ENTERED

Reading file
Mail
12/30
Ch.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

December 30, 2008

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Mr. Tony Hurst, P.E.
Hurst Engineering Services
1915 Fairfax Street
Denver, Colorado 80220

RE: 2003-2007 Annual Reports
Sparton Technology, Inc., Former Coors Road Plant
Sparton Technology, Inc., Consent Decree
Civil Action No. CIV 97 0206 LH/JHG
EPA ID No. NMD083212332

Dear Mr. Hurst:

Sparton Technology, Inc. (Sparton) has several submittal requirements under the Consent Decree, Civil Action No. CIV 97 0206 LH/JHG, entered March 3, 2000. Annual Reports on remedial measures are required in Attachment D to the Consent Decree, pursuant to Section VII.18. Sparton has submitted these Reports for approval as required. The latest such Annual Report that has had regulator action is the Annual Report for 2002, which was approved November 7, 2003. This letter provides regulatory action on the Annual Reports for 2003 through 2007.

The U.S. Environmental Protection Agency (EPA) and the New Mexico Environment Department (NMED) have reviewed the Annual Reports for 2003, 2004, 2005, 2006 and 2007. NMED and EPA approve the Annual Reports for 2003, 2004, 2005, and 2006. We address any continuing deficiencies or items from the 2007 Annual Report with the enclosed comments.

The 2007 Annual Report is disapproved. Sparton shall modify the Annual Report in accordance with the comments provided (see Enclosure) and resubmit it for approval. Note that Comments 1 and 4 relate to actions beyond the Annual Report, so they do not require changes in the Annual Report itself.

We will be available for discussion of these comments with you. If you have any questions, please contact Chuck Hendrickson (EPA) at 214-665-2196 and/or Baird Swanson (NMED) at 505-222-9520.

Sincerely,

John Kieling
Project Coordinator
New Mexico Environment Department

Chuck Hendrickson
Project Coordinator
U.S. EPA Region 6

Enclosure

Cc: Secretary,
Sparton Technology, Inc.

Mr. Baird Swanson,
NMED GWQB

ENCLOSURE

EPA/NMED Comments on Sparton, Inc., Annual Reports for 2003-2007

1. Wells PW-1, MW-33, MW-35, and MW-36 were proposed for plugging and abandonment in these reports. Removal of these wells is approved.

2. Section 2.6.1.4, Dissolved Contaminant Mass, and Section 6.2.2: The initial estimate of 2178 kg of dissolved TCE in the plume has needed to be adjusted up to the current 6,881 kg to account for plume remediation results thus far. Relevant to this, we note that high TCE concentrations have persisted in well MW-60. MW-60 had 11,000 µg/L TCE in November 1999. This is 1% of TCE's water solubility of 1,100 mg/L. The well's water reached 18,000 µg/L TCE in 2004. Empirical evidence has shown that groundwater containing a NAPL (non-aqueous-phase liquid) contaminant at 1-2% of its solubility indicates a nearby NAPL source. Since MW-60 is about 1/3 mile off site, we might reach the conclusion that NAPL has traveled from the site, and down-strata, to an area near MW-60; this would bode for a very long remediation period. Alternatively, this might conceivably be a fairly cohesive slug of highly contaminated groundwater with no associated NAPL; only time will tell, when and if this slug passes. This report needs to address this potential for offsite NAPL, effects of such NAPL, and ways in which the remedial system and modeling may need to be altered if this NAPL is present.

3. Plume Presentation: The contaminated aquifer is about 200' thick, modeled three-dimensionally with 13 model layers. But there is no figure in the report that presents the groundwater plume three-dimensionally (in 3-D). Figures 6.4-6.6 are useful as horizontal slices, but are not adequate for evaluation of plume capture across the vertical extent of the aquifer. We note that these three figures seem to indicate lack of full capture of the plume. The report needs to include illustrations showing the plume and capture zones in 3-D. Use fence diagrams, or propose an alternate depiction method.

4. Figures 2.14 & 5.3: The toe of the plume has only one remaining sentinel well location, at wells MW-68/69, even though the plume is generally about 1600' wide. This one location is not downgradient of the furthest-downgradient contaminated wells, MW-65 and OB-2, so there is inadequate data to verify that the plume extent is defined or that the plume has been fully contained. MW-65 was originally a sentinel well, but is now contaminated, so it should be replaced with another sentinel well in a downgradient location. There is currently not enough information to know whether the plume is wholly within the capture zone of well CW-1 or whether some contaminants of concern (COCs) are escaping capture by well CW-1 (as illustrated in Figures 5.2, 5.10, 5.11, 5.15, 6.4, 6.5, and 6.6 in the 2006 report; in Figures 5.11, 5.15. 6.4, 6.5, and 6.6 in the 2007 report). Any unmapped contaminants much beyond MW-65 or OB-2 may have escaped containment and continued flow downgradient. Therefore, one or more wells or well clusters need to be emplaced west-to-northwest of MW-65 and OB-2, preferably just outside of the calculated capture zone to verify plume capture. Sparton shall submit a work plan for siting and installation of this well or these wells.

