RESPONSIVENESS SUMMARY

REMEDIAL INVESTIGATION REPORT
WEST VAN BUREN AREA WQARF REGISTRY SITE
PHOENIX, ARIZONA

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August 8, 2012

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INTRODUCTION

Pursuant to the requirements of the Arizona Administrative Code (ACC) R-18-16406(H) the Arizona Department of Environmental Quality (ADEQ) has prepared this comprehensive responsiveness summary for comments received on the *Draft Remedial Investigation Report, West Van Buren Area WQARF Registry Site, Phoenix,* Arizona dated October 2008. The Draft RI Report was made available for public review and comment on October 31, 2008 for 60 days. ADEQ received written comments to the Draft Remedial Investigation report (Draft RI) from the following: 1) U. S. Environmental Protection Agency (EPA), 2) the Lindon Park Neighborhood Association, 3) Brown & Caldwell, 4) Roosevelt Irrigation District (RID) and 5) Univar USA Inc. The following sections include the text of comments along with a response to address each comment. The written comments received are included in Attachment A.

U. S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

Comments regarding the Draft RI report were received in a letter from Janet Rosati, to ADEQ dated December 30, 2008 (Attachment A).

Response to Comments
General Comments:

1. Figures are rarely cited when discussing the various sites identified during the investigation of the West Van Buren Area (WVBA). It would be helpful to include maps that identify the locations of the sites.

- ADEQ Response: The facilities which investigated both soil and groundwater are identified on Figure 1-1. Additional facility figures are contained in the appendices specific to each facility. Sites which were investigated but not required to conduct groundwater investigations have been added to Figure 2-1.

2. The presentation of the chemical data varies within sections. For example, several facilities have the actual VOC concentrations for all media, but other sites do not include specific concentration for some media. The site data should be presented consistently. The data should also be consistently presented for the ADEQ monitored well data. Specific groundwater concentrations were presented for the MAU, but not for the UAU wells.

- ADEQ Response: ADEQ has reviewed the data and made changes to present it more uniformly.

3. Several sites performed remediation and subsequently turn off their systems with approval of the ADEQ, once soil gas concentrations reached asymptotic levels. These concentrations should be listed in the remediation discussions and compared to any appropriate screening number.

- ADEQ Response: ADEQ has included these data where available.

4. It would be helpful if the document explained that site-specific figures of the remedial investigation were available in the Appendices.

- ADEQ Response: ADEQ concurs with comment and has edited the report as follows: Figures, tables and copies of laboratory reports for facilities which conducted groundwater investigations are contained in the appendices

5. Numerous sites have been granted no further action or were not required to investigate groundwater at their sites. Due to the age of some of the investigations, sampling methodologies were not as comprehensive as today. Has ADEQ considered reviewing the sites to assess if additional soil gas data or better preserved soils samples should be collected to determine if continuing sources still exist?

- ADEQ Response: ADEQ currently has no plans to reinvestigate any facilities unless data become available which indicate that a release or potential release to groundwater has or is still occurring.

6. Insufficient soil gas samples were available for many facilities to assess whether a vapor intrusion pathway exists. The report does not adequately evaluate this pathway for the facilities.

- ADEQ Response: ADEQ respectfully disagrees. ADEQ required investigation of facilities which had releases to be fully investigated by the facility owners/operators. Where data supported remediation, facilities conducted remediation or ADEQ conducted an ERA.

7. Section 5.1.2, the report states that dense non-aqueous phase liquids (DNAPL) were not identified. The generally accepted screening levels for DNAPL are site concentrations at 1% or greater of aqueous solubility in water, VOC concentrations exceeding 100 to 1,000 µg/L in soil gas, or VOC concentrations greater than 10,000 mg/kg in soils. A majority of the facilities discussed met one of more of the criteria for screening for DNAPL (EPA Quick Reference Fact Sheet, DNAPL Site Characterization, September 1994).

As these are older release sites, the potential DNAPL may have dissolved away. The dissolved and sorbed phase of VOCs may reside in lower permeable zones which act as continual sources. Most wells in the WVBA do not monitor the lower permeable zones and evaluate the more transmissive zones. A detailed Site Conceptual Model should be evaluated on the need to investigate lower permeable zones that may need to be targeted to assess if there are continuous sources that may need remediation.

- ADEQ Response: Comment noted, data collected to date do not indicate that DNAPL is present.

8. A conclusions section should be included. Generally, observation on the trends in the plume would be helpful and whether the WVBA was adequately characterized. Additionally, a recommendation section should be included or at least an outline of the next steps to be taken for the WVBA.

- ADEQ Response: The WQARF process includes these sections as part of the Remedial Objectives (RO) report and Feasibility Study (FS).

9. We would suggest switching the order of Section 2.0 and 3.0 to have the physical setting of the area presented first. The previous investigation discussion would then be followed by the nature and extent of contamination.

- ADEQ Response: Edits were made to present data more clearly.

10. Section 6.0, the section titles do not necessarily reflect the information presented in the bullets within the Section. Suggest revising Section 6.0 as follows:

Section 6.1 Site Physical Characteristics (bullets 1 through 10)
Section 6.2 Groundwater Flow (bullets 11 through 15)
Section 6.3 Nature and Extent of Contamination (bullets 16 through 25)
Renumber Section 6.2 to Section 6.4

- ADEQ Response: Section titles have been edited.

11. A CD with a PDF of the report was provided. However, a searchable PDF would be very helpful in the review of this document.

- ADEQ Response: ADEQ and ADEQ's consultant do not have this capability at this time.

12. A Table of Contents and page numbering for each of the Appendices A through S would be helpful for readers to better access the information included there.

- ADEQ Response: A Table of Contents has been included with Appendices A through S.

Specific Comments:

1. Page 1-2, Section 1.2. Please include information on opportunities for community involvement when discussing the WQARF process.

- ADEQ Response: Comment noted but not appropriate for the RI report.

2. Page 1-10, Section 1.3.2.4, second paragraph, 17th and 18th sentences. The 17th sentence states, "The Freon -11 was recycled." However the 18th sentence states, "Used solvent was allowed to evaporate." Please clarify this apparent contradiction.

- ADEQ Response: It appears that both events occurred. The Freon was recycled and solvents were allowed to evaporate.

3. Page 1-11, Section 1.3.2.4, first paragraph, last sentence. The sentence states; "...and renovated in 1999 when the detergent spill occurred." No discussion of this detergent spill was provided in this section.

- ADEQ Response: ADEQ has added information regarding the detergent spill.

4. Page 2-1, Section 2.1: Numerous site descriptions refer to volatile organic compounds (VOCs) detected in background samples. Additional information regarding where the background samples were collected and how a background for VOCs was established.

- ADEQ Response: These facilities were investigated during the Phase I investigation conducted by ADEQ's consultant Kleinfelder. Detail regarding the background samples is presented in the referenced document titled: Summary Report, Task Assignment K-2, West Van Buren Area, Phoenix, AZ

5. Page 2-10, Section 2.2.2.2: We suggest adding additional information to the title of the section to indicate that this was a study and part of the previous investigations.

- ADEQ Response: ADEQ has edited the title to read: Passive Diffusion Bag Sampler Evaluation

6. Page 2-10, Section 2.2.2.3: We suggest adding additional information to the title of the section, possibly indicating the linkage with chromium.

- ADEQ Response: ADEQ has edited the title to read: Chromium-Initiated Well Development

7. Page 2-10, Section 2.2.3: The previous investigation of the RID wells is presented, but at the end of the section more recent data is referenced but not discussed. The most recent data should be presented to provide as it is more applicable to current conditions.

- ADEQ Response: ADEQ added data for RID wells from September 2008 to the tables.

8. Page 2-12, Section 2.2.3, first paragraph: Please state more specifically that there are no surface water quality standards for the contaminants detected during both rounds of canal sampling for surface water used for the irrigation of crops and/or for the consumption by livestock.

- ADEQ Response: The text has been edited to read: Contaminants detected during both rounds of canal sampling do not have applicable surface water quality standards for crop irrigation for livestock consumption.

9. Page 2-12, Section 2.3: The facilities investigations are provided for numerous sites. However, the data are inconsistently presented. Specific detected concentrations are sometimes provided for one or all media and sometimes only compared to a regulatory standard. The specific data should be presented, which was done in many descriptions.

- ADEQ Response: ADEQ has reviewed the data and made changes to present it more uniformly.

10. Page 2-15, Section 2.3.2, first paragraph, 6th sentence. This sentence states that the concentration detected in soil gas was collected at approximately 5 feet bgs, however Table 2-15 indicates that the sample depth was 10 feet bgs.

- ADEQ Response: Table 2-3 has been edited to show the sample depth at 5 feet bgs.

11. Page 2-16, Section 2.3.2, first paragraph, 8th sentence. It would be helpful to explain how the vertical profiling described in the paragraph was completed to better understand the discussion of results.

- ADEQ Response: Additional information has been added to this section to read: Vertical profiling was conducted at select wells at the facility in February and August 1994 to investigate the possibility of a vertical gradient within the aquifer beneath the VW&R facility using down-hole geophysical tools including a temperature gage and a spinner tool and the collection of depth specific groundwater samples (HLA, 1994a & 1994b).

12. Page 2-16, Section 2.3.2, second paragraph, first sentence. The reader is directed to Appendix B; however the figure in Appendix B provides very little information on the soil vapor extraction system referenced at this site. We suggest adding additional information to the figure.

- ADEQ Response: Comment noted but no edit made because no other figures are available.

13. Page 2-17, first paragraph: The aquifer units UAU1 and UAU2 are introduced in the MCMM discussion, however, information defining these units is not provided until Section 3.0. The MAU is introduce in the next section for the Dolphin site and similarly not previously defined. These units are also in the next two section discussion for ALSCo and CRC.

- ADEQ Response: Information on these aquifer units has been added to Section 1.

14. Page 2-19, first paragraph: Which wells does ADEQ currently monitor/sample.

- ADEQ Response: The wells have been identified as MC-05 (AVB106-01, MC-N06 #2 (AVB106-02), and MC-N06 #3 (AVB106-03).

15. Page 1-19 (sic), second paragraph: Why were only 12 of the 14 wells identified for domestic use sampled? What is the status of the other 2 wells? What was the sampling detection limit? What levels of VOCs were left in soil gas when the SVE system at Southwest Solvent Recycling facility was shut off?

- ADEQ Response: One of the two wells not sampled was discovered to be regularly sampled by ADEQ and the other well was not sampled because the well owner would not allow the county personnel to sample the well. The samples were analyzed using EPA Test Methods 601 and 602. No VOCs were detected. The detection limits ranged from 0.5 µg/l to 5.0 µg/l. Final PCE and TCE concentrations were measured at 532 µg/l and 525 µg/l, respectively. The minimum GPLs calculated for the facility were 2,707 µg/l for PCE and 1,403 µg/l for TCE.

16. Page 2-22, Section 2.3.5, first paragraph, 16th sentence: This sentence states that the soil sample "was collected at a depth of approximately five feet bgs..." Table 2.3 lists the sample depth as 55 feet bgs, please clarify this discrepancy.

- ADEQ Response: The table was corrected to reflect a sample depth of 5 feet.

17. Page 2-32, Section 2.4.1.5, first paragraph: The last sentence indicates additional remedial work will be completed, however, it should be stated for which COCs and approximate timeframe.

- ADEQ Response: The COCs are chromium and PCE. A time frame has not been established.

18. Page 2-35, Section 2.4.2, third paragraph, fifth sentence: The sentence references an "operation optimization study mentioned above," however, this study is not mentioned previously. Please provide additional information regarding the study.

- ADEQ Response: This is in reference to the rebound operation and sampling mentioned in the third sentence of this paragraph. Specific calculations and results are presented in the referenced document.

19. Page 3-10, Section 3.5.2.2, third paragraph, third sentence: This sentence states that a "depression in the surface of the groundwater table is located in the northwestern portion of the WBVA..." An alternative explanation is that the higher groundwater elevations in wells AVB29-0l, AVB73-01 and AVB74-01 are due to these wells' proximity to the leaky RID canal.

- ADEQ Response: This has been clarified in the report to read: The change in direction is possible caused by surface water leaking from the RID cannel and irrigation of fields south and west of the cannel.

20. Page 3-11, Section 3.5.2.3, second paragraph, first bullet: This bullet states that six paired wells "consistently exhibited downward vertical flow..." It should be noted in this bullet that AVB124 was only measured during two of the four quarters.

- ADEQ Response: This has been added to the text.

21. Page 3-12, Section 3.5.2.4, fifth paragraph: The first sentence states, "The aquifer test revealed that there are two aquifers that respond differently to pumping of the RID well." Please indicate which wells were used to monitor the lower aquifer as the piezometers listed in the text were installed to only 150 feet.

- ADEQ Response: The second and third paragraphs located on this page indicate that groundwater monitor wells AVB10-01 through AVB10-04 were monitored along with the piezometers.

22. Page 3-12, Section 3.5.2.4, third paragraph, second sentence and fifth paragraph second sentence. The third paragraph states, "A 15-hour constant-rate extraction test was then conducted at a pumping rate of 50 gpm." However, in the fifth paragraph it states that samples were collected "after extraction of 1,000, 15,000, and 56,000 gallons..." The constant rate test extracted only 45,000 gallons, which is inconsistent with the sampling at 56,000 gallons. Please clarify.

- ADEQ Response: A review of the aquifer test report does not indicate why there is a discrepancy between the reported volume of groundwater pumped; at which time the sample was collected; and the volume calculated based on the pumping rate and pumping duration. Therefore, ADEQ has no way to determine at this time which is correct.

23. Page 4-3, Section 4.1, first full paragraph, last line: The sentence states, "The highest detected concentration of chromium was 40,500 µg/1 from ADEQ well AVB72-0l in 2003..." Table 4-4 shows 1,530 µg/l for this well in 2003. Please clarify.

- ADEQ Response: The report was edited to indicate that the highest chromium concentration was detected in the third quarter of 2003 while Table 4-4 presents data for the first and second quarter of 2003.

24. Page 4-7, Section 4.2.1.4: This section discusses the 52nd Motorola Superfund Site, Operable Unit 3, which bounds the WVBA on the east. It would be helpful either in this section or in the hydrogeology sections to link ADEQ hydrostratigraphic units and how they roughly correspond to the UAU and MAU.

- ADEQ Response: ADEQ hydrostratigraphic units UAU1 and UAU2 correspond with the upper and lower portions of the UAU, respectively. ADEQ hydrostratigraphic units MAU1 and MAU2 correspond with the upper and lower portions of the MAU, respectively.

25. Page 4-14, Section 4.2.3.1, first paragraph, fourth sentence: The sentence states, "Groundwater data shown on Figures 4-1, 4-2, 4-3, 4-7, and 4-11..." PCE data for the DIMW wells is shown on Figure 4-11 as NA, however data is shown in Table 4-5. Please update the figure with the first quarter 2008 data.

- ADEQ Response: These data have been added to the figure.

26. Page 4-15, Section 4.2.3.1, first paragraph, fourth sentence: The sentence states, "Groundwater data shown on Figures 4-1, 4-2, 4-4, 4-8, and 4-12..." TCE data for the DWW wells is shown on Figure 4-12 as NA, however data is shown in Table 4-5. Please update the figure with the first quarter 2008 data.

- ADEQ Response: These data have been added to the figure.

27. Page 4-15, Section 4.2.3.1, second paragraph, fourth sentence: The sentence states, "Groundwater data shown on Figures 4-1, 4-2, 4-5, 4-9, and 4-13..." 1,1DCE data for the DIMW wells is shown on Figure 4-13 as NA, however data is shown in Table 4-5. Please update the figure with the first quarter 2008 data.

- ADEQ Response: These data have been added to the figure.

28. Page 4-19, Section 4.3.1.3, first paragraph, third bullet, second sentence: The sentence states, "Based on the contours, 1,1-DCE contamination exceeding the AWQS is present only in the eastern WVBA,..." This statement does not take into account the 7.4 µg/l concentration detected in well RID 106. The sentence should be revised.

- ADEQ Response: The report has been edited to correct this statement.

29. Page 4-20, Section 4.3.2.1, first paragraph, first bullet, first sentence: The sentence states, "PCE concentrations are presented on Figure 4-15, and are limited to the western end of the WVBA." This statement does not take well AVB69-01 (26 µg/l) into account.

- ADEQ Response: The report has been edited to correct this statement.

30. Page 4-21, Section 4.3.2.3, first paragraph, fourth bullet, second sentence: The sentence states, "One groundwater sample, collected from well AVB134-02, exceeded the total chromium AWQS of 100 µg/l." The concentration for this well is shown as NA on Figure 4-25, the figure should be updated to match the text.

- ADEQ Response: The figure has been edited.

31. Page 4-22, Section 4.3.3.3, first paragraph, fourth bullet, second sentence: The sentence states, "Of the five wells analyzed..." Only four wells are shown as analyzed on Figure 4-36. The figure or text should be revised, as appropriate.

- ADEQ Response: The report has been edited.

32. Page 6-1, third and fourth bullet: How is the direction of groundwater flow altered when the Salt River acts as a source of groundwater recharge and the RID wells are pumping?

- ADEQ Response: The report has been revised to include this information.

33. Page 6-5, first sub-bullet and fifth sub-bullet: The first sub-bullet describes March through June 2003 PCE data and indicates a site investigation is being conducted in the area of a data gap. The fifth sub-bullet presents 2008 PCE data, but does not reference the site data. Should the reference be included in the later bullet as it is stated this investigation is being conducted "currently."

- ADEQ Response: The report has been revised to indicate that the area of Roosevelt Street and 51st Avenue is currently under investigation.

34. Page 6-5, first bullet, second sub-bullet, first sentence: The sentence states, "TCE contamination exceeding the AWQS extends from the eastern boundary of the WVBA to approximately 59th Avenue..." Figure 4-12 shows the 5 µg/l contour extending to the west of 67th Avenue. The text should be revised to reflect the figure.

- ADEQ Response: The report has been edited.

35. Page 6-6, first sub-bullet: The sentence states, "1,1-DCE contamination exceeding the AWQS extends from the eastern boundary of the WVBA to approximately 35th Avenue..." The sentence should include well RID-106 to the west.

- ADEQ Response: The report has been edited.

36. Page 6-7, first bullet, first sub-bullet, first sentence: The sentence states, "PCE contamination exceeding the AWQS discontinuously extends ..." The data shown on Figure 4-22 does not present a reason to show divided plumes. See Figure Comment 11.

- ADEQ Response: ADEQ does not agree with this comment based on PCE concentrations at wells AVB66-02, AVB122-03, and AVB137-01.

37. Page 6-7, first bullet, second sub-bullet, first sentence: The Sentence states, "TCE contamination exceeding the AWQS extends ... to approximately 51st Avenue and north of the RID canal." The data shown on Figure 4-23 appears to underestimate the extent of concentrations exceeding the AWQS. See Figure Comment 12.

- ADEQ Response: The text has been modified and the 50 µg/L contour has been moved further to the west. However, ADEQ did not move the 5 µg/L contour based on the data.

38. Page 7-4, second and third references: These references appear to reference the same document. Please clarify.

- ADEQ Response: One of the references has been deleted.

39. Page 7-12, second through fourth references: These references appear to reference the same report. Please clarify.

- ADEQ Response: The report has been edited to indicate that there were three industrial surveys conducted by HGL.

Table Comments:

1. Table 2-3, page 2 of 3, Reynolds Metal Company, sixth row, fifth column: Cell shows "error" in the TCE column and is not explained in the notes.

- ADEQ Response: A note has been added to indicate that the laboratory experienced interference with this analyte.

2. Table 2-3, page 2 of 3, Van Waters & Rogers, Inc., 10th row, fourth column: In the PCE column, the value 1.080 is shaded in its cell. This value should not be shaded as it is below the HBGL.

- ADEQ Response: Shading has been removed from the cell.

3. Table 3-1, general comments. Data from 2005 through 2006 are included in this table, however they are not discussed nor included on figures. Data from the first quarter 2008 is omitted from Table 3-1, however the data are discussed in the text and included on figures.

- ADEQ Response: The tables have been edited.

Figure Comments:

1. Figure 3-22: The 955 contour should be through Well AVB66-02 (955.00).

- ADEQ Response: ADEQ concurs with the comment and has edited the report as necessary.

2. Figure 4-8: The 5 µg/l contour should be south of well PS-2.

- ADEQ Response: The contour has been moved south of the well.

