

ARCADIS

**Appendix A**

FDEP RAI Letter



# Florida Department of Environmental Protection

Southwest District Office  
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Temple Terrace, Florida 33637-0926

Charlie Crist  
Governor

Jeff Kottkamp  
Lt. Governor

Michael W. Sole  
Secretary

March 16, 2009

Lockheed Martin Corp.  
Attention: Mr. Paul Calligan, P.G.  
6801 Rockledge Drive  
Bethesda, MD 20817

RE: Remedial Action Plan  
Former American Beryllium Site  
Tallevast, Manatee County, Florida  
FDEP Site #169624/Project #238148

Dear Mr. Calligan,

The Florida Department of Environmental Protection (the Department) has received and reviewed the Remedial Action Plan (RAP) submitted on September 2, 2008 and subsequent responses dated February 11, 2009 from Lockheed Martin to comments from third party reviewers. These documents are part of the ongoing agency review of the remedial plan for the former American Beryllium Company (ABC) site located at 1600 Tallevast Road in Tallevast, Manatee County, Florida (Site).

Discussion with Lockheed Martin staff and review of the responses to community concerns noted above indicate that Lockheed Martin intends to reconsider some aspects of the initial remedial design submitted in September of last year. These alternatives include: additional pretreatment of extracted groundwater and options for reducing size or need for the CO<sub>2</sub> tank; elimination of the proposed oxidation injection aspects of the RAP design; evaluation of extraction rates on the east end of Tallevast road; and completion of a community Crisis Management Plan. The response also indicates that the existing influent groundwater storage tank identified in the RAP will be removed and replaced with a new influent storage tank design to be placed within the proposed treatment building.

This period of review and revision of the RAP document to incorporate these changes to the RAP submittal proposed by Lockheed Martin will also allow the revised RAP submittal to address some points of clarification that have been identified by agency staff during the agency's review of the RAP document. I've attached a list of these clarification points to this letter.

The community raised concerns regarding the length of time it would take to construct the remedial system and the potential for further movement of the plumes during this time frame. Lockheed Martin has been collecting and submitting annual groundwater data reports for all monitoring wells in the area for several years so that any significant changes in the plume dimensions would be apparent and could be addressed. Lockheed Martin has recently initiated this year's sampling effort and the RAP should be revised to acknowledge and incorporate Lockheed Martin's commitment to continue this sampling during the RAP construction period. Please incorporate an annual groundwater sampling component into the RAP revisions to cover the construction phase of the RAP.

Rule 62-780.700 (1), F.A.C. Active Remediation section of the rule provides that if the Remedial Action Plan addresses contamination that has migrated into any medium beyond the boundary of the source property (i.e., the location from which the contamination is emanating), then the point of compliance may be temporarily extended beyond the property boundary. Prior to the Department authorizing a temporary extension of the point of compliance beyond the property boundary, Lockheed Martin must provide notice and an opportunity to comment pursuant to subsection 62-780.220(3), F.A.C. Please provide a schedule and administrative outline for both the implementation of the notice process and how notice documentation will be completed and submitted to the Department.

In light of these proposed and possible further modifications to the remedial design for this project both to address the concerns raised by the community and the clarification requested from the Department, the Department requests that Lockheed Martin complete the evaluation of any changes to the remedial design, revise the Remedial Action Plan as necessary and then submit a revised final RAP for this Site to the Department within 120 days of the date of this

Mr. Paul Calligan

March 13, 2009

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letter. Please feel free to contact me at any time at (813) 632-7600 extension 353 or via e-mail at Kutash\_W@DEP.STATE.FL.US.

Sincerely,



William Kutash  
Professional Geologist Adm.  
Waste Management Division  
Southwest District

cc: Larry Morgan, OGC  
Deborah Getzoff, District Director  
Brian Dougherty, DEP BWC  
Ms. Laura Ward, President, FOCUS  
Ms. Wanda Washington, Vice President, FOCUS  
Dr. Tim Varney, Environ  
Emerson Carey, Carey and Dobson, Atlanta  
Randy Merchant, DOH, Tallahassee  
Karen Collins-Fleming, Manatee County Environmental Mgt.  
Dr. Gladys Branic, DOH, Manatee County  
The Honorable Bill Galvano, Florida House of Representatives  
Mark Stuckey, DEP BWC, Tallahassee  
Derek Matory, EPA, Atlanta  
Mike Graves, EST, Inc.  
Heather Walker, Wildlaw Florida Office

## ISCO

Lockheed Martin indicated that they may eliminate the in-situ chemical oxidation (ISCO) portion of the RAP in order to alleviate the community's concern about the generation of metals in the groundwater that would then be re-introduced into the groundwater near the wetlands. If Lockheed Martin does eliminate the ISCO portion of the proposed RAP, you do not need to respond to the items 1 to 5 below.

