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LETTER AND U S EPA REGION VII COMMENTS TO SECOND DRAFT FIVE-YEAR REVIEW REPORT FOR FORMER RICHARDS-GEBAUR AFB SITE SS-03 AND SS-09 MCRCO KANSAS CITY MO (PUBLIC DOCUMENT)
8/10/2012
U S EPA REGION VII

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

AUG 10 2012

MEMORANDUM

SUBJECT: Comments on Second Draft Five-Year Review Report for the Former Richards–Gebaur Air Force Base, Sites SS-003 and SS-09, Kansas City, Missouri

FROM: Greg McCabe
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TO: Ken Rapplean
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SUPR/MOKS

As requested, we have conducted a technical assessment in support of the five-year review for the Former Richards Gebaur Air Force Base, located near Grandview, Missouri. Our evaluation is limited to providing input on human health, ecological risk, and groundwater issues. More specifically, we focused on answering Questions A, B and C from the U.S. Environmental Protection Agency's "Comprehensive Five-Year Review Guidance," dated June 2001. If you need additional assistance or have any questions regarding our comments, which are provided below, please contact Greg McCabe, Human Health Risk Assessor, at x7709; Catherine Wooster-Brown, Ecological Risk Assessor, at x7425; and, Dan Nicoski, Hydrogeologist, at x7230.

Background

Human Health Risk Assessor Comments

Technical Assessment

Question B – Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Changes in Standards and TBCs

- *Have there been changes to risk-based cleanup levels or standards identified as Applicable or Relevant and Appropriate Requirements (ARARs) in the Record of Decision (ROD) that call into question the protectiveness of the remedy?* We are not aware of any such changes which would call into question the protectiveness of the remedy.

- *Are there newly promulgated standards that call into question the protectiveness of the remedy?* We are not aware of any such changes.

Changes in Exposure Pathways

- *Has land use or expected land use on or near the site changed (e.g., industrial to residential, commercial to residential)?* We are not aware of any changes.

- *Have any human health or ecological routes of exposure or receptors changed or been newly identified (e.g., dermal contact where none previously existed, new populations or species identified on site or near the site) that could affect the protectiveness of the remedy?* We are not aware of any new routes of exposure.

- *Are there newly identified contaminants or contaminant sources?* We are not aware of any new contaminants.

- *Are there unanticipated toxic byproducts of the remedy not previously addressed by the decision documents (e.g., byproducts not evaluated at the time of remedy selection)?* We are not aware of any toxic byproducts.

- *Have physical site conditions or the understanding of these conditions changed in a way that could affect the protectiveness of the remedy?* We are not aware of any changes in site conditions which could impact the protectiveness of the remedy.

Changes in Toxicity and Other Contaminant Characteristics

- *Have toxicity factors for contaminants of concern at the site changed in a way that could affect the protectiveness of the remedy?* The toxicity factors for TCE have recently changed. However, because this site is industrial use only, and because the TCE concentrations are fairly low, this change in toxicity factors is not expected to impact the protectiveness of the remedy.

- *Have other contaminant characteristics changed in a way that could affect protectiveness of the remedy?* We are not aware of any such changes to contaminant characteristics.

Changes in Risk Assessment Methods

- *Have standardized risk assessment methodologies changed in a way that could affect the protectiveness of the remedy?* The EPA's methodology for evaluating inhalation risk has changed slightly, but this change is not expected to have an impact on the remedy. The EPA has also changed the way it evaluates contaminants which are toxic by mutagenic mode of action.

However, because of the types of contaminants at the site, as well as the industrial use of the site, we do not expect this change to impact the protectiveness of the remedy.

Question C – Has any other information come to light that could call into question the protectiveness of the remedy?

- *Have newly found ecological risks been found?* Please see ecological risk assessor comments.
- *Are there impacts from natural disasters (e.g., a 100-year flood)?* We are not aware of any such impacts.
- *Has any other information come to light which could affect the protectiveness of the remedy?* At this time, we are not aware of any other information which could affect the protectiveness of the remedy.

