Final

Travis Air Force Base
Environmental Restoration Program
Remedial Program Manager's
Meeting Minutes

20 October 2011, 1300 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Manager's (RPM) meeting on 20 October 2011 at 1300 in the Main Conference Room, Building 570, Travis AFB, California. Attendees included:

• Mark Smith	Travis AFB
• Glenn Anderson	Travis AFB
• Lonnie Duke	Travis AFB
• Gregory Parrott	Travis AFB
• Dezso Linbrunner	USACE-Omaha
• Alan Friedman	California Regional Water Quality Control Board (RWQCB)
• Jose Salcedo	California Department of Toxic Substances Control (DTSC)
• Nadia Hollan Burke	United States Environmental Protection Agency (USEPA)
• Mary Snow	Techlaw, Inc
• Rachel Hess	ITSI
• Mike Wray	CH2M HILL
• Loren Krook	CH2M HILL
• Tony Chakurian	CH2M HILL

Handouts distributed at the meeting and presentations included:

• Attachment 1	Meeting Agenda
• Attachment 2	Master Meeting and Document Schedule
• Attachment 3	SBBGWTP Monthly Data Sheet (September 2011)
• Attachment 4	CGWTP Monthly Data Sheet (September 2011)
• Attachment 5	NGWTP Monthly Data Sheet (September2011)
• Attachment 6	Site ST018 Monthly Data Sheet (September 2011)
• Attachment 7	Presentation: August/September 2011 Performance Monitoring Results at Travis AFB
• Attachment 8	Presentation: LF007C Investigation Update

- No Attachment Presentation: FT005 Soil Remedial Action Update
- Attachment 9 Presentation: Management Overview Briefing
- Attachment 10 Presentation: 2011 Field Schedule Update

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 21 September 2011 RPM meeting minutes were approved and finalized as written, with the following exceptions. Mr. Salcedo requested a correction be made on page three, paragraph six, second sentence, change "pH" to "PAH", and on page five, second paragraph, third sentence; change the word "raise" to "increase". Mr. Anderson suggested a change on page six, under Administration Record, third sentence, replace "weed eating" to "weed mowing" and delete the word "mowing" after SBBGWTP. Mr. Salcedo suggested inserting the word "upcoming" before GSAP, fifth sentence (same section as above). Mr. Salcedo suggested a correction on page seven, first paragraph change "slide shows" to "slide show". Ms. Hess requested to insert her corrected modification for the fourth paragraph on page eight. Ms. Burke requested that a question she asked on FT005 the soil remediation presentation be included in the minutes. The following insertion was made to FT005 Soil Remedial Action Update: "Ms. Burke had a comment on the comparison of the proposed volume to the actual volume. Ms. Hess stated volumes at this time appear fairly close but we will know more as data results come in."

B. Action Item Review.

Action items from September were reviewed.

Action item one still open. No change.

Action item two still open. No change.

Action item three still open. No change. A discussion with EPA is needed to substantiate the terminology for site closure completion reports. Need to schedule in an upcoming RPM meeting agenda, and possibly get AFCEE involved.

Action item four still open: No change, ongoing.

Action item five is closed.

Master Meeting and Document Schedule Review (see Attachment 2)

The Travis AFB Master Meeting and Document Schedule (MMDS) was discussed during this meeting (see Attachment 2).

Travis AFB Annual Meeting and Teleconference Schedule

— The next RPM meeting will be held on 30 November 2011. A teleconference is tentatively scheduled for 14 December 2011 at 0930 with Travis AFB, the

Regulatory Agencies, and Mr. Wray and Mr. Krook from CH2MHILL, to discuss the Technical and Economic Feasibility Analysis (TEFA) document.

The 2012 Annual Meeting and Teleconference Schedule were discussed. The meeting date in February (15 February 2012) may need to be revised, depending on an Air Force Training symposium meeting scheduled for that same week. The 21 November 2012 was changed to 14 November 2012 to accommodate the Thanksgiving holiday.

Travis AFB Master Document Schedule

— Focused Feasibility Study (FFS): The Final document will be issued on 28 October 2011. DTSC, RWQCB and EPA to receive one paper copy and one CD copy, Techlaw to receive one CD copy.

— Proposed Plan (PP): No change.

— Groundwater Record of Decision (ROD): No change. A scoping meeting for the ROD will be included in the November RPM meeting or held separately in the afternoon after the RPM meeting. Ms. Burke asked if it would be beneficial to invite EPA Headquarters (EPA HQ) personnel for the scoping meeting, adding if they are not available on 30 November 2011 to perhaps schedule a scoping meeting on a different date to include EPA HQ in the discussion. Mr. Anderson agreed.

