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LETTER WITH U S AIR FORCE RESPONSE TO REGULATORY COMMENTS REGARDING
WORK PLANS FOR LANDFILLS NAS FORT WORTH TX
3/2/1998
AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE



**NAVAL AIR STATION
FORT WORTH JRB
CARSWELL FIELD
TEXAS**

**ADMINISTRATIVE RECORD
COVER SHEET**

AR File Number 419



2 March 1998

MEMORANDUM FOR MARK WEEGAR (TNRCC)

FROM: HQ AFCEE/ERD
3207 North Road
Brooks AFB, TX 78235

SUBJECT: Naval Air Station Joint Reserve Base
Formerly Carswell AFB
TNRCC Solid Waste Registration No. 65004
EPA ID No. TX0571924042
Draft Final Work Plans - RCRA Facility Investigation of
Landfills, August 1997

Dear Mr. Weegar,

This letter conveys AFCEE's responses to your comments on the landfill work plans. Final work plans will be distributed on 6 March 1998. Field work is scheduled to begin shortly thereafter. If you have any concerns with the responses provided please call me at (210) 536-5290.

Sincerely,

Joseph R. Dunkle
Remedial Project Manager
NAS Ft. Worth JRB

cc:

EPA Region VI
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1445 Ross Avenue, Suite 1200
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**RESPONSES TO COMMENTS: DRAFT FINAL WORK PLANS RCRA
FACILITY INVESTIGATION OF LANDFILLS
NAS FORT WORTH JRB, TEXAS**

General Comments

Comment 1 *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-50299) by the TNRCC on February 7, 1991. Permit Provision VIII. lists the solid waste management units (SWMUs) at NAS Ft. Worth that are required to be investigated (i.e., RFI) for releases of hazardous constituents listed in 40 CFR 264 Appendix IX. Permit Provision V.I. requires newly identified SWMUs to be added to the permit. By letter dated March 2, 1995 the TNRCC notified the Air Force (Air Force Base Conversion Agency) that additional SWMUs were being added to the permit bringing the total to 50 SWMUs and 16 AOCs that would require investigation and/or corrective measures. SWMU No. 62 was identified in the original list of RFI units in the permit. SWMUs No. 17, 27, 29, and 30 were added to the list of RFI units in our March 2, 1995 letter. The RFI work plan for SWMUs No. 17, 27, 29, 30, and 62 must meet the RFI work plan requirements (Permit Provision VIII.A) of the permit.*

Response *The RFI work plan has been revised to meet the requirements of Permit Provision VIII.A of Carswell hazardous waste permit HW-50299 for all sites. SWMUs No. 17, 27, 29 and 30 are not part of the base RCRA permit at this time because sites cannot be added or removed from the permit by letter (i.e., administratively). A formal modification to the permit must be completed for this to be the case. However, the Air Force has an understanding with the TNRCC that pending finalization of the RCRA Compliance Plan, all SWMUs identified in the 2 March 1995 letter will be addressed in accordance with permit requirements.*

Comment 2 *Section 1.1, The U.S. Air Force Installation Restoration Program. While this section may be part of the standard AFCEE report outline, our review fails to see of what relevancy this section has to the overall development of the RFI work plan. Although the Installation Restoration Program (IRP) was developed in response to amendments to CERCLA, NAS Ft. Worth has not been listed on the National Priorities List (NPL) and as such is not subject to corrective action under CERCLA. Instead, this section would be more useful if it were modified to acknowledge that NAS Ft. Worth (formerly Carswell AFB) was issued a hazardous waste permit (HW-50289) by the TNRCC on February 7, 1991 and identify the RFI requirements (Permit Provision VIII.) that will be addressed by the work plan. Section 1.1 also suggests that CERCLA [SARA] "is the primary legislation governing remedial actions at past hazardous waste disposal sites". This is incorrect. The corrective action requirements of both RCRA and the Texas Risk Reduction Rules apply regardless of when waste was placed in the unit.*