3. Figures 4-9: The 7 µg/l contour should be extended westward toward AVB107-01 (5.0 µg/l). The 1 µg/l should be between AVB92-0l/02 and AVB65-01.

- ADEQ Response: The 7 µg/l contour has been moved further west and the 1 µg/l is now between AVB92-0l/02 and AVB65-01.

4. Figure 4-10: We suggest drawing 100 µg/l contours to help the reader better understand the data being presented.

- ADEQ Response: Comment noted but no edit made.

5. Figure 4-12: The 25 µg/l contour should be drawn more to the west near RID-89 (23 µg/l).

- ADEQ Response: ADEQ concurs with the comment and has edited the report as necessary.

6. Figure 4-13: The 7 µg/l contour around RID-108 likely overstates the area above the AWQS.

- ADEQ Response: ADEQ assumes that the comment is referring to the contour around well RID-106 instead of well RID-108, and the contour has been reduced in size.

7. Figure 4-14: The concentrations should be presented in µg/l for consistency with other total chromium figures. We suggest drawing 100 µg/l contour to help the reader better understand the data being presented.

- ADEQ Response: The units used were selected to match those presented in the analytical laboratory reports.

8. Figure 4-18: The 5 µg/l contour should be between RID-104 and AVB69-01.

- ADEQ Response: ADEQ concurs with the comment and has edited the report as necessary.

9. Figure 4-19: There are no data to suggest closing the 5 µg/l contour north of RID-109 or northeast of RID-l07. The 1 µg/l contour should be between RID-I04 and AVB69-01.

- ADEQ Response: ADEQ concurs and the contours have been edited.

10. Figure 4-19: There are no data to suggest closing the 7 µg/l contour northeast of RID-107.

- ADEQ Response: ADEQ assumes that the comment is referring to Figure 4-20 showing 1,1-DCE data, and the contour has been edited.

11. Figure 4-22: The 1 µg/l contour should be drawn to the south of well AVB 122-03. There is no data between RID-89 (9.3 µg/l) and AVBl0-02 (8.4 µg/l) that suggests two discontinuous plumes. This is more pronounced after redrawing the 1 µg/l contour as suggested above. Additional data should be provided to support this interpretation.

- ADEQ Response: The 1 µg/l contour has been removed from the figure. Laboratory analytical results from the Dolphin wells indicate that there are most likely two discontinuous plumes.

12. Figure 4-23: The 50 µg/l should be redrawn more to the west of RID-92 toward RID-89. The 5 µg/l contour should be drawn more toward the west of RID-89. There is no basis for the location of the 1 µg/l northeast of well PTG-IB, the contour should be dashed and/or queried.

- ADEQ Response: The 50 µg/L contour has been moved further to the west. However, ADEQ did not move the 5 µg/L contour based on the data. The 1 µg/L contour has been removed from the figure.

13. Figure 4-25: The concentrations should be presented in µg/l for consistency with other total chromium figures.

- ADEQ Response: The units used were selected to match those presented in the analytical laboratory reports.

14. Figures 4-37 and 4-38: The symbols should present chemical concentrations in the same order from top to bottom for consistency.

- ADEQ Response: The order has been adjusted.

Appendices Comments:

1. Appendix L, General Comment: The lithologic data on the logs is very helpful for the reviewer, however this Appendix is not easy to access. A Table of Contents and page numbering should be included to make this a more user friendly resource.

- ADEQ Response: Comment noted but no edit made.

2. Appendix M, AVB40-05 and AVB76-01 hydrographs: These two hydrographs show groundwater elevations below the wells' total depths. Please explain. If measurement error is suspected, it should be noted on the chart.

- ADEQ Response: The water level in well AVB40-05 does not extend below the total depth line but a measurement for well AVB40-08 does. AVB40-08 TD should be 976.99. AVB76-01 TD should be 911.30. The hydrographs have been corrected.

Typographical Errors noted in review:

1. General Comment: ALSCo and ALSCO used interchangeably. ALSCo should be used for consistency with the acronym list.

2. Page 1-9, Section 1.3.2.4, third paragraph, second 'sentence: Suggest deleting "and" after "fabrication," and adding "a" in front of "plastic".

3. Page 1-11,· first paragraph, 15th sentence: The amount of PCE used and stored on site doesn't vary dependent upon surveys. This sentence should be reviewed for clarity.

4. Page 1-14, Section 1.3.2.6, first full paragraph, last sentence: Suggest replacing "that" with "which".

5. Page 1-15, Section 1.3.2.6, last paragraph, last sentence: Replace "Table" with "Tables".

6. Page 1-17, Kleinfelder Records Review Table, first column, second and third cell. Use acronyms for Arizona Department of Health Services and Arizona Department of Water Resources as these have been defined previously.

7. Page 1-18, Kleinfelder Records Review Table, first column, third cell. Use acronym for Roosevelt Irrigation District as it was defined previously.

8. Page 1-18, Kleinfelder Records Review Table, second column, sixth cell. Reformat second line for consistency.

9. Page 2-3, first bullet, first line: Insert the word "was" before "excavated".

10. Page 2-6, Section 2.2.1.1, second sentence: Use acronym for Roosevelt Irrigation District as it was defined previously.

11. Page 2-7, Section 2.2.2, third bullet, sixth sentence: Change "survey" to "inventory".

12. Page 2-7, Section 2.2.2, third bullet, seventh sentence: Add "degradation" after "quality".

13. Page 2-19, Section 2.3.3, third paragraph, second sentence: Add "the" before "Southwest".

14. Page 2-20, Section 2.3.4, second paragraph, second sentence: Replace "Data" with "These data also".

15. Page 2-27, Section 2.3.7, first paragraph, first sentence: Define the acronym "PAG".

16. Page 2-27, Section 2.3.7, first paragraph, seventh and eighth sentences: Insert a space between 1.6 and µg/l, and 2,900 and µg/l.

17. Page 2-30, Section 2.4.1.1, first sentence: Insert "it" between "operated" and "periodically".

18. Page 3-14, Section 3.5.2.4, fourth paragraph, fourth line: Change "well AVB6802" to "piezometer AVB68-02".

19. Page 3-15, Section 3.5.2.4, third paragraph, last line: Begin sentence with "The highest concentrations..."

20. Page 4-1, Section 4.0, first paragraph, second sentence: Suggest changing "industry" to "industrial".

21. Page 4-1, Section 4.1, second paragraph, first sentence: Use acronym HBGLs, as it was previously defined.

22. Page 4-2, Section 4.1, last paragraph, first sentence: Add "respectively" after "mg/kg".

23. Page 4-2, Section 4.1, last paragraph, second sentence: The concentration for 1,1-DCE and TCA are reported as "ug/L" for soils, we believe it should be mg/kg.

24. Page 4-7, Section 4.2.1.4, third paragraph, first sentence: Use acronym for CERCLA as it was previously defined in the document.

25. Page 5-2, Section 5.1.1, second paragraph, third bullet: Please revise this bullet because it states that permeability is "lowest", but then "decreases northward".

26. Page 5-4, Section 5.2.1.1, third paragraph, third sentence: Replace the first "1966" with "1965".

27. Page 5-5, Section 5.2.1.1, second paragraph, second sentence: This sentence could be more correct if "organic carbon in" is added between "for" and "soil".

28. Page 5-8, Section 5.2.2, third paragraph, last sentence: Replace "then" with "than".

29. Page 7-2, second reference: Suggest capital letter "C" on "conducted".

30. Page 7-4, fifth and sixth reference: Blaes and BLAES is used, should be consistent throughout.

31. Page 7-6, sixth reference: Suggest capital letter "W" on “water”.

32. Page 7-6, ninth reference: Suggest capital letter "R" on "report".

33. Page 7-12, last reference: This Kleinfelder, 1993 reference should be listed after Kleinfelder, 1992b on the following page.

34. Page 7-13, sixth reference: Suggest capital letter "C" on "closure".

35. Figure 1-1: Suggest re-labeling the facilities using the acronyms used in the document to make for easier reviewing.

36. Figure 3-2: Change horizontal scale to 1" 2800'.

37. Figures 3-14 through 3-17: The map background is not visible.

- ADEQ Response: The identified typographical errors have been corrected.

LINDON PARK NEIGHBORHOOD ASSOCIATION

Comments regarding the Draft RI report were received in a letter from Mary Moore, to ADEQ dated December 30, 2008 (Attachment A).

Response to Comments
General Comments:

Page 1-2, 1.3.1 Site Description. "The WVBA extends from 7th to 75th Avenues and from Buckeye Road to Interstate 10 (Figure 1-1). Figure 1-1 does not show Interstate 10. Someone unfamiliar with the streets in Phoenix would read the above sentence and look for I-10 to be below Buckeye Road. Convention has boundaries called out or described East to West and North to South. ADEQ's Site Description, dated 06/2008, describes the site as being bounded "approximately by McDowell Road to the north, 7th Avenue to the east, Buckeye Road to the South and 75th Avenue to the west." Unfortunately the Draft RI Report is not as clear in its description nor in the attached figure.

- ADEQ Response: The text has been edited to better describe the approximate extent of the WVBA.

Page 1-1, 1.1 Purpose of Report, states "The WVBA is the real projection of the western portion of a large commingled plume of contaminated groundwater in Phoenix, Arizona (Figure 1-1). The WVBA extends from 7th to 75th Avenues and from Buckeye Road to Interstate 10. Contributors to this plume include both industrial facilities and contaminated groundwater from the east, as regional groundwater flow is generally westward. The initial primary contaminants of concern (COC) for the WVBA include the following volatile organic compounds (VOCs): tetrachloroethene (PCE), trichloroethene (TCE), 1,1,1-trichloroethane (TCA), cis 1,2-dichlorethene (cis ,2-DCE), 1,1-dichlooethane (1,1-DCA), and 1,1-dichloroethene (1,1-DCE). To a limited extent, chromium is also considered a COC." This small selection is representative of too many poorly written sections throughout this document. It is another instance of a confusing description of the boundaries. It makes the statement about "a large commingled plume" without specifying what is commingled. Do we have groundwater commingled with benzene, toluene, ethylbenzene, and xylenes at a UST area of the site? Do we have contaminants from the north commingled with contamination in the West Van Buren Area? Do we have Motorola 52nd Street Superfund contaminants commingled with contamination from facilities within the West Van Buren Area? Do we simply have many different facilities and sources within the West Van Buren Area commingling among themselves? The reader should be learning this from the Draft RI Report, not having to supply their own conjectures as to what the writers meant.

- ADEQ Response: The text has been edited to better describe the COCs and commingling of contaminants.

Although the assertion is made on Page 1-1 that, "BTEX was eventually dropped from the COC list because the contaminants were limited to leaking underground storage tank (LUST) facilities regulated by ADEQ's Underground Storage Tank (UST) Program and limited in extent to beneath the above ground storage tanks at the Phoenix Terminal," no data are presented to substantiate that the BTEX has not or will not reach the groundwater and that there is no existing or no potential for commingling of the COCs with the BTEX. On Page 1-5, 1.3.2.3. the Phoenix Terminal Group is described as "a petroleum storage and distribution facility located between 51st and 55th Avenues south of West Van Buren Street. Numerous releases of petroleum compounds have occurred from storage tanks and piping owned by various companies that have operated at the site (ENSR, 1988). Contamination from these releases has extended to groundwater. Groundwater monitor wells have been installed to evaluate the extent of contamination at the site. SVE systems have been used to remediate soil contamination, while skimmers have been installed to remove free product." Is this not a basic example of how commingling can occur? How was BTEX dropped as a COC under these circumstances? Why are no data presented to substantiate this action?

- ADEQ Response: WQARF regulatory authority (Arizona Revised Statutes §49-283.02) does not include petroleum or constituents of petroleum if the release is regulated under the underground storage tank (UST) Program.

The well location figures and elevation contour maps are difficult if not nearly impossible to adequately interpret as no outline or colored shading is provided to help define the site boundaries. It is important for readers, who do not work with the site, to be able to locate wells which are within and those that are beyond the present boundaries of the West Van Buren Area WQARF, and to determine the direction of groundwater flow within the site. Superimposing the site boundaries on these figures and maps would help make this possible.

- ADEQ Response: To add the boundary outline to each figure would mask data while adding no benefit to data interpretation. Therefore, the figures have not been edited.

Data contained in Appendix Y Historical COC Trends is unreadable. Unfortunately the color graphs were made into black and white graphs in this appendix. All 117 graphs show PCE, TCE and DCE. Since the symbol and line for DCE appears as white in all 117 of the black and white graphs, it is only visible when it is superimposed over another (darker) symbol or line in the graph. The Draft RI Report should not be a puzzle to be solved by the readers. Legible graphs that present all the data must be a minimum requirement in a RI Report.

- ADEQ Response: The graphs have been completed in color.

A complete list of contaminants of concern (COC) must be clearly presented. As the eastern portion of the West Van Buren Area is a continuation of the Motorola 52nd Street (M52) Superfund Site all the COC identified in the Motorola 52nd Street Superfund Site should be COC at the West Van Buren Area WQARF Site. How can any determination be made of the

extent of contamination from M52 if all the M52 COC (organic and inorganic) are not investigated? The statement on page 4-7 that, "The COC for OU3 are TCE and TCA" is not correct as it is incomplete. The Draft RI Report even states that, "WVBA groundwater data indicate that TCE and 1,1-DCE groundwater contamination originates from the OU3 area east of Seventh Avenue and flow into the WVBA WQARF site from the east." The WVBA WQARF COC list must be expanded to include the organic and inorganic COC list from other contributing contaminated areas such as the M52 Superfund Site.

- ADEQ Response: Motorola 52nd Street CERCLA site COCs have been expanded in the report. The WVBA WQARF registry site is a separate site under separate jurisdiction from the Motorola 52nd Street CERCLA site. Therefore, the WVBA is not an administrative extension of the Motorola 52nd Street CERCLA site.

A consistent list of contaminants of concern (COC) must be presented. While the Draft RI Report lists PCE, TCE, TCA, cis 1,2-DCE, 1,1-DCA, 1,1-DCE and "to a limited extent, chromium is also considered a COC," the Public Notice lists only PCE, TCE, DCA, cis-1,2-DCE, cis-1,1-DCE and chromium. The Public Notice COC list and the Draft RI Report COC list need to be identical.

- ADEQ Response: TCA has been added to the Public Notice COC list.

On page 1-9 the 1120 West Watkins Street painting shop (one of four properties of ChemResearch Co., Inc. (CRC)) the Draft RI Report states that, "The City of Phoenix has owned the property since 1996 when CRC ceased operations. The City of Phoenix currently uses it for storage and as an area to house homeless people." Page 2-26 states that, "Groundwater samples collected from the downgradient wells have contained chromium at concentrations greater than the AWQS on occasion and have consistently contained PCE at concentrations greater than the AWQS. . . CRC continues to collect groundwater samples from the groundwater monitor wells on a quarterly basis." As homeless people are being housed at this site the question arose why no discussion of a vapor intrusion investigation in this area was proposed.

- ADEQ Response: Based on evaluation of available data, ADEQ has determined that vapor intrusion isn't an exposure threat in the WVBA.

Page 6-11 of the Draft RI Report states that, "Typically, vapor intrusion will occur at or near the contaminant (in this case VOC) source area, but can also occur via off-gassing from the groundwater. The likelihood of vapor intrusion via this pathway decreases with increasing depth to groundwater." The statement is repeated on Page 5-3. Recent developments in the study of vapor intrusion show that presently there is no substitute for investigation and sampling is even more crucial due to observed spatial and temporal variability in sites.

- ADEQ Response: ADEQ agrees with this statement.

ADEQ's West Van Buren WQARF February 2006 Fact Sheet states that, "The depth to groundwater in the area of the site is between 90 and 140 feet below ground surface for the upper aquifer and 200 to 400 feet below ground surface for the middle aquifer." The Draft RI Report

on Page 3-3 states that the Upper Alluvial Unit (UAU) "ranges between 200 and 500 feet in thickness and" and on Page 3-6 that "UAU1 ranges in thickness from approximately 170 feet to 310 feet bgs" and that "UAU2 is encountered at depths ranging from approximately 170 feet to 310 feet bgs." The UAU1 and UAU2 descriptions do not appear consistent with ADEQ's own fact sheet nor with the Cross-Section Figure 3-4. UAU1 and UAU2 need to be accurately and consistently described in the Draft RI Report.

- ADEQ Response: The West Van Buren (WVB) WQARF February 2006 Fact Sheet presents data that was available on the date the fact sheet was issued. The draft RI Report contains data that were available the date the report was issued. The West Van Buren (WVB) WQARF Fact Sheet is updated at significant milestones. The measurements presented in the comment match Figure 3-4.

Consistency between the West Van Buren Area WQARF site and the Motorola 52nd Street Superfund Site is desirable. Geologic unit descriptions should be similar from one site to the other as this would be important in understanding the movement of COC from OU3 into the WVBA. The M52 COC list should be used as the starting point for the WVBA COC investigations. If these data do not exist they need to be collected in the eastern portion of the site to be used to show the potential impact of OU3 on the WVBA.

- ADEQ Response: ADEQ and EPA share data regularly to assist with ongoing investigations and to track contaminants.

The Draft RI Report reflects a consistent lack of quantification and lack of data to support statements made in the report. Some examples of this follow:
(1) Page 2-8 "Twenty-nine domestic wells were identified in or near the WVBA; of these, five are located within the WVBA and are functional," which leaves unanswered questions such as: How many wells within the WVBA were nonfunctional and what does nonfunctional or functional mean? Could those nonfunctional wells still be sampled, perhaps with a portable pump?

- ADEQ Response: The text has been edited to include the requested information.

(2) On the same page the Draft RI Report states that, "No VOCs were detected in any of these groundwater samples." What was the analytical method and detection limit used for these samples?

- ADEQ Response: The text has been edited to include the requested information.

(3) On Page 2-10, 2.2.2.2 Passive Diffusion Bag Samplers the Draft RI Report states, "Good correlation between the traditional and PDB samples was observed." Does this correlation hold for all the concentration ratios? What is the concentration range that this correlation is applicable to?

- ADEQ Response: The text has been edited to provide the information.

(4) On Page 2-10, 2.2.2.3 Additional Well Development the statement is made that, "However, analytical results for dissolved chromium analyses were less than or slightly greater than the laboratory reporting limits." What were the laboratory reporting limits? "ADEQ believes that the detected chromium in most of the wells may be due to deterioration of the stainless steel well casing or naturally occurring in subsurface soils." Which wells had stainless steel well casings? All wells? What were the observed chromium concentrations?

- ADEQ Response: The text has been edited to provide the information.

(5) On Page 2-11 the Draft RI Report states, "Well RID-84 contained the highest concentrations of PCE of the sampled RID wells and was subsequently selected for further investigation. The groundwater sample collected from well RID-92 contained the highest TCE concentration of the sampled RID wells and was also subsequently selected for further investigation." What were the concentrations of PCE and TCE?

- ADEQ Response: The data were contained in the report however, there was an error in the table numbering and referencing so the data were not readily apparent to the reader. The text and tables have been corrected so that these data are available to the reader. The data are also available in the referenced source.

On Page 4-3, 4.2 Source Investigations, states "The following is a discussion of COC contamination concentrations segregated into different portions of the WVBA," however, no COC concentration data are provided for many of the investigated facilities especially when settled with ADEQ or ADEQ completed the remediation.

- ADEQ Response: The section has been edited to be more uniform in the presentation of data.

Page 5-3, 5.1.3 Surface Water, states "Concentrations of VOCs in canal water in the vicinity of select wells exceed the AWQSs but because the end use of the RID canal water is agricultural there are no applicable surface water standards." Although there are no numeric standards for those contaminants they may be subject to narrative water quality standards. Narrative water quality standards may be used when the contaminants are toxic to humans, animals, plants or other organisms (A.A.C. R18-11-108).

- ADEQ Response: The RID canal is private property. RID prohibits human access. Based on the definition of toxic under ARS §49-201.38, the concentrations of COCs detected in the canal water do not meet the definition of toxic and therefore do not meet the criteria for the use of narrative water quality standards.

Appendix K: Land and Water Use Study states on page 1 that "Remedial Objectives (ROs)" will be proposed. Hopefully a more complete COC list will be incorporated before the RO/FS is considered. The Process Overview on page 1 does not specify the opportunity for public review and comment nor which activities are likely to be performed sequentially at this site.

- ADEQ Response: WVBA COCs are clearly presented. Arizona Administrative Code (AAC) R18-16-406I states that a public comment period (including a public meeting) must be conducted as part of the RO process.