1. Section 4.4.2.3, page 52 indicates that the concentrations of arsenic and nickel did not attenuate after persulfate consumption. The RAP should indicate how elevated concentration of arsenic and nickel will be addressed after the in-situ chemical oxidation (ISCO).
2. Figure 11-12 does not indicate that any monitoring wells are located within two of the source areas targeted for injections. For ISCO injections, monitoring wells should be located up gradient, source area and down gradient.
3. Section 11.4.5, page 129. Since the groundwater flow direction in the USAS is radial, additional monitoring wells MW-7S, MW-7D and MW-11 should also be selected for baseline and post-injection monitoring. In addition, all the monitoring wells identified on Table 11-2 should be shown on Figure 11-12 i.e. OMW-3A/B, OMW 4A/B, OMW 5A/B, OMW6A/B, OMW 7A/B, OMW 8A/B and OMW 9A/B.
4. Table 11-2. The monitoring frequency for post injection for the Underground Injection Control (UIC) parameters (iron, manganese, aluminum, sodium, arsenic, beryllium, cadmium, chromium, copper, nickel, lead, zinc, sulfate and total dissolved solids (TDS)) should be weekly for the first month, monthly for the next two months and quarterly thereafter for both inside and outside treatment area monitoring wells. [*Reference: Rule 62-780.700(12)(g), F.A.C.*]
5. For the ISCO injections, the size of the Zone of Discharge (ZOD) i.e. the radial distance from the point of injection where the pertinent parameters may temporarily exceed GCTLs and the duration (time from the date of injection within which the temporarily exceeded parameters return to their GCTLs) should be specified in the RAP and calculations should be provided that justify the size and duration of the ZOD selected.

## Tank Design

1. It appears that the tanks design submitted in the RAP will be revised to be consistent with the design incorporated into the Interim Source Removal (ISR) treatment system. Please consider these comments below in the revised design submittal. Details of the revised tank controls and piping changes should be submitted in the revised RAP.
  - a. A Best Management Plan (BMP) for the proposed remedial system should be provided that clearly details which alarms and shut-offs will be activated when leaks are detected. In addition, the BMP should include procedures for dealing with a possible carbon dioxide leak, should the CO<sub>2</sub> pressure vessels remain in the design.

- b. If there are any other ways for water to be put into T-100 (such as P-1300?), then the high-level alarm needs to address them as well. The controller should be able to detect which pumps that discharge to T-100 are running.
  - c. The high/high-level alarm should close the inlet valve (a solenoid valve) instead of shutting down the treatment system. If the high/high-level alarm goes off, it means there is a problem with the high-level alarm, which means a pump somewhere did not shut down and continues to put water into the tank. At that point, shutting the inlet valve is the only solution. With this control logic, each pump should have a high-pressure shut-down alarm that would protect them against dead head conditions in the event the tank influent valve is closed.
  - d. Other tanks should be operated in a similar manner. For example, based on Figure 11-6, a high-level alarm on tank T-200 should shut down pump P-200 (and/or P-1200 from the filter press) and a high/high-level alarm should close an inlet solenoid valve. P-200 and P-1200 should have a high-pressure shut-down logic condition for pump protection.
2. Pages 119 and 141: The description of the operation of the liquid-phase granular activated carbon (LPGAC) is somewhat unclear. In particular, there does not appear to be a clear presentation of the fate of the secondary (lag) unit when the primary (lead) unit reaches the break-through point. Will the secondary unit become the primary unit when the original pair is brought back online? If not, how will it be determined when to recharge the secondary unit?
3. Only three GAC units are proposed for this type of system setup. With correct piping and valves, switching the GAC units can be done relatively quickly, with little or no system interruption. Please clarify the operational switching sequence and how the hardware (valves, sensors, piping, etc.) will be operated during GAC rotation and change out.
4. The manufacturer specifications on the final tank and the photo-cat units proposed to be used should be included in Appendix N.

#### **Equipment Design / Waste Management**

1. Section 11.2.1.7, page 104. Please provide the calculations indicating how the final influent concentrations were determined for each contaminant of concern (COC) listed. The narrative indicates that the ISR extraction data and deeper monitoring data were used but does not provide any detail as to how these data sources were used to calculate or justify the values listed in the table.
2. Section 11.2.2.2, page 106. Please clarify how the final disposal of the supernatant from the plate filter press and the backwash water from the multi-media filter will be managed on site prior to offsite disposal. How will the filter press solid waste be managed on site prior to disposal?
3. Section 11.2.2.4, page 115 indicates that it is possible that an alternate advanced oxidation process (AOP) may be selected for the final remedial system. Please clarify whether this means that a photo-cat system of a different size and power requirements than indicated in

the RAP may be selected or whether an advanced oxidation process other than a photo-cat system, for example, HiPOx system may be selected. Please note that in either case, such a modification to the RAP design will require approval by the Department prior to construction of the revised system and may require a revised RAP review and remedial Order.