Response

Air Force federal facilities are required to comply with the provisions of CERCLA when conducting cleanups, whether or not they are on the NPL. CERCLA §120 (42 US 9620) states: "Each department, agency, and instrumentality of the United States (including the executive, legislative, and judicial branches of government) shall be subject to, and comply with, [CERCLA] in the same manner and to the same extent, both procedurally and substantively, as any nongovernmental entity... All guidelines, rules, regulations, and criteria which are applicable to the preliminary assessments carried out under [CERCLA] for facilities at which hazardous substances are located, applicable to evaluations of such facilities under the National Contingency Plan, applicable to inclusion on the National Priorities List, or applicable to remedial actions at such facilities shall also be applicable to facilities which are owned or operated by a department, agency, or instrumentality of the United States in the same manner and to the same extent as such guidelines, rules, regulations, and criteria are applicable to other facilities." Moreover, SARA section 211 (10 USC 160 §2701) states: "Activities of the [Defense Environmental Restoration Program] ... shall be carried out subject to, and in a manner consistent with, section 120 .. of .. 'CERCLA' (42 USC 9601 et seq.)... The Secretary [of Defense] shall carry out (in accordance with the provisions of this chapter and CERCLA) all response actions with respect to hazardous substances from [all DoD facilities]."

Section 1.1 has been changed to acknowledge that NAS Fort Worth was issued a hazardous waste permit (HW-50289) by the TNRCC on February 7, 1991 and that Permit Provision VIII.A (RFI requirements) is addressed in the work plan. Also, references to CERCLA [SARA] as being the primary legislative driver governing remedial actions at SWMUs No. 17, 27, 29, 30, and 62 have been changed to reflect the additional corrective action requirements of RCRA and the Texas Risk Reduction Rules. See response to comment 1 regarding the permit status of SWMUs No. 17, 27, 29, and 30.

Comment 3

Section 1.4, Site Investigation History. The RFI at NAS Ft. Worth is being conducted in order to comply with Provision VIII of Permit HW-50289, not "as part of the ongoing IRP". SWMU No. 62 was listed in the original permit while SWMUs 17, 27, 29, and 30 were added to the list of RFI units in our letter of March 2, 1995. Please correct this section.

Response

Section, 1.4 has been revised to reflect that the RFI is being conducted to satisfy the requirements of both CERCLA and the facility RCRA permit. See response to comment 1 regarding the permit status of SWMUs No. 17, 27, 29, and 30.

Comment 4

Section 2.1.3.2, Goodland/Walnut Aquitard. This section discusses the fact that the Goodland/Walnut aquitard has been removed by erosion in an area of Air Force Plant (AFP) No. 4 known as the "window area" and therefore the alluvial terrace deposits (contaminated with TCE) are in direct hydraulic communication with the Paluxy aquifer. This section goes on to say that "a

significant number of wells and borings" have been drilled on NAS Ft. Worth and no evidence of a similar unconformity has been found and that "no evidence of contamination of the Paluxy aquifer has been found at NAS Ft. Worth". While the TNRCC does not dispute this statement, no supporting data are included. Please modify this section to include the number of wells that are completed into the Paluxy aquifer on NAS Ft. Worth and include a map, which shows the well location.

Response

Evidence to support *"the lack of an unconformity of the Goodland/Walnut Aquitard in most areas of NAS Fort Worth"* is provided in Figure 2.4-Cross Section Location Map, Figure 2.5-Cross Section A-A'-A", and in Figure 2.5-Cross Section B-B'-B". References to these cross sections have been added to the discussion in Section 2.1.3.2. Also, five (5) monitoring wells known to penetrate the Paluxy Formation at NAS Fort Worth have been specifically identified in the text. These wells are USGS01P, USGS05P, USGS06P, USGS07P, and Paluxy 1 (P1). The locations of these wells are presented in Figure 2.4

The statement *"no evidence of contamination of the Paluxy aquifer has been found at NAS Ft. Worth"* is not directly relevant to the current RFI work plan. It has been removed from the discussion in section 2.1.3.2 of the text. Chemical analysis (for VOCs only) was performed on the NAS Fort Worth Paluxy wells by CH2M Hill for the January, 1997 quarterly monitoring report. Analytical results of water samples taken from these Paluxy wells were all negative for VOCs. Paluxy 1 (P1) was not sampled due to an obstruction in the well.

