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DEPARTMENT OF THE ARMY
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
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MCHB-TS-RDE

24 November 2004

MEMORANDUM FOR Coalition Forces Land Component – Command Surgeon, Force Health Protection Officer (MAJ [REDACTED]), Camp Arifjan, Kuwait, APO, AE 09306

SUBJECT: (U) Transmittal of Deployment Occupational and Environmental Health Site Assessment, Karshi-Khanabad Airbase, Karshi, Uzbekistan

(U)(~~S//REL USA, AUS, CAN, GBR, NZL~~) The enclosed report and appendices include the Assessment prepared by the US Army Center for Health Promotion and Preventive Medicine Combined Joint Task Force-76 Deployment Occupational and Environmental Surveillance Special Medical Augmentation Response Team – Preventive Medicine deployed to Uzbekistan in response to Commander CFLCC Tasking Message 251834ZJUL04.

FOR THE COMMANDER:

ENCL

//Original Signed//

[REDACTED]
Director
Health Risk Management

CF:

CENTCOM Surgeon, Force Health Protection Officer (MAJ [REDACTED])
CJTF-76 Surgeon, Preventive Medicine (MAJ [REDACTED])
172nd MED DET (MAJ [REDACTED])

Declassified by: OEF/ONE SCG 28 Mar 2002
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(S//REL) Final Report, Deployment Occupational and Environmental Health Site Assessment,
Karshi-Khanabad Airbase, Karshi, Uzbekistan, 31 August – 11 September October 2004

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(U) ~~(S//REL)~~ EXECUTIVE SUMMARY
DEPLOYMENT OCCUPATIONAL AND ENVIRONMENTAL
HEALTH SITE ASSESSMENT
KARSHI-KHANABAD AIRBASE
KARSHI, UZBEKISTAN
31 AUGUST – 11 SEPTEMBER 2004

1. (U) PURPOSE. To assess and characterize potential health risks from environmental contaminants; make recommendations to mitigate identified health risks; and evaluate the effectiveness of existing countermeasures to minimize health risks.

2. (U) CONCLUSIONS.

a. (U) ~~(C//REL)~~ Most of the recommendations from the previous site visits by USACHPPM to K2 were implemented and remain in place. Those that were not, particularly the noise hazardous generators, should be relatively easy to fix. No evidence of gross POL contamination was found in any of the current excavation sites (Engineer Cut Site, New Berms in the ASP, Proposed Expansion Areas).

b. (U) ~~(C//REL)~~ Conditions at K2 were generally good. Sanitation was good. Solid waste was being disposed of off installation. There was no open burning taking place within Stronghold Freedom while the team was on site. Measures to reduce dust such as paving or gravel cover were implemented.

c. (U) ~~(C//REL)~~ Site 1 was still off limits, was in good condition, and was adequately marked.

d. (U) ~~(C//REL)~~ The results from the VSI, and the sampling, support the use of the four expansion areas: South, Northeast, Northwest, and East Runway. Noise from aircraft operations may affect the types of usage of for the areas.

e. (U) ~~(C//REL)~~ The overall DOEHS Risk Estimate for service members stationed at K2 for up to one year is LOW.

3. (U) RECOMMENDATIONS.

a. (U) Keep Site 1 off-limits and undisturbed.

b. (U) Implement recommended personal protective equipment and other countermeasures for any excavations on a line between the Uzbeki Fuel Farm and the Northwest Corner of Camp Stronghold Freedom.

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c. (U) Industrial Hygiene - Noise Monitoring. Restrict access to the SSA refrigeration trailer area's generator station located on the far eastern end of the trailers by extending the

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existing soft barrier around the station and up to the paved road located next to the trailers. Restrict access to the base camp dining facility refrigeration trailer area's generator station by erecting a barrier and restricting pedestrian access between the generator station and Force Provider storage connexes located just north of the station.

d. (U) Continue routine environmental surveillance of the ambient air and water supplies at Camp Stronghold Freedom.

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(U) (~~S//REL~~) Final Report
Deployment Occupational and Environmental Health Site Assessment
Karshi-Khanabad (K2) Airbase
Karshi, Uzbekistan
31 August – 11 September 2004

1. (U) REFERENCES. A list of references is provided in Appendix A.
2. (U) PURPOSE. To assess and characterize potential health risks from environmental contaminants; make recommendations to mitigate identified health risks; and evaluate the effectiveness of existing countermeasures to minimize health risks.
3. (U) AUTHORITY.
 - a. [REDACTED]
 - b. (U) Combined Joint Task Force 180 Policy Memorandum #14, Force Health Protection, 21 July 2002.
 - c. (U) DoD Directive 6490.2, dated 30 August 1997.
 - d. U) DoD Instruction 6490.3, dated 7 August 1997.
 - e. (U) Joint Chiefs of Staff Memorandum MCM-0006-02, 1 February 2002, subject: Updated Procedures for Deployment Health Surveillance and Readiness.
 - f. (U) Headquarters Department of the Army Policy Letter, Force Health Protection (FHP): Occupational and Environmental Health (OEH) Threats, 27 June 2001.
4. (U) SCOPE.
 - a. (U) (U) (~~S//REL~~) Previous Efforts. The USACHPPM has performed a total of four missions at the K2 Airbase. In November 2001, the USACHPPM Main prepared an Industrial Hazard Assessment for the facility to document potential occupational or environmental health hazards that may be present at the site based on intelligence information (reference 1). Also in November 2001, the USACHPPM Europe conducted an Environmental Site Survey and Operational Health Risk Assessment (reference 2). In June of 2002, the USACHPPM Europe conducted two different site surveys at K2. The first was a follow up to the November 2001 assessment, to reassess conditions at K2 (reference 3), and the second was an Environmental

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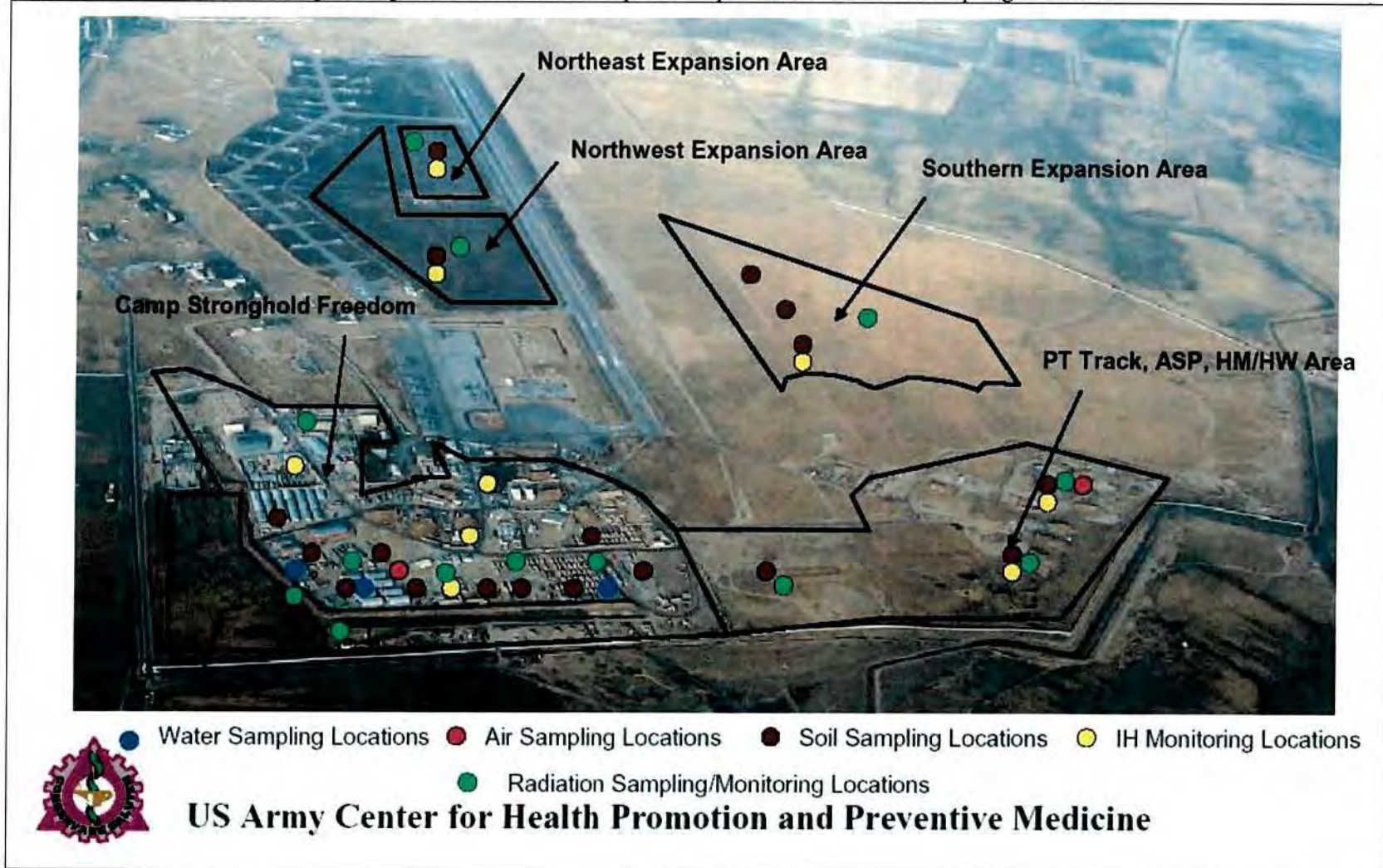
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Assessment of the Hardened Air Shelters at K2 (reference 4). Sample sites from the previous USACHPPM site visits are shown in the Figure. Appendix B shows more detailed imagery with

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(U) Figure. Overview of Camp Stronghold Freedom and Proposed Expansion Areas with Sampling Locations



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sampling locations with Figure B-1 concentrating on Camp Stronghold Freedom, Figure B-2 detailing the Northern and Southern Expansion Areas, and Figure B-3 detailing the PT Track, ASP, and Hazardous Waste Storage Areas.

b. (U) Scope of Work/Specified Tasks. By the directions of COMCFLCC, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) Deployment Occupational and Environmental Health Surveillance (DOEHS) Special Medical Augmentation Response Team – Preventive Medicine (SMART-PM) was to conduct an environmental health site assessment of K2 Airfield to determine the current state of POL/Chemical/Radiological/Environmental Contamination and its impact on the long term basing plans to develop the site into an Enduring Forward Operating Base.

c. (U) DoD Requirements. The Department of Defense, Joint Staff, Department of Army, and Combatant Command policies require that deployed forces identify the risks from OEH hazards as part of the overall Force Health Protection efforts. The USACHPPM has developed tactics, techniques and procedures to assess these risks using Operational Risk Management (ORM) practices in accordance with these policies and the ASTM Standard for conducting Environmental Health Site Assessments (references 5 through 9). These practices were used to conduct this assessment.

d. (U) USACHPPM SMART-PM Members. A multidisciplinary team from USACHPPM-Europe and USACHPPM-Main conducted this assessment. This team included:

- (1) MAJ [REDACTED], CIH, Team Leader.
- (2) Mr. [REDACTED], P.E., Environmental Engineer.
- (3) CPT [REDACTED], Nuclear Medicine Science Officer.
- (4) CPT [REDACTED], PhD, Environmental Science Officer.
- (5) SGT [REDACTED], Preventive Medicine NCO.
- (6) SGT [REDACTED], Health Physics NCO.

5. (U) BACKGROUND.

a. (U) (~~S//REL~~) Previous Assessment Findings/Countermeasures. The previous findings at K2 are detailed in references 2-4. With the exception of the two noise hazardous trailers identified later in this report, the recommendations of the previous reports appear to have been implemented. No construction activities in the POL contaminated area were occurring so the countermeasures needed for construction workers could not be evaluated. Site 1 remains off-limits with adequate signage, and is well vegetated which will help stabilize surface soils.

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b. (U) Areas of Interest/ Current Activities. The following areas of interest are described and cross-referenced as follows:

(1) (U) (~~S//REL~~) Site 1. This area was previously determined to be contaminated with non-US depleted uranium due to fires in ammunition storage bunkers storing anti-aircraft missiles containing DU.

(2) (U) (~~S//REL~~) Camp Stronghold Freedom. This area was defined by current camp boundaries.

(3) (U) (~~S//REL~~) PT Track/Ammunition Storage Point (ASP)/Hazardous Material and Hazardous Waste (HM/HW) Storage Area. This is the area directly South of Camp Stronghold Freedom. Based on interviews with camp personnel, the ASP may be expanded to include approximately 2/3 of the current HM/HW Storage Area.

(4) (U) Southern Expansion Area. This was an area defined by the US Army Corps of Engineers (USACOE) as a possible expansion area to the South of the existing and planned runways (reference 10).

(5) (U) Northeastern Expansion Area. This was an area defined by the USACOE as a possible expansion area between the Uzbeki Air Force revetments and the existing runway (reference 10).

(6) (U) Northwestern Expansion Area. This was an area defined the USACOE as a possible expansion area between the Uzbeki Air Force revetments and the existing runway to the west of the Northeaster Expansion Area (reference 10)

(7) (U) Engineer Cut Site. This was a cut site used for fill in other construction areas on K2 (reference 13).

6. (U) METHODOLOGY AND PROCEDURES.

a. (U) Radiological Surveys. Radiological survey / sampling locations are shown in Figures B-1 through B-3.

(1) (U) Purpose and Scope. The primary purpose of radiological sampling at Karshi-Khanabad Airbase was to confirm previous findings and ensure previous recommendations were being followed. Additional reasons for sampling were to determine if any significant exposure to ionizing and non-ionizing radiation existed in other locations, conduct risk assessment, and if necessary, make recommendations to reduce exposure.

(2) (U) Equipment. The following equipment was utilized in the surveying, sampling, and characterization plan of locations within the U.S. perimeter and potential occupancy areas outside the force protection berm:

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(a) (U) Eberline® 600 (E-600) w/ NaI scintillation probe (SPA-9)

(b) (U) RADOS® Electronic Dosimeter

(c) (U) High Volume Staplex® Air Sampler w/ paper filters

(d) (U) Daily calibration checks were conducted on the respective equipment to measure background and ensure equipment was within 5% of dedicated check sources utilized during calibration.

(3) (U) Methodology. Radiological assessments were conducted for ionizing radiation sources or material. A representative sample of K2 was evaluated via direct reading instrumentation and sample analysis of soils, air and wipe test for removable contamination. Laboratory analyses were submitted to the radiochemistry laboratory at U.S. Center for Health Promotion and Preventive Medicine (USACHPPM), Aberdeen Proving Ground, MD, which has International Organization for Standardization (ISO) 9000 accreditation for soils and accreditation for human radiobiossay. Radiological assessments, evaluations, and analyses were conducted for the following areas:

(a) (U) Soil. A total of 14, one kilogram (kg) soil samples were collected at the ground surface at various locations within the boundaries of K2. Soil samples were analyzed for gross alpha and gross beta content and compared to a background reference sample.

(b) (U) Wipe samples. 22 wipe tests of 100 cm² were conducted for evaluation of potential removable contamination. Wipe tests were submitted to USACHPPM radiochemistry laboratory, for gross alpha/beta evaluation.

(c) (U) Direct readings were evaluated with the E-600, SPA-9, NaI scintillation probe.

(d) (U) Air Sampling. A total of 5 high volume air samples were collected at K2 with emphasis in the area of greatest contamination (i.e., Site 1 area outside the force protection berm), occupied fighting positions, and center. This sampling helped evaluate potential radiological hazards that may potentially pose inhalation hazards. Air sampling was performed using a Staplex® High Volume Air Sampler and 10 cm paper filters. Each sample was collected for a minimum of 42,000 liters. One background sample was collected on the east perimeter for background reference. Samples were submitted to USACHPPM for analysis and determination of potential radiological inhalation hazards.

(e) (U) Dosimetry. Dosimetry was conducted to quantify the amount of potential radiation exposure to personnel occupying positions near the area of contamination and for personnel surveying the area of contamination. External exposure evaluation utilized the RADOS® electronic dosimeters.

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b. (U) Ambient Air Sampling. Ambient air sampling locations are shown in Figures B-1 through B-3, Appendix B.

(1) (U) Purpose and Scope. The purpose of the ambient air sampling was to further refine the health threat associated with the inhalation of respirable particulate matter, volatile organic compounds (VOCs), Polyaromatic hydrocarbons, and total suspended particulates (TSP) at K2.

Respirable particulate matter consists of small particles, such as dust and soot, which can be inhaled and deposited into the lungs. The most common measure of respirable particulate matter is PM₁₀ - the concentration of particles with a mean diameter less than ten micrometers (µm). In addition to determining the ambient concentration of PM₁₀, respirable particulate matter was analyzed for the concentration of heavy metals. A measure of the concentration of all particulate matter found in ambient air is provided by total suspended particulates (TSP). VOCs present in ambient air may be the result of volatilized organic compounds present in jet kerosene soils exposed as a result of digging or other organic contaminants resulting from US internal combustion sources or fuel storage/ filling operations. The values obtained for concentrations of VOCs will be used to evaluate the health risks associated with the air exposure pathway, and provide data that might support implementation of appropriate countermeasures if required.

Samples were collected at two sites at K2. Originally two separate locations inside the Camp Stronghold Freedom perimeter were going to be evaluated, but on the team's arrival at K2, several fires were noted on the other side of the perimeter fence from the Ammunition Supply Point. The ambient winds were blowing the smoke from the fires back over the ASP, and since the ASP is manned 24 hours/day, one of the air sample points was moved to the ASP. Site 1 was the air sampling point located near the gym and DFAC, and Site 2 was the air sampling point located in the ASP.

Ambient air sampling results are compared to established ambient air quality criteria in order to determine potential health risks, and evaluate the effectiveness of OEH countermeasures implemented. The ambient air quality criteria utilized included Air Military Exposure Guidelines (MEGs) stated in USACHPPM Technical Guide (TG) 230, and the National Ambient Air Quality Standards (NAAQS) established by 40 CFR 50.

