

Danielle R. Taber

From: Robert.Frank@ch2m.com
Sent: Thursday, December 18, 2014 1:56 PM
To: Danielle R. Taber
Subject: CH2M HILL Comments on Behalf of Honeywell on RID's Public Health Exposure Assessment and Mitigation Summary Report
Attachments: CH2M HILL Comments on Behalf of Honeywell on RID's Public Health Exposure Assessment and Mitigation Summary Report

Hi Danielle,

I was reviewing information posted on ADEQ's website regarding the WVB Regional Remedy, and I noticed that our comments on RID's Public Health Exposure Assessment and Mitigation Summary Report (dated September 16, 2011) were not posted on the website. I have attached my original email to Director Darwin dated April 27, 2012 that includes the submittal and attachment. Could you please post these comments on the ADEQ website in the appropriate location so that they are available to interested parties?

If you have any questions or any problems accessing the attachment, please let me know.

Thank you and have a very happy holiday!!

Bob

Robert J. Frank, R.G.

*Principal Hydrogeologist/Principal Technologist
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Danielle R. Taber

From: Robert.Frank@CH2M.com
Sent: Friday, April 27, 2012 10:45 AM
To: Henry Darwin
Cc: Amanda E. Stone; Tina LePage; Troy.J.Meyer@honeywell.com; KSG@SLWPLC.COM; Loren.Lund@CH2M.com
Subject: CH2M HILL Comments on Behalf of Honeywell on RID's Public Health Exposure Assessment and Mitigation Summary Report
Attachments: CH2M HILL Comments on RID's PHEAMS Report_4_27_12.pdf

Dear Director Darwin,

Attached please find comments on RID's Public Health Exposure Assessment and Mitigation Summary Report. These comments are being submitted on behalf of Honeywell International Inc.

Thank you,

Robert J. Frank, R.G.

*Senior Hydrogeologist/Senior Technologist
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April 27, 2012

Via Electronic and First Class Mail – hrd@azdeq.gov

Henry R. Darwin, Director
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, AZ 85007

Subject: West Van Buren WQARF Site
Roosevelt Irrigation District Public Health Exposure Assessment and Mitigation Summary
Report dated September 16, 2011

Dear Director Darwin:

CH2M HILL, on behalf of Honeywell International Inc., appreciates this opportunity to comment on the Roosevelt Irrigation District's (RID) Public Health Exposure Assessment and Mitigation Summary Report (Report) prepared by Synergy Environmental, LLC dated September 16, 2011. CH2M HILL was not aware until recently that there were documents on this issue that had not been posted to the Arizona Department of Environmental Quality (ADEQ) website. We obtained this report, performed a technical review, and then compiled the comments below as quickly as possible.

General Comments

1. The Conclusions section of the Report states that there is not an imminent (acute) risk to the public from contamination being released from the RID water system. The Report also states that contaminated water is not expected to lead to unacceptable public exposure based on the limited and transient potential use of this water as a source of drinking water. CH2M HILL agrees that there is not current unacceptable public exposure to water; however, CH2M HILL is not aware of any use of this water as a source of drinking water. Finally, the Report also states that, although there are exceedances of screening levels in air based on chronic exposure, the long-term effects from exposure to volatilized contaminants of concern (COCs) in the air are uncertain. Based on these conclusions of no imminent risk to public health, the Report then presents an Early Response Action (ERA) to mitigate "the uncontrolled release of contaminants in both air and water." The assessment of public health in the Report does not provide adequate justification for the proposed ERA described in Section 5.0 of the Report.

According to Arizona Administrative Code (AAC) R18-16-405, an ERA may be performed prior to the selection of a remedy if it is necessary to address "current risks to public health, welfare, and the environment." However, CH2M HILL does not agree that screening-level exceedances and uncertainty about long-term health effects demonstrate a current risk, and therefore does not agree that the Report provides adequate justification for the proposed ERA.

2. In general, overly conservative assumptions were used in the Report that are not representative of actual or reasonably expected current exposure. The screening levels used in the Report are overly conservative for actual potential current exposure. For example, industrial air screening levels based on chronic daily exposure of workers are compared to data collected directly within pipe and receiver box headspaces. The Report states that employees and contract workers may infrequently conduct maintenance work in these enclosed spaces; therefore, using screening levels based on chronic daily exposure is not representative of these workers' potential current exposure. Exceedances of these screening levels may indicate further site-specific evaluation is warranted, but the exceedances are not definitive indications of unacceptable current risk.