Comment 5

Section 3.1, Applicable or Relevant and Appropriate Requirements Identification. This section and the discussion of ARARs has no relevance to this work plan and should be deleted from the text. Please note that the term "ARAR", applies to standards derived from state and Federal laws (other than CERCLA) that become a part of the cleanup standards at a Federal Superfund site. The use of this term in conjunction with a non-NPL site is incorrect. As previously stated, NAS Ft. Worth has not been listed on the National Priorities List (NPL) and as such is not subject to corrective action under CERCLA. NAS Ft. Worth (formerly Carswell AFB) was issued a hazardous waste permit (HW-50289) by the TNRCC on February 7, 1991 and is therefore subject by regulation to RCRA and the Texas Solid Waste Disposal Act, including the corrective action requirements of RCRA and the Texas Risk Reduction Rules (30 TAC §335 Subchapter S), Appendix B Preliminary Identified ARARs suggests that RCRA and the Texas Solid Waste Disposal Act may only be applicable under certain conditions (e.g., if a permit is required and/or if SWMUs are excavated).

Response

Texas administrative code 335.562(b) states the following regarding Risk Reduction Rule Standard 3 remedy selection: "Compliance with other laws and regulations. Remedies shall be evaluated to determine attainment of cleanup requirements for other Texas or federal environmental laws which are either legally applicable to the facility or that address problems or situations that are sufficiently similar to those encountered at the facility that their use is well

suites to the facility." Although the term "ARAR" is not used in this section of the code, it is clear that applicable or relevant requirements need to be considered in the remedy selection process. The Air Force believes it is necessary to consider ARARs in the development of work plans so that the resulting data will meet all regulatory requirements. Also, Air Force facilities are subject to CERCLA (see response to comment 1) even though most facilities are not on the NPL. Thus the Air Force must consider ARARs when preparing investigative plans so that these laws are considered in the data quality objective process. The section has been modified to refer to the requirements of TNRCC Permit HW-50289, the Texas Solid Waste Disposal Act, and the Texas Risk Reduction Act (30 TAC 335 Subchapter S). The other laws and regulations, as outlined in Appendix B, will be considered during remedy selection. The term ARARs will be retained since it applies under CERCLA to cleanups at Air Force facilities.

Comment 6 *Section 3.2, Characterization of Background Conditions. This section states that the Upper Tolerance Limits (UTLs) calculated in the base-wide background study (Jacobs, 1997) will be used to compare the results of the investigative work conducted as part of the RFI. Although the TNRCC supports this approach, the TNRCC has not completed our review of the base-wide background study and therefore the use of the background UTLs will be subject to our approval of this study.*

Response Comment noted. The last sentence of the second paragraph of Section 3.2 has been changed to read as follows: "For this RFI, HydroGeoLogic will use the UTL_{95,95} values listed in Appendix B as background values until TNRCC review and approval of the Jacobs UTL study."

Comment 7 *Section 3.4, Field Investigation Tasks. This section breaks down by SWMU the field tasks proposed as part of the evaluation of each of the sites to determine whether a release of hazardous constituents has occurred and to define the nature and extent of this contamination. The field tasks described in this section include geophysical surveys, soil borings, monitoring wells, soil sampling, ground water sampling, surface water sampling and the excavation of test pits. The review of Section 3.4 has identified significant deficiencies in the work plan. Rather than address each SWMU site by site, the TNRCC recommends that AFCEE review the proposed field tasks to ensure that the proposed activities comply with the requirements of Permit HW-50289. Permit Provision VIII.A identifies the specific activities that must be addressed by RFI work plans. The TNRCC has identified the following general deficiencies based upon our review of the SWMU specific tasks and Table 3.2 Proposed RFI Sampling Locations:*

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". The soil boring program identified in the referenced work plan does not satisfy this requirement. 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).

Permit Provision VIII.A.2.b.(4) requires the collection of three (3) rounds of ground water samples spaced at two (2) month intervals. Neither the work plan text or the review of Table 3.2 suggests that more than 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.

Permit Provision VIII requires that SWMUs be evaluated for the release of hazardous constituents listed in 40 CFR Part 264, Appendix IX. This evaluation applies to soils and water (surface or ground water). Permit Provision VIII.A.2.b.(1) provides an opportunity for the facility [AFCEE] to request a shorter or "reduced" list of Appendix IX constituents provided justification is presented in the work plan. Table 3.2 proposes a reduced list of analytes but does not present the required justification. The revised work plan must either propose to sample for all 40 CFR Part 264 Appendix IX hazardous constituents or provide the necessary justification for a shorter list.

Response Section 3.4, Field Investigation Tasks: The text of the work plan has been revised to satisfy the requirements of the HW-50289 permit. Changes in Section 3.4 of the revised sampling plan are outlined below:

Elements of Revised Sampling Plan

Geophysical Survey of SWMUs

The use of geophysical surveys to determine the lateral and vertical extent of SWMUs remains unchanged. These surveys will be completed prior to the initiation of the Direct Push Activities.