The records review of EPA and ADEQ files must include the M52 Superfund Site to ascertain a complete picture of the site including sources of contamination as well as contaminants. Page 1-22 of the Draft RI Report states that, "The investigation consisted of a review of the PRP site files, former 202 facility files, ADEQ records collections and EPA records for information on releases of the WVBA COC." This methodology seems predisposed to not finding the full nature and extent of the contamination and the sources of contamination. If the full nature and extent of the contamination is not identified then current and potential impacts to public health may not be identified. Current and reasonably foreseeable uses of land and waters of the state may be skewed and additional information necessary of identification and comparison of alternative remedial actions may not be obtained and evaluated.

- ADEQ Response: The Motorola 52nd Street CERCLA site and the WVBA WQARF registry sites are separate sites regulated under two different agencies. The two agencies share data and work together to complete site characterizations and remedial objectives.

The ADEQ West Van Buren WQARF February 2006 Fact Sheet defines a Remedial Investigation as "an in-depth investigation designed to (1) establish the nature and extent of the contamination and the source(s) of contamination; (2) identify current and potential impacts to public health, welfare, and the environment; (3) identify current and reasonably foreseeable uses of land and waters of the state; and (4) obtain and evaluate any other information necessary for identification and comparison of alternative remedial actions." This Draft RI Report fails to meet the four requirements in ADEQ's own definition pursuant to A.A.C. R18-16-406.

- ADEQ Response: ADEQ respectfully disagrees with this comment.

PHIL LAGAS, BROWN AND CALDWELL
Comments regarding the Draft RI report were received in an email from Phil Lagas, to ADEQ dated December 30, 2008 (Attachment A).

Response to Comments
General Comments:

Section 1.3.2.4, Page 1-7 and 1-8

1. The draft RI incorrectly states that Dolphin's manufacturing facility, including areas identified as Dolphin I, III, IV, VI, and VII, encompasses approximately 50 acres. The correct acreage for this area is approximately 13.5 acres. Please note that the building known as Dolphin IV was never used for manufacturing operations and was demolished several years ago. The areas identified as Dolphin I, III, VI, and VII consist of manufacturing facilities, offices, and warehouses. The vapor degreaser was a small unit inside one of the manufacturing buildings and was removed from the site in 1994 when Dolphin discontinued use of chlorinated solvents at the site. Two sewer interceptors were formerly used to remove solids from facility wastewater and were closed in the 1990's.

- ADEQ Response: These comments have been incorporated into the report. CHECK LATEST HGL REPORT ON DOLPHIN

2. The draft RI incorrectly states that chromium was used in the investment casting process. Chromium is not a raw material used by Dolphin in its manufacturing process. Chromium is present in the steel used by Dolphin to manufacture its products.

- ADEQ Response: This comment has been incorporated into the report to read: Chromium is present in the steel used by Dolphin to manufacture its products while PCE and TCA were both used to degrease casting molds.

3. The draft RI incorrectly states that the site contains 19 buildings that were constructed specifically for Dolphin's operations. Although the buildings have been expanded over the years, the site only contains 8 buildings some of which were constructed for Rueter Inc. (the original Dolphin I building) and George and Sons Steel (Dolphin III buildings).

- ADEQ Response: This comment has been incorporated into the report to read: The site contains eight buildings six of which were constructed specifically for Dolphin’s operations.

4. The facility operating hours, shifts, and number of employees have varied over the years depending on production requirements. The facility is currently operating 2 shifts, 4 days per week and has approximately 160 employees.

- ADEQ Response: This comment has been incorporated into the report with the following sentence: More recently the facility was operating 2 shifts, 4 days per week and has approximately 160 employees.

5. The first complete sentence at the top of page 1-8 states that several historical releases of hazardous waste occurred at the site but specific documentation regarding the releases had not been identified. Between 1992 and 2002, several investigations were conducted at the Dolphin facility to identify and characterize historical releases of hazardous substances. Those investigations identified 4 releases/source areas of hazardous substances - former drum storage areas at Dolphin I, former vapor degreaser at Dolphin I, former sewer interceptor at Dolphin III, and a liquid and sludge release at Dolphin III. Those investigations were conducted under the oversight of the hazardous waste unit at ADEQ. Reports describing the results of the investigations can be found in ADEQ's files. Please revise the sentence to more accurately describe the hazardous substance releases identified at Dolphin's facility.

- ADEQ Response: The information has been added to more accurately reflect the releases that have occurred at the site.

Section 1.3.2.6, Page 1-14

6. This section of the draft RI report does not mention the work conducted by Dolphin at its facility under the WQARF program and the RCRA Consent Decree. The work included installation and testing of monitor wells, site investigations to identify and characterize potential releases of hazardous substances, and SVE and air sparging to remediate soil and groundwater. Descriptions provided under other facilities in this section include this type of information.

- ADEQ Response: This section has been edited to better match the descriptions provided under other facilities.

Table 2-3

7. What is the purpose of Table 2-3? The data presented is not complete even though the title of the table states that it is a summary of soil gas and soil samples collected at select facilities. Are you presenting only the highest concentrations of COCs detected at each facility? What is the purpose of the "bold" on some of the results? The table should be revised for clarity. In addition, the residential SRL (post 5/5/2007) should show the 10-5 risk value since the 10-6 risk value only applies to schools and day care centers and all of the facilities listed in the table are non-residential properties.

- ADEQ Response: The purpose of Table 2-3 is to present the highest concentrations of COCs which were detected at the facilities contained in the table. The table title has been edited to better indicate the table contents. The volume of analytical data collected by both ADEQ and identified facilities is substantial. ADEQ believes that to list each sample result would not add significant information because most of the data were below the laboratory reporting limits and applicable regulatory levels. The complete listing of facility soils data are available in the reports referenced in Section 7 of the draft RI

report. The table notes have been edited to identify shaded concentrations as equal to or greater than the applicable soil standard. The SRLs have been adjusted where applicable to show the 10^{-5} risk value.

Sections 2.3 and 2.4

8. When comparing soil concentrations to the GPL in the text of the report, the work (sic) "minimum" should be added in front of "GPL" to avoid confusion with alternative depth-specific GPLs. The acronym "GPL" is first defined on page 2-13.

- ADEQ Response: The report has been edited to add the word “minimum”.

9. Reported concentrations of COCs in the draft RI are not consistently compared to the same regulatory standards. In some cases, they are compared to HBGLs (see page 2-20), minimum GPLs or pre-determined SRLs (residential or non-residential is not specified). Text should be added at the beginning of Section 2.0 describing the different regulatory standards, their significance in conducting characterization activities and establishing remediation goals, and how they are used. This could be accomplished by moving the discussion of regulatory standards at the beginning of Section 4.0 to Section 2.0. Detected concentrations should be compared to predetermined, non-residential SRLs and minimum GPLs, not HBGLs. HBGLs should only be used if SRLs have not been established for a specific COC.

- ADEQ Response: The report compares data to applicable soil standards established at the time of the investigation. The use of the residential SRL standard when comparing data collected at a nonresidential facility is to show that the standard has been exceeded and a Declaration of Environmental Use Restriction (DEUR) may be required if no other mitigating action is taken.

10. The draft RI reports the maximum concentration of COCs detected in soil gas, soil and groundwater sampling. The information would be more useful if the range of detected concentrations were reported for each COC in each media. Table 2-3 could be revised to include this information.

- ADEQ Response: The analytical results for numerous soil and soil gas samples collected at the facilities that conducted investigations were less than the laboratory reporting limits. Typically the analytical results which were greater than the laboratory reporting limits were low in concentration. This is why Table 2-3 was designed to show the maximum concentration of each of the COCs detected in the soil gas and soil samples collected at the facilities.

11. The text on page 2-21 and 2-22 and in Section 2.4.1.4, page 2-31 should include information on the significant reduction of VOC concentrations in groundwater at Dolphin as a result of the air sparging and soil vapor extraction activities. As a result of SVE/AS activities, PCE concentrations in UAU1 have decreased from 95,000 ug/L to less than 15 ug/L within and downgradient from the VOC source areas. In addition, VOC concentrations in upgradient wells are equal to or higher than the concentrations detected in source area and on-site downgradient

wells indicating that the SVE/AS has reduced VOC concentrations in UAU1 to below background concentrations migrating onto Dolphin's facility from upgradient sources. Similar information is provided for the ALSCO facility in both Sections 2.3 and 2.4.

- ADEQ Response: ADEQ has edited the text to better match the format of information presented for other facilities.

12. Air sparging should be added to the bullet list on page 2-22 of corrective actions taken at Dolphin for the following source areas: Former Drum Storage Areas; Former PCE Degreaser; and Drywell #1.

- ADEQ Response: The text has been edited to add air sparging to the bullet list.

Figures 3-18, 3-27, 3-36

13. Groundwater elevation data for Dolphin's wells from the 1st quarter of 2008 should be added to Figures 3-18, 3-27, and 3-36 for the Final RI. These data were submitted to ADEQ in September 2008.

ADEQ Response: The data have been added.

Section 4.1; page 4-2

14. Why are HBGLs used as standards for evaluating COCs? All of the COCs in the WVB area have SRLs which are established by rule.

- ADEQ Response: As noted in a previous response, the report compares data to applicable soil standards established at the time of the investigation. The use of HBGLs where there are SRLs is to give the reader an idea of what applicable standards existed at the time.

15. As mentioned in the comments above, discussion regarding the identification of COCs and associated regulatory standards should be presented prior to the detailed discussion of facility investigations presented in Section 2.0.

- ADEQ Response: This information has been added to the beginning of Section 2.0.

16. The residential SRLs for the 10-5 and 10-6 risk levels should be presented in the table of revised SRLs on page 4-2. Except for Cr+6, the 10-6 risk level values only apply to schools and day care centers. None of the facilities under investigation in the WVBA are schools or day care centers.

- ADEQ Response: ADEQ has edited the table to show the 10^{-5} risk value.

17. The information regarding maximum COC concentrations in soil gas, soil, and groundwater presented in Section 4.1 is repetitious with the information presented in Section 2.0

and should be deleted. It also does not acknowledge the remediation performed by several facilities which have significantly reduced the COC concentrations. A more balanced and complete presentation of the information is presented in Section 2.0.

- ADEQ Response: Comment noted but ADEQ respectfully sees no need to make these edits.

Section 4.2

18. At the beginning of Section 4.2, the report should indicate that ADEQ is continuing to conduct a PRP search for the WVBA and may identify other sources of soil and groundwater contamination. As stated in Section 1.0, 145 facilities are currently under investigation and the final complete list of PRPs will not be finalized until the PRAP is issued by ADEQ. Otherwise, a reader could incorrectly conclude that the facilities discussed repeatedly in various sections of the report are the final list of PRPs for the WVBA.

- ADEQ Response: Text has been added stating that the PRP search is ongoing.

Section 4.2.3.1

19. References to Figures 4-1 and 4-2 on pages 4-14 and 4-15 should be deleted because groundwater quality data for Dolphin's facility was not available until after 1993.

- ADEQ Response: The reference to the figures was removed.

20. Groundwater quality data for Dolphin's wells for the first quarter of 2008 should be added to figures 4-11, 4-12, and 4-13 for the Final RI.

- ADEQ Response: The data have been added to the figures.

21. Dolphin has no records indicating that it used TCE, 1,1-DCE, or cis-1,2-DCE in its manufacturing processes. Although these compounds may have been present in small quantities in the PCE purchased by Dolphin for use at the facility, the presence of these compounds in soil and groundwater is probably the result of degradation of PCE.

- ADEQ Response: The degradation of PCE is most likely a significant cause for the presence of these compounds, however, these compounds were detected in soil and soil gas samples collected at the facility. Also, with the exception of cis 1,2-DCE, these compounds were detected in sludge discharged to the ground surface at the Dolphin facility. Without additional analysis of these samples ADEQ cannot discern whether the presence of these compounds is due to the degradation of PCE or that they were contained in solvents used at the Dolphin facility.

Figures 4-11 through 4-13, 4-22 through 4-24, and 4-33 through 4-35

22. Groundwater quality data for Dolphin's wells from the 1st quarter of 2008 should be added to the figures listed above for the Final RI.

- ADEQ Response: The data have been added to the figures.

Appendix D - Dolphin Inc.

23. The maps and laboratory reports presented in Appendix D for Dolphin are very limited, both in scope and time. Much more information is readily available in the reports submitted to ADEQ over the last 15 years. What is the purpose of providing this limited information in an Appendix to the RI? What criteria were used to determine which information should be included in the Appendix? Similar to all the other data available for the site, it seems more appropriate to reference the information in the reference list and indicate that the reports and data are available in ADEQ's files. I did not review the information in Appendices A through C and E through I but I suspect this comment would apply to those appendices as well. If the purpose is to provide a quick reference list of facility specific information, then a complete list of facility specific records and reports could be included for each facility instead of limited, random data pulled from the files or reports.

- ADEQ Response: Because of the quantity of data collected during investigations conducted within and adjacent to the WVBA and submitted to the ADEQ, ADEQ decided to present the data at five-year intervals starting with 1988 when the first major investigation was conducted by ADEQ. The criteria used to identify what information was to be included in the facility appendices was based on information about the facilities discussed in the report. Figures which show facility, sampling, and well locations; aquifer test and SVE test data; and copies of laboratory reports for samples presented in Table 2-3 are included.

ROOSEVELT IRRIGATION DISTRICT (RID)

Comments regarding the Draft RI report were received in a letter from Stanley H. Ashby, to ADEQ dated December 23, 2008 (Attachment A).

Response to Comments
General Comments:

While it is evident that a substantial amount of investigation has been conducted since the Site was placed on the WQARF priority list, it is also apparent that very little, if anything, has been done to restore the regional water quality of the aquifer, to mitigate impacts to RID wells, or to protect the unrestricted use of groundwater withdrawn from the RID well field. We understand that the scope of the RI is to establish the nature and extent of soil and groundwater contamination and to identify current and potential impacts to human health and the

environment. However, RID believes that the RI Report fails to adequately consider the impact to RID from the volatile organic compound (VOC) contamination of our wells or address the right of RID to pump and deliver uncontaminated groundwater for current and foreseeable future uses.

- ADEQ Response: Comment noted. This is not the purpose of the RI; it is addressed in the RO report.

As stated in the RI Report (pg. 6-9), *"Groundwater pumpage represents the major outflow from the groundwater system within the WVBA. The primary production wells within the WVBA are those operated by RID..."* Additionally (pg. 6-10), *"Some of these wells extract VOC-contaminated groundwater which is discharged into the canal."* and (pg. 6-11), *"Thus, water within the RID canal acts* as a *potential route of surface water* [and contaminant] *migration downstream of the WVBA."* RID takes strong exception to the implication of these assertions that the release of hazardous substances to groundwater by numerous responsible parties, the widespread impact on RID wells, the downstream impact on RID use is acceptable, and that RID may be some how responsible for these problems. RID has long anticipated ADEQ action to address releases of these hazardous substances from the WVBA and other federal Superfund sites that have impacted, or have the potential to impact, as many as 20 RID wells. These 20 wells constitute a vital water source for thousands of Arizona citizens, growing communities, and critical farmland. Given that the WVBA and adjacent federal Superfund sites constitute the largest region of groundwater contamination in the state and they have impacted and impaired RID's wells on a massive scale, RID water interests must be addressed, protected and restored through appropriate remedial actions.

- ADEQ Response: Appropriate remedial actions will be the focus of the feasibility study and is not the intent of the RI report.

Additionally, the RI Report inappropriately includes the following in Section 2.2.2.1: "The RID was formed in 1923, after securing an agreement with SRP to pump and deliver water in 1923. SRP may take the position that this agreement will expire in 2019. RID takes the position that the agreement does not expire. If SRP prevails in its position, then RID may no longer be able to pump wells east for [sic] the Agua Fria River, cutting RID's pumping by 85 percent." This language is irrelevant to the purposes of the RI Report, and the last sentence in particular is speculative. RID therefore requests that this portion of Section 2.2.2.1 be deleted in its entirety. A simple reference to RID being formed in 1923 is sufficient

- ADEQ Response: This wording could not be found in Section 2.2.2.1. However, wording very similar to this is found in Section 5.2.1.2 on page 5-6. Please note that this paragraph was taken verbatim from the questionnaire submitted by Stanley H. Ashby of RID for the Land & Water Use Report (Appendix K). However, in regard to RID's request to edit the paragraph, ADEQ has done so.

UNIVAR USA INC.

Comments regarding the Draft RI report were received in a letter from Michael Gaudette, to ADEQ dated December 29, 2008 (Attachment A).

Response to Comments
General Comments:

1. The West Van Buren Area (WVBA) WQARF Site, Draft Remedial Investigation (RI) Report is a good summary of much of the available historical data and a good central source of information. The report presents the facts in a comprehensive and understandable format.

- ADEQ Response: Comment noted

2. While the report presents the historical data, there is limited interpretation and analysis of the data. A detailed discussion of the Site Conceptual Model (SCM) appears to be absent. By clearly laying out the complete big picture, the SCM illustrates how the situation was created and what has happened in the interim to enable selection of an appropriate remedy. The SCM includes the mechanisms causing changes in contaminant concentrations and distribution over time. For example, early source removal in the WVBA has contributed to decreasing contaminant concentrations in WVBA groundwater while in contrast, contaminants continue to enter the Site along the eastern boundary from the Motorola 52nd Street CERCLA site. Because of the mass input from the adjacent CERCLA site, a mass flux analysis would be helpful in evaluating the most effective remedial options.

- ADEQ Response: Section 1.0 has been edited to present the SCM. The remedial discussions contained in Section 2.0 have been edited to show, where applicable, how the remedial activities affected contaminant concentrations contained in the groundwater. A mass flux analysis will be conducted as part of the feasibility study in determining the most effective remedial options.

3. The concept of "the WVBA groundwater plume" is a simplification of the distribution of contaminants in the groundwater in the WBSA. In reality the WVBSA has a combination of many, commingled plumes with different sources, different timing, different VOCs and differing fate and transport parameters. In addition, a significant portion of the groundwater contamination in the WVBA appears to be related to contamination entering the Site from the east. Using an over simplification could lead to misapplication of an overall remedy for situations and source areas that may benefit from more focused attention.

- ADEQ Response: The primary focus of the RI was to characterize the entire site and evaluate the extent of groundwater contamination. Greater detail is available in reports from facilities which have conducted site specific investigations. ADEQ is working with EPA regarding contaminants entering the WVBA from the east and will be able to better compare data once the OU3 RI has been completed. This can be updated in the FS.

4. There is no discussion of data gaps and whether any data gaps are problematic to completion of the RI and Feasibility Study.

- ADEQ Response: Investigations are ongoing but should not affect the results of the RI and FS. If data gaps still exist, they will be identified and addressed in the FS.

5. While ADEQ has conducted an area-wide investigation of the WVBA, individual sites, including the Univar site, have completed site investigations and performed source control. This overall approach has been successful in reducing ongoing sources of contamination to groundwater and achieving partial remediation of the groundwater. Univar encourages ADEQ to continue this successful approach in the WVBA WQARF Site.

- ADEQ Response: ADEQ agrees that source remediation has been successful in reducing contaminant concentrations in the groundwater. ADEQ continues to investigate potential source areas and conduct remediation as appropriate.

Page 1-4 Paragraph 5: Replace "Van Waters and Rogers" with "Van Waters & Rogers".

- ADEQ Response: The text has been edited.

Page 1-6 Paragraph 2: The Univar facility has never been used for solvent recycling. Warehousing, distribution, repackaging and transporting of industrial chemicals has been performed at the Univar facility.

- ADEQ Response: The report has been edited to correct this information.

Page 1-12 Paragraph 2: It is anticipated that any future use of the Central Phoenix Plume Model (CPM) would be of great interest. Interested parties should be included in future efforts, if any, to update, recalibrate and utilize the CPM for FS or other purposes.

- ADEQ Response: Interested parties contributed substantially to the development of the CPM and ADEQ expects that this will be true during the FS process.

Page 2-2 thru 2-5 Numbers: 2, 11, 16, 18, 21, 22, 24, 25, 26, 28, 30, 31, 33, 34, 37, and 41: All of these sites had detectable concentrations of at least one VOC in soil at a time when soil sampling for VOCs did not include procedures to minimize VOC loss during sampling. The presence of VOCs in soil indicates the potential for the presence of an onsite source of VOCs to groundwater.