As another example of the overly conservative assumptions within the Report, “virtual fence line” air samples are used in the Report to represent potential residential exposure to volatile organic compounds (VOCs) in ambient air. An evaluation of human health risks associated with VOCs in the RID system performed by AMEC Geomatrix Inc (AMEC) on behalf of the Salt River Project Agricultural Improvement and Power District (SRP) used VOC concentrations in RID Well 92 and air dispersion modeling to estimate air concentrations at the nearest residential property (letter report from SRP to ADEQ dated August 18, 2010). These modeled air concentrations presented in the AMEC report are orders of magnitude lower than the “virtual fence line” results used in the Report to represent ambient air exposure to residents. These significantly different conclusions in the AMEC report from the subject Report support the need for additional evaluation to demonstrate the need for the ERA based on current exposure of residents.

A third example of overly conservative assumptions is the use of drinking water standards as comparison criteria for water data. As stated in General Comment #1, CH2M HILL is not aware of any current use of the water in the RID system as a source of drinking water.

CH2M HILL recommends that further sampling and evaluations, including a quantitative Human Health Risk Assessment (HHRA) that will provide numerical cancer risk and non-cancer hazard index (HI) estimates for more realistic current and future exposure scenarios, are needed to determine if potential current or future risks must be addressed.

3. As noted in General Comment #2, CH2M HILL recommends that a quantitative HHRA be performed to provide adequate information for decision-making about the site. As written, the Report does not meet the minimum requirements of Arizona or U.S. Environmental Protection Agency (USEPA) risk assessment guidance. This HHRA should adequately address all four components of an HHRA as listed in AAC R18-16-401 and described in Arizona Department of Health Services (ADHS) risk assessment guidance (*Deterministic Risk Assessment Guidance*; ADHS Department of Environmental Health; May 16, 2003) and USEPA risk assessment guidance (*Risk Assessment Guidance for Superfund: Volume I, Human Health Evaluation Manual [Part A]* Interim Final, December 1989). ADHS and USEPA guidance contain the following four main components of an HHRA: (1) identification of potential contaminants, (2) an exposure assessment, (3) a toxicity assessment, and (4) a risk characterization. The subject Report contains sections that correspond to the first two components of an HHRA, but not the last two. All four components should be completed for this site as described below in Specific Comments.

Specific Comments

1. Section 2.2, page 6 – The Report includes a section entitled Contaminants of Concern (first of the four main components of an HHRA); however, adequate documentation is not provided to justify the selection of the three target COCs. Six COCs are listed in Section 2.2 of the Report as being primary COCs for the site, and these six COCs are consistent with the COCs identified in the *Draft Remedial Investigation Report, West Van Buren Area WQARF Registry Site* prepared by Terranext for ADEQ dated October 2008. However, more detail is needed to explain which analytes were included in the laboratory analysis and what the process was that resulted in selection of only three target COCs for the Exposure Assessment. Data should be presented that documents the COC selection process.
2. Section 2.3, page 6 – In describing the contamination impact on the RID water system, the Report references the Arizona Department of Water Resources registered pumping capacities of the RID wells. However, there is no discussion of the existing contractual agreements between RID and SRP that provide both the basis for RID groundwater withdrawals within SRP’s service area (including establishing certain pumping limits) and limit RID’s right to pump from within the SRP service area to no later than 2026.
3. Sections 3.1 to 3.3, pages 7 through 11 – The Report includes an Exposure Assessment section (second of the four main components of an HHRA); however, according to ADHS and USEPA guidance, an exposure assessment describes potentially complete exposure pathways under current and future conditions. Typically

in HHRAs, current and future potentially complete exposure pathways are depicted in a conceptual exposure model figure that shows all elements of a complete exposure pathway – contaminant source, migration pathways, potential exposure points, potential current and future receptors, and potential exposure routes for the receptors. This information needs to be laid out clearly in the Report so that linkages are established between contaminant sources and potential receptors. In addition, a description of current versus potential future receptors is lacking from the Report. This description is needed so that it is clear to readers which receptors may have current exposure and which are associated with hypothetical future scenarios that do not currently exist.