Direct Push Soil Boring Program

- Direct Push soil borings will replace soil borings by hollow stem auger and excavation trenches.
- Collection of soil by Direct Push methods is separated into two categories:
 1. Soil samples that are collected for Chemical Analysis within a SWMU.
- *Soil samples that are collected every five (5) feet from continuous cores from the ground surface to the water table will be analyzed for the full suite of Appendix IX constituents. Analytical results will be used to characterize the nature of the chemical wastes disposed in the SWMU.*

- *Continuous cores will be used to visually evaluate the soil type and nature of the wastes.*
- *Selected soil boring locations will be advanced into the water table in order to install temporary piezometers.*

2. Soil probes used to locate the boundaries of the SWMU

- *Soil samples from various depth intervals will be used to augment and/or confirm results of geophysical surveys regarding the lateral and vertical extent of the SWMU boundaries. This approach will allow a more rapid delineation of the aerial extent of SWMU. Soil samples will not be collected from these soil probes.*
- *Selected probes located outside of the SWMU will be converted to temporary groundwater piezometers.*

Installation of Groundwater Monitoring Wells

Four (4) monitoring wells (one upgradient well and three downgradient wells) will be installed at each SWMU using a Hollow Stem Auger Rig. Because the wells are used for characterizing groundwater only, soil samples will not be collected from monitoring well borings.

- Temporary narrow-diameter piezometers will be installed to determine depth to groundwater and localized groundwater flow direction(s) prior to the installation of monitoring wells.
- The upgradient well will be located far enough away from the SWMU so as to insure it will not be influenced by any potential contaminants emanating from the SWMU.
- The downgradient wells will be installed along the SWMU perimeter to monitor any potential movement of contaminants away from the SWMU.
- Monitoring wells will be completed through the Upper Terrace Deposit to the Goodland Walnut Aquitard in order to fully screen the upper 20 feet of the upper flow zone of the uppermost aquifer. No monitor well screen will exceed 20 feet.
- Groundwater samples collected from monitoring wells will be analyzed for the full suite of Appendix IX constituents. Analytical results from the first round of sampling will then be used to justify a shorter Appendix IX analyte list in subsequent rounds of sampling, if appropriate.

Comment 8 *Section 4.0, Risk Assessment. The discussion of a risk assessment within the context of an RFI work plan is premature and should be deleted. The purpose of the RFI work plan is to determine whether a SWMU has released hazardous constituents to the environment and to determine the vertical and horizontal extent of the release. Under the RCRA program, risk assessments are done in*

conjunction with, and to support, a Corrective Measures Study (CMS). 30 TAC §335 Subchapter S Risk Reduction Standards allows the use of risk assessments only in support of closure under Risk Reduction Standard No. 3 Closure/Remediation with Controls .

With respect to the above comment, the TNRCC does support AFCEE's efforts to collect data during the course of the RFI that could later be use as part of a risk assessment. With that in mind, our review of Section 4.0 has identified a conceptual flaw in the risk assessment methodology as it relates to the identification of constituents of potential concern (COPC). It is stated that COPC "will be those constituents detected in environmental media at the site at concentrations greater than background (RRS1) and risk-based screening levels (RRS2)". Please be aware that the TNRCC considers hazardous constituents detected above background for metals or practical quantitation limits (PQLs) for organics to be contaminants of concern. Should a risk assessment be required in the future to support the closure of SWMUs at NAS Ft. Worth, AFCEE will be required to adopt the TNRCC's definition of contaminants of concern.

Response

Section 4.1.1 states, "If site closure cannot be completed because site concentrations exceed RRS1 and RRS2, baseline risk assessments will be prepared which will consist of the following five steps:" The Air Force will be conducting risk assessments only for those sites remediated under RRS3 with controls. The Air Force considers it important to evaluate exposure pathways and receptors when considering sampling locations and methods because remediating the sites in the work plan using RRS3 is a distinct possibility. In addition, EPA's "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (Interim Final, October 1988) states that "The work plan presents...the additional data needed to conduct a preliminary risk assessment." Also, EPA's proposed rule for RCRA corrective actions (61 FR 19444, section III.c.2) states "Carefully designed RFIs are critical to accurately characterize the nature, extent, direction, rate, movement, and concentration of releases at a given facility; this information is needed to determine potential risks to human health and the environment..." and "...remedial investigations should be tailored to the specific conditions and circumstances at the facility and focused on the units, releases, and exposure pathways of concern." The Air Force agrees with this approach, and therefore section 4.0 will remain part of the work plan. If contamination is found at a site, the lateral and vertical extent of this contamination will be delineated. A risk assessment, if necessary, will be part of a Corrective Measures Study (CMS). The TNRCC and Air Force will be assured that data collected will be suitable for inclusion in a baseline risk assessment by listing the objectives for risk assessment in the work plan. Data collected to support a future risk assessment will be based on the TNRCC's definition of contaminants of concern.