- ADEQ Response: ADEQ required investigation of these facilities by the facility owner/operator. Where deemed appropriate, the facilities conducted remediation. If additional information becomes available indicating that a facility or area needs to be reinvestigated, ADEQ will then require or conduct additional investigation.

Page 2-3 Number 12: The facility should complete the investigation requested by ADEQ. What impacts to soil and groundwater have resulted from the dry well and oil/water separator?

- ADEQ Response: Groundwater data collected from upgradient and downgradient groundwater monitor wells indicate that groundwater was not impacted by the release which occurred at this facility.

Page 2-3 Number l4: Was investigation of the soils and groundwater beneath the drywell conducted? What were the results?

- ADEQ Response: Soil was investigated and no solvents were detected. Groundwater monitor wells in the vicinity of the facility did not indicate that a release from the facility had reached groundwater.

Page 2-3 Number 15: The facility should complete the investigation requested by ADEQ.

- ADEQ Response: Comment noted

Page 2-4 Number 29: The facility should complete the investigation requested by ADEQ.

- ADEQ Response: Comment noted

Page 2-4 Number 35: Has the investigation and excavation been completed? Were there any impacts to soil or groundwater?

- ADEQ Response: Following excavation of soils, a soil gas investigation in the vicinity of the facility did not indicate the presence of solvents in the subsurface.

Page 2-7 3rd Bullet: Why does the list of 163 wells include wells that were abandoned or never drilled? What is the total number of wells that could be affected by groundwater quality, what are their uses and where are they located?

- ADEQ Response: The wording has been edited to clarify these issues.

Page 3-3 Paragraph 5: Why were logs with lithologic descriptions of less than 200 feet excluded? Wouldn't the majority of UAU1 wells be drilled to this depth or shallower?

- ADEQ Response: The intent was to characterize the entire site to determine plume extent and major lithologic units. More detailed UAU1 cross-sections using shallower wells can be prepared in suspected source areas as needed.

Page 3-4 Paragraph 4: How do the WVBA UAU lithologic layers correlate with the UAU geology used in the Motorola 52"' Street CERCLA site?

- ADEQ Response: Although ADEQ and EPA do not use identical terms to name the aquifers beneath their sites, the lithologic units are the same in physical characteristics and can be used for tracking contaminants across boundaries.

Page 3-9 Paragraph 5: The Report states that water levels have dropped approximately 35 feet, an average of approximately three feet per year since 1993. Over what specific period of time did this occur? Are water level declines continuing?

- ADEQ Response: The data have been clarified.

Page 3-11 Paragraphs 1 and 2: Vertical head differences were calculated for a number of well pairs over time. These head differences represent the potential for downward or upward vertical flow, but they do not demonstrate that such flow is occurring. Vertical flow will be dependent on the direction and magnitude of the head differences over time, the geology at any specific location, and the influence of the horizontal gradient. Although the potential for vertical downward flow exists, it is not obvious that the distribution of contaminants in the lower units is due primarily to vertical movement through the geologic units.

- ADEQ Response: Comment noted.

Page 4-7 Paragraph 3: The COCs for OU3 include contaminants other than TCA and TCE. The full list of OU3 COCs also includes chloroethane, l,l-dichloroethane, 1,2-dichloroethane, 1, l-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, tetrachloroethene (PCE), 1,1,2·TCA, vinyl chloride and 1,4-dioxane.

- ADEQ Response: Data were added to the section.

Page 4-8 Paragraph 1: Data also indicate that PCE groundwater contamination originates from the OU3 area east of Seventh Avenue and flows into the WVBA WQARF Site from the east.

- ADEQ Response: The text has been edited to reflect this information.

Pages 4-11 thru 4-12 Paragraphs 6, 1 thru 4: The most recent groundwater data reported for the former VW&R site identifies TCE, PCE, 1,1-DCE and TCA concentrations in groundwater collected beneath the site. It should be noted that these concentrations are similar to concentrations found in upgradient wells and there is no evidence that the former VW&R site presents an ongoing source of contamination to groundwater.

- ADEQ Response: Information regarding upgradient data has been added to the text.

Page 5-2 Paragraph 4 and Page 6-8 Section 6.2: Another potential mechanism for the vertical movement of contamination is non-operating production wells that are screened across multiple aquifers. Has an analysis been performed to determine whether production wells could be the source of the observed contamination in deeper units, particularly the MAU?

- ADEQ Response: ADEQ has not conducted vertical sampling within a well screened across multiple aquifers. Two wells, AVB132-01 and AVB132-02, were installed in the eastern portion of the WVBA near a well screened across multiple aquifers to investigate the possibility of cross contamination. However, data do not indicate at this time that contamination has migrated to the deeper aquifer.

ATTACHMENT A

RESPONSIVENESS SUMMARY – WRITTEN COMMENTS

REMEDIAL INVESTIGATION REPORT
WEST VAN BUREN AREA WQARF REGISTRY SITE
PHOENIX, ARIZONA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

December 20, 2008

Jennifer Edwards Thies
Arizona Department of Environmental Quality
Waste Programs Division
1110 West Washington Street
MC 4415B-1
Phoenix, AZ 85007

Re: Draft Remedial Investigation Report for the West Van Buren Water Quality Assurance Revolving Fund Registry Site

Dear Ms. Thies:

The Environmental Protection Agency (EPA), with support from Shaw Environmental, Inc., contractor to the US Army Corps of Engineers, has reviewed the Arizona Department of Environmental Quality's (ADEQs) October 2008 Draft Remedial Investigation (RI) Report for the West Van Buren Water Quality Assurance Revolving Fund (WQARF) Registry Site. The draft RI was prepared for ADEQ by Terra Next. EPA has the following comments on the document:

General Comments

1. Figures are rarely cited when discussing the various sites identified during the investigation of the West Van Buren Area (WVBA). It would be helpful to include maps that identify the locations of the sites.

2. The presentation of the chemical data varies within sections. For example, several facilities have the actual VOC concentrations for all media, but other sites do not include specific concentration for some media. The site data should be presented consistently. The data should also be consistently presented for the ADEQ monitored well data. Specific groundwater concentrations were presented for the MAU, but not for the UAU wells.

3. Several sites performed remediation and subsequently turn off their systems with approval of the ADEQ, once soil gas concentrations reached asymptotic levels.

These concentrations should be listed in the remediation discussions and compared to any appropriate screening number.

4. It would be helpful if the document explained that site-specific figures of the remedial investigation were available in the Appendices.

5. Numerous sites have been granted no further action or were not required to investigate groundwater at their sites. Due to the age of some of the investigations, sampling methodologies were not as comprehensive as today. Has ADEQ considered reviewing the sites to assess if additional soil gas data or better preserved soils samples should be collected to determine if continuing sources still exist?

6. Insufficient soil gas samples were available for many facilities to assess whether a vapor intrusion pathway exists. The report does not adequately evaluate this pathway for the facilities.

7. Section 5.1.2, the report states that dense non-aqueous phase liquids (DNAPL) were not identified. The generally accepted screening levels for DNAPL are site concentrations at 1% or greater of aqueous solubility in water, VOC concentrations exceeding 100 to 1,000 ug/L in soil gas, or VOC concentrations greater than 10,000 mg/kg in soils. A majority of the facilities discussed met one of more of the criteria for screening for DNAPL (EPA Quick Reference Fact Sheet, DNAPL Site Characterization, September 1994).

   As these are older release sites, the potential DNAPL may have dissolved away. The dissolved and sorbed phase of VOCs may reside in lower permeable zones which act as continual sources. Most wells in the WVBA do not monitor the lower permeable zones and evaluate the more transmissive zones. A detail Site Conceptual Model should be evaluated on the need to investigate lower permeable zones that may need to be targeted to assess if there are continuous sources that may need remediation.

8. A conclusions section should be included. Generally, observation on the trends in the plume would be helpful and whether the WVBA was adequately characterized. Additionally, a recommendation section should be included or at least an outline of the next steps to be taken for the WVBA.

9. We would suggest switching the order of Section 2.0 and 3.0 to have the physical setting of the area presented first. The previous investigation discussion would then be followed by the nature and extent of contamination.

10. Section 6.0, the section titles do not necessarily reflect the information presented in the bullets within the Section. Suggest revising Section 6.0 as follows:
    Section 6.1 Site Physical Characteristics (bullets 1 through 10)
    Section 6.2 Groundwater Flow (bullets 11 through 15)

Section 6.3 Nature and Extent of Contamination (bullets 16 through 25)
Renumber Section 6.2 to Section 6.4

11. A CD with a PDF of the report was provided. However, a searchable PDF would be very helpful in the review of this document.

12. A Table of Contents and page numbering for each of the Appendices A through S would be helpful for readers to better access the information included there.

Specific Comments

1. Page 1-2, Section 1.2. Please include information on opportunities for community involvement when discussing the WQARF process.

2. Page 1-10, Section 1.3.2.4, second paragraph, 17th and 18th sentences. The 17th sentence states, "The Freon -11 was recycled." However the 18th sentence states, "Used solvent was allowed to evaporate." Please clarify this apparent contradiction.

3. Page 1-11, Section 1.3.2.4, first paragraph, last sentence. The sentence states, "... and renovated in 1999 when the detergent spill occurred." No discussion of this detergent spill was provided in this section.

4 Page 2-1, Section 2.1: Numerous site descriptions refer to volatile organic compounds (VOCs) detected in background samples. Additional information regarding where the background samples were collected and how a background for VOCs was established.

5. Page 2-10, Section 2.2.2.2: We suggest adding additional information to the title of the section to indicate that this was a study and part of the previous investigations.

1. Page 2-10, Section 2.2.2.3: We suggest adding additional information to the title of the section, possibly indicating the linkage with chromium.

2. Page 2-10, Section 2.2.3: The previous investigation of the RID wells is presented, but at the end of the section more recent data is referenced but not discussed. The most recent data should be presented to provide as it is more applicable to current conditions.

Page 2-12, Section 2.2.3, first paragraph: Please state more specifically that there are no surface water quality standards for the contaminants detected during both rounds of canal sampling for surface water used for the irrigation of crops and /or for the consumption by livestock.

3. Page 2-12, Section 2.3: The facilities investigations are provided for numerous sites. However, the data are inconsistently presented. Specific detected concentrations are sometimes provided for one or all media and sometimes only compared to a regulatory standard. The specific data should be presented, which was done in many descriptions.

4. Page 2-15, Section 2.3.2, first paragraph, 6th sentence. This sentence states that the concentration detected in soil gas was collected at approximately 5 feet bgs, however Table 2-15 indicates that the sample depth was 10 feet bgs.

5. Page 2-16, Section 2.3.2, first paragraph, 8th sentence. It would be helpful to explain how the vertical profiling described in the paragraph was completed to better understand the discussion of results.

6. Page 2-16, Section 2.3.2, second paragraph, first sentence. The reader is directed to Appendix B; however the figure in Appendix B provides very little information on the soil vapor extraction system referenced at this site. We suggest adding additional information to the figure.

7. Page 2-17, first paragraph: The aquifer units UAU1 and UAU2 are introduced in the MCMM discussion, however, information defining these units is not provided until Section 3.0. The MAU1 is introduce in the next section for the Dolphin site and similarly not previously defined. These units are also in the next two section discussion for ALSco and CRC.

Page 2-19, first paragraph: Which wells does ADEQ currently monitor/sample.

Page 1-19, second paragraph: Why were only 12 of the 14 wells identified for domestic use sampled? What is the status of the other 2 wells? What was the sampling detection limit? What levels of VOCs were left in soil gas when the SVE system at Southwest Solvent Recycling facility was shut off?

8. Page 2-22, Section 2.3.5, first paragraph, 16th sentence: This sentence states that the soil sample "was collected at a depth of approximately five feet bgs..." Table 2.3 lists the sample depth as 55 feet bgs, please clarify this discrepancy.

9. Page 2-32, Section 2.4.1.5, first paragraph: The last sentence indicates additional remedial work will be completed, however, it should be stated for which COCs and approximate timeframe.

10. Page 2-35, Section 2.4.2, third paragraph, fifth sentence: The sentence references and "operation optimization study mentioned above," however, this study is not mentioned previously. Please provide additional information regarding the study.

11. Page 3-10, Section 3.5.2.2, third paragraph, third sentence: This sentence states that a "depression in the surface of the groundwater table is located in the northwestern portion of the WBVA..." An alternative explanation is that the higher groundwater elevations in wells AVB29-01, AVB73-01 and AVB74-01 are due to these wells' proximity to the leaky RID canal.

12. Page 3-11, Section 3.5.2.3, second paragraph, first bullet: This bullet states that six paired wells "consistently exhibited downward vertical flow..." It should be noted in this bullet that AVB124 was only measured during two of the four quarters.

13. Page 3-12, Section 3.5.2.4, fifth paragraph: The first sentence states, "The aquifer test revealed that there are two aquifers that respond differently to pumping of the RID well." Please indicate which wells were used to monitor the lower aquifer as the piezometers listed in the text were installed to only 150 feet.

14. Page 3-12, Section 3.5.2.4, third paragraph, second sentence and fifth paragraph second sentence. The third paragraph states, "A 15-hour constant-rate extraction test was then conducted at a pumping rate of 50 gpm." However, in the fifth paragraph it states that samples were collected "after extraction of 1,000, 15,000, and 56,000 gallons..." The constant rate test extracted only 45,000 gallons, which is inconsistent with the sampling at 56,000 gallons. Please clarify.

15. Page 4-3, Section 4.1, first full paragraph, last line: The sentence states, "The highest detected concentration of chromium was 40,500 μg/l from ADEQ well AVB72-01 in 2003..." Table 4-4 shows 1,530 μg/l for this well in 2003. Please clarify.

16. Page 4-7, Section 4.2.1.4: This section discusses the 52nd Motorola Superfund Site, Operable Unit 3, which bounds the WVBA on the east. It would be helpful either in this section or in the hydrogeology sections to link ADEQ hydrostratigraphic units and how they roughly correspond to the UAU and MAU.

17. Page 4-14, Section 4.2.3.1, first paragraph, fourth sentence: The sentence states, "Groundwater data shown on Figures 4-1, 4-2, 4-3, 4-7, and 4-11..." PCE data for the DIMW wells is shown on Figure 4-11 as NA, however data is shown in Table 4-5. Please update the figure with the first quarter 2008 data.

18. Page 4-15, Section 4.2.3.1, first paragraph, fourth sentence: The sentence states, "Groundwater data shown on Figures 4-1, 4-2, 4-4, 4-8, and 4-12..." TCE data for the DIMW wells is shown on Figure 4-12 as NA, however data is shown in Table 4-5. Please update the figure with the first quarter 2008 data.

19. Page 4-15, Section 4.2.3.1, second paragraph, fourth sentence: The sentence states, "Groundwater data shown on Figures 4-1, 4-2, 4-5, 4-9, and 4-13..." 1,1-DCE data for the DIMW wells is shown on Figure 4-13 as NA, however data is shown in Table 4-5. Please update the figure with the first quarter 2008 data.

20. Page 4-19, Section 4.3.1.3, first paragraph, third bullet, second sentence: The sentence states, "Based on the contours, 1,1-DCE contamination exceeding the AWQS is present only in the eastern WVBA,..." This statement does not take into account the 7.4 µg/l concentration detected in well RID 106. The sentence should be revised.

21. Page 4-20, Section 4.3.2.1, first paragraph, first bullet, first sentence: The sentence states, "PCE concentrations are presented on Figure 4-15, and are limited to the western end of the WVBA." This statement does not take well AVB69-01 (26 µg/l) into account.

22. Page 4-21, Section 4.3.2.3, first paragraph, fourth bullet, second sentence: The sentence states, "One groundwater sample, collected from well AVB134-02, exceeded the total chromium AWQS of 100 µg/l." The concentration for this well is shown as NA on Figure 4-25, the figure should be updated to match the text.

23. Page 4-22, Section 4.3.3.3, first paragraph, fourth bullet, second sentence: The sentence states, "Of the five wells analyzed..." Only four wells are shown as analyzed on Figure 4-36. The figure or text should be revised, as appropriate.

24. Page 6-1, third and fourth bullet: How is the direction of groundwater flow altered when the Salt River acts as a source of groundwater recharge and the RID wells are pumping?

25. Page 6-5, first sub-bullet and fifth sub-bullet: The first sub-bullet describes March through June 2003 PCE data and indicates a site investigation is being conducted in the area of a data gap. The fifth sub-bullet presents 2008 PCE data, but does not reference the site data. Should the reference be included in the later bullet as it is stated this investigation is being conducted "currently."

26. Page 6-5, first bullet, second sub-bullet, first sentence: The sentence states, "TCE contamination exceeding the AWQS extends from the eastern boundary of the WVBA to approximately 59th Avenue..." Figure 4-12 shows the 5 µg/l contour extending to the west of 67th Avenue. The text should be revised to reflect the figure.

27. Page 6-6, first sub-bullet: The sentence states, "1,1-DCE contamination exceeding the AWQS extends from the eastern boundary of the WVBA to approximately 35th Avenue..." The sentence should include well RID106 to the west.

28. Page 6-7, first bullet, first sub-bullet, first sentence: The sentence states, "PCE contamination exceeding the AWQS discontinuously extends..." The data shown on Figure 4-22 does not present a reason to show divided plumes. See Figure Comment 11.

29. Page 6-7, first bullet, second sub-bullet, first sentence: The sentence states, "TCE contamination exceeding the AWQS extends... to approximately 51st Avenue and north of the RID canal." The data shown on Figure 4-23 appears to underestimate the extent of concentrations exceeding the AWQS. See Figure Comment 12.

30. Page 7-4, second and third references: These references appear to reference the same document. Please clarify.

31. Page 7-12, second through fourth references: These references appear to reference the same report. Please clarify.

Table Comments

1. Table 2-3, page 2 of 3, Reynolds Metal Company, sixth row, fifth column: Cell shows "error" in the TCE column and is not explained in the notes.

2. Table 2-3, page 2 of 3, Van Waters & Rogers, Inc., 10th row, fourth column: In the PCE column, the value 1.080 is shaded in its cell. This value should not be shaded as it is below the HBGL.

3. Table 3-1, general comments. Data from 2005 through 2006 are included in this table, however they are not discussed nor included on figures. Data from the first quarter 2008 is omitted from Table 3-1, however the data are discussed in the text and included on figures.

Figure Comments

1. Figure 3-22: The 955 contour should be through Well AVB66-02 (955.00).

2. Figure 4-8: The 5 μg/l contour should be south of well PS-2.

3. Figures 4-9: The 7 μg/l contour should be extended westward toward AVB107-01 (5.0 μg/l). The 1 μg/l should be between AVB92-01/02 and AVB65-01.

4. Figure 4-10: We suggest drawing 100 μg/l contours to help the reader better understand the data being presented.

5. Figure 4-12: The 25 μg/l contour should be drawn more to the west near RID-89 (23 μg/l).

6. Figure 4-13: The 7 μg/l contour around RID-108 likely overstates the area above the AWQS.

7. Figure 4-14: The concentrations should be presented in µg/l for consistency with other total chromium figures. We suggest drawing 100 µg/l contour to help the reader better understand the data being presented.

8. Figure 4-18: The 5 µg/l contour should be between RID-104 and AVB69-01.

9. Figure 4-19: There are no data to suggest closing the 5 µg/l contour north of RID 109 or northeast of RID-107. The 1 µg/l contour should be between RID-104 and AVB69-01.

10. Figure 4-19: There are no data to suggest closing the 7 µg/l contour northeast of RID-107.

11. Figure 4-22: The 1 µg/l contour should be drawn to the south of well AVB122-03. There is no data between RID-89 (9.3 µg/l) and AVB10-02 (8.4 µg/l) that suggests two discontinuous plumes. This is more pronounced after redrawing the 1 µg/l contour as suggested above. Additional data should be provided to support this interpretation.

12. Figure 4-23: The 50 µg/l should be redrawn more to the west of RID-92 toward RID-89. The 5 µg/l contour should be drawn more toward the west of RID-89. There is no basis for the location of the 1 µg/l northeast of well PTG-1B, the contour should be dashed and/or queried.

13. Figure 4-25: The concentrations should be presented in µg/l for consistency with other total chromium figures.

14. Figures 4-37 and 4-38: The symbols should present chemical concentrations in the same order from top to bottom for consistency.

Appendices Comments

1. Appendix L, General Comment: The lithologic data on the logs is very helpful for the reviewer, however this Appendix is not easy to access. A Table of Contents and page numbering should be included to make this a more user friendly resource.