(2) (U) Procedures.

(a) (U) Inorganic air sampling for PM₁₀ and TSP was performed using Airmetrics MiniVol® air samplers. Two air samplers were deployed within the K2 perimeter at the locations previously described. These samplers were operated, maintained, and calibrated in accordance with USACHPPM TG 251 Appendix 6-3 (reference 8).

(b) (U) Volatile Organic Compounds (VOCs). Air sampling for VOCs was performed using SKC Airchek Model 52® personal air sampling pumps and US Environmental Protection

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Agency (EPA) Modified Method TO17 sampling media (Supelco 20370-U® Tenax tube media). Sampling flow rates were approximately 40 milliliters per minute (mL/min), in accordance with guidelines established for the sample media. Sample pumps used the low-flow controller and were calibrated immediately before and after each sampling event using a Dry-Cal DC-1® flow calibrator. Pre- and post- calibration flow rates varied no more than approximately 5%. The average of the pre- and post- calibration flow rates was used to determine the total sampling volume. Sample volumes were generally bracketed between 18 and 20 liters (total volume) to prevent breakthrough of VOCs through the tube media. The Tenax® tube media was analyzed for VOCs using USEPA Method TO 17.

(c) (U) Polynuclear Aromatic Hydrocarbons (PAHs). PAH monitoring was performed using EPA Method TO13 as described in USACHPPM TG 251. The PS1 sampler was used with an XAD resin cartridge. The PAH samples were used to assess the potential exposures to combustion byproducts.

c. (U) Drinking Water Sampling. Drinking water sampling locations are shown in Figures B-1 through B-3, Appendix B.

(1) (U) Purpose and Scope. Three drinking water samples were collected to determine the potential health risks to US personnel from exposure to drinking water at Camp Stronghold Freedom, and to confirm the results of prior sampling at K2. The predominate source of drinking water on the camp is a Veterinary Services approved bottle water (Nestle, Tashkent, Uzbekistan). Water for all other uses consists of local produced Uzbeki water that is pumped onto post, temporarily stored in a 5,000 gallon blivet, and then treated in a commercial Reverse Osmosis Water Purification Unit. The treated water is then stored in a series of 5,000 gallon blivets where it is either pumped into a distribution system for use for laundry, latrines, etc or moved in tanker trucks for transfer into 1,000 gallon onion skins where the distribution system doesn't reach. One source water sample was collected from the 5,000 gallon temporary storage blivet, one drinking water sample was collected from a latrine in Building 451, and one drinking water sample was collected from a Force Provider latrine supplied by a 1,000 gallon onion skin.

(2) (U) Procedures. Once a suitable site had been selected, the sampling kits were prepared by labeling the containers, filled per USACHPPM TG-251, and then preservative was added per the laboratory instructions. The completed samples were repacked in the sampling kits, and refrigerated to cool them prior to shipping.

d. (U) Soil Sampling. Soil sampling locations are shown in Figures B-1 through B-3.

(1) (U) Purpose and Scope. The purpose of soil sampling is to determine the potential health risks to US personnel from exposure to soil contamination at newly identified expansion areas, and to confirm the results of previous sampling at K2. Surface soil samples were taken to determine the presence and concentration of contaminants that might be at or near (within six inches) the ground surface level. The sub-surface sample was taken to determine the presence

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and concentration of contaminants that might be present at depths of greater than 6 inches below ground surface.

(2) (U) Procedures.

(a) (U) Sub-Surface Sampling. There was one sub-surface soil sample collected during this survey. At the excavation site of the Northwest expansion area, a 6 foot deep hole was excavated to determine if POL contamination from the POL farm had spread to the Southeast. After the excavator had reached 6 feet below ground surface, a discrete sample was collected from the soil removed at depth from the hole.

(b) (U) Surface Soil Sampling. All of the surface samples collected during this survey were composite samples with between 4 and 5 aliquots. Each aliquot consisted of a scoop of soil that was added to a stainless steel mixing bowl. When all of the aliquots had been collected, the sample was mixed and placed into clean glass or Teflon jars. There were several sample areas identified during the survey. There were five composite samples collected in the North Billeting Area (defined as North of the DFAC), five composite samples collected in the South Billeting Area (defined as South of the DFAC), three composite samples collected South of the inner fence (PT tract, Hazardous Materials/Hazardous Waste Storage Area, and the ASP), and five composite samples collected in the proposed expansion areas (three in the South expansion area, one in the Northeast expansion area, and one in the Northwest expansion area). No soil samples were collected from industrial or office space areas in the existing camp boundaries.

e. (U) Industrial Hygiene - Asbestos Sampling (bulk).

(1) (U) Purpose and Scope. The purpose of bulk asbestos sampling is to identify the locations and conditions of Asbestos Containing Materials (ACMs) within Camp Stronghold Freedom. The sample results will help determine if US personnel and coalition partners are potentially overexposed to airborne friable asbestos. This identification process will assist the Base Camp Commander in removing and properly disposing of all friable sources of ACM that US personnel and coalition partners may be exposed to.

(2) (U) Procedures. Previous operational health risk assessments of Camp Stronghold Freedom (Appendix A, References 2 and 3) identified the base camp's One-Stop Inprocessing Center, 416th AEG Vehicle Maintenance Facility, CI/FP/JAG Building, and Military Police Headquarters Building as US personnel-occupied buildings with ACM tiled roofs. The assessments also identified two (2) gazebos, the One-Stop Inprocessing Center's gazebo and the CI/FP/JAG Building's gazebo, with ACM tiled roofs. Upon inspecting the base camp's existing facilities, only one (1) structure, the CI/FP/JAG Building's gazebo (vic 41S QD 52174 02320), currently contained ACM roof tiles. Other potential sources of ACM include the roof tiles of K2 Airbase's original hard structures located on the Uzbeki Air Force side of the compound. A number of these structures are located behind a concrete wall adjacent to the current One Stop Inprocessing Center (Building 1505) and 524th LTF Headquarters (Building 1028) (vic 41S QD 52101 02421).

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f. (U) Industrial Hygiene - Asbestos Sampling (air).

(1) (U) Purpose and Scope. The purpose of asbestos air sampling is to determine if US personnel and coalition partners are potentially overexposed to airborne friable asbestos from ACMs located within Camp Stronghold Freedom. The results from these air samples will assist the Base Camp Commander in managing any potential exposures to ACMs through their removal and proper disposal, encapsulating the asbestos in place, and/or restricting access to potentially hazardous areas.

(2) (U) Procedures. Based on the limited number of Camp Stronghold Freedom facilities roofed with ACM tiles (i.e., the CI/FP/JAG Building gazebo), no asbestos air sampling was required during this survey. Previous sampling conducted in the 416th AEG Vehicle Maintenance Facility indicated that facility personnel were not exposed to airborne friable asbestos concentrations above the occupational exposure limit at the time of the survey (Appendix A, Reference 3).

g. (U) Industrial Hygiene — Lead-Based Paint Sampling.

(1) (U) Purpose and Scope. The purpose of lead-based paint sampling is to identify the locations and conditions of facility interior surfaces painted with lead-based paint within Camp Stronghold Freedom. This identification process will assist in determining if US personnel and coalition partners are potentially overexposed to lead dust. If these personnel are potentially overexposed to lead through contact with surfaces painted with lead-based paint, this process will assist the Base Camp Commander in managing any exposures by encapsulating these surfaces, removing and properly disposing of these painted surfaces, and/or restricting access to potentially hazardous areas.

(2) (U) Procedures. Previous operational health risk assessments of Camp Stronghold Freedom (Appendix A, References 2 and 3) identified the Finance Officer's vault/living quarters located in the base camp's One-Stop Inprocessing Center as the only interior surface painted with lead-based paint. Since the base camp's One-Stop Inprocessing Center was relocated into Corimec-type containers and the old facility is not occupied by US personnel and coalition partners, no paint chip sampling was required during this survey.

h. (U) Industrial Hygiene - Noise Monitoring.

(1) (U) Purpose and Scope. The purpose of noise monitoring is to identify the locations and conditions of noise hazardous operations within Camp Stronghold Freedom. The results of this monitoring will identify if US personnel and coalition partners are potentially overexposed to hazardous noise levels. This identification process will assist the Base Camp Commander in managing hazardous noise exposures by replacing noise hazardous operations (if feasible), constructing noise barriers, restricting access to noise hazardous areas, requiring personnel exposed to noise greater than 85dBA to wear hearing protectors, and enrolling personnel exposed

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to noise greater than 85dBA as an 8-hour time-weighted average to be enrolled in a formal Hearing Conservation Program.

(2) (U) Procedures. Previous operational risk assessments of Camp Stronghold Freedom (Appendix A, References 2 and 3) identified the prime power generation station, SSA refrigeration trailer area, and airfield operations as noise hazardous areas/operations. Upon inspecting the base camp's existing facilities and operations, all areas/operations identified above were still evident. A fourth potentially noise hazardous area, the refrigeration trailers located next to the base camp's dining facility (vic 41S QD 51730 02369), may also present a health threat to base camp personnel. The survey team used a Quest® Model 2700 sound level meter (SN HU2110010, TMDE-calibrated on 9 March 2004) field calibrated with a CEL® Model 177 precision calibrator (SN 666088, TMDE-calibrated on 9 March 2004) to determine noise contours of potentially noise hazardous areas. Since all noise hazardous operations (except airfield operations) are contracted out to Kellogg/Brown & Root Services (KBRs), no noise dosimetry data were collected during this survey from base camp personnel.

i. (U) Geo-Coding of Sample Locations. All samples collected during this survey were geo-coded by Military Grid Reference System (MGRS) coordinates (using the WGS 84 reference system) and recording the date and time collected. Location data were collected using a Garmin® Global Positioning System (GPS) 12 or a Garmin® eTrex Vista. Collection of GPS sample locations enables HQ, USACHPPM to fulfill their responsibility as the DoD repository of deployment environmental surveillance data and to help associate potential environmental exposures with unit stationing and movement information at a given location and time. Appendix E contains a listing of all sample numbers and types with their respective locations.

7. (U) FINDINGS.

a. (U) Radiological. Figures D-1 through D-3 depict radiological surveying and sampling activities conducted during this assessment. A total of 14 soil samples, 5 air samples, and 22 hard wipe samples were submitted to USACHPPM, radiochemistry laboratory radiological analyses. The results of the radiological sampling are provided in Appendix C, Tables C-1 through C-3. Locations of the radiological sampling are shown in Appendix B, Figures B-1 through B-3.

(1) (U) Soil. Final lab analysis of the K2 samples determined the total alpha and beta concentration and activity to reflect the concentration and activity inherent to Uzbekistan and surrounding region. There were no significant levels of man-made radionuclides detected. None were at levels that pose health hazards or exceed regulatory limits.

(2) (U) Wipe Samples. A total of 22 hard wipe samples were collected at various locations where dust tended to settle and analyzed for gross alpha and gross beta contamination. Quality control data was within the acceptance limits. The hard wipe samples revealed no removable levels of alpha or beta contamination that require mitigation and/or remediation. Standards were obtained from U.S. Army Regulation 11-9 (Reference 14).

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(3) (U) Air Sampling. A total of 5 air samples, which included one background/ reference sample, were collected in order to determine the potential for internal radiological exposures via the air pathway. All air samples were submitted for laboratory analysis to determine if potential airborne radiological contamination exists. Samples were analyzed for gross alpha and beta per filter, compared to the background reference air sample, and determined to be less than or equal to background reference samples. Thus, radiological contamination from Site 1 did not appear to pose a health threat via the air pathway.

(4) (U) Dosimetry. The electronic dosimeters did not detect any significant external gamma or high-energy beta radiation exposure. The dosimeters were worn by two team members for the duration of the mission.

b. (U) Ambient Air Sampling. Figures D-4 and D-5, Appendix D show the ambient air sampling location at the ASP. The results of the ambient air sampling are provided in Appendix C, Tables C-4 through C-27. Locations of the ambient air sampling are shown in Appendix B, Figures B-1 through B-3.

(1) (U) Respirable Particulate Matter/Total Suspended Particulate. A total of 7, 24 hour samples were collected from each of the monitoring stations at K2 from 2 through 8 September 2004.

(2) (U) VOCs. Unlike the other air methods used during the survey, the samplers for the VOCs had an 8 hour run. To ensure that the samples represented the total 24 hour/day exposures to the service members stationed at K2, sample runs were conducted at different times of the day as shown in Tables 1 and 2.

(U) Table 1. VOC Sample Collection Times at K2 Site 1.

<u>Sample Julian Date</u>		<u>Sample Times</u>	
	700	1500	2300
3 September			UZE-K21-TO17-04246P UZE-K21-TO17-04246C
4 September	UZE-K21-TO17-04247-1P UZE-K21-TO17-04247-1C		UZE-K21-TO17-04247-2P UZE-K21-TO17-04247-2C
5 September	UZE-K21-TO17-04248-1P UZE-K21-TO17-04248-1C	UZE-K21-TO17-04248-2P UZE-K21-TO17-04248-2C	
6 September		UZE-K21-TO17-04249-1P UZE-K21-TO17-04249-1C	UZE-K21-TO17-04249-2P UZE-K21-TO17-04249-2C

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7 September	UZE-K21-TO17-04250-1P UZE-K21-TO17-04250-1C	UZE-K21-TO17-04250-2P UZE-K21-TO17-04250-2C	
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(U) Table 2. VOC Sample Collection Times at K2 Site 2.

Sample Julian Date	Sample Times		
	700	1500	2300
3 September			UZE-K22-TO17-04246P UZE-K22-TO17-04246C
4 September	UZE-K22-TO17-04247-1P UZE-K22-TO17-04247-1C		UZE-K22-TO17-04247-2P UZE-K22-TO17-04247-2C
5 September	UZE-K22-TO17-04248-1P UZE-K22-TO17-04248-1C	UZE-K22-TO17-04248-2P UZE-K22-TO17-04248-2C	
6 September		UZE-K22-TO17-04249-1P UZE-K22-TO17-04249-1C	UZE-K22-TO17-04249-2P UZE-K22-TO17-04249-2C
7 September	UZE-K22-TO17-04250-1P UZE-K22-TO17-04250-1C	UZE-K22-TO17-04250-2P UZE-K22-TO17-04250-2C	

(3) (U) PAHs. A total of 6, 24 hour samples were collected and analyzed from each of the monitoring sites. Samples were run from 2-7 September at Site 1. Due to a sample container failure, the sample from 6 September was not valid at Site 2. The sixth sample for Site 2 was collected on 8 September 2004.

c. (U) Drinking Water Sampling. There were three water samples collected during the assessment. One source water sample of the water coming into the treatment system operated by Kellogg, Brown, and Root; one water sample of the treated water placed into the distribution system; and one water sample collected from a latrine trailer on the South end of K2 using water from a bag. The results of the drinking water sampling are given in Appendix C, Table C-28. The locations of the water samples are shown in Figure B-1, Appendix B. Figure D-6, Appendix D shows the source water sample being collected.

d. (U) Soil Sampling. A total of 19 soil samples were collected from the existing camp boundaries, the PT Track, ASP, and the proposed expansion areas. The results of the sampling are shown in Appendix C, Tables C-29 through C-31. Locations of the soil samples are shown in Appendix B, Figures B-1 through B-3, Appendix B. An example of soil sampling in the ASP is shown in Figure D-8, Appendix D.

e. (U) Industrial Hygiene - Asbestos Sampling (bulk). No significant damage or wear was noted on the interior and exterior surfaces of the ACM tiles located on top of the CI/FP/JAG Building's gazebo (see Appendix D, Figure D-17). Some damage/wear and tear was noted on the exterior surfaces of the ACM roof tiles of the Uzbeki Air Force hard structures located on the Uzbeki side of the compound (see Appendix D, Figure D-18). Since these structures are not occupied by US personnel/coalition partners and these personnel do not have direct access to

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these structures due to the concrete wall separating the two compounds, airborne friable asbestos should not present a health threat to Camp Stronghold Freedom personnel.

f. (U) Industrial Hygiene - Asbestos Sampling (air). Since the only Camp Stronghold Freedom structure noted with an ACM-tiled roof during the survey is the CI/FP/JAG Building gazebo, this structure is an outdoor facility, and no significant damage or wear was noted on the interior and exterior surface of the roof tiles, no asbestos air sampling was required during this survey. Once more, airborne friable asbestos should not present a health threat to Camp Stronghold Freedom personnel.

g. (U) Industrial Hygiene — Lead-Based Paint Sampling. Since the only facility identified with interiors painted with lead-based paint was relocated into Corimec-type containers and the old facility is not occupied by US personnel and coalition partners, no paint chip sampling was required during this survey. Lead-based paint should not present a health threat to Camp Stronghold Freedom personnel.

h. (U) Industrial Hygiene - Noise Monitoring. High noise levels generated from flight operations remain the same from previous assessments due to K2 Airbase's mission and OPTEMPO. Flight operations personnel are required to wear hearing protectors while working in noise hazardous areas, and they are enrolled in the US Air Force's Hearing Conservation Program. In accordance with the recommendations contained in the last assessment, KBRS constructed a concrete barrier around the base camp's prime power generation station. Sound level meter readings taken around the outside of the barrier indicated noise levels less than 85 dBA with the highest reading of 78.6 dBA measured at the station's gate (vic 41S QD 51907 02320). The base camp's SSA refrigeration trailer area (vic 41S QD 52214 0263) managed by KBRS is partially surrounded by a soft barrier (i.e., a plastic mesh fence) to restrict access to that area. Sound level meter readings taken around the outside of the barrier indicated noise levels less than 85 dBA (with the highest reading of 83 dBA). However, sound level readings taken near the open entrance of the generator station located on the far eastern end of the refrigeration trailers (see Appendix D, Figure 15) identified an 85 dBA noise contour approximately 23 feet from the station's entrance. The base camp's refrigeration trailers located next to the base camp's dining facility (vic 41S QD 51730 02369) is also managed by KBRS. Sound level meter readings taken around the generator station located on the far northern end of the refrigeration trailers (see Appendix D, Figure D-16) identified an 85 dBA contour approximately 10 feet perpendicular from the station's entrance.

i. (U) (~~S~~) Visual Site Inspection (VSI). In addition to the sampling activities conducted during the assessment, the team conducted a VSI of the proposed expansion areas identified by the US Army Corps of Engineers (references 13 and 14). Both information papers are included in Appendix F of this report.