— Potrero Hills Annex: (FS, PP, and ROD): No change. The California Regional Water Quality Control Board (RWQCB) has asked the responsible parties to conduct additional groundwater sampling. The responsible parties are preparing a Work Plan (WP). Mr. Anderson said he suggested that the responsible parties look into implementing a remedial action. Mr. Parrott said years ago they looked at installing an above ground bioreactor.

— Site ST027-Area B Human Health Risk Assessment: No change in document schedule. This document was previously categorized as Primary by mistake. So, it was re-categorized to the Secondary Document section of the MMDS. Ms. Burke said EPA can meet the due date.

— Site ST027-Area B Ecological Risk Assessment: No change in document schedule. This document was previously categorized as Primary by mistake. So, it was re-categorized to the Secondary Document section of the MMDS. Ms. Burke said EPA can meet the due date.

— Work plan for Assessment of Aerobic Chlorinated Cometabolism Enzymes at Travis AFB: The Agency Comments Due date was changed to give the Regulatory Agencies more time for their review. The subsequent due dates were changed accordingly. Ms. Burke said she gave the document to Dr. Wilson and that he probably won't get back to her until the end of this month. Mr. Friedman said the new due date worked for him. Mr. Duke said this document is a high priority because we need to get in the field to collect the samples.

— FT005 Remedial Action Completion Report: No change. Dates are all still To Be Determined (TBD) and will remain TBD until the field work has been completed.

— RPO Baseline Implementation Report: The Regulatory Agencies requested one additional week for their review. The Agency Comments Due date will be changed to 31 October 2011. The subsequent due dates will change accordingly.

— Technical and Economic Feasibility Analysis (TEFA): The AF Service Center Comments Due date was changed to 24 October 2011. Travis sent a copy of the document to their Field Support Center in San Antonio and they requested one more week to review. The subsequent dates have not changed, Travis is not sure if this delay will interfere with the subsequent review dates. Mr. Friedman asked about the size of the document. Mr. Anderson said it was 146 pages, includes text and figures.

— Quarterly Newsletter (October 2011): No change. Mr. Anderson recognized and thanked Ms. Burke for her contribution to the October 2011 Quarterly Newsletter. Mr. Anderson said they also have received positive feedback from that article. Mr. Smith added that the Newsletter is submitted electronically to Air Force personnel as well as to the MAJCOM. One of the leadership personnel in the Air Mobility Command said that the Newsletter was a well prepared, professional newsletter and that he was impressed by the collaboration and cooperation Travis has with the Regulatory Agencies and RAB members.

— 2010/2011 GSAP: The Agency review period has been increased from thirty to sixty days to accommodate the heavy document review load at this time. The subsequent due dates for the GSAP Annual Report will be changed accordingly.

— 2010 GWTP RPO Annual Report: Final. Moved to History.

— Old Skeet Range Engineering Evaluation/Cost Analysis: The Draft went out to the agencies for review a week late. The Agency Comment Due date will therefore be extended by one week. The subsequent due dates will change accordingly. Mr. Anderson said this is the lowest priority document on the schedule.

2. CURRENT PROJECTS

Treatment Plant Operation and Maintenance Update

Mr. Duke reported on the treatment plant status.

South Base Boundary Groundwater Treatment Plant (see Attachment 3)

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 90.6% uptime, and 3.6 million gallons of groundwater were extracted and treated during the month of September 2011. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 83.7 gallons per minute (gpm). Electrical power usage was 14,220 kWh and approximately 19,481 pounds of CO_2 were created (based on DOE calculation). Approximately 2.15 pounds of volatile organic compounds (VOCs) were removed in September. The total mass of VOCs removed since startup of the system is 409 pounds.

Optimization Activities: No optimization activities to report for the month of September.

Central Groundwater Treatment Plant (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 90.5% uptime with approximately 1.5 million gallons of groundwater extracted and treated during the month of September 2011. All treated water was diverted to the storm drain. The average flow rate for the CGWTP was 38.1 gpm, and electrical power usage was 2,311 kWh for all equipment connected to the Central plant; approximately 3,166 pounds of CO_2 were created. Approximately 4.61 pounds of VOCs were removed from groundwater in September. The total mass of VOCs removed since the startup of the system is 11,243 pounds.

