JH Baxter – Arlington
WAD 05382 3019
HZW 6.2
Corrective Action
Correspondence
2012

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
AIR, WASTE AND
TOXICS

JUL 27 2012

Dept of Ecology - NWRO
AUG 10 2012
Hazardous Waste & Toxics Reduction Program

Ms. RueAnn Thomas, Environmental Programs Director
J.H. Baxter & Co.
85 N. Baxter Road
P.O. Box 10797
Eugene, OR 97440-2797

Re: Disapproval and Comments on Corrective Measures Study – Revision 2
Former J.H. Baxter & Co., Arlington Facility
§ 7003 Administrative Order on Consent ("Order")
Docket No.: RCRA-10-2001-0086
EPA ID No.: WAD 05382 3019

Dear Ms. Thomas:

The U.S. Environmental Protection Agency, Region 10 has reviewed J.H. Baxter's Corrective Measures Study – Revision 2 (CMS), dated March 2011, submitted as a requirement of the above-mentioned Order. Enclosed are EPA comments on the CMS. Pursuant to Section XII of the Order, EPA hereby disapproves the CMS.

EPA's overall concern is that the CMS does not provide a sufficient basis for selection of the preferred alternative. The CMS must evaluate the technical, environmental, human health and institutional aspects of the alternatives so that EPA has a basis for selecting a remedy and justifying the selected remedy to the public and the stakeholders. The CMS does not provide such a basis. In particular, it does not address source control or remediation of the off-site contaminant plume as part of the remedial alternative, and some well-demonstrated, effective technologies have been eliminated from further consideration. These concerns and others are detailed in the enclosed comments.

Baxter must submit to EPA a modified CMS which addresses the enclosed comments within ninety (90) days of receipt of this letter. Please contact me at (206) 553-6702 or at palumbo.jan@epa.gov, or have your legal counsel contact Jennifer MacDonald at (206) 553-8311, if you have any questions.

Sincerely,

Jannie E. Palumbo

Jan Palumbo
Project Coordinator

cc: SaraBeth Watson, Steptoe & Johnson, Washington D.C.
Douglas Fox, Stella-Jones Corp.
J. Stephen Barnett, Premier Environmental, Portland
Gary Dupuy, Geomatrix, Seattle
Georgia Baxter, J.H. Baxter, San Mateo
Dean Yasuda, Washington State Department of Ecology

ENVIRONMENTAL PROTECTION AGENCY REGION 10
COMMMENTS ON CORRECTIVE MEASURES STUDY – REVISION 2
FORMER J.H. BAXTER & COMPANY WOOD TREATING FACILITY
ARLINGTON, WASHINGTON
MARCH 2011

GENERAL COMMENTS

1. J.H. Baxter & Company's (Baxter) preferred alternative in the Corrective Measures Study (CMS) does not does not include remediation of the source area and does not include active remediation of the off-site plume. Several technologies which may be effective in remediating the source were not carried through into the analysis of proposed alternatives. Alternatives which address the source area must also be evaluated in the CMS.

2. Much of the evaluation of alternatives relies on opinions and subjective judgments which are not supported by factual information. In addition, there are many factually incorrect statements, discussed below in the specific comments. All information that is either incorrect or based on subjective opinions must be removed from the CMS or a factual basis provided for the opinions.

3. The CMS must include more details on the most recent field work (*Supplemental Groundwater Investigation, 2010*) and use the data obtained in that effort to fully document the extent of the contamination and its three dimensional characteristics. In particular, the CMS must include more cross-sections along the axis of the main plume emanating from the facility.

SPECIFIC COMMENTS

1. Revise the CMS to include a figure which shows clearly the boundaries of Parcel A, Parcel B, etc., and the text must reference that figure when those parcels are first discussed. It is hard for reader to understand the relationship of the Parcels to descriptions of other facility features.

2. Section 2.2.3 Local Hydrostratigraphic Units. This section and other sections that describe the contaminant plume's migration off-site include only a plan view (Figure 4-1). Revise the CMS to include a cross section that is oriented along the axis of the entire plume.

3. Section 3.2.1 Parcel A. Change this sentence "The proposed soil cleanup levels for Parcel A are based on industrial land use" to "The proposed soil cleanup levels for Parcel A, as shown on Table 3-2, are based on industrial land use."

4. Section 4.1 Parcel A, and Section 4.2. Parcel B. As discussed in specific coment No. 1, reference to a figure must be made in this section to direct the reader to the locations of Parcel A and B.