Comment 9

Section 5.0, Remedial Actions. Consistent with comment No. 8, a baseline risk assessment (BLRS) and CMS are not required if a site can be closed/remediated under RRS No. 1 or RRS No. 2. Contrary, however, to what is stated in Section 5.0, a CMS will be required if the site will be closed under RRS No. 3

irrespective of whether the BLRA indicates that the site does not pose an unacceptable risk to human health and the environment. In such a scenario, the BLRA would be used to support a "no action" decision in the CMS.

Response The work plan was written including a methodology for selecting potential remedial alternatives so that TNRCC was cognizant of the methodology early on in the RFI/CMS process. Section 5.0 gives TNRCC and the public an understanding of how the Air Force proposes to proceed should a CMS be required. This thought process is similar to that of Sections 4.0 and 8.0. Therefore section 5.0 will remain part of the work plan. The initial paragraph has been modified to require a CMS whenever closure under RRS3 is requested.

Comment 10 *Subsection 5.1, Remedial Action Objectives. The closure/remediation of SWMUs at NAS Ft. Worth will be required to attain media specific cleanup levels established by the TNRCC and promulgated in 30 TAC §335 Subchapter S Risk Reduction Standards (RRSs). The closure/remediation criteria outline in the RRSs, including media specific cleanup levels, are enforceable regulation and not an ARAR as suggested in Subsection 5.1. Please note that the TNRCC's media specific cleanup levels are applied at the SWMU boundary/source area and are not adjusted upward by "extrapolating from receptor points back to the source area".*

Response Section 5.1 has been modified to state that 30 TAC 335 Subchapter S Risk Reduction Standards are applicable regulations, and that media-specific cleanup levels are applied at the SWMU source area/boundary.

Comment 11 *Subsection 4.2, Compliance with Media Cleanup Standards. As already stated, the closure/remediation of SWMUs at NAS Ft. Worth will be required to attain media specific cleanup levels established by the TNRCC and promulgated in 30 TAC §335 Subchapter S Risk Reduction Standards (RRSs). Any discussion of ARARs in the RFI work plan should be replaced with the acknowledgment that closure/remediation activities will comply with the media specific cleanup levels established by the TNRCC.*

Response As previously stated, the Air Force is required to comply with CERCLA (which defines ARARs) and RCRA. Section 5.3.2 has been modified to include a discussion of 30 TAC §335 Subchapter S Risk Reduction Standards.

Comment 12 *Section 5.3, Reporting Requirements. The format for the submittal of reports should follow the RCRA program process not a "CERCLA-like" process as proposed in Section 6.3. Upon completion of RFI activities, an RFI report must be submitted to the TNRCC for review and approval (Permit HW-50289 requires that the RFI report be submitted within 60 days of the completion of the RFI). If a release of hazardous constituents was not identified at a SWMU, or if the report documents that the nature and extent of contamination has been defined and the site has attained closure/remediated to RRS No. 1 or RRS No. 2 levels, then the RFI report would serve the purpose of the no further action*

report (e.g., decision document). As previously stated, if the SWMU cannot attain closure/remediation under RRS No. 1 or RRS No. 2, then a CMS will be required irrespective of whether a baseline risk assessment indicates that the site does not pose an unacceptable risk to human health and the environment. The CMS is the vehicle by which a facility details the evaluation of potential remedies and proposes the appropriate corrective measure. The CMS can be submitted paired with a Corrective Measures Implementation (CMI) work plan or the CMS and CMI can be submitted separately. The CMI work plan details the specific activities that will be undertaken to implement the remedial action. Please substitute CMI for the Remedial Action Plan at Subsection 6.3.3.