Optimization Activities for WTTP: The WTTP remains off line since it was shut down in April 2010 for the ongoing rebound study. No additional optimization activities to report for the month of September.

Optimization Activities for CGWTP: No optimization activities to report for the month of September.

North Groundwater Treatment Plant (see Attachment 5)

The North Groundwater Treatment Plant (NGWTP) performed at 100% uptime with approximately 16,620 gallons of groundwater extracted and treated during the month of September 2011. The average flow rate of the NGWTP, while operating, was 0.38 gpm and electrical power use was 553 kWh for all the equipment connected to the North plant; approximately 751 pounds of CO_2 was created. Approximately 0 VOCs were removed from the groundwater in September. The total mass of VOCs removed since the startup of the system is 174.3 pounds.

Optimization Activities: No optimization activities to report for the month of September.

Site ST018 Groundwater (MTBE) Treatment Plant (see attachment 6)

The Site ST018 (MTBE) Treatment Plant (S18GWTP) performed at 100% uptime with approximately 188,000 gallons of groundwater extracted and treated during the month of September 2011. All treated water was diverted to the storm drain. The average flow rate for the S18GWTP was 3.63 gpm. Electrical power usage for the month was 128 kWh for all equipment connected to the S18GWTP plant, which equates to the creation of approximately 128 pounds of CO_2. Approximately 1.49 pounds of BTEX, MTBE and TPH were removed from groundwater in September. The total BTEX, MTBE and TPH mass removed since the startup of the system is 6.6 pounds.

Note: electrical power use is for the alarm system and a pump that pushes water through the GAC. The other pumps in the system are all solar powered. Ms. Burke asked if Travis has calculated what the off the grid electrical use savings is by using solar power. Mr. Duke said no.

Optimization Activities: No optimization activities to report for the month of September.

3. Presentations

August/September 2011 Performance Monitoring Results at Travis AFB (see attachment 7)

Mr. Wray gave a brief introduction on the performance monitoring data for the sites that have had significant optimization upgrades to the interim remedies. During the presentation, each site had three slides: 1) a summary of key points, 2) a map of the TCE plume, and 3) a cross section. These figures included the historical TCE concentration progression from the baseline measurements through the current performance monitoring data. The sample collection program for these sites started with a baseline (i.e., pre injection of EVO), followed by four quarterly sampling events. Following that initial year of quarterly monitoring, the site was then placed into an annual sampling schedule. The quarterly sample collection is conducted at the same time for all optimized sites, although the sites are not all at the same point in their sampling schedule. For this presentation, only the TCE data was shown on the cross sections. The other detected VOCs were not shown, because TCE is typically so much more abundant than the other VOCs. The CD that was handed out during the meeting had the other Chemicals of Concern (COC) included in the cross sections. Mr. Duke said this data will also be included in the future Annual RPO Reports.

Following the introduction by Mr. Wray, Mr. Chakurian reported on the Performance Monitoring Analytical Results. See Attachment 7 for details.

<u>Site SS015 EVO Injection - (second quarterly performance monitoring):</u>

- There have been significant reductions in the hot spot area as seen in analytical results from wells IW2128x15 and MW216x15. Since the EVO injection was conducted, there have been significant reductions in DCE, and vinyl chloride in the source area. Cis-1,2-DCE decreased from 8,800 µg/L to 535 µg/L, and vinyl chloride decreased from 5,140 µg/L to 80.7 µg/L.

- The detections of ethane and ethene in MW216x15 confirm the complete destruction of vinyl chloride is occurring.

- Dissolved Total Organic Carbon (TOC) in the hot spot injection area remains high and is sustaining a rapid rate of Enhanced Reductive Dechlorination (ERD). TOC concentration in MW216x15 increased from a baseline concentration of 13.8 mg/L to a high of 1,310 mg/L. Currently the TOC is at 645 mg/L. Four wells in the hot spot area still contain >50 mg/L TOC. The EPA recommendation is 20 mg/L to sustain ERD, and the site appears to be well above that level. Concentrations of TOC below 20 mg/L could trigger the need for more EVO injection.