5. Section 6.2.1 Soil and LNAPL. This section contains opinions not supported by facts as well as factual errors. The following quotations are examples of non factual statements that appear in this section as well as throughout the CMS which must be corrected:

   i) CMS Statement: "Any potential excavation or thermal remediation within the Main Treatment Area would carry significant cost due to the need to shut down the facility."

   EPA Comment: It is not clear that the facility would need to be shut down since it is possible to do thermal remediation using wells and electrical heating. Also, shut down of the facility may be necessary and appropriate to sufficiently address the contamination at the facility. Baxter should examine options for partial and temporary shut downs and must weigh the potential impact on operations and share that evaluation with EPA in the CMS. A shut down of the facility, depending on the duration, location of work, and areal extent of shut down, may not be a basis to dismiss an alternative.

   ii) CMS Statement: "A common remediation approach used to limit LNAPL and DNAPL migration at wood treating sites includes containment technologies (EPA, 1992). The Puget Sound Resources National Priority List (NPL) site (Wyckoff facility) initially used subsurface barrier walls to contain LNAPL and DNAPL; however, the barrier wall was not keyed into a suitable aquitard, and migration of DNAPL appeared to be occurring. Although the Puget Sound Resources site has a different environmental setting, a similar condition of no suitable aquitard is present at the Arlington facility, suggesting that a barrier wall may not be effective at Arlington. In situ thermal treatment (steam stripping) was attempted to remove DNAPL at the NPL site; however, this process has had very limited success in meeting environmental cleanup standards, and containment seems to be the only viable option at the Puget Sound Resources site (EPA, 2007c)."

   EPA Comment: This section contains incorrect statements, conclusions and references. EPA Region 10 has conducted cleanups at multiple "Wyckoff" facilities. The Wyckoff Eagle Harbor facility conducted a pilot test of thermal treatment technologies. The Wyckoff facility discussed in this section as the "Puget Sound Resources National Priority List (NPL) site" is the old Wyckoff West Seattle facility (aka. Pacific Sound Resources after a renaming of the site by owners). The Pacific Sound Resources site in West Seattle does have a shallow barrier wall not keyed to an aquitard. The Wyckoff Eagle Harbor facility implemented a pilot thermal treatment system, for both LNAPL and DNAPL, and while it was working it seemed very successful. The limitations of the thermal system were equipment failures, and not treatment approach failures. To the extent that these references are relevant – and EPA questions the use of them here - these inaccurate statements must be corrected in

the CMS. Regardless thermal treatment and containment options must be carried through the CMS evaluation process.

iii) CMS Statement: "At the Baxter facility, the presence of diesel-based LNAPL on the water table and residual LNAPL in the vadose zone beneath an active production facility (i.e., the Main Treatment Area) will limit the available technologies, and this situation must be considered in development of alternatives. A technology such as steam stripping may be used to lower the viscosity and decrease the saturation. However, at many other creosote sites, such activities have resulted in NAPL mobility rather than reduction. The LNAPL is the only material that could potentially be removed, although LNAPL removal at similar sites has generally achieved only partial success."

EPA Comment: The last statement in this paragraph is simply too general and must be documented, referenced, or removed. Furthermore, this section seems to ignore the fact that the Visalia California wood treating site was cleaned up and delisted from Superfund using thermal technologies. EPA believes that thermal technologies may be a viable technology for the J.H. Baxter site, and not necessarily incompatible with continued use of the site during treatment. This alternative must be more thoroughly evaluated.

6. Section 7.2.2 Mobile LNAPL. It is unclear why this section relates only to mobile NAPL. Both mobile and non-mobile NAPL continue to be a source of contamination to the groundwater. This section must be revised to include both.

7. Section 8.2.2.1 Dynamic Underground Stripping. The term "dynamic underground stripping" is being used in a rather limited fashion. The term "thermal treatment" would be more useful since dynamic underground stripping is a very specific type of treatment method. EPA is aware of at least two sites where thermal treatment has proven successful – one is the Visalia Site in California, and the other is the Ridgefield Site in Washington. There may be others. Thermal treatment is a proven method and must be retained for consideration in the CMS.

8. Section 8.2.2.3 Soil Stabilization. Soil Stabilization has been used at the J H Baxter, Renton site to control the same contaminants as are present at the Arlington site, so it is hard to understand why they are not considered for the Arlington site when it was considered successful at the Renton site. Remove these statements and retain this technology for further evaluation.