Specific Comments/Recommendations

1. Section 1.1, page 3. The text should clarify the use of the property by Homeless Provider Assistance and Heart N Hand Ministries. Is the property owned by Homeless Provider Assistance used for residential purposes at all? The last sentence of the paragraph appears to say that residential use does not occur at the Heart N Hand Ministries facility.

2. Section 4.4, page 19. Because MW-011 still contains low concentrations of TCE, the upgradient extent of groundwater contamination does not yet appear to have been fully defined.

3. Section 4.4, page 19. The last paragraph of this section states that "future vapor intrusion evaluations are not recommended unless groundwater concentrations are observed to significantly (one or more orders of magnitude) increase…". We do not feel that the need for any future vapor intrusion investigations should be tied to such an arbitrary value. That decision should be made on site-specific circumstances, and the information available at the time.

4. Table 5-1. Groundwater screening levels are no longer maintainee by the EPA Region 9, and were not developed by Region 9 in 2012, as this table indicates. Rather, current EPA screening levels can be found at the following website: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm

5. Section 5.3.4, page 26. We do not generally agree with the use of the Johnson and Ettinger model as the sole method of evaluating the potential for vapor intrusion. Rather, we prefer to evaluate the potential for vapor intrusion based on a contaminant's Henry's Law Constant and the EPA's default attenuation factors. Equations for doing this can be found in Appendix D of the EPA's vapor intrusion guidance (USEPA, 2002).

Ecological Risk Assessor Comments

Technical Assessment

Question B – Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Changes in Standards and TBCs

- *Have there been changes to risk-based cleanup levels or standards identified as Applicable or Relevant and Appropriate Requirements (ARARs) in the Record of Decision (ROD) that call into question the protectiveness of the remedy?* **We are not able to say no to this question since appropriate guidance for this site was not used. A qualitative ecological exposure assessment using Tier 1 CALM Guidance was used for the Richards-Gebaur Site. Superfund sites are to follow the United States Environmental Protection Agency 1997 Ecological Risk Assessment Guidance for Superfund (USEPA, 1997). The EPA Region 7 also uses the following Applicable or Relevant and Appropriate Requirements and screening levels:**

    - **National Recommended Water Quality Criteria. (http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm)**

    - **Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems (MacDonald et al., 2000).**

    - **Ecological Soil Screening levels (http://www.epa.gov/ecotox/ecossl/)**

    - **USEPA Region 5 Ecological Screening Levels. (http://epa.gov/region05/waste/cars/pdfs/ecological-screening-levels-200308.pdf)**

- *Are there newly promulgated standards that call into question the protectiveness of the remedy?* **Outside of the above Applicable or Relevant and Appropriate Requirements and screening levels, we are not aware of any new promulgated standards for ecological risk.**

Changes in Exposure Pathways

- *Has land use or expected land use on or near the site changed (e.g., industrial to residential, commercial to residential)?* **There have been several changes to this site, therefore this question should be addressed in the Five Year Review.**

- *Have any human health or ecological routes of exposure or receptors changed or been newly identified (e.g., dermal contact where none previously existed, new populations or species identified on site or near the site) that could affect the protectiveness of the remedy?* **An Ecological checklist (USEPA, 1997) should be completed by a wildlife biologist for this site.**

- *Are there newly identified contaminants or contaminant sources?* **We are not aware of any new contaminants.**
- *Are there unanticipated toxic byproducts of the remedy not previously addressed by the decision documents (e.g., byproducts not evaluated at the time of remedy selection)?* **We are not aware of any toxic byproducts.**

- *Have physical site conditions or the understanding of these conditions changed in a way that could affect the protectiveness of the remedy?* **Physical site conditions have changed at this site (e.g. removals, grading, etc.), and how this relates to ecological risk needs to be discussed in the Five Year Review.**

Changes in Toxicity and Other Contaminant Characteristics

- *Have toxicity factors for contaminants of concern at the site changed in a way that could affect the protectiveness of the remedy?* **The USEPA Region 7 does not know if any toxicity factors for contaminants of concern were identified for this site. A discussion needs to be included in the Five Year Review.**

- *Have other contaminant characteristics changed in a way that could affect protectiveness of the remedy?* **We are not aware of any changes to contaminant characteristics.**

Changes in Risk Assessment Methods

- *Have standardized risk assessment methodologies changed in a way that could affect the protectiveness of the remedy?* **The USEPA Region 7 does not accept CALM Guidance as a replacement for USEPA (1997) Ecological Risk Assessment Guidance (see above).**

Question C – Has any other information come to light that could call into question the protectiveness of the remedy?