- Several wells will be dropped from the performance monitoring, because no impact from the EVO injection is anticipated to be seen at these wells for a long time due to their distance from the injection wells: MW624x15, MW2119x15, and MW2125x15. These wells will continue to be monitored in the GSAP program, so if impacts from the EVO injection occur, it will be detected. Mr. Wray said the reasoning for dropping these wells is because some of the wells in the performance monitoring network are up to 100 to 150 feet away from the treatment zone, and based on the data collected to date, they will not experience impacts from the EVO injection any time soon. The analytical data does not show changes yet in wells that are much closer to the treatment zone, and so it is not necessary to collect samples from wells way outside of the treatment zone until we start seeing an impact in the wells that are at a lesser distance. These wells can be added back in to the performance monitoring once we see the treatment zone start to expand. Mr. Chakurian added that these wells have been non-detect for VOCs the last couple of sampling rounds. In other wells, we are seeing TCE reductions which provide the rationale to add them to the performance monitoring network. So we want to start sampling those wells for TOC analysis to see if the TCE reduction is due to the EVO injection. TOC analysis will be added to wells MW2124x15 and MW2103x15. TOC, dissolved iron, and manganese analyses will be added to MW2104x15.

  Ms. Burke asked if the reason these wells were initially included in the performance monitoring is because it wasn't known how fast the EVO would spread. Mr. Wray said yes, correct. Ms. Burke asked if removing these wells from the performance monitoring is in a report, or how is this being communicated? Mr. Duke said it is being communicated in this RPM meeting. Mr. Wray said we would like to make these changes in the November 2011 quarterly performance sampling. Mr. Salcedo asked if future injections were needed and has there been thought to inject EVO in MW2124x15. Mr. Chakurian said it is a four inch well and it is certainly a possibility. Ms. Burke said if you plan on taking these wells off of the quarterly performance monitoring would you add them to the annual GSAP. Mr. Wray said it would be decided based on the decision tree. Mr. Salcedo said he had no problem with those wells being removed. Mr. Smith said that that if Ms. Burke and Mr. Friedman are not comfortable with removing these wells from performance monitoring, he could leave them in, however, these wells are not providing any useful performance data. The recommendation is based on the analytical data and as it stands now it would not be cost effective to keep sampling these wells until we start to see changes in the wells that are closer to the treatment zone. Mr. Friedman said that made sense and he was okay with the recommendation. Ms. Burke said that she would

like a week to look at the data, that the rationale seems very logical, and that if she does not get back to Travis by 1 November 2011 to go ahead and make the proposed changes.

- The geochemical data collected from the hot spot area supports ERD. We are seeing high methane levels, high dissolved iron and manganese, and significantly depleted sulfate, which are all positive geochemical signatures for anaerobic conditions favoring ERD.

Mr. Chakurian referred to a map of the TCE plume and a cross section with the baseline and subsequent quarterly TCE concentrations posted. See attachment 7 for details.

Site SS016 Bioreactor - (third quarterly performance monitoring):

- In November 2010, the in situ bioreactor began operation in the Site SS016 OSA source area.

- Based on the first three quarters of performance data, the bioreactor is providing high rates of TCE, DCE, and vinyl chloride removal.

- Based on the August/September 2011 analytical data the bioreactor is removing over 99% of the TCE and nearly 92% of the total molar chlorinated VOCs entering the bioreactor.

- One difficulty with this site is that the bedrock is shallow and the saturated interval surrounding the bioreactor is in bedrock. So the downgradient distribution of TOC is slow, and ERD is slow to develop in the downgradient direction. Monitoring well MW2112Ax16 which is located approximately 10 feet downgradient of the bioreactor is just beginning to show evidence of ERD. DCE and vinyl chloride concentrations are beginning to rise in that well, and TOC has increased from a baseline of 4.2 mg/L to 17.1 mg/L.

- The dissolved TOC supply inside the bioreactor has ranged from 866 to 210 mg/L over the first nine months and is sustaining a rapid rate of ERD inside the bioreactor.

- Geochemical data collected from the bioreactor supports ERD. High methane, high dissolved iron and manganese, and totally depleted sulfate are all positive geochemical signatures of anaerobic conditions favoring ERD.

Mr. Chakurian pointed out that at one Site SS016 well, MW2022x16, the TCE concentration increased from the baseline result of 591 μg/L to 5,610 μg/L over the reporting period. We think this is due to mounding of the injected groundwater. This well is located directly upgradient of the source area bioreactor. Mr. Salcedo asked if there was another well further upgradient of MW2022x16. Mr. Chakurian said no. Mr. Wray pointed out that there is an existing horizontal well EW03x16 which is tied into the bioreactor for recirculation of untreated groundwater. Mr. Chakurian said that in well TPE-Wx16 the TCE concentration for the baseline was 82,500 μg/L,

and dropped in the first quarter to 28,000 μg/L. The second quarter result for TCE was 80,700 μg/L, and the third quarter result 40,100 μg/L. This indicates that the contaminated groundwater is getting recirculated.