9. Section 8.2.2.4 Six-Phase Heating. Both this section and Section 8.2.2.1 minimize the usefulness of thermal treatment without giving any details or factual information. As stated in the comments above, thermal treatment has been a successful technology at Visalia and Ridgefield and must be retained for consideration.

10. Section 8.2.4.2 Natural Attenuation. "Natural attenuation" must be changed to "**monitored** natural attenuation" in the heading of this section and throughout the CMS.

When natural attenuation is considered as part of a remedy, it must include extensive monitoring to ensure that the contamination is in fact attenuating and not just continuing to migrate off-site. Any MNA used must be implemented consistent with EPA guidance.

11. Section 8.2.4.3 Containment Wall. The discussion in this section is very confusing, and seems to mix into one discussion both hanging walls and walls seated into an underlying low permeability layer. The CMS discusses how the low permeability layer is at depth at the Baxter facility, which is irrelevant at the Baxter site because the source that is basically an LNAPL (floating) source which would be limited to zones near the water table. This section must discuss further the option of a hanging barrier wall and potentially carry the technology through the CMS evaluation.

12. Section 8.2.4.5 Funnel & Gate. It is unclear from the discussion in this section why this technology has not been retained. Either evidence must be provided as to why this method would not work, or the method must be retained.

13. Section 9.1.2 LNAPL Recovery by Passive Extraction. This section states that "Both total fluids pumping and skimmers generate considerable amounts of groundwater along with LNAPL, and the LNAPL must be separated from the groundwater and the water then treated for ultimate disposal. These systems are generally more effective at sites that exhibit rapid recovery of LNAPL to the extraction well. Since the Baxter site appears to have slow LNAPL recovery to a well, the passive sorbent socks appear to be preferable at this time."

    EPA Comment: No supporting technical basis is provided for the above statement about slow LNAPL recovery to a well. A groundwater extraction system would alter the gradient and increase the LNAPL thickness, thereby altering the recovery rates. This statement must either be justified or deleted, and active recovery evaluated in the CMS as a remedial technology.

14. Section 9.1.3 Monitored Natural Attenuation. Bullet 1. This bullet states that "the contaminant may be converted to a less toxic form. . ." This bullet must be revised to read that "the contaminant may or may not be converted to a less toxic form. . ."

15. Section 9.1.3 Monitored Natural Attenuation. The tiered approach presented in this section is generally acceptable, but it must provide the basis for all assumptions used on page 62 of the text.

16. Section 9.1.3 Monitored Natural Attenuation. The text states that "The results of the groundwater sampling and analysis would be evaluated for changes in the concentrations of COCs, and the results reported to EPA semiannually for the first 15 years and annually thereafter." If monitored natural attenuation is proposed as part of a remedy there must be an extensive monitored natural attenuation plan, in accordance with EPA Guidance[1], previously provided by EPA to J.H. Baxter, including a trigger for determining that MNA is not effective and for implementation of additional corrective measures, and an endpoint, such as attainment of MCLs in groundwater.

17. Section 9.3.1 Alternative 1: Air Sparging, LNAPL Recovery, and MNA. This section states that "Measurements of dissolved oxygen in the aquifer in the area proposed for biosparging indicate that sufficient oxygen for biodegradation to occur is already present. It is possible that biosparging may not increase the biological activity sufficiently to meet corrective action objectives." It is unclear why this alternative is included when it does not seem to do any better than what is presently in place, and it is not being proposed for remediation of the source. This alternative may be more appropriately considered for source remediation.

18. Section 9.3.5 Alternative 5: Enhanced Biodegradation Recirculation System and Section 9.3.6. Pilot Study Design. While the discussion is fine as presented for remediation downgradient of the source, it is not complete because it does not address source remediation.

19. Section 9.3.5.4 Passive LNAPL Recovery. The report states that "The decrease in the rate of product recovery from MW-13 and MW-19 suggests that the source area has contracted since startup of the pilot system." There is no reliable data to support this conclusion. The source area mass is significantly larger than the total that has been extracted by the socks so far. The report must include a table and graph that shows the total mass removed by both the dissolved plume treatment system and the LNAPL recovery system to date.