2. Appendix M, AVB40-05 and AVB76-01 hydrographs: These two hydrographs show groundwater elevations below the wells' total depths. Please explain. If measurement error is suspected, it should be noted on the chart.

Typographical Errors noted in review

1. General Comment: ALSCo and ALSCO used interchangeably. ALSCo should be used for consistency with the acronym list.

2. Page 1-9, Section 1.3.2.4, third paragraph, second sentence: Suggest deleting "and" after "fabrication," and adding "a" in front of "plastic".
3. Page 1-11, first paragraph, 15th sentence: The amount of PCE used and stored on site doesn't vary dependent upon surveys. This sentence should be reviewed for clarity.
4. Page 1-14, Section 1.3.2.6, first full paragraph, last sentence: Suggest replacing "that" with "which".
5. Page 1-15, Section 1.3.2.6, last paragraph, last sentence: Replace "Table" with "Tables".
6. Page 1-17, Kleinfelder Records Review Table, first column, second and third cell. Use acronyms for Arizona Department of Health Services and Arizona Department of Water Resources as these have been defined previously.
7. Page 1-18, Kleinfelder Records Review Table, first column, third cell. Use acronym for Roosevelt Irrigation District as it was defined previously.
8. Page 1-18, Kleinfelder Records Review Table, second column, sixth cell. Reformat second line for consistency.
9. Page 2-3, first bullet, first line: Insert the word "was" before "excavated".
10. Page 2-6, Section 2.2.1.1, second sentence: Use acronym for Roosevelt Irrigation District as it was defined previously.
11. Page 2-7, Section 2.2.2, third bullet, sixth sentence: Change "survey" to "inventory".
12. Page 2-7, Section 2.2.2, third bullet, seventh sentence: Add "degradation" after "quality".
13. Page 2-19, Section 2.3.3, third paragraph, second sentence: Add "the" before "Southwest".
14. Page 2-20, Section 2.3.4, second paragraph, second sentence: Replace "Data" with "These data also".
15. Page 2-27, Section 2.3.7, first paragraph, first sentence: Define the acronym "PAO".
16. Page 2-27, Section 2.3.7, first paragraph, seventh and eighth sentences: Insert a space between 1.6 and μg/l, and 2,900 and μg/l.
17. Page 2-30, Section 2.4.1.1, first sentence: Insert "it" between "operated" and "periodically".
18. Page 3-14, Section 3.5.2.4, fourth paragraph, fourth line: Change "well AVB68-02" to "piezometer AVB68-02".
19. Page 3-15, Section 3.5.2.4, third paragraph, last line: Begin sentence with "The highest concentrations..."
20. Page 4-1, Section 4.0, first paragraph, second sentence: Suggest changing "industry" to "industrial".
21. Page 4-1, Section 4.1, second paragraph, first sentence: Use acronym HBGLs, as it was previously defined.
22. Page 4-2, Section 4.1, last paragraph, first sentence: Add "respectively" after "mg/kg".
23. Page 4-2, Section 4.1, last paragraph, second sentence: The concentration for 1,1-DCE and TCA are reported as "ug/L" for soils, we believe it should be mg/kg.

24. Page 4-7, Section 4.2.1.4, third paragraph, first sentence: Use acronym for CERCLA as it was previously defined in the document.
25. Page 5-2, Section 5.1.1, second paragraph, third bullet: Please revise this bullet because it states that permeability is "lowest", but then "decreases northward".
26. Page 5-4, Section 5.2.1.1, third paragraph, third sentence: Replace the first "1966" with "1965".
27. Page 5-5, Section 5.2.1.1, second paragraph, second sentence: This sentence could be more correct if "organic carbon in" is added between "for" and "soil".
28. Page 5-8, Section 5.2.2, third paragraph, last sentence: Replace "then" with "than".
29. Page 7-2, second reference: Suggest capital letter "C" on "conducted".
30. Page 7-4, fifth and sixth reference: Blaes and BLAES is used, should be consistent throughout.
31. Page 7-6, sixth reference: Suggest capital letter "W" on "water".
32. Page 7-6, ninth reference: Suggest capital letter "R" on "report".
33. Page 7-12, last reference: This Kleinfelder, 1993 reference should be listed after Kleinfelder, 1992b on the following page.
34. Page 7-13, sixth reference: Suggest capital letter "C" on "closure".
35. Figure 1-1: Suggest re-labeling the facilities using the acronyms used in the document to make for easier reviewing.
36. Figure 3-2: Change horizontal scale to 1" = 2800'.
37. Figures 3-14 through 3-17: The map background is not visible.

If you have any questions regarding these comments, please contact me at (415) 972-3165.

Sincerely,

Janet Rosati

Janet Rosati
Remedial Project Manager

cc: Joellen Meitl, ADEQ

LINDON PARK NEIGHBORHOOD ASSOCIATION

December 30, 2008

Jennifer Edward Thies
Project Manager, Remedial Projects Unit
Waste Program Division
Arizona Department of Environmental Quality
1110 W. Washington St. , MC4415B-1
Phoenix, AZ 85007

RE: Public Notice Arizona Department of Environmental Quality (ADEQ)
60-Day Comment Period, Notice of Release of the Draft Remedial Investigation Report
for the West Van Buren Area Water Quality Assurance Revolving Fund (WQARF) Site

Dear Ms. Thies:

The Lindon Park Neighborhood Association (LPNA) is respectfully requesting an extension to the Public Comment Period for the above referenced Draft Remedial Investigation (RI) Report for the West Van Buren Area WQARF Site. The Draft RI Report does not appear to meet minimum requirements of readability, thoroughness or consistency. The following are a few examples of language in the Draft RI Report that was found to be troubling:

- Page 1-2, 1.3.1 Site Description. "The WVBA extends from 7th to 75th Avenues and from Buckeye Road to Interstate 10 (Figure 1-1). Figure 1-1 does not show Interstate 10. Someone unfamiliar with the streets in Phoenix would read the above sentence and look for I-10 to be below Buckeye Road. Convention has boundaries called out or described East to West and North to South. ADEQ's Site Description, dated 06/2008, describes the site as being bounded "approximately by McDowell Road to the north, 7th Avenue to the east, Buckeye Road to the South and 75th Avenue to the west." Unfortunately the Draft RI Report is not as clear in its description nor in the attached figure.
- Page 1-1, 1.1 Purpose of Report, states "The WVBA is the real projection of the western portion of a large commingled plume of contaminated groundwater in Phoenix, Arizona (Figure 1-1). The WVBA extends from 7th to 75th Avenues and from Buckeye Road to Interstate 10. Contributors to this plume include both industrial facilities and contaminated groundwater from the east, as regional groundwater flow is generally westward. The initial primary contaminants of concern (COC) for the WVBA include the following volatile organic compounds (VOCs): tetrachloroethene (PCE), trichloroethene (TCE), 1,1,1-trichloroethane (TCA), cis 1,2-dichlorethene (cis ,2-DCE), 1,1-dichlooethane (1,1-DCA), and 1,1-dichloroethene (1,1-DCE). To a limited extent, chromium is also considered a COC." This small selection is representative of too many poorly written sections throughout this document. It is another instance of a confusing description of the boundaries. It makes the statement about "a large commingled plume" without specifying what is commingled. Do we have groundwater commingled with benzene, toluene, ethylbenzene, and xylenes at a UST area of the site? Do we have contaminants from the north commingled with contamination in the West Van Buren Area? Do we have Motorola 52nd Street Superfund contaminants commingled with contamination from facilities within the West Van Buren Area? Do we simply have many different facilities and sources within the West Van Buren Area commingling among themselves? The reader should be learning this from the Draft RI Report, not having to supply their own conjectures as to what the writers meant.

- Although the assertion is made on Page 1-1 that, "BTEX was eventually dropped from the COC list because the contaminants were limited to leaking underground storage tank (LUST) facilities regulated by ADEQ's Underground Storage Tank (UST) Program and limited in extent to beneath the above ground storage tanks at the Phoenix Terminal," no data are presented to substantiate that the BTEX has not or will not reach the groundwater and that there is no existing or no potential for commingling of the COCs with the BTEX.. On Page 1-5, 1.3.2.3. the Phoenix Terminal Group is described as "a petroleum storage and distribution facility located between 51st and 55th Avenues south of West Van Buren Street. Numerous releases of petroleum compounds have occurred from storage tanks and piping owned by various companies that have operated at the site (ENSR, 1988). Contamination from these releases has extended to groundwater. Groundwater monitor wells have been installed to evaluate the extent of contamination at the site. SVE systems have been used to remediate soil contamination, while skimmers have been installed to remove free product." Is this not a basic example of how commingling can occur? How was BTEX dropped as a COC under these circumstances? Why are no data presented to substantiate this action?
- The well location figures and elevation contour maps are difficult if not nearly impossible to adequately interpret as no outline or colored shading is provided to help define the site boundaries. It is important for readers, who do not work with the site, to be able to locate wells which are within and those that are beyond the present boundaries of the West Van Buren Area WQARF, and to determine the direction of groundwater flow within the site. Superimposing the site boundaries on these figures and maps would help make this possible.
- Data contained in Appendix Y Historical COC Trends is unreadable. Unfortunately the color graphs were made into black and white graphs in this appendix. All 117 graphs show PCE, TCE and DCE. Since the symbol and line for DCE appears as white in all 117 of the black and white graphs, it is only visible when it is superimposed over another (darker) symbol or line in the graph. The Draft RI Report should not be a puzzle to be solved by the readers. Legible graphs that present all the data must be a minimum requirement in a RI Report.
- A complete list of contaminants of concern (COC) must be clearly presented. As the eastern portion of the West Van Buren Area is a continuation of the Motorola 52nd Street (M52) Superfund Site all the COC identified in the Motorola 52nd Street Superfund Site should be COC at the West Van Buren Area WQARF Site. How can any determination be made of the extent of contamination from M52 if all the M52 COC (organic and inorganic) are not investigated? The statement on page 4-7 that, "The COC for OU3 are TCE and TCA" is not correct as it is incomplete. The Draft RI Report even states that, "WVBA groundwater data indicate that TCE and 1,1-DCE groundwater contamination originates from the OU3 area east of Seventh Avenue and flow into the WVBA WQARF site from the east." The WVBA WQARF COC list must be expanded to include the organic and inorganic COC list from other contributing contaminated areas such as the M52 Superfund Site.
- A consistent list of contaminants of concern (COC) must be presented. While the Draft RI Report lists PCE, TCE, TCA, cis 1,2-DCE, 1,1-DCA, 1,1-DCE and "to a limited extent, chromium is also considered a COC," the Public Notice lists only PCE, TCE, DCA, cis-1,2-DCE, cis-1,1-DCE and chromium. The Public Notice COC list and the Draft RI Report COC list need to be identical.
- On page 1-9 the 1120 West Watkins Street painting shop (one of four properties of ChemResearch Co., Inc. (CRC)) the Draft RI Report states that, "The City of Phoenix has owned the property since 1996 when CRC ceased operations. The City of Phoenix currently uses it for storage and as an area to house homeless people." Page 2-26 states that, "Groundwater samples collected from the downgradient wells have contained chromium at concentrations greater than the AWQS on occasion and have consistently contained PCE at concentrations greater than the AWQS. . . CRC continues to collect groundwater samples from the groundwater monitor wells on a quarterly basis." As homeless people are being housed at this site the question arose why no discussion of a vapor intrusion investigation in this area was proposed.

- Page 6-11 of the Draft RI Report states that, "Typically, vapor intrusion will occur at or near the contaminant (in this case VOC) source area, but can also occur via off-gassing from the groundwater. The likelihood of vapor intrusion via this pathway decreases with increasing depth to groundwater." The statement is repeated on Page 5-3. Recent developments in the study of vapor intrusion show that presently there is no substitute for investigation and sampling is even more crucial due to observed spatial and temporal variability in sites.
- ADEQ's West Van Buren WQARF February 2006 Fact Sheet states that, "The depth to groundwater in the area of the site is between 90 and 140 feet below ground surface for the upper aquifer and 200 to 400 feet below ground surface for the middle aquifer." The Draft RI Report on Page 3-3 states that the Upper Alluvial Unit (UAU) "ranges between 200 and 500 feet in thickness and" and on Page 3-6 that "UAU1 ranges in thickness from approximately 170 feet to 310 feet bgs" and that "UAU2 is encountered at depths ranging from approximately 170 feet to 310 feet bgs." The UAU1 and UAU2 descriptions do not appear consistent with ADEQ's own fact sheet nor with the Cross-Section Figure 3-4. UAU1 and UAU2 need to be accurately and consistently described in the Draft RI Report.
- Consistency between the West Van Buren Area WQARF site and the Motorola 52nd Street Superfund Site is desirable. Geologic unit descriptions should be similar from one site to the other as this would be important in understanding the movement of COC from OU3 into the WVBA. The M52 COC list should be used as the starting point for the WVBA COC investigations. If these data do not exist they need to be collected in the eastern portion of the site to be used to show the potential impact of OU3 on the WVBA.
- The Draft RI Report reflects a consistent lack of quantification and lack of data to support statements made in the report. Some examples of this follow:

  (1) Page 2-8 "Twenty-nine domestic wells were identified in or near the WVBA; of these, five are located within the WVBA and are functional," which leaves unanswered questions such as: How many wells within the WVBA were nonfunctional and what does nonfunctional or functional mean? Could those nonfunctional wells still be sampled, perhaps with a portable pump?

  (2) On the same page the Draft RI Report states that, "No VOCs were detected in any of these groundwater samples." What was the analytical method and detection limit used for these samples?

  (3) On Page 2-10, 2.2.2.2 Passive Diffusion Bag Samplers the Draft RI Report states, "Good correlation between the traditional and PDB samples was observed." Does this correlation hold for all the concentration ratios? What is the concentration range that this correlation is applicable to?

  (4) On Page 2-10, 2.2.2.3 Additional Well Development the statement is made that, "However, analytical results for dissolved chromium analyses were less than or slightly greater than the laboratory reporting limits." What were the laboratory reporting limits? "ADEQ believes that the detected chromium in most of the wells may be due to deterioration of the stainless steel well casing or naturally occurring in subsurface soils." Which wells had stainless steel well casings? All wells? What were the observed chromium concentrations?

  (5) On Page 2-11 the Draft RI Report states, "Well RID-84 contained the highest concentrations of PCE of the sampled RID wells and was subsequently selected for further investigation. The groundwater sample collected from well RID-92 contained the highest TCE concentration of the sampled RID wells and was also subsequently selected for further investigation." What were the concentrations of PCE and TCE?
- On Page 4-3, 4.2 Source Investigations, states "The following is a discussion of COC contamination concentrations segregated into different portions of the WVBA," however, no COC concentration data are provided for many of the investigated facilities especially when settled with ADEQ or ADEQ completed the remediation.

- Page 5-3, 5.1.3 Surface Water, states "Concentrations of VOCs in canal water in the vicinity of select wells exceed the AWQSs but because the end use of the RID canal water is agricultural there are no applicable surface water standards." Although there are no numeric standards for those contaminants they may be subject to narrative water quality standards. Narrative water quality standards may be used when the contaminants are toxic to humans, animals, plants or other organisms (A.A.C. R18-11-108).
- Appendix K Land and Water Use Study states on page 1 that "Remedial Objectives (ROs)" will be proposed. Hopefully a more complete COC list will be incorporated before the RO/FS is considered. The Process Overview on page 1 does not specify the opportunity for public review and comment nor which activities are likely to be performed sequentially at this site.
- The records review of EPA and ADEQ files must include the M52 Superfund Site to ascertain a complete picture of the site including sources of contamination as well as contaminants. Page 1-22 of the Draft RI Report states that, "The investigation consisted of a review of the PRP site files, former 202 facility files, ADEQ records collections and EPA records for information on releases of the WVBA COC." This methodology seems predisposed to not finding the full nature and extent of the contamination and the sources of contamination. If the full nature and extent of the contamination is not identified then current and potential impacts to public health may not be identified. Current and reasonably foreseeable uses of land and waters of the state may be skewed and additional information necessary of identification and comparison of alternative remedial actions may not be obtained and evaluated.

The ADEQ West Van Buren WQARF February 2006 Fact Sheet defines a Remedial Investigation as "an in-depth investigation designed to (1) establish the nature and extent of the contamination and the source(s) of contamination; (2) identify current and potential impacts to public health, welfare, and the environment; (3) identify current and reasonably foreseeable uses of land and waters of the state; and (4) obtain and evaluate any other information necessary for identification and comparison of alternative remedial actions." This Draft RI Report fails to meet the four requirements in ADEQ's own definition pursuant to A.A.C. R18-16-406.

This letter formalizes LPNA's request that the West Van Buren Area WQARF Site Draft RI Report be rewritten to fulfill the purpose of the report and then simultaneously be reissued to all parties who originally obtained copies (both hard copies and CDs) with publication of the notice for the public comment period.

Please do not hesitate to contact LPNA if you have any questions regarding this matter.

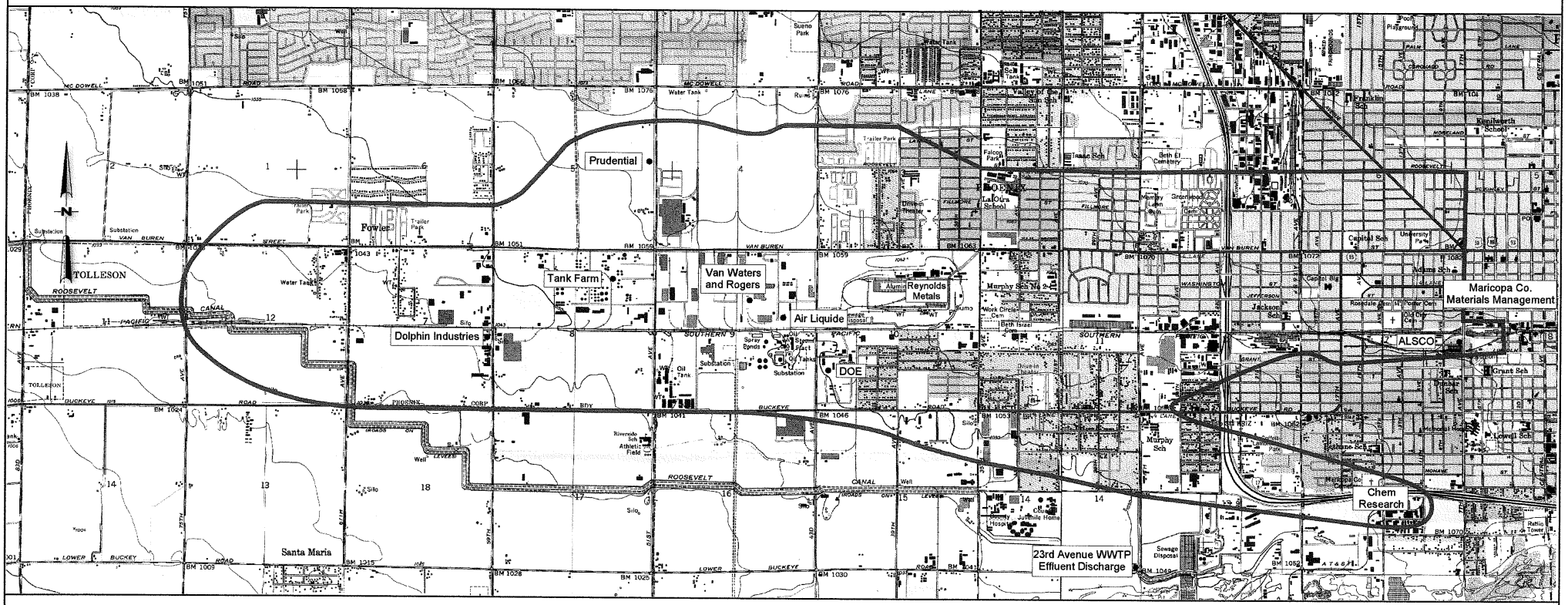
Respectfully Submitted,

Mary J. Moore

Mary Moore, Vice President
Lindon Park Neighborhood Association
4839 East Brill Street
Phoenix, AZ 85008

enclosures

cc: Delfina Olivarez, ADEQ Community Involvement Coordinator
Kevin C. Snyder, R.G,, ADEQ, West Van Buren WQARF Site
Janet Rosati, EPA Project Manager, Motorola 52nd Street Superfund Site OU3
John Lucey, EPA Project Manager, Motorola 52nd Street Superfund Site OU3
Leah Butler, EPA Project Manager, Motorola 52nd Street Superfund Site OU1, OU2
Vicki Rosen, EPA Community Involvement Coordinator



1/2 0 1

APPROXIMATE SCALE (MILES)

LEGEND

ESTIMATED WEST VAN BUREN BOUNDARY

NOTE

SOURCE DATA FOR BASEMAP FROM THE USGS 7.5 SERIES TOPOGRAPHIC QUADRANGLE MAPS FOWLER AND PHOENIX.