Monitoring well PZAx16 will be dropped from the performance monitoring since it is too far crossgradient from the plume to provide useful information at this time.

Mr. Chakurian referred to a map of the TCE plume and a cross section with the baseline and subsequent quarterly TCE concentrations posted. See attachment 7 for details.

Site SD036 EVO Injection - (third quarterly performance monitoring):

- The TCE hot spot area targeted for the EVO injection at Site SD036 focused on the area surrounding three wells; MW2031Bx36, MW2061Bx36, and PZ550Cx36. This area is showing significant reductions in TCE and increases in DCE when compared to the baseline concentrations. Very little vinyl chloride is being generated.

- In well MW2061Bx36, which was not one of our injection wells, we are seeing a significant decrease in TCE concentrations. The TCE concentrations went from 18,500 to 5,570 mg/L since the baseline sampling was conducted.

- Ethane and Ethene are being detected at the site, indicating that complete dechlorination of the DCE and vinyl chloride seems to be in progress.

- There is a general increase in DCE in the monitoring wells in the treatment area.

- Well MW2033Ax36 showed an increase in TCE when compared to the baseline results. This may have been caused by mounding of the injected oil.

- TOC in the hot spot area remains high and is sustaining ERD. TOC in MW2031Bx36 increased from <1 mg/L to 2,410 mg/L in May, and then decreased to 1,040 mg/L in August. TOC is being used up as degradation progresses.

- Geochemical data collected for the hot spot area supports ERD. High methane, high dissolved iron and manganese, and significantly lower sulfate levels are all positive geochemical signatures favoring ERD.

- Sulfate reduction is competing with TCE reduction. A continuing influx of sulfate will deplete the TOC supply and slow TCE and DCE removal.

Monitoring well MW2033Bx36 will be dropped from our performance monitoring, because the TCE concentrations have not gone above 5 mg/L. Mr. Wray pointed out MW2033Ax36, the shallower well of the pair, has much higher TCE concentrations and will continue to be sampled in the performance monitoring program. Well MW2033Bx36 is screened below the TCE contamination. Ms. Burke asked if it wouldn't be prudent to keep this well in the program to bound the deeper portion of the plume. Mr. Chakurian said that there is vertical control with the

deep clay layer acting as a barrier. Mr. Chakurian said this well will become part of the GSAP annual program. Mr. Salcedo said that he agrees with the rationale in dropping this well from the performance sampling.

Mr. Chakurian referred to a map of the TCE plume and a cross section with the baseline and subsequent quarterly TCE concentrations posted. See attachment 7 for details.

Site SD037 EVO Injection - (fourth quarter performance monitoring):

- The TCE hot spot area targeted for the EVO injection includes the area of monitoring wells MW524x37 and MW2039Ax37. These wells showing significant reductions in TCE. Increases in DCE are significant in MW2039Ax37, and there also is an apparent increase in MW524x37. The very high TOC concentrations in MW524x37 are likely creating conditions for total destruction of TCE, DCE and vinyl chloride. Trace levels of vinyl chloride are being observed.

- The ethane and ethene detected indicates that complete dechlorination of the DCE and vinyl chloride appears to be in progress.

- At well MW524x37 a total molar reduction of 94% for VOCs has occurred in the first nine months of ERD treatment. The other monitoring wells that are being monitored at this site are over 50 feet from the injections wells and are not showing evidence of ERD yet.

- The dissolved TOC supply in the hot spot injection area remains high and is sustaining a rapid rate of ERD. The TOC concentration in the target well MW524x37 has increased from a baseline concentration of 1.16 mg/L to 2,155 mg/L in one month since the EVO injections, and is down to 306 mg/L nine months after the injection. Well MW2039Ax37 has not experienced an increase in the TOC levels, but TCE levels have decreased and DCE levels have increased. Well MW2039Ax37 may be located at the edge of the TOC influence, and we are not seeing much TOC impact yet.

- The geochemical data collected from the hot spot area supports ERD. The high methane, high dissolved iron and manganese, and significantly lower sulfate levels, are all positive geochemical signatures for anaerobic conditions favoring ERD. Sulfate levels are in excess of 200 mg/L at this site, so it is likely that sulfate reduction is competing with TCE reduction. The influx of sulfate will continue to decrease the TOC supply and eventually slow TCE and DCE removal.