Response Section 6.3, Reporting Requirements, has been revised to read as follows:

4.3.1 RCRA Facility Investigation

The primary report for the project will be an RFI based on the investigation and reporting requirements of the TNRCC hazardous waste permit (HW-50289) for NAS Fort Worth JRB. Four copies of the Final Soils and Groundwater report will be submitted along with the RCRA Facility Investigation report as required by Provision VIII.D of the HW-50289 permit within 60 days of the completion of the RFI.

The report will characterize the environmental conditions at each site, check each sample package for completeness and quality, evaluate data from each site and recommend a future course of action for each site. Each site potentially has one of three recommended future courses: no action, further investigation, or advancement to a Corrective Measures Study (CMS).

If the SWMU cannot attain closure/remediation under RRS No. 1 or RRS No. 2, then a CMS will be required. Sites continuing to the CMS will be screened for potential remedial alternatives. One alternative will be selected and proposed as the remedial action to be conducted at the site.

4.3.2 Corrective Measures Study (CMS)

The purpose of the CMS is to develop and evaluate potential remedial alternatives and to propose the appropriate corrective measure. An evaluation of the risk to human health and the environment will be evaluated in the CMS based on the results of the RFI. The corrective action which best reduces the risks to human health and the environment to acceptable levels will be proposed.

4.3.3 Corrective Measures Implementation Plan (CMI)

A Corrective Measures Implementation Plan (CMI) will be submitted for sites where the CMS results indicate that remediation is warranted. The CMI work plan details the specific activities that will be undertaken to implement the remedial action. The remedial action alternative selected for an individual site

will be based on the alternatives presented in the CMS. The recommendation presented will include preliminary designs, site-specific drawings, cost estimates and schedules for the remedial action. The CMI work plan may be submitted paired with a CMS or the CMS and CMI may be submitted separately.

4.3.4 Decision Documents

If a release of hazardous constituents was not identified at a SWMU, or if the nature and extent of contamination has been defined and the site has attained closure/remediated to RRS No. 1 or RRS No. 2 levels, then the RFI report would serve the purpose of the no further action report (e.g., NFA decision document).

Comment 13 *Section 7.0, Project Schedule. Please update the project schedule shown on Figure 7-1 Project Schedule to reflect the appropriate revised dates (e.g., final plan submittal 12/3/97 rather than 10/3/97 etc.). In addition, the permit requires that AFCEE submit the RFI report within 60 days of completion of the RFI activities. The project schedule incorporates 90 days for submission of the draft RFI report. Please make the necessary changes so that the schedule is compliant with the permit.*

Response The project schedule has been updated to reflect the revised RFI work plan submittal date as March, 1998. Changes in other appropriate dates have been included in the final RFI work plan. Also, as required by the HW-50289 permit, the submittal date for the RFI report has been modified to 60 days after completion of RFI activities.

Field Sampling Plan

Comment 1 *Section 3.2, Sample Analysis Summary. The list of analytes shown in the sampling analysis summary should be reviewed to ensure that the proposed list satisfies the requirements of Permit Provision VIII. RCRA Facility Investigation. Provision VIII. requires that SWMUs are investigated for releases of 40 CFR Part 264 Appendix IX constituents unless a shorter list can be justified.*

Response Section 3.2, Sample Analysis Summary: The sample analysis summary employs the EPA Methods with the lowest PQLs and covers all the constituents listed in the 40 CFR Part 264 Appendix IX analyte list. In accordance with the NAS Ft. Worth JRB Basewide QAPP (CH2M HILL, 1996), the following EPA Methods will be used to cover the full Appendix IX list:

| | |
|----------------|--------------------------------------|
| SW8260A | - Volatile Organics |
| SW8270B | - Semivolatile Organics |
| SW8080A | - Organochlorine Pesticides and PCBs |
| SW8140 | - Organophosphorus Pesticides |
| SW8151 | - Chlorinated Herbicides |
| SW8290 | - Dioxins and Furans |
| SW9010A/SW9012 | - Cyanide |
| SW9030 | - Sulfide |
| SW6010A/7000 | - Trace Elements (Metals) |
| SW7470A/7471A | - Mercury |

Comment 2 *Table 3.1 Sample Analysis Summary, Table 3.2 Field Activities Summary, and Table 3.3 Data Quality Levels. These tables should be revised as appropriate to address the sampling requirements of Permit Provision VIII. (e.g., the collection of soil samples at 5 foot intervals and 3 rounds of ground water sampling). In addition, AFCEE must ensure that the proposed analytical methods for the analysis of soils and water will attain the lowest level of quantitation possible on a routine basis. 30 TAC §335.554 provides for the executive director to require a person [facility] to demonstrate that lower levels of quantitation of a contaminant are not possible.*

Response Table 3.1 Sample Analysis Summary. Tables 3.2 and 3.3 have been revised to reflect the sampling requirements of Permit Provision VIII (i.e., Soil samples at 5 foot intervals and 3 rounds of groundwater sampling). The EPA analytical methods chosen will attain the lowest possible quantification limits on a routine basis.