PROJ.#: 03103154-16	DATE: 11/30/05
DRAWN BY: JTA	SCALE: AS SHOWN
DESIGNED BY: JTA	
APPROVED BY: AJG	

TERRANEXT

FIGURE 1-1
SITE BOUNDARY
WEST VAN BUREN WQARF SITE
PHOENIX, ARIZONA

WPFILE/PROJECTS/03103154/Phase 16/RI Report/Figures/Figure 1-1 Site Boundary.cvx

PUBLIC NOTICE
ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
60-DAY PUBLIC COMMENT PERIOD

NOTICE OF RELEASE OF THE DRAFT REMEDIAL INVESTIGATION REPORT FOR THE WEST VAN BUREN AREA WATER QUALITY ASSURANCE REVOLVING FUND (WQARF) SITE

Ref: OU # 09-040
PLEASE TAKE NOTICE: The Arizona Department of Environmental Quality (ADEQ), pursuant to Arizona Revised Statute (ARS) §49-287.03, has released the draft remedial investigation (RI) report for the West Van Buren Area WQARF Site in Phoenix, Arizona. An RI report is prepared to identify the nature and extent of contaminated soil and waters of the state and the sources thereof; identify current and potential impacts to public health, welfare and the environment; identify present and reasonably foreseeable future uses of the land and groundwater; and obtain and evaluate any other information necessary for identification and comparison of alternative remedial actions.

The West Van Buren Area WQARF Site boundaries are defined by the extent of the groundwater contaminant plume, which generally extends to Interstate 10 to the north, 7th Avenue to the east, 75th Avenue to the west and Buckeye Road to the south. The current contaminants of concern in the groundwater include tetrachloroethene (PCE), trichloroethene (TCE), 1, 1-dichloroethane (DCA), cis-1,2-dichloroethene (cis- 1,2-DCE), 1,1-dichloroethene (DCE) and chromium. Contaminants of concern at the site may change as new data become available.

A copy of the draft RI report will be available for review at the Harmon Branch, Phoenix Public Library at 411 West Yavapai, Phoenix, Arizona, (602) 262-4636. The report is also available at the ADEQ office in Phoenix. With 24-hour notice, an appointment to review the public file is available, Monday through Friday from 8:30 a.m. until 4:30 p.m., at the ADEQ Records Management Center, 1110 W. Washington Street in Phoenix, Arizona. Please call (602) 771-4380 or (800) 234-5677 to schedule an appointment to review this and other documents. A public meeting of the Community Advisory Board (CAB) is scheduled for Tuesday, November 18, 2008 at 6:00 p.m. at the Arizona Department of Environmental Quality Building, located at 1110 W. Washington Street Room 145, Phoenix, AZ. 85007. At this time ADEQ will solicit public comments on the draft RI report.

PARTIES WISHING TO MAKE COMMENTS regarding the draft RI report for the West Van Buren Area WQARF Site may make such comments in writing to ADEQ, Attention: Jennifer Edwards Thies, Waste Program Division, 1110 W. Washington Street, MC4415B-1, Phoenix, Arizona, 85007 and by referencing this listing. All comments received will be compiled in a responsiveness summary to be included in the final RI report.

Comments must be postmarked to ADEQ by Tuesday, December 30, 2008.

Dated this 31st day of October, 2008
Jennifer Edwards Thies, Project Manager, Remedial Projects Unit
Arizona Department of Environmental Quality

*ESTE REPORTE NO ESTÁ DISPONIBLE EN ESPAÑOL – Para información en español sobre este reporte, favor de ponerse en contacto con Delfina Olivarez de ADEQ al (602) 771-4710.

AVISO PÚBLICO
EL DEPARTEMENTO DE CALIDAD AMBIENTAL DE ARIZONA NOTIFICA QUE HA Y UN PLAZO DE 60 DIAS PARA QUE EL PÚBLICO PUEDA HACER SUS COMENTARIOS

ESTA NOTIFICACION ES CON REFERENCIA AL INFORME PRELIMINAR SOBRE LA INVESTIGACION CORRECTIVA DEL AREA LOCALIZADA AL OESTE DE VAN BUREN DEL FONDO ROTATIVO PARA LA GARANTÍA DE LA CALIDAD DEL AGUA (WQARF, POR SUS SIGLAS EN INGLÉS)

Ref: OU # 09-040

FAVOR DE TOMAR NOTA: El Departmento de Calidad Ambiental de Arizona (ADEQ por sus siglas en Inglés), de acuerdo a los Estatutos del Estado de Arizona (ARS) §49-287.03, ha hecho entrega de un informe preliminar sobre la Investigación Correctiva referente al sitio WQARF del Área Oeste de Van Buren en Phoenix, Arizona. El informe de Investigación Correctiva se prepara para identificar el tipo y el grado de contaminación del suelo y el agua del estado y sus causas; identificar los impactos actuales y futuros que la contaminación puede tener en la salud pública, el bienestar y el medio ambiente. También para identificar de qué manera se están usando la tierra y el agua actualmente y que uso razonable se les puede dar a futuro; y obtener y evaluar cualquier otra información necesaria para identificar y comparar acciones correctivas alternativas.

Los límites del Sitio WQARF del Area Oeste de Van Buren están definidos por la extensión de la columna de contaminación del agua subterránea, la cual generalmente se extiende hasta la carretera Interestatal 10 (al norte), hasta 7 Avenida (al este), 75 Avenida (al oeste) y Buckeye Road (al sur). Los actuales contaminantes de preocupación que se detectaron en el agua subterránea incluyen tetracloroeteno (PCE), tricloroeteno (TCE), 1,1-dicloroetano (DCA), cis-1,2-dicloroeteno (cis-1,2-DCE), 1,1-dicloroeteno (DCE) y cromo. Los contaminantes de preocupación en el sitio pueden cambiar conforme se van haciendo disponibles más datos.

Una copia del informe preliminar de Investigación Correctiva está disponible en la Biblioteca Harmon Branch, localizada en 411 West Yavapai, Phoenix, Arizona, (602) 262-4636. Otra copia de este informe se encuentra disponible en las oficinas de ADEQ en Phoenix. Con un aviso de 24 horas de anticipación, cualquier persona puede obtener una cita para revisar el archivo público en el Centro de Gestión de Archivos de ADEQ ubicado en 1110 W. Washington Street en Phoenix, Arizona. Las Oficinas están abiertas de 8:30 a.m. a 4:30 p.m. Favor de llamar al Centro de Gestión de Archivos de ADEQ al (602) 771-4380 o sin cobro al (800) 234-5677 en Arizona para hacer una cita para revisar este y otros documentos. Una reunión pública del Consejo Comunitario de Consulta (CAB por sus siglas en Inglés) está prevista para el martes, 18 de Noviembre del 2008 a las 6:00 p.m. en el Departamento de Calidad Ambiental de Arizona, ubicado en el 1110 W. Washington Street cuarto de conferencias no. 145, Phoenix, AZ. 85007. Durante esta sesión, ADEQ solicitará sus comentarios sobre el informe preliminar de Investigación Correctiva correspondiente.

LAS PERSONAS QUE DESEEN HACER ALGUN COMENTARIO sobre el Informe preliminar de Investigación correctiva del sitio WQARF del Área Oeste de Van Buren deben hacerlos por escrito y enviarlos a ADEQ, Atención: Jennifer Edwards Thies, Waste Program División, 1110 W. Washington Street, MC4415B-1, Phoenix, Arizona, 85007 con referencia al sitio listado. Todos los comentarios recibidos serán puestos a consideración y se incluirán en el informe final.

Los comentarios deben llegar a ADEQ matasellados antes del Martes, 30 de Diciembre del 2008.

Fechado el día 31 de Octubre del 2008
Jennifer Edwards Thies, Gerente de Proyecto, Unidad de Proyectos Correctivos
Departamento de Calidad Ambiental de Arizona
*ESTE REPORTE NO ESTÁ DISPONIBLE EN ESPAÑOL – Para información en español sobre este reporte, favor de ponerse en contacto con Delfina Olivarez de ADEQ al (602) 771-4710.

ADEQ Arizona Department of Environmental Quality

Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

FACT SHEET

West Van Buren Water Quality Assurance Revolving Fund Site

February 2006

The Arizona Department of Environmental Quality (ADEQ) is sending this fact sheet to inform community members within and near the West Van Buren Water Quality Assurance Revolving Fund (WQARF) site in Phoenix about the contamination present at the site and the process for investigation and cleanup of the contamination.

WHAT IS THE WATER QUALITY ASSURANCE REVOLVING FUND (WQARF)?

The state's Superfund program is known as the WQARF Program. The WQARF Program was established by Arizona law to conduct statewide surface and groundwater monitoring, study health effects of *contamination**, perform emergency cleanup actions and conduct long-term cleanup programs. The WQARF Program is funded with state monies, civil and criminal penalties, and funds recovered from parties responsible for contamination.

WHAT IS THE WQARF REGISTRY?

ADEQ has established a Registry of sites in Arizona where groundwater and/or soil contamination are known to be present. Sites appearing on this Registry qualify for funds available from the state's WQARF for investigation, cleanup of contamination or both. The West Van Buren WQARF site is included on this Registry because of *solvent* contamination in the *groundwater*. Sites on the Registry are given a numeric score based in part upon the type of contaminant(s) present, the location of the contaminant(s) and the number of people that may be affected by the contaminant(s). Scores are used to help determine relative risk at the site and do not necessarily mean that there is a direct risk to humans or the environment. The score of the West Van Buren WQARF site is 50 out of a possible 120.

For further information on this site or other WQARF sites, please visit the ADEQ Web site at www.azdeq.gov. Click on Waste Programs Division, then click on Superfund Programs, and follow the prompts for the information you need.

WHAT ARE THE CONTAMINANTS AT THE WEST VAN BUREN WQARF SITE?

Six contaminants are currently known to be present above regulatory levels in the groundwater of the West Van Buren WQARF site. The contaminants are the industrial solvents tetrachloroethene (PCE), commonly used in dry cleaning processes and as a degreaser; trichloroethene (TCE), primarily used in metal degreasing and cleaning operations; 1,1-dichloroethene (1,1-DCE), used to make certain plastics, as a fire retardant, and can be a breakdown product of other solvents; cis-1,2 dichloroethene (cis-1,2-DCE), used to produce solvents and in chemical mixtures, and can also be a breakdown product of other solvents; 1,1-dichlorothane (1,1-DCA), used to make other chemicals, paint, varnish and finish remover, and can also be a breakdown product of other solvents; and chromium, a metal commonly used in plating facilities.

GROUNDWATER INVESTIGATION WITHIN THE WEST VAN BUREN WQARF SITE:

ADEQ is currently conducting a remedial investigation within the West Van Buren WQARF site. Approximately 115 groundwater monitoring wells have been installed and are sampled on a quarterly to semi-annual basis. The groundwater contamination plume drawn on the map is based upon the presence of PCE and TCE in concentrations above the regulatory limit of five parts per billion (ppb) for both.

The aquifer beneath the site is divided into three sections - the upper alluvial unit (UAU), middler alluvial unit (MAU) and the lower alluvial unit (LAU). The UAU and MAU have been affected by contamination from the site. Currently PCE contamination above the regulatory limit is present in the MAU down to approximately 400 feet below ground surface.

During September of 2005 ADEQ collected groundwater samples from 76 monitoring and 10 Roosevelt Irrigation District (RID) wells. During this sampling event, the highest TCE and PCE concentration detected in the UAU was 150 ppb and 90 ppb, respectively. The highest detected TCE and PCE concentration in the MAU was 130 ppb and 42 ppb, respectively. The highest detected TCE and PCE concentration in the RID wells was 99 ppb and 13 ppb, respectively.

ADEQ is currently working toward finishing the remedial investigation of the West Van Buren WQARF site which includes installation of additional monitoring wells and preparing the draft remedial investigation report. A considerable amount of time and effort has been spent to interpret the complicated lithology beneath the site and identify potential source areas.

CLEANUP ACTIONS WITHIN THE WEST VAN BUREN WQARF SITE:

Several facility cleanup actions occurred during the course of the West Van Buren WQARF site investigation. Cleanup actions include: *soil vapor extraction (SVE), air sparging, and groundwater pump and treat systems* and are as follows:

- Van Waters & Rogers, Inc. began operations of an SVE system in November 1992. ADEQ authorized system shut down in 2002 and issued a No Further Action for soil.
- Maricopa County began operation of an SVE system in 1997. The system was shut down after six months of operation due to soil contaminant levels being reduced to below regulatory standards.

**Italicized terms are defined in the glossary located at the end of this notice.*

Publication Number: FS 06-11

THE NEXT CAB MEETING WILL BE ON APRIL 11TH AT 6:00 P.M. AT THE ADEQ BUILDING LOCATED AT 1110 WEST WASHINGTON, ROOM 145, IN PHOENIX

- American Linen Supply Company at 720 West Buchanan settled with ADEQ in 1997. ADEQ began an early response action in 2001 which included an SVE/air sparge system and a groundwater pump and treat system. Over 900 pounds of VOCs were removed and the SVE/AS system was shut down in October 2002. The groundwater pump and treat system was shut down in September 2003 after treating approximately 118 million gallons of groundwater.
- Dolphin Incorporated began operation in 1998 of an SVE/AS at their facility. In April 2004, Dolphin received authorization from ADEQ to shut down the system.
- Reynolds, Inc. removed contaminated soil from their site and received a No Further Action from ADEQ in 2000.

WHAT IS THE QUALITY OF YOUR DRINKING WATER IF YOU LIVE WITHIN THE BOUNDARIES OF THE WEST VAN BUREN WQARF SITE?

The depth to groundwater in the area of the site is between 90 and 140 feet below ground surface for the upper aquifer and 200 to 400 feet below ground surface for the middle aquifer. The water under the site is not used in the public drinking water system. Drinking water is provided by the City of Phoenix and meets all regulatory drinking water standards. The majority of risk associated with contaminated groundwater from this site comes from long term-direct exposure to the water by drinking or bathing. Without a route of exposure, such as drinking the water, there is no risk to you. If you are connected to a public drinking water system, your public drinking water provider is required by law to provide water that meets all state and federal drinking water standards. The water provider conducts regular testing of your drinking water to ensure that standards are met and to ensure that safe drinking water is delivered to the community. For more information concerning your drinking water quality please contact your water provider. The City of Phoenix Water Services number is (602) 262-6251.

DO YOU OWN A PRIVATE GROUNDWATER WELL?

If you are using a private well located within the boundary of the West Van Buren WQARF site, please call Jennifer Edwards, ADEQ Project Manager at (602) 771-4703 or, toll free at (800) 234-5677. Groundwater located within the West Van Buren WQARF site boundary should be sampled and tested regularly if being used for domestic purposes. If you have a well located within the West Van Buren WQARF site and you are concerned about the water quality, please contact the ADEQ Project Manager.

WHAT ARE THE FUTURE PLANS FOR THIS SITE?

Currently, ADEQ is conducting a *remedial investigation* at the site. This involves determining the extent of the groundwater contamination and collecting the information necessary to evaluate area wide *remediation* and cleanup options. ADEQ plans to complete the remedial investigation field work for the West Van Buren WQARF site by June 2006. When the remedial investigation is completed, final cleanup options will be developed and analyzed in a *feasibility study* report.

Input from the public will be sought through newsletters, public open houses and other means to ensure that ADEQ is aware of local plans and concerns of the affected community, and to ensure that the public understands and accepts the proposed remedy. ADEQ has formed a Community Advisory Board (CAB) to ensure that citizens in the area of the site have the opportunity to be involved in the decision-making process. The CAB meets on a regular basis. If you would like to become involved in this process or would like additional information, please see the insert in the middle of this notice.

WHAT ARE THE RISKS ASSOCIATED WITH THIS CONTAMINATION?

There are risks associated with exposure to these contaminants, principally through drinking the contaminated water. Most risks associated with contaminated groundwater come from long-term direct exposure to the water by drinking or bathing. Without a direct route of exposure, such as drinking the water, there should be no risk to you.

People who drink water containing PCE and/or 1, 1, DCA in excess of the regulatory levels over many years could experience problems with their liver, kidneys, or nervous system. People who drink water containing TCE and/ or 1,1, DCE in excess of the regulatory level over many years could experience problems with their liver or kidneys. People who drink water containing cis,1,2-DCE in excess of the regulatory level over many years could experience problems with their liver, circulation or nervous system. People who drink water containing chromium in excess of the regulatory level over many years could experience problems with their liver or kidneys or experience stomach upsets or ulcers.

People who drink water containing PCE, TCE, 1,1-DCE, 1,1-DCA or chromium in excess of the regulatory level over many years may have an increased risk of getting cancer. In addition to the substances that have been detected above regulatory levels, other substances have been detected below regulatory levels or have no regulatory standards. Any substances that are present below regulatory levels are presumed to be harmless to the public.

For more information about health issues, please call the Department of Health Services, Office of Environmental Health, (602) 364-3118 or (800) 367-6412.

ADEQ CONTACTS

Records Center: With 24 hour notice, an appointment to review relating documentation is available Monday through Friday from 8:30 a.m. to 4:30 p.m., at the ADEQ Records Management Center, 1110 W. Washington Street in Phoenix, Arizona. Please contact (602) 771-4380 or (800) 234-5677 to schedule an appointment to review these documents.

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Please visit ADEQ's Web site at www.azdeq.gov for more information about Arizona's environment.
Hearing-impaired individuals call our TDD line: (602) 771-4829.

GLOSSARY

Air sparging - A treatment technology in which air is injected into the ground below a contaminated area, forming air pockets that rise and carry trapped and dissolved contaminants to the surface, where they are captured by a soil vapor extraction system. Air sparging may work well at sites contaminated with solvents and other VOCs.

Aquifer - An underground geological formation composed of sand, soil, gravel or porous rock that can store and supply groundwater to wells and springs.

Contamination - The presence of any contaminant, including hazardous substances, in groundwater, surface water or soil above a regulatory level.

Feasibility study (FS) - The evaluation of potential remediation methods for achieving the cleanup goals determined during a remedial investigation. Under the federal Superfund program, the alternative methods are evaluated using the following criteria: overall protection of human health and the environment; ability to achieve regulatory standards or site-specific standards developed during a site-specific risk assessment; short-term effectiveness; long term effectiveness or permanence of result; reduction of toxicity, mobility or volume of hazardous substance through treatment; feasibility and reliability; and community acceptance.

Groundwater - Water found beneath the Earth's surface. This includes water that fills the spaces within and between materials such as sand, soil, clay, gravel or fractured bedrock as well as water found in underground streams. In aquifers, groundwater occurs in sufficient quantities that it can be used for drinking water, irrigation and other purposes.

Monitor wells - Wells which are installed for the purpose of obtaining information about the groundwater at a specific location such as water quality, depth to water and groundwater flow direction. Data is usually gathered over a period of time to help determine trends in flow direction and contaminant plume movement. Monitor wells may be used as sentinel wells for an "early warning system" to protect drinking water wells.

Parts per billion (ppb) - a unit of concentration commonly used to express low concentrations of contaminants. For example, 1 ounce of TCE in one billion ounces of water is 1µg/L (microgram per Liter) or ppb. If one drop of TCE is mixed in a competition size swimming pool, the water will contain about 1ppb of TCE.

Plume - The portion of the groundwater in an aquifer which is contaminated. It is usually determined by data from monitor wells.

Pump and treat - A remedial action that involves installing wells at strategic locations to extract contaminated groundwater, treating it aboveground to remove the contaminants, and reinjecting it into the aquifer. Other uses for the water or part of the water may be an option such as watering golf courses and dust control.