5. Fig. 2.15 & 5.16, DCE Plume maps: Well MW-65 became clean soon after well CW-1 extraction operations began, but then became re-contaminated two years later. This new contamination has predominant DCE and significant TCA, in about the same proportions as in well MW-62 but quite different from the main plume. We believe that another, related, plume runs from the source area (the Sparton facility site) through MW-62 to MW-65, where it is at least partially drawn to well CW-1. The maps and model should be adjusted according to this scenario. Consider whether more wells are needed to characterize this plume area.

6. Figure 6.7, Comparison of Calculated to Observed Water Levels: A residuals map (calculated versus observed water levels) should be presented; it will be useful by showing where high and low residual values are located in the model area.

7. Deep Flow Zone (DFZ) monitoring: As noted in Section 2.6.1.1 of the 2007 report, there is now enough data to map groundwater flow in the DFZ (Deep Flow Zone). Provide a potentiometric surface map for the DFZ; on the map, show the deep zone contaminant plume present in MW-71R. EPA's potentiometric surface mapping of the DFZ (based on MW-67, MW-71R, and MW-79 data) indicates that MW-79 is about 30° off from groundwater flow paths through MW-71R. So MW-79 is of limited use for monitoring downgradient of MW-71R. MW-71R monitoring results show sustained contamination in the DFZ. Previous speculation about vertical plume migration through former monitoring well MW-71 is moot at this point, years after the 2001 pressure-grouting abandonment of the well. This situation should be noted in the report with an evaluation of potential future actions related to the DFZ.

8. Figure 2.3 and 2.4: We recommend several changes to the schematic cross-section of the plume area in order to update and more fully illustrate site conditions. First, move the cross-section line to pass through CW-1 and CW-2. Extend the cross-section farther northwest to include the typical extent of well CW-1's capture zone. Add the screened intervals of CW-1, OB-1, OB-2, and the DFZ wells; this addition will require vertical expansion of the cross-section on 11"x17" paper. Show the pump inlet depths for both CW-1 and CW-2. Show the 4800-foot aquitard. Show the current (2007 in this case) water table along this cross-section through wells CW-1 & CW-2, including estimated cones of depression and the divergent UFZ/ULFZ potentiometric surfaces in the area of the 4970-foot silt/clay. Also, show the original pre-remedial 1998 potentiometric surface(s) on the cross-section.

9. Page 6-2: The 4th bullet lists a modeling assumption: "the head drop across the 4800-foot silt/clay unit is about 6 ft." Please add explanatory text on the cause of this head differential and discuss its potential effects on contaminant migration.

10. Section 5.1, Hydraulic Containment: We note that there have been significant system shutdown events: 120 hours for the offsite system in 2006; 277 hours and 127 hours for the on-site system in 2006 and 2007, respectively (see Section 3.2). Long system shutdowns lead to concerns over maintaining full capture of the contaminant plume. The footnote on page 5-2 attempts to address this concern. Add to the report an analysis of the amounts of time that wells CW-1 and CW-2 can be either shut down or operated under reduced pumping rates before there is irretrievable loss of any of the plume, assuming a range of pumping rates and a range of several reasonable distances between the plume boundary and the normal capture zone.

11. Section 6: The groundwater system and model are stable. Thus, the model should be able to reliably predict future conditions. Therefore, Sparton should now include in the annual reports the evaluations listed on pages 12 & 13 of Attachment D in the Consent Decree. These evaluations include predicted future progress in restoration, projected restoration time, and alternate remedial systems. These evaluations can start with the 2007 Annual Report.

12. Section 7.1, Summary and Conclusions, Page 7-2, 1st bullet: "The offsite containment well continued to operate during the year at an average discharge rate of 223 gpm, sufficient for containing the plume." Information in the report indicates that this conclusion may not be correct (see Comment 4, for example) for full containment. Further, the groundwater model predicted lack of full containment, as illustrated in Figures 6-4 to 6-6. Also, some of the figures show containment barely met, based on groundwater levels. But the contours and plume boundaries on these maps are not closely constrained, so they could readily be shifted to show lack of full containment. Therefore, potential additional measures should be evaluated in the Annual Report. We believe that one of those measures includes installation of sentinel monitoring wells downgradient of the plume.

13. Figure 6.10, Predicted Extent of TCE Plume – November 2007: This figure has been predicting the cleanup of well MW-65 for six years, but the well is still contaminated. This discrepancy is another indication that the groundwater model should be adjusted. Consider modifications to the model to correct the discrepancy.

14. Page 5-6: "the contaminants detected in MW-65 during the last several years may represent a separate source, or spill, south of the Sparton Site." We see no reason to invoke a separate source for this contamination. The primary contaminants in MW-65 and MW-62, namely TCE, 1,1,1-TCA, and 1,1-DCE, have all also been primary contaminants in about 32 of the plume wells, most notably at high levels on the Sparton Site. Sparton should not dismiss this contamination; rather, Sparton should fit this contamination information into both the conceptual model and the mathematical groundwater model.

15. Plume Containment: Figures 5.10 thru 5.12 and 6.4 thru 6.6 compare November 2007 containment areas to November 2006 plume extents. Since the contemporaneous November 2007 plume extent is available (see Figure 5.15), it should be used instead of the 2006 interpretation. Also, add to Figures 6.4 through 6.6 the date of the calculated capture zones.

16. Section 7.2, Future Plans: The proposal to discontinue collection of DO (dissolved oxygen) and ORP (oxidation/reduction potential) data is approved.