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- Dezso Linbrunner US Army Corps of Engineers, Omaha District
- Rachel Hess ITSI
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II. Approval of minutes from last meeting

The previous meeting minutes were approved as written.

III. Additional Agenda Items and Questions

Mr. Smith asked if there were any questions about the agenda or if anyone had any additional items not already on the agenda. He stated that there will also be an opportunity at the end of the meeting to add agenda items or ask questions. Mr. Smith announced that Mr. Anderson will be presenting information on “The Road to the ROD”. Mr. Duke will be presenting the MTBE Cleanup projects at Travis AFB.

IV. Discussion Topics

a) The Road to the Final Record of Decision (ROD)

Mr. Anderson presented information on the road to ROD.

Mr. Anderson began by explaining the steps taken:

- Feasibility Study (FS): Compares the different ways that the Air Force could achieve cleanup of the contaminated sites.
- Proposed Plan (PP): The Air Force presents the best and most efficient ways for cleaning up the contaminated sites for public comment.
- Record of Decision (ROD): Describes the different ways the Air Force will achieve cleanup of the contaminated sites once Travis has received input from the stakeholders and received approval from the regulatory agencies.

The Remedy Selection Process: Before a decision can be made on the cleanup remedy, the first step is to identify what type of contaminants need cleaning up.

In the late 1980’s to the mid 1990’s the base was split into four quadrants, referred to as Operable Units (OU). A remedial investigation was conducted on each OU. When the remedial investigations were completed Travis had data on the types of contamination that needed remedial action. Three of the OUs with the same problem/contamination were combined into one, leaving just two OUs. The focus then switched to how Travis can best clean up these sites. Feasibility Study’s (FS) were conducted considering all remedies for cleanup. When the FS’s were completed, cleanup remedies were proposed, however, the base cannot select a

specific remedy by law and by best practice without community input. Travis wrote two Proposed Plans (PP) and held public meetings to receive their input on each of the PPs. Travis then prepared decision documents that incorporated the discussions and feedback received from the community.

In 1990, Travis made a decision to start interim cleanup actions vs. final cleanup actions because the base didn't know if they could attain the regulator cleanup levels at that time. Travis proposed cleanup goals that were not legally binding to put the cleanup process in motion. Two interim RODs, (IROD) were written by the Air Force and signed by both the Air Force and the regulatory agencies. Remedial Designs and Remedial Actions (RD/RA) then began and the groundwater treatment systems were constructed. Travis continued to operate the treatment systems for twelve years (to the present day) and achieved a fair amount of cleanup, even though the base did not have mandated cleanup levels. The base was moving in the right direction as cleanup had started. During this time frame, Travis did have two legally mandated five year regulatory reviews (in 2003 and 2008) to ensure that all remedies were protective of human health.

Travis is now in the process of selecting the final remedies. The base conducted a site specific data gap investigation from 2008 – 2011 to ensure it was known where contamination existed at each site. Travis was also reviewing the existing cleanup processes and looking for ways to make them more effective and more efficient. In other words, to optimize them. Remedial Process Optimization (RPO) has also resulted in implementation of: solar powered equipment, Emulsified Vegetable Oil (EVO) injections, biobarrier installation, bioreactor installation, phytostabilization implementation, and the study of natural attenuation.

The Remedy Selection Process:

- Which remedy is the best; single remedy vs. multiple remedies.
- Biological vs. chemical treatment.
- Can a treatment be both green and effective.
- How clean is clean. When to stop pumping and injecting EVO.
- How much is the cleanup going to cost.
- Will the community support the cleanup strategy.
- Will the regulatory agencies support the cleanup strategy.
- Will the Air Force Center for Engineering and the Environment support the cleanup strategy.

The Remedy Selection Schedule for Travis AFB:

Document	Draft	Draft Final	Final
FFS:	27 January 2011	01 June 2011	01 July 2011
PP:	10 June 2011	13 September 2011	13 October 2011
ROD:	25 January 2012	29 May 2012	27 June 2012

Mr. Reagan inquired as to how Travis plans to circulate the PP to the community for comments. Mr. Anderson said Travis will advertise the PP in the Guardian, submit a Newspaper article (Fairfield and Vacaville publications), and on the main page of the Air Force's website. Mr. Salcedo pointed out that from a regulatory agency perspective it is very important to have community involvement and public acceptance on the PP.

The following reflects discussion of the topics:

Mr. Reagan: what will be the role of the advisory board after the ROD is signed; other than the five year reviews, and there won't be much for community input.