20. Section 9.3.5.6 Extraction Well Composite Sample Analytical Results. The report documents that the source area is a continuing source, as summarized by this statement "...during the wet season, groundwater levels rise, and groundwater comes into contact with source-area soils containing PCP." This indicates that the source area in what is unsaturated zone part of the year must be remediated to prevent it being a recurring source for the dissolved plume. Remediation of the source must be evaluated in the CMS.

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[1] **EPA 600/R-11/204, December 2011, " An Approach for Evaluating the Progress of Natural Attenuation in Groundwater;"** EPA/600/R-04/027, April 2004, "Performance Monitoring of MNA Remedies for VOCs in Ground Water."

21. Section 10. Detailed Evaluation of Alternatives. The comments made above on Section 9 also apply to Section 10, where much of the same material is repeated. Section 10 must be revised consistent with the revisions required in Section 9.

22. Section 12. Recommended Corrective Measure. The statement that "Recovery of LNAPL has slowly reduced contaminant mass in the source area" must be supported by graphs or tables which document the recovery. It would also help to include the total mass of the dissolved system in a graph or table for ease of comparison by the reader.

23. Section 12. Recommended Corrective Measure. The recommended measures must include source remediation. Until the sources are all remediated there will be continuing release of contaminants and cleanup standards will not be met. The CMS must discuss and evaluate source remediation. The text states that "Since the LNAPL and affected soil serve as an ongoing source of COC releases to groundwater, the groundwater remediation components included in the recommended corrective measure will require time to reduce and control the contaminated groundwater plume." However, the CMS does not provide even an estimate of that time the system will need to be operated. The facility will be required to post sufficient financial assurances to cover completion of remediation in the future. Cost estimates for all proposed remedies must include the cost of all required monitoring and financial assurance must be provided to cover all monitoring costs.

24. Section 12.0 Recommended Corrective Measure. The text states that "The active remediation systems included in this corrective measure would intercept and treat affected groundwater so that COCs would not represent an unacceptable risk to receptors located downgradient of the Arlington facility property line." At the present time the plume is not controlled and extends beyond the facility property. It is not clear how the proposed corrective measure would control the offsite plume. The proposed remedy must address remediation of the off-site plume and the sources at the site.

25. Section 13.0 References. The document must explain the differences between, for example, "*Baxter, 2010b, Remedial Action Pilot Study Report, Stella-Jones (formerly J.H. Baxter & Co.) Wood Treating Facility, Arlington, Washington: Prepared by Baxter Project Team, October*," and "*Premier, 2011, Technical Memorandum, J.H. Baxter & Co. Arlington Facility, Supplemental Groundwater Investigation 2010: Submitted by Premier Environmental Services, Inc., March 15.*" It is hard for the reader to find documents for the same facility when they are presented under different authors without some explanation in the text. Please explain the relationship of the authors to the facility and how the reports are labeled or named and credited.

26. Figures. Figure 4-1. This figure must have Parcel A and Parcel B labeled. It would be useful in other figures as well, allowing the reader to easily find the location of areas mentioned in the text.

27. Figures. Figure 4-1. A cross-section along the axis of the plume shown in this figure must be developed and included as one of the figures. That cross-section must include the details from the "*Supplemental Groundwater Investigation 2010*" (*Supplemental*

Investigation) dated March 15, 2011, and the plume in figure 4-1 must be extended to cover the contamination to the full extent as found in the 2010 supplemental investigation. The data in Figure 8 of the *Supplemental Investigation* show the plume as reaching between SB-81 and MW-43. The location of the plume in Figure 4-1 is not correct and greatly underestimates its extent. The information from Figure 8 of the *Supplemental Investigation* must be incorporated into the CMS as a new figure. Similarly cross-sections 6 & 7 of the *Supplemental Investigation* must be incorporated into the CMS.

28. Figures. Series of figures 9-15 to 9-25 must include additional figures which incorporate the monitoring data which covers the entire period up to the date the final CMS is submitted to EPA. Note that it is not clear how the new information from the off-site wells and investigation work is being incorporated into these figures, which indicate that the plume stops at MW-37. The *Supplemental Investigation* has shown that the plume extends beyond MW-37. This information must be shown on these plots and the cross-sections.

29. Table C-1. The basis for the estimated costs for the corrective measures alternatives is unclear. For example, the initial construction/ consulting cost of the Enhanced Biodegradation Recirculation System is given as zero dollars. Accurate third-party cost estimates must be provided for each alternative. Each cost estimate must include an explanation of the basis for the estimate.