Mr. Wray said the initial plan was to sample four quarters at each enhanced attenuation site and then transition to annual sampling. However it was decided to collect one more quarter of data at Site SD037and at the Site DP039 Permeable Reactive Barrier (Biobarrier), to support the ROD. Ms. Burke said that, aside from supporting the ROD, we need to consider what sort of frequency of data you need to develop an operation and maintenance design. Mr. Wray said we are thinking of that as well, and that we are in tune with the O&M requirements of these sites. That is why four inch injection wells were installed in the event the data shows that more EVO injections are needed.

Mr. Chakurian referred to a map of the TCE plume and a cross section with the baseline and subsequent quarterly TCE concentrations posted. See attachment 7 for details.

Site DP039 Permeable Reactive Barrier (Bio-barrier) EVO Injection - (fourth quarter performance monitoring):

- There have been significant TCE reductions, minor DCE accumulation, and no vinyl chloride accumulation along the line of the DP039 biobarrier injection wells.
- In the injection wells there are high levels of TOC that have degraded most of the TCE, DCE, and vinyl chloride.
- The TOC supply along the line of injections wells is still adequate for ERD; the average TOC concentration is 426 mg/L which is well above the EPA recommended level for ERD of 20 mg/L.
- The TOC is dropping in two of the three injection wells that were sampled. These wells will be monitored for TOC depletion to better estimate the recharge frequency for this site.
- The downgradient wells are 80 to 150 feet from the line of injections, and there is minimal impact observed so far based on the data. There is some signs of TOC impact at MW2093x39, and MW2092Ax39 has elevated methane and may be seeing the leading edge of the treatment zone that originates from the PRB. This is a good sign.
- The geochemical data collected from the line of injection wells supports ERD. The high methane, high dissolved iron and manganese, and depressed sulfate are all positive geochemical signs for anaerobic conditions favoring ERD.

Mr. Salcedo asked if the downward trend in TOC is critical. Mr. Wray said they are on a downward trend, however still above EPA recommendation for ERD levels. However, EVO reinjection may be needed within two years or so.

Mr. Krook reminded the group that the treatment zones are designed to remove hotspots, and that the distal portions of the plume will be remediated under the process of natural attenuation.

Ms. Burke asked if there is rationale, such as a decision tree, as to what wells will be sampled, is this indicated in a document somewhere? Mr. Wray said that the supporting sampling data is in the CD that was handed out during this meeting.

Mr. Chakurian referred to a map of the TCE plume and a cross section with the baseline and subsequent quarterly TCE concentrations posted. See attachment 7 for details.

Site DP039 Bioreactor, Operating for Thirty Months, Performance Sampling Results:

Note: The site DP039 Bioreactor is already on the annual sampling schedule and was not sampled during this event. The information below is the same data presented at the May 2011 RPM meeting.

- During the past 30 months of operation, a reduction of 99% of TCE and 95% of total molar VOCs have occurred in the aquifer up to 30 feet away of the bioreactor.

- The most contaminated well in the source area is monitoring well MW793x39 which had a baseline TCE concentration of 8,000 µg/L. TCE concentrations in this well have been reduced to 5.3 µg/L as indicated in the May 2011 sampling data.

- The bioreactor could now continue to operate with very limited monitoring on an annual basis.

- Bioreactors are most efficient with treatment of higher TCE levels in the recirculated water. With the significantly reduced contaminants in the DP039 bioreactor, an intermittent or pulsed operation such as one week on and four weeks off may be more effective to conserve the small quantities of TOC being generated in the bioreactor.

- Previous attempts to increase the TOC being generated from the bioreactor into the surrounding aquifer have not been very successful.

- It appears that the daily recirculation of sulfate-rich groundwater through the bioreactor is rapidly decreasing the TOC that was added to the bioreactor as vegetable oil in October 2010.

Mr. Chakurian said that the TCE plume first is treated through the bioreactor. The plume then passes through the phytostabilizaton area, followed by the biobarrier. Mr. Anderson said that this site has a very effective design. He also indicated that where the biobarrier and bioreactor are located, you can't plant trees because of the asphalt and concrete pavement. When you look at this site, the design was tailored to its condition.

Ms. Burke said she appreciated the presentation and that the results are very promising, and looks forward to seeing more data.

Mr. Chakurian referred to a map of the TCE plume and a cross section with the baseline and subsequent quarterly TCE concentrations posted. See attachment 7 for details.

LF007 Investigation Update (see Attachment 8)

Mr. Wray gave the presentation on the LF007C Investigation. See attachment 8 for details.