Mr. Anderson: it is up to the RAB, and that would be a good discussion topic to add to the April 2012 RAB agenda.

Mr. Reagan: what would be Travis' approach as cleanup technology evolves.

Mr. Anderson: a mid-course correction action would be considered, and even a ROD amendment. We should remain flexible especially when there is money to be saved.

Mr. Reagan: what do you mean when you say how clean is clean, is that by human standards?

Mr. Anderson: babies, senior citizens, etc., it is risk based.

Mr. Reagan: what if the detection limits are lowered.

Mr. Salcedo: detection limits can be adjusted in both directions (up or down). A lot of the time the limits are lowered. It also depends on the receptor; humans or animals, whether the detection limit process improved, and if it is naturally occurring, i.e. arsenic.

Mr. Anderson: all of this will be considered in the five year reviews.

Mr. Mitchell: is Travis down to two OUs?

Mr. Anderson: yes the two main OUs that are on base however, we have a third off-base OU. It is a 25 acre parcel that was contaminated by a private firm. This OU is separate from the OUs on base. Travis is not funding the regulatory cleanup. The State Water Board is providing the regulatory oversight. Travis is one of the responsible parties and provides documentation reviews.

The original Air Force goal was Remedy in Place (RIP) by 2012; a goal that remains for Travis with the cooperation and in coordination with the regulatory agencies and community input.

The groundwater PP public meeting will be held in conjunction with the October 2011 RAB meeting.

b) Methyl Tertiary Butyl Ether (MTBE) Cleanup.

Mr. Duke presented information on the MTBE Cleanup.

Methyl Tertiary Butyl Ether (MTBE) is a fuel oxygenate that was a component of gasoline at one time to allow fuel to burn more efficiently and create less air pollution. It was used in California from the 1970's until 2003. MTBE mixes readily in water and travels with the flow of the groundwater. It does not stick to soil like gasoline. So, it moves at the speed that groundwater moves.

MTBE has not been shown to be carcinogenic in humans, but additional studies are ongoing. Lab rats have been tested but with very high doses. Maximum contaminant level in drinking water is 13 µg/L, and some people can smell and/or taste it at a MCL level of 10 µg/L.

MTBE at Travis AFB:

- Gasoline with MTBE as an additive was sold at the AAFES base gas stations.
- The old gas station tanks did not have an alarm system and occasionally experienced fuel leaks.

Mr. Duke referenced a map to indicate where the gas stations are located on Travis AFB as well as the MTBE plume.

How is MTBE cleaned up:

- If it was just gasoline, we could implement Monitored Natural Attenuation (MNA), and then watch it closely to make sure it was breaking down. But because it is MTBE and does not break down readily and moves quickly, a more aggressive cleanup is needed.
- Extraction and treatment with ultraviolet oxidation: works great, but uses a lot of electricity. Not cost effective.
- Extraction and treatment with activated carbon: makes sense, and is the most cost effective. Pump the groundwater out and run it through the carbon vessel.
- Enhanced In Situ Bioremediation by oxygen injection: the site is too big to inject oxygen or chemical oxidation. Not cost effective.

The decision was to use Groundwater Extraction and Treatment (GET) using Granular Activated Carbon (GAC).

Mr. Duke scouted the area near the fuel leaks to find a location to place the GAC treatment system. The south side, in the back of the Firestone gas station looked like the ideal place, close to the plume source, not a lot of traffic, and was not being used by Firestone. Travis received permission from the real estate office for the use of this location. Mr. Duke conveyed to the CH2M HILL engineer that Travis wants to "go green" and that, solar panels, if possible, should be installed to power the extraction wells. He also indicated that a storm water drain is located near the

selected treatment site and that the treated groundwater could easily be pumped into that storm drain.

Mr. Duke talked about the construction process which included installation of the extraction wells and installation of the piping to the GET system. Pictures of the construction were shown during this presentation.

Mr. Duke talked about the horizontal drilling process. The drillers would dig potholes around all of the marked utilities, and there were many, then start the directional drilling and inserting of pipe. At times they would directional drill 400 ft. from pothole to pothole to tie in the pipe. It is important to note that during the trenching, no underground lines were damaged. The work was non-invasive. There are a lot of new buildings with new sod and concrete, and neither were disturbed by using the directional drilling process. The Plant construction wrapped up in December 2010.

A permit to discharge treated water was needed because this site is a petroleum site and does not fall within the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. The National Pollutant Discharge Elimination System (NPDES) permit was filled out in December 2010. The NPDES permit was received in February 2011, and the initial startup testing was conducted in March 2011.

