

## **Comments on the draft revision to the waste discharge requirements for the Air Force Real Property Agency Former McClellan Air Force Base (AFB) Groundwater Extraction and Treatment System (GWTS)**

Thank you for the opportunity to comment on the draft revision to the waste discharge requirements for the Air Force Real Property Agency Former McClellan Air Force Base (AFB) Groundwater Extraction and Treatment System (GWTS). This system is part of the CERCLA remedy for VOC contamination in groundwater, as specified in the final Basewide Groundwater VOC ROD, signed in 2007. It forms the basis for the subsequent Air Force determination of substantive requirements.

The McClellan GWTS uses an air stripper to remove volatile organic compounds (VOCs) from extracted groundwater and ion exchange to remove hexavalent chromium from the extracted water. Currently, treated water then flows through six liquid-phase granular activated carbon as a “polishing” step before it is discharged to surface water. This system has operated in this basic configuration since 2000, with the ion exchange having been added in 2003. Expansion of the extraction system was completed in 2006. An additional component to treat contaminated vapors (a thermal oxidation unit) was removed with concurrence of the Sacramento Metropolitan Air Quality Management District (SMAQMD) in 2006. The system has operated in accordance with the substantive requirements of Regional Water Quality Control Board (Regional Water Board) permit R5-2003-0052-A01, including monthly sampling of the GWTS influent, post air stripper, effluent, and receiving waters. GWTS operating capability and treatment effectiveness is well documented as evidenced by the sample results data.

We are providing the following with this correspondence:

- General and Specific Comments, including the text of the comments and supporting tables and figure.
- A copy of the permit with editorial comments highlighted.

### **General Comment**

There is an established history of operations that demonstrates that treated groundwater discharged from the McClellan GWTS met and exceeded the substantive requirements of the previous permit. This history also indicates that the discharge requirements of the new permit will also be met or exceeded. Many of the requirements in the new permit appear to be intended for establishing such a history at a new facility. As such, many of the Air Force specific comments are requests to take these historical data into account by reductions in sampling frequency for some analytes as well as eliminating some analyses altogether.

### **Specific Comments**

1. The GWTS air stripper effluent has been sampled at least monthly since April 2001. The only COCs detected in that period have been two detections of TCE, each at concentrations less than the current allowable effluent limit of 1µg/l and the proposed new limit of 0.50µg/l (0.40µg/l and 0.080µg/l during August 2001 and September

2007 respectively). During that time, TCE influent concentrations have ranged from approximately 23µg/l to 110µg/l. Total VOC concentrations at the GWTS influent ranged from 24µg/l to 120µg/l. These data demonstrate that the air stripper effectively removes VOCs from the groundwater to less than method detection limits. The airstripper was originally designed to reduce influent TCE concentrations of 167µg/l to 0.3µg/l. Furthermore, as all anticipated VOC extraction wells are in place, there is no reason to believe that influent concentrations would increase. In fact, they are expected to decrease over time as groundwater remediation proceeds. Therefore the “polishing” function of the six LGAC vessels is not necessary. The Air Force intends to mothball the carbon treatment vessels until such time as it is economical to discontinue air stripping and treat entirely by carbon adsorption, unless other data indicate that carbon is necessary. As noted in the ROD, “treatment methods may change as conditions change or new and improved technologies become available”, and influent VOC concentrations are lower than in the past and lower than the system design parameters. Therefore, we request changes to the language of the WDRs to allow for modifications of the GWTS as necessary, as follows:

a. Page 1, Section II.B.

Change “a low-profile air stripper” to “an air stripping tower.”

Insert after the second sentence of the paragraph the following: “Process piping allows each treatment technology to be bypassed or reconfigured as necessary to effectively and efficiently treat the process stream.”

b. Attachment F, Page F-4, Section I.F.

The final VOC ROD was signed in August 2007. Replace Section I.F. with “*The NPDES Program and the California Toxics Rule are included as ARARs in the final VOC ROD, signed in August 2007, for McClellan. As such, the Air Force will continue to comply with the substantive requirements of the permit.*”

Attachment F, Page F-5, Section II.A. **1<sup>st</sup> Paragraph:** Change “The Facility is designed to treat 2.88 MGD of contaminated groundwater that is extracted from seven Operable Units (OUs). The system includes a 64,000-gallon influent tank, a low-profile tray air stripper, six 20,000-pound liquid-phase granular activated carbon (GAC) vessels, and two ion exchange (IX) resin vessels.” to “The Facility is designed to treat 2.88 MGD of contaminated groundwater that is extracted from ~~the~~ *Groundwater Operable Unit (OU)*. The system includes a 64,000-gallon influent tank, *an air stripping tower*, two ion exchange (IX) resin vessels *and process piping that can allow each treatment technology to be bypassed if appropriate.*”

