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LETTER REGARDING REGULATORY MODIFICATIONS ON DRAFT RCRA FACILITY INVESTIGATION WORK PLAN FOR AREA OF CONCERN 2 TRICHLOROETHENE GROUNDWATER PLUME NAS FORT WORTH TX
10/31/1997
TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

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NAVAL AIR STATION FORT WORTH JRB CARSWELL FIELD TEXAS

ADMINISTRATIVE RECORD COVER SHEET

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TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

October 31, 1997

Mr. Joseph R Dunkle
Restoration Team Chief
Air Force Center for Environmental Excellence (AFCEE)
3207 North Road
Brooks AFB, TX 78235-5363

Re: Naval Air Station Fort Worth JRB/Carswell AFB (NAS Ft Worth)
TNRCC Solid Waste Registration No 65004
Hazardous Waste Permit No. HW-50289
EPA ID No. TX0571924042
Review of Draft RCRA Facility Investigation Work Plan for Area of Concern 2 (TCE Groundwater Plume)

Request for Modifications

Dear Mr Dunkle

The Texas Natural Resource Conservation Commission (TNRCC) has completed our review of the Draft RCRA Facility Investigation Work Plan for Area of Concern 2 (TCE Ground Water Plume) dated January 1997 and received by the TNRCC on January 21, 1997. The purpose of the Area of Concern (AOC) 2 work plan appears to be the further delineation of source(s) and extent of contamination (primarily volatile organic compounds) found in ground water underlying the northern portion of NAS Fort Worth JRB. The AOC 2 study area extends from the Air Force Plant 4 (AFP 4)/NAS Ft. Worth common boundary on the west towards the eastern boundary of NAS Ft. Worth and includes the northern portion of the airfield and the alert apron and adjoining facilities Based upon our review of the draft work plan for AOC 2, the TNRCC requests that the following modifications be made to the final work plan:

1) *Section 2.4.1 Contaminant Transport in the Terrace Alluvium Aquifer.* Reference is made in this section as well as elsewhere in the AOC 2 work plan to the presence of free-phase product (gasoline) having been found in two (2) monitoring wells in the AOC 2 study area during recent sampling. Please be aware that 30 TAC §335, Subchapter S (Texas Risk Reduction Standards) requires the removal of phase-separated non-aqueous liquids. The final AOC 2 work plan must contain a discussion of what activities have been undertaken to abate the free-phase gasoline or, if this has not already been addressed, provide a description of what activities are planned, including a time line.

2) *Section 3.0 AOC 2 Investigation Focus: Objectives and Data Needs* As a general comment, the Air Force Center for Environmental Excellence (AFCEE) is reminded that NAS Ft. Worth

(formerly Carswell AFB) was issued a hazardous waste permit (HW-50289) by the TNRCC on February 7, 1991. Permit Provision V.III lists the solid waste management units (SWMUs) at NAS Ft. Worth which are required to be investigated (i e , RFI) for releases of hazardous constituents listed in 40 CFR 264 Appendix IX. Permit Provision V III A. identified the specific activities that must be addressed by RFI work plans. Although AOC 2 was not originally listed in the permit as a SWMU, Permit Provision V I requires newly identified SWMUs to be added to the permit Also, 30 TAC §305.62(d) states that "if good cause exists, the executive director may initiate and the Commission may order an amendment to a permit and the executive director may request an updated application if necessary". By letter dated March 2, 1995 the TNRCC notified the Air Force (Air Force Base Conversion Agency) that an additional 50 SWMUs and 16 AOCs would require investigation and/or corrective measures. It is the TNRCC's belief that AOC 2 is part of the unit described in the March 2, 1995 letter as OT-18, Airfield TCE Plume. Therefore, the RFI work plan for AOC 2 must be revised to meet the RFI work plan requirements (Permit Provision V.III.A.) of the permit.

3) *Section 4.2.3 Soil Borings*, (page 4-7) With reference to comment No 2 above, the discussion of the soil boring phase of the investigation states that "up to two soil samples will be obtained from each boring". Permit Provision VIII.A.2 a(1) requires that "samples submitted for chemical analysis must be collected every 5 feet from the surface to the bottom of the boring" In order to ensure that the soil boring program identified in the AOC 2 work plan meets the requirements of the permit, the proposed soil sampling frequency must be modified so that it is consistent with the permit requirements (e.g., samples collected every 5 feet from the surface to the bottom of the boring).