- *Have newly found ecological risks been found?* **This should be addressed after performing a screening level ecological risk assessment.**

- *Are there impacts from natural disasters (e.g., a 100-year flood)?* **We do not know.**

- *Has any other information come to light which could affect the protectiveness of the remedy?* **We are not aware of any new information.**

Specific Comments/Recommendations

A Screening Level Ecological Risk Assessment using USEPA Region 7 Guidance needs to be performed for the Richards-Gebaur Superfund Site.

Hydrogeologist Comments

Technical Assessment

Vapor Intrusion (VI) Pathway

Question A- Are the remedies functioning as intended by the decision document?

- *Are the remedies protective of human health and the environment?*

  Yes. The implemented remedy at the OU2 sites appears to be protective of human health and the environment.

- *Are the selected remedies adequate for this site?*

  Yes. The remedy for each site in OU2 is adequate.

- *Are the plumes stable?*

  Each plume appears stable; however, at site SS-009 further plume delineation is warranted to demonstrate that the plume near Bldg S606 does not extend beyond the Land Use Controls.

- *Do contaminant trends indicate the remedies are adequate?*

  Yes, although sampling events should be consistently conducted in the fall (October) to ensure results are representative/comparative.

Vapor Intrusion (VI) Pathway

- *Are the COCs of sufficient volatility and toxicity to warrant a VI investigation?*

  Yes. The primary COC is TCE which meets the above criteria. However, the COC concentrations in groundwater are sufficiently low enough to not pose an indoor air human health risk.

- *Has a VI Investigation been conducted at this site?*

  Yes. A VI investigation has been conducted at the two sites in OU2; however, the 2011 maximum TCE concentrations were used for this evaluation. These results were from samples collected in December. Prior sampling events were conducted in October during this Five Year Review period. We recommend a re-evaluation of the VI pathway using the October 2010 results to ensure protectiveness and to evaluate potential human health risks.

General Comments

1. Geology at the two sites is similar, consisting of 10 ft to 20 ft of silty clay that overlies up to 10 ft of weathered shale over limestone or limestone over shale. Depending on seasonal rainfall, groundwater is present within the unconsolidated material and/or along the overburden/weathered bedrock transition zone at depths ranging from 4 ft to 11 ft. The groundwater flows in an easterly direction, apparently following surface topography. Groundwater flow velocity is about 10^{-7} cm/s.

2. The selected remedy for the two indicated sites (SS-003 & SS-009) within OU-2 at this facility is Land Use Controls and Long-Term Monitoring. The LUCs include prohibiting extraction and use of groundwater. According to the ROD, the LUCs were to be identified in a restrictive covenant and placed within the property deed. The LTM plan will support the LUC to ensure the boundaries fully encompass the groundwater plumes. The source of the contamination at either site is unknown.

3. Groundwater sampling events were typically conducted in October during this Five Year Review period. However, in 2011 groundwater samples were collected in December. This resulted in relatively minor changes (either up or down) in groundwater concentrations. However, TCE concentrations at two site SS-003 wells (MW004 and MW009) dropped to record lows. TCE concentrations at these wells were the highest at the site. The VI evaluation was based on 2011 maximum TCE concentrations. The 2011 groundwater results may not be representative of the three previous fall sampling results. We recommend a re-evaluation of VI pathway using the October

2010 values to ensure protectiveness. In addition, we recommend returning to the October sampling schedule for comparative results rather than randomly selecting the annual sampling events.