4. Section 3.4, pages 11 through 15 – The Report is based on data collected during one sampling event from areas associated with only two RID wells (RID 92 and RID 114). These two wells are described in the Executive Summary (page 2) as “worst case” locations. More information is needed to document the selection of these two locations, the basis for concluding they are “worst case” wells, and how the concentrations of COCs in these wells relate to the other wells in the RID system.

Based on a comparison of concentrations of COCs in the various wells, conclusions based on these two wells are likely to be overly conservative for other wells where concentrations of COCs are substantially less than those measured at RID 92 and RID 114 (up to two orders of magnitude less at some wells). Section 4.4 of the Report acknowledges the limitations of the data set and contains the following statements:

This study does, however, provide quantifiable data that are adequate to reasonably conclude the current emissions are not an imminent risk to public health. The scope of this exposure assessment does not provide the basis to make inferences of potential risk for public exposures to COCs in air over longer duration and in wider areas of the RID water system.

These statements from the Report support the need for more detailed evaluation and risk characterization to understand the actual risk to public health and to justify implementation of the ERA.

5. Sections 3.4.1 and 3.4.2, pages 11 and 14 – There is no reference to a Data Validation report for the air and water data collected for this Report. A Data Validation report is needed to document that data are of sufficient quality for performing a risk evaluation.
6. Sections 4.2 and 4.3 – As a means of evaluating potential exposure, the Report contains descriptions of comparisons of site data to readily available screening levels (e.g., Arizona Ambient Air Quality Guidelines, Arizona Surface Water Quality Standards, Agency for Toxic Substances and Disease Registry Minimal Risk Levels, and USEPA Regional Screening Levels [RSL]). A general discussion is included in these sections that states there are screening level exceedances for some of the locations and media, but there is not a discussion of the magnitude of these exceedances. Details need to be added that provide perspective on the magnitude of exceedances and relevance of the screening criteria to reasonably anticipated exposures expected at the various locations that were sampled.

Furthermore, risk assessment guidance generally states that screening level exceedances do not necessarily indicate an unacceptable risk. Rather, exceedances of screening levels may indicate the need for further site-specific quantitative risk assessment methods. For example, per USEPA RSL guidance (www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/faq.htm#FAQ3):

Chemical concentrations above the SL would not automatically designate a site as "dirty" or trigger a response action; however, exceeding a SL suggests that further evaluation of the potential risks by site contaminants is appropriate.

The Data Interpretation section of the *Public Health and Exposure Assessment and Mitigation Work Plan* (prepared by Synergy Environmental, LLC on behalf of RID dated June 16, 2011) that describes how data were to be evaluated in the Report notes that if exceedances of health-based guidelines are observed, further evaluation may be warranted. However, the Report does not contain any “further evaluations” in which

Henry R. Darwin, Director

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exposure assumptions are tailored to more realistic current or future scenarios and exposure conditions for each medium.

Finally, the Report does not present estimated cancer risk or non-cancer HI results that can be compared to ADEQ targets. Further evaluations, including quantitative cancer risk and non-cancer HI calculations, are needed to determine if there is a current or future risk. The Report should include a Risk Characterization section (fourth of the four main components of an HHRA) that presents the results of these calculations. Consistent with risk assessment guidance, the Risk Characterization should include a thorough discussion of the uncertainties associated with the quantitative cancer risk and non-cancer HI results.

7. Section 4.4 – There is some reference to uncertainties related to toxicity criteria in Section 4.4, however; the Report does not include a Toxicity Assessment section (third of the four main components of an HHRA). One of the key purposes of the Toxicity Assessment is to document the current toxicity criteria for the COCs that are included in the quantitative risk characterization component. A Toxicity Assessment needs to be provided to document the basis of the screening criteria used in the Report.

If you have any questions or require discussion, please contact me at 208-357-5351. For your convenience, my e-mail address is Loren.Lund@ch2m.com.

Sincerely,

CH2M HILL



Loren Lund, PhD

Principal Technologist, Human Health Risk Assessment Leader

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