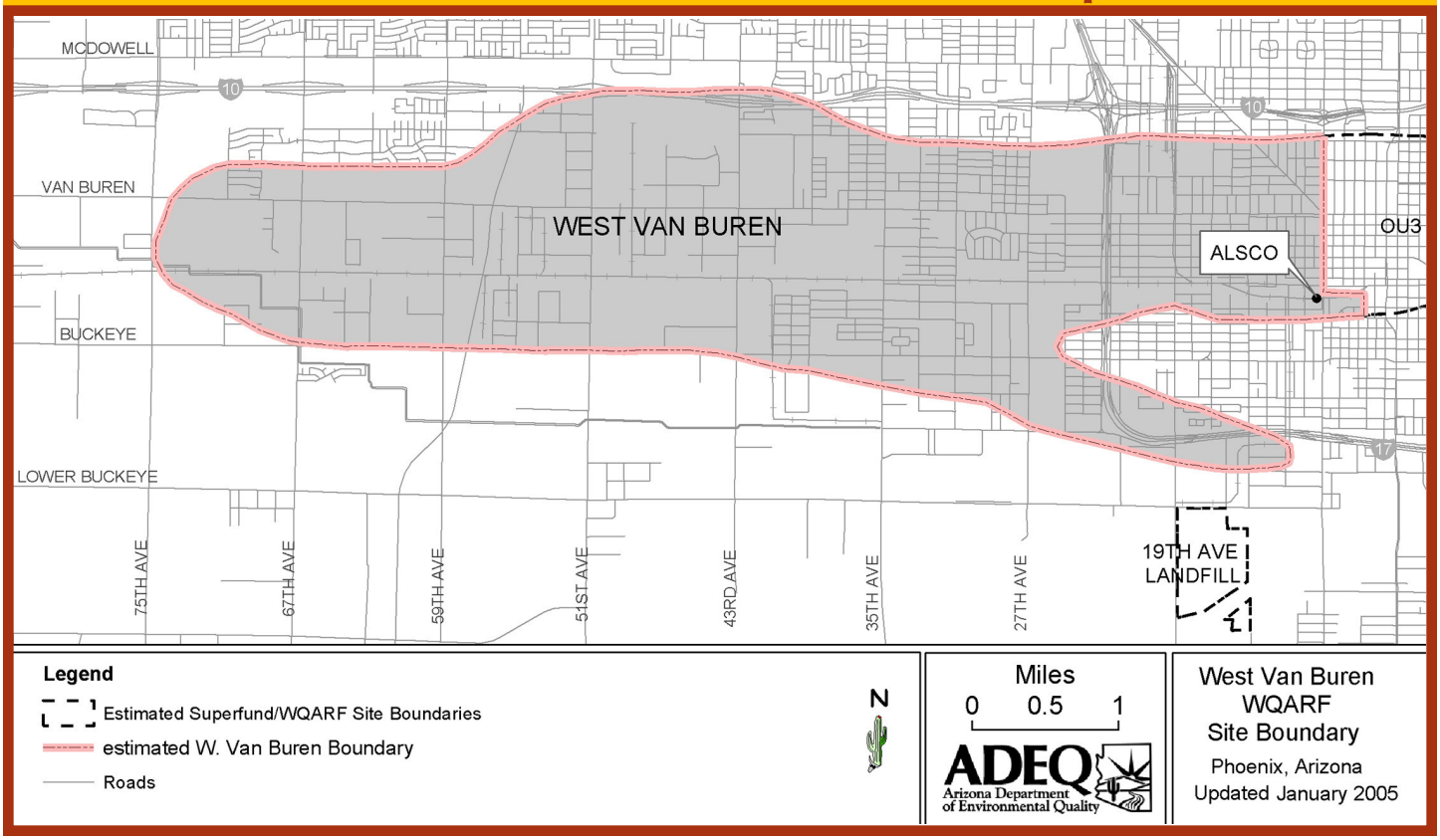
Remedial investigation (RI) - An in-depth investigation designed to (1) establish the nature and extent of the contamination and the source(s) of contamination; (2) identify current and potential impacts to public health, welfare, and the environment; (3) identify current and reasonably foreseeable uses of land and waters of the state; and (4) obtain and evaluate any other information necessary for identification and comparison of alternative remedial actions.

Remediation - Remediation is the action(s) taken to deal with the release of a hazardous substance that could affect people or the environment. The term "cleanup" is sometimes used interchangeably with the terms remedial actions, removal actions, response action or remedy.

Solvent - Solvents are chemical products, usually liquid, that are used to dissolve or disperse other compounds/substances. PCE is a common solvent used in dry cleaning and for cleaning auto and airplane parts.

Volatile organic compounds (VOCs) - A large group of carbon-containing chemicals that readily evaporate at room temperature. Examples of VOCs are isopropyl alcohol (rubbing alcohol), carbon tetrachloride (spot remover), acetone (found in some nail polish removers) and the solvents PCE and TCE (dry cleaning and metal degreasing).

West Van Buren WQARF Site Map



Unclean Getaway

Maricopa County dumped hazardous waste at its property for years. But don't expect the county to pay for it -- ADEQ has already let it off the hook.

By Chris Farnsworth
Published: September 18, 1997

Maricopa County continued pumping cancer-causing toxins into the ground for four years after the Arizona Department of Environmental Quality warned it to stop. The county Board of Supervisors and top administrators were aware that an oil/water separator at a fuel-storage site discharged--probably illegally--pollutants into a dry well on the property, internal county documents and a former county official reveal.

Those contaminants may have contributed to a massive plume of fouled groundwater which now threatens future drinking-water supplies.

But Maricopa County probably won't ever be held accountable.
The county never told the state it was continuing to dump. Instead, it claims that the problem was solely caused years earlier by other operators at the site, which for decades was owned by Southern Pacific Railroad.

And ADEQ has bought it. The county was released from its liability for the White Mountain Fuel Storage site last year by ADEQ after it submitted a report which claimed that it wasn't responsible for any contamination--without mentioning the years of dumping.

That's nothing new for the county and ADEQ.
For years, ADEQ has allowed Maricopa County to stall, stonewall and haggle over cleaning up after itself in the West Van Buren area, a 35-square-mile patch of state-designated environmental problems that stretches from Seventh Avenue to 83rd Avenue.

At a county materials management facility in the same area, the county already has spent more than $200,000 of taxpayer money on legal bills and public relations costs to convince the state it's not responsible for the mess there. Meanwhile, Southern Pacific already has forked over nearly $300,000 to the county to help cover costs, none of which has gone toward actual cleanup.

At stake for the county is potentially millions of dollars in cleanup costs. The law requires

polluters to pay their share of cleaning up contaminated sites.

For the county, the expensive question of responsibility involves who contributed to a giant plume of contaminated groundwater that is flowing under South Phoenix. Hazardous chemicals--such as solvents and petroleum products linked to cancer and other illnesses--have been detected above legal limits. The drinking water of the city of Tolleson is at risk because of the spills, and the contaminated groundwater is already used in agricultural canals. More important, the polluted underground water supply is expected to be needed as drinking water for the city of Phoenix in the future.

No one from the county or state will talk about the county's involvement in the West Van Buren area. ADEQ staffers have been instructed not to speak to the press. Pieces of ADEQ's files on the matter are missing. County staffers have locked down public records, saying the matter is "in negotiation." Both the county and state offer assurances that they're taking all the appropriate measures.

But those measures don't yet include dealing with the contamination. Even though the county often forces businesses and citizens to follow environmental rules and regulations, Maricopa County still hasn't started cleaning up after itself.

Last year, Maricopa County quit using the White Mountain Fuel Storage Facility. But contaminants linger under the site--and so do the questions about what the county did to contribute to the pollution.

In 1982, Maricopa County leased the property at 5146 West Monroe from Southern Pacific for use as a fuel storage facility. An oil/water separator on the site was used to dispose of contaminated water by pumping it into a dry well.

In 1989, ADEQ told the county to quit. "Some sort of preventative measures [should] be undertaken to avoid such an event (i.e., subsurface contamination from a dry well) in the future," ADEQ wrote the county, according to a chronology prepared by county staff.

Other companies that also stored fuel in the area disconnected their dry wells when asked by ADEQ, the chronology notes. But for four years after that warning from ADEQ, the county continued dumping contaminated water into the dry well.

Maricopa County's former environmental liabilities manager Roland Bergen told the county's Board of Supervisors of the problems at the site in an executive session on November 16, 1993. On March 23, 1994, Bergen wrote a memo about what had been going on at the site.

"We raised concerns about potential liability of the Board of Supervisors and management due to on-going disposal of BTEX (i.e. benzene, toluene, total xylenes) contaminated water from an on-site oil/water separator connected to a dry well at the facility since its construction in the early 1980s," Bergen wrote.

"Our research of the record indicates that on 22 March 1989 Maricopa County was advised by ADEQ to adopt 'some sort of preventative measures . . . to avoid' contamination of the groundwater from our oil/water separator."

But the county ignored ADEQ's request.
"Rather than act immediately on this information, Maricopa County continued to dispose of BTEX contaminated water in the on-site dry well until the mid part of November," Bergen wrote. "This appears to be a violation of ARS 13-1603 (Criminal littering or polluting)."

According to another county document, the oil/water separator was ordered disconnected in October 1993. But this order was ignored, too, and no follow-up was done for another month when the oil/water separator was finally disconnected from the well.

Bergen, when reached by New Times, didn't remember writing the memo but confirmed its contents.

"I don't remember the exact dates, but I know it wasn't disconnected when it should've been. But that was not me, you understand," he says. "It was not me that even got the memo in '89 . . . just so you know I'm not going out dumping hazardous waste down dry wells."

Bergen has since left county government to take a position with Intel. For the most part, he says, he's proud of the work he did while with Maricopa County. He tried to deal with problems as quickly and honestly as possible, he says.

"When I was there, we ran into a lot of things. And we cleaned them up, to the letter of the law. We found some real messes," Bergen says. "My approach was always comply with the letter and spirit of the law and in as comprehensive and as economical a manner as possible. And that's what I did."

Bergen took the same approach with the White Mountain facility, he says.
"There's a lot of problems with the county, and that was one of them," Bergen says. "I guess when we discovered it . . . in '93, we sounded the alarm bells, tried to get it fixed. And we got it fixed, as quickly as we could."

Maricopa County's current risk manager, Rocky Armfield, won't comment on the White Mountain facility, which was already out of the county's operations when he took over.

But ADEQ was never informed of the possible criminal violation, according to Richard Olm, the ADEQ project manager responsible for the area which includes White Mountain.

In 1996--more than a year after the county attorney, county administrator and Board of Supervisors were informed that the county had dumped contaminated water at the White Mountain facility--Maricopa County argued it shouldn't be responsible for cleanup since it had never polluted the groundwater.

"Throughout 1995, concentrations of BTEX . . . TCE . . . PCE . . . and . . . DCE have been detected in groundwater samples collected from the on-site wells," according to a report prepared for the county by James Clarke, a geologist with Brown and Caldwell, a consulting firm hired by the county.

Clarke concluded that the chemical contamination was not the county's fault. And in a letter sent to ADEQ on the county's behalf, Clarke said Maricopa County would not participate in cleanup efforts.

Clarke's letter and report never disclosed Maricopa County's four years of dumping on the site. The letter ends by asking ADEQ not to release the letter publicly. Clarke declined to comment for this story.

The letter and report, however, convinced ADEQ to release the county from any liability at the White Mountain facility.

Now, ADEQ officials say they would need to review the county's internal memos before deciding whether to investigate illegal dumping activities.

"I would need to read the memo and understand how it relates back to the site. That's my comment now," Olm, the ADEQ project manager, says.

But White Mountain isn't the only place where the county has found it convenient to ignore environmental problems in the West Van Buren area.

The other is the Maricopa County Materials Management Warehouse at 301 West Lincoln in South Phoenix, a storage/utility site that the county purchased from Southern Pacific in 1974. The site formerly housed a solvent-recycling facility, which used many hazardous chemicals in its processes.

Maricopa County was supposed to monitor the levels of toxins in the groundwater at its materials management warehouse. A series of wells were drilled, at taxpayer expense, for that purpose.

For a year, Maricopa County let the wells gather dust.
"The Arizona Department of Environmental Quality is concerned about the lack of progress of remedial activities at the Maricopa Materials Management Center," ADEQ's Olm wrote on February 9, 1994. Olm notes that the state asked Maricopa County to start monitoring the groundwater wells in June 1993.

"ADEQ did not receive a response to this request but believe the county is not monitoring groundwater elevations or collecting groundwater samples," Olm wrote.

The county's response: You're right, but we've been busy.
"As indicated in your letter dated 9 February 1994," a county staffer replied, "Maricopa County is not currently collecting groundwater samples . . . nor is it monitoring groundwater levels at that site. Despite massive financial and management burdens, Maricopa County . . . [is] planning to issue RFP's for these activities in May, interview consultants in June and award contracts in July 9 (our new budget year)."

The county's responsibility for the materials management warehouse is still under negotiation with ADEQ.

Maricopa County's defense against ADEQ's demands that it pay for the contamination from the site is well-known to any kindergartner: It's someone else's fault.

In this case, the county is pointing its finger at Southern Pacific, the original owner of both properties. The contamination at Materials Management, the county has argued in letters to

ADEQ, predates Maricopa County's ownership of the property, or comes from other sources, and the county shouldn't be held responsible for it.

But if it really is Southern Pacific's fault, then the county has already collected from it to the tune of $282,376.

In 1994, a deputy county attorney suggested pulling Southern Pacific into the negotiations with ADEQ for the West Van Buren area.

"[E]very effort should be made to draw as many 'potentially responsible parties' into the [West Van Buren Group] as possible," the attorney said in a memo. "Because the Southern Pacific Company owned the materials warehouse property . . . the railroad clearly bears a considerable share of the responsibility for any contamination . . ."

Maricopa County was successful. After negotiations, the railroad plunked down more than a quarter of a million dollars in 1996 to assist with the costs of dealing with the site. None of the railroad's money has gone to actual cleanup costs, and ADEQ is still negotiating, largely because Maricopa County insists the railroad is responsible.

The county won't say much about the delays. Rocky Armfield, the county's risk manager, declines to answer most questions about the county's sites in the West Van Buren area because the matter is still in discussion with ADEQ. He will say, however, that fixing the blame for an environmental hazard generally takes a lot longer than fixing the problem.

"If you look at the history of environmental liabilities, and you look at the length of investigation, you realize it's generally a lot longer process than the actual remediation," Armfield says.

The state's environmental watchdog defends the county, however; Maricopa County is no worse than anyone else, ADEQ says.

"There's sites that we have that nobody's doing anything on, and contamination was discovered before [Maricopa County]," says Olm. "Would it be nice if things happened quicker? I would say yes. But the process, length of time with the county is not particularly different than other sites."

Still, other polluters in the area aren't using taxpayer dollars to pay the legal bills to drag out the process. The county has already spent $207,203 on legal fees and public relations costs alone for the Materials Management site. Another $654,195 has paid for testing to confirm and monitor the contamination.

Just three weeks ago, the county finally approved $92,000 to remove vapors from the soil at the Materials Management warehouse. (The vapors are not considered to be a health threat until they migrate into the air or water, according to consultants' reports done on the site.)

But there's no indication from Maricopa County or ADEQ when chemicals will be removed from the groundwater--if ever.

Treated reservoir water now meets the city's needs, but groundwater is supposed to be

considered a source of drinking water--at least in the eyes of the law. The groundwater under Phoenix and the surrounding area is reserved for future generations, who are expected to drink it.

Future generations had better budget for Evian.
For years, numerous businesses and manufacturers contributed to hundreds of different spills and dumps of chemicals, many of which trickled their way down to the water trapped below layers of sediment and rock. The result is that the groundwater in this area is contaminated with numerous chemicals, many that are harmful.

In 1986, the Arizona Legislature passed laws which regulated the testing and cleanup of the state's groundwater. Those laws also created the Arizona Department of Environmental Quality. One of the agency's missions was to ensure that the chemistry experiment under the ground stopped, and got cleaned up.

Over the past 10 years, regulators have tried, with varying zeal and success, to carry out their mandate. But at least some of the worst spills--such as Motorola's decades-long history of leaks and dumping--are now on the way to being cleaned up.

And some responsible parties in the West Van Buren area are further along than others.

The City of Phoenix, another polluter in the West Van Buren area, has entered into a consent decree which has settled its liability. The American Linen Supply Company, after going through its own haggling period with ADEQ, has entered into a consent decree and paid $2 million to the state.

Those sites as well as both county properties are part of the West Van Buren Water Quality Assurance Revolving Fund (WQARF, pronounced "wharf") area. WQARF areas, sometimes known as state Superfund sites, are supposed to eliminate the pollution within their boundaries.

The West Van Buren WQARF area's responsibility is the West Van Buren plume, a contaminated, underground tide approximately one and a half miles wide that stretches from Seventh Avenue to about 83rd Avenue.

The plume contains a stew of toxins: trichloroethylene, or TCE, chromium, dichloroethane, or DCE, and benzene, toluene, ethylbenzene and xylene, known collectively as BTEX.

These chemicals have been linked with cancer and other adverse health effects.

Benzene is known to cause leukemia and is believed to cause tumors. Toluene, another component of BTEX, can damage the central nervous system and bone marrow. Xylenes might also damage bone marrow and present a threat to unborn babies. Most people come into contact with BTEX while fueling up their cars--but it's also in Phoenix's groundwater.

TCE is classified as a carcinogen, and chronic exposure may cause damage to internal organs. Chromium is also considered a cancer-causing agent, even at the minimum limit set by the federal Occupational Safety and Health Administration.

The plume containing these contaminants threatens the drinking water of the city of Tolleson, which still relies on groundwater wells for its municipal supply. The polluted groundwater is also being released into the air and into irrigation canals used to water crops.

That could be a more immediate concern, according to Karen Florini, a senior attorney with the Environmental Defense Fund. "Whatever you've got in [the water] is going to [disperse in the air]," she says. "It just depends on the levels."

Benzene, for example, makes an easy passage from water to the air to the bloodstream, one CDC study shows. The benzene-tainted water being poured into the canals could be releasing the chemical into the air, Florini says.

"You've got a potentially significant exposure to benzenes there," she says.
Maricopa County has done no testing to determine the health effects of exposure to the groundwater being poured into the canals. And no testing is being done of the water in the irrigation canals, according to the Roosevelt Irrigation District.

Despite the contamination, no cleanup of the groundwater in the West Van Buren area is under way or planned for any set date.

ADEQ considers remediation "infeasible because unmanageably large volumes of groundwater would require treatment and disposal," according to the ADEQ project summary.

Translation: So much groundwater has been fouled, we can't afford to clean it all.

But the possible health hazards of the plume seem to concern the county less than the legal battle to get out of paying for them.

Even an internal county document draws that conclusion. In a memo detailing the chronology of the county's role in the West Van Buren area, a staffer says that the county got bogged down in bickering, while the more important issue--removing a potential health hazard from the public's water--was ignored.

". . . [I]t appears that the Materials Management Department was unprepared to respond to either the environmental or human health issues in the West Van Buren WQARF (both at the tank farm and materials warehouse)," the staffer wrote. "Additionally, it appears that the County Attorney's Office focused almost exclusively upon legal issues . . . no department initiated the remedial investigation, risk assessment, and feasibility studies that are common to effectively define and/or limit the scope of exposures in this arena."

However, the county will "comprehensively" address health issues in the future, the memo promises.

The memo was written in 1993.

A recent letter to New Times from county administrator David Smith talks up the county's commitment to dealing with its environmental problems.

"The county is thoroughly committed to addressing its environmental responsibilities in order

to protect public health, safety and welfare, while at the same time acting as a prudent steward of public monies," Smith wrote.

But when it comes to one of those responsibilities, ADEQ and Maricopa County can't think of anything to say. Both are reluctant at best to discuss the problems in the West Van Buren area. ADEQ's Olm would only answer a few questions before he told New Times he'd been instructed not to respond to any inquiries. "Now I'm starting to wonder if I'm defying . . . DEQ administration by continuing this conversation," he says.

The county's risk manager says he can't comment as long as the matter is in negotiation. The spokesman for the Maricopa County Board of Supervisors and administration, Scott Celley, referred questions back to the risk manager.

Neither ADEQ nor Maricopa County will talk about the potential violation of law the county committed by dumping the hazardous waste at White Mountain.

The White Mountain site is considered a closed case. ADEQ has released Maricopa County from the group of responsible parties. Those who are left are now proposing "natural attenuation" as a solution--basically, letting the tainted groundwater flow away. ADEQ is considering the proposal.

Roland Bergen, the former liabilities manager, says that the county did dig up the dry well and dispose of the contaminated soil at White Mountain, though there is no record of this at ADEQ. Bergen can't explain why the county would not inform others about problems like the one he discovered at White Mountain.