8. (U) HEALTH RISK ASSESSMENT.

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a. (U) Procedures. The sampling data discussed in the body of this report were used to characterize the potential operational occupational and environmental health (OEH) risks. Exposure to compounds in water, soil, and ambient air, were characterized. The risk assessment was performed according to doctrine described in US Army FM 100-14 and US Army Center for Health Promotion and Preventive Medicine Technical Guides 248 and 230 (Appendix A, References 5 and 8).

b. (U) Hazard Identification.

(1) (U) Radiation Hazards. An OEH radiological hazard is any radiation dose that may cause injury, illness, disease, adverse health conditions, or death for personnel (a health threat). The hazard may result from either external or internal radiation exposure. Such conditions may also affect the health status of the field unit or command, in terms of mission effectiveness (a medical threat). OEH hazards are identified through personnel monitoring and environmental surveillance and sampling.

(a) (U) Exposure Profile. An exposure profile is a description of predicted patterns of exposure field personnel may experience while deployed. Exposure patterns describe the frequency and duration of potential personnel exposures to OEH hazards. These patterns also contribute to determining the nature and magnitude of health effects that may be experienced upon exposure to radiation. The primary purpose of the exposure profile is to identify one or more exposure periods and exposure media for personnel in the field unit.

(b) (U) Activity Patterns. K2 personnel may consist of units that live in and patrol the area for up to 24 hours a day. A 1-year exposure will be assumed for this evaluation. The type of activities personnel may partake in can affect exposure. Information is not known on specific activity patterns for most personnel at K2 so general assumptions were used based on general knowledge of typical activities from past military operations. It is assumed that occupation of the AAM/ASM area (Site 1) will be minimized, and there will be little or no digging activities in this area. In cases where specific information was available on activity patterns, they are discussed in context with the hazard probability for the environmental media of concern.

(c) (U) Exposure Patterns. Based on the sampling data available, it is impossible to provide a complete assessment of potential exposure over time. However, it is assumed for this assessment that the samples collected represent only a snapshot of overall conditions of the K2 environment for the deployment duration. The exposure patterns may be different from the patterns indicated by the collected radiation samples.

(d) (U) Exposure Periods. This report assesses the potential for health threats based on daily exposures to radiation detected in soil and ambient air during the sampling event. It was assumed that soldiers would be present at K2 24 hours per day for the duration of their deployment. This should be a conservative assumption.

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(e) (U) Preliminary Threat Analysis. Potential internal and external radiation hazards in air and soil can be classified into threat categories based on a comparison of sampled concentrations and external radiation measurements to available radiation dose standards for appropriate Radiation Exposure States (RES). External radiation doses are characterized based on direct reading instrument measurements. There are no identified ionizing radiological hazards associated with any areas within the K2 perimeter. External radiation measurements were at background levels. Internal radiation dose estimates are predicated on the results of environmental media analysis. Air sampling results for gamma emitting radionuclides and for uranium were below the results for release criteria for unrestricted areas according to the Nuclear Regulatory Commission (Reference 15) and do not pose an internal or external radiation exposure threat. Bottled water is used for drinking and is assumed to meet WHO screening criteria for radionuclides in drinking water. The potable water does not pose an internal or external radiation exposure threat.

(2) (U) Environmental Hazards. An OEH chemical hazard is any chemical or chemical mixture that can cause injury, illness, disease, adverse health conditions, or death for personnel (a health threat). Such conditions may also affect the health status of the field unit or command, in terms of mission effectiveness (a medical threat). OEH hazards are identified through environmental surveillance and sampling.

(3) (U) The USACHPPM uses the TG230 methodology and associated Military Exposure Guidelines (MEGs) to assess identified chemicals and estimate risk in a manner consistent with doctrinal risk management procedures and terminology. This method includes a) identification of the hazard(s), assessment of b) the hazard severity and c) the probability, and d) determination of a risk estimate and associated level of confidence. As part of the hazard identification step, the long-term (1-year) MEGs are used as screening criteria to identify those hazards that are potential health or medical threats.

(4) (U) ~~(C//REL)~~ With the exception of PM10, all of the chemicals measured in the environment are below the 1-year MEGs are levels at which no health effects (including delayed or chronic disease or significant increase risk of cancer) are anticipated even after a year of continuous daily exposures (See tables 2-5). Lead was detected in one water sample. However, this sampled water will be used for personal hygiene only, and is not expected to be a hazard. Individual sample analytical results that are either not detected or are present only at levels below the 1 year MEGs, are not considered health/medical threats and are thus automatically assigned a LOW operational risk estimate. Chemicals that are identified above the 1-year MEGs are further evaluated using the methodology (Chapter 3) and additional MEGs in TG230. PM10 is the only environmental hazard that will be evaluated as a potential health threat.

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(U) (~~FOUO~~) Table 3. TSP, PM10 and Metals detected in air.

Parameter detected above laboratory limit	Detection Rate		Concentration (ug/m ³)			TG230 Military Exposure Guidelines MEGs (ug/m ³)
	# detected / # valid samples	# detected above MEG / # valid samples	Minimum	Maximum	Average	1-year
PM-10	13 / 13	12 / 13	65	210	130	70
Chromium	1 / 13	0 / 13	0.21	0.21	0.048	12
TSP	14 / 14	No MEG	110	350	210	No Std

(U) (~~FOUO~~) Table 4. Volatile Organic Chemicals detected in air.

Parameter detected above laboratory limit	Detection Rate		Concentration (ug/m ³)		TG230 Military Exposure Guidelines MEGs (ug/m ³)
	# detected / # samples	# detected above MEG / # samples	Maximum	Average	1-year
1,1-Dichloroethene	1 / 36	0 / 36	1.8	0.29	96
1,2,3-Trichlorobenzene	2 / 36	0 / 36	1.1	0.28	3100
1,2,4-Trimethylbenzene	16 / 36	0 / 36	2.2	0.54	3100
1,3,5-Trimethyl Benzene	2 / 36	0 / 36	0.75	0.27	3100
1,4-Dichlorobenzene	14 / 36	0 / 36	3	0.76	1700
Benzene	34 / 36	0 / 36	15	1.5	39
Carbon Tetrachloride	2 / 36	0 / 36	0.53	0.26	320
Chlorobenzene	3 / 36	0 / 36	1.4	0.33	400
Cyclohexane	18 / 36	0 / 36	2.1	0.66	4100
Cyclopentane	13 / 36	0 / 36	160	8	42000
Decane	20 / 36	No MEG	6.9	1.2	No Std
Ethylbenzene	10 / 36	0 / 36	3.4	0.47	3000
Hexane	34 / 36	0 / 36	6.9	2.5	4300
Isooctane	2 / 36	No MEG	2	0.31	No Std
m/p-Xylene	24 / 36	0 / 36	9	1.3	11000
Methylcyclopentane	14 / 36	No MEG	1.5	0.54	No Std
Methylene Chloride	7 / 36	0 / 36	310	12	2100
n-Propylbenzene	2 / 36	0 / 36	0.69	0.27	25
o-Xylene	12 / 36	0 / 36	5.8	0.61	11000
Styrene	1 / 36	0 / 36	1.5	0.28	2000
Toluene	34 / 36	0 / 36	12	2.3	4600

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(U) (~~FOUO~~) Table 5. Semi Volatile Organic Chemicals detected in air.

Contaminant Class	Detection Rate		Concentration (ug/m ³)		TG230 Military Exposure Guidelines MEGs (ug/m ³)
	# detected / # valid samples	#detected above MEG / # valid samples	Max	Avg.	1-year
Acenaphthene	12 / 12	0 / 12	0.001	0.00004	1.40E+02
Acenaphthylene	12 / 12	0 / 12	0.003	0.00008	2.80E+01
Anthracene	12 / 12	0 / 12	0.000	0.00002	3.50E+04
Benzo(a)anthracene	12 / 12	0 / 12	0.001	0.00002	5.40E+01
Benzo(a)pyrene	12 / 12	0 / 12	0.001	0.00002	5.40E+00
Benzo(b)fluoroanthene	12 / 12	0 / 12	0.001	0.00002	5.40E+01
Benzo(e)pyrene	12 / 12	No MEG	0.001	0.00002	No Std
Benzo(g,h,i)perylene	12 / 12	No MEG	0.002	0.00003	No Std
Benzo(k)fluoroanthene	12 / 12	0 / 12	0.001	0.00002	5.40E+02
Chrysene	12 / 12	0 / 12	0.001	0.00004	5.50E+03
Dibenz(a,h)anthracene	9 / 12	0 / 12	0.000	0.00001	5.40E+00
Fluoranthene	12 / 12	0 / 12	0.003	0.00008	1.40E+03
Fluorene	12 / 12	0 / 12	0.004	0.00017	1.40E+03
Indeno(1,2,3-cd)pyrene	12 / 12	0 / 12	0.001	0.00002	5.40E+01
Naphthalene	12 / 12	0 / 12	0.155	0.00447	7.10E+00
Phenanthrene	12 / 12	0 / 12	0.010	0.00034	4.20E+01
Pyrene	12 / 12	0 / 12	0.003	0.00009	1.10E+02

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(U) (~~FOUO~~) Table 6. Chemicals Detected in Water.

COLLECTION DATE	UNITS	Long Term Military Exposure Guideline 14 Days - 1 Year		Detections			UZB-KZ-01W-04250	UZB-KZ-02W-04250	UZB-KZ-03W-04250
		5 L/Day	15 L/Day	# Detected	# Sampled	#Samples Detected Over MEG			
1,4-Dichlorobenzene	mg/L	5.6	1.9	1	3	0	<0.0005	0.0026	<0.0005
2,4-D	mg/L	0.14	0.050	1	3	0	<0.012	<0.020	0.0008
Aluminum	mg/L	28	9.3	3	3	0	0.235	0.35	0.009
Ammonia	mg/L N	4.2	1.4	1	3	0	NA	NA	0.069
Barium	mg/L	0.98	0.33	3	3	0	0.156	0.14	0.053
Bromo dichloromethane	mg/L	0.30	0.10	1	3	0	<0.0005	0.0007	<0.0005
Chloride	mg/L	600	600	1	3	0	<5.0	<5.0	8.5
Chloroform	mg/L	1.4	0.50	2	3	0	0.0011	0.054	<0.0005
Copper	mg/L	0.42	0.14	3	3	0	0.311	0.97	0.006
Iron	mg/L	4.2	1.4	1	3	0	<0.08	0.19	<0.08
Lead	mg/L	0.015	0.015	2	3	1	0.009	0.051	<0.001
Magnesium	mg/L	100	30	2	3	0	<0.08	1.7	25.2
Nickel	mg/L	0.28	0.093	1	3	0	<0.002	0.005	<0.002
Nitrite/Nitrate-N	mg/L N	22	7.5	3	3	0	0.42	0.39	8.65
Selenium	mg/L	0.070	0.023	1	3	0	<0.001	<0.001	0.002
Sulfate	mg/L	300	100	1	3	0	<5.0	<5.0	89.5
Total Dissolved Solids	mg/L	1000	1000	3	3	0	34	42	517
Trihalomethanes, total	mg/L			2	3	0	0.0011	0.055	<0.0005
Turbidity	NTU	1.0	1.0	3	3	0	0.05	0.35	0.1
Zinc	mg/L	4.0	1.3	3	3	0	0.104	0.788	0.007

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(U) (~~FOUO~~) Table 7. Chemicals Detected in Soil (6 September 2004).

Parameter detected above laboratory limit	Units	Detection Rate		Concentration (mg/kg)			Military Exposure Guidelines (MEGs)
		# detected / # samples	# detected above MEG / # samples	Minimum	Maximum	Average	Up to 1 Year
Barium	mg/Kg	6 / 6	0 / 6	58	98	73	18000
Cadmium	mg/Kg	6 / 6	0 / 6	4.1	5.2	4.5	130
Chromium	mg/Kg	6 / 6	0 / 6	21	27	24	5700
Lead	mg/Kg	4 / 6	0 / 6	10	12	8.7	2200
Nickel	mg/Kg	6 / 6	0 / 6	19	23	21	5300
Strontium	mg/Kg	6 / 6	0 / 6	95	300	140	140000

(U) (~~FOUO~~) Table 8. Chemicals Detected in Soil (5 September 2004).

Parameter detected above laboratory limit	Units	Detection Rate		Concentration (mg/kg)		Military Exposure Guidelines (MEGs)
		# detected / # samples	# detected above MEG / # samples	Maximum	Average	Up to 1 Year
2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP)	mg/Kg	1/13	No Std	0.07	NA	No Std
Cadmium	mg/Kg	1/13	0/13	0.78	NA	130
p,p'-DDD	mg/Kg	1/13	No Std	0.07	NA	No Std
p,p'-DDE	mg/Kg	1/13	0/13	0.05	NA	52
PCB No. 101	mg/Kg	1/13	0/13	0.0066	NA	2100
PCB No. 138	mg/Kg	1/13	0/13	0.01	NA	2100
PCB No. 153	mg/Kg	1/13	0/13	0.0062	NA	2100
PCB No. 180	mg/Kg	1/13	0/13	0.0013	NA	2100
PCB No. 52	mg/Kg	1/13	0/13	0.0023	NA	2100
Total PCB/German Oil Waste Reg	mg/Kg	1/13	0/13	0.0264	NA	2100
1-Methylnaphthalene	mg/Kg	1/13	0/13	0.08	NA	2.6
2-Methylnaphthalene	mg/Kg	1/13	0/13	0.16	NA	2.6
Anthracene	mg/Kg	1/13	0/13	0.02	NA	6.1
Benzo(a)anthracene	mg/Kg	1/13	0/13	0.01	NA	2500
Chrysene	mg/Kg	1/13	0/13	0.07	NA	3100
Fluorene	mg/Kg	1/13	0/13	0.03	NA	90

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(U) (~~FOUO~~) Table 8. Chemicals Detected in Soil (5 September 2004).

Parameter detected above laboratory limit	Units	Detection Rate		Concentration (mg/kg)		Military Exposure Guidelines (MEGs)
		# detected / # samples	# detected above MEG / # samples	Maximum	Average	Up to 1 Year
Naphthalene	mg/Kg	1/13	0/13	0.06	NA	220
Fluoranthene	mg/Kg	3/13	0/13	0.05	0.01	42000
Pyrene	mg/Kg	3/13	0/13	0.06	0.010769	31000
Phenanthrene	mg/Kg	3/13	0/13	0.09	0.015385	270
Beryllium	mg/Kg	10/13	0/13	0.68	0.503077	16000
TPH		11/13	No Std	310	79.41667	No Std
Cobalt	mg/Kg	12/13	0/13	7	5.915385	4100
Arsenic	mg/Kg	12/13	0/13	8.2	6.341667	1100
Lead	mg/Kg	13/13	0/13	12	9.584615	2200
Copper	mg/Kg	13/13	0/13	17	13.53846	11000
Nickel	mg/Kg	13/13	0/13	24	18.76923	5300
Chromium (total)	mg/Kg	13/13	0/13	23	19.30769	5700
Zinc	mg/Kg	13/13	0/13	51	45.30769	69000
Barium	mg/Kg	13/13	0/13	91	83.07692	18000
Manganese	mg/Kg	13/13	0/13	391	352.3846	5500

c. (U) Hazard Severity.

(1) (U) Radiation Hazards. The hazard severity levels associated with exposures to the radiation were classified using The Hazard Severity Ranking Chart in TG 248. For the radiation exposure levels encountered at K2, no medical effects nor nonstochastic effects are expected from radiation exposure. Far less than 10% of the exposed persons would be expected to exhibit chronic/permanent injury or disease ascribable to the estimate of above background radiation received during this mission. The hazard severity for estimated radiation doses received during this mission is NEGLIGIBLE.

(2) (U) Chemical Hazards. The hazard severity for the potential health/medical threats of concern (PM10 in air) was determined by comparison of maximum and average concentrations to 1 year as well as other short term MEGs if available per TG 230 Table 3-1. The hazard severity for PM10 is considered Negligible. Average and maximum results exceed the 1 yr MEG, but are not significantly elevated above thresholds expected to cause operational impacts such as increased sick calls or loss of duty time (150- 255 ug/m3). No short-term MEG is currently available. Some potential mild effects (such as coughing, eye and throat irritation, congestion, and increased incidence of upper respiratory infections) may be noticed by a portion of personnel during mission operations. Long-term/chronic effects of such exposures have not

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been specifically determined, though potential attribution has been made to increased potential for developing asthma, lower respiratory effects and some cardiovascular changes.

d. (U) Hazard Probability.

(1) (U) Radiation Hazards. The Hazard Probability Ranking Chart in TG 248 was used to assign a hazard probability for radiological hazards in soil and air at K2. For the purpose of this assessment, it was assumed that troops occupying K2 would live and patrol the area 24 hours per day for up to 1 year. Therefore, the potential for daily contact with radiation exists for up to 100% of the assigned units. However, less than 10% of personnel will experience exposures above background, therefore, the resulting hazard probability ranking for exposure to radiation above background is classified as UNLIKELY.

(2) (U) Chemical Hazards. The hazard probability was based on consideration of maximum and average concentrations, sample variability, and TG 230, Table3-2. Since average and maximum samples exceed the PM 10 1-yr MEG and the exposure assumption is that >75% of personnel are equally and continuously exposed to the same type of air, the probability of exposure to PM10 levels is considered FREQUENT.

e. (U) Risk Estimate and Confidence.