Comment 3 *Section 5.6, Monitoring Well Development. The TNRCC recommends that AFCEE utilize the EPA guidance document entitled RCRA Ground-Water Monitoring: Draft Technical Guidance, November 1992, to ensure that the proposed well development criteria are consistent with applicable EPA guidance. 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 Section 5.6 as it relates to turbidity (e.g., 50 NTUs) and make the appropriate changes so that well development criteria is consistent with the available EPA guidance.*

Response Recommendations from the EPA guidance document have been incorporated into the RFI work plan to ensure that proposed well development criteria are consistent with current EPA guidance. The part of Section 5.6 with reference to NTUs now reads as follows:

(3) wells will be developed using surge blocks and bailers or pumps (prior approval for any alternate method will be obtained, in writing, from AFCEE before well construction begins), and wells will be developed until the turbidity of the well is less than or equal to 10 nephelometric turbidity units (NTU) and remains

within a 5 NTU range for at least 30 minutes and the stabilization criteria in Section 6.0 are met

Comment 4 *Section 5.11, Waste Handling. This section states that investigation derived waste (IDW) will be handled and disposed of in accordance with applicable Federal, state, and local requirements, however, almost no details are provided concerning how a waste determination will be performed. Please be aware that IDW must be classified per the requirements of 30 TAC §335 Subchapter R Waste Classification. In addition to being classified as a hazardous waste if it exhibits a hazardous characteristic as identified in 40 CFR Part 261, Subpart C, IDW can also be determined to be a hazardous waste by virtue of being "listed" as a hazardous waste in 40 CFR Part 261, Subpart D. Figure A.1 NAS Ft. Worth JRB TCE Plume Map indicates that SWMU No. 17 overlies the TCE plume emanating from AFP No. 4. Please provide a summary of the hazardous waste determination that has been agreed upon between the Air Force and EPA Region 6 in regards to the release at AFP No. 4 (e.g., is the TCE from a "listed" source).*

Response Section 5.11, Waste Handling has been changed to Section 5.10.1. Waste will be classified as either non-investigative waste or investigative waste per the requirements of 30 TAC §335 Subchapter R and 40 CFR Part 261, Subpart C. Characterization of IDW will be based on sample analysis obtained during the field investigation following EPA approved methods. Hazardous waste classification will first be determined as per 40 CFR §261.2, §261.3, or §261.4. Waste that is nonhazardous will be classified as Class 1, Class 2, or Class 3 according to 30 TAC §335.505 - 335.507. Once the IDW has been characterized, an eight-digit waste code number will be provided as required in §335.501. The disposal of IDW will be conducted in a timely and cost-effective manner, and within all State and Federal regulations.

It is AFCEE's understanding that Air Force Plant 4 classifies IDW by type (investigative or non-investigative) and then by class (hazardous or non-hazardous). The waste is then appropriately disposed. Jacobs Engineering is currently treating purge water through the East Parking Lot treatment system with the approval of EPA Region 6.

Comment 5 *Section 6.1.1, Groundwater Sampling. In general, the TNRCC's Federal Facilities Team endorses the use of low-flow purging/sampling procedures as outlined in Section 6.1.1, however, the TNRCC recommends that the Section 6.1.1 groundwater sampling procedures be reviewed to ensure that the Section 6.1.1 protocols are consistent with current U.S. EPA research specific to low-flow purging/sampling. The U.S. EPA research paper entitled Low-Flow (Minimum 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.*

Response Recommendations of procedures and protocols described in the U.S. EPA research have been incorporated in Section 6.1.1 of the work plan.

Comment 6 *Subsection 6.1.1.1.2, Purging Prior to Sampling. Please note that once the stabilization criteria have been reached, the sample should be collected immediately via the same pump that was used to purge the well rather than purging 3 well volumes as proposed. The removal of a predetermine number of well volumes prior to sample collection is not necessary and will only increase the volume of IDW that must be containerized and potentially managed as either a listed or characteristic hazardous waste.*

Subsection 6.1.1.1.2 discusses purging wells at a rate in the range of 0.2 to 2.0 liters per minute (L/min). 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 Subsection 6.1.1.1.2 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, Subsection 6.1.1.1.2 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.