Deleted: one

**2<sup>nd</sup> Paragraph:** Change “The treatment system consists of an air-stripper with two blowers (one for backup and redundancy) designed to treat up to 2,000 gallons per minute (GPM) and remove approximately 99% of VOCs in groundwater entering the stripper. The Discharger previously used an Alzata (off-gas) treatment system which was removed in March 2006.” to “The treatment system consists of an air-stripper with two blowers (one for backup and redundancy) designed to treat up to 2,000 gallons per minute (*gpm*), *removing greater than 99%* of VOCs in

groundwater entering the stripper, and *discharges the off-gas to the atmosphere. An off-gas treatment system was removed in March 2006.*

**3<sup>rd</sup> Paragraph:** Change “GAC trains are utilized for effluent polishing subsequent to air stripping. Each GAC train consists of two vessels, operated in parallel or in series. Each GAC contact vessel is 10 feet in diameter and 10 feet in length, providing 10.5 minutes of contact. The GWTS configuration was changed in 2005 to accommodate the IX Hexavalent Chromium Full Scale Treatment System. Two vessels are now used in series (lead/lag) to accommodate the new IX system, operating at flows of up to 750 GPM. The other six vessels are operated in parallel for VOC polishing.” to “The existing GAC vessels *are mothballed and no longer in use.* The GWTS configuration was changed in 2003 to accommodate the IX Hexavalent Chromium Full Scale Treatment System. *Two converted carbon vessels used in series (lead/lag) contain IX resin and are capable of operating at flows up to 750 gpm.*”

c. Attachment F, Page F-41, Section VI.A.4. and Page F-43, Section VI.B.7:

Due to the effectiveness of the air stripper, GAC polishing is no longer necessary and the Air Force intends to discontinue its use. Its reference should be removed. Replace “Considering this new information regarding influent and effluent quality, the use of air stripping for VOC removal, and the use of GAC units for effluent polishing, ...” with “*Considering this new information regarding influent and effluent quality and the use of air stripping for VOC removal,...*”.

2. **Figure B-1:** The locations of Discharge Points 001 and 002 shown on Figure B-1 are incorrect. A corrected figure is provided.
3. **Page 5, Section II.M. 1<sup>st</sup> Paragraph:** 1,1,2-Trichloroethane is not a contaminant of concern at the GWTS; therefore, reference to this compound should be removed. Text indicates that there is an effluent limitation for 1,1,1-trichloroethane; however, there is no limit for this compound in the permit.
4. **Tables E-3 and E-4. Effluent and Receiving Water Monitoring**

**a. Temperature/pH/Dissolved Oxygen/Electrical Conductivity**

Reduce the monitoring frequency from weekly to monthly for discharge. In addition, remove the requirement for a Receiving Water pH and Temperature Objective Investigation. Water quality parameter data collected weekly from 2003 – 2008 fall within a limited range (Temperature 13.7 – 30.6 C, pH: 4.66 – 8.5, Dissolved Oxygen: 2.02 – 11.55 mg/L [the effluent is aerated as it spills from the pipe into the receiving water], Electrical Conductivity: 210 – 463  $\mu$ mhos/cm [one EC result on 9/6/06 was 3  $\mu$ mhos/cm, this may be an error] see attached Table 1).

Remove the requirement for weekly sampling of the receiving water. Magpie Creek, upstream from the GWTS discharge, contains little or no water of quality throughout much of the year. Results from weekly measurements of Magpie Upstream show the water quality to be poor. The water from the GWTS discharge improves the environment for the stream ecosystem. Furthermore, this fact is recognized and therefore the frequent excursions of the GWTS effluent

parameters from the poorer quality water upstream of the GWTS, which are regularly reported by the Air Force to the RWQCB, are not considered important.