(1) (U) Radiation Hazards. In order to evaluate the overall operational risk posed by OEH radiation hazards at K2, the hazard probability and severity for radiation doses were used with the Risk Assessment Matrix provided in TG 248. The confidence in the estimate is also provided. For the estimated radiation doses received during deployment at K2, the ORM risk estimate is LOW. A LOW confidence level was assigned for the radiation exposures discussed in this report. This low confidence level is due to the highly variable nature of air concentrations, the lack of detailed information regarding true soldier exposures, the limited temporal scope of the available sampling data, and the limited availability of data on health effects due to the low-level radiation exposure. Table 6 summarizes the radiation ORM estimates for K2.

(U) (~~FOUO~~) Table 6. Radiation Operational Risk Management Estimates

Location	Hazard Probability	Hazard Severity	Operational Risk	Confidence
K2 Confine	Unlikely	Negligible	Low	Low
Site 1	Unlikely	Negligible	Low	Low

(2) (U) Chemical Hazards. The hazard severity and probability levels described above were used with the ORM matrix in TG230/FM 100-14 to provide individual media risk estimate of LOW for airborne exposure to PM 10. Per TG 230 Table 3-5, confidence in these estimates is considered Medium due to limited samples, lack of information regarding specific exposures associated with troop movement and activity patterns; other routes/sources of potential OEH hazards not identified; and uncertainty regarding impacts of multiple chemicals present, particularly those affecting the same body organs/ systems.

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f. (U) ~~(C//REL)~~ Risk Conclusions. The overall OEH risk estimate is considered to be LOW, based on levels of radiation hazard and PM10 levels. Per TG230, the confidence in this estimate is considered Low to Medium, due to limited samples, lack of information regarding specific exposures associated with troop movement and activity patterns; other routes/sources of OEH hazards potential not identified; and uncertainty regarding impacts of multiple chemicals present, particularly those affecting the same body organs/ systems.

9. (U) UNCERTAINTIES. Overall, this radiation OEH evaluation is meant to be conservative and should be adequately protective of soldiers' health under the conditions evaluated. However, a degree of uncertainty is inherently associated with this type of assessment. The true exposure patterns for K2 personnel were not known for most exposure pathways so it was assumed that soldiers would be exposed to the detected hazards continuously for an entire year. However, the samples collected to date are only representative of environmental conditions over a brief time period. It is impossible to account for natural variation in the levels throughout the course of a year. This is particularly true for ambient air quality, which can change rapidly and may be highly variable from one day to the next. This is a significant source of uncertainty in the evaluation. Future iterations of this evaluation may allow for a more accurate evaluation of potential hazard. Results from some of the environmental samples have to be treated as estimates. This is due to the long travel times from K2 to the environmental labs in Germany and Maryland. Some samples were received at temperatures greater than 4° C, and others were received past the US EPA holding times. The data are still usable for this assessment.

10. (U) ~~(C//REL)~~ CONCLUSIONS.

a. (U) ~~(C//REL)~~ Most of the recommendations from the previous site visits by USACHPPM to K2 were implemented and remain in place. Those that were not, particularly the noise hazardous generators, should be relatively easy to fix. No evidence of gross POL contamination was found in any of the current excavation sites (Engineer Cut Site, New Berms in the ASP, Proposed Expansion Areas).

b. (U) ~~(C//REL)~~ Conditions at K2 were generally good. Sanitation was good. Solid waste was being disposed of off installation. There was no open burning taking place within Stronghold Freedom while the team was on site. Measures to reduce dust such as paving or gravel cover were implemented.

c. (U) ~~(C//REL)~~ Site 1 was still off limits, was in good condition, and was adequately marked.

(U) ~~(S//REL)~~ Final Report, Deployment Occupational and Environmental Health Site Assessment, Karshi-Khanabad Airbase, Karshi, Uzbekistan, 31 August – 11 September October 2004

d. (U) ~~(C//REL)~~ The results from the VSI, and the sampling, support the use of the four expansion areas: South, Northeast, Northwest, and East Runway. Noise from aircraft operations may affect the types of usage of the areas.

e. (U) ~~(C//REL)~~ The overall DOEHS Risk Estimate for service members stationed at K2 for up to one year is LOW.

11. (U) RECOMMENDATIONS.

a. (U) Keep Site 1 off-limits and undisturbed.

b. (U) Implement recommended personal protective equipment and other countermeasures for any excavations on a line between the Uzbeki Fuel Farm and the Northwest Corner of Camp Stronghold Freedom.

c. (U) Industrial Hygiene - Noise Monitoring. Restrict access to the SSA refrigeration trailer area's generator station located on the far eastern end of the trailers by extending the existing soft barrier around the station and up to the paved road located next to the trailers. Restrict access to the base camp dining facility refrigeration trailer area's generator station by erecting a barrier and restricting pedestrian access between the generator station and Force Provider storage connexes located just north of the station.

d. (U) Continue routine environmental surveillance of the ambient air and water supplies at Camp Stronghold Freedom.

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12. (U) POINTS OF CONTACT. The points of contact for this assessment are MAJ [REDACTED], USACHPPM Europe, [REDACTED], commercial [REDACTED]; or Mr. [REDACTED], USACHPPM Main, [REDACTED], commercial [REDACTED]

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Health Risk Management

Appendices:

- A. (U) ~~(S//REL)~~ References
- B. (FOUO) Site Maps
- C. (FOUO) Tables of Results
- D. (FOUO) Site Photographs
- E. (U) ~~(C//REL)~~ Sampling Coordinates
- F. (U) ~~(S)~~ Visual Site Inspections

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(U) (~~S//REL~~) Final Report, Deployment Occupational and Environmental Health Site Assessment, Karshi-Khanabad Airbase, Karshi, Uzbekistan, 31 August – 11 September October 2004

(U) APPENDIX A – REFERENCES

1. (U) (~~S//NF~~) US Army Center for Health Promotion and Preventive Medicine (USACHPPM) Report, Preliminary Industrial Hazards Assessment, Uzbekistan, Operation Enduring Freedom., 16 November 2001.
2. (U) (~~S//REL USA, AUS, CAN, and GBR~~) USACHPPM Report, Environmental Site Characterization & Operational Health Risk Assessment (OHRA), Karshi-Khanabad Airfield, Uzbekistan 24 October - 27 November 2001
3. (U) (~~S//REL USA, AUS, CAN AND GBR~~) USACHPPM Report, Environmental Site Survey & OHRA, Stronghold Freedom, 31 May – 14 June 2002
4. (U) (~~S//NF~~) USACHPPM Report, Environmental Assessment, Hardened Aircraft Shelters, 6 June – 20 July 2002
5. (U) USACHPPM Technical Guide (TG) 230, Chemical Exposure Guidelines for Deployed Military Personnel, May 2003.
6. (U) USACHPPM TG236A, Basic Radiological Dose Estimations – A Field Guide, August 2001.
7. (U) USACHPPM TG 248, Guide for Deployed Preventive Medicine Personnel on Health Risk Management, 1 August 2001.
8. (U) USACHPPM Draft TG 251, A Soldier's Guide to Environmental and Occupational Health Field Sampling During Military Deployment, November 2001.
9. (U) ASTM Standard 2318-03, Standard Guide for Environmental Health Site Assessment Process for Military Deployments, 2003.
10. (U) Electronic Mail Message from Mr. [REDACTED], USACE to Mr. [REDACTED], USACHPPM, SUBJECT: K2 Map Areas of Possible Development, dated 3 September 2004.
11. (U) Department of the Army, Regulation 11-9, The Army Radiation Safety Program, 28 May 1999.
12. (U) Federal Register, Volume 46, Number 205, Friday, 23 October 1981.
13. (U) (~~S~~) USACHPPM CJTF-76 Special Medical Augmentation Response Team – Preventive Medicine (SMART-PM), Information Paper, Subject: Visual Inspection of Karshi-Khanabad (K2) Airbase, Karshi, Uzbekistan, 04 September 2004.

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~~DECLASSIFIED SECRET//REL USA, AUS, CAN, GBR, NZL//X1~~

(U) ~~(S//REL)~~ Final Report, Deployment Occupational and Environmental Health Site Assessment, Karshi-Khanabad Airbase, Karshi, Uzbekistan, 31 August – 11 September October 2004

14. (U) ~~(S)~~ USACHPPM CJTF-76 SMART-PM, Information Paper, Subject: Updated Visual Assessment of Karshi-Khanabad (K2) Airbase, Karshi, Uzbekistan, 7 September 2004

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(U) (~~S//REL~~) Final Report, Deployment Occupational and Environmental Health Site Assessment, Karshi-Khanabad Airbase, Karshi, Uzbekistan, 31 August – 11 September October 2004

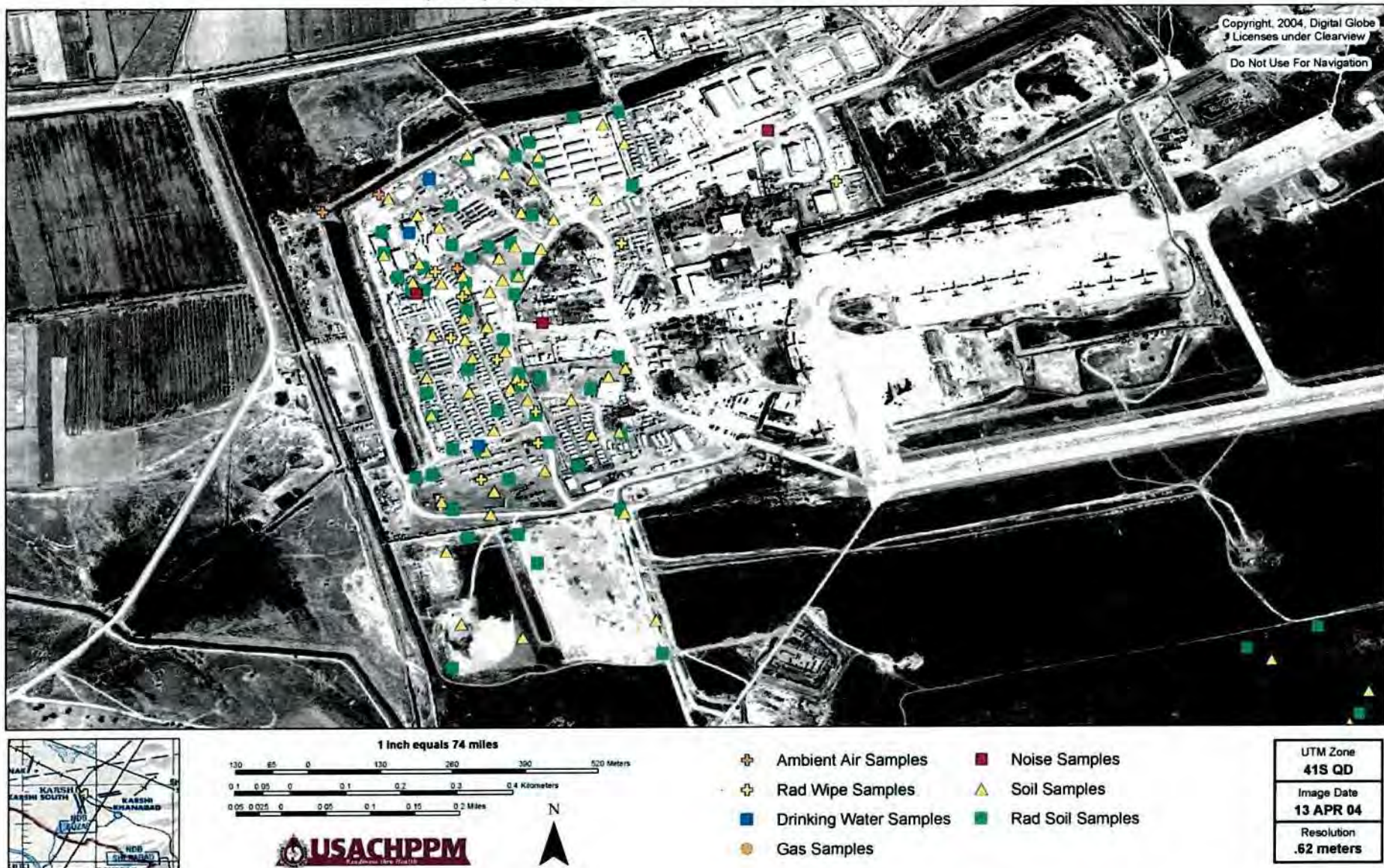
(U) APPENDIX B

SITE MAPS WITH SAMPLE LOCATIONS

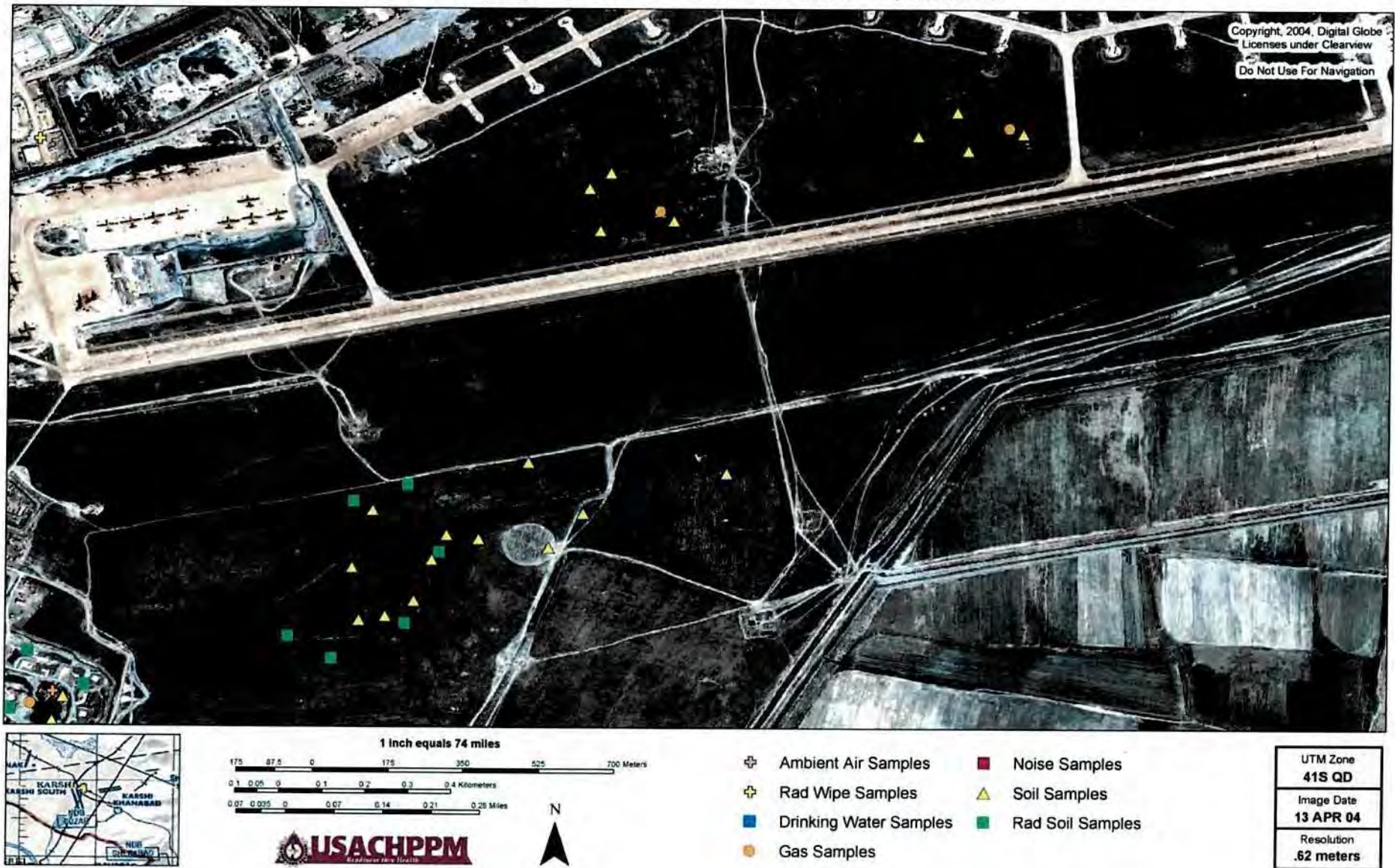
B-1

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(FOUO) Figure B-1. CAMP STRONGHOLD FREEDOM, Uzbekistan

