



Janice K. Brewer  
Governor

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Henry R. Darwin  
Director

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Registered Mail/Return Receipt

November 1, 2011

RPU12:031

Mr. Dennis Hall  
Montgomery & Associates  
5010 E. Shea Blvd., Suite D110  
Scottsdale, AZ 85254

Re: Technical Memorandum, Investigations at Well RID-95, Roosevelt Irrigation District  
Early Response Action  
West Van Buren Area  
Water Quality Assurance Revolving Fund Site

Dear Mr. Hall:

The Remedial Projects Unit (RPU) of the Arizona Department of Environmental Quality (ADEQ) has reviewed the above referenced report prepared by Montgomery & Associates (M&A) on behalf of Roosevelt Irrigation District (RID) and dated July 25, 2011. The report was submitted to ADEQ as part 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. RPU reviewed the report under a working agreement dated October 8, 2009 and signed by both RID and ADEQ.

ADEQ has the following comments:

### General Comments

1. The report should include a vicinity map to show well locations and a site map to show site conditions.
2. The report states that monitor well AVB120-03 is completed in the Upper Alluvial Aquifer (UAU). It is ADEQ's belief that the well is completed in the top of the Middle Alluvial Unit (MAU). Please investigate and correct as necessary.
3. The report should include the calculations used to determine flow rates within the well, mass flux and transmissivity.

### Specific Comments

4. Section 4.2, Sixth Sentence; Section 5.2, Second Paragraph, Last Sentence; and Section 5.2.2, Fifth Bullet – The report indicates that there were problems with the spinner logger at approximately 950 feet below land surface (bls). Pictures from the video log after brushing should be analyzed and included in Appendix B from this depth to try to determine the cause of the problems.

Southern Regional Office  
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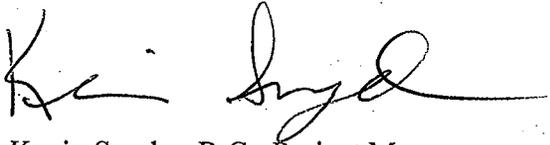
5. Section 4.2, Last Sentence – The report states that wellhead samples were collected on January 21, 2011, however, no wellhead samples are contained in Table 2 or in Appendix F for this date.
6. Section 4.3, Last Paragraph – This paragraph should indicate how the flow rate was determined, i.e., measured with a flow rate meter or calculated using a timer and flow volume.
7. Section 5.1, Last Paragraph – The report states that there was a declining regional trend during the period that the water levels were monitored. Typically, water levels are not in a declining trend during this time of the year. The cause of this decline should be investigated to determine if pumping wells were present in the vicinity of the monitor wells. The report states that there appears to be a response to pumping of well RID-95 at well AVB120-03. However, the report dismisses any significance to this response because of a pre-pumping water-level trend and the screened interval of well AVB120-03. ADEQ believes that the response to pumping is significant given the distance between the pumping well and the observation well and the relatively short time of pumpage. Therefore, ADEQ requests that this be further investigated/discussed and aquifer characteristics be calculated.
8. Section 5.2, First Paragraph, Second Sentence – For clarification, after “wellbore” the following should be added, “below the sampling depth”.
9. Section 5.2.1, Last Paragraph – This paragraph should also mention that analyses of wellhead samples collected on January 28, 2011 indicate anomalously low volatile organic compound (VOC) concentrations.
10. Section 6.0, Fourth and Seventh Bullets – These paragraphs indicate that the majority of groundwater flow and the majority of VOC contamination to the groundwater is limited to the UAU. Based on this information, ADEQ recommends that remedial activities and pilot testing conducted at this well be conducted in such a manner as to focus on just the UAU. This is in accordance with Section 4.2.3 of the Early Response Action (ERA) Work Plan dated February 3, 2010 and as specified in paragraphs two and three and Tasks 3 and 4 of ADEQ’s June 24, 2010 conditional approval letter of the ERA Work Plan.
11. Section 6.0, Fifth Bullet – ADEQ is in disagreement with the changing of lithologic contacts based on groundwater characteristics instead of descriptions contained in the driller’s log. The report should be revised to reflect contacts based on the driller’s log data.
12. Table 2 – The toluene concentration of 0.66 micrograms per liter ( $\mu\text{g/L}$ ) detected in the equipment blank collected on January 21, 2011 at 7:57 should be bolded.
13. Figures 1, 7 and 8 – A lithologic description should be added to the well schematics of these figures to aid in the interpretation of data.
14. Figure 8 – This figure and accompanying text indicate that the TCE interval concentration from 182 feet to 215 feet is a little less than  $80 \mu\text{g/L}$  and from 215 feet to 300 feet is approximately  $30 \mu\text{g/L}$ . The report needs to show how these data were determined.

Mr. Dennis Hall  
November 1, 2011

RPU12:031  
Page 3 of 3

Please contact me at 602/771-4186 if you have any questions or comments regarding this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Kevin Snyder". The signature is fluid and cursive, with the first name "Kevin" and last name "Snyder" clearly distinguishable.

Kevin Snyder, R.G., Project Manager  
Remedial Projects Unit

cc: Mr. Stan Ashby, RID  
Mr. Donovan Neese, RID  
Mr. Dennis Shirley, P.G., Synergy Environmental, LLC