The site ST018 GET system consists of three solar powered extraction wells that pump contaminated water through three carbon vessels, filled with virgin coconut carbon.

The only electricity used is for the alarm and the pump that circulates the treated water out to the storm drain which leads to the creek.

The current status of the ST018 MTBE treatment Plant is operating as designed and 2.2 lbs of MTBE, TPH and BTEX were removed in the first three weeks.

The base saved money by reusing the three carbon vessels which were originally used at the Central Plant; they were no longer needed at the Central Plant. A well vault and lid were also recycled from another location on base, realizing additional savings.

V. Cleanup Program Status

Mr. Smith reported on the Cleanup Program Status and the new policy from the Secretariat of the Air Force.

Background:

- In May 1980, Congress decided to take action to address cleanup of past contamination in order to protect human health and the environment.
- In 1984 The Department of Defense (DoD) Environmental Restoration Program was established to address “worst first” DoD sites.
- The DoD emphasis was on getting contaminated sites to Remedy in Place (RIP).
- Since then, \$25 Billion has been spent on cleanup. Many DoD properties (active and non-active) have sites with operating remedies in place that still pose environmental constraints on land use or redevelopment.

23 December 2010, a memo was issued from the Secretary of the Air Force that provides new policy that focuses on accelerating site closure.

Policy on Refocusing Environmental Restoration addresses the following:

- Focus on Results. The objectives and efforts should be to close as many sites as possible rather than trying to achieve RIP.
- Make use of Performance Based Contracting (PBC). PBCs allow the contractor to use their expertise to achieve specific objectives, and advise Travis on the best approach to contamination cleanup.
- The future remedy selections will consider total life cycle costs of the remedy (includes operation and maintenance).
- Remedial process optimization will focus on efficiency and effectiveness.
- Performance objectives must comply with existing agreements, but encourage innovation to achieve site closure.

Site Closure Defined as no additional investment of time or money is needed, once agreement upon site cleanup is received.

The expected Impact on Travis is likely to be the following:

- Soil – we will have to revisit our Land Use Controls (LUCs) that are in place.
- Plan for and program projects to complete excavation or treatment of LUC sites to cleanup levels in a new Record of Decision (ROD).
- In the past, future land use was considered. This meant industrial cleanup levels were applied to industrial property. Since residential cleanup levels were not

achieved, LUCs (similar to a deed restriction where we have to make sure we protect those that access the property. One way is to put a fence around it.

- The Cost of the LUC site operation and maintenance over time adds up and could be substantial. Cleanup costs required to close a LUC site need to be compared to the cost of leaving the site in a LUC status over time.
- Groundwater – existing PBC takes us to RIP (previous AF focus).
- The ROD is in development and we can't change the goal of the PBC.
- However, Remedies can still be selected with site closure in mind.

What now:

- Complete the existing PBC project and attain RIP.
- Award the next PBC in 2013 to continue to operate those remedies selected in 2012 and clean up soil LUC sites.
- Make sure the new PBC has performance goals that include optimizing existing treatment systems for the most efficient and effective remedy.

Some Final Comments:

- The new policy is focused on ending the continuing cost of cleanup.
- It includes effectiveness in optimization. Time to cleanup and efficiency are very important. Strike a balance between Green Sustainable Remediation (GSR) and more energy intensive remedies.
- Travis has been doing a great job at cleaning up the base and utilizing GSR as technology improves.

VI. **Regulatory Agency Reports**

Ms. Burke mentioned that the San Francisco EPA region just came out with their annual report. If interested in viewing the report, it is available on EPA's website.

Mr. Salcedo said that the agency is working well with the Air Force. The Air Force does have a very aggressive, structured schedule and the DTSC will continue to work closely with Travis.

VII. Focus Group Reports

The Technical Focus Group provided review and comments on:

- 2010 Annual CAMU report
- Remedial Action Report for sites SS014 and ST032
- Focused Feasibility Study
- 2009-2010 GSAP
- EVO/ISCO Tech Memo

Mr. Smith thanked Mr. Foster and Ms. Gavlak, for their participation on the documents reviewed.

VIII. Set Time and Place for Next RAB meeting

The next RAB and Proposed Plan Meetings is scheduled for **20 October 2011** at the Northern Solano County Association of Realtors in Fairfield.

IX. Adjournment

Mr. Smith adjourned the meeting at **8:40 pm**.

Minutes submitted by: Jeannette Cumberland, CH2M HILL

Minutes approved by: Mark Smith