### **b. Copper**

Remove the requirement for quarterly copper sampling of the effluent and receiving water from the WDRs. The requirement is based on stated copper detections in the effluent; specifically Page F-21 refers to a dissolved copper concentration of 2.1 µg/L for a sample collected during February 2008. This is an error – copper samples were not collected from the receiving water or effluent during February 2008. The water discharged from the CERCLA plant (not the GWTS) during February 2008 had a total copper concentration of 2.1 µg/L. As shown in the attached Table 2, dissolved copper has been detected only once (1 µg/L during October 2007) in more than 50 samples collected since 2001. The maximum concentration of dissolved copper in the effluent of 1.0 µg/L is below the continuous concentration limit for freshwater aquatic life range of 10-15 µg/L (based on the effluent hardness range of 120-176 mg/L, see attached Table 3 for hardness data) for dissolved copper listed on the tables of Water Quality Limits (Compilation of Water Quality Goals, August 2007, RWQCB). These historical data show that copper is not present in the effluent at concentrations that affect freshwater aquatic life. Also, because of the above data, Attachment G should be edited to show a dissolved copper MEC (maximum effluent concentration) of 1.0, not 2.1. It should also be edited to show dissolved copper as having “no reasonable potential”, by changing the “Y” in the “Reasonable Potential” column to “N”.

### **c. Zinc**

Remove the requirement for quarterly zinc sampling of the effluent and receiving water. The maximum total zinc effluent concentration of 33 µg/L (see attached Table 4 for zinc results) is below the continuous concentration limit for freshwater aquatic life range of 140-190 µg/L (based on the effluent hardness range of 120–176 mg/L) for total zinc on the tables of Water Quality Limits (Compilation of Water Quality Goals, August 2007, RWQCB). These historical data show that zinc is not present in the effluent at concentrations that affect freshwater aquatic life. Also, Attachment G should be edited to show dissolved and total (recoverable) zinc MECs of 10 and 33, respectively, not 41 and 11. It should also be edited to show dissolved and total (recoverable) zinc as having “no reasonable potential”, by changing the “Y” in the “Reasonable Potential” column to “N”.

### **d. Selenium**

Selenium samples are collected concurrently with the hexavalent chromium samples as a cost savings measure. Amend the requirement to allow collecting grab samples, not composites. Reduce the requirement from monthly sampling to annual. Monthly samples have been collected from July 2003-2008. The highest effluent selenium concentration was 2.7µg/L on 11/7/07, which is less than the average monthly limitation of 3.6µg/L. (See Table 5 for selenium results).

#### **e. Hexavalent Chromium**

Change the requirement to allow collecting grab samples rather than 24-hr composite samples. Collecting a 24-hour composite sample would exceed the EPA method required holding time of 24 hours. Although the analytical method allows for sample preservation to extend the holding time beyond 24 hours, immediate preservation is not possible using an autosampler to collect 24-hr composite samples.

#### **f. Mercury**

The permit indicates on the Attachement G table (page G-1) that the discharge does not have a reasonable potential to cause or contribute to an in stream excursion of WQO for mercury (dissolved or total). Data have been collected from July 2003 – 2008. (see Table 6 for mercury data). Therefore reduce the requirement for monthly sampling to annual sampling.

#### **g. Methylmercury**

Remove the permit requirement for methylmercury sampling. As stated in a letter dated 1 November 2004 (see attached), the Air Force stated that the Air Force “does not believe that [methylmercury] sampling is necessary because there is no reasonable basis for suspecting the presence of methylmercury in the subject discharges of the former McClellan and Mather Air Force Bases.” Technical bases for this conclusion are also provided in the letter. The Air Force position remains the same..

#### **h. Total Dissolved Solids/Salinity**

Reduce the requirement for quarterly TDS sampling to annual sampling of the effluent. The permit indicates on the Attachement G table (page G-1) that the discharge does not have a reasonable potential to cause or contribute to an in stream excursion of WQO for TDS.

#### **i. Toxicity**

Eliminate the acute and chronic toxicity testing requirements. The current permit, NPDES No. R5-2003-0052-A01, includes semi-annual acute toxicity testing and 3-species chronic toxicity during the first year of the permit. The GWTS effluent is stable and has never failed these toxicity tests. Therefore, they are considered unnecessary, especially as the influent groundwater is now of even better quality than in the past.

#### **j. Priority Pollutants**

SVOC and Inorganics (Metals) – Reduce the sampling requirement from quarterly during 3<sup>rd</sup> year of the permit, to once during the 3<sup>rd</sup> year of the permit.

Pesticides – Remove the permit requirement for pesticide sampling at GWTS. Annual sampling results from 2001 - 2008 samples show no detectable concentrations of pesticides in effluent; therefore the annual sampling requirement from NPDES No. R5-2003-0052-A01 was not included in the tentative permit.