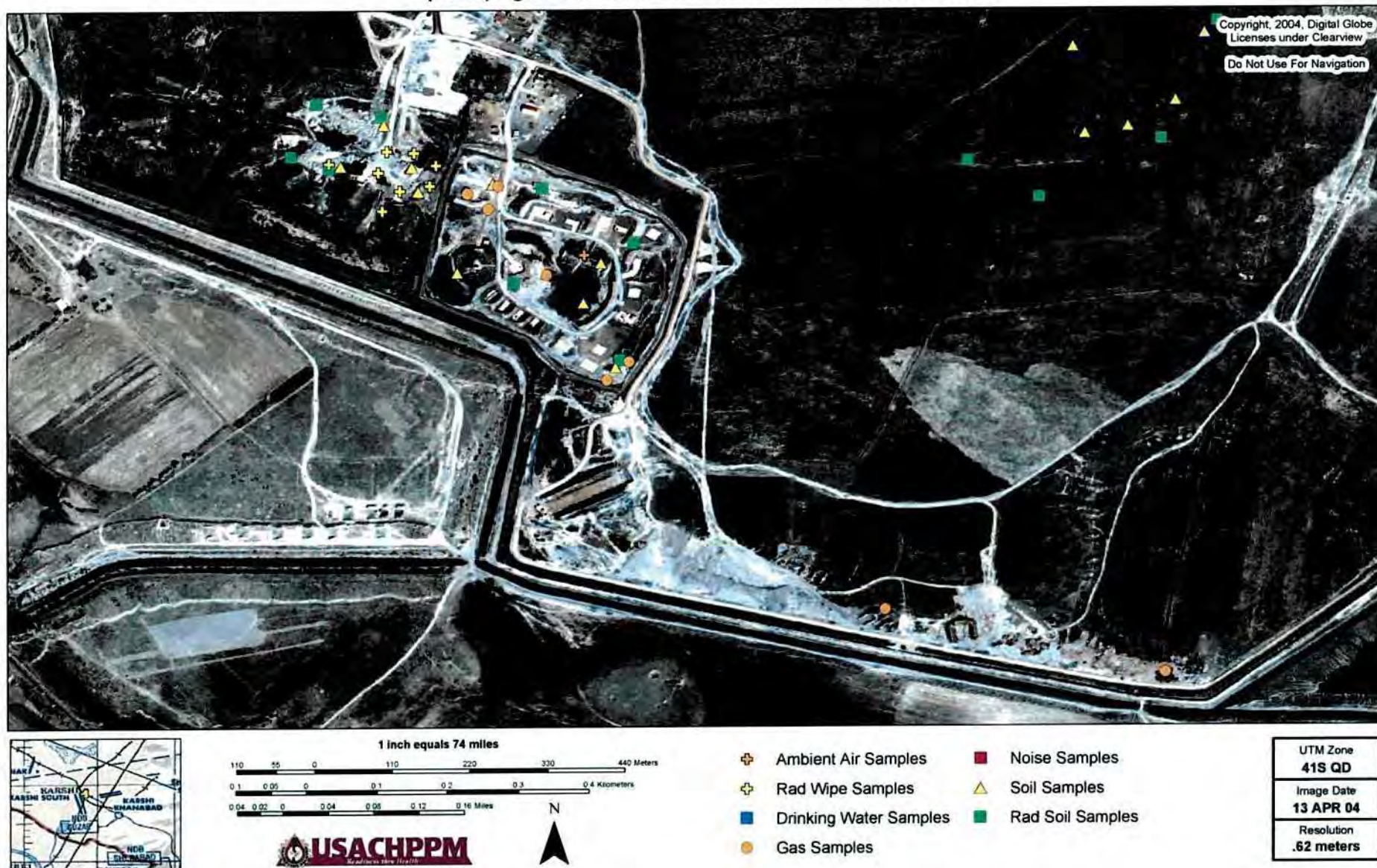


(FOUO) Figure B-2. CAMP STRONGHOLD FREEDOM, Uzbekistan



(U) (S//REL) Final Report, Deployment Occupational and Environmental Health Site Assessment, Karshi-Khanabad Airbase, Karshi, Uzbekistan, 31 August – 11 September October 2004

(FOUO) Figure B-3. CAMP STRONGHOLD FREEDOM, Uzbekistan



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(U) APPENDIX C

ANALYTICAL RESULTS

C-1

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(U) (S//REL) Final Report, Deployment Occupational and Environmental Health Site Assessment, Karshi-Khanabad Airbase, Karshi, Uzbekistan, 31 August – 11 September October 2004

(U) (FOUO) Table C-1. Radiological Soil Sampling Locations.

Sampling Site	Sample Type	Area Description	Sample Location(s) (MGRS)	Results (pCi/g)
S-1 52337 01395 bkg	Background		41S QD 52337 01395	α 1.65E+01 β 2.22E+01
S-2 52886 01398	Composite	Ammunition Supply Point	41S QD 52886 01398 41S QD 52432 01155 41S QD 52310 01260 41S QD 52442 01321	α 1.36E+01 β 2.29E+01
S-3 51914 01889	Composite	Hazardous Material Storage Area	41S QD 51914 01889 41S QD 51816 01932 41S QD 52097 01732 41S QD 51886 01940 41S QD 51802 01698 41S QD 52029 01989	α 2.00E+01 β 1.84E+01
S-4 52157 01491	Composite	PT Track	41S QD 52157 01491 41S QD 52058 01432 41S QD 52084 01507 41S QD 52101 01416	α 1.83E+01 β 2.34E+01
S-5 51777 02457	Composite	North Billeting	41S QD 51777 02457 41S QD 51738 02416 41S QD 51702 02397 41S QD 51681 02440 41S QD 51677 02477	α 1.47E+01 β 2.19E+01
S-6 51893 02608	Composite	Sea Huts	41S QD 51893 02608 41S QD 51878 02642 41S QD 51938 02690 41S QD 52003 02701 41S QD 52027 02570	α 2.14E+01 β 2.52E+01
S-7 51887 02513	Composite	New Gymnasium, Laundry	41S QD 51887 02513 41S QD 51774 02527 41S QD 51828 02455 41S QD 51794 02610 41S QD 51860 02618	α 1.55E+01 β 1.90E+01
S-8 51858 02463	Composite	MWR, Current Gymnasium	41S QD 51858 02463 41S QD 51804 02434 41S QD 51866 02371 41S QD 51869 02403 41S QD 51884 02435	α 1.01E+01 β 2.16E+01
S-9 51798 02389	Composite	Dining Facility	41S QD 51798 02389 41S QD 51801 02341 41S QD 51740 02375 41S QD 51722 02376 41S QD 51739 02039	α 1.66E+01 β 2.00E+01

(U) (~~S//REL~~) Final Report, Deployment Occupational and Environmental Health Site Assessment, Karshi-Khanabad Airbase, Karshi, Uzbekistan, 31 August – 11 September October 2004

(U) (~~FOUO~~) Table C-1. Radiological Soil Sampling Locations.

Sampling Site	Sample Type	Area Description	Sample Location(s) (MGRS)	Results (pCi/g)
S-10 51794 01982	Composite	South Billeting	41S QD 51794 01982 41S QD 51763 02044 41S QD 51829 02090 41S QD 51923 02106 41S QD 51869 02039	α 1.19E+01 β 2.11E+01
S-11 51790 02091	Composite	South Billeting	41S QD 51790 02091 41S QD 51759 02149 41S QD 51881 02206 41S QD 51904 02155 41S QD 51850 02161	α 1.18E+01 β 2.11E+01
S-12 51854 02289	Composite	South Billeting	41S QD 51854 02289 41S QD 51877 02229 41S QD 51750 02190 41S QD 51733 02256 41S QD 51806 02234	α 1.23E+01 β 1.83E+01
S-13 51979 02204	Composite	Air Force Special Operations Group Compound	41S QD 51979 02204 41S QD 52026 02124 41S QD 51966 02066 41S QD 51907 02222 41S QD 52017 02263	α 2.52E+01 β 2.09E+01
S-14 52913 01765	Composite	Southern Expansion Area	41S QD 52913 01765 41S QD 52806 01447 41S QD 53017 01484 41S QD 53073 01652 41S QD 53010 01806	α 1.93E+01 β 2.34E+01

(U) (~~S//REL~~) Final Report, Deployment Occupational and Environmental Health Site Assessment, Karshi-Khanabad Airbase, Karshi, Uzbekistan, 31 August – 11 September October 2004

(U) (~~FOUO~~) Table C-2. Radiological Wipe Sample Locations.

Sample Number	MGRS	Results (dpm/wipe)
W-2 52312 02585	41S QD 52312 02585	α 0.491 β 0.885
W-3 52015 02466	41S QD 52015 02466	α 1.31 β 2.15
W-4 51755 02408	41S QD 51755 02408	α 1.04 β 3.84
W-5 51781 02290	41S QD 51794 02365	α 0.219 β 4.89
W-6 51781 02290	41S QD 51781 02290	α 0.764 β 3.62
W-7 51846 02253	41S QD 51846 02253	α -0.0546 β 2.99
W-8 51883 02209	41S QD 51883 02209	α 1.58 β 6.15
W-9 51903 02161	41S QD 51903 02161	α -0.0546 β 1.52
W-10 51908 02105	41S QD 51908 02105	α 1.04 β 2.15
W-11 51831 02037	41S QD 51831 02037	α -0.0546 β 1.31
W-13 52195 01441	41S QD 52195 01441	α 0.218 β 4.47
W-14 52220 01424	41S QD 52220 01424	α -0.0546 β 1.52
W-15 52214 01395	41S QD 52214 01395	α 0.491 β 3.84
W-16 52162 01358	41S QD 52162 01358	α -0.0546 β 1.94
W-17 52181 01387	41S QD 52181 01387	α 0.218 β 5.10
W-18 52156 01412	41S QD 52156 01412	α 0.764 β 1.1
W-19 52165 01442	41S QD 52165 01442	α 0.764 β 1.31
W-20 52101 01423	41S QD 52101 01423	α 0.764 β 4.26

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(U) ~~(FOUO)~~ Table C-3. Ambient Air Radiological Sampling Locations.

Sampling Site	MGRS Location	Results (pCi/filter) Minimum of 42,000 liters of air per filter
Berm overlooking Site 1	41S QD 51670 02545	α 0.0395 β 0.442
Billeting	41S QD 51786 02415	α -0.0197 β 1.06
Ammunition Supply Point	41S QD 52387 01302	α -0.0395 β 0.696
Site 1 Gate	41S QD 51592 02510	α -0.118 β 0.939

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(U) (FOUO) Table C-4 Site 1 TSP Air Sampling Data										
Field ID			UZE_K21_TSP_04245	UZE_K21_TSP_04246	UZE_K21_TSP_04247	UZE_K21_TSP_04248	UZE_K21_TSP_04249	UZE_K21_TSP_04250	UZE_K21_TSP_04251	UZE_K21_TSP_04252_FB
Filter ID			47-04-2251	47-04-2252	47-04-2253	47-04-2254	47-04-2255	47-04-2256	47-04-2257	47-04-2343
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/2/2004	9/3/2004	9/4/2004	9/5/2004	9/6/2004	9/7/2004	9/8/2004	9/8/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Total Particulate Matter (TSP)		ug/m ³	220	180	250	330	350	320	250	
Antimony	7440360	ug/m ³	< 0.137	< 0.203	< 0.141	< 0.14	< 0.164	< 0.139	< 0.141	
Arsenic	7440382	ug/m ³	< 0.137	< 0.203	< 0.141	< 0.14	< 0.164	< 0.139	< 0.141	
Beryllium	7440417	ug/m ³	< 0.137	< 0.203	< 0.141	< 0.14	< 0.164	< 0.139	< 0.141	
Cadmium	7440439	ug/m ³	< 0.069	< 0.101	< 0.071	< 0.07	< 0.082	< 0.07	< 0.071	
Chromium	7440473	ug/m ³	< 0.137	< 0.203	< 0.141	< 0.14	< 0.164	< 0.139	< 0.141	
Lead	7439921	ug/m ³	< 0.137	< 0.203	< 0.141	< 0.14	< 0.164	< 0.139	< 0.141	
Manganese	7439965	ug/m ³	< 0.274	< 0.406	< 0.282	< 0.281	< 0.327	< 0.279	< 0.282	
Nickel	7440020	ug/m ³	< 0.137	< 0.203	< 0.141	< 0.14	< 0.164	< 0.139	< 0.141	
Vanadium	7440622	ug/m ³	< 0.274	< 0.406	< 0.282	< 0.281	< 0.327	< 0.279	< 0.282	
Zinc	7440666	ug/m ³	< 0.686	< 1.014	< 0.705	< 0.701	< 0.818	< 0.697	< 0.705	

(U) (FOUO) Table C-5 Site 1 TSP Air Sampler Information							
Field Identification Number	Sample Location	Collection Date	Filter Number	Sample Duration	Invalid Sample? (Yes/No/Blank)	Sampler ID	Flow Calibrator ID
UZE_K21_TSP_04245	K2 (Site1)	9/2/2004	47-04-2251	24.1	No	3418	1267
UZE_K21_TSP_04246	K2 (Site1)	9/3/2004	47-04-2252	17.2	No	2842	1267
UZE_K21_TSP_04247	K2 (Site1)	9/4/2004	47-04-2253	23.9	No	2842	1267
UZE_K21_TSP_04248	K2 (Site1)	9/5/2004	47-04-2254	23.7	No	2842	1267
UZE_K21_TSP_04249	K2 (Site1)	9/6/2004	47-04-2255	20.3	No	2842	1267
UZE_K21_TSP_04250	K2 (Site1)	9/7/2004	47-04-2256	24.1	No	2842	1267
UZE_K21_TSP_04251	K2 (Site1)	9/8/2004	47-04-2257	23.4	No	2842	1267
UZE_K21_TSP_04252_FB	K2 (Site1)	9/8/2004	47-04-2343		Blank	None	*

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(U) (FOUO) Table C-6 Site 2 TSP Air Sampling Data										
Field ID			UZE_K22_TSP_04245	UZE_K22_TSP_04246	UZE_K22_TSP_04247	UZE_K22_TSP_04248	UZE_K22_TSP_04249	UZE_K22_TSP_04250	UZE_K22_TSP_04251	UZE_K22_TSP_04252_FB
Filter ID			47-04-2350	47-04-2349	47-04-2348	47-04-2347	47-04-2346	47-04-2345	47-04-2344	47-04-2258
Location			K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)
Collection Date			9/2/2004	9/3/2004	9/4/2004	9/5/2004	9/6/2004	9/7/2004	9/8/2004	9/8/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Total Particulate Matter (TSP)		ug/m3	110	160	130	190	160	170	140	
Antimony	7440360	ug/m3	< 0.181	< 0.148	< 0.139	< 0.141	< 0.139	< 0.157	< 0.159	
Arsenic	7440382	ug/m3	< 0.181	< 0.148	< 0.139	< 0.141	< 0.139	< 0.157	< 0.159	
Beryllium	7440417	ug/m3	< 0.181	< 0.148	< 0.139	< 0.141	< 0.139	< 0.157	< 0.159	
Cadmium	7440439	ug/m3	< 0.091	< 0.074	< 0.069	< 0.07	< 0.069	< 0.078	< 0.079	
Chromium	7440473	ug/m3	< 0.181	< 0.148	< 0.139	< 0.141	< 0.139	< 0.157	< 0.159	
Lead	7439921	ug/m3	< 0.181	< 0.148	< 0.139	< 0.141	< 0.139	< 0.157	< 0.159	
Manganese	7439965	ug/m3	< 0.363	< 0.296	< 0.277	< 0.281	< 0.278	< 0.313	< 0.317	
Nickel	7440020	ug/m3	< 0.181	< 0.148	< 0.139	< 0.141	< 0.139	< 0.157	< 0.159	
Vanadium	7440622	ug/m3	< 0.363	< 0.296	< 0.277	< 0.281	< 0.278	< 0.313	< 0.317	
Zinc	7440666	ug/m3	< 0.907	< 0.74	< 0.693	< 0.703	< 0.694	< 0.783	< 0.793	

(U) (FOUO) Table C-7 Site 2 TSP Air Sampler Information							
Field Identification Number	Sample Location	Collection Date	Filter Number	Sample Duration	Invalid Sample? (Yes/No/Blank)	Sampler ID	Flow Calibrator ID
UZE_K22_TSP_04245	K2 (Site2)	9/2/2004	47-04-2350	18.2	No	2849	1321
UZE_K22_TSP_04246	K2 (Site2)	9/3/2004	47-04-2349	23.6	No	2849	1321
UZE_K22_TSP_04247	K2 (Site2)	9/4/2004	47-04-2348	24	No	2849	1321
UZE_K22_TSP_04248	K2 (Site2)	9/5/2004	47-04-2347	23.8	No	2849	1321
UZE_K22_TSP_04249	K2 (Site2)	9/6/2004	47-04-2346	24	No	2849	1321
UZE_K22_TSP_04250	K2 (Site2)	9/7/2004	47-04-2345	21.3	No	2849	1321
UZE_K22_TSP_04251	K2 (Site2)	9/8/2004	47-04-2344	21.1	No	2849	1321
UZE_K22_TSP_04252_FB	K2 (Site2)	9/8/2004	47-04-2258		Blank	None	*

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(U) (FOUO) Table C-8 Site 1 PM10 Air Sampling Data										
Field ID			UZE_K21_ PM10_04245	UZE_K21_ PM10_04246	UZE_K21_ PM10_04247	UZE_K21_ PM10_04248	UZE_K21_ PM10_04249	UZE_K21_ PM10_04250	UZE_K21_ PM10_04251	UZE_K21_PM10_ 04252_FB
Filter ID			47-04-2276	47-04-2277	47-04-2278	47-04-2279	47-04-2280	47-04-2281	47-04-2282	47-04-2283
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/2/2004	9/3/2004	9/4/2004	9/5/2004	9/6/2004	9/7/2004	9/8/2004	9/9/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Particulate Matter < 10 um (PM ₁₀)		ug/m ³	130	210	150	#N/A	190	130	130	
Antimony	7440360	ug/m ³	< 0.138	< 0.141	< 0.196	INVALID SAMPLE	< 0.14	< 0.142	< 0.154	
Arsenic	7440382	ug/m ³	< 0.069	< 0.071	< 0.098	INVALID SAMPLE	< 0.07	< 0.071	< 0.077	
Beryllium	7440417	ug/m ³	< 0.069	< 0.071	< 0.098	INVALID SAMPLE	< 0.07	< 0.071	< 0.077	
Cadmium	7440439	ug/m ³	< 0.069	< 0.071	< 0.098	INVALID SAMPLE	< 0.07	< 0.071	< 0.077	
Chromium	7440473	ug/m ³	< 0.069	< 0.071	< 0.098	INVALID SAMPLE	< 0.07	< 0.071	< 0.077	
Lead	7439921	ug/m ³	< 0.138	< 0.141	< 0.196	INVALID SAMPLE	< 0.14	< 0.142	< 0.154	
Manganese	7439965	ug/m ³	< 0.275	< 0.283	< 0.393	INVALID SAMPLE	< 0.28	< 0.284	< 0.308	
Nickel	7440020	ug/m ³	< 0.069	< 0.071	< 0.098	INVALID SAMPLE	< 0.07	< 0.071	< 0.077	
Vanadium	7440622	ug/m ³	< 0.275	< 0.283	< 0.393	INVALID SAMPLE	< 0.28	< 0.284	< 0.308	
Zinc	7440666	ug/m ³	< 0.689	< 0.707	< 0.982	INVALID SAMPLE	< 0.699	< 0.711	< 0.77	