4) *Section 4.2.4 Monitoring Well Installations*, (page 4-7): The AOC 2 work plan proposes the installation of 16 Terrace Alluvium monitoring wells for the purpose of verifying previous screening level results (e.g., direct push sampling) The validity of much of the screening level data previously collected in AOC 2 is in question due to the inability of the direct push technology employed to penetrate and sample the lower portion of the alluvium As shown on *Figure 4-1 Proposed Sampling Locations*, the majority (13) of the proposed monitoring wells will be installed between AFP 4 to the west and the eastern-known extent of the TCE plume. Only three (3) monitoring wells are proposed along the margins of the known TCE plume. Since the same direct push technology was used to develop the known lateral extent of ground-water contamination in the AOC 2 study area, the TNRCC believes that additional monitoring well locations will be required along the lateral extent of the TCE plume Although the primary focus the AOC 2 work plan appears to be on demonstrating that AFP 4 is the principle source of the ground water contamination, the TNRCC will require that the extent of the TCE plume is defined by an adequate number of monitoring wells. The "final" RFI work plan for AOC 2 must include either additional monitoring wells located along the margins of the plume, or a proposal for a phase II RFI to address the lateral extent of the TCE plume

5) *Section 4.2 5 Groundwater Sampling:* Permit Provision VIII.A 2.b (4) requires the collection of three (3) rounds of ground water samples spaced at two (2) month intervals. Our review of

Section 4 2.5 and the RFI schedule shown on Figure 7-1 suggests that only one round of ground water sampling is planned. This does not meet the RFI requirements of the permit Please modify the work plan to include three sampling events spaced two months apart.

6) *Section 4.3.1 Natural Attenuation Screening Assessment:* In addition to the AFCEE protocols for assessing the potential for natural attenuation, USEPA has recently issued guidance related to the demonstration of "monitored" natural attenuation. The TNRCC recommends that the AFCEE screening protocols be modified as needed to support both the AFCEE and EPA demonstration requirements.

7) *Section 4 4 Task 5 - Risk Characterization.* This section of the AOC 2 work plan discusses the characterization of risk associated with ground water and soil contamination at AOC 2 The TNRCC has serious concerns with several of the key assumptions used in the development of the conceptual site model. First, the risk characterization assumes that the "point of compliance" is the NAS Ft. Worth facility boundary, and that plume growth is acceptable as long as ground water does not migrate off-site at concentrations above the federal maximum contaminant levels (MCLs). Secondly, the conceptual model suggests that the alluvial aquifer may discharge to the West Fork of the Trinity River, but that the discharge of contaminated ground water to surface water bodies (such as the Trinity River) is acceptable so long as the contaminant concentrations do not exceed the MCLs. The TNRCC believes these "assumptions" should be viewed as the "worst case" scenario The TNRCC does not view off-site migration and the discharge of contaminated ground water to surface waters as an acceptable demonstration of the effectiveness of a final remedy, monitored natural attenuation or otherwise.

8) *Section 7.0 Project Schedule:* Please update the project schedule shown on *Figure 7-1 RCRA Facility Investigation Schedule* to reflect the appropriate revised dates (e g., final plan submittal 11/?/97 rather than 2/20/97 etc).

9) *Appendix A.1.1.2 Direct Push Groundwater Sampling Procedures:* The work plan proposes to use direct push technology for the purpose of collecting ground water screening data. According to the direct push sampling procedure description in Appendix A.1.1 2, the ground water that enters the well point will be sparged with helium gas and the gas that returns to the surface analyzed via a portable ion mass spectrometer. The work plan (Appendix A.1.1 2) states that 10% of the well points will be resampled and analyzed for VOC's by EPA Method 8240. Please be aware that the TNRCC has been notified by EPA Region 6 that Method 8240 is no longer a recommended method. Any references to Method 8240 in the AOC 2 work plan should be replaced with Method 8260.

Concerning the proposed direct push sampling protocols, the TNRCC is not familiar with the helium sparging technology. Because the proposed "sparging" procedure may result in the loss of VOC's thereby resulting in screening data that is biased low, the TNRCC recommends that AFCEE resample a minimum of 25% of the well point rather than the proposed 10%. In addition, the sampling protocols propose to collect ground water samples with disposable bailers. Consistent

with EPA guidance (*RCRA Ground-Water Monitoring: Draft Technical Guidance, November 1992*), the TNRCC does not recommend the use of bailers for well purging or sampling. The use of low flow pumps is preferred for both purging and sampling. In addition to the EPA guidance cited, studies have shown that samples collected via bailers are far less accurate for both inorganic and organic constituents than samples collected via low-flow pumps. The use of bailers in the Appendix A 1.1.2 protocols should be replaced with an alternate sample collection method.