4. The Five Year Review recommends that the sampling be reduced to a five-year frequency. This recommendation is based on the Decision Rule pertaining to LTM sampling frequency. According to the ROD, the LTM plan will support the LUC to ensure the boundaries fully encompass the groundwater plumes. The sampling frequency must be adequate to make this determination. The EPA recommends continuation of the annual sampling events to ensure the groundwater plumes remain within the LUC boundaries.

Specific Comments/Recommendations

1. Page iii, Five Year Review Summary Form – The text notes that overall, COC concentrations indicate that the groundwater plumes remain inside the LUC boundaries at both sites and there is no indication that off-site migration is occurring. Figure 3-4 depicts a TCE plume that extends from well MW-03 in an easterly direction toward/beyond well MW-12. The potentiometric surface map (Figure 2.7) from the Final 2010 Basewide Groundwater and LUC/IC Monitoring Report depicts groundwater flow in a north to northeasterly direction in the area of the plume. The plume is depicted as paralleling, rather than being perpendicular to, the 1000 ft elevation isocontour line. In addition, no wells (down-gradient perimeter near Bldg S606) are present northeast or east (leading edge of the plume) of well MW-12 that confirms TCE impacts are less than the RACG and within the designated Land Use Control area. The dashed lines around the plume indicate the configuration is uncertain (Figure 3.12 from the aforementioned report). DPT can be used to install piezometers/temporary wells to evaluate this concern. Please provide 2011 potentiometric surface maps for each site.

2. Pages 8/11, Sections 3.1/3.2, Figures 3-1/3-2 – The sampling date should be placed on each figure.

3. Pages 9/10/13, Sections 3.1/3.2, Table 3-1/3-2 – Several terms are defined in the table; define RACG. RAGG is used several times in the table rather than RACG; review and revise. The table indicates that groundwater was sampled in December 2011. Prior to this date groundwater was consistently sampled in October (2008, 2009, 2010). Indicate why this change was made and the potential ramifications (e.g., lower water table, lower COC concentrations, temporal effects, etc.) of this decision.

4. Page 13, Section 3.3, Paragraph 1, Sentence 3 – The text indicates that perched groundwater is present in the transition zone between the overburden and the weathered bedrock. Figures 3 & 4 depict a continuous water table present in the silty clay overburden. We recommend use of paragraph 1 from Section 2.1.4.2 of the Final 2010 Basewide Groundwater and LUC/IC Monitoring Report to explain site hydrogeology.

5. Page 13, Section 3.3, Paragraph 2, Sentence 3 – The text indicates groundwater flows toward the east. Figure 3-3 depicts the axis of the plume is oriented in a northwest to southeast direction. The blue arrow on this figure depicts groundwater flow in a southeasterly direction. Explain the apparent discrepancy in flow direction. Figure 2.6 from the Final 2010 Basewide Groundwater and LUC/IC Monitoring Report depicts flow in a southeasterly direction. Provide 2011 potentiometric surface maps and bedrock elevation contour maps for both sites.

6. Pages 14/15, Figures 3-3 & 3-4 – The text/well numbers/elevations on portions of each figure are not legible (same as those figures on pages 23 & 25). In addition, add a scale. We recommend designating a page for each figure to increase size for legibility rather than inserting within the text.

7. Page 14, Section 3.3, Paragraph 1, Sentence 2 – The text indicates there is 10 ft to 13 ft of silty clays and weathered shale underlain by 6 ft to 8 ft of limestone. Figure 3-4 depicts limestone underlain by shale. Table 2.6 of the Final 2010 Basewide Groundwater and LUC/IC Monitoring Report indicates the site geology in the figure is correct. Review and revise.

8. Page 17, Section 4.1, Bullet 1 – The text should indicate the target cancer risk range of 1E-06 to 1E-04.

9. Page 18, Section 4.4, Paragraph 1, Sentence 1 – The text indicates the plumes in OU2 sites SS-003 and SS-009 are stable and shrinking. The plumes are either one or the other, not both. The latest sampling round was collected in December rather than October, as were the other events during this Five Year Review period. Trends utilizing those latest data may not be representative of or comparable to past events.