(U) (FOUO) Table C-9 PM10 Site 1 Sampler Data							
Field Identification Number	Sample Location	Collection Date	Filter Number	Sample Duration	Invalid Sample? (Yes/No/Blank)	Sampler ID	Flow Calibrator ID
UZE_K21_PM10_04245	K2 (Site1)	9/2/2004	47-04-2276	24	No	3418	1267
UZE_K21_PM10_04246	K2 (Site1)	9/3/2004	47-04-2277	23.5	No	3418	1267
UZE_K21_PM10_04247	K2 (Site1)	9/4/2004	47-04-2278	17	No	3418	1267
UZE_K21_PM10_04248	K2 (Site1)	9/5/2004	47-04-2279	17.7	Yes	3418	1267
UZE_K21_PM10_04249	K2 (Site1)	9/6/2004	47-04-2280	24	No	3418	1267
UZE_K21_PM10_04250	K2 (Site1)	9/7/2004	47-04-2281	23.5	No	3418	1267
UZE_K21_PM10_04251	K2 (Site1)	9/8/2004	47-04-2282	23.3	No	3418	1267
UZE_K21_PM10_04252_FB	K2 (Site1)	9/9/2004	47-04-2283		Blank	None	*

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(U) (FOUO) Table C-10 Site 2 PM10 Air Sampling Data										
Field ID			UZE_K22_PM10_04245	UZE_K22_PM10_04246	UZE_K22_PM10_04247	UZE_K22_PM10_04248	UZE_K22_PM10_04249	UZE_K22_PM10_04250	UZE_K22_PM10_04251	UZE_K22_PM10_04252-FB
Filter ID			47-04-2325	47-04-2324	47-04-2323	47-04-2322	47-04-2321	47-04-2320	47-04-2319	47-04-2318
Location			K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)
Collection Date			9/2/2004	9/3/2004	9/4/2004	9/5/2004	9/6/2004	9/7/2004	9/8/2004	9/9/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Particulate Matter < 10 um (PM ₁₀)		ug/m ³	65	85	99	120	110	120	110	
Antimony	7440360	ug/m ³	< 0.139	< 0.142	< 0.129	< 0.142	< 0.139	< 0.139	< 0.151	
Arsenic	7440382	ug/m ³	< 0.069	< 0.071	< 0.065	< 0.071	< 0.139	< 0.139	< 0.151	
Beryllium	7440417	ug/m ³	< 0.069	< 0.071	< 0.065	< 0.071	< 0.139	< 0.139	< 0.151	
Cadmium	7440439	ug/m ³	< 0.069	< 0.071	< 0.065	< 0.071	< 0.069	< 0.069	< 0.075	
Chromium	7440473	ug/m ³	0.21	< 0.071	< 0.065	< 0.071	< 0.139	< 0.139	< 0.151	
Lead	7439921	ug/m ³	< 0.139	< 0.142	< 0.129	< 0.142	< 0.139	< 0.139	< 0.151	
Manganese	7439965	ug/m ³	< 0.277	< 0.284	< 0.259	< 0.284	< 0.277	< 0.277	< 0.301	
Nickel	7440020	ug/m ³	< 0.069	< 0.071	< 0.065	< 0.071	< 0.139	< 0.139	< 0.151	
Vanadium	7440622	ug/m ³	< 0.277	< 0.284	< 0.259	< 0.284	< 0.277	< 0.277	< 0.301	
Zinc	7440666	ug/m ³	< 0.693	< 0.71	< 0.647	< 0.71	< 0.693	< 0.693	< 0.753	

(U) (FOUO) Table C-11 PM10 Site Sampler Data							
Field Identification Number	Sample Location	Collection Date	Filter Number	Sample Duration	Invalid Sample? (Yes/No/Blank)	Sampler ID	Flow Calibrator ID
UZE_K22_PM10_04245	K2 (Site2)	9/2/2004	47-04-2325	24.1	No	3292	1321
UZE_K22_PM10_04246	K2 (Site2)	9/3/2004	47-04-2324	23.5	No	3292	1321
UZE_K22_PM10_04247	K2 (Site2)	9/4/2004	47-04-2323	23.9	No	3292	1321
UZE_K22_PM10_04248	K2 (Site2)	9/5/2004	47-04-2322	23.7	No	3292	1321
UZE_K22_PM10_04249	K2 (Site2)	9/6/2004	47-04-2321	24	No	3292	1321
UZE_K22_PM10_04250	K2 (Site2)	9/7/2004	47-04-2320	24.1	No	3292	1321
UZE_K22_PM10_04251	K2 (Site2)	9/8/2004	47-04-2319	22.1	No	3292	1321
UZE_K22_PM10_04252-FB	K2 (Site2)	9/9/2004	47-04-2318		Blank	None	*

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(U) (FOUO) Table C- 12 Site 1 TO-13 PAH Air Sampling Data								
Field ID			UZE-K21-TO13-04245	UZE-K21-TO13-04246	UZE-K21-TO13-04247	UZE-K21-TO13-04248	UZE-K21-TO13-04249	UZE-K21-TO13-04250
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/2/2004	9/3/2004	9/4/2004	9/5/2004	9/6/2004	9/7/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Acenaphthene	83329	ug/m3	0.0006	0.0006	0.0008	0.0014	0.0011	0.0006
Acenaphthylene	208968	ug/m3	0.0021	0.0014	0.0024	0.0034	0.0030	0.0010
Anthracene	120127	ug/m3	0.0003	0.0003	0.0003	0.0004	0.0004	0.0002
Benzo(a)anthracene	56553	ug/m3	0.0003	0.0003	0.0007	0.0006	0.0006	0.0002
Benzo(a)pyrene	50328	ug/m3	0.0005	0.0004	0.0010	0.0010	0.0008	0.0003
Benzo(b)fluoranthene	205992	ug/m3	0.0005	0.0005	0.0013	0.0011	0.0011	0.0003
Benzo(e)pyrene	192972	ug/m3	0.0005	0.0004	0.0012	0.0010	0.0010	0.0003
Benzo(g,h,i)perylene	191242	ug/m3	0.0007	0.0006	0.0015	0.0015	0.0015	0.0004
Benzo(k)fluoranthene	207089	ug/m3	0.0005	0.0004	0.0010	0.0010	0.0009	0.0002
Chrysene	218019	ug/m3	0.0006	0.0005	0.0012	0.0011	0.0011	0.0004
Dibenz(a,h)anthracene	53703	ug/m3	0.0001	< 0	0.0002	0.0001	0.0002	< 0
Fluoranthene	206440	ug/m3	0.0016	0.0016	0.0024	0.0029	0.0028	0.0012
Fluorene	86737	ug/m3	0.0023	0.0021	0.0030	0.0040	0.0044	0.0018
Indeno(1,2,3-cd)pyrene	193395	ug/m3	0.0006	0.0005	0.0012	0.0012	0.0011	0.0003
Naphthalene	91203	ug/m3	0.0788	0.0649	0.1032	0.1412	0.1547	0.0403
Phenanthrene	85018	ug/m3	0.0055	0.0053	0.0067	0.0099	0.0098	0.0042
Pyrene	129000	ug/m3	0.0016	0.0015	0.0027	0.0029	0.0029	0.0010

(U) (FOUO) Table C-13 TO-13 PAH Site 1 Sampler Data						
Field Identification Number	Sample Location	Collection Date	Media ID	Invalid Sample? (Yes/No/Blank)	Elapsed Time	Sample Volume
UZE-K21-TO13-04245	K2 (Site1)	9/2/2004	082004-13	No	1465	177.5809884
UZE-K21-TO13-04246	K2 (Site1)	9/3/2004	082004-2	No	1437	153.9723294
UZE-K21-TO13-04247	K2 (Site1)	9/4/2004	082004-4	No	1443	164.6680207
UZE-K21-TO13-04248	K2 (Site1)	9/5/2004	082004-5	No	1436	141.6278405
UZE-K21-TO13-04249	K2 (Site1)	9/6/2004	082004-6	No	1442	142.2196003
UZE-K21-TO13-04250	K2 (Site1)	9/7/2004	082004-7	No	1397	143.8736203

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(U) (FOUO) Table C-14 Site 2 TO-13 PAH Air Sampling Data									
Field ID			UZE-K22-TO13-04245	UZE-K22-TO13-04246	UZE-K22-TO13-04247	UZE-K22-TO13-04248	UZE-K22-TO13-04250	UZE-K22-TO13-04251	UZE-K22-TO13-04251
Location			K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)
Collection Date			38232.0000	38233.0000	38234.0000	38235.0000	38237.0000	38238.0000	9/8/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Acenaphthene	83329	ug/m3	0.0003	0.0005	0.0008	0.0010	0.0005	0.0005	
Acenaphthylene	208968	ug/m3	0.0009	0.0014	0.0017	0.0017	0.0017	0.0010	
Anthracene	120127	ug/m3	0.0003	0.0003	0.0003	0.0004	0.0003	0.0003	
Benzo(a)anthracene	56553	ug/m3	0.0003	0.0003	0.0006	0.0006	0.0002	0.0002	
Benzo(a)pyrene	50328	ug/m3	0.0004	0.0003	0.0010	0.0009	0.0003	0.0002	
Benzo(b)fluoroanthene	205992	ug/m3	0.0005	0.0005	0.0011	0.0011	0.0004	0.0003	
Benzo(e)pyrene	192972	ug/m3	0.0004	0.0004	0.0009	0.0009	0.0003	0.0003	
Benzo(g,h,i)perylene	191242	ug/m3	0.0005	0.0005	0.0013	0.0013	0.0005	0.0004	
Benzo(k)fluoroanthene	207089	ug/m3	0.0004	0.0004	0.0009	0.0009	0.0003	0.0002	
Chrysene	218019	ug/m3	0.0005	0.0006	0.0011	0.0011	0.0005	0.0004	
Dibenz(a,h)anthracene	53703	ug/m3	0.0001	0.0001	0.0001	0.0001	0.0001	< 0	
Fluoranthene	206440	ug/m3	0.0009	0.0014	0.0026	0.0027	0.0013	0.0010	
Fluorene	86737	ug/m3	0.0011	0.0019	0.0031	0.0043	0.0028	0.0020	
Indeno(1,2,3-cd)pyrene	193395	ug/m3	0.0004	0.0004	0.0011	0.0011	0.0004	0.0003	
Naphthalene	91203	ug/m3	0.0212	0.0463	0.0941	0.1176	0.0630	0.0536	
Phenanthrene	85018	ug/m3	0.0026	0.0047	0.0072	0.0094	0.0053	0.0040	
Pyrene	129000	ug/m3	0.0009	0.0013	0.0025	0.0025	0.0013	0.0011	

(U) (FOUO) Table C-15 TO-13 PAH Site 2 Sampler Data						
Field Identification Number	Sample Location	Collection Date	Media ID	Invalid Sample? (Yes/No/Blank)	Elapsed Time	Sample Volume
UZE-K22-TO13-04245	K2 (Site2)	9/2/2004	082004-19	No	1455	179.2936326
UZE-K22-TO13-04246	K2 (Site2)	9/3/2004	082004-15	No	1530	170.7794838
UZE-K22-TO13-04247	K2 (Site2)	9/4/2004	082004-10	No	1445	138.2056874
UZE-K22-TO13-04248	K2 (Site2)	9/5/2004	082004-9	No	1433	127.5474625
UZE-K22-TO13-04250	K2 (Site2)	9/7/2004	082004-8	No	1475	174.6832045
UZE-K22-TO13-04251	K2 (Site2)	9/8/2004	082004-1	No	1338	0
UZE-K22-TO13-04251	K2 (Site2)	9/8/2004	082004-3	No	1338	151.0111964

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(U) (FOUO) Table C-16 Site 1TO-17 VOC Sampling Data								
Field ID			UZE_K21_TO17_04246_P	UZE_K21_TO17_04246_C	UZE_K21_TO17_042467_C	UZE_K21_TO17_042467_P	UZE_K21_TO17_04246_FB	UZE_K21_TO17_042467_C
Tube ID			C4142	C3789	C3398	C4147	C3841	C3672
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/3/2004	9/3/2004	9/4/2004	9/4/2004	9/4/2004	9/4/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
1,1,1,2-Tetrachloroethane	630206	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,1,2,2-Tetrachloroethane	79345	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,1,2-Trichloroethane	79005	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,1-Dichloroethane	75343	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,1-Dichloroethene	75354	ug/m3	< 0.512	< 0.573	1.8	< 0.526	< 10	< 0.523
1,1-Dichloropropene	563586	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,2,3-Trichlorobenzene	87616	ug/m3	< 0.512	1.1	< 0.511	< 0.526	< 10	< 0.523
1,2,3-Trichloropropane	96184	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,2,4-Trichlorobenzene	120821	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,2,4-Trimethylbenzene	95636	ug/m3	0.51	0.86	0.51	1.4	< 10	1.1
1,2-Dibromo-3-chloropropane	96128	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,2-Dibromoethane	106934	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,2-Dichlorobenzene	95501	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,2-Dichloroethane	107062	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,2-Dichloropropane	78875	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,3,5-Trimethyl Benzene	108678	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,3-Dichlorobenzene	541731	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,3-Dichloropropane	142289	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
1,4-Dichlorobenzene	106467	ug/m3	< 0.512	0.8	1.2	1.2	< 10	< 0.523
2,2-Dichloropropane	594207	ug/m3	NIS	NIS	NIS	NIS	NIS	NIS
2-Chlorotoluene	95498	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
4-Chlorotoluene	106434	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
4-Isopropyltoluene	99876	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
Benzene	71432	ug/m3	1.2	1.3	1.7	2	< 10	2
Bromobenzene	108861	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523

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(U) (FOUO) Table C-16 Site 1TO-17 VOC Sampling Data								
Field ID			UZE_K21_TO17_ 04246_P	UZE_K21_TO17_ 04246_C	UZE_K21_TO17_ 042467_C	UZE_K21_TO17_ 042467_P	UZE_K21_TO17_ 04246_FB	UZE_K21_TO17_ 042467_C
Tube ID			C4142	C3789	C3398	C4147	C3841	C3672
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/3/2004	9/3/2004	9/4/2004	9/4/2004	9/4/2004	9/4/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Bromochloromethane	74975	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
Bromodichloromethane	75274	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
Bromoform	75252	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
Carbon Tetrachloride	56235	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
Chlorobenzene	108907	ug/m3	< 0.512	< 0.573	0.92	< 0.526	< 10	< 0.523
Chloroform	67663	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
cis-1,2-Dichloroethene	156592	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
cis-1,3-Dichloropropene	10061015	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
Cyclohexane	110827	ug/m3	1.2	1.4	2.1	0.89	< 10	1.3
Cyclopentane	287923	ug/m3	FB > 25% of Sample	< 0.573	160	< 0.526	0	21
Decane	124185	ug/m3	1.4	2.6	FB > 25% of Sample	4.8	< 10	4.3
Dibromochloromethane	124481	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
Dibromomethane	74953	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
Ethylbenzene	100414	ug/m3	< 0.512	0.57	< 0.511	0.95	< 10	0.52
Hexachlorobutadiene	87683	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
Hexane	110543	ug/m3	2.9	4.5	4	5.3	< 10	5.2
Isooctane	540841	ug/m3	< 0.512	< 0.573	0.72	< 0.526	< 10	< 0.523
Isopropylbenzene	98828	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
m/p-Xylene	108383;10	ug/m3	1.4	1.8	1.3	2.7	< 10	2
Methyl Chloroform	71556	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
Methylcyclopentane	96377	ug/m3	1.2	1.5	1.1	1.1	< 10	1.2
Methylene Chloride	75092	ug/m3	FB > 25% of Sample	< 0.573	310	< 0.526	0	14
n-Butylbenzene	104518	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
n-Propylbenzene	103651	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
o-Xylene	95476	ug/m3	0.56	0.8	< 0.511	1.2	< 10	1.3
sec-Butylbenzene	135988	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523

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(U) (FOUO) Table C-16 Site 1TO-17 VOC Sampling Data								
Field ID			UZE_K21_TO17_04246_P	UZE_K21_TO17_04246_C	UZE_K21_TO17_042467_C	UZE_K21_TO17_042467_P	UZE_K21_TO17_04246_FB	UZE_K21_TO17_042467_C
Tube ID			C4142	C3789	C3398	C4147	C3841	C3672
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/3/2004	9/3/2004	9/4/2004	9/4/2004	9/4/2004	9/4/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Styrene	100425	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
tert-Butylbenzene	98066	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
Tetrachloroethylene	127184	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
Toluene	108883	ug/m3	1.9	3.1	3.8	4.3	< 10	2.9
trans-1,2-Dichloroethene	156605	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
trans-1,3-Dichloropropene	10061026	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523
Trichloroethene	79016	ug/m3	< 0.512	< 0.573	< 0.511	< 0.526	< 10	< 0.523