The EDF's Karen Florini would offer a comment on the dumping, however.
"Who was stupid enough to do this?" she asks. "Unless this dry well it's been going down has a permit to receive hazardous waste, that disposal is illegal. And somebody's potentially in a lot of trouble.

Jennifer Thies

From: Lagas, Phil [PLagas@brwncald.com]
Sent: Tuesday, December 30, 2008 1:47 PM
To: Jennifer Thies
Cc: Luke Narducci; Kevin C. Snyder; Pete Polean
Subject: Comments on the Draft Remedial Investigation Report, West Van Buren Area WQARF Registry Site

Jennifer:

Listed below are some comments on the Draft Remedial Investigation Report for the West Van Buren WQARF Registry Site dated October 2008.

Section 1.3.2.4, Page 1-7 and 1-8

1. The draft RI incorrectly states that Dolphin's manufacturing facility, including areas identified as Dolphin I, III, IV, VI, and VII, encompasses approximately 50 acres. The correct acreage for this area is approximately 13.5 acres. Please note that the building known as Dolphin IV was never used for manufacturing operations and was demolished several years ago. The areas identified as Dolphin I, III, VI, and VII consist of manufacturing facilities, offices, and warehouses. The vapor degreaser was a small unit inside one of the manufacturing buildings and was removed from the site in 1994 when Dolphin discontinued use of chlorinated solvents at the site. Two sewer interceptors were formerly used to remove solids from facility wastewater and were closed in the 1990's.

2. The draft RI incorrectly states that chromium was used in the investment casting process. Chromium is not a raw material used by Dolphin in its manufacturing process. Chromium is present in the steel used by Dolphin to manufacture its products.

3. The draft RI incorrectly states that the site contains 19 buildings that were constructed specifically for Dolphin's operations. Although the buildings have been expanded over the years, the site only contains 8 buildings some of which were constructed for Rueter Inc. (the original Dolphin I building) and George and Sons Steel (Dolphin III buildings).

4. The facility operating hours, shifts, and number of employees have varied over the years depending on production requirements. The facility is currently operating 2 shifts, 4 days per week and has approximately 160 employees.

5. The first complete sentence at the top of page 1-8 states that several historical releases of hazardous waste occurred at the site but specific documentation regarding

the releases had not been identified. Between 1992 and 2002, several investigations were conducted at the Dolphin facility to identify and characterize historical releases of hazardous substances. Those investigations identified 4 releases/source areas of hazardous substances - former drum storage areas at Dolphin I, former vapor degreaser at Dolphin I, former sewer interceptor at Dolphin III, and a liquid and sludge release at Dolphin III. Those investigations were conducted under the oversight of the hazardous waste unit at ADEQ. Reports describing the results of the investigations can be found in ADEQ's files. Please revise the sentence to more accurately describe the hazardous substance releases identified at Dolphin's facility.

Section 1.3.2.6, Page 1-14

6. This section of the draft RI report does not mention the work conducted by Dolphin at its facility under the WQARF program and the RCRA Consent Decree. The work included installation and testing of monitor wells, site investigations to identify and characterize potential releases of hazardous substances, and SVE and air sparging to remediate soil and groundwater. Descriptions provided under other facilities in this section include this type of information.

Table 2-3

7. What is the purpose of Table 2-3? The data presented is not complete even though the title of the table states that it is a summary of soil gas and soil samples collected at select facilities. Are you presenting only the highest concentrations of COCs detected at each facility? What is the purpose of the "bold" on some of the results? The table should be revised for clarity. In addition, the residential SRL (post 5/5/2007) should show the 10-5 risk value since the 10-6 risk value only applies to schools and day care centers and all of the facilities listed in the table are non-residential properties.

Sections 2.3 and 2.4

8. When comparing soil concentrations to the GPL in the text of the report, the work "minimum" should be added in front of "GPL" to avoid confusion with alternative depth-specific GPLs. The acronym "GPL" is first defined on page 2-13.

9. Reported concentrations of COCs in the draft RI are not consistently compared to the same regulatory standards. In some cases, they are compared to HBGLs (see page 2-20), minimum GPLs or pre-determined SRLs (residential or non-residential is not specified). Text should be added at the beginning of Section 2.0 describing the different regulatory standards, their significance in conducting characterization activities and establishing remediation goals, and how they are used. This could be accomplished by

moving the discussion of regulatory standards at the beginning of Section 4.0 to Section 2.0. Detected concentrations should be compared to predetermined, non-residential SRLs and minimum GPLs, not HBGLs. HBGLs should only be used if SRLs have not been established for a specific COC.

10. The draft RI reports the maximum concentration of COCs detected in soil gas, soil and groundwater sampling. The information would be more useful if the range of detected concentrations were reported for each COC in each media. Table 2-3 could be revised to include this information.

11. The text on page 2-21 and 2-22 and in Section 2.4.1.4, page 2-31 should include information on the significant reduction of VOC concentrations in groundwater at Dolphin as a result of the air sparging and soil vapor extraction activities. As a result of SVE/AS activities, PCE concentrations in UAU1 have decreased from 95,000 ug/L to less than 15 ug/L within and downgradient from the VOC source areas. In addition, VOC concentrations in upgradient wells are equal to or higher than the concentrations detected in source area and on-site downgradient wells indicating that the SVE/AS has reduced VOC concentrations in UAU1 to below background concentrations migrating onto Dolphin's facility from upgradient sources. Similar information is provided for the ALSCO facility in both Sections 2.3 and 2.4.

12. Air sparging should be added to the bullet list on page 2-22 of corrective actions taken at Dolphin for the following source areas: Former Drum Storage Areas; Former PCE Degreaser; and Drywell #1.

Figures 3-18, 3-27, 3-36

13. Groundwater elevation data for Dolphin's wells from the 1st quarter of 2008 should be added to Figures 3-18, 3-27, and 3-36 for the Final RI. These data were submitted to ADEQ in September 2008.

Section 4.1; page 4-2

14. Why are HBGLs used as standards for evaluating COCs? All of the COCs in the WVB area have SRLs which are established by rule.

15. As mentioned in the comments above, discussion regarding the identification of COCs and associated regulatory standards should be presented prior to the detailed discussion of facility investigations presented in Section 2.0.

16. The residential SRLs for the 10-5 and 10-6 risk levels should be presented in the

table of revised SRLs on page 4-2. Except for Cr+6, the 10-6 risk level values only apply to schools and day care centers. None of the facilities under investigation in the WVBA are schools or day care centers.

17. The information regarding maximum COC concentrations in soil gas, soil, and groundwater presented in Section 4.1 is repetitious with the information presented in Section 2.0 and should be deleted. It also does not acknowledge the remediation performed by several facilities which have significantly reduced the COC concentrations. A more balanced and complete presentation of the information is presented in Section 2.0.

Section 4.2

18. At the beginning of Section 4.2, the report should indicate that ADEQ is continuing to conduct a PRP search for the WVBA and may identify other sources of soil and groundwater contamination. As stated in Section 1.0, 145 facilities are currently under investigation and the final complete list of PRPs will not be finalized until the PRAP is issued by ADEQ. Otherwise, a reader could incorrectly conclude that the facilities discussed repeatedly in various sections of the report are the final list of PRPs for the WVBA.

Section 4.2.3.1

19. References to Figures 4-1 and 4-2 on pages 4-14 and 4-15 should be deleted because groundwater quality data for Dolphin's facility was not available until after 1993.

20. Groundwater quality data for Dolphin's wells for the first quarter of 2008 should be added to figures 4-11, 4-12, and 4-13 for the Final RI.

21. Dolphin has no records indicating that it used TCE, 1,1-DCE, or cis-1,2-DCE in its manufacturing processes. Although these compounds may have been present in small quantities in the PCE purchased by Dolphin for use at the facility, the presence of these compounds in soil and groundwater is probably the result of degradation of PCE.

Figures 4-11 through 4-13, 4-22 through 4-24, and 4-33 through 4-35

22. Groundwater quality data for Dolphin's wells from the 1st quarter of 2008 should be added to the figures listed above for the Final RI.

Appendix D - Dolphin Inc.

23. The maps and laboratory reports presented in Appendix D for Dolphin are very limited, both in scope and time. Much more information is readily available in the reports submitted to ADEQ over the last 15 years. What is the purpose of providing this limited information in an Appendix to the RI? What criteria were used to determine which information should be included in the Appendix? Similar to all the other data available for the site, it seems more appropriate to reference the information in the reference list and indicate that the reports and data are available in ADEQ's files. I did not review the information in Appendices A through C and E through I but I suspect this comment would apply to those appendices as well. If the purpose is to provide a quick reference list of facility specific information, then a complete list of facility specific records and reports could be included for each facility instead of limited, random data pulled from the files or reports.

Give me a call if you have any questions or need clarification on any of my comments.

Thanks
Phil

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ROOSEVELT IRRIGATION DISTRICT

103 WEST BASELINE ROAD
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December 23, 2008

Jennifer Edwards Thies
Project Manager, Remedial Projects Unit
Waste Programs Division
1110 W. Washington Street, MC4415B-1
Phoenix, AZ 85007

RE: *Roosevelt Irrigation District Comments Regarding the "Draft Remedial Investigation Report, West Van Buren Area WQARF Registry Site"*

Dear Ms. Thies,

This letter provides comments from the Roosevelt Irrigation District (RID) regarding the Draft Remedial Investigation Report (RI Report) for the West Van Buren Area (WVBA) WQARF Registry Site (Site). RID appreciates the opportunity to respond to the Arizona Department of Environmental Quality (ADEQ) and convey the concerns we have regarding the apparent widespread contamination in groundwater in the WVBA and the impact this groundwater contamination (and groundwater contamination migrating from other adjacent Superfund sites) has on RID's well field and on current and future water operations, including the provision of water to the growing population in the District for agricultural and potable uses.

While it is evident that a substantial amount of investigation has been conducted since the Site was placed on the WQARF priority list, it is also apparent that very little, if anything, has been done to restore the regional water quality of the aquifer, to mitigate impacts to RID wells, or to protect the unrestricted use of groundwater withdrawn from the RID well field. We understand that the scope of the RI is to establish the nature and extent of soil and groundwater contamination and to identify current and potential impacts to human health and the environment. However, RID believes that the RI Report fails to adequately consider the impact to RID from the volatile organic compound (VOC) contamination of our wells or address the right of RID to pump and deliver uncontaminated groundwater for current and foreseeable future uses.

As stated in the RI Report (pg. 6-9), *"Groundwater pumpage represents the major outflow from the groundwater system within the WVBA. The primary production wells within the WVBA are those operated by RID…"* Additionally (pg. 6-10), *"Some of these wells extract VOC-contaminated groundwater which is discharged into the canal."* and (pg. 6-11), "*Thus, water within the RID canal acts as a potential route of surface water* [and contaminant] *migration downstream of the WVBA."* RID takes strong exception to the implication of these assertions that the release of hazardous substances to groundwater by numerous responsible parties, the widespread impact on

RID wells, the downstream impact on RID use is acceptable, and that RID may be some how responsible for these problems. RID has long anticipated ADEQ action to address releases of these hazardous substances from the WVBA and other federal Superfund sites that have impacted, or have the potential to impact, as many as 20 RID wells. These 20 wells constitute a vital water source for thousands of Arizona citizens, growing communities, and critical farmland. Given that the WVBA and adjacent federal Superfund sites constitute the largest region of groundwater contamination in the state and they have impacted and impaired RID's wells on a massive scale, RID water interests must be addressed, protected and restored through appropriate remedial actions.

The WQARF and federal Superfund programs were developed on the central premise of restoring the drinking water quality of the state's groundwater aquifers to protect against the loss or impairment of any future uses of waters of the state. RID is entitled to such protection and is prepared to take all appropriate actions to protect its legal interests and the valuable natural resource relied upon by RID's members. WQARF authority in statute and rule[1] directs ADEQ to identify remedial actions that will clean up hazardous substances to allow the maximum beneficial use of the waters of the state and to assure that the current and future interests of well owners and the water providers (and their customers) are considered in planning and implementing remedial actions, including the quantity and quality of water, reliability of water supplies, and any operational implications. This legal assurance includes prevention of impairment to current and reasonably foreseeable end uses which, in RID's case, includes the current irrigation use as well as future drinking water use. Arizona has unequivocally defined all groundwater in the state to be considered and protected as drinking water (A.R.S. § 49-224.B). Accordingly, as noted in our response to question 6 on the Land and Water Use Study Questionnaire (Appendix K of the RI Report), RID strongly objects to any limitations or restrictions on the current or future use of its water.

Additionally, the RI Report inappropriately includes the following in Section 2.2.2.1: "The RID was formed in 1923, after securing an agreement with SRP to pump and deliver water in 1923. SRP may take the position that this agreement will expire in 2019. RID takes the position that the agreement does not expire. If SRP prevails in its position, then RID may no longer be able to pump wells east for [sic] the Agua Fria River, cutting RID's pumping by 85 percent." This language is irrelevant to the purposes of the RI Report, and the last sentence in particular is speculative. RID therefore requests that this portion of Section 2.2.2.1 be deleted in its entirety. A simple reference to RID being formed in 1923 is sufficient.

RID is an injured party as a result of this area-wide groundwater contamination. RID requires that immediate action be taken to mitigate the impacts of this groundwater contamination on the aquifer, RID's wells and RID's water operations. We request a

[1] See ARS §§ 49-282.06.A.2, 49-282.06(B)(4)(b) and AAC R18-16-407.G

meeting with ADEQ at your earliest convenience to discuss plans to restore the drinking water quality of the aquifer, to protect RID against the loss or impairment of its water uses, to ensure unrestricted future use of its water interests, and to pursue all potential responsible parties to mitigate any and all injuries, liabilities and damages sustained by RID as a result of the harm caused and/or threatened by the area-wide groundwater contamination identified in the WVBA RI Report.

Sincerely,

ROOSEVELT IRRIGATION DISTRICT

Stanley H. Ashby

Stanley H. Ashby

cc: Sheryl Sweeney, Ryley Carlock & Applewhite
David P. Kimball, III, Gallagher & Kennedy
Dennis Shirley, Montgomery & Associates

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UNIVAR

December 29, 2008

Ms. Jennifer Edwards Thies, Project Manager
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, AZ 85007

Re: Univar USA Inc.'s Comments
Draft Remedial Investigation Report
West Van Buren Area WQARF Site
Phoenix, AZ

Dear Ms. Thies:

Univar USA Inc. has reviewed the draft Remedial Investigation Report for the West Van Buren Area WQARF Site. Our review has identified a number of sites where additional discussion and/or clarification would be most helpful in ensuring the appropriate remedy(s) are evaluated. In addition, there are a number of sites identified in the RI report where investigative activities requested by the ADEQ have not been completed or even initiated. These need to be completed.

If you have any questions related to our comments, or wish to discuss any of them in more detail, please contact our consultant, Gail Clement, G.M. Clement Associates, at 480-314-9499, or myself at 208-888-1094.

Sincerely,

Michael Gaudette
Senior Project Manager

cc: James Hooper, Univar, Director, Environmental Affairs
Julie Riemenschneider, Manager, ADEQ Remedial Projects
Gail Clement, G.M. Clement Associates

West Van Buren Area WQARF Site
Draft Remedial Investigation Report
Univar USA Inc. Comments

General Comments	
1	The West Van Buren Area (WVBA) WQARF Site, Draft Remedial Investigation (RI) Report is a good summary of much of the available historical data and a good central source of information. The Report presents the facts in a comprehensive and understandable format.
2	While the Report presents the historical data, there is limited interpretation and analysis of the data. A detailed discussion of the Site Conceptual Model (SCM) appears to be absent. By clearly laying out the complete big picture, the SCM illustrates how the situation was created and what has happened in the interim to enable selection of an appropriate remedy. The SCM includes the mechanisms causing changes in contaminant concentrations and distribution over time. For example, early source removal in the WVBA has contributed to decreasing contaminant concentrations in WVBA groundwater; while in contrast, contaminants continue to enter the Site along the eastern boundary from the Motorola 52nd Street CERCLA site. Because of the mass input from the adjacent CERCLA site, a mass flux analysis would be helpful in evaluating the most effective remedial options.
3	The concept of "the WVBA groundwater plume" is a simplification of the distribution of contaminants in the groundwater in the WBSA. In reality the WVBSA has a combination of many, commingled plumes with different sources, different timing, different VOCs and differing fate and transport parameters. In addition, a significant portion of the groundwater contamination in the WVBA appears to be related to contamination entering the Site from the east. Using an over simplification could lead to misapplication of an overall remedy for situations and source areas that may benefit from more focused attention.
4	There is no discussion of data gaps and whether any data gaps are problematic to completion of the RI and Feasibility Study.
5	While ADEQ has conducted an area-wide investigation of the WVBA, individual sites, including the Univar site, have completed site investigations and performed source control. This overall approach has been successful in reducing ongoing sources of contamination to groundwater and achieving partial remediation of the groundwater. Univar encourages ADEQ to continue this successful approach in the WVBA WQARF Site.

Specific Comments		
Page	**Paragraph**	**Comment**
1-4	5	Replace "Van Waters and Rogers" with "Van Waters & Rogers".
1-6	2	The Univar facility has never been used for solvent recycling. Warehousing, distribution, repackaging and transporting of industrial chemicals has been performed at the Univar facility.
1-12	2	It is anticipated that any future use of the Central Phoenix Plume Model (CPM) would be of great interest. Interested parties should be included in future efforts, if any, to update, recalibrate and utilize the CPM for FS or other purposes.
2-2 thru 2-5	Numbers: 2, 11, 16, 18, 21, 22, 24, 25, 26, 28, 30, 31, 33,	All of these sites had detectable concentrations of at least one VOC in soil at a time when soil sampling for VOCs did not include procedures to minimize VOC loss during sampling. The presence of VOCs in soil indicates the potential for the presence of an onsite source of VOCs to groundwater.

	34, 37, 41.	
2-3	Number 12	The facility should complete the investigation requested by ADEQ. What impacts to soil and groundwater have resulted from the dry well and oil/water separator?
2-3	Number14	Was investigation of the soils and groundwater beneath the drywell conducted? What were the results?
2-3	Number 15	The facility should complete the investigation requested by ADEQ.
2-4	Number 29	The facility should complete the investigation requested by ADEQ.
2-4	35	Has the investigation and excavation been completed? Were there any impacts to soil or groundwater?
2-7	3rd Bullet	Why does the list of 163 wells include wells that were abandoned or never drilled? What is the total number of wells that could be affected by groundwater quality, what are their uses and where are they located?
3-3	5	Why were logs with lithologic descriptions of less than 200 feet excluded? Wouldn't the majority of UAU1 wells be drilled to this depth or shallower?
3-4	4	How do the WVBA UAU lithologic layers correlate with the UAU geology used in the Motorola 52nd Street CERCLA site?
3-9	5	The Report states that water levels have dropped approximately 35 feet, an average of approximately three feet per year since 1993. Over what specific period of time did this occur? Are water level declines continuing?
3-11	1 and 2	Vertical head differences were calculated for a number of well pairs over time. These head differences represent the potential for downward or upward vertical flow, but they do not demonstrate that such flow is occurring. Vertical flow will be dependent on the direction and magnitude of the head differences over time, the geology at any specific location, and the influence of the horizontal gradient. Although the potential for vertical downward flow exists, it is not obvious that the distribution of contaminants in the lower units is due primarily to vertical movement through the geologic units.
4-7	3	The COCs for OU3 include contaminants other than TCA and TCE. The full list of OU3 COCs also includes chloroethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, tetrachloroethene (PCE), 1,1,2-TCA, vinyl chloride and 1,4-dioxane.
4-8	1	Data also indicate that PCE groundwater contamination originates from the OU3 area east of Seventh Avenue and flows into the WVBA WQARF Site from the east.
4-11 thru 4-12	6, 1 thru4	The most recent groundwater data reported for the former VW&R site identifies TCE, PCE, 1,1-DCE and TCA concentrations in groundwater collected beneath the site. It should be noted that these concentrations are similar to concentrations found in upgradient wells and there is no evidence that the former VW&R site presents an ongoing source of contamination to groundwater.
5-2 6.8	4 Section 6.2	Another potential mechanism for the vertical movement of contamination is non-operating production wells that are screened across multiple aquifers. Has an analysis been performed to determine whether production wells could be the source of the observed contamination in deeper units, particularly the MAU?