10) *Appendix A.1.2.3 Monitoring Well Development:* The proposed well development criteria should be reviewed to ensure that these criteria are consistent with applicable EPA guidance *(RCRA Ground-Water Monitoring Draft Technical Guidance, November 1992)* Please note that the EPA guidance cited above states that "a well that cannot be developed to the point of producing low turbidity water (e g., <5 NTUs) may be considered [by the Agency] to have been improperly completed....". The TNRCC recommends that AFCEE review the development criteria shown in Appendix A 1.2.3 as it relates to turbidity and make the appropriate changes so that well development criteria is consistent with the available EPA guidance.

11) *Appendix A.1.2.4 Groundwater Sampling Procedures:* In general, the TNRCC's Federal Facilities Team endorses the use of low-flow purging/sampling procedures as outlined in Appendix A.1.2.4, however, the TNRCC recommends that the Appendix A.1.2.4 ground water sampling procedures be reviewed to ensure that these protocols are consistent with current USEPA research specific to low-flow purging/sampling. The USEPA research paper entitled *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures (April 1996)* represents the most current or "state-of-the-art" recommendations available from EPA concerning low-flow purging/sampling.

Appendix A.1.2 4 appears to contain several inconsistent and contradictory statements. The purging/sampling stabilization criteria listed on pages A-6 and A-7 do not correspond with one another. Turbidity should always be one of the purging/sampling stabilization criteria. Please reconcile this inconsistency. In addition, on page A-7 there is a discussion of the use of bailers for the collection of ground water samples. The use of bailers for sample collection is incompatible with EPA's low-flow purging/sampling protocols. Once the stabilization criteria have been reached, the sample should be collected immediately via the same pump that was used to purge the well.

Appendix A.1 2.4 discusses purging wells at a rate not to exceed 0.3 liters per minute (L/min) until the purging parameters stabilize. Samples would then be collected once the water level had recovered to 80% of the static level. Wells that are slow in recovering would be purged dry and the samples collected when a sufficient volume of water had collected in the well. Please note that although the April 1996 EPA research paper recommends that purge/sampling rates not exceed 0.1-0.5 L/min, **"water level drawdown provides the best indication of the stress imparted by a given flow-rate for a given hydrological situation. The objective is to pump in a manner that minimizes stress (drawdown) to the system to the extent practical taking into account established site sampling objectives".** The goal should be to purge the well at a rate that does not draw down the static water level more than 0.1 of a meter (0.33 ft.). The Appendix A.1 2.4

sampling procedures should be modified accordingly.

In addition, purging low yield wells to dryness should be avoided If, based upon previous sampling experience, it is anticipated that low-yield conditions may be encountered, Appendix A.1.2.4 should be modified to include an outline of what alternate purging procedures will be used Section V.A. Low-Permeability Formations (<0.1 L/min recharge) of the April 1996 EPA research paper provides useful guidance for addressing this issue.

12) *Appendix A.1.2.4 Groundwater Sampling Procedures.* The first full paragraph on page A-8 and *Table A.2 Requirements for Containers, Preservation Techniques, Sample Volumes and Holding Times* suggests that in addition to VOC's and natural attenuation indicator parameters, that samples will also be collected and analyzed for additional parameters including PAH's and metals. Although the TNRCC agrees with this proposal, the AOC 2 work plan text is very sketchy as to what if anything will be analyzed for besides VOC's and natural attenuation indicators. Please clarify the AOC work plan text concerning sampling and analysis parameters

Please provide the Final AOC 2 RFI Work Plan for our review and approval within 30 days of receipt of this letter. The "final" work plan should adequately address the comments listed above. If you have any questions regarding this review please contact Mr Mark Weegar in the TNRCC's Federal Facilities Restoration Team in Austin at (512) 239-2360, mail code MC127, or via e-mail at mweegar@tnrcc.state.tx.us.

Sincerely,

Paul S. Lewis

Paul S. Lewis, Manager
Corrective Action Section
Pollution Cleanup Division

PL/ap/mw

cc: Ms. Ginny King, Natural Resource Trustees, PCD (MC142)
Mr. Tim Sewell, TNRCC Region 4, Duncanville
Ms. Tennis Larson, TNRCC Corrective Action Section (CA120)

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