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(U) (FOUO) Table C-17 Site 1TO-17 VOC Sampling Data, continued								
Field ID			UZE_K21_TO17_04247_FB	UZE_K21_TO17_042467_P	UZE_K21_TO17_04248_C	UZE_K21_TO17_04248_FB	UZE_K21_TO17_04248_P	UZE_K21_TO17_04248_C
Tube ID			C4164	C3363	C3787	C3284	C3454	C3494
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/4/2004	9/4/2004	9/5/2004	9/5/2004	9/5/2004	9/5/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
1,1,1,2-Tetrachloroethane	630206	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,1,2,2-Tetrachloroethane	79345	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,1,2-Trichloroethane	79005	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,1-Dichloroethane	75343	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,1-Dichloroethene	75354	ug/m3	< 10	< 0.514	< 0.473	0	< 0.495	< 0.491
1,1-Dichloropropene	563586	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,2,3-Trichlorobenzene	87616	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,2,3-Trichloropropane	96184	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,2,4-Trichlorobenzene	120821	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,2,4-Trimethylbenzene	95636	ug/m3	< 10	< 0.514	0.71	< 10	< 0.495	< 0.491
1,2-Dibromo-3-chloropropane	96128	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,2-Dibromoethane	106934	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,2-Dichlorobenzene	95501	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,2-Dichloroethane	107062	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,2-Dichloropropane	78875	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,3,5-Trimethyl Benzene	108678	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,3-Dichlorobenzene	541731	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,3-Dichloropropane	142289	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
1,4-Dichlorobenzene	106467	ug/m3	< 10	1	2.4	< 10	1.1	1.1
2,2-Dichloropropane	594207	ug/m3	NIS	NIS	NIS	NIS	NIS	NIS
2-Chlorotoluene	95498	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
4-Chlorotoluene	106434	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
4-Isopropyltoluene	99876	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Benzene	71432	ug/m3	< 10	0.92	1	< 10	0.69	0.79
Bromobenzene	108861	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491

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(U) (FOUO) Table C-17 Site 1 TO-17 VOC Sampling Data, continued								
Field ID			UZE_K21_TO17_04247_FB	UZE_K21_TO17_042467_P	UZE_K21_TO17_04248_C	UZE_K21_TO17_04248_FB	UZE_K21_TO17_04248_P	UZE_K21_TO17_04248_C
Tube ID			C4164	C3363	C3787	C3284	C3454	C3494
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/4/2004	9/4/2004	9/5/2004	9/5/2004	9/5/2004	9/5/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Bromochloromethane	74975	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Bromodichloromethane	75274	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Bromoform	75252	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Carbon Tetrachloride	56235	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Chlorobenzene	108907	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Chloroform	67663	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
cis-1,2-Dichloroethene	156592	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
cis-1,3-Dichloropropene	10061015	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Cyclohexane	110827	ug/m3	< 10	0.92	< 0.473	< 10	< 0.495	0.54
Cyclopentane	287923	ug/m3	< 10	2.6	FB > 25% of Sample	0	FB > 25% of Sample	33
Decane	124185	ug/m3	0	< 0.514	1.2	< 10	0.59	0.54
Dibromochloromethane	124481	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Dibromomethane	74953	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Ethylbenzene	100414	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Hexachlorobutadiene	87683	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Hexane	110543	ug/m3	< 10	2.4	1.6	< 10	1.4	1.8
Isooctane	540841	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Isopropylbenzene	98828	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
m/p-Xylene	108383;10	ug/m3	< 10	< 0.514	1.4	< 10	0.59	0.79
Methyl Chloroform	71556	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Methylcyclopentane	96377	ug/m3	< 10	0.77	< 0.473	< 10	< 0.495	< 0.491
Methylene Chloride	75092	ug/m3	0	FB > 25% of Sample	< 0.473	0	FB > 25% of Sample	FB > 25% of Sample
n-Butylbenzene	104518	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
n-Propylbenzene	103651	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
o-Xylene	95476	ug/m3	< 10	< 0.514	0.57	< 10	< 0.495	< 0.491
sec-Butylbenzene	135988	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491

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(U) (FOUO) Table C-17 Site 1TO-17 VOC Sampling Data, continued								
Field ID			UZE_K21_TO17_04247_FB	UZE_K21_TO17_042467_P	UZE_K21_TO17_04248_C	UZE_K21_TO17_04248_FB	UZE_K21_TO17_04248_P	UZE_K21_TO17_04248_C
Tube ID			C4164	C3363	C3787	C3284	C3454	C3494
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/4/2004	9/4/2004	9/5/2004	9/5/2004	9/5/2004	9/5/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Styrene	100425	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
tert-Butylbenzene	98066	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Tetrachloroethylene	127184	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Toluene	108883	ug/m3	< 10	1.7	2.4	< 10	1.5	2.1
trans-1,2-Dichloroethene	156605	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
trans-1,3-Dichloropropene	10061026	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491
Trichloroethene	79016	ug/m3	< 10	< 0.514	< 0.473	< 10	< 0.495	< 0.491

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(U) (FOUO) Table C-18 Site 1TO-17 VOC Sampling Data, continued								
Field ID			UZE_K21_TO17_04248_FB	UZE_K21_TO17_04248_P	UZE_K21_TO17_04247_FB	UZE_K21_TO17_04249_C	UZE_K21_TO17_04249_C	UZE_K21_TO17_04249_FB
Tube ID			C4264	C3682	C3983	C4342	C4313	C4323
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/5/2004	9/5/2004	9/5/2004	9/6/2004	9/6/2004	9/6/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
1,1,1,2-Tetrachloroethane	630206	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,1,2,2-Tetrachloroethane	79345	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,1,2-Trichloroethane	79005	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,1-Dichloroethane	75343	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,1-Dichloroethene	75354	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,1-Dichloropropene	563586	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,2,3-Trichlorobenzene	87616	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,2,3-Trichloropropane	96184	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,2,4-Trichlorobenzene	120821	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,2,4-Trimethylbenzene	95636	ug/m3	< 10	0.77	< 10	2.2	1.3	< 10
1,2-Dibromo-3-chloropropane	96128	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,2-Dibromoethane	106934	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,2-Dichlorobenzene	95501	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,2-Dichloroethane	107062	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,2-Dichloropropane	78875	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,3,5-Trimethyl Benzene	108678	ug/m3	< 10	< 0.482	< 10	0.75	< 0.506	< 10
1,3-Dichlorobenzene	541731	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,3-Dichloropropane	142289	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
1,4-Dichlorobenzene	106467	ug/m3	< 10	2.5	< 10	1.4	3	< 10
2,2-Dichloropropane	594207	ug/m3	NIS	NIS	NIS	NIS	NIS	NIS
2-Chlorotoluene	95498	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
4-Chlorotoluene	106434	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
4-Isopropyltoluene	99876	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Benzene	71432	ug/m3	< 10	1.1	< 10	2.3	2.1	< 10
Bromobenzene	108861	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10

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(U) (FOUO) Table C-18 Site 1TO-17 VOC Sampling Data, continued								
Field ID			UZE_K21_TO17_04248_FB	UZE_K21_TO17_04248_P	UZE_K21_TO17_04247_FB	UZE_K21_TO17_04249_C	UZE_K21_TO17_04249_C	UZE_K21_TO17_04249_FB
Tube ID			C4264	C3682	C3983	C4342	C4313	C4323
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/5/2004	9/5/2004	9/5/2004	9/6/2004	9/6/2004	9/6/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Bromochloromethane	74975	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Bromodichloromethane	75274	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Bromoform	75252	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Carbon Tetrachloride	56235	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Chlorobenzene	108907	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Chloroform	67663	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
cis-1,2-Dichloroethene	156592	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
cis-1,3-Dichloropropene	10061015	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Cyclohexane	110827	ug/m3	< 10	0.63	< 10	1.7	0.61	< 10
Cyclopentane	287923	ug/m3	0	16	< 10	5.9	< 0.506	< 10
Decane	124185	ug/m3	< 10	1.3	< 10	6.9	3.1	< 10
Dibromochloromethane	124481	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Dibromomethane	74953	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Ethylbenzene	100414	ug/m3	< 10	0.53	< 10	1.7	0.91	< 10
Hexachlorobutadiene	87683	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Hexane	110543	ug/m3	< 10	1.9	< 10	6.9	3.1	< 10
Isooctane	540841	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Isopropylbenzene	98828	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
m/p-Xylene	108383;10	ug/m3	< 10	1.4	< 10	4.7	2.5	< 10
Methyl Chloroform	71556	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Methylcyclopentane	96377	ug/m3	< 10	< 0.482	< 10	1.5	0.56	< 10
Methylene Chloride	75092	ug/m3	0	FB > 25% of Sample	< 10	14	FB > 25% of Sample	0
n-Butylbenzene	104518	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
n-Propylbenzene	103651	ug/m3	< 10	< 0.482	< 10	0.59	< 0.506	< 10
o-Xylene	95476	ug/m3	< 10	0.63	< 10	2	1.1	< 10
sec-Butylbenzene	135988	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10

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(U) (FOUO) Table C-18 Site 1 TO-17 VOC Sampling Data, continued

Field ID			UZE_K21_TO17_04248_FB	UZE_K21_TO17_04248_P	UZE_K21_TO17_04247_FB	UZE_K21_TO17_04249_C	UZE_K21_TO17_04249_C	UZE_K21_TO17_04249_FB
Tube ID			C4264	C3682	C3983	C4342	C4313	C4323
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/5/2004	9/5/2004	9/5/2004	9/6/2004	9/6/2004	9/6/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Styrene	100425	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
tert-Butylbenzene	98066	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Tetrachloroethylene	127184	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Toluene	108883	ug/m3	< 10	2.5	< 10	6.4	3.5	< 10
trans-1,2-Dichloroethene	156605	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
trans-1,3-Dichloropropene	10061026	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10
Trichloroethene	79016	ug/m3	< 10	< 0.482	< 10	< 0.533	< 0.506	< 10

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(U) (FOUO) Table C-19 Site 1TO-17 VOC Sampling Data, continued

Field ID			UZE_K21_TO17_04249_P	UZE_K21_TO17_04249_P	UZE_K21_TO17_04250_FB	UZE_K21_TO17_04250_C	UZE_K21_TO17_04250_C	UZE_K21_TO17_04250_FB
Tube ID			C4241	C4341	C4143	C4414	C4474	C4316
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/6/2004	9/6/2004	9/7/2004	9/7/2004	9/7/2004	9/7/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
1,1,1,2-Tetrachloroethane	630206	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,1,2,2-Tetrachloroethane	79345	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,1,2-Trichloroethane	79005	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,1-Dichloroethane	75343	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,1-Dichloroethene	75354	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,1-Dichloropropene	563586	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,2,3-Trichlorobenzene	87616	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,2,3-Trichloropropane	96184	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,2,4-Trichlorobenzene	120821	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,2,4-Trimethylbenzene	95636	ug/m3	1.3	#N/A	< 10	0	< 0.531	< 10
1,2-Dibromo-3-chloropropane	96128	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,2-Dibromoethane	106934	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,2-Dichlorobenzene	95501	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,2-Dichloroethane	107062	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,2-Dichloropropane	78875	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,3,5-Trimethyl Benzene	108678	ug/m3	< 0.508	#N/A	< 10	0	< 0.531	< 10
1,3-Dichlorobenzene	541731	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,3-Dichloropropane	142289	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
1,4-Dichlorobenzene	106467	ug/m3	2.9	#N/A	< 10	#N/A	1.1	< 10
2,2-Dichloropropane	594207	ug/m3	NIS	NIS	NIS	NIS	NIS	NIS
2-Chlorotoluene	95498	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
4-Chlorotoluene	106434	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
4-Isopropyltoluene	99876	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Benzene	71432	ug/m3	1.7	#N/A	< 10	#N/A	0.69	< 10
Bromobenzene	108861	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10

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(U) (FOUO) Table C-19 Site 1TO-17 VOC Sampling Data, continued								
Field ID			UZE_K21_TO17_04249_P	UZE_K21_TO17_04249_P	UZE_K21_TO17_04250_FB	UZE_K21_TO17_04250_C	UZE_K21_TO17_04250_C	UZE_K21_TO17_04250_FB
Tube ID			C4241	C4341	C4143	C4414	C4474	C4316
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/6/2004	9/6/2004	9/7/2004	9/7/2004	9/7/2004	9/7/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Bromochloromethane	74975	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Bromodichloromethane	75274	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Bromoform	75252	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Carbon Tetrachloride	56235	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Chlorobenzene	108907	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Chloroform	67663	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
cis-1,2-Dichloroethene	156592	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
cis-1,3-Dichloropropene	10061015	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Cyclohexane	110827	ug/m3	< 0.508	#N/A	< 10	0	< 0.531	< 10
Cyclopentane	287923	ug/m3	< 0.508	0	< 10	0	0.69	< 10
Decane	124185	ug/m3	3.3	#N/A	< 10	0	< 0.531	< 10
Dibromochloromethane	124481	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Dibromomethane	74953	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Ethylbenzene	100414	ug/m3	0.86	#N/A	< 10	0	< 0.531	< 10
Hexachlorobutadiene	87683	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Hexane	110543	ug/m3	2.9	#N/A	< 10	#N/A	1.1	< 10
Isooctane	540841	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Isopropylbenzene	98828	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
m/p-Xylene	108383;10	ug/m3	2.5	#N/A	< 10	#N/A	< 0.531	< 10
Methyl Chloroform	71556	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Methylcyclopentane	96377	ug/m3	0.51	#N/A	< 10	0	< 0.531	< 10
Methylene Chloride	75092	ug/m3	FB > 25% of Sample	#N/A	< 10	FB > 25% of Sample	FB > 25% of Sample	0
n-Butylbenzene	104518	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
n-Propylbenzene	103651	ug/m3	< 0.508	#N/A	< 10	0	< 0.531	< 10
o-Xylene	95476	ug/m3	1.1	#N/A	< 10	0	< 0.531	< 10
sec-Butylbenzene	135988	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10

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(U) (FOUO) Table C-19 Site 1TO-17 VOC Sampling Data, continued

Field ID			UZE_K21_TO17_04249_P	UZE_K21_TO17_04249_P	UZE_K21_TO17_04250_FB	UZE_K21_TO17_04250_C	UZE_K21_TO17_04250_C	UZE_K21_TO17_04250_FB
Tube ID			C4241	C4341	C4143	C4414	C4474	C4316
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/6/2004	9/6/2004	9/7/2004	9/7/2004	9/7/2004	9/7/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Styrene	100425	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
tert-Butylbenzene	98066	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Tetrachloroethylene	127184	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Toluene	108883	ug/m3	3.6	#N/A	< 10	#N/A	1.2	< 10
trans-1,2-Dichloroethene	156605	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
trans-1,3-Dichloropropene	10061026	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10
Trichloroethene	79016	ug/m3	< 0.508	0	< 10	0	< 0.531	< 10

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(U) (FOUO) Table C-20 Site 1TO-17 VOC Sampling Data, continued

Field ID			UZE_K21_TO17_04250_P	UZE_K21_TO17_04250_P	UZE_K21_TO17_04250_FB
Tube ID			C4462	C4408	C4465
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/7/2004	9/7/2004	9/7/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration
1,1,1,2-Tetrachloroethane	630206	ug/m3	< 0.528	< 0.508	< 10
1,1,2,2-Tetrachloroethane	79345	ug/m3	< 0.528	< 0.508	< 10
1,1,2-Trichloroethane	79005	ug/m3	< 0.528	< 0.508	< 10
1,1-Dichloroethane	75343	ug/m3	< 0.528	< 0.508	< 10
1,1-Dichloroethene	75354	ug/m3	< 0.528	< 0.508	< 10
1,1-Dichloropropene	563586	ug/m3	< 0.528	< 0.508	< 10
1,2,3-Trichlorobenzene	87616	ug/m3	< 0.528	< 0.508	< 10
1,2,3-Trichloropropane	96184	ug/m3	< 0.528	< 0.508	< 10
1,2,4-Trichlorobenzene	120821	ug/m3	< 0.528	< 0.508	< 10
1,2,4-Trimethylbenzene	95636	ug/m3	< 0.528	< 0.508	< 10
1,2-Dibromo-3-chloropropane	96128	ug/m3	< 0.528	< 0.508	< 10
1,2-Dibromoethane	106934	ug/m3	< 0.528	< 0.508	< 10
1,2-Dichlorobenzene	95501	ug/m3	< 0.528	< 0.508	< 10
1,2-Dichloroethane	107062	ug/m3	< 0.528	< 0.508	< 10
1,2-Dichloropropane	78875	ug/m3	< 0.528	< 0.508	< 10
1,3,5-Trimethyl Benzene	108678	ug/m3	< 0.528	< 0.508	< 10
1,3-Dichlorobenzene	541731	ug/m3	< 0.528	< 0.508	< 10
1,3-Dichloropropane	142289	ug/m3	< 0.528	< 0.508	< 10
1,4-Dichlorobenzene	106467	ug/m3	1.6	0.96	< 10
2,2-Dichloropropane	594207	ug/m3	NIS	NIS	NIS
2-Chlorotoluene	95498	ug/m3	< 0.528	< 0.508	< 10
4-Chlorotoluene	106434	ug/m3	< 0.528	< 0.508	< 10
4-Isopropyltoluene	99876	ug/m3	< 0.528	< 0.508	< 10
Benzene	71432	ug/m3	0.69	0.81	< 10
Bromobenzene	108861	ug/m3	< 0.528	< 0.508	< 10
Bromochloromethane	74975	ug/m3	< 0.528	< 0.508	< 10