Response Subsection 6.1.1.1.2, Purging Prior to Sampling: Guidance on procedures and protocols described in EPA's research paper have been adopted as the primary purging and sampling method in Section 6.1.1.1.2 for this RFI. A muti-tiered approach will be used for purging and sampling:

1. Recommendations from the EPA research paper (flow rates of 0.1-0.5 L/min with a drawdown of less than 0.33 feet, and associated stabilization criteria) have been adopted. This method is the primary default method for groundwater sampling.
2. If during low-flow purging the drawdown is greater than 0.33 feet, then the micropurge technique is assumed to be invalid and will be discontinued. The reason is that groundwater flow to the pump is no longer considered to be laminiar across the screen from the aquifer. The flow in the vicinity of the pump would then contain a vertical component from the stagnant water column in the filter pack and casing.

In this situation (ie. drawdown >0.33 feet at low-flow rates), the pumping rate will be increased and a minimum of three borehole volumes will be removed to ensure that all of the stagnant water has been removed from the borehole. The drawdown will continue to be monitored and the pumping rate will be adjusted to avoid pumping the well dry. Measurements for water quality parameters will be taken every three to five minutes. After three well volumes have been removed and water

quality parameters have stabilized for three consecutive readings, water samples will be collected using a low-flow pump.

3. If the parameters do not stabilize, then five well volumes will be removed and water samples will be collected using a low-flow pump.
4. If a well is purged dry, then the well will be sampled as soon as a sufficient volume of groundwater has entered the well to enable the collection of necessary groundwater samples. (reference: EPA Nov. 1992) Water samples will be collected using a low-flow pump. Purging low-yield wells to dryness will be avoided.

Comment 7 *Subsection 6.1.2.1, Split Spoon Samples. As previously noted, Permit Provision VIII. requires samples from soil borings to be collected and analyzed at 5 foot intervals. This subsection must be modified so that it complies with the permit. This subsection also proposes to composite and homogenize soil samples from more than one stainless steel/Teflon sleeve if insufficient sample volume is available from only one sleeve, Please note that this procedure is inappropriate for VOC samples as this procedure will only serve to promote volatilization of contaminants of concern, This procedure should be carefully evaluated and revised. Please be aware that Update 111, U.S. EPA's Test Methods for Evaluating Solid Waste, SW-846, December 1996 now contains Method 5035 which includes field preservation methods for VOC soil samples believed to minimize the loss of VOCs during sample collection and transport for analysis. This method has recently been used by AFCEE's contractor (Law Engineering and Environmental Services) at Bergstrom AFB. The TNRCC encourages the use of sampling protocols and analytical methods which provide environmental data most representative of actual site conditions.*

Response Subsection 6.1.2.1, Split Spoon Samples:

- Soil samples from borings used for contaminant characterization will be collected for analysis at 5 foot intervals as required by the HW-50829 permit.
- The TNRCC comment on potential VOC loss has been noted. Soil samples will not be composited between individual sleeves contained within the split spoon sampler. Only those sleeves containing an adequate amount of soil will be sealed and shipped for analysis.
- Based on the results of Law Engineering and Environmental Service's evaluation of EPA Method 5035 at Bergstrom AFB and pursuant to our discussion of December, 1997 in a conference call involving Mark Weeger of TNRCC, Joe Dunkle of AFCEE, and Jim Costello, Robert Wallace and Mike Rodtang of HydroGeoLogic, EPA Method 5035 will not be used in this RFI.

Quality Assurance Project Plan Addendum

Comment 1 *Section 1.2, Summary of Analytical Parameters. As previously noted, Permit Provision VIII. requires that SWMUs are investigated for releases of 40 CFR Part 264 Appendix IX constituents unless a shorter list can be justified. Since the draft RFI work plan does not contain any compelling justification for a shorter list of analytes, the list of analytes must either be modified to ensure compliance with the permit or additional justification for a reduced list must be provided.*

Response The Quality Assurance Project Plan (QAPP) Addendum has been eliminated from this RFI and replaced with references to the current NAS Fort Worth JRB QAPP. The current QAPP includes all of the 40 CFR Part 264 Appendix IX constituents and associated analytical methods.

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