4. Section 11. The listing of design data on the various remedial system equipment should indicate the number of units and if the design data provided is per unit or total. Not all the equipment indicates the number of units that will be part of the remedial system. For example, the design data for the photo-cat units should indicate the quantity, the design flow rate and whether the power and flow rate is per unit or total for the system.
5. Section 11.2.2.4, page 118. The description of the remedial process should indicate the location of the heat exchanger and cooling tower on the property and the design basis and equipment specifications for this aspect of the RAP system design.

### **Remedial Action Monitoring and Reporting**

Since several operational aspects of this RAP are being changed, please incorporate these monitoring and reporting comments into the revised RAP document.

1. Table 13-1. Rule 62-780.700(12)(c), F.A.C. indicates that the volume of groundwater recovered from each recovery well should be recorded monthly for the first year. However, Table 13-1 shows monthly recording of volume of groundwater recovered per recovery well will be completed only for the first three months. Please clarify this discrepancy in monitoring frequency.
2. Section 14.7, page 153 should be revised to indicate that the Operation, Maintenance and Monitoring reports should also include the following information:
  - a. A summary of the data requested in paragraphs 62-780.700(12)(a)-(k), F.A.C. as applicable. The applicable items from this subsection of the rule should be itemized.
  - b. All applicable information required by subsection 62-780.300(2), F.A.C.
  - c. Conclusions as to the effectiveness of the active remediation for the specified period covered in the status report.
  - d. Recommendations to continue or discontinue the operation of the treatment system.
  - e. A completed Form 62-780.900(5), summarizing the information from the annual remedial action tasks.
  - f. Graphs of groundwater COC concentrations versus time for select monitoring locations.

### **Design Basis Clarification**

1. The 3-dimensional groundwater model indicates that the longest time to achieve GCTLs is controlled by the presence of 1,4-dioxane in the S&P sands. However, only two extraction wells are proposed for the S&P sands with total pumping rate of only 1 gpm.

Additional modeling results should be included that shows adding additional extraction wells or increasing the extraction rate in the S&P sands would not reduce the time to achieve cleanup in this zone of the aquifer so that it will be consistent with the cleanup timeline proposed for the other aquifers.

2. If the remedial system cannot be designed to effectively remove iron so as to eliminate the need for acidification, dividing the carbon dioxide inventory among multiple independent pressure vessels in which no single one is of sufficient capacity to represent an asphyxiation hazard seems reasonable. However, Lockheed Martin mentions in their response to Wildlaw Comment 7 that they are also considering on-site generation of carbon dioxide. Lockheed Martin should confirm if on-site generation of carbon dioxide is also being considered, and if so, appropriate design and specifications for proposed equipment should be provided. If additional iron or other pretreatment is going to be proposed, specific design details and specifications should be added to the revised RAP submittal for this proposed change in the design.
3. Should Lockheed Martin decide to revise the extraction system to add additional trenches or extraction wells or to increase the extraction rate from the levels proposed in the RAP, the impacts of these changes should be evaluated with the groundwater model to allow evaluation of the impacts of the proposed changes to the time to achieve GCTLs or other effectiveness aspects of the RAP system performance (i.e., stagnation zones, reverse plume movement, expansion of contaminant impacts).
4. The operation and monitoring reports for the ISR system indicate that changes in the aquifer geochemistry associated with the physical extraction process has resulted in increased metals concentrations in the resulting extracted influent. Lockheed Martin needs to evaluate the impact of the operation of the additional scope of the expanded extraction wells and trenches proposed in this RAP and identify how the further mobilization of these metals will be addressed in the RAP influent treatment design and the post-extraction groundwater monitoring criteria.

### **Soil Removal**

The RAP as submitted does not include any specific proposal to excavate or remove soils from the site. However, over the past few months there have been several references to either a shallow removal of TRPH soils from the sump area to complete removal of soils that could not be removed from under existing building foundations in the previous ISR soil removal actions, or deep remedial alternative excavation alternatives to remove VOC contamination. In response to the community's concerns, it appears that some excavation may be proposed to facilitate the construction of the treatment building and associated infrastructure. Please revise and/or clarify the role of any soil excavation to be included in this remedial design in light of the elimination of the ISCO alternative and the building demolition changes already completed at the site. If soil removal is proposed, it should include details for on-site management, volumes of material to be generated and ultimate disposal or on-site treatment options proposed for the excavated soils.