10. Page 18, Section 4.4, Paragraph 1, Sentence 3 - The text indicates that periodic increases in COCs were minimal and within several ppbs and not deemed substantial. At SS-009 well MW-003, during this review period, cis-1,2-DCE dropped about 100 ppb. At MW-12 this same COC either rose (about 12 ppb to about 32 ppb) or dropped by 6 ppb between sampling events. At SS-003 well MW-4, TCE concentrations dropped by over 20 ppb. Please review and revise.

11. Page 22, Section 5.3.1, Sentence 2 – The text indicates potential VI risk was based on 2011 maximum TCE concentrations at the two sites. As noted in comment #3, the 2011 sampling event was conducted in December. The past events for this review period were conducted in October. Thus, concentrations from the December sampling event may not be representative of the fall groundwater conditions.

12. Page 22, Section 5.3.2, Sentence 1 – See above comment.

13. Page 23, Section 5.3.2, Paragraph 2, Sentence 1 – The text indicates that the concrete floor in Bldg P704 is in good condition with no large cracks visible. Are there any cracks? What size are the existing cracks? What portion of the floor has cracks of any size?

14. Page 26, Section 5.3.4, VI Evaluation, J & E Model – The text indicates the use of the J&E Model to evaluate the VI pathway at Richards-Gebaur AFB. According to the DoD, the mathematical model is not intended as a substitute for actual VI investigations in the field. It would be beneficial to correlate use of the model with methodologies for collecting representative site data of sufficient quantity and quality for site-specific investigations. As future use scenarios come to fruition (e.g., college that leased a portion of the building at SS-009) further VI investigations may be warranted to assess the potential risk to human health. The text indicates the magnitude of the potential vapor source and the distance from the vapor source to the buildings were used as part of the multiple lines of evidence approach for the VI evaluation. While the potential for the portioning of CVOCs in groundwater to the vadose zone and into the buildings can be considered one source of vapor, the text on pages 9 and 11 indicate the source of the groundwater contamination is either unknown or was not determined.

15. Page 27, Section 5.3.4, J&E Model, Bullet 1 – See previous comment # 3.

16. Page 27, Section 5.3.4, J&E Model, Bullet 2 – Text indicates the presence of building characteristics *preventing* vapor migration across the foundation based on good condition and high integrity of the slab. Indoor air sampling should be conducted before makeing this assertion.

17. Page 28, Section 6.0, Paragraph 1 – Sentence 1 indicates the plumes are stable and shrinking based on monitoring from 11/09 – 12/11 for SS-003, and 7/98 – 04/12 for SS-009. The plumes are either one or the other, not both. Groundwater samples were collected in October 2009 rather than November 2009. Only two sampling events have occurred since that time and those were not from the same months. The Final LTM Plan for Groundwater indicates that if three successive years of annual monitoring indicate that the groundwater plume is stable or shrinking, then monitoring frequency will be reduced to every 5 years (See comment #3). The December sampling event may not be representative or comparable to the October events. The last sentence of the paragraph indicates the plumes are stable and the frequency of monitoring is not necessary to characterize the plume and to continue to monitor for degradation. Indicate plume status for each site.

18. Page 28, Section 6.0, Paragraph 2 – The text indicates the groundwater plumes remain well inside the LUC boundaries at both sites. See comment #1.

19. Page 29, Section 7.0, Paragraphs 5/6 – The text indicates that site COCs will remain above RACGs for several years and therefore the sampling frequency should be reduced to a 5 year frequency. The text cites page 3-4, Section 3.2.1, Bullet 2 of the LTM Plan that references plume stability or shrinkage. This reference does not mention COC concentrations remaining above RAGC as the reason for the sampling frequency change. Reword each paragraph to reflect plume status to coincide with LTM cited reference. The text also reiterates that there is no evidence that COCs have migrated beyond the LUC boundary of site SS-009. As indicated in comment #1, no wells exist at the down-gradient leading edge of the depicted plume near Bldg S606 to confirm plume delineation and inclusion within the LUC.

20. Page 30, Section 7.0, Paragraph 1 – The text indicates no additional wells are proposed at either site. See comment #1, an additional sampling point is recommended to adequately delineate the leading edge of the plume at site SS-009.

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