- First step was to perform the data gaps investigation, and site characterization.

- Then Groundwater Modeling would be conducted to evaluate contaminant distribution and capture zone analysis.

- The goal of this task is to optimize the Interim Remedial Action (IRA) at Site LF007C. The plan is to install new monitoring wells and possibly new extraction wells if needed based on the evaluation. Currently there are two solar powered extraction wells that pump the groundwater at a very low rate to the North Plant. There is no power supply available at this site.

- Site LF007C is one of three off-base plumes. This off-base portion of this site is privately owned pasture land. The site is basically flat with an expansive shallow depression where the vernal pools develop. The Air Force has an easement agreement to allow for the remediation work. (A map is included in the attachment to show the location of Site LF007C).

Ms. Burke asked if there is local pumping by the property owner. Mr. Wray said no and that was indicated in the March 2009 Work Plan.

- Hydrogeology: Thirty to forty feet of fine grained alluvium overlies the Nortonville Shale bedrock. The alluvium is very fine grained, with few sand lenses. The regional groundwater flow is to the south and southeast. A bedrock high located to the southeast influences groundwater flow locally to north-northwest. Depth to water, as observed in the recent borings, is thirteen to sixteen feet bgs.

- TCE is the only Chemical of Concern (COC) and the only chemical detected above the Interim Remediation Goals (IRGs). The TCE plume is migrating to the northwest, and the extent of the plume has not been defined off base. The GSAP reports shows statistically decreasing trends in the TCE concentration in two plume wells (MW617x07 and EW614x07).

- Data Gaps Investigation: The objective was to define the off base portion of the TCE plume by conducting in situ sampling (hydropunch), followed by installation of monitoring wells and extraction wells if needed. The plan was to delineate the plume in phases by hydropunch sampling first until defined. Samples collected were to be analyzed for VOCs on a 24 hour turnaround time (TAT). Travis consulted with United States Fish and Wildlife Service (USFWS) for a Biological Opinion (BO). The BO was received on 11 August 2011. USFWS required a full time biologist to monitor the field work, and was very specific about conducting the field work during the dry season only. The first phase of drilling was conducted between 03 October and 14 October 2011. Planking was placed to all drill sites to protect the vernal pools from the equipment. Nine soil borings were drilled, and sixteen hydropunch samples were collected.

- Results of the Investigation: Four soil borings were drilled and logged. Collected two hydropunch samples from each boring (one shallow, one deep), which were sent to the laboratory on 24-hour TAT. Received the sample results, and based on the analytical data we will drill stepout borings and collect two hydropunch samples from the stepouts until defined. Bedrock was observed to be approximately 29 to 42 feet bgs. Shallow groundwater samples collected ranged from 11 to 22 ft. Deep groundwater samples collected ranged from 25 to 42 feet. The plume was defined to non-detect on all sides except the northern end. Photos of the drilling activities are included in the attachment.

- The next phase will be conducted 24 October 2011 to 27 October 2011. Two stepout borings will be drilled and sampled. When all of the monitoring wells are installed, they will be developed and sampled. Although there is no rain predicted in the immediate forecast, the rainy season is expected to start soon, and ponded water in the vernal pools will halt any further field work at this site.

- Future Tasks: Groundwater modeling to evaluate capture zone. Evaluate placement of monitoring wells, and extraction wells (if needed). Installation of pumps and conveyance. Connect to and possibly upgrade the treatment system. Conduct performance monitoring.

Ms. Burke said she did not understand why Travis had to stop pumping during the wet season, stating the groundwater shouldn't have anything to do with the vernal pool. Mr. Parrot said that this pool may be hydraulically connected to the groundwater. Ms. Burke understood saying that they could not be hundred percent sure and have to err on the safe side. Mr. Anderson said that is correct.

FT005 Soil Remedial Action Update (No attachment)

Ms. Hess gave a brief update on the FT005 Soil Remedial Action Update.

Ms. Hess said the excavation work is still being conducted. A total of 9,300 cubic yards of soil has been removed and taken to the Potrero Hills Landfill for disposal, which is about 665 loads. We received 6,000 cubic yards of clean dirt to use as backfill. As the cleanup levels are attained, the excavation voids are backfilled, but only after we surveyed the locations. Work has been completed on the additional step downs in Area A this week. We will start on the five TPH locations that have been identified to meet unrestricted use, which represents about 1,500 cubic yards. For the industrial soil removal it is very close to our estimated volumes. The actual excavation volume is still not clear for the industrial or residential levels. We will know the final excavation volume when the project has been completed.

Program Update: Management Overview Briefing (see Attachment 9)

Mr. Wray reported on the status of field work and documents which are completed, in progress, and upcoming. See Attachment 9 for details.

Highlights included:

Completed Documents: 2010 Annual Groundwater RPO Report.

New Documents added: Work Plan for Assessment of Aerobic Chlorinated Cometabolism Enzymes. Old Skeet Range Engineering Evaluation/Cost Analysis (EECA).

Field Work In Progress: FT005 Soil Remedial Action, LF007C Site Characterization (Wetlands)

Upcoming Documents: New Document added, FT005 Remedial Action Completion Report.

Field Schedule (see Attachment 10)

Mr. Wray reported on the 2011 field schedule. See Attachment 10 for details.

Highlights included: LF005 Soil Remedial Action. LF007C Remedy Optimization Investigation (2nd Phase hydropunch and wells), Quarterly RPO Performance Monitoring, 2011 Semiannual GSAP Sampling, Sampling for Assessment of Aerobic Chlorinated Cometabolism Enzymes, and Site SS029 System Optimization Analysis Investigation.

4. New Action Item Review

None.

5. PROGRAM/ISSUES/UPDATE

Ms. Burke requested Ms. Snow to be added to the distribution list when documents are submitted for review.

Mr. Smith announced the Legislative Super Committee has communicated cutbacks to save money. The good news is there are no layoff talks. But there are restrictions on travel and spending. Any decrease in Supply funds could impact production of The Guardian. Mr. Smith said he would do what he could to keep production of The Guardian going as well as some travel. Mr. Smith asked the Regulators if they received communication on new budget cuts. Ms. Burke said EPA has made cutbacks for travel. There is no budget for travel to the non-superfund sites. For the superfund sites there is some money for travel, but the approval process has been elevated. She said this does not affect Travis AFB RPM or RAB meetings because it is so close to EPA Region 9 Headquarters. Mr. Friedman said they have been restricted to mission critical sites.

Mr. Salcedo said his office is undergoing renovation, and from 22 November 2011 through 9 December 2011 he will not have a business phone. If you need to get a hold of Mr. Salcedo, communicate through email.

General Discussion

None.

7. Action Items

Item #	Responsible	Action Item Description	Due Date	Status
1.	Travis AFB	Petition to have the Lysimeter removed.	TBD	Open
2.	Travis AFB	Research beneficial reuse of treated water and give update.	TBD	Open
3.	Travis AFB and EPA	Review past site closure completion reports to determine if future site closure reports are necessary.	TBD	Open
4.	Travis AFB	Travis AFB is to advise Regulatory Agencies when remedial actions/fieldwork are scheduled at Travis AFB so a site visit can be planned.	TBD	Open
5.	Travis AFB	Mr. Smith is to schedule the RPM and RAB meetings for calendar year 2012	N/A	Closed.

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
REMEDIAL PROGRAM MANAGER'S MEETING
BLDG 570, Main Conference Room
20 October 2011, 01:00 P.M.
AGENDA

1. ADMINISTRATIVE

   A. PREVIOUS MEETING MINUTES
   B. ACTION ITEM REVIEW
   C. MASTER MEETING AND DOCUMENT SCHEDULE REVIEW

2. CURRENT PROJECTS

   A. TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE (LONNIE)

3. PRESENTATIONS

   A. PROGRAM UPDATE: ACTIVITIES COMPLETED, IN PROGRESS AND UPCOMING
   B. 2011 FIELD SCHEDULE
   C. FT005 SOIL REMEDIAL ACTION UPDATE
   D. LF007 INVESTIGATION UPDATE

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

NOTE:

Travis AFB Master Meeting and Document Schedule

(2011)
Annual Meeting and Teleconference Schedule

Monthly RPM Meeting (Begins at 9:30 a.m.)	RPM Teleconference (Begins at 9:30 a.m.)	Restoration Advisory Board Meeting (Begins at 7:00 p.m.) (Poster Session at 6:30 p.m.)
01-26-11	—	—
02-16-11	—	—
03-16-11	—	—
04-21-11 (1:00 PM)	—	04-21-11
05-26-11	—	—
06-15-11	—	—
07-20-11	—	—
08-17-11	—	—
09-21-11	—	—
10-20-11 (1:00 PM)	—	10-20-11
11-30-11	—	—
—	—	—