Alternatively, if soil removal or treatment is not proposed, and Lockheed Martin retains the remedy of engineering and institutional controls to manage soils, then the RAP needs to show the extent (lateral distribution and depth) of soils that will be managed through such controls and a



description of the actual engineering controls that will be used to achieve the risk management goals outlined in the rule. The RAP should also include a schedule for the development of the final design and implementation of the engineering control and the submittal of the institutional control proposal. The RAP should identify the risk management restrictions proposed to be placed in the deed restriction and how the engineering control will be monitored, managed and repaired after construction.

### **Site COCs**

Remedial Action Plan form and text in the RAP document should include all contaminants in any media identified on site (including soils) on the list of COCs and in all data summary tables. The existing text and RAP form focus on six groundwater COCs and does not include the identified breakdown products of the volatile organic compounds (VOCs), such as vinyl chloride. In addition, the text of the RAP identifies that other compounds were detected in one or more locations (e.g., 1,1,1-trichloroethane and its degradation products were detected in MIP-94). If any of these other constituents exceed GCTLs they should be included as COCs.

### **Groundwater Monitoring**

The specifics of the selection of proposed wells for groundwater monitoring to monitor the plumes' configurations during implementation of the remedial action should be reassessed once the final design changes on extraction rates, and extraction methods is completed. Once the final remedy (or combination of remedies) is selected and the final design changes completed, the proposed monitoring well network should be re-evaluated for effectiveness in tracking both the progress of the cleanup and to ensure that the edges of the plumes (Temporary Point Of Compliance TPOC) continue to be adequately monitored.

### **Remedial Design Approval**

The RAP text indicates that the final remedial bid/construction documents will be submitted to DEP for review and approval prior to construction. The RAP proposal under Chapter 62-780, F.A.C. must identify the RAP design in sufficient detail and specificity so that the Department can issue a RAP Order that will authorize Lockheed Martin to proceed with final bid and construction of the remedial design without further agency approval. No further DEP approvals are needed to implement the RAP unless the approved design is modified outside of criteria and specifications in the RAP as submitted and approved by the Department. If Lockheed Martin determines that the remedial design needs to be modified after issuance of the RAP Order, these changes may require a modification of the RAP and a subsequent Department Order.

### **Contingency Plan**

Several aspects of the contingency plan as attached to the originally submitted RAP appear to have been replaced or updated since the original submittal date. Please update the Contingency Plan as needed to reflect the discussions with the Department on the ISR contingency plan and the additional agreements reached with the community.

### **Cost**

Page 69 of the RAP indicates that cost was categorized into three groups (low, medium and high) and that preference and final remedial alternatives considered cost as a component of the final decision in the remedy(ies) selected. The RAP did not include detailed cost estimates for the

alternatives and indicated that the technologies or process options were not eliminated “based solely on cost.” Page 94 indicates that in addition to the direct technology cost, the construction and operation and maintenance (O&M) costs were also not provided because “cost alone was not used as a criterion.”

In addition, the preliminary screening of remedial alternatives presents only effectiveness, implementability, and cost as the three criteria used for screening. The revised RAP should clarify how the other rule required evaluation criteria were considered in selection or rejection of potential remedies with additional focus on the impact on the estimated time to achieve cleanup.

The Department requests that the RAP be revised to provide the relative cost boundary for each of the three criteria (low, medium and high) and the cost basis for these estimates for each aspect of the remedial evaluation. All of the rule-required evaluation criteria should be addressed and the RAP should be revised to indicate how the cost of the various technologies, construction or O&M aspects were included in the remedial evaluations, even if these were not the sole determiner of the final outcome.

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The following typographical errors, omissions etc. should be corrected in the revised RAP submittal unless the referenced sections are revised to accommodate other changes in the text as the result of changes to the overall remedial design:

- a. Section 3.2.4.1, page 25. The size of the influent tank should be revised from 20,000 gallons to 17,640 gallons which is the volume of the double-wall tank, if it is retained in the final design.
- b. Section 4.1, page 30 and Section 5, page 55. The incorrect rule reference was stated. Chapter 62-780, F.A.C. rather than Chapter 62-770, F.A.C. should be stated.
- c. Section 14.6.4, page 152 indicates that the reporting months for the wetlands would be February, May, August and November. However, Table 13-1 reports these months as the monitoring months. It appears that Table 13-1 should be revised to indicate that the monitoring months would be January, April, July and October and that the reports will be submitted.