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(U) (FOUO) Table C-20 Site 1 TO-17 VOC Sampling Data, continued					
Field ID			UZE_K21_TO17_04250_P	UZE_K21_TO17_04250_P	UZE_K21_TO17_04250_FB
Tube ID			C4462	C4408	C4465
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/7/2004	9/7/2004	9/7/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration
Bromodichloromethane	75274	ug/m3	< 0.528	< 0.508	< 10
Bromoform	75252	ug/m3	< 0.528	< 0.508	< 10
Carbon Tetrachloride	56235	ug/m3	< 0.528	< 0.508	< 10
Chlorobenzene	108907	ug/m3	< 0.528	< 0.508	< 10
Chloroform	67663	ug/m3	< 0.528	< 0.508	< 10
cis-1,2-Dichloroethene	156592	ug/m3	< 0.528	< 0.508	< 10
cis-1,3-Dichloropropene	10061015	ug/m3	< 0.528	< 0.508	< 10
Cyclohexane	110827	ug/m3	< 0.528	< 0.508	< 10
Cyclopentane	287923	ug/m3	< 0.528	2	< 10
Decane	124185	ug/m3	< 0.528	< 0.508	< 10
Dibromochloromethane	124481	ug/m3	< 0.528	< 0.508	< 10
Dibromomethane	74953	ug/m3	< 0.528	< 0.508	< 10
Ethylbenzene	100414	ug/m3	< 0.528	< 0.508	< 10
Hexachlorobutadiene	87683	ug/m3	< 0.528	< 0.508	< 10
Hexane	110543	ug/m3	1.1	1.9	< 10
Isooctane	540841	ug/m3	< 0.528	< 0.508	< 10
Isopropylbenzene	98828	ug/m3	< 0.528	< 0.508	< 10
m/p-Xylene	108383;10	ug/m3	0.58	0.66	< 10
Methyl Chloroform	71556	ug/m3	< 0.528	< 0.508	< 10
Methylcyclopentane	96377	ug/m3	< 0.528	< 0.508	< 10
Methylene Chloride	75092	ug/m3	FB > 25% of Sample	FB > 25% of Sample	0
n-Butylbenzene	104518	ug/m3	< 0.528	< 0.508	< 10
n-Propylbenzene	103651	ug/m3	< 0.528	< 0.508	< 10
o-Xylene	95476	ug/m3	< 0.528	< 0.508	< 10
sec-Butylbenzene	135988	ug/m3	< 0.528	< 0.508	< 10
Styrene	100425	ug/m3	< 0.528	< 0.508	< 10
tert-Butylbenzene	98066	ug/m3	< 0.528	< 0.508	< 10

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(U) (FOUO) Table C-20 Site 1 TO-17 VOC Sampling Data, continued

Field ID			UZE_K21_TO17_04250_P	UZE_K21_TO17_04250_P	UZE_K21_TO17_04250_FB
Tube ID			C4462	C4408	C4465
Location			K2 (Site1)	K2 (Site1)	K2 (Site1)
Collection Date			9/7/2004	9/7/2004	9/7/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration
Tetrachloroethylene	127184	ug/m3	< 0.528	< 0.508	< 10
Toluene	108883	ug/m3	1.3	2	< 10
trans-1,2-Dichloroethene	156605	ug/m3	< 0.528	< 0.508	< 10
trans-1,3-Dichloropropene	10061026	ug/m3	< 0.528	< 0.508	< 10
Trichloroethene	79016	ug/m3	< 0.528	< 0.508	< 10

(U) (FOUO) Table C-21 TO-17 VOC Site 1 Sampler Data

Field Identification Number	Sample Location	Collection Date	Tube Identification Number	Sample Duration	Invalid Sample? (Yes/No/Blank)
UZE_K21_TO17_04246_C	K2 (Site1)	9/3/2004	C3789	479	
UZE_K21_TO17_04246_P	K2 (Site1)	9/3/2004	C4142	469	
UZE_K21_TO17_04246_FB	K2 (Site1)	9/4/2004	C3841	1	Blank
UZE_K21_TO17_04247_FB	K2 (Site1)	9/4/2004	C4164	2	Blank
UZE_K21_TO17_042467_C	K2 (Site1)	9/4/2004	C3398	477	
UZE_K21_TO17_042467_C	K2 (Site1)	9/4/2004	C3672	472	
UZE_K21_TO17_042467_P	K2 (Site1)	9/4/2004	C3363	477	
UZE_K21_TO17_042467_P	K2 (Site1)	9/4/2004	C4147	474	
UZE_K21_TO17_04248_FB	K2 (Site1)	9/5/2004	C3284	1	Blank
UZE_K21_TO17_04247_FB	K2 (Site1)	9/5/2004	C3983	1	Blank
UZE_K21_TO17_04248_FB	K2 (Site1)	9/5/2004	C4264	1	Blank
UZE_K21_TO17_04248_C	K2 (Site1)	9/5/2004	C3494	490	
UZE_K21_TO17_04248_C	K2 (Site1)	9/5/2004	C3787	527	
UZE_K21_TO17_04248_P	K2 (Site1)	9/5/2004	C3454	485	
UZE_K21_TO17_04248_P	K2 (Site1)	9/5/2004	C3682	525	
UZE_K21_TO17_04249_FB	K2 (Site1)	9/6/2004	C4323	1	Blank

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(U) (FOUO) Table C-21 TO-17 VOC Site 1 Sampler Data

Field Identification Number	Sample Location	Collection Date	Tube Identification Number	Sample Duration	Invalid Sample? (Yes/No/Blank)
UZE_K21_TO17_04249_C	K2 (Site1)	9/6/2004	C4342	478	
UZE_K21_TO17_04249_C	K2 (Site1)	9/6/2004	C4313	499	
UZE_K21_TO17_04249_P	K2 (Site1)	9/6/2004	C4341		Blank
UZE_K21_TO17_04249_P	K2 (Site1)	9/6/2004	C4241	497	
UZE_K21_TO17_04250_FB	K2 (Site1)	9/7/2004	C4465	1	Blank
UZE_K21_TO17_04250_FB	K2 (Site1)	9/7/2004	C4316	1	Blank
UZE_K21_TO17_04250_FB	K2 (Site1)	9/7/2004	C4143	1	Blank
UZE_K21_TO17_04250_C	K2 (Site1)	9/7/2004	C4474	478	
UZE_K21_TO17_04250_C	K2 (Site1)	9/7/2004	C4414	0	Blank
UZE_K21_TO17_04250_P	K2 (Site1)	9/7/2004	C4462	477	
UZE_K21_TO17_04250_P	K2 (Site1)	9/7/2004	C4408	479	

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(U) (FQUC) Table C-22 Site 2 TO-17 VOC Sampling Data								
Field ID			UZE_K22_TO17_04246_P	UZE_K22_TO17_04246_C	UZE_K22_TO17_04247_FB	UZE_K22_TO17_04247_P	UZE_K22_TO17_04246_FB	UZE_K22_TO17_04247_P
Tube ID			C3972	C3798	C4413	C3978	C3339	C4294
Location			K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)
Collection Date			9/3/2004	9/3/2004	9/4/2004	9/4/2004	9/4/2004	9/4/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
1,1,1,2-Tetrachloroethane	630206	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,1,2,2-Tetrachloroethane	79345	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,1,2-Trichloroethane	79005	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,1-Dichloroethane	75343	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,1-Dichloroethene	75354	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,1-Dichloropropene	563586	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,2,3-Trichlorobenzene	87616	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,2,3-Trichloropropane	96184	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,2,4-Trichlorobenzene	120821	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,2,4-Trimethylbenzene	95636	ug/m3	< 0.534	1.3	< 10	0.53	< 10	< 0.491
1,2-Dibromo-3-chloropropane	96128	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,2-Dibromoethane	106934	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,2-Dichlorobenzene	95501	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,2-Dichloroethane	107062	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,2-Dichloropropane	78875	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,3,5-Trimethyl Benzene	108678	ug/m3	< 0.534	0.64	< 10	< 0.525	< 10	< 0.491
1,3-Dichlorobenzene	541731	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,3-Dichloropropane	142289	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
1,4-Dichlorobenzene	106467	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
2,2-Dichloropropane	594207	ug/m3	NIS	NIS	NIS	NIS	NIS	NIS
2-Chlorotoluene	95498	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
4-Chlorotoluene	106434	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
4-Isopropyltoluene	99876	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
Benzene	71432	ug/m3	0.91	15	< 10	1.5	< 10	1.1
Bromobenzene	108861	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491

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(U) (FOUO) Table C-22 Site 2 TO-17 VOC Sampling Data								
Field ID			UZE_K22_TO17_04246_P	UZE_K22_TO17_04246_C	UZE_K22_TO17_04247_FB	UZE_K22_TO17_04247_P	UZE_K22_TO17_04246_FB	UZE_K22_TO17_04247_P
Tube ID			C3972	C3798	C4413	C3978	C3339	C4294
Location			K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)
Collection Date			9/3/2004	9/3/2004	9/4/2004	9/4/2004	9/4/2004	9/4/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Bromochloromethane	74975	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
Bromodichloromethane	75274	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
Bromoform	75252	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
Carbon Tetrachloride	56235	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	0.49
Chlorobenzene	108907	ug/m3	< 0.534	1.4	< 10	< 0.525	< 10	< 0.491
Chloroform	67663	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
cis-1,2-Dichloroethene	156592	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
cis-1,3-Dichloropropene	10061015	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
Cyclohexane	110827	ug/m3	1	1.6	< 10	< 0.525	< 10	1.2
Cyclopentane	287923	ug/m3	FB > 25% of Sample	< 0.531	< 10	< 0.525	0	< 0.491
Decane	124185	ug/m3	< 0.534	0.85	< 10	0.95	< 10	< 0.491
Dibromochloromethane	124481	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
Dibromomethane	74953	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
Ethylbenzene	100414	ug/m3	< 0.534	3.4	< 10	< 0.525	< 10	< 0.491
Hexachlorobutadiene	87683	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
Hexane	110543	ug/m3	3.9	6.9	< 10	2.3	< 10	2.9
Isooctane	540841	ug/m3	< 0.534	2	< 10	< 0.525	< 10	< 0.491
Isopropylbenzene	98828	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
m/p-Xylene	108383;10	ug/m3	0.91	9	< 10	1.4	< 10	< 0.491
Methyl Chloroform	71556	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
Methylcyclopentane	96377	ug/m3	1.1	1.3	< 10	< 0.525	< 10	1
Methylene Chloride	75092	ug/m3	FB > 25% of Sample	FB > 25% of Sample	0	< 0.525	0	< 0.491
n-Butylbenzene	104518	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
n-Propylbenzene	103651	ug/m3	< 0.534	0.69	< 10	< 0.525	< 10	< 0.491
o-Xylene	95476	ug/m3	< 0.534	5.8	< 10	< 0.525	< 10	< 0.491

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(U) (FOUO) Table C-22 Site 2 TO-17 VOC Sampling Data								
Field ID			UZE_K22_TO17_04246_P	UZE_K22_TO17_04246_C	UZE_K22_TO17_04247_FB	UZE_K22_TO17_04247_P	UZE_K22_TO17_04246_FB	UZE_K22_TO17_04247_P
Tube ID			C3972	C3798	C4413	C3978	C3339	C4294
Location			K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)
Collection Date			9/3/2004	9/3/2004	9/4/2004	9/4/2004	9/4/2004	9/4/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
sec-Butylbenzene	135988	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
Styrene	100425	ug/m3	< 0.534	1.5	< 10	< 0.525	< 10	< 0.491
tert-Butylbenzene	98066	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
Tetrachloroethylene	127184	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
Toluene	108883	ug/m3	2.1	12	< 10	2.5	< 10	1.7
trans-1,2-Dichloroethene	156605	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
trans-1,3-Dichloropropene	10061026	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491
Trichloroethene	79016	ug/m3	< 0.534	< 0.531	< 10	< 0.525	< 10	< 0.491

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(U) (FOUO) Table C-23 Site 2 TO-17 VOC Sampling Data, continued

Field ID			UZE_K22_TO17_04247_C	UZE_K22_TO17_04247_C	UZE_K22_TO17_04248_C	UZE_K22_TO17_04247_FB	UZE_K22_TO17_04248_FB	UZE_K22_TO17_04248_P
Tube ID			C3779	C3162	C4165	C4198	C4317	C4101
Location			K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)
Collection Date			9/4/2004	9/4/2004	9/5/2004	9/5/2004	9/5/2004	9/5/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
1,1,1,2-Tetrachloroethane	630206	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,1,2,2-Tetrachloroethane	79345	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,1,2-Trichloroethane	79005	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,1-Dichloroethane	75343	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,1-Dichloroethene	75354	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,1-Dichloropropene	563586	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,2,3-Trichlorobenzene	87616	ug/m3	< 0.505	< 0.529	< 0.525	< 10	0	FB > 25% of Sample
1,2,3-Trichloropropane	96184	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,2,4-Trichlorobenzene	120821	ug/m3	< 0.505	< 0.529	< 0.525	< 10	0	< 0.521
1,2,4-Trimethylbenzene	95636	ug/m3	< 0.505	< 0.529	0.52	< 10	< 10	0.57
1,2-Dibromo-3-chloropropane	96128	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,2-Dibromoethane	106934	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,2-Dichlorobenzene	95501	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,2-Dichloroethane	107062	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,2-Dichloropropane	78875	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,3,5-Trimethyl Benzene	108678	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,3-Dichlorobenzene	541731	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,3-Dichloropropane	142289	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
1,4-Dichlorobenzene	106467	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
2,2-Dichloropropane	594207	ug/m3	NIS	NIS	NIS	NIS	NIS	NIS
2-Chlorotoluene	95498	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
4-Chlorotoluene	106434	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
4-Isopropyltoluene	99876	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Benzene	71432	ug/m3	1	1.6	1.2	< 10	< 10	1.4
Bromobenzene	108861	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521

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(U) (FOUO) Table C-23 Site 2 TO-17 VOC Sampling Data, continued

Field ID			UZE_K22_TO17_04247_C	UZE_K22_TO17_04247_C	UZE_K22_TO17_04248_C	UZE_K22_TO17_04247_FB	UZE_K22_TO17_04248_FB	UZE_K22_TO17_04248_P
Tube ID			C3779	C3162	C4165	C4198	C4317	C4101
Location			K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)
Collection Date			9/4/2004	9/4/2004	9/5/2004	9/5/2004	9/5/2004	9/5/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
Bromochloromethane	74975	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Bromodichloromethane	75274	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Bromoform	75252	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Carbon Tetrachloride	56235	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Chlorobenzene	108907	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	1.4
Chloroform	67663	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
cis-1,2-Dichloroethene	156592	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
cis-1,3-Dichloropropene	10061015	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Cyclohexane	110827	ug/m3	1.1	0.64	< 0.525	< 10	< 10	< 0.521
Cyclopentane	287923	ug/m3	< 0.505	< 0.529	FB > 25% of Sample	< 10	0	21
Decane	124185	ug/m3	< 0.505	0.9	1.4	< 10	< 10	1.8
Dibromochloromethane	124481	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Dibromomethane	74953	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Ethylbenzene	100414	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Hexachlorobutadiene	87683	ug/m3	< 0.505	< 0.529	< 0.525	< 10	0	< 0.521
Hexane	110543	ug/m3	2.9	2.9	1.3	< 10	< 10	1.4
Isooctane	540841	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Isopropylbenzene	98828	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
m/p-Xylene	108383;10	ug/m3	< 0.505	1.4	1	< 10	< 10	1.1
Methyl Chloroform	71556	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Methylcyclopentane	96377	ug/m3	0.86	0.53	< 0.525	< 10	< 10	< 0.521
Methylene Chloride	75092	ug/m3	< 0.505	0.69	FB > 25% of Sample	< 10	0	97
n-Butylbenzene	104518	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
n-Propylbenzene	103651	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
o-Xylene	95476	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521

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(U) (FOUO) Table C-23 Site 2 TO-17 VOC Sampling Data, continued								
Field ID			UZE_K22_TO17_04247_C	UZE_K22_TO17_04247_C	UZE_K22_TO17_04248_C	UZE_K22_TO17_04247_FB	UZE_K22_TO17_04248_FB	UZE_K22_TO17_04248_P
Tube ID			C3779	C3162	C4165	C4198	C4317	C4101
Location			K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)
Collection Date			9/4/2004	9/4/2004	9/5/2004	9/5/2004	9/5/2004	9/5/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
sec-Butylbenzene	135988	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Styrene	100425	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
tert-Butylbenzene	98066	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Tetrachloroethylene	127184	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Toluene	108883	ug/m3	1.9	2.6	1.7	< 10	< 10	1.8
trans-1,2-Dichloroethene	156605	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
trans-1,3-Dichloropropene	10061026	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521
Trichloroethene	79016	ug/m3	< 0.505	< 0.529	< 0.525	< 10	< 10	< 0.521

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(U) (FOUO) Table C-24 Site 2 TO-17 VOC Sampling Data, continued								
Field ID			UZE_K22_TO17_04248_P	UZE_K22_TO17_04248_C	UZE_K22_TO17_04248_FB	UZE_K22_TO17_04249_P	UZE_K22_TO17_04249_C	UZE_K22_TO17_04249_FB
Tube ID			C3101	C3671	C3172	C4329	C4239	C4472
Location			K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)	K2 (Site2)
Collection Date			9/5/2004	9/5/2004	9/5/2004	9/6/2004	9/6/2004	9/6/2004
Parameter	CAS	Units	Concentration	Concentration	Concentration	Concentration	Concentration	Concentration
1,1,1,2-Tetrachloroethane	630206	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,1,2,2-Tetrachloroethane	79345	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,1,2-Trichloroethane	79005	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,1-Dichloroethane	75343	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,1-Dichloroethene	75354	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,1-Dichloropropene	563586	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,2,3-Trichlorobenzene	87616	ug/m3	< 0.497	0.96	< 10	< 0.514	< 0.517	< 10
1,2,3-Trichloropropane	96184	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,2,4-Trichlorobenzene	120821	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,2,4-Trimethylbenzene	95636	ug/m3	< 0.497	< 0.478	< 10	0.62	< 0.517	< 10
1,2-Dibromo-3-chloropropane	96128	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,2-Dibromoethane	106934	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,2-Dichlorobenzene	95501	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,2-Dichloroethane	107062	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,2-Dichloropropane	78875	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,3,5-Trimethyl Benzene	108678	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,3-Dichlorobenzene	541731	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,3-Dichloropropane	142289	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
1,4-Dichlorobenzene	106467	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
2,2-Dichloropropane	594207	ug/m3	NIS	NIS	NIS	NIS	NIS	NIS
2-Chlorotoluene	95498	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
4-Chlorotoluene	106434	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
4-Isopropyltoluene	99876	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10
Benzene	71432	ug/m3	0.55	0.57	< 10	1.2	1	< 10
Bromobenzene	108861	ug/m3	< 0.497	< 0.478	< 10	< 0.514	< 0.517	< 10