

Comments on “Third Five-Year Review Report for Brown and Bryant Superfund Site Arvin, California”

Prepared by: US Army Corps of Engineers
Environmental and Munitions Center of Expertise, Omaha, NE
Prepared for: US Environmental Protection Agency Region 9, San Francisco, CA
dated September 2011
(made available by the US EPA January 5, 2012)

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January 9, 2012

On January 5, 2012, the US EPA made available its “Third Five-Year Review Report for Brown and Bryant Superfund Site Arvin, California” dated September 2011, which is available at: <http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/3dc283e6c5d6056f88257426007417a2/9b53d06f8c2d374f8825797c008296b1!OpenDocument>

Presented below are excerpts and comments on technical findings of that report and issues associated with the protection of public health and environmental quality from contaminants at that site. Page and section references and quotations provided in these comments refer to the Third Five-Year Review (3rd FYR) report.

The “*Executive Summary*” states,

“The United States Environmental Protection Agency (EPA) Region 9 has conducted the third five-year review (FYR) of the Brown and Bryant, Inc. (Arvin Facility) Site in Arvin, California. The purpose of this FYR is to determine whether the remedial actions implemented at the site are protective of human health and the environment. This statutory FYR is required because hazardous substances remain on-site above the health risk-based levels determined in the Record of Decision (ROD), thereby preventing unrestricted use and exposure. The methods, findings, and conclusions of the review are documented in this report.”

“The Operable Unit (OU) 1 ROD (EPA, 1993) addresses site soils.”

Operable Unit 1 is where pollutants in the soil were consolidated and capped, and institutional controls (IC) were put in place for the purpose of restricting access to the polluted soils.

“This FYR addresses the OU-1 remedy.”

“The implemented remedy for OU-1 currently protects human health and the environment, because the impermeable caps prevent exposure to contaminated soil and reduce infiltration of precipitation into the groundwater. In order for the remedy to be protective in the long-term, ICs, as originally identified in the OU-1 ROD, need to be implemented.”

“A second operable unit for the site, OU-2, addresses contaminated groundwater, including the perched zone known as the A-zone aquifer and the deeper B-zone aquifer.”

I. Introduction, Page 2, states:

“The ROD for OU-2 was signed September 28, 2007. Addressing the deeper, regional (B zone) aquifer affected by site contaminants, as well as the A-zone aquifer (formerly addressed in the ROD for OU-1), the OU-2 ROD is considered the final ROD for groundwater at the site. The major elements of the remedy include:

- *Relocation of the Arvin City Well (CW-1);*
- *Extraction and treatment of groundwater from the shallow A-zone aquifer;*
- *Monitored natural attenuation; and*
- *Institutional controls for OU-2*

The remedial action objectives (RAOs) for OU-2 are to:

- *Remove or control COCs in the A-zone groundwater such that it is no longer a source of contamination to B-zone and C-zone groundwater,*
- *Restore the B-zone groundwater to its potential beneficial use as a drinking water*
- *aquifer, and*
- *Prevent potential exposure to contaminated groundwater.*

The OU-2 remedy has been designed, but not yet constructed.”

The first 9 pages of 3rd FYR report are devoted to a summary of site investigation of the pollution and remedial action taken. Information and our comments on those issues were presented in our previous reports which are located on the CBA website at http://www.gfredlee.com/CBA_BBSite/bbdoc.htm.

. Beginning on page 10 is a summary of the inspections/repairs that have been made at the site since 2007. The 3rd FYR summarizes those activities as follows:

“In September, 2007, weeds were abated and a slurry seal was applied to the RCRA and non-RCRA caps. All surface cracks and rodent burrows (holes) were filled and repaired with crack sealant prior to slurry seal placement. The fence was repaired in October, and in November, 2007, the USACE found additional cracks that needed to be resealed. The USACE crew resealed the existing cracks and rodent burrows in the RCRA and non- RCRA caps in December, 2007, using slurry seal material.

In 2009, further repair work was performed on the caps, including re-grading of the cap surface to avoid ponding, and sealing the remaining asphalt concrete cracks. Tank UN-32 was removed and disposed of off-site. Maintenance activities included inspecting the cap and all wells, and monitoring for surface ponding.

From 2010 through August 2011, maintenance activities included cap inspection, refurbishing/cleaning several groundwater wells, repairing two wells, and placing a new barcad pump on one well. In addition, the northern fence was repaired and a concrete barrier constructed adjacent to the fence. Additional activities planned for 2011 include repairing cracks in the cap, the on-site warehouse, and the perimeter fence. Signs will be replaced and seismic activity will be monitored.”

As discussed in our previous comments, cracking continues to be found in the asphaltic cap placed over polluted soils at the B&B Superfund site. There is need for more frequent and rigorous maintenance and repair of the cracking and other defects and deterioration to better reduce the entrance of water into the polluted soils. As also has been pointed out in previous FYRs and our comments, there is need for greater inspection and repair of the perimeter fence in the area.

Table 2 presents a summary of actual annual operation and maintenance (O & M) costs for maintenance and repair of OU-1; in 2011 those costs were on the order of several hundred thousand dollars (in contrast to the OU-1 ROD estimates for O&M of \$66,000 for cap maintenance and monitoring). There are serious questions about the adequacy of the ongoing site inspection and cap repair. This will be a chronic problem that will continue likely indefinitely, which brings into question the adequacy and reliability of the site OU-1 remediation approach of an asphaltic soil cap/cover for the polluted soils.

The US ACE 3rd FYR report summarizes the conclusions and recommendations of the two previous five-year reviews as well as the progress that has been made in implementing the recommendations. Overall, while many of the recommendations have been carried out, several have not been implemented or have only been partially implemented.

Section VI. C of the 3rd FYR report reported on the site inspection that took place on December 6-7, 2011. That section of the report states:

“The asphalt non-RCRA cap at the site continues to show evidence of cracking in spots, particularly on the northern and western edges, and there has been cracking along the southern and eastern edge of the RCRA-capped area. According to the USACE site manager, cracks have been shown to enlarge over time and attempts to seal these cracks have limited success. Vegetation has taken root in some cracks.

Ponding continues to be a problem in the southeastern and western (west of the warehouse) portion of the non-RCRA asphalt cap. The drainage problems noted during the previous FYR in the southeastern portion of the non-RCRA cap have been mostly corrected, although minor ponding persists. Ponded water on the cap could result in infiltration, should cracks appear in these areas.

Animal burrows, one of which had an exit hole through the asphalt, were noted along the eastern edge of the RCRA cap. However, there was no evidence that the cap liner was breached.

The site fencing, which consists of chain link topped by three strands of barbed wire, was in good condition. The gate for site access at the northern site perimeter was secure, as was the gate to the RCRA-capped area.

Monitoring wells were generally found to be functional, but a number of wells were unsecured (and/or could not be secured), many were unlabelled, and some above-ground completions require painting. Some flush-mount wells have been graded over with sand and gravel, and some have cracked surface pads. Additional descriptions of the conditions of the monitoring wells are provided in Attachment D.”

Those ongoing problems with the asphaltic cap over the polluted soils raise serious questions about the adequacy of the ongoing site inspection and maintenance/repair regimen for the cap. As was discussed in previous comments, the chronic problems with site maintenance will likely continue indefinitely bring into question the adequacy of the site OU-1 remediation approach of relying on the asphaltic cap/cover for the polluted soils, as well as again highlight the need for more rigorous ongoing site inspections at at least quarterly intervals with prompt repairs.

In Section VII.D Technical Assessment Summary (page 18) the USACE stated, *“According to the data evaluation, site inspection and interviews, the remedy is functioning as intended by the OU-1 ROD. There have been no changes in the ARARs or TBCs that would affect the protectiveness of the remedy. There have been no changes in the toxicity factors for Dinoseb used in the BHHRA, and there has been no change to the standardized risk assessment methodology that could affect the protectiveness determination of the remedy. There is no other information that calls into question the protectiveness determination of the remedy.”*

As site TAG advisors, we do not dispute that assessment, but we continue to be concerned about the long-term adequacy of the remediation approach in light of the chronic deficiencies in maintenance and repair of the soil cap and area fencing.

A major area of concern expressed by the USACE in its 3rd FYR report, as well as by us in previous comments, is the lack of progress in developing institutional controls. The US ACE states in Section VIII. Issues, *“Institutional controls required by the OUI ROD, in the form of land use covenants prohibiting residential use and ensuring the integrity of the remedy, have not yet been implemented.”*

While not addressed as part of the 3rd FYR review, the failure to replace the polluted city well during this five-year period is a major deficiency in the US EPA’s approach to site remediation.

Appendix C of the 3rd FYR report contains a review of the groundwater monitoring data for the appearance of trends that might indicate if the concentrations of pollutants are increasing, decreasing or remaining about the same over time. The 3rd FYR report notes (page 13),

“Data were analyzed for five of the most common site related compounds representative of the mobility and toxicity of the suite of site contaminants. The analysis was conducted using the Mann-Kendall test for trend as implemented in version 2.2 of the Monitoring and Remediation Optimization System (MAROS) software (Groundwater Services Inc., 2006).”

The USACE reports on page C5,

“4. CONCLUSIONS

MAROS results are consistent with a conclusion that the plumes are relatively stable in the A- and B-zones and that the cap is limiting dissolution of contaminants in soil beneath the cap. Many wells in or adjacent to the cap have seen stabilized or decreasing contaminant concentrations. Over time, this reduction in source contributions to groundwater should be reflected in decreasing contaminant concentrations in groundwater downgradient of the cap.”

This 3rd FYR report provides Table 2, “Chemicals of Concern in A-Zone Groundwater - Selected Parameters (more listed starting May 1997)” which presents data used in the data analysis. This and other tables list the MCLs for the pollutants listed. The chloroform MCL is listed as 100 ug/L with an asterisk that corresponds with the note,

“Total trihalomethanes (sum of bromodichloromethane, dibromochloromethane, bromoform, and chloroform).”

The MCL value for total trihalomethanes was changed several years ago to 80 ug/L (see Drinking Water Contaminants <http://water.epa.gov/drink/contaminants/index.cfm>.) It is important to note also that that value was not based on a public health risk assessment, but rather is based on factors than protecting public health from risks associated with exposure to chloroform. The US EPA water quality criterion for the protection of human health from chloroform is 5.7 ug/L; that risk-based criterion is associated with a risk of 1 additional cancer in one million individuals who consume the water for 70 yrs (see National Recommended Water Quality Criteria <http://water.epa.gov/scitech/swguidance/standards/current/index.cfm#hhtable>.)

The 3rd Five Year Report contains “*Attachment D Trip Report*,” which presents information on the USACE staff site inspection and interviews. Those interested in more of the details of the problems that are occurring with the investigation/remediation of the B&B site, and especially the very slow progress that the US EPA made during the third five-year period may want to review that section of the report. A number of the problems that the USACE reported in its 2nd Five Year report were found by the USACE during its 3rd year five year review site visit.

The Trip Report states,

“c. Purpose: The site inspection was conducted to provide information about the site’s status and to visually confirm and document the conditions of the remedy, the site, and the surrounding area. In addition, interviews were conducted with the site manager and a representative of the Committee for a Better Arvin. The condition of the document repository and the status of institutional controls were also reviewed.”

This Trip report states that there are still significant problems with the handling of the Administrative Record repository in the Arvin area. This issue needs to be addressed and a complete Administrative Record should be established in the Arvin area.

The Trip Report site inspection report stated that R. Lainhart (Los Angeles District), the site manager who oversees O&M activities, “*conducted a site tour for the CX team, and highlighted some of the identified issues that were of primary importance as follows:*

- *the cracking present in the asphalt cap;*
- *the areas of poor drainage where ponding occurs;*
- *monitoring well damage and security; and*
- *accumulation of tumbleweeds against the fences.”*

Those conditions clearly indicate a lack of adequate inspection and prompt repair of the site’s soil cap.

The updated area maps (Appendix C8, Figures 4 & 12-18) that show the estimated current position of the pollutant plumes in the A and B zones are useful. An issue that needs to be addressed is whether there are sufficient groundwater monitoring wells at appropriate locations to adequately define the current position of the pollutant plumes. I question if there is adequate monitoring well data to draw pollutant contours lines as shown in these maps. Under such conditions the contours are typically shown as dashed lines.

As part of the proposed Monitored Natural Attenuation (MNA) what additional wells will need to be developed? When will the details for the MNA monitoring plan be available for review?

It would more useful if maps of this type used more appropriate notation for indicating that the concentration of a constituent was not detected. Whether a chemical is “detected” or “not detected” depends on the lower detection limit that is achieved in the analysis. For meaningful data interpretation a notation more useful than “ND – Non-detect” is “< (insert the lower detection limit value)” (e.g., “< 0.5 ug/L”). With such a notation one can readily assess, for example, if the “non-detected” means that the parameter is of no adverse consequence to public health or if it means that the chemical could not be analyzed at concentrations low enough to determine if there is a problem or not.

It would also have been informative if the position of the city well that was contaminated by site-derived chemicals that for measured pollutants are apparently below the current MCLs, had been shown. Also where is the well or wells that are used to sample the C-zone water and that have shown that site-derived pollutants have penetrated the Corcoran Clay into the C-zone, and what contaminant concentrations have been found?

As noted above, the 3rd FYR report presents the results of the statistical analysis for trends in the groundwater pollutant concentrations as a series of MAROS Mann-Kendall Statistics Summary plots in Attachment C-5 and C-6 Time-Series Charts for the A and B zones. It would be useful in any future presentations of this type to include on the plots the current MCLs as a line across the plot.

The Trip Report included Attachment E, a summary of several interviews conducted on 12/7/2010, including that of Salvador Partida, Co-chair Committee for a Better Arvin Organization. The “Summary of Conversation” with Mr. Partida, provided in a question/answer format, stated,

“1. What is your overall impression of the project? (general sentiment)

He is not impressed; project is not making progress, and his perception is that adequate funding has not been made available to the project. He feels that the cap is not a remedy, in that it only covers the contamination and does not clean it up, but his group and the community accepted it as the best alternative that would be offered by the EPA. Implementation of the groundwater remedy is not happening in a timely manner, and he is concerned about the impact to the drinking water aquifer. Although they (CBA) have been authorized to hire technical assistance through a TAG (technical assistance grant), they have no funding.”

“3. Are you aware of any community concerns regarding the site or its operation and administration? If so, please give details.

The site makes everyone nervous. During meetings agreements are made with EPA but nothing happens afterwards. He stated that people are concerned about contaminant migration in soil and groundwater, and communicated the impression that the public water well will eventually become contaminated.”

“5. Do you feel well informed about the site’s activities and progress?

He does not feel well informed and only hears from EPA about Brown & Bryant roughly once per year. Mr. Partida feels that information and sampling data is getting to him too late (a year or more after event occurs), and that he does not receive any consistent and periodic status reports on the site, activity schedules, contacts from EPA, etc. He has not heard about additions to the info repository at the library. He would like to hear in advance when sampling is occurring. He felt that the EPA does not make firm commitments during the public meetings, and then does not follow-up afterwards to communicate pending activities and schedules. He feels that too many years have gone by without key components of the groundwater remedy being implemented (e.g., new public water well, groundwater extraction system) after being told on repeated occasions that these actions were moving forward.”

“6. Do you have any comments, suggestions, or recommendations regarding the site’s management or operation?

He would like to hear that someone at EPA is pushing for work to get done (in other words, that the site has high priority). He feels that more data should be provided in a timely manner and that reports are dated (old) by the time they see them. He would like an explanation of the length of time necessary to get data from the lab. He thinks EPA can do a better job communicating with the community. From his standpoint, the replacement of CW-1 (city’s water supply well) is priority #1, which has yet to happen after several years of discussions. He would like to receive more consistent and timely status reports, activity schedule, and/or communications from EPA with firm commitments.”

The issue of funds to support the CBA TAG advisor has subsequently been addressed with the appointment of Drs. Lee and Jones-Lee as TAG advisors. It is our assessment that the other concerns expressed by Mr. Partida are issues that the US EPA needs to address more effectively than has been accomplished in the past.

Questions and comments on these comments should be directed to G. Fred Lee at gfredlee@aol.com.