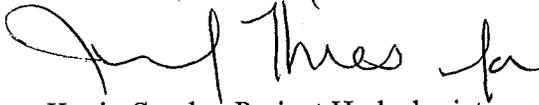
- the normal pumping rate. This does not seem likely because of the high volume of groundwater normally pumped by the designated pumping equipment. Please indicate what type of portable pump is expected to be used to accomplish similar pumping rates.
9. Section 4.4.1, first paragraph, fourth sentence: – This sentence states that the portable submersible pump will be set to the minimum depth required for testing. How will this minimum depth be determined?
  10. Section 4.4.1, second paragraph: – This paragraph is confusing. Is the work plan stating that the purpose of three days of pumping using the test equipment prior to fluid-movement investigations to attempt to recreate regular pumping conditions within the aquifer prior to conducting the fluid-movement investigations? How was three days of pumping determined to be the appropriate amount of pumping? Will other types of testing such as aquifer testing be conducted during the three days of pumping? Aquifer testing at each of the RID wells proposed for remediation are needed for the collection of viable data to be used during the modeling phase of the ERA. The best time for conducting aquifer testing may be after the completion of well testing and modifications. Details on how the aquifer testing will be performed needs to be included in the work plan as a separate section.
  11. Section 4.4.2: – What precautions/efforts prior to sampling will be used to minimize the effects of mixing of well fluids by geophysical equipment while being raised and lowered within the well?
  12. Section 4.4.2: – Is the order of tests presented in Section 4.4.2 the order that the tests will be performed in the RID wells?
  13. Section 4.4.2, third sentence – Although exact sampling depths can not be determined prior to the collection of data, currently available data such as lithology and well construction can be used to determine target sampling depths. As data are collected, specific depths for sampling can be adjusted/added. ADEQ requests that the data be presented to ADEQ for consultation prior to the collection of samples at the adjusted depths.
  14. Section 5.0: – Will there be any other well modifications considered beside the one well modification presented in this section? Could modifications include the cleaning of clogged well screen, reinforcement of weak well casing, etc.? A work flow should be presented on how the evaluation will be performed to address expected well conditions and the process that will be undertaken to complete the well modifications. The work plan also needs to identify how the modifications will be inspected/tested to determine if the modifications were successful.
  15. Section 5.0, second sentence – please replace the word “clean” with a definition of how Montgomery and Associates is basing its clean determination.
  16. Section 6.0, fifth sentence – Please remove this sentence from the work plan. The Working Agreement with RID and approval of work is not based on RID’s funding source. ADEQ’s conditional approval of the ERA was not contingent on funding.
  17. Table 2 – This table should also contain pump depth settings.

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ADEQ appreciates the submittal of the plan, however, ADEQ can not approve the plan as written. The comments presented in this letter should be addressed and the Work Plan resubmitted to ADEQ for further review. Please contact me at 602/771-4186 if you have any questions or comments regarding this memo.

Sincerely,

A handwritten signature in black ink, appearing to read "Kevin Snyder" with a stylized flourish at the end.

Kevin Snyder, Project Hydrologist  
Remedial Projects Unit

Cc: Dennis Shirley, Synergy Environmental  
Amanda Stone, WPD Director  
Julie Riemenschneider, RPS Manager  
Jennifer